2020 URBAN WATER MANAGEMENT PLAN
FOR
HUMBOLDT COMMUNITY SERVICES DISTRICT
EUREKA, CALIFORNIA

Prepared for:

Humboldt Community Services District
Eureka, California 95503

June 2021

Prepared by:
Orrin Plocher and Stan Thiesen
of

Freshwater Environmental Services

78 Sunny Brae Center
Arcata, California 95521
Phone (707) 839-0091

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION AND OVERVIEW

This Urban Water Management Plan (UWMP) has been prepared for the Humboldt Community Services District (HCSD) in compliance with requirements of the California Department of Water Resources (DWR) pursuant to the Urban Water Management Planning Act (UWMP Act) and the Water Conservation Bill of 2009. HCSD recognizes that water planning is an essential function of water suppliers that becomes critical as California grapples with ongoing drought and expected long-term climate changes.

This update was prepared and adopted during the spring of 2021. The data used for preparing this report comes primarily from HCSD and Humboldt Bay Municipal Water District's (HBMWD's) operational records. Figures relating to watershed runoff were obtained from the United States Geological Survey. Current and projected population figures for the HCSD service area were originally based on 2010 data acquired from the 2010 U.S. Census Bureau.

HCSD is located in a high rainfall, moderate temperature climate with abundant water supplies.

1.1 Urban Water Management Planning Act of 1983

The UWMP Act requires water agencies to develop Urban Water Management Plans (UWMPs). The UWMPs provide a framework for long term water planning and inform the public of a supplier's plans for long-term resource planning that ensures adequate water supplies for existing and future demands. The California Water Code (CWC) requires urban water suppliers to report, describe, and evaluate;

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

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

The Water Conservation Act of 2009 requires retail urban water suppliers to report the following in their UWMPs:

- Base Daily per Capita Water Use (Baseline GPCD);
- 2015 Interim Urban Water Use Target;
- 2020 Urban Water Use Target; and
- Compliance Daily per Capita Water Use.

1.3 Lay Description

HCSD could rely on their primary water supplier the Humboldt Bay Municipal Water District (HBMWD) to meet 100% of their projected demand. According to Section 7.0 of the HBMWD 2020 UWMP:

> *The District has an abundant supply of water at Ruth Reservoir which flows down the Mad River and is pumped at the Essex Operations Center (Figure 2). This source of water has been very consistent and there is no need to replace or supplement this source.*

In addition to water supplied by HBMWD, HCSD also operates their own groundwater wells that actually provide 24% of HCSDs demand (5-year average), increasing supply capacity and reliability to their water system.

Based on assessments contained in this plan, the HCSD water supplies (HBMWD and HCSD groundwater wells) are not currently experiencing the impact of drought and have been reliable even during periods of record low precipitation and prolonged droughts.

It is concluded that the HCSD water supplies (HBMWD and HCSD groundwater wells) will be reliable even during periods of record low precipitation (single driest year and driest 5 years) into the future for the planning period (25 years).

2.0 PLAN PREPARATION

This Section provides information on the HCSD process for developing the UWMP, including efforts in coordination and outreach.

2.1 Basis for Preparing a Plan

> ***Requirement:*** *"Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems (CWC 10617).*

HCSD has greater than 3,000 water connections (customers), is an urban water supplier, and is required to prepare and submit a UWMP under CWC 10617. HCSD is a Public Water System (PWS) and does not provide water services to any other PWS. HCSD is one of several PWS that is provided water from a regional wholesale water provider Humboldt Bay Municipal Water District (HBMWD) (Table 2-1).

2.2 Regional Planning

The Urban water suppliers that are supplied water from HBMWD meet on an ongoing basis to discuss common issues and preparation of individual UWMPs. HCSD is preparing an individual UWMP (Table 2-2).

2.3 Fiscal or Calendar Year and Units of Measure

HCSD is reporting water data on a calendar year basis. Water volume data will be reported in million gallons for the entire 2020 UWMP (Table 2-3).

2.4 Coordination and Outreach

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

HCSD provided their wholesaler (HBMWD) with their projected water demand from each source, in five-year increments for 25 years and HBMWD provided HCSD quantification of water supplies available in 5-year increments for 20 years (Table 2-4).

> ***Requirement:*** *Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable. (CWC 10620 (d)(2)).*

The urban water suppliers that are supplied water from HBMWD meet on an ongoing basis discuss common issues and preparation of individual UWMPs. HCSD is preparing an individual UWMP.

2.5 Notice to Cities and Counties

> ***Requirement****: Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, 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. (CWC 10621 (b)).*

HCSD provided notices of preparation of the 2020 UWMP to Humboldt County, City of Eureka (COE), and Humboldt Bay Municipal Water District. Copies of the notification letters are included in Appendix A.

3.0 SYSTEM DESCRIPTION

This Section includes a description of the HCSD service area, climate, Public Water System, and HCSD organizational structure and history.

3.1 General Description

***Requirement**: Describe the service area of the supplier. (CWC 10631 (b)).*

The HCSD, situated in Humboldt County and approximately 280 miles North of San Francisco, surrounds the southerly and easterly boundaries of the City of Eureka (Figure 1). The easterly region of the HCSD encompasses the unincorporated areas of Myrtletown, Mitchell Heights, Pigeon Point, and Freshwater (Figure 2). The unincorporated areas of Pine Hill, Humboldt Hill, King Salmon, Fields Landing and College of the Redwoods constitute the southern regions of the HCSD service area. The central region, where the HCSD office is located includes Cutten, Ridgewood and Westgate areas of the District. The total area served by the HCSD is approximately 15.4 square miles.

The HCSD, a public agency, was created by election on September 23, 1952. The HCSD began operations on October 18, 1952 under the provisions of the Community Services Law of the State of California, as amended, with authority under Government Code, Section 6100 et seq. Services provided by the HCSD are sewer, water and street lighting services.

The HCSD is primarily urban residential in nature, which makes up approximately 90% of total HCSD accounts. Water supplied to HCSD's customers consists of water supplied by HBMWD, COE, and groundwater extracted from three wells owned by the HCSD. These wells, which are up to 440 feet deep, are all located near the base of Humboldt Hill. These wells receive chlorination before distribution to reservoir storage and distribution system.

Drinking water is pumped to 10 reservoirs by ten water booster pump stations. The 10 reservoirs have a total storage capacity of approximately 5 million gallons.

The District maintains thirteen (13) water booster or pump stations. These include South Bay Well, Spruce Point Well, Blue Spruce Booster, Donna Drive Booster, Truesdale Pump Station, Ridgewood Pump Station, Hubbard Pump Station, Cummings Road Booster, Mitchel Road Booster, Lentell Booster, Kluck Booster and Pigeon Point Booster. Some of these stations pump water out of the ground and up to a tank (South Bay Well and Spruce Point Well). Other stations move water from a low elevation up to a tank at a higher elevation and operate under level control (Blue Spruce Booster, Truesdale Pump Station, Ridgewood Pump Station, Cummings Road Booster, Mitchel Road Booster, Pigeon Point Booster, and Hubbard Pump Station). The remaining stations pressurize water using hydropneumatics to deliver water with sufficient pressure to connections whose elevation cannot be reached by the nearest pressure zone (Donna Drive Booster, Lentell Booster, and Kluck Booster). A map of the HCSD water distribution system is include as Figure 5.

The HCSD supplies water to 7,670 active connections (2020). Approximately 7,381 residential connections, 266 connections are commercial, and 23 landscape irrigation connections. There are no industrial or agricultural connections.

In 2020, a total of 481.28 million gallons of water was distributed to its customer base.

3.2 Service Area Boundary

The HCSD service area boundary is shown on Figures 1 and 2.

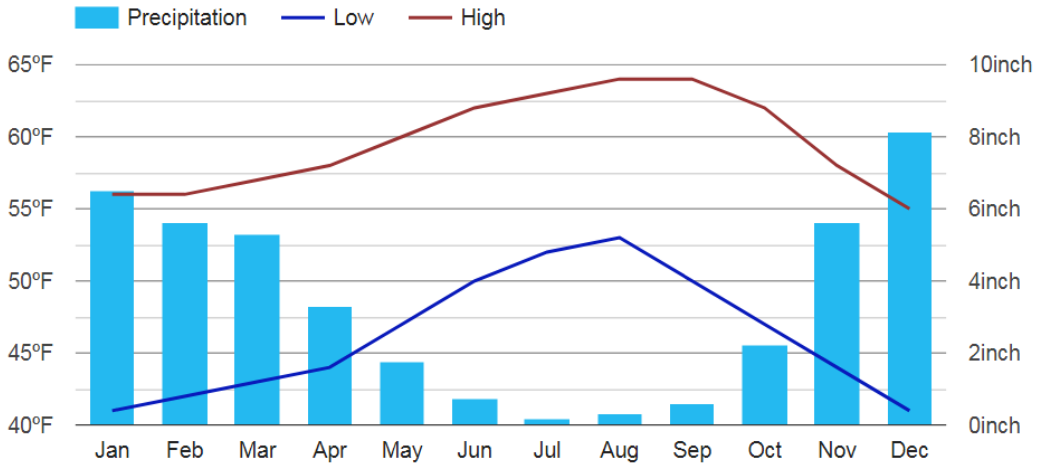
3.3 Service Area Climate and Climate Change

> ***Requirement**: Describe the service area of the supplier, including… climate…. (CWC 10631 (b)).*

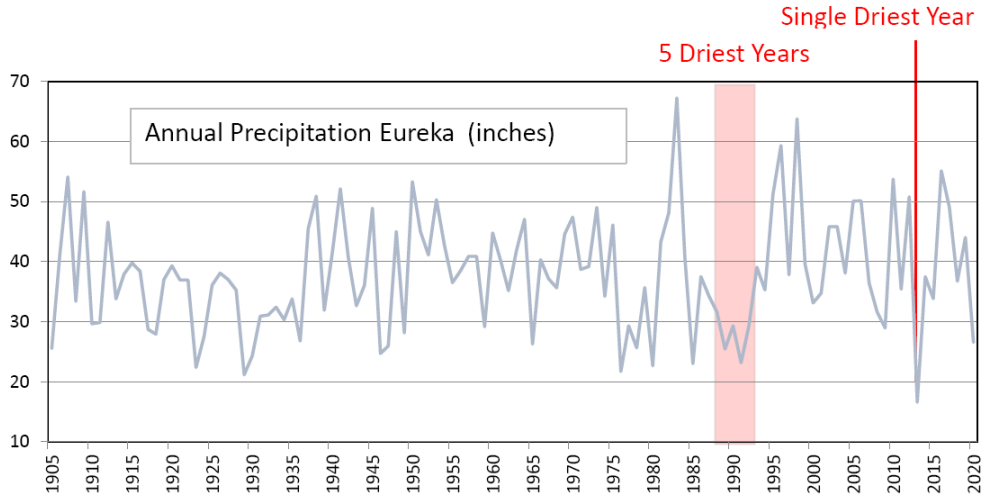
The HCSD weather is typical of coastal Northern California, characterized by moderate temperatures, frequent fog and moderate to heavy participation. Humboldt County's watersheds receive high annual rainfall. Data from:

(https://www.usclimatedata.com/climate/eureka/california/united-states/usca0360)

Eureka Climate Graph - California Climate Chart



Historic annual precipitation in Eureka is plotted below:



Ruth Lake, in Trinity County, where HBMWD operates the R.W. Matthews Dam and the Ruth Reservoir (Ruth Lake), average rainfall 61 inches per year (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca3130). Some mountainous areas within the region often receive more than 100 inches of rain per year.

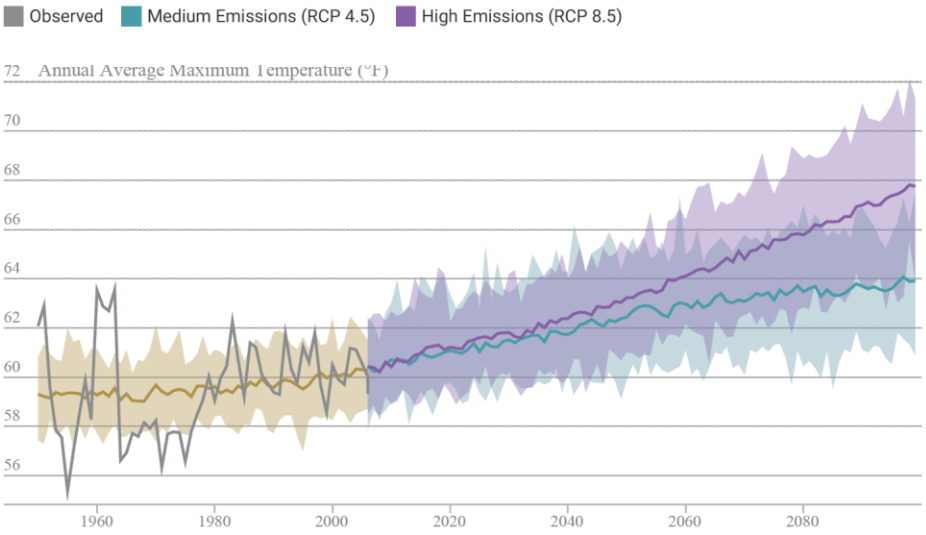
Climate Change

The following graphs and tables illustrate the projected impacts of climate change on Eureka, the HCSD service area and where HCSD groundwater wells are located, and in the Upper Mad River Watershed which is the area of the HBMWD reservoir (Ruth Lake). The source of the projections is CalAdapt.

Eureka, California

Annual Average Maximum Temperature

Average of all the hottest daily temperatures in a year.



Observed (1961-1990) 30yr Average: 59.2 °F

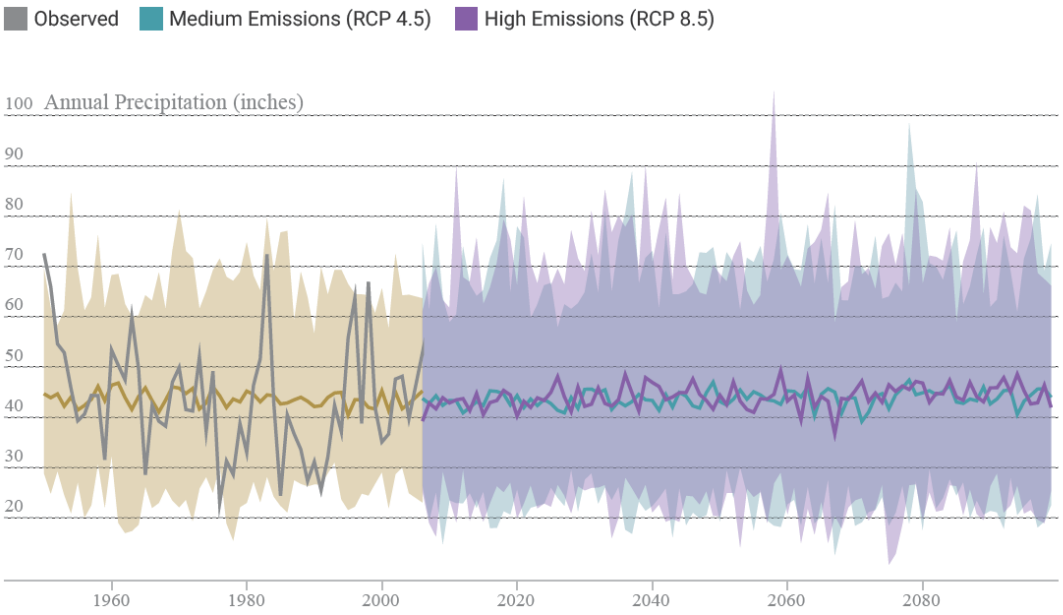
		30yr Average	30yr Range
Baseline (1961-1990)			
MODELED HISTORICAL	-	59.4 °F	59.2 - 59.7 °F
Mid-Century (2035-2064)			
MEDIUM EMISSIONS (RCP 4.5)	+3.0 °F	62.4 °F	61.0 - 64.6 °F
HIGH EMISSIONS (RCP 8.5)	+3.8 °F	63.2 °F	61.6 - 64.6 °F
End-Century (2070-2099)			
MEDIUM EMISSIONS (RCP 4.5)	+4.1 °F	63.5 °F	61.3 - 65.8 °F
HIGH EMISSIONS (RCP 8.5)	+6.9 °F	66.3 °F	63.4 - 68.8 °F

1. Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.
2. Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.
3. Data presented are aggregated over all LOCA grid cells that intersect Eureka boundary.

Eureka, California

Annual Precipitation

Total precipitation projected for a year



Observed (1961-1990) 30yr Average: 41.2 inches

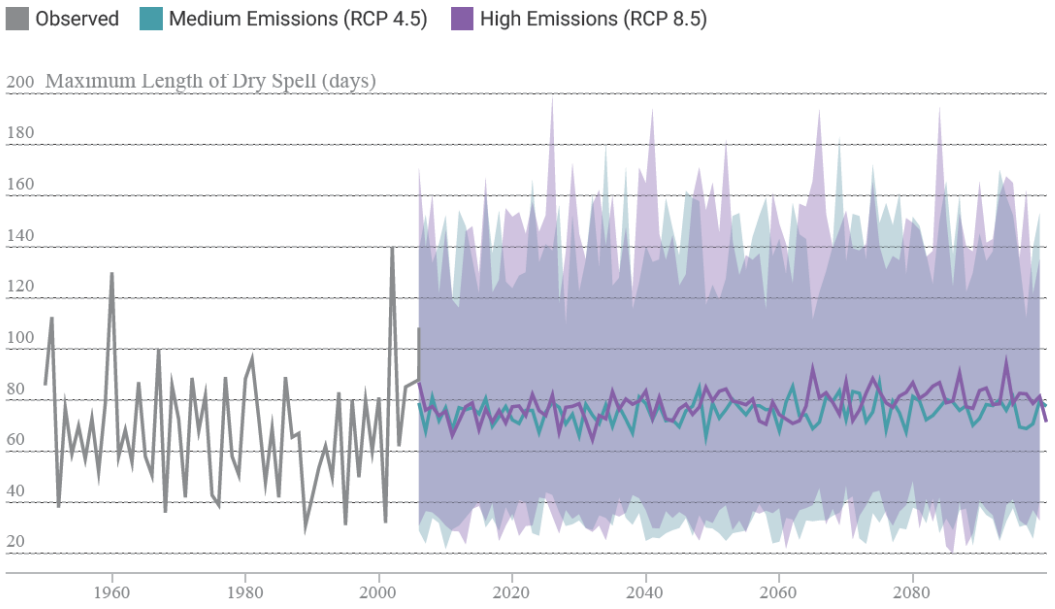
		30yr Average	30yr Range
Baseline (1961-1990)			
MODELED HISTORICAL	-	43.9 inches	40.6 - 46.9 inches
Mid-Century (2035-2064)			
MEDIUM EMISSIONS (RCP 4.5)	-0.2 inches	43.7 inches	35.6 - 50.8 inches
HIGH EMISSIONS (RCP 8.5)	+0.5 inches	44.4 inches	38.3 - 51.5 inches
End-Century (2070-2099)			
MEDIUM EMISSIONS (RCP 4.5)	+0.2 inches	44.1 inches	36.5 - 50.4 inches
HIGH EMISSIONS (RCP 8.5)	+1.2 inches	45.1 inches	38.3 - 52.6 inches

1. Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.
2. Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.
3. Data presented are aggregated over all LOCA grid cells that intersect Eureka boundary.

Eureka, California

Maximum Length of Dry Spell

The maximum length of dry spell for each year. In other words, the maximum number of consecutive days with precipitation < 1mm for each year.



Observed (1961-1990) 30yr Average: 65 days

		30yr Average	30yr Range
Baseline (1961-1990)			
MODELED HISTORICAL	-	68 days	60 - 82 days
Mid-Century (2035-2064)			
MEDIUM EMISSIONS (RCP 4.5)	+7 days	75 days	62 - 91 days
HIGH EMISSIONS (RCP 8.5)	+10 days	78 days	62 - 94 days
End-Century (2070-2099)			
MEDIUM EMISSIONS (RCP 4.5)	+8 days	76 days	62 - 100 days
HIGH EMISSIONS (RCP 8.5)	+14 days	82 days	57 - 108 days

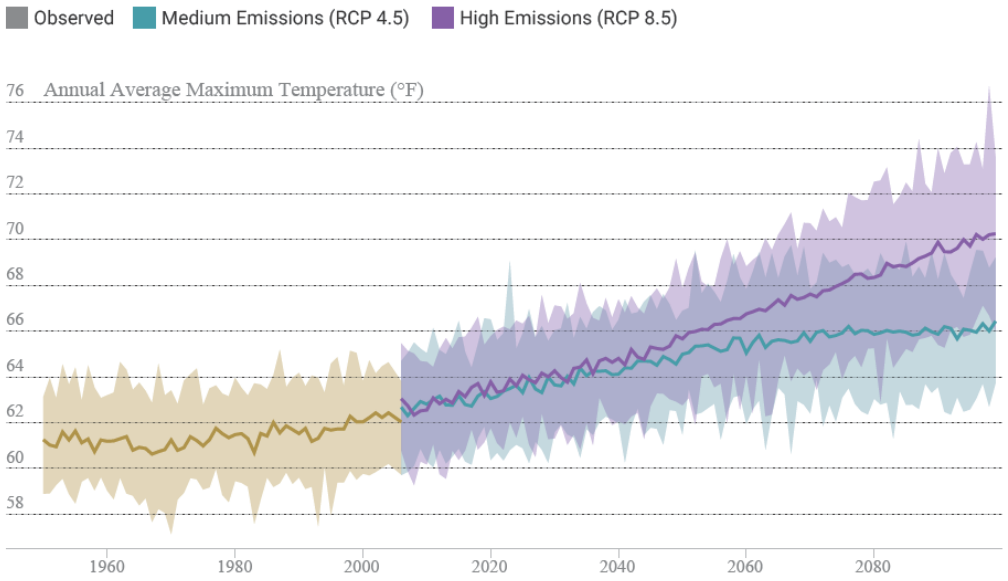
1. Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.
2. Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.
3. Data presented are aggregated over all LOCA grid cells that intersect Eureka boundary.

The following graphs and tables illustrate the projected impacts of climate change on the Upper Mad River Watershed, the location of Ruth Lake, the HBMWD reservoir (source CalAdapt).

Upper Mad River Watershed

Annual Average Maximum Temperature

Average of all the hottest daily temperatures in a year.



Observed (1961-1990) 30yr Average: 61.4 °F

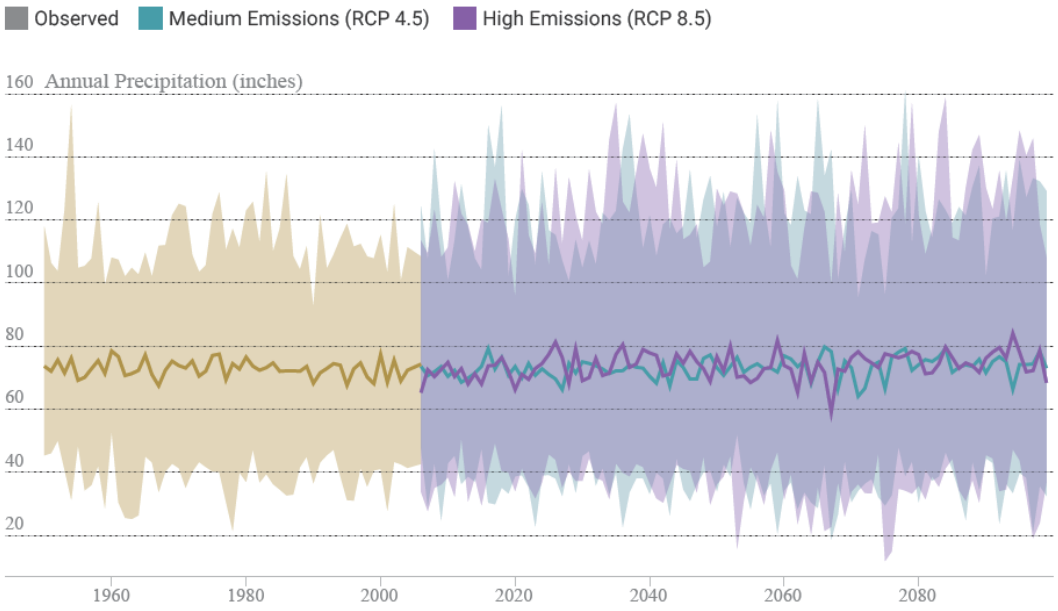
		30yr Average	30yr Range
Baseline (1961-1990)			
MODELED HISTORICAL	-	61.3 °F	61.0 - 61.5 °F
Mid-Century (2035-2064)			
MEDIUM EMISSIONS (RCP 4.5)	+3.6 °F	64.9 °F	63.5 - 66.0 °F
HIGH EMISSIONS (RCP 8.5)	+4.4 °F	65.7 °F	63.7 - 67.0 °F
End-Century (2070-2099)			
MEDIUM EMISSIONS (RCP 4.5)	+4.7 °F	66.0 °F	63.6 - 67.4 °F
HIGH EMISSIONS (RCP 8.5)	+7.6 °F	68.9 °F	65.9 - 71.1 °F

1. Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.
2. Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.
3. Data presented are aggregated over all LOCA grid cells that intersect Upper Mad River Watershed boundary.

Upper Mad River Watershed

Annual Precipitation

Total precipitation projected for a year



Observed (1961-1990) 30yr Average: 73.8 inches

		30yr Average	30yr Range
Baseline (1961-1990)			
MODELED HISTORICAL	-	73.0 inches	67.5 - 78.4 inches
Mid-Century (2035-2064)			
MEDIUM EMISSIONS (RCP 4.5)	-0.1 inches	72.9 inches	61.1 - 90.9 inches
HIGH EMISSIONS (RCP 8.5)	+1.1 inches	74.1 inches	61.6 - 86.9 inches
End-Century (2070-2099)			
MEDIUM EMISSIONS (RCP 4.5)	+0.8 inches	73.8 inches	63.4 - 87.2 inches
HIGH EMISSIONS (RCP 8.5)	+2.8 inches	75.8 inches	60.9 - 90.8 inches

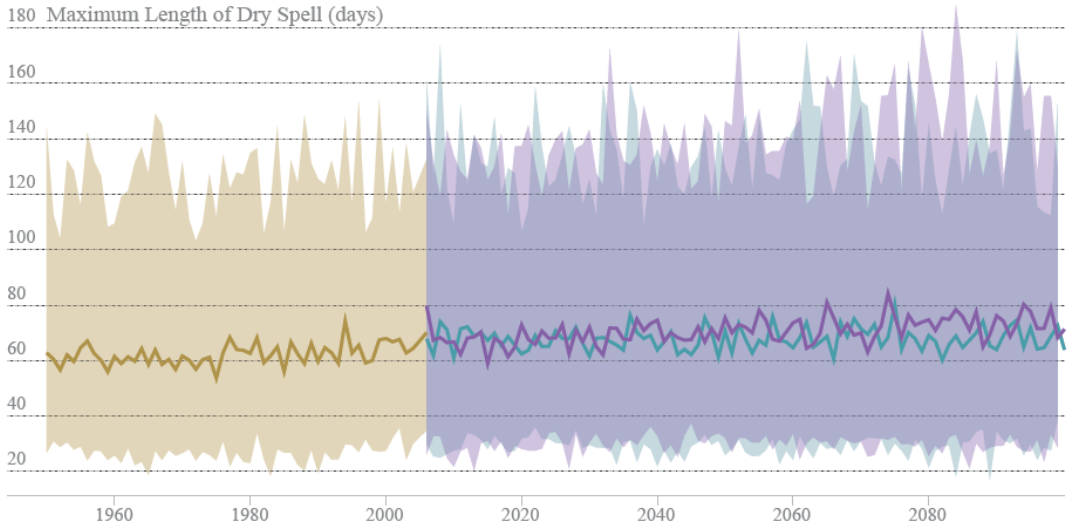
1. Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.
2. Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.
3. Data presented are aggregated over all LOCA grid cells that intersect Upper Mad River Watershed boundary.

Upper Mad River Watershed

Maximum Length of Dry Spell

The maximum length of dry spell for each year. In other words, the maximum number of consecutive days with precipitation < 1mm for each year.

Observed Medium Emissions (RCP 4.5) High Emissions (RCP 8.5)



Observed (1961-1990) 30yr Average: 71 days

		30yr Average	30yr Range
Baseline (1961-1990)			
MODELED HISTORICAL	-	61 days	51 - 72 days
Mid-Century (2035-2064)			
MEDIUM EMISSIONS (RCP 4.5)	+7 days	68 days	54 - 85 days
HIGH EMISSIONS (RCP 8.5)	+9 days	70 days	56 - 94 days
End-Century (2070-2099)			
MEDIUM EMISSIONS (RCP 4.5)	+7 days	68 days	55 - 91 days
HIGH EMISSIONS (RCP 8.5)	+12 days	73 days	46 - 103 days

1. Data derived from 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment. Details are described in Pierce et al., 2018.
2. Observed historical data derived from Gridded Observed Meteorological Data. Details are described in Livneh et al., 2015.
3. Data presented are aggregated over all LOCA grid cells that intersect Upper Mad River Watershed boundary.

3.4 Service Area Population and Demographics and Socioeconomics

> ***Requirement****: Describe the service area of the supplier, including current and projected population …The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available. (CWC 10631).*

A Geographic Information System (GIS) coverage of the HCSD drinking water distribution service area was used with 2010 US Census Bureau population and connection data to determine the persons per residential connection 2.671. The persons per connection was used with the number of residential connections to estimate the population from 1988-2009 and 2011-2020.

Population growth projections (2021-2045) are based on growth projections contained in the City of Eureka 2040 General Plan dated October 15, 2018 (Table 3-1).

3.5 Other Demographic Factors

> ***Requirement****: Describe the service area of the supplier, including. . . other demographic factors affecting the supplier's water management planning. (CWC 10631).*

The HCSD is primarily urban residential in nature, which makes up approximately 96% of total HCSD accounts. Commercial and institutional accounts make up the 4% balance and include Humboldt Bay Forest Products, PG&E Power Plant, College of the Redwoods, and Redwood Acres Fairgrounds. The HCSD supplied water to 7,670 connections in 2020.

The customer base for the HCSD water distribution in 2020 is described in the table below:

Type of Service Connection	**Number of Service Connections**
Single-family residential	6975
Multi-family residential	406
Commercial / Institutional	266
Industrial	0
Landscape irrigation	23
Other	0
Total Connections	7,670

According to the US Census:

	Eureka	Humboldt County	California
Median household income (2015-2019)	$42,898	$48,041	$75,235
Per capita income past 12-months	$28,788	$28,769	$36,955
Percent of persons in poverty	20%	19.1%	11.8%

3.6 Land Use within Service Area

The HCSD service area is dominated by various types and densities of residential land use and few areas of commercial development.

4.0 WATER USE CHARACTERIZATON

This Section describes and quantifies the current and projected water uses within the HCSD service area.

4.1 Non-Potable Versus Potable Water Use

Wastewater collection is provided by HCSD in their district. Wastewater collected within the HCSD is treated at the City of Eureka wastewater treatment facility. HCSD is not responsible for treatment of wastewater or wastewater recycling. Recycled wastewater is not currently being used in the HCSD service area and HCSD has no authority regarding the use of recycled wastewater. All of HCSD water demand is met with potable water. HCSD does not distribute recycled water or raw water.

4.2 Water Use by Sector

> ***Requirement:*** *For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following:*
>
> - *(A) Single-family residential*
> - *(B) Multifamily.*
> - *(C)Commercial.*
> - *(D) Industrial.*
> - *(E) Institutional and governmental.*
> - *(F) Landscape.*
> - *(G) Sales to other agencies.*
> - *(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.*
> - *(I) Agricultural.*
> - *(I) Distribution system water loss (CWC 10631 (d)*

HCSD utilizes the following water use sectors;

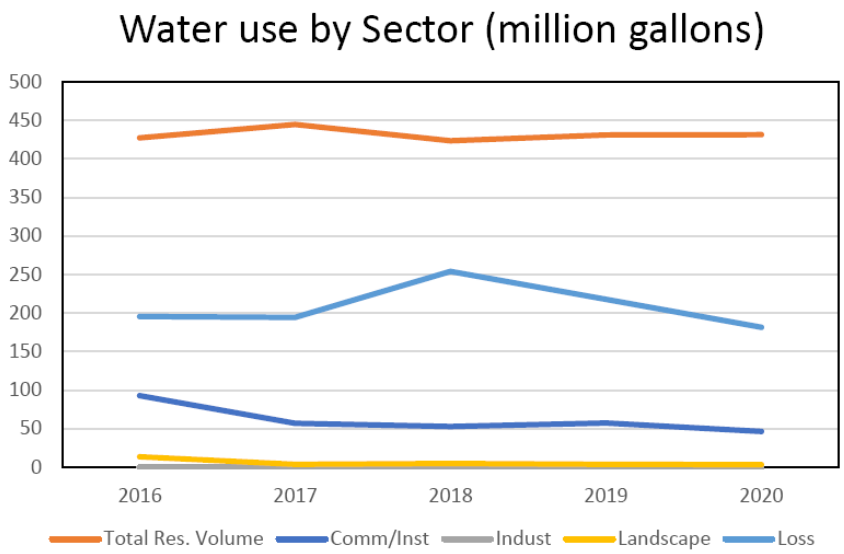
- Single Family Residential;
- Multi-Family Residential;
- Commercial / Institutional;
- Industrial;
- Landscape Irrigation; and
- Distribution system water loss.

The District does not use any water use sectors in addition to those listed in the Water Code.

2020 retail demand for potable and raw water by use type is included in Table 4-1.

4.3 Past Water Use

Water use by use sector for the past 5-years is shown in the chart below:



The 5-year average water use volume by sector is indicated in the table below:

	5-Year Average Volume MG	% of Total Volume Produced
Single-Family Residential	377.60	53%
Multi-Family Residential	54.02	8%
Commercial Institutional	61.35	9%
Landscape Irrigation	5.84	1%
Distribution System Loss	208.75	29%
Total Volume Produced	707.70	100%

4.4 Distribution System Water Losses

HCSD has been utilizing the AWWA water loss methodology since 2013 to evaluate distribution system losses. HCSD has not yet performed an AWWA water loss audit (V5.0) for the calendar year 2020. The results from the 2019 AWWA water loss audit indicates a total water loss of 194.88 MGY and a real loss of 132.98 million gallons, or 29.2% non-revenue water. HCSD has been working over the past eight years to understand and reduce real loss (Table 4-4).

4.5 Current Water Use

2020 retail demand for potable and raw water by use type is included in Table 4-1. The current (2020) water use volume and connection count by sector are indicated in the tables below:

	2020 Volume MG	% of Total Volume
Single-Family Residential	379	57%
Multi-Family Residential	51.9	8%
Commercial Institutional	46.6	7%
Landscape Irrigation	3.34	1%
Distribution System Loss	181	27%
Total Volume	663	100%

	2020 Connection	% of Total Connections
Single-Family Residential	6,975	91%
Multi-Family Residential	406	5.3%
Commercial Institutional	266	3.5%
Landscape Irrigation	23	0.30%
Total Connections	7670	100%

4.6 Projected Water Use

Demand projections by use sector (Table 4-2, 4-3) were estimated over the planning horizon using the following methods:

	Method for Volume Projections
Residential	5-Year average increased by annual projected % population change.
Commercial Institutional	Commercial/institutional use volumes are projected using the 5-year average commercial/institutional % of total residential (14%).
Industrial	5-Year average (0 MG) is projected for the planning period.
Landscape Irrigation	Landscape Irrigation use volumes are projected using the 5-year average Landscape Irrigation % of total residential (1.3%).
Distribution System Loss	Projected to be maintained at 5-year average (42% of total sales volume volume) for the planning period.

4.7 Water Use for Lower Income Households

***Requirement**: The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier. (CWC 10631.1 (a)).*

Water use projections include projected water use for single-family and multi-family residential housing needed for lower income (Table 4-1 and 4-5).

4.8 Climate Change Considerations

The following table summarizes climate change information for Eureka contained in Section 3.3 acquired from CalAdapt.

Climate Change Parameter (Eureka CA)	Range of Predicted Change (2035-2065) Medium Emissions / High Emissions
Annual Average Maximum Temperature	+3 degrees Fahrenheit / +3.8 degrees Fahrenheit
Annual Total Precipitation	-0.2 inches per year / +0.5 inches per year
Maximum Length of Dry Spell	+ 7 days per year / +10 days per year

In the HCSD service area, higher maximum temperature, and longer length of dry spells, may result in a slight increase in outdoor irrigation demand which is a small percentage of water use. Possible increased annual precipitations may off set the increase in outdoor irrigation demand and may result in no net impact to demand.

The following table summarizes climate change information for the Upper Mad River Watershed) contained in Section 3.3 acquired from CalAdapt.

Climate Change Parameter (Upper Mad River Watershed)	Range of Predicted Change (2035-2065) Medium Emissions / High Emissions
Annual Average Maximum Temperature	+3.6 degrees Fahrenheit / +4.4 degrees Fahrenheit
Annual Total Precipitation	-0.1 inches per year / +1.1 inches per year
Maximum Length of Dry Spell	+ 7 days per year / +9 days per year

In the Upper Mad River Watershed (location of HBMWD water reservoir Ruth Lake), higher maximum temperature, and longer length of dry spells are projected that will not affect HCSD demand since it is outside of the HCSD service area. Increased annual precipitations will result in increased supply available at Ruth Lake the HBMWD Reservoir.

4.9 Energy Use

***Requirement**: Water Code Section 10631.2. (a) In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain: (1) An estimate of the amount of energy used to extract or divert water supplies. (2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems. (3) An estimate of the amount of energy used to treat water supplies. (4) An estimate of the amount of energy used to distribute water supplies through its distribution systems. (5) An estimate of the amount of energy used for*

treated water supplies in comparison to the amount used for nontreated water supplies. (6) An estimate of the amount of energy used to place water into or withdraw from storage. Any other energy-related information the urban water supplier deems appropriate.

HCSD energy consumption information for 2020 is included in Table 0-1A. The data indicates that to extract water from the HCSD groundwater wells takes 1,629 kWh/MG. Energy used to place water into storage and to distribute water from both sources (HCSD groundwater wells and purchased from HBMWD) takes 964 kWh/MG.

5.0 SBX7-7 BASELINE AND TARGETS

This Section describes HCSD's methods for calculating their baseline and target water consumption. HCSD will demonstrate that they have achieved their 2020 water use target.

5.1 Definitions

Daily per Capita Water Use - the amount of water used per person per day. In the UWMP calculations, this is total water use within a service area, divided by population and is measured in gallons.

Gallons per Capita per Day (GPCD) – This is the "Daily per Capita Water Use" measured in gallons. Therefore, the term commonly used when referring to "Daily per Capita Water Use" is "Gallons Per Capita per Day" or "GPCD."

GPCD - 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.

R-GPCD - The estimated residential water use in a service area divided by population. R-GPCD is used in drought reporting to SWRCB for purposes of complying with the Governor's drought declarations and executive orders in 2014 and 2015 (as of the publication of this Guidebook).

5.2 Updating Calculations from 2015 UWMP to the 2020 UWMP

> ***Requirement****: An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6. (CWC 10610.20 (g)).*

Population estimates and projections used in the 2015 UWMP are based on 2010 US Census data in combination with historic persons per connection data. HCSD is not updating the calculations from the 2015 UWMP. SBX7-7 tables used to calculate the GPCD baselines and goals are included in Appendix B.

5.3 Baseline Periods

> ***Requirement****: (e) An urban retail water supplier shall include in its urban water management plan due in 2010. . . the baseline daily per capita water use…along with the bases for determining those estimates, including references to supporting data. (CWC 10608.20 (e)).*
>
> *An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610). (CWC 10608.20 (g)).*

In 2008, the HCSD did not have at least 10% of its 2008 measured retail water demand met through recycled water and therefore used a 10-year baseline. The first base period (10-year continuous period) was selected from 1995 to 2004. The average gallons/capita day (GPCD) for the 10-year base period was 141 GPCD. Using Method # 3 (95% of the regional goal of 137) to calculate the 2020 GPCD goal for the District results in 130 GPCD.

The second baseline (5-year continuous period) was selected from 2003 to 2007. The average GPCD for the 5-year baseline was 136 GPCD. Since 95% of the 5-year baseline

is 129 GPCD and is less than the 2020 GPCD goal using Method # 3 (130 GPCD) the adjusted 2020 GPCD goal is 129 GPCD. The interim target goal for 2015 is 135 GPCD which was met.

5.4 Service Area Population

> ***Requirement:*** *Water Code Section 10608.20(e) An urban retail water supplier shall include in its urban water management plan due in 2010…the baseline per capita water use…along with the bases for determining those estimates, including references to supporting data.*
>
> *(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.*
> *Water Code Section 10644.*

A Geographic Information System (GIS) coverage of the HCSD drinking water distribution service area was used with 2010 US Census Bureau population and connection data to determine the persons per residential connection of 2.671. The persons per connection was used with the number of residential connections to estimate the population from 1988-2009 and 2011-2020.

Population growth projections (2021-2045) are based on growth projections contained in the City of Eureka 2040 General Plan dated October 15, 2018 (Table 3-1).

5.5 Gross Water Use

> ***Requirement:*** *"Gross Water Use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:*
>
> > *(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier*
> > *(2) The net volume of water that the urban retail water supplier places into long term storage*
> > *(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier*
> > *(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24. (CWC 10608.12 (g)).*

Gross water use was calculated for each year in the baseline periods as well as 2020, the compliance year. The gross water use for HCSD was the total volume of water entering the distribution system excluding the net volume of water conveyed for use by the City of Eureka.

5.6 Baseline and Targets Summary

Baseline daily per capita water use was calculated by dividing the gross water use (Section 5.5) by the service area population (Section 5.4) for each year of the baseline periods as shown below.

Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1995	16,760	839	137
Year 2	1996	16,936	887	143
Year 3	1997	17,151	876	140
Year 4	1998	17,359	871	137
Year 5	1999	17,501	904	142
Year 6	2000	17,693	933	144
Year 7	2001	17,858	923	142
Year 8	2002	18,227	959	144
Year 9	2003	18,304	936	140
Year 10	2004	18,446	957	142
10-15 Year Average Baseline GPCD				**141**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2003	18,304	936	140
Year 2	2004	18,446	957	142
Year 3	2005	18,681	961	141
Year 4	2006	18,788	890	130
Year 5	2007	18,846	875	127
5 Year Average Baseline GPCD				**136**

5.7 Baseline and Target Summary

SB X7-7 verification tables are included as Appendix B.

Summary of Updated GPCD Goals

10-year Base GPCD	141
80% (10-year Base GPCD)	113
North Coast Region Statewide Target by 2020	137
5-year Base Daily Per Capita Water Use	136
95% of 5-year Base GPCD/ adjusted 2020 Urban Water Use Target	129
HCSD's Interim (2015) Goal (met)	**135**
HCSD's 2020 Target	**113**

5.8 2020 Compliance Daily per Capita Water Use (GPCD)

Requirement: Water Code Section 10608.12

(f) "Compliance daily per-capita water use" means the gross water use during the final year of the reporting period….

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 . . . compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

HCSD's 2020 GPCD target is 113 GPCD. HCSD's 2020 GPCD was actually 92. HCSD has achieved compliance with daily per-capita water use for 2020 (Table 5-1, and 5-2). Verification of compliance is documented in the SB X7-7 Compliance form included as Appendix B.

6.0 WATER SUPPLY CHARACTERIZATION

This Section describes and quantifies the current and projected sources of water available to the agency including supplies from other agencies, surface water, groundwater, recycled water, desalinated water, transfers and exchanges, and any other source water the supplier considers part of its supply portfolio.

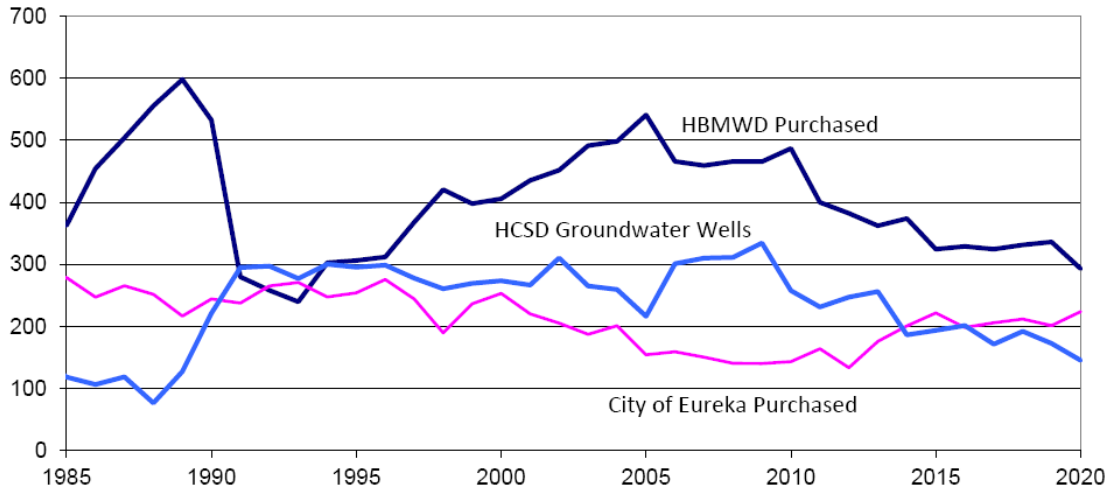
HCSD purchases water from HBMWD and COE. HCSD also uses groundwater extracted from three HCSD owned groundwater wells. The water purchased from the COE is water that the COE acquired from HBMWD.

6.1 Purchased or Imported Water

HCSD is under contract with HBMWD with a maximum daily limit of 2.9 MGD (1,059 MGY). Water originating from HBMWD comes from wells located in the bed of the Mad River. These wells, termed "Ranney Wells" because of their patented construction, draw water from the sands and gravels of the riverbed at depths ranging from 60 to 90 feet. This naturally filtered water is then disinfected by chlorination and delivered without any further treatment, to retail customers. The Department of Health Services (DOHS) classified HBMWD's water supplied to domestic customers as groundwater.

According to HBMWD documents, they currently have water rights to divert 75 million gallons per day (MGD) from the Mad River. The HBMWD also owns and operates the R.W. Matthews Dam impounding water in Ruth Lake. HBMWD manages releases from the dam to ensure sufficient supplies downstream throughout the year.

The historic volumes of water produced from the various supplies are noted in the graph below in millions of gallons per year.



6.2 Groundwater

HCSD has invested in a groundwater source to diversify its water supply and better prepare the District during emergencies. HCSD's investment in groundwater is not in response to supply limits or increased demand (Table 6-1).

HCSD owns and maintains three deep (400-feet plus) wells. These wells are all located near the base of Humboldt Hill in the Eureka Plain Groundwater Basin, are artesian in nature, and produce excellent quality water. Groundwater pumping rights are not required as the aquifer is not adjudicated. Because of state laws requiring disinfection at the extremities of the system, these wells receive chlorination before distribution to the southern region of the HCSD. Based on groundwater depth measurements taken since 1988 (time of well installation) there has been no appreciable change in water depth. Water depths in the wells are consistent and are not influenced by climatic variation. Based on this information, the water produced from the HCSD groundwater wells is very reliable and not susceptible to drought conditions.

A Groundwater Management Plan has not been developed for the Eureka Plain Groundwater Basin. Based on the current ranking of the groundwater basin (very low), the development of a Groundwater Management Plan is not anticipated in the near future. The HCSD does not have adjudicated rights to pump groundwater.

Overdraft is the condition of a groundwater basin in which the amount of water withdrawn by pumping over the long term exceeds the amount of water that recharges the basin. Overdraft is characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years.

The Eureka Plain Groundwater Basin has not been identified as being over-drafted based upon extraction rates, cone of depression, recharge rate, and water surface elevation. The basin has not been identified as likely to become overdrafted if present management conditions continue.

Approximately 25% of HCSD drinking water (most recent 5-year average) is acquired from three groundwater wells that they own and operate. Groundwater from all of the wells is being produced from the Eureka Plain Groundwater Basin (Figure 4). The geology of the Eureka Plain Groundwater Basin is shown in Figure 4. The general location of the HCSD water wells is included in Figure 4.

The following sections describing the Eureka Plain Groundwater Basin is from California's Groundwater Bulletin 118, 2004 update (State of California, Department of Water Resources, 2004):

Basin Boundaries and Hydrology

The Eureka Plain Groundwater Basin is bounded by the Little Salmon Fault to the south, Humboldt Bay and Arcata Bay to the west and northwest, and by Wildcat series deposits to the east (Strand 1962). The Wildcat series is a group of five formations ranging in age from Miocene to Pleistocene consisting of sandstone, marine siltstone, and claystone (Evenson 1959). The northeast basin boundary, shared with the Mad River Basin, is the northwest trending Freshwater Fault (Clarke 1990). It's unclear if the basin is hydrologically contiguous with the Mad River Basin. Humboldt Bay separates the primary basin deposits from dune sand deposits to the west. The faulted southern and northern basin boundaries may extend to the near surface and form hydrologic barriers in portions of dune sand deposits. Annual precipitation in the basin ranges from 39- to 47-inches, increasing to the southeast.

Hydrogeologic Information

The basin is composed of Quaternary alluvium and deposits of the Hookton Formation underlain by non-marine Wildcat series deposits. Surface exposures of the Carlotta Formation are also observed north of Elk River. The Carlotta Formation forms the uppermost formation of the Wildcat series (Evenson 1959).

Water-Bearing Formations
The primary water-bearing formations in the basin include the Pliocene Hookton Formation and, to a lesser extent, Holocene dune sand west of Humboldt Bay and alluvial deposits southeast of Arcata Bay and along the Elk River.

Pleistocene Hookton Formation.
The Hookton Formation underlies the alluvium in the river floodplains and is exposed surficially over approximately 70 percent of the basin. The formation consists of yellow to yellow-brown loosely consolidated clay, silt, sand, and gravel, interfingered with blue-gray marine clay and silt. The formation is primarily fluvial in origin. In the Salmon Creek-Elk River Area, confined aquifers of the Hookton Formation yield up 800 gallons per minute (gpm) from wells about 400 feet deep (DWR 1965). Sanding of wells is a problem.

Groundwater Storage Capacity. Published information was not found addressing groundwater storage.

Groundwater Budget (Type B)
Estimates of groundwater extraction are based on a survey conducted by the California Department of Water Resources in 1996. The survey included land use and sources of water. Estimates of annual groundwater extraction for agricultural and municipal/industrial uses are 4,800 and 1,300 acre-feet (AF) respectively. Deep percolation from applied water is estimated to be 1,700 AF annually.

Groundwater Quality

Characterization. Groundwater in the basin is characterized as calcium-magnesium type water. Total dissolved solids (TDS) range from 97- to 460- mg/L, averaging 177 mg/L (DWR unpublished data).

Impairments. Groundwater impairments include localized high boron, iron, manganese, and phosphorus.

The volume of groundwater pumped from 2016 through 2020 is included in Table 6-1. During 2016-2020 there were no limitations or challenges obtaining groundwater.

6.3 Surface Water

HCSD does not use, or plan to use, self-supplied surface water as part of its water supply.

6.4 Stormwater

HCSD does not currently or plan to intentionally divert stormwater for beneficial reuse.

6.5 Wastewater and Recycled Water

Wastewater collected within the HCSD is treated at the City of Eureka wastewater treatment facility. The amount of wastewater collected in 2020 in the HCSD system was 382.59 million gallons, Table 6.3).

HCSD is not responsible for treatment of wastewater or wastewater recycling. Recycled wastewater is not currently being used in the HCSD service area and because HCSD has no authority regarding the use of recycled wastewater, it is unlikely to be used. All of HCSD water demand is met with potable water (Table 6-4, 6-5 and 6-6). HCSD does not have the ability to distribute recycled water (Table 6-2).

6.6 Desalinated Water Opportunities

HCSD is not currently considering or using desalinated water.

6.7 Exchanges or Transfers

HCSD is not currently considering or using exchanges or transfers of water.

6.8 Future Water Projects

HCSD is currently reviewing future water supply options at a strategic level (Table 6-7).

6.9 Summary of Existing and Planned Sources

The existing sources of water used in 2020 are included in Table 6-8. Current plans are to continue purchasing water from HBMWD as a primary source, followed by using groundwater from District owned wells at approximately 200 MGY, and purchase the remaining water needed for demand from purchase water from COE at approximately 200 MGY, (Table 6-8). Please note that HCSD is currently reviewing future water supply options at a strategic level which may change the projected sources of water.

6.10 Special Conditions-Climate Change Impacts

Climate change impacts were evaluated Section 3.3 and Section 4.8.

As a result of this evaluation, it is concluded that climate change will have very little effect on the water supply and water demand in this area. Climate change was evaluated and considered, and did not result in a change in the projected water supply or demand.

6.11 Special Conditions-Regulatory Conditions

At this time there are no foreseeable regulatory conditions or changes that would affect the water supply.

7.0 WATER SYSTEM RELIABILITY AND DROUGHT RISK ASSESSMENT

This Section describes the reliability of HCSDs water supply and projects the reliability out 25 years. This description will be provided for normal, single dry years and multiple dry years.

Assessing water service reliability is the fundamental purpose for preparing a UWMP. Water service reliability reflects the District's ability to meet the water needs of its customers, including end-use customers and Retail Suppliers, with water supplies under varying conditions. The District's UWMP will consider the reliability of meeting customer water use by analyzing hydrological variability, regulatory variability, climate conditions, and other factors that affect a Supplier's water supply and its customers' water uses.

HCSDs water system reliability and drought risk assessment is based on HBMWD's ability to meet HCSD's projected demand over the next 25 years. Given the well-established reliability of water purchased from HBMWD (Ruth Lake Storage Capacity, 2015), HCSDs future projected demand can be met entirely with water purchased from HBMWD. The reliability of HCSD's groundwater use is discussed below and is added into the UWMP tables. HCSDs water supply reliability includes water purchased from HBMWD and additional water supplies from the District's groundwater wells.

The following is Section 7 of the HBMWD's 2020 UWMP and demonstrates the reliability of HCSD's purchased water from HBMWD.

Constraints on Water Sources

As discussed in the "System Demands" sections above, the District has an abundant supply of water at Ruth Reservoir which flows down the Mad River and is pumped at the Essex Operations Center (Figure 2). This source of water has been very consistent and there is no need to replace or supplement this source.

Water Quality

As discussed above, drinking water delivered by the District is drawn from wells located in the Mad River. These wells draw water from the sands and gravel of the aquifer located under the riverbed. The gravel and sands through which the water is drawn provides a natural filtration process which yields source water for the District's regional drinking water system that is of very high quality. Furthermore, the results from the District's ongoing water monitoring and testing program indicate that the District's water quality is very high and meets safe drinking regulatory standards, as has consistently been the case over the years.

The only water quality issue occasionally encountered by the District in the past was turbidity. Generally, turbidity in the Ranney Well source water has been very low and meets the turbidity standards set by the California Department of Public Health (CDPH), now known as the Division of Drinking Water (DDW). However, during or following severe winter storm events, turbidity in the source water could rise beyond the standards set by CDPH. In the late 1990s, an extremely heavy "El Nino" rainy season caused a prolonged series of storms that

raised turbidity in the source water to such a level that CDPH became concerned that it could potentially interfere with the disinfection process, and therefore, pose a threat to public health. In 1997, CDPH directed all of the Public Water Systems in the Humboldt Bay area (the District and its wholesale municipal customers) to address the wintertime turbidity issue and to meet the turbidity standards established by CDPH. The District initiated a process with its seven municipal customers to determine the most cost effective way to meet the State's requirement. The solution was to design and construct a regional Turbidity Reduction Facility (TRF). The TRF was completed in April 2003 and now operates during the winter storm season to reduce higher turbidities in accordance with the State's standards.

As the District's ongoing water monitoring and testing program indicates that the District's water quality has been and continues to be very high and with the turbidity issue taken care of by the TRF, the District does not foresee any current or projected water supply impacts resulting from water quality.

Reliability by Type of Year

As stated in earlier sections, the District 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. Table 4-2 W and Table 7-2 show that the highest projected total water demand for the District's wholesale customers in 2035 is 57,290 AFY, which is approximately 68% of this permitted water supply. With this in mind, the following sections will provide data for each of the following water year types: normal, single dry, and multi-dry. Supply and demand comparisons for each water year type will also be discussed.

Table 7-1 W captures the specific base water years that each type of water year falls into.

Table 7-1 Wholesale: Basis of Water Year Data			
		Available Supplies if Year Type Repeats	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
	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 1999-2000, use 2000*	☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
Year Type		**Volume Available**	**% of Average Supply**
Average Year	1989	985364	100%
Single-Dry Year	1977	109107	11%
Multiple-Dry Years 1st Year	1990	571815	58%
Multiple-Dry Years 2nd Year	1991	371340	38%
Multiple-Dry Years 3rd Year	1992	282794	29%
Multiple-Dry Years 4th Year *Optional*			
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			
Agency 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 an agency 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.			
NOTES: Average Year volume chosen based on average annual Mad River watershed discharges from 1963 - 2015.			

Normal Water Year

During a normal water year, the Ruth Lake area averages 65.42 inches of rainfall, about 173,000 AF of water flow into the reservoir via the Mad River, and 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 2015). The average annual runoff data was provided by USGS at Gage Station 1148100 on the Mad River near Arcata, CA. As shown in Table 7-1 W, 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.

Table 7-2 W shows the normal year supply and demand comparison. During a normal water year, the Ruth Reservoir and Mad River watershed have enough supply to meet the District's maximum permitted diversion of 84,000 AFY.

Table 7-2 Wholesale: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	84,000	84,000	84,000	84,000	
Demand totals *(autofill fm Table 4-3)*	22,145	33,895	45,581	57,290	
Difference	61,855	50,105	38,419	26,710	
NOTES:					

Single Dry Water 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 normal (69.8 inches). Flows into the reservoir were 26,000 AFY, or 15% of normal (173,000 AFY). The runoff for the watershed measured near the District's diversion facilities was 109,107 AFY, or 11% of 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 normal (41,000 AF). The reservoir was drawn down to 13,000 AF, or 27% of its capacity (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.

Table 7-3 W shows the Single Dry Year supply and demand comparison. This supply was based on the 1977 water year with watershed runoff of 109,107 AFY. As this amount is more than the District's permitted water supply of 84,000 AFY,

the District still has the 84,000 AFY of water available as it does during a normal water year. Therefore, Table 7-3 W shows the same calculations as in Table 7-2 W for the normal water year condition showing the supply totals as 84,000 AFY from 2020 through 2035. The data shows that the District has more than enough water supply to meet demand, even in a critical single dry water year situation.

Table 7-3 Wholesale: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	84,000	84,000	84,000	84,000	
Demand totals	22,145	33,895	45,581	57,290	
Difference	61,855	50,105	38,419	26,710	
NOTES:					

Multiple Dry Water Years

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

Rainfall for this period averaged 42 inches per year, or 60% of normal.
Of the three water years, the driest year for rainfall was water year 1990/1991 with 37 inches, or 53% of normal.
Flows into Ruth Lake via the Mad River averaged 69,000 AFY, or 40% of 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 37,000 AF which is 77% of capacity (48,030
AF) and 90% of normal (41,000 AF).

The runoff for the watershed above the District's diversion facilities for these three water years were:
1990: 571,815 AFY, or 60% of normal (959,071 AFY).
1991 (driest water year of the three): 371,300 AFY, or 39% of normal.
1992: 282,794 AFY, or 29% of normal.

Supply and Demand Assessment

Table 7-4 W projects the multiple dry water year supply amounts in comparison to projected demands for 2020 through 2035. Watershed runoff data from the three consecutive water years mentioned above were used, attributing 571,815 AFY (for First year), 371,340 AFY (for Second year), and 282,794 AFY (for Third year). As these supply amounts are larger than the District's maximum permitted

supply amount of 84,000 AFY, the District is able to maintain its water supply during these consecutive dry water years as well. Therefore, Table 7-4 W also shows the District's water supply projections for multiple dry water years as its permitted amount of 84,000 AFY for 2020 through 2035. The data shows that the District has more than enough water supply to meet demand, even during multiple dry water years.

Table 7-4 Wholesale: Multiple Dry Years Supply and Demand Comparison

		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	84,000	84,000	84,000	84,000	
	Demand totals	22,145	33,895	45,581	57,290	
	Difference	61,855	50,105	38,419	26,710	0
Second year	Supply totals	84,000	84,000	84,000	84,000	
	Demand totals	22,145	33,895	45,581	57,290	
	Difference	61,855	50,105	38,419	26,710	0
Third year	Supply totals	84,000	84,000	84,000	84,000	
	Demand totals	22,145	33,895	45,581	57,290	
	Difference	61,855	50,105	38,419	26,710	0

Regional Supply Reliability

Throughout the years, there have been studies that refer to the District's water source and its reliability. Bechtel Corporation was retained in the 1950s to perform various water supply studies and to complete the design and specifications for the original regional water system. During this time, Bechtel completed a detailed operations study of the reservoir storage to determine the safe yield of the original project pursuant to the District's downstream diversion requirements and the requirements in the District's water rights permits. The study was done on the basis of a 75MGD average annual diversion rate at Essex. Existing prior water rights downstream of Ruth Lake were incorporated into this study. Bechtel confirmed the safe yield of the reservoir to be 75 MG, assuming the driest period of record they studied (1923-1924). Bechtel reported "The Mad River Development will utilize the available supply and by storage regulation make this supply available for year-round diversion at Essex. The firm supply made available at Essex is measured by the amount of water the District can divert under its permits in the driest year on record 1923-1924." (Reference:

Engineering Report on Mad River Development, Bechtel Corporation, October 1960)

Subsequent to Bechtel's operations study, DWR calculated the safe yield of Ruth reservoir to be very close to what Bechtel had determined (Reference: Bulletin No. 142-1, North Coastal Hydrographic Area). The State also used the 1923-24 drought period in its determination.

These hydrological conditions were supported by subsequent studies by DWR, the U.S. Army Corps of Engineers, Bechtel Corporation, and Winzler and Kelly Engineering. In a study by DWR titled "Office Report on Preliminary Investigation of Mad River," DWR acknowledges that the Ruth Lake area where the District keeps its storage supply has "heavy and frequent precipitation." DWR also said in the report that the mean seasonal runoff of the Mad River as measured at Arcata at the time (1958) was 750,000 AFY, which is far more than the District's permitted 84,000 AFY and the actual projected water demands from its customers as shown in Table 7-4 W.

The U.S. Army Corps of Engineers also discusses the mean seasonal runoff of the Mad River in their 1968 report titled, "Interim Review Report for Water Resources Development, Mad River, California." The report states that the variation in annual runoff has ranged from a low of 280,000 AFY in the lowest year recorded at the time, to a high of 1,746,000 AFY in the year of the highest runoff recorded at the time. It also states that the minimum five-year average annual runoff was 650,000 AFY. These average annual runoff amounts show that the District has ample supply to support its customer demands. The report also describes the local climate in that it is typical of coastal areas of California with a large percentage of the rainfall occurring during major storms during the winter months of November through March. It reports that the average annual precipitation over the basin ranges from about 40 inches along the coastal plains to more than 70 inches in the central part of the basin, with an estimated basin average of approximately 63 inches.

In 1977, Winzler and Kelly Engineering did a drought deficiency analysis of R.W. Matthews Dam with then current data (including the drought of 1977) and determined the safe yield to be approximately 67 MGD (75,040 AFY), 8 MGD less than projected by Bechtel. Although the safe yield projected by Winzler and Kelly was slightly less than the one projected by Bechtel Corporation, it still far exceeds the District's current and projected demands from its wholesale customers (Table 7-4 W).

Furthermore, the results from the above studies by DWR, U.S. Army Corps of Engineers, Bechtel Corporation, and Winzler and Kelly Engineering are supported by the District's historical data. From the District's historical data, on average, Ruth Lake begins the water year on October 1 with approximately 31,000 AF of water, 64% of its 48,030 AF capacity. Most rainfall in the area

occurs between November and April. In every year but one since 1969, there has been at least one large storm during this period, bringing 3 to 9 inches of rain over a seven-day period. This is almost always sufficient to fill the reservoir to capacity. There has only been one water year (1976/77) in which the reservoir was not filled to capacity. The average reservoir volume on May 1 (the end of the usual rainy season) is approximately 47,700 AF, over 99% of capacity. This storage allows the District to supplement low flows until the rains begin again in the fall. Seasonal or climatic shortages are only likely to occur after two consecutive rainy winter seasons with severely reduced rainfall and runoff (well below 50% of normal). This has not happened in the history of the District.

7.1 Water Service Reliability Assessment

Requirement: *Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier. CWC* 10635(a)

HCSD relies on two water primary sources including HBMWD (wholesaler) and groundwater from District owned groundwater wells. The District relies in part on water supplied by the COE ;COE purchases this water from HBMWD. Both of these sources are available at a consistent level of use and are not limited by specific legal, environmental, water quality, or climatic factors. HCSD has no specific plans to supplement or replace either of the existing sources of water. HCSD is in the process of a strategic level planning process to evaluate all possible water sources and water supply strategies. Information regarding the reliability of the purchased water from HBMWD is contained in the section above.

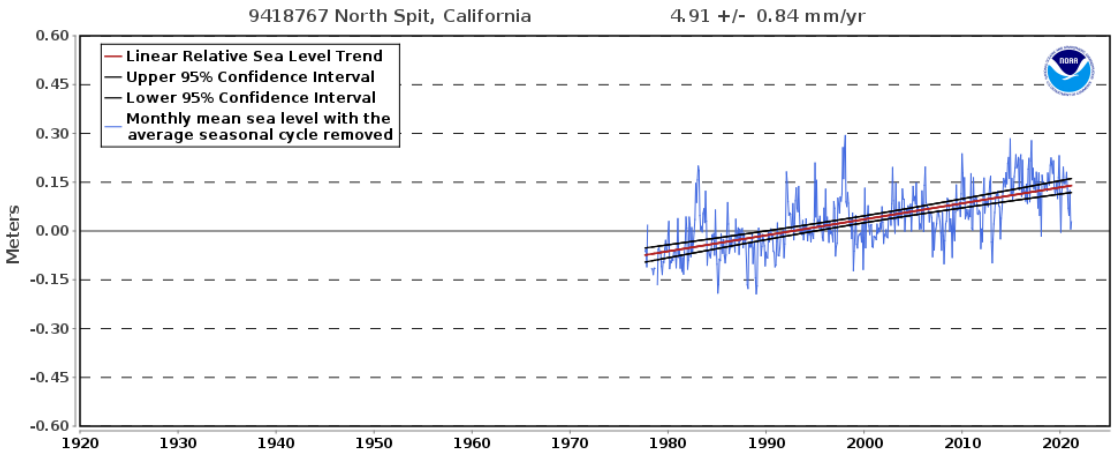
7.2 Service Reliability – Constraints on Water Sources (HCSD Groundwater Wells)

Potential constraints on the District's water source include, legal, environmental, or climate factors. Foreseeable legal constraints are not considered a limitation within the 25-year planning period. Currently and within the planning period the only foreseeable environmental issue that could limit the District's water supply from the groundwater wells is sea level rise.

Constraints due to climate change are discussed in Section 3.3 and 4.8. As a result of this evaluation, it is concluded that climate change will affect the water supply and water demand very little in this area. Climate change was evaluated and considered and did not result in a change in the projected water supply or demand.

Future constraints on water supplies, due to declining groundwater levels is not anticipated based on the historic response (lack of response) of groundwater levels to changes in precipitation as shown later in this section.

The relative sea-level rise trend for Humboldt Bay by NOAA is shown below:



Source: National Oceanic and Atmospheric Administration, Center for Operational Oceanographic Products and Services. *Relative Sea Level Trend, 9418767 North Spit Humboldt Bay, California.* Accessed May 25, 2021 via https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=9418767

The projected relative sea level rise in Humboldt bay is 1 foot/40 years or 7.5 inches in the 25-year planning horizon. The three HCSD groundwater wells have surface elevations from 10 to 35 feet above sea level. HCSD groundwater wells will not likely be inundated by rising sea level in planning period (25-years).

Current water management strategies include:

- Identification and correction of water loss causes; and
- Continued monitoring of precipitation, and groundwater elevations in the Eureka Plain Groundwater Basin.

Currently there are no plans to supplement or replace the current water sources.

7.3 Reliability by Type of Year (HCSD Groundwater Wells)

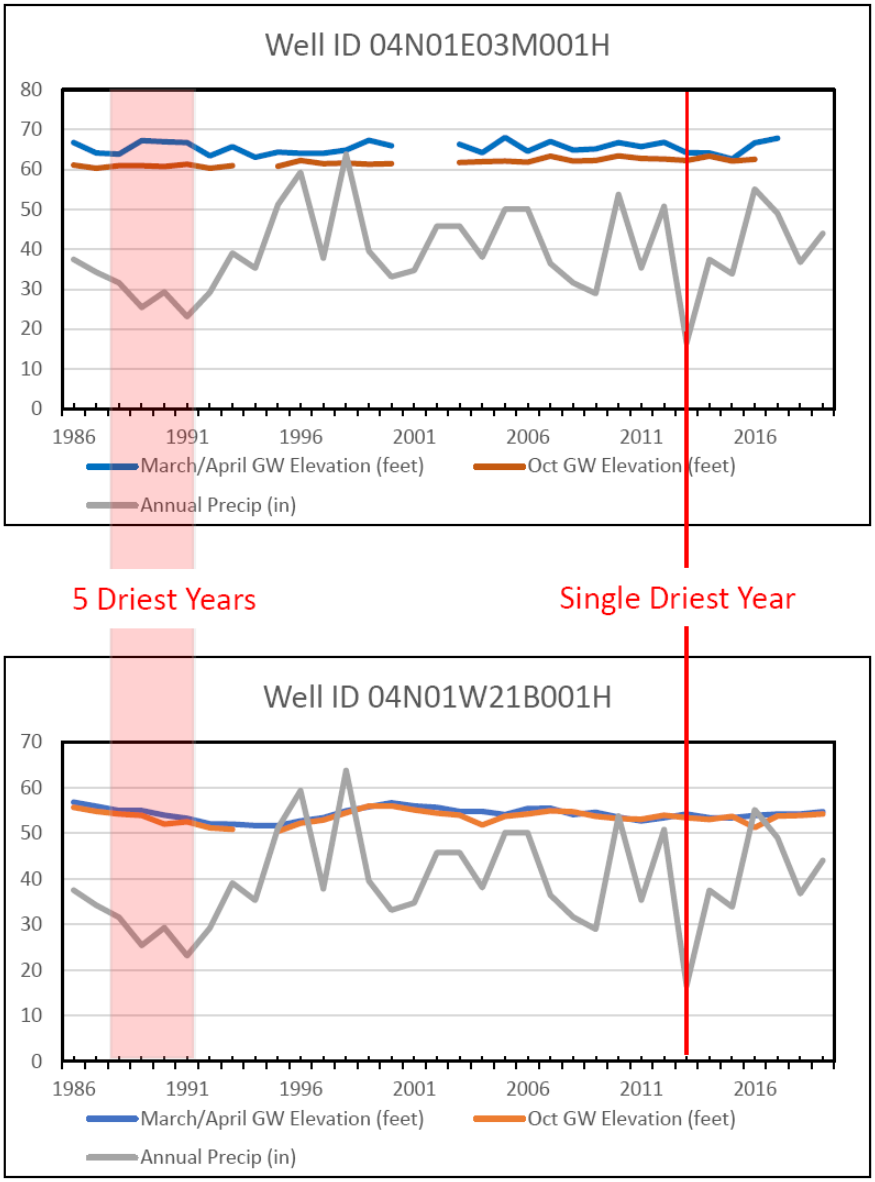
***Requirement**: Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:*

(A) an average water year,
(B) a single dry water year,
(C) multiple dry water years. (CWC 10631(c)(1))

Water from HCSD Groundwater Wells (Eureka, CA)

		Inches/Year	% of Average
1997	Average Single Year	37.82	100%
2013	Single Driest Year	16.6	44%
1976-1978	5-year Driest Years	27.76	73%

Groundwater elevation data was collected for several wells located within the Eureka Plain Groundwater basin to observe the effect of precipitation.



7.4 Supply and Demand Assessment (HCSD Groundwater Wells)

***Requirement**: Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from*

state, regional or local agency population projections within the service area of the urban water supplier. (CWC 16035 (a))

Based on groundwater depth measurements taken since 1988 (time of well installation) there has been no appreciable changes in water depth. Groundwater elevations in the wells are consistent and are have not been significantly influenced by climatic variation (precipitation). Based on this information, the water produced from the HCSD groundwater wells is very reliable and not susceptible to drought conditions. HCSD water supply in various drought scenarios is shown In Tables 7-1 through 7-5 as 1,235 MGY which includes 1,076 MGY from HBMWD and 176 MGY from HCSD groundwater wells (5-year average production volume).

7.5 Regional Supply Reliability

***Requirement**: An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions. (CWC 10620 (f))*

HCSD has completed a strategic level planning process to evaluate all possible water sources and water supply strategies. The result was to adopt a strategy that provides the District with the most flexibility and reliability by using a combination of purchased water from HBMWD and groundwater from District wells.

8.0 WATER SHORTAGE CONTINGENCY PLANNING

This Section describes HCSD's staged plan for dealing with water shortages, including a catastrophic supply interruption.

The HCSD Water Shortage Contingency Plan contains the following prescriptive elements:

- Key attributes of its Water Supply Reliability Analysis conducted pursuant to Water Code Section 10635. [Water Code Section 10632(a)(1)]

- Six standard water shortage levels corresponding to progressive ranges of up to 10-, 20-, 30-, 40-, and 50-percent shortages and greater than 50-percent shortage. [Water Code Section 10632 (a)(3)(A)]

- Locally appropriate "shortage response actions" for each shortage level, with a corresponding estimate of the extent the action will address the gap between supplies and demands. [Water Code Section 10632 (a)(4)]

- Procedures for conducting an annual water supply and demand assessment with prescribed elements. Under Water Code Section 10632.1, urban water Suppliers are required to submit, by July 1 of each year, beginning in the year following adoption of the 2020 UWMP, an annual water shortage assessment report to DWR. [Water Code Section 10632 (a)(2)]Water Shortage Contingency Plan UWMP Guidebook 2020 8-5

- Communication protocols and procedures to inform customers, the public, and government entities of any current or predicted water shortages and associated response actions. [Water Code Section 10632 (a)(5)]

- Monitoring and reporting procedures to assure appropriate data is collected to monitor customer compliance and to respond to any state reporting requirements. [Water Code Section 10632(a)(9)]

- A reevaluation and improvement process to assess the functionality of its WSCP and to make appropriate adjustments as may be warranted. [Water Code Section 10632(a)(10)]

HCSD has a Water Shortage Contingency Plan (WSCP) (Appendix C) that governs their actions during a water shortage emergency and under various specific conditions authorized by HCSD Code Chapter 4.13 (contained in Appendix D). The water shortage contingency plan provides a range of water use restrictions to reduce water consumption. HCSD Code Chapter 4.13 provides enforcement authority and penalties for violation of the water use restrictions. HCSD Code Chapter 4.13 7 was designed to be flexible and able to be implemented in a wide range of water shortage situations. The HCSD WSCP meets the 2020 UWMP requirements. Table 8-1 contains the water shortage contingency levels and Table 8-2 contains demand reduction measures.

9.0 DEMAND MANAGEMENT MEASURE

This Section will describe HCSD's efforts to promote conservation and to reduce demand on their water supply and will specifically address several demand management measures (DMMs).

9.1 Demand Management Measures for Retail Agencies

> ***Requirement****: (A) The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.*
> *(B) The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:*
>
> ***(i)*** *Water waste prevention ordinances.*
> ***(ii)*** *Metering.*
> ***(iii)*** *Conservation pricing.*
> ***(iv)*** *Public education and outreach.*
> ***(v)*** *Programs to assess and manage distribution system real loss.*
> ***(vi)*** *Water conservation program coordination and staffing support.*
> ***(vii)*** *Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented. (CWC 10631 (f))*

Water Waste Prevention Ordinance - The HCSD has an Ordinance that prohibits the waste of water. Section 4.05.090 of the HCSD Code states "No customer shall knowingly permit leaks or waste of water. Where water is wastefully or negligently used on a customer's premises, seriously affecting the general service, the HCSD may discontinue the service if such conditions are not corrected within five days after giving customer written notice". Furthermore, the HCSD has a program designed to alert customers when excessive water use is detected. This is designed to help customers detect leaks and keep water costs down to end users.

Metering - All HCSD customer sectors are metered including separate meters for single-family residential, commercial, industrial and educational facilities. All customers are on meters and are billed by volume used.

Conservation Pricing - The HCSD's water billing pricing structure consists of a service charge for water availability (base charge) and quantity use charges (consumption charge). There is no inclining use (tiered) charges associated with HCSD's pricing structure at this time. For the District to implement a tiered rate structure, Prop 218 requires that the tiered rates be justified by a documentable increase in the cost of the increased volume of water being supplied.

The HCSD is a small District that has abundant water supplies and relies on water rate revenues to operate. Implementing conservation measures might reduce operating revenue (other than leak reduction).

Public Education and Outreach - The HCSD supports initiatives to inform the public about water conservation. HCSD has coordinated public education and outreach with the other regional water retailers that are supplied water by HBMWD.

HBMWD has created a site on its web page to promote water use awareness and water conservation. In addition, the District created a promotional campaign that targets reducing water use by producing water awareness and conservation brochures and running periodic public service announcements on the radio. This DMM will continue into the future.

Programs to Assess and Manage Distribution System Real Loss - HCSD has meters on all services and sources. Due to the water distribution system's age and area seismic activities, the HCSD routinely monitors for leaks, conducts distribution system repair and meter calibration activities. Totalizers connected to the HCSD's control system measure and record production rates, receiving rates, as well as delivery rates. These readings are taken continuously and are monitored at all times by HCSD staff. The HCSD also conducts valve exercising annually to ensure that all valving works properly and therefore allows for a distribution system check. The largest and most costly water conservation measure implemented by the HCSD Capital Improvement Program is replacement of approximately 15 miles of wrapped steel gas pipe that was used as water pipe during the 1950's. This wrapped steel pipe has a thin wall thickness, was not generally corrosion protected and is the source of most water leakage in the HCSD. Reducing system water loss is the only construction measure that HCSD intends to (continually) implement. HCSD will measure the effectiveness of this DMM by ongoing monitoring of system loss.

Water Conservation Program Coordination and Staffing Support - The District Assistant Engineer has been assigned as the District Conservation Coordinator and has overall responsibility for oversight and implementation of the water conservation program(s).

9.2 Implementation over the Past Five Years

> ***Requirement****: Provide a description of the supplier's water demand management measures. This description shall include all of the following:*
> *(1)(A) … a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. (CWC 10631(f)(2))*

Over the past five years HCSD has focused water conservation efforts on public education and outreach and programs to assess and manage distribution system real loss.

Public Education and Outreach - In the past five years HCSD has coordinated public education and outreach with the other regional water retailers that are supplied water by HBMWD. This coordinated outreach included a series of radio announcements that promote water conservation and staffing a booth at the Humboldt County Fair that promotes water conservation. Details are noted below:

- Recorded 7 different 30-second radio ads highlighting different water conservation messages for broadcast on 3 radio stations over a six-month period (May-Oct 2014 and 2015);
- Staffing a booth at the Humboldt County Fair that promotes water conservation(2014 and 2015); and
- Made water conservation presentations to various local civic groups such as local Daughters of the America Revolution; Soroptomist International of Eureka.

.

Programs to Assess and Manage Distribution System Real Loss -HCSD has completed AWWA Water Loss Audits for calendar years 2013 through 2019. Based on results of the audits HCSD has focused efforts on leak repair and assessing the condition of system interties that connect HCSD to the COE water system. Assessment of interties included collection of water pressure data from both sides of the interties along with the collection and analysis of water samples for fluoride (used by COE but not HCSD). Additionally, HCSD has focused on quantification of all water uses including bulk water sales. HCSD has also been working continually with the water billing software and software provider to be able to generate meaningful reliable monthly water distribution volumes.

9.3 Planned Implementation to Achieve Water Use Targets

> ***Requirement****: Provide a description of the supplier's water demand management measures. This description shall include all of the following:*
> *(1)(A) …The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20. (CWC 10631(f))*

HCSD has met the 2020 water use goal. To maintain water conservation in the District HCSD will continue to emphasize public education and outreach and programs to assess and manage distribution real loss.

Public Education and Outreach – HCSD will continue outreach and public education efforts HCSD will make an effort to coordinate public education and outreach with the other regional water retailers that are supplied water by HBMWD. This coordinated outreach could include radio announcements that promote water conservation and plans for annually staffing a booth at the Humboldt County Fair that promotes water conservation.

Programs to Assess And Manage Distribution System Real Loss - HCSD and COE are connected by several water system interties and are reviewing their individual AWWA water audit results as a group. It is anticipated that a combined system-wide AWWA water loss audit will be performed to reduce the potential impact on interties. HCSD will continue to conduct annual AWWA water loss audits and focus on correcting detected water leaks and improving the billing system to generate monthly distribution reports that can be used to monitor the effectiveness of various system corrections.

10.0 PLAN ADOPTION, SUBMITAL AND IMPLEMENTATION

This Section describes the steps taken by HCSD to adopt and submit the UWMP and to make it publicly available. This chapter will also include a discussion of HCSD's plan to implement the UWMP.

10.1 Inclusion of All 2020 Data

HCSD's 2020 UWMP includes all of the 2020 data based on a calendar year.

The following steps will be used for the UWMP adoption, submittal, and to make it available to the public:

- Notification of public hearing – HCSD will notify cities, counties, and the public that they will be reviewing its UWMP and considering changes or amendments - At least 60 days prior to public hearing (Table 10-1).

- Notification to the public – HCSD will provide two notifications - Published in a local newspaper at least once a week for two consecutive weeks prior to the Board of Directors meeting (public hearing) (Appendix E).

- Public hearing and optional adoption – The District will allow for community input, considering economic impacts, and can be combined with the adoption meeting as long as the public hearing is on the agenda before the adoption.

- Adoption – The adoption hearing is for the Board of Directors to formally adopt the UWMP. Resolution 2021-08 is contained in Appendix F.

- Plan submittal – HCSD will update and submit its 2020 UWMP to DWR by July 1, 2021.

- Plan availability - No later than 30 days after adoption – HCSD will submit the UWMP to the California State Library and all cities and counties within which the District provides water.

- Amending an adopted UWMP – If the District amends an adopted UWMP, each of the steps for notification, public hearing, adoption, and submittal must also be followed for the amended plan.

11.0 REFERENCES

California Department of Water Resources. 1965. North Central Hydrographic Area, Volume 1; Southern Portion. Bulletin 142-1.

California Department of Water Resources. 1975. California's Groundwater. California Department of Water Resources. Bulletin 118.

California, Department of Water Resources, 2003, California's Groundwater Bulletin 118, 2003 update.

State of California, Department of Water Resources, 1980: Ground Water Basins in California Bulletin 118-80.

State of California, Department of Water Resources, 2004: California's Groundwater Bulletin 118, 2004 update.

Clarke, Samuel H. Jr. 1990. Map Showing Geologic Structures of the Northern California Continental Margin. United States Geological Survey.

Evenson, R.E. 1959. Geology and Ground Water Features of Eureka Area, Humboldt County, California. USGS Water Supply Paper 1470.

Strand, 1962. Geologic Map of California, [Redding Sheet]. Scale 1:250,000. California Division of Mines and Geology.

TABLES

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			
CA1210009	Humboldt CSD	7,670	663
	TOTAL	7,670	663
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

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)**		
NOTES:			

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.*	
NOTES:	

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
NOTES:

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	19,712	20,327	20,941	21,554	22,166	22,775
NOTES: Population growth based on City of Eureka 2040 General Plan, Oct, 15, 2018.						

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	379
Multi-Family		Drinking Water	52
Commercial		Drinking Water	47
Industrial		Drinking Water	
Landscape		Drinking Water	3
Losses		Drinking Water	181
		TOTAL	662

[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.*

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

NOTES:

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		389	401	413	425	436
Multi-Family		56	57	59	61	62
Commercial		62	64	66	68	70
Institutional/Governmental						
Landscape		6	6	6	7	7
Other		0	0	0	0	0
Losses		216	222	229	235	242
TOTAL		730	751	773	796	817

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

NOTES: Residential water demand was projected based on population change. Other use sectors were projected using the past five year average percent of residentail volume. Loss was projected based on the 5-year the average as a percent of sales volume total.

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*	662	730	751	773	796	817
Recycled Water Demand[1] *From Table 6-4*	0	0	0	0	0	0
Optional Deduction of Recycled Water Put Into Long-Term Storage[2]						
TOTAL WATER USE	662	730	751	773	796	817

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

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

NOTES:

Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss [1,2]
12/2016	189.421
12/2017	190.157
01/2018	230.06
01/2019	194.885
01/2020	181.45
[1] *Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.* [2] ***Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES: AWWA Audit is not completed for 2020. 2020 loss is (production - sales.)	

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

Urban Water Supplier: *Hunboldt Community Services District*

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

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

Enter Start Date for Reporting Period: 1/1/2020
End Date: 12/31/2020
Is upstream embedded in the values reported?

		Urban Water Supplier Operational Control							
		Water Management Process						Non-Consequential Hydropower (if applicable)	
	Water Volume Units Used	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process	MG	*145*	*663*			*663*	*663*		*663*
Energy Consumed (kWh)	*N/A*	236,263.60	*319315*			*319315*	*874893.6*		*874893.6*
Energy Intensity (kWh/vol. converted to MG)	*N/A*	*1629.4*	*481.6*	*0.0*	*0.0*	*481.6*	*1319.6*	*0.0*	*1319.6*

Quantity of Self-Generated Renewable Energy
kWh

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

Data Quality Narrative:

Extract and divert energy is only for HCSD groundwater. Energy for storage and distribution could not be split apart and was divided between the two. Energy for storage and distributiond is for HCSD groundwater and HBMWD purchased water (total water supply).

Narrative:

Submittal Table 5-1 Baselines and Targets Summary
From SB X7-7 Verification Form
Retail Supplier or Regional Alliance Only

Baseline Period	Start Year *	End Year *	Average Baseline GPCD*	Confirmed 2020 Target*
10-15 year	*1995*	*2004*	*141*	*113*
5 Year	*2003*	*2007*	*136*	

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

NOTES:

Submittal Table 5-2: 2020 Compliance **From** **SB X7-7 2020 Compliance Form** *Retail Supplier or Regional Alliance Only*				
2020 GPCD			2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
Actual 2020 GPCD*	2020 TOTAL Adjustments*	Adjusted 2020 GPCD* *(Adjusted if applicable)*		
92.11	*0*	*0*	*113*	*Y*
**All cells in this table should be populated manually from the supplier's SBX7-7 2020 Compliance Form and reported in Gallons per Capita per Day (GPCD)*				
NOTES:				

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
☐	All or part of the groundwater described below is desalinated.					
Groundwater Type ***Drop Down List*** *May use each category multiple times*	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Add additional rows as needed						
Alluvial Basin	Eureka Plain	193.7	201.6	192.2	172.8	145.5
	TOTAL	194	202	192	173	146
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

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.					
100	Percentage of 2020 service area covered by wastewater collection system *(optional)*					
100	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*
Humboldt Community Services Deistrict	Metered	383	City of Eureka	ELK RIVER WASTEWATER TREATMENT PLANT	No	No
Total Wastewater Collected from Service Area in 2020:		383				
**** Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3* **.**						
NOTES:						

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

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

Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)* [2]	Method of Disposal ***Drop down list***	Does This Plant Treat Wastewater Generated Outside the Service Area? ***Drop down list***	Treatment Level ***Drop down list***	2020 volumes [1]				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
						Total	0	0	0	0	0

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

[2] If the **Wastewater Discharge ID Number** is not available to the UWMP preparer, access the SWRCB CIWQS regulated facility website at https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility

NOTES:

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area

☑ Recycled water is not used and is not planned for use within the service area of the supplier.
The supplier will not complete the table below.

Name of Supplier Producing (Treating) the Recycled Water:	
Name of Supplier Operating the Recycled Water Distribution System:	
Supplemental Water Added in 2020 (volume) *Include units*	
Source of 2020 Supplemental Water	

Beneficial Use Type *Insert additional rows if needed.*	**Potential** Beneficial Uses of Recycled Water (Describe)	Amount of **Potential** Uses of Recycled Water (Quantity) *Include volume units* [1]	General Description of 2020 Uses	Level of Treatment *Drop down list*	2020 [1]	2025 [1]	2030 [1]	2035 [1]	2040 [1]	2045 [1] (opt)
Agricultural irrigation										
Landscape irrigation (exc golf courses)										
Golf course irrigation										
Commercial use										
Industrial use										
Geothermal and other energy production										
Seawater intrusion barrier										
Recreational impoundment										
Wetlands or wildlife habitat										
Groundwater recharge (IPR)										
Reservoir water augmentation (IPR)										
Direct potable reuse										
Other (Description Required)										
				Total:	0	0	0	0	0	0
				2020 Internal Reuse						

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

NOTES:

Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual

☑	Recycled water was not used in 2015 nor projected for use in 2020. The supplier will not complete the table below. If recycled water was not used in 2020, and was not predicted to be in 2015, then check the box and do not complete the table.

Beneficial Use Type	2015 Projection for 2020 [1]	2020 Actual Use[1]
Insert additional rows as needed.		
Agricultural irrigation		
Landscape irrigation (exc golf courses)		
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Reservoir water augmentation (IPR)		
Direct potable reuse		
Other (Description Required)		
Total	0	0

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

NOTE:

Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☑	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use *
Add additional rows as needed			
		Total	0
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☑	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☐	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other suppliers?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type *Drop Down List*	Expected Increase in Water Supply to Supplier* *This may be a range*
	Drop Down List (y/n)	*If Yes, Supplier Name*				
Add additional rows as needed						
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
Drop down list May use each category multiple times.These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Purchased or Imported Water		517	Drinking Water	
Groundwater (not desalinated)		145	Drinking Water	
	Total	663		0
Units of measure (AF, CCF, MG) *must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES:				

Submittal Table 6-9 Retail: Water Supplies — Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply * Report To the Extent Practicable									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		**2025**		**2030**		**2035**		**2040**		**2045** (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Purchased or Imported Water		1,059		1,059		1,059		1,059		1,059	
Groundwater (not desalinated)		176		176		176		176		176	
Total		1,235	0	1,235	0	1,235	0	1,235	0	1,235	0

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

NOTES Contract with HBMWD has a maximium limit of 2.9 MGD resulting in 1,059 MGY. 5-year average HCSD groundwater well annual production is 250 MGY and is used for the projection.

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		100%
Single-Dry Year	1977		11%
Consecutive Dry Years 1st Year	1990		58%
Consecutive Dry Years 2nd Year	1991		38%
Consecutive Dry Years 3rd Year	1992		29%
Consecutive Dry Years 4th Year	1993		119%
Consecutive Dry Years 5th Year	1994		44%

Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.

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

NOTES Based on HBMWD 2020 UWMPP.

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals (*autofill from Table 6-9)*	1,235	1,235	1,235	1,235	1,235
Demand totals *(autofill from Table 4-3)*	730	751	773	796	817
Difference	505	484	462	439	418
NOTES: Supply includes 1,056 MGY from HBMWD and 176 MGY from HCSD groundwater wells.					

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	1,235	1,235	1,235	1,235	1,235
Demand totals*	730	751	773	796	817
Difference	505	484	462	439	418
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES: Supply includes 1,056 MGY from HBMWD and 176 MGY from HCSD groundwater wells.					

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	1,235	1,235	1,235	1,235	1,235
	Demand totals	730	750	773	796	817
	Difference	505	485	462	439	418
Second year	Supply totals	1,235	1,235	1,235	1,235	1,235
	Demand totals	730	750	773	796	817
	Difference	505	485	462	439	418
Third year	Supply totals	1,235	1,235	1,235	1,235	1,235
	Demand totals	730	750	773	796	817
	Difference	505	485	462	439	418
Fourth year	Supply totals	1,235	1,235	1,235	1,235	1,235
	Demand totals	730	750	773	796	817
	Difference	505	485	462	439	418
Fifth year	Supply totals	1,235	1,235	1,235	1,235	1,235
	Demand totals	730	750	773	796	817
	Difference	505	485	462	439	418
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: Supply includes 1,056 MGY from HBMWD and 176 MGY from HCSD groundwater wells.						

Submittal Table 7-5: Five-Year Drought Risk Assessment Tables to address Water Code Section 10635(b)

2021	Total
Total Water Use	712
Total Supplies	1,235
Surplus/Shortfall w/o WSCP Action	523
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	523
Resulting % Use Reduction from WSCP action	0%

2022	Total
Total Water Use	716
Total Supplies	1,235
Surplus/Shortfall w/o WSCP Action	519
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	519
Resulting % Use Reduction from WSCP action	0%

2023	Total
Total Water Use	721
Total Supplies	1,235
Surplus/Shortfall w/o WSCP Action	514
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	514
Resulting % Use Reduction from WSCP action	0%

2024	Total
Total Water Use	725
Total Supplies	1,235
Surplus/Shortfall w/o WSCP Action	510
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	510
Resulting % Use Reduction from WSCP action	0%

2025	Total
Total Water Use	730
Total Supplies	1,235
Surplus/Shortfall w/o WSCP Action	505
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	505
Resulting % Use Reduction from WSCP action	0%

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** **(*Narrative description)***
1	Up to 10%	Voluntary Conservation
2	Up to 20%	Mandatory Conservation
3	Up to 30%	Mild Water Shortage
4	Up to 40%	Moderate Water Shortage
5	Up to 50%	Severe Water Shortage
6	>50%	Critical Water Shortage Emergency
NOTES:		

Submittal Table 8-2: Demand Reduction Actions

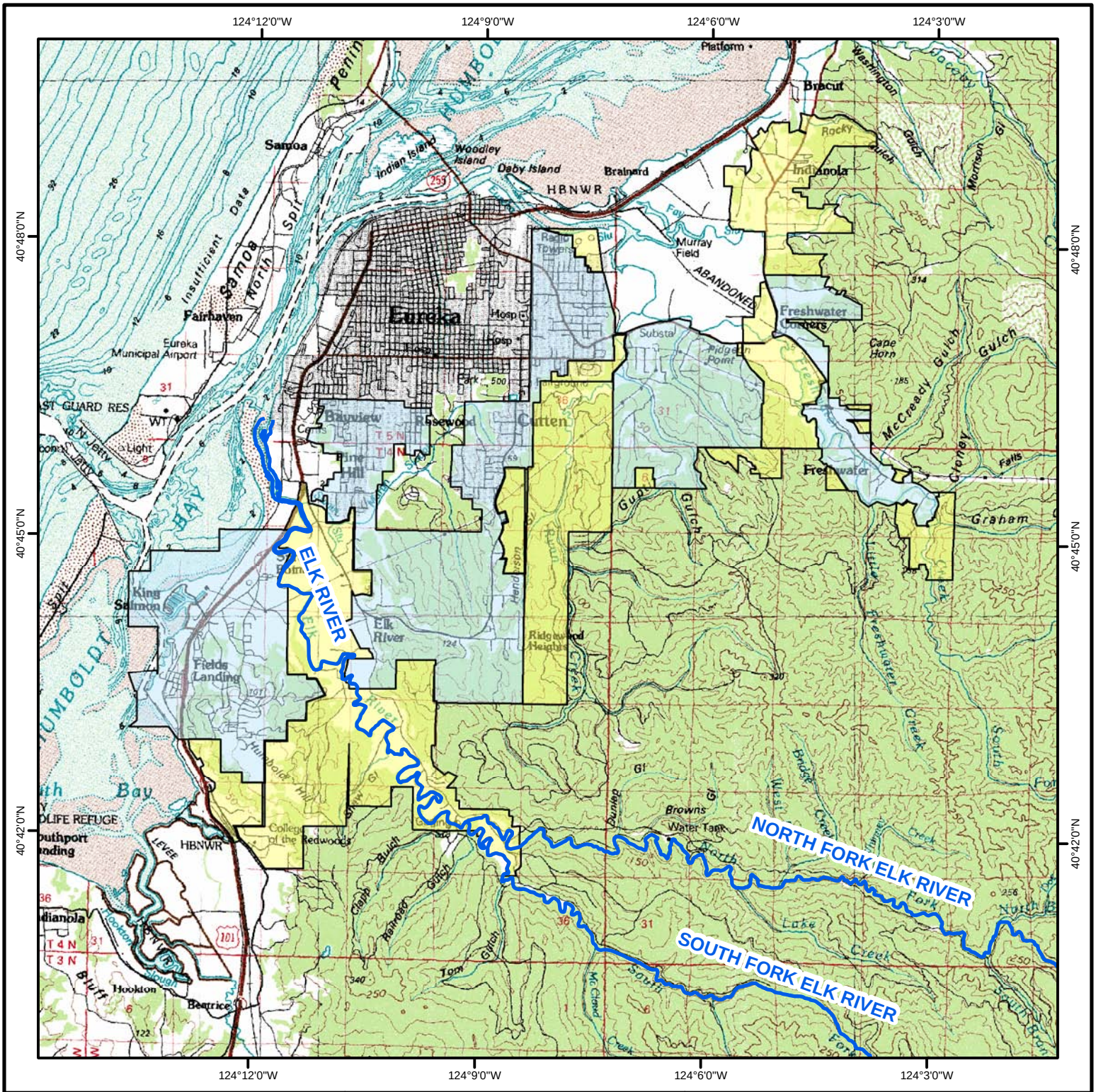
Shortage Level	Demand Reduction Actions ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down List*
Add additional rows as needed				
1	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	10%		
1	Expand Public Information Campaign	10%		
1	Reduce System Water Loss	10%		
2	Landscape - Restrict or prohibit runoff from landscape irrigation	20%		
2	Pools and Spas - Require covers for pools and spas	20%		
2	CII - Lodging establishment must offer opt out of linen service	20%		
2	Other - Require automatic shut of hoses	20%		
3	Landscape - Prohibit certain types of landscape irrigation	30%		
3	Pools - Allow filling of swimming pools only when an appropriate cover is in place.	30%		
3	CII - Restaurants may only serve water upon request	30%		
4	CII - Commercial kitchens required to use pre-rinse spray valves	40%		
4	Other - Prohibit use of potable water for construction and dust control	40%		
4	Other - Prohibit use of potable water for washing hard surfaces	40%		
4	Landscape - Limit landscape irrigation to specific times	40%		
5	Landscape - Prohibit all landscape irrigation	50%		
5	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	50%		
6	Implement or Modify Drought Rate Structure or Surcharge	>50%		

NOTES:

Submittal Table 8-3: Supply Augmentation and Other Actions			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*
Add additional rows as needed			
NOTES:			

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Eureka	Yes	No
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Humboldt County	Yes	Yes
NOTES: Notice aslo to HBMWD.		

FIGURES



LEGEND

- Approximate Boundary of HCSD
- Approximate Boundary of HCSD Sphere of Influence

Boundaries obtained from Humbolldt Community Services District.
Base Image Data Source:
1:24,000 Digital Raster Graph Mosaic of Humboldt County, California.
ALL LOCATIONS APPROXIMATE

Humboldt Community Services District

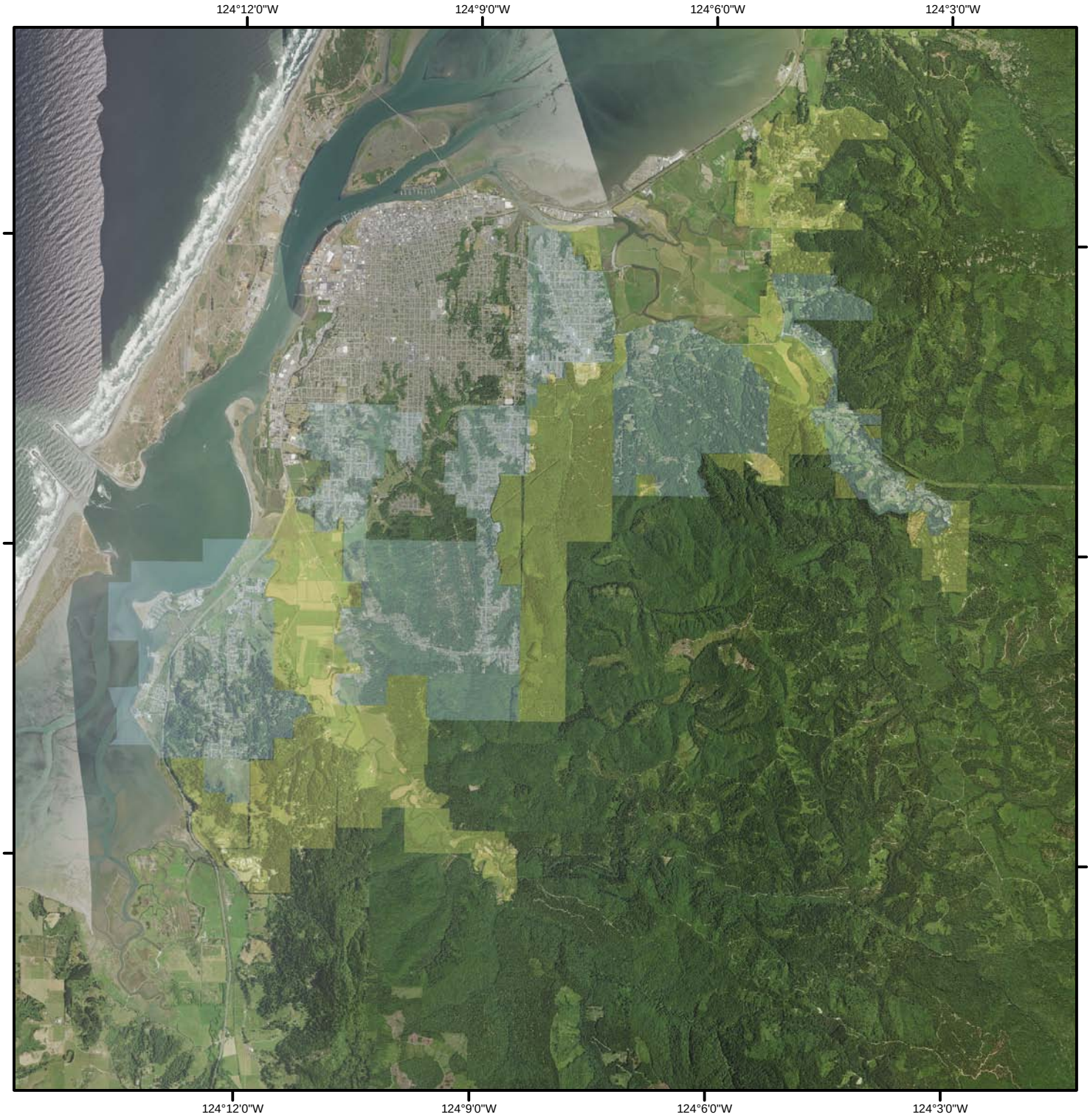
Figure 1

Site Location Map
Eureka Area, California

Freshwater Environmental Services

Date: 5-26-16

By: SJT



N
W E
S

Miles
0 0.5 1 2 3

LEGEND

Approximate Boundary of HCSD
Approximate Boundary of HCSD Sphere of Influence
Boundaries obtained from Humbolldt Community Services District.
Base Image Data Source:USDA-FSA Aerial Photography Field Office Color Digital Ortho Photo Quad dated June, 2014.
ALL LOCATIONS APPROXIMATE

Humboldt Community Services District

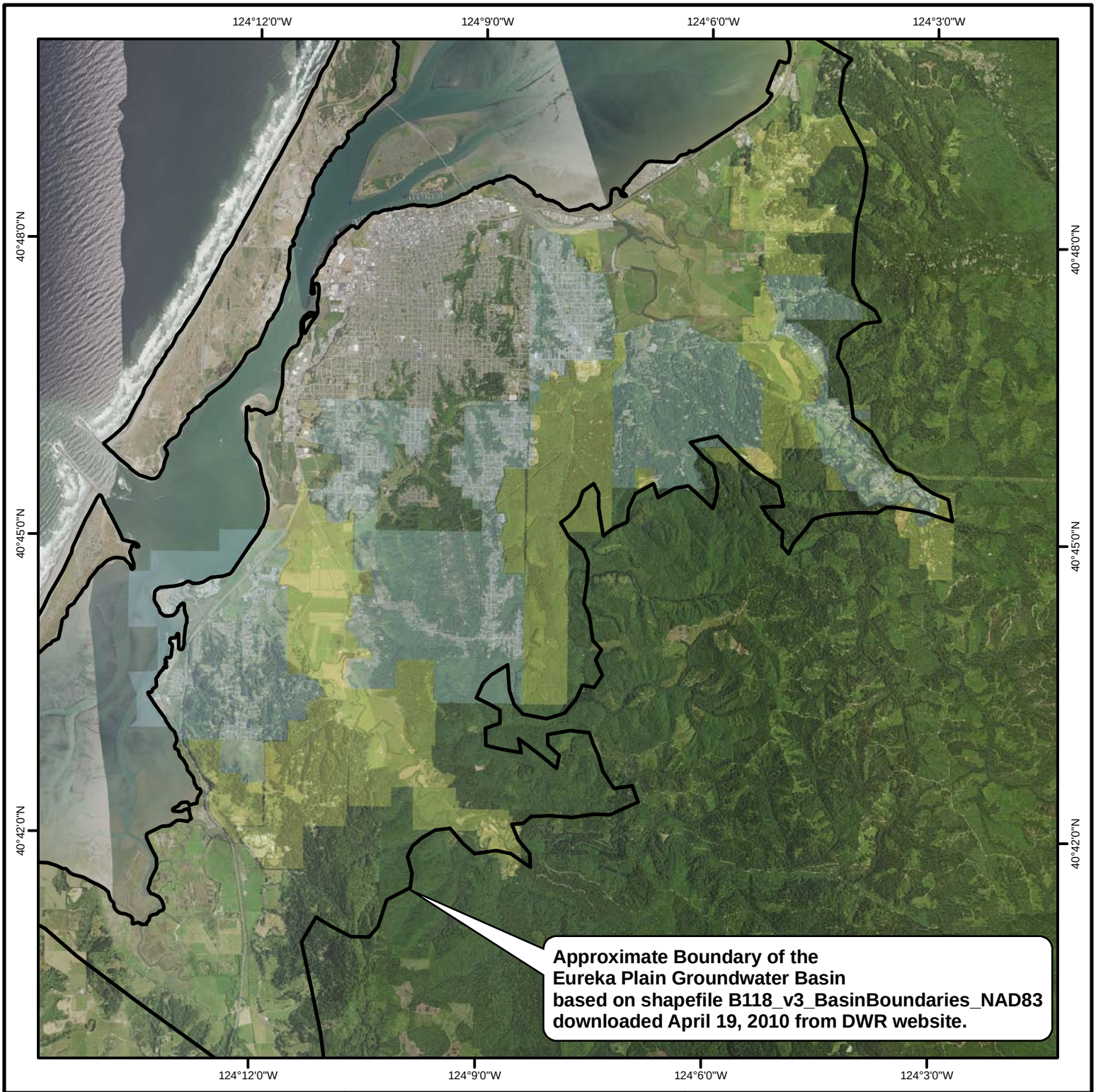
Figure 2

Site Location Map 2014 Aerial Image

Freshwater Environmental Services

Date: 5-26-16

By: SJT



N
W E
S

Miles
0 0.5 1 2 3

LEGEND

Approximate Boundary of HCSD
Approximate Boundary of HCSD Sphere of Influence
Boundaries obtained from Humbolldt Community Services District.
Base Image Data Source:USDA-FSA Aerial Photography Field Office Color Digital Ortho Photo Quad dated June, 2014.
ALL LOCATIONS APPROXIMATE

Humboldt Community Services District

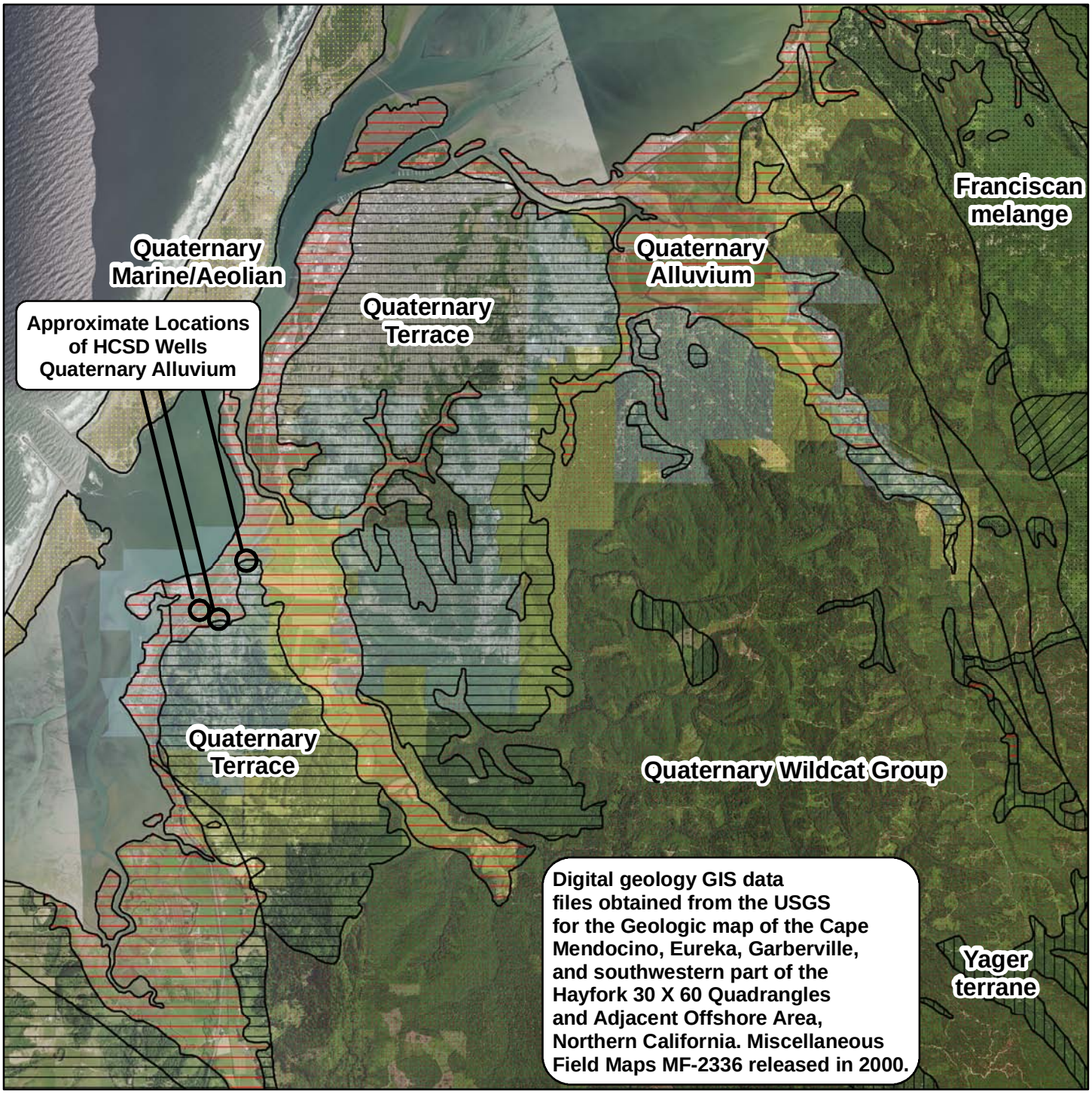
Figure 3

Eureka Plain Groundwater Basin

Freshwater Environmental Services

Date: 5-26-16

By: SJT



N
W E
S

Miles

0 0.5 1 2 3

LEGEND

Approximate Boundary of HCSD

Approximate Boundary of HCSD Sphere of Influence

Boundaries obtained from Humbolldt Community Services District.

Base Image Data Source:USDA-FSA Aerial Photography Field Office Color Digital Ortho Photo Quad dated June, 2014.

ALL LOCATIONS APPROXIMATE

Humboldt Community Services District

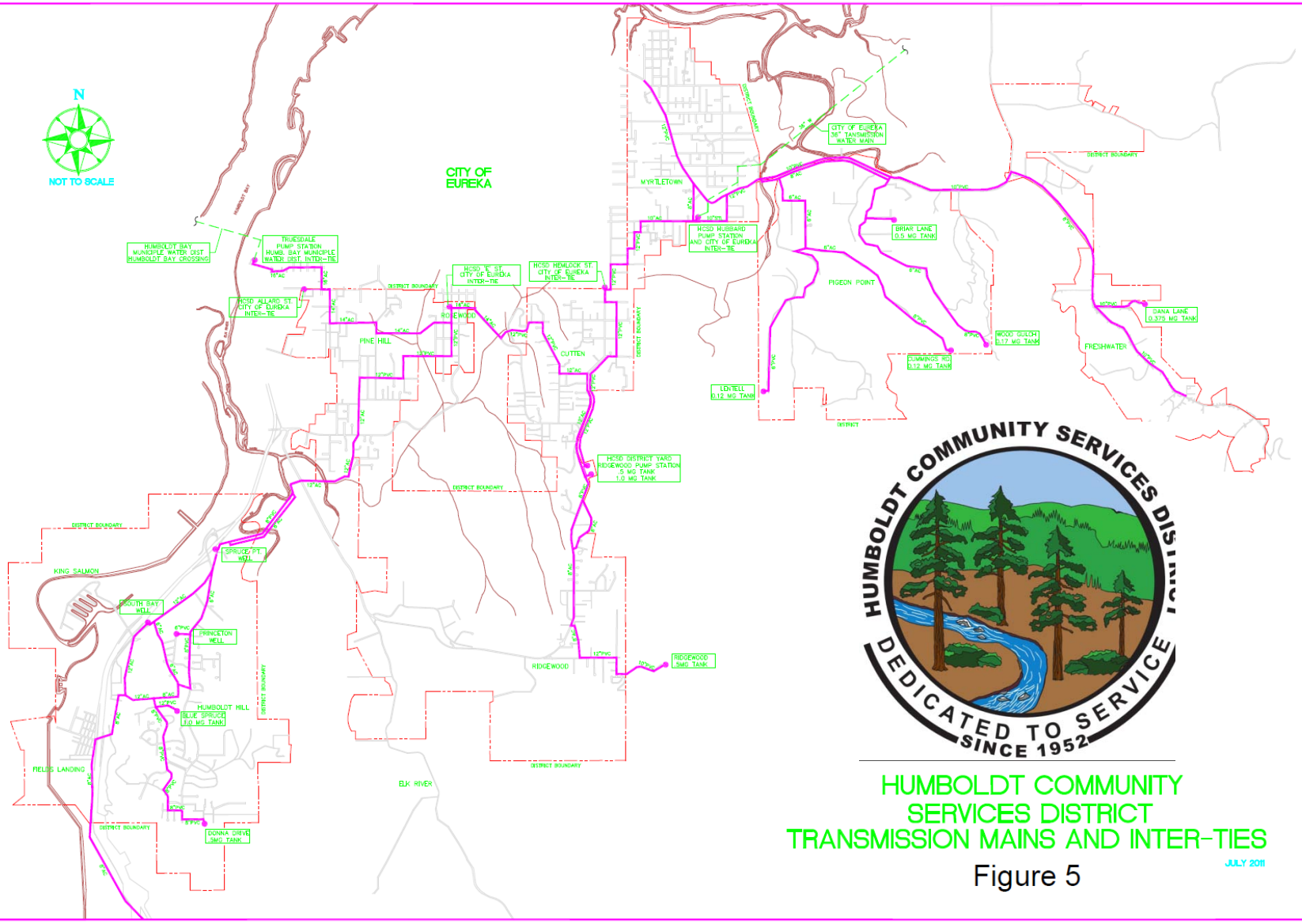
Figure 4

Geologic Map

Freshwater Environmental Services

Date: 5-26-16

By: SJT



HUMBOLDT COMMUNITY SERVICES DISTRICT
DEDICATED TO SERVICE SINCE 1952

HUMBOLDT COMMUNITY SERVICES DISTRICT TRANSMISSION MAINS AND INTER-TIES

JULY 2011

Figure 5

APPENDIX A
NOTICE OF PREPARATION TO NEIGHBORING MUNICIPALITIES

Humboldt Community Services District

Dedicated to providing high quality, cost effective water and sewer service for our customers

April 26, 2021

John Ford
Planning and Building Director
County of Humboldt
3015 H Street Eureka, CA 95501

Re: Notice Regarding Review of the Humboldt Community Services District's Urban Water Management Plan

Dear Mr. Ford:

California Water Code (CWC) 10621(b) requires an urban water supplier preparing an Urban Water Management Plan (UWMP) 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. CWC further requires each urban water supplier to coordinate the preparation of its UWMP with other appropriate area agencies including other water suppliers that share the same water sources, water management agencies, and other relevant public agencies. This letter is the Humboldt Community Services District's notice to your agency that the Humboldt Community Services District is in the process of reviewing and updating its UWMP.

As with the 2015 UWMP, the Humboldt Community Services District is reviewing and updating its 2020 UWMP in collaboration with Humboldt Bay Municipal Water District, City of Arcata, City of Eureka and McKinleyville 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 abovenamed agencies to coordinate your participation.

If you have any questions, please feel free to call me at (707) 443-4558 x 216.

Sincerely,

Terrence Williams
General Manager

cc: Orrin Plocher, Freshwater Environmental Services

Mailing: Post Office Box 158 • Cutten, CA 95534 • tel (707) 443-4558 • fax (707) 443-0818
Physical Address: 5055 Walnut Drive, Eureka, CA 95503

Humboldt Community Services District

Dedicated to providing high quality, cost effective water and sewer service for our customers

April 26, 2021

Brian Gerving
Director of Public Works
City of Eureka
531 K Street Eureka, CA 95501-1146

Re: Notice Regarding Review of the Humboldt Community Services District's Urban Water Management Plan

Dear Mr. Gerving:

California Water Code (CWC) 10621(b) requires an urban water supplier preparing an Urban Water Management Plan (UWMP) 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. CWC further requires each urban water supplier to coordinate the preparation of its UWMP with other appropriate area agencies including other water suppliers that share the same water sources, water management agencies, and other relevant public agencies. This letter is the Humboldt Community Services District's notice to your agency that the Humboldt Community Services District is in the process of reviewing and updating its UWMP.

As with the 2015 UWMP, the Humboldt Community Services District is reviewing and updating its 2020 UWMP in collaboration with Humboldt Bay Municipal Water District, City of Arcata, City of Eureka and McKinleyville 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 abovenamed agencies to coordinate your participation.

If you have any questions, please feel free to call me at (707) 443-4558 x 216.

Sincerely,

Terrence Williams
General Manager

cc: Orrin Plocher, Freshwater Environmental Services

Mailing: Post Office Box 158 • Cutten, CA 95534 • tel (707) 443-4558 • fax (707) 443-0818
Physical Address: 5055 Walnut Drive, Eureka, CA 95503

Humboldt Community Services District

Dedicated to providing high quality, cost effective water and sewer service for our customers

April 26, 2021

John Friedenbach
General Manager
Humboldt Bay MWD
P.O. Box 95 Eureka, CA 95502

Re: Notice Regarding Review of the Humboldt Community Services District's Urban Water Management Plan

Dear Mr. Friedenbach:

California Water Code (CWC) 10621(b) requires an urban water supplier preparing an Urban Water Management Plan (UWMP) 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. CWC further requires each urban water supplier to coordinate the preparation of its UWMP with other appropriate area agencies including other water suppliers that share the same water sources, water management agencies, and other relevant public agencies. This letter is the Humboldt Community Services District's notice to your agency that the Humboldt Community Services District is in the process of reviewing and updating its UWMP.

As with the 2015 UWMP, the Humboldt Community Services District is reviewing and updating its 2020 UWMP in collaboration with Humboldt Bay Municipal Water District, City of Arcata, City of Eureka and McKinleyville 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 abovenamed agencies to coordinate your participation.

If you have any questions, please feel free to call me at (707) 443-4558 x 216.

Sincerely,

Terrence Williams
General Manager

cc: Orrin Plocher, Freshwater Environmental Services

Mailing: Post Office Box 158 • Cutten, CA 95534 • tel (707) 443-4558 • fax (707) 443-0818
Physical Address: 5055 Walnut Drive, Eureka, CA 95503

APPENDIX B
SBX7-7 TABLES

SB X7-7 Table 0: Units of Measure Used in UWMP* *(select one from the drop down list)*
Million Gallons
**The unit of measure must be consistent with Table 2-3*
NOTES:

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	650	Million Gallons
	2008 total volume of delivered recycled water	0	Million Gallons
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period[1]	10	Years
	Year beginning baseline period range	1995	
	Year ending baseline period range[2]	2004	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2003	
	Year ending baseline period range[3]	2007	

[1] *If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period.*

[2] *The ending year must be between December 31, 2004 and December 31, 2010.*

[3] *The ending year must be between December 31, 2007 and December 31, 2010.*

NOTES:

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☐	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☑	**2. Persons-per-Connection Method**
☑	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES: DWR population Tool with persons-per-residential connections.	

SB X7-7 Table 3: Service Area Population		
Year		**Population**
10 to 15 Year Baseline Population		
Year 1	1995	16,760
Year 2	1996	16,936
Year 3	1997	17,151
Year 4	1998	17,359
Year 5	1999	17,501
Year 6	2000	17,693
Year 7	2001	17,858
Year 8	2002	18,227
Year 9	2003	18,304
Year 10	2004	18,446
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2003	18,304
Year 2	2004	18,446
Year 3	2005	18,681
Year 4	2006	18,788
Year 5	2007	18,846
2015 Compliance Year Population		
2015		22,842
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *								
	Baseline Year *Fm SB X7-7 Table 3*	**Volume Into Distribution System** *Fm SB X7-7 Table(s) 4-A*	**Deductions**					**Annual Gross Water Use**
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water *Fm SB X7-7 Table 4-B*	Water Delivered for Agricultural Use	Process Water *Fm SB X7-7 Table(s) 4-D*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	1995	856.42	18	0	0	0	0	839
Year 2	1996	886.7919	0	0	0	0	0	887
Year 3	1997	890.3148	15	0	0	0	0	876
Year 4	1998	870.9	0	0	0	0	0	871
Year 5	1999	904.1117	0	0	0	0	0	904
Year 6	2000	932.9396	0	0	0	0	0	933
Year 7	2001	922.5086	0	0	0	0	0	923
Year 8	2002	967.7175	9	0	0	0	0	959
Year 9	2003	943.9202	8	0	0	0	0	936
Year 10	2004	964.733	8	0	0	0	0	957
Year 11	0	0			0		0	0
Year 12	0	0			0		0	0
Year 13	0	0			0		0	0
Year 14	0	0			0		0	0
Year 15	0	0			0		0	0
10 - 15 year baseline average gross water use								**606**
5 Year Baseline - Gross Water Use								
Year 1	2003	944	8		0		0	936
Year 2	2004	965	8		0		0	957
Year 3	2005	961			0		0	961
Year 4	2006	890			0		0	890
Year 5	2007	875			0		0	875
5 year baseline average gross water use								**924**
2015 Compliance Year - Gross Water Use								
2015		740	2		0		0	738
* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3								
NOTES:								

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Complete one table for each source.

Name of Source	Groundwater Wells
This water source is:	
☑	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1995	295.6		296
Year 2	1996	298.8673		299
Year 3	1997	277.9361		278
Year 4	1998	260.9036		261
Year 5	1999	269.471		269
Year 6	2000	273.8353		274
Year 7	2001	266.8928		267
Year 8	2002	310.4854		310
Year 9	2003	265.2587		265
Year 10	2004	265.2587		265
Year 11	0			0
Year 12	0			0
Year 13	0			0
Year 14	0			0
Year 15	0			0
5 Year Baseline - Water into Distribution System				
Year 1	2003	265.2587		265
Year 2	2004	265.2587		265
Year 3	2005	265.2587		265
Year 4	2006	265.2587		265
Year 5	2007	265.2587		265
2015 Compliance Year - Water into Distribution System				
2015		193.731		194

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

NOTES: 2 groundwater wells

SB X7-7 Table 4-A: Volume Entering the Distribution

Name of Source	Purchased Water
This water source is:	
☐	The supplier's own water source
☑	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1995	560.82		561
Year 2	1996	587.9246		588
Year 3	1997	612.3787		612
Year 4	1998	609.9964		610
Year 5	1999	634.6407		635
Year 6	2000	659.1043		659
Year 7	2001	655.6158		656
Year 8	2002	657.2321		657
Year 9	2003	678.6615		679
Year 10	2004	699.4743		699
Year 11	0			0
Year 12	0			0
Year 13	0			0
Year 14	0			0
Year 15	0			0
5 Year Baseline - Water into Distribution System				
Year 1	2003	678.6615		679
Year 2	2004	699.4743		699
Year 3	2005	695.4615		695
Year 4	2006	625.1892		625
Year 5	2007	610.0025		610
2015 Compliance Year - Water into Distribution System				
2015		546		546
** Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document*				
NOTES:				

SB X7-7 Table 4-A: Volume Entering the Distribution	
Name of Source	Source 3
This water source is:	
☐	The supplier's own water source
☐	A purchased or imported source

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	1995			0
Year 2	1996			0
Year 3	1997			0

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	1995	16,760	839	137
Year 2	1996	16,936	887	143
Year 3	1997	17,151	876	140
Year 4	1998	17,359	871	137
Year 5	1999	17,501	904	142
Year 6	2000	17,693	933	144
Year 7	2001	17,858	923	142
Year 8	2002	18,227	959	144
Year 9	2003	18,304	936	140
Year 10	2004	18,446	957	142
Year 11	0	0	0	
Year 12	0	0	0	
Year 13	0	0	0	
Year 14	0	0	0	
Year 15	0	0	0	
10-15 Year Average Baseline GPCD				**141**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2003	18,304	936	140
Year 2	2004	18,446	957	142
Year 3	2005	18,681	961	141
Year 4	2006	18,788	890	130
Year 5	2007	18,846	875	127
5 Year Average Baseline GPCD				**136**
2015 Compliance Year GPCD				
2015		22,842	738	89
NOTES:				

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	141
5 Year Baseline GPCD	136
2015 Compliance Year GPCD	89
NOTES:	

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☑	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☐	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator
NOTES:		

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	2020 Target GPCD
141	113
NOTES:	

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☑		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☐		Tulare Lake	188	179
☐		South Lahontan	170	162
☐		South Coast	149	142
☐		Colorado River	211	200
Target *(If more than one region is selected, this value is calculated.)*				**0**
NOTES:				

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target*	Calculated 2020 Target *Fm Appropriate Target Table*	Confirmed 2020 Target
136	129	113	113
** Maximum 2020 Target is 95% of the 5 Year Baseline GPCD*			
NOTES:			

SB X7-7 Table 0: Units of Measure Used in 2020 UWMP* *(select one from the drop down list)*
Million Gallons
**The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.*
NOTES:

SB X7-7 Table 2: Method for 2020 Population Estimate	
Method Used to Determine 2020 Population (may check more than one)	
☐	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☑	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: 2020 Service Area Population	
2020 Compliance Year Population	
2020	19,712
NOTES:	

SB X7-7 Table 4: 2020 Gross Water Use

Compliance Year 2020	2020 Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	2020 Deductions					2020 Gross Water Use
		Exported Water *	Change in Dist. System Storage* (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use*	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
	663			-		-	**663**

*** Units of measure (AF, MG , or CCF)** must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Humboldt BayMunicipal Water District
This water source is *(check one)* **:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	293	-	293

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s) Meter Error Adjustment

Complete one table for each source.

Name of Source	City of Euerka
This water source is *(check one)* **:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	224		224

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Groundwater Wells
This water source is *(check one)* **:**	

☑	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
	145		145

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Enter Name of Source 4

This water source is *(check one)* **:**

☐	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2020	Volume Entering Distribution System [1]	Meter Error Adjustment [2] *Optional (+/-)*	Corrected Volume Entering Distribution System
			0

[1] ***Units of measure (AF, MG , or CCF)*** *must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.* [2] ***Meter Error Adjustment*** *- See guidance in Methodology 1, Step 3 of Methodologies Document*

NOTES:

SB X7-7 Table 4-A: 2020 Volume Entering the Distribution System(s), Meter Error Adjustment

Complete one table for each source.

Name of Source	Enter Name of Source 5

This water source is *(check one)* **:**

☐	The supplier's own water source
☐	A purchased or imported source

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**
663	19,712	**92**
NOTES:		

SB X7-7 Table 9: 2020 Compliance							
Actual 2020 GPCD[1]	Optional Adjustments to 2020 GPCD Enter "0" if Adjustment Not Used			TOTAL Adjustments[1]	Adjusted 2020 GPCD [1] *(Adjusted if applicable)*	2020 Confirmed Target GPCD [1, 2]	**Did Supplier Achieve Targeted Reduction for 2020?**
	Extraordinary Events[1]	Weather Normalization[1]	Economic Adjustment[1]				
92	-	-	-	-	92	113	**YES**

[1] *All values are reported in GPCD*

[2] ***2020 Confirmed Target GPCD*** *is taken from the Supplier's SB X7-7 Verification Form Table SB X7-7, 7-F.*

NOTES:

APPENDIX C
HBMWD WATER SHORTAGE COTINGENCY PLAN

HUMBOLDT COMMUNITY SERVICES DISTRICT
WATER SHORTAGE CONTINGENCY PLAN

Prepared for:
Humboldt Community Services District
Eureka, California

June 2021

Prepared by:
Orrin Plocher and Stan Thiesen

of

Freshwater Environmental Services

78 Sunny Brae Center
Arcata, California 95521
Phone (707) 839-0091

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

The Humboldt Community Services District (HCSD), situated in Humboldt County and approximately 280 miles North of San Francisco, surrounds the southerly and easterly boundaries of the City of Eureka (Figure 1). The easterly region of the HCSD encompasses the unincorporated areas of Myrtletown, Mitchell Heights, Pigeon Point, and Freshwater (Figure 2). The unincorporated areas of Pine Hill, Humboldt Hill, King Salmon, Fields Landing and College of the Redwoods constitute the southern regions of the HCSD service area. The central region, where the HCSD office is located includes Cutten, Ridgewood and Westgate areas of the District. The total area served by the HCSD is approximately 19 square miles.

The HCSD, a public agency, was created by election on September 23, 1952. The HCSD began operations on October 18, 1952 under the provisions of the Community Services Law of the State of California, as amended, with authority under Government Code, Section 6100 et seq. Although current services provided by the HCSD are sewer, water and street lighting services.

The HCSD is primarily urban residential in nature, which makes up approximately 90% of total HCSD accounts. Water supplied to HCSD's customers consists of water supplied by Humboldt Bay Municipal Water District (HBMWD), City of Eureka (COE), and groundwater extracted from three wells owned by the HCSD. These wells, which are up to 440 feet deep, are all located near the base of Humboldt Hill. These wells receive chlorination before distribution to the reservoir storage and distribution system.

Drinking water is pumped to 10 reservoirs by ten water booster pump stations. The 10 reservoirs have a total storage capacity of approximately 5 million gallons.

There are over 14 pressure zones, which distribute water throughout the District (Figure 3). The water reservoirs operate 14 different pressure zones using gravity flow. The other two pressure zones are supplied hydro-pneumatically by pump stations and are subject to shortages in the event of power outages. The District currently owns five trailer-mounted generators, of which the largest is 300 KVA, to protect against water shortages in the event of a power failure. A map of the HCSD water distribution system is include as Figure 5.

The HCSD supplies water to 7,670 active connections (2020). Approximately 7,381 residential connections, 266 connections are commercial, and 23 landscape irrigation connections. There are no industrial or agricultural connections.

In 2020, a total of 481.28 million gallons of water was distributed to its customer base.

1.1 Purpose

The Humboldt Community Services District (HCSD) has prepared this Water Shortage Contingency Plan as a response to the severe drought of 2012-2016, to prepare for potential future local, regional, and State water shortage conditions, and to fulfill a requirement of the Urban Water Management Planning Act.

1.2 State Regulations and Planning Requirements

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 (Appendix A). 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. Declaration of a water shortage emergency requires a public hearing with a public notice in a newspaper seven days prior to the hearing (California Water Code §352). The public hearing and public notice is not required in the event of a breakage or failure of the water distribution system causing an immediate emergency (California Water Code §351).

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

2.0 WATER SUPPLY RELIABILTIY ANALYSIS

This Section describes the reliability of HCSD's water supply and projects the reliability out 25 years. This description will be provided for normal, single dry years and multiple dry years.

Assessing water service reliability is the fundamental purpose for preparing an UWMP. Water service reliability reflects the District's ability to meet the water needs of its customers, including end-use customers and Retail Suppliers, with water supplies under varying conditions. The District's UWMP will consider the reliability of meeting customer water use by analyzing hydrological variability, regulatory variability, climate conditions, and other factors that affect a Supplier's water supply and its customers' water uses.

HCSDs water system reliability and drought risk assessment is based on HBMWD's ability to meet HCSD's projected demand over the next 25 years. Given the well-established reliability of water purchased from HBMWD (Ruth Lake Storage Capacity, 2015), HCSDs future projected demand can be met entirely with water purchased from HBMWD. The reliability of HCSD's groundwater use is discussed below and is added into the UWMP tables. HCSDs water supply reliability includes water purchased from HBMWD and additional water supplies from the District's groundwater wells.

2.1 Water Service Reliability Assessment (Purchased water from HBMSWD)

The following is Section 7 of the HBMWD's 2020 UWMP and demonstrates the reliability of HCSD's purchased water from HBMWD.

Constraints on Water Sources

As discussed in the "System Demands" sections above, the District has an abundant supply of water at Ruth Reservoir which flows down the Mad River and is pumped at the Essex Operations Center (Figure 2). This source of water has been very consistent and there is no need to replace or supplement this source.

Water Quality

As discussed above, drinking water delivered by the District is drawn from wells located in the Mad River. These wells draw water from the sands and gravel of the aquifer located under the riverbed. The gravel and sands through which the water is drawn provides a natural filtration process which yields source water for the District's regional drinking water system that is of very high quality. Furthermore, the results from the District's ongoing water monitoring and testing program indicate that the District's water quality is very high and meets safe drinking regulatory standards, as has consistently been the case over the years.

The only water quality issue occasionally encountered by the District in the past was turbidity. Generally, turbidity in the Ranney Well source water has been very low and meets the turbidity standards set by the California Department of Public

Health (CDPH), now known as the Division of Drinking Water (DDW). However, during or following severe winter storm events, turbidity in the source water could rise beyond the standards set by CDPH. In the late 1990s, an extremely heavy "El Nino" rainy season caused a prolonged series of storms that raised turbidity in the source water to such a level that CDPH became concerned that it could potentially interfere with the disinfection process, and therefore, pose a threat to public health. In 1997, CDPH directed all of the Public Water Systems in the Humboldt Bay area (the District and its wholesale municipal customers) to address the wintertime turbidity issue and to meet the turbidity standards established by CDPH. The District initiated a process with its seven municipal customers to determine the most cost effective way to meet the State's requirement. The solution was to design and construct a regional Turbidity Reduction Facility (TRF). The TRF was completed in April 2003 and now operates during the winter storm season to reduce higher turbidities in accordance with the State's standards.

As the District's ongoing water monitoring and testing program indicates that the District's water quality has been and continues to be very high and with the turbidity issue taken care of by the TRF, the District does not foresee any current or projected water supply impacts resulting from water quality.

Reliability by Type of Year

As stated in earlier sections, the District 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. Table 4-2 W and Table 7-2 show that the highest projected total water demand for the District's wholesale customers in 2035 is 57,290 AFY, which is approximately 68% of this permitted water supply. With this in mind, the following sections will provide data for each of the following water year types: normal, single dry, and multi-dry. Supply and demand comparisons for each water year type will also be discussed.

Table 7-1 W captures the specific base water years that each type of water year falls into.

Table 7-1 Wholesale: Basis of Water Year Data			
		Available Supplies if Year Type Repeats	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
	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 1999-2000, use 2000*	☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
Year Type		**Volume Available**	**% of Average Supply**
Average Year	1989	985364	100%
Single-Dry Year	1977	109107	11%
Multiple-Dry Years 1st Year	1990	571815	58%
Multiple-Dry Years 2nd Year	1991	371340	38%
Multiple-Dry Years 3rd Year	1992	282794	29%
Multiple-Dry Years 4th Year *Optional*			
Multiple-Dry Years 5th Year *Optional*			
Multiple-Dry Years 6th Year *Optional*			
Agency 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 an agency 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.			
NOTES: Average Year volume chosen based on average annual Mad River watershed discharges from 1963 - 2015.			

Normal Water Year

During a normal water year, the Ruth Lake area averages 65.42 inches of rainfall, about 173,000 AF of water flow into the reservoir via the Mad River, and 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 2015). The average annual runoff data was provided by USGS at Gage Station 1148100 on the Mad River near Arcata, CA. As shown in Table 7-1 W, 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.

Table 7-2 W shows the normal year supply and demand comparison. During a normal water year, the Ruth Reservoir and Mad River watershed have enough supply to meet the District's maximum permitted diversion of 84,000 AFY.

Table 7-2 Wholesale: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	84,000	84,000	84,000	84,000	
Demand totals *(autofill fm Table 4-3)*	22,145	33,895	45,581	57,290	
Difference	61,855	50,105	38,419	26,710	
NOTES:					

Single Dry Water 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 normal (69.8 inches). Flows into the reservoir were 26,000 AFY, or 15% of normal (173,000 AFY). The runoff for the watershed measured near the District's diversion facilities was 109,107 AFY, or 11% of 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 normal (41,000 AF). The reservoir was drawn down to 13,000 AF, or 27% of its capacity (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.

Table 7-3 W shows the Single Dry Year supply and demand comparison. This supply was based on the 1977 water year with watershed runoff of 109,107 AFY.

As this amount is more than the District's permitted water supply of 84,000 AFY, the District still has the 84,000 AFY of water available as it does during a normal water year. Therefore, Table 7-3 W shows the same calculations as in Table 7-2 W for the normal water year condition showing the supply totals as 84,000 AFY from 2020 through 2035. The data shows that the District has more than enough water supply to meet demand, even in a critical single dry water year situation.

Table 7-3 Wholesale: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	84,000	84,000	84,000	84,000	
Demand totals	22,145	33,895	45,581	57,290	
Difference	61,855	50,105	38,419	26,710	
NOTES:					

Multiple Dry Water Years

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

Rainfall for this period averaged 42 inches per year, or 60% of normal.
Of the three water years, the driest year for rainfall was water year 1990/1991 with 37 inches, or 53% of normal.
Flows into Ruth Lake via the Mad River averaged 69,000 AFY, or 40% of 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 37,000 AF which is 77% of capacity (48,030
AF) and 90% of normal (41,000 AF).

The runoff for the watershed above the District's diversion facilities for these three water years were:
1990: 571,815 AFY, or 60% of normal (959,071 AFY).
1991 (driest water year of the three): 371,300 AFY, or 39% of normal.
1992: 282,794 AFY, or 29% of normal.

Supply and Demand Assessment

Table 7-4 W projects the multiple dry water year supply amounts in comparison to projected demands for 2020 through 2035. Watershed runoff data from the three consecutive water years mentioned above were used, attributing 571,815 AFY (for First year), 371,340 AFY (for Second year), and 282,794 AFY (for Third

year). As these supply amounts are larger than the District's maximum permitted supply amount of 84,000 AFY, the District is able to maintain its water supply during these consecutive dry water years as well. Therefore, Table 7-4 W also shows the District's water supply projections for multiple dry water years as its permitted amount of 84,000 AFY for 2020 through 2035. The data shows that the District has more than enough water supply to meet demand, even during multiple dry water years.

Table 7-4 Wholesale: Multiple Dry Years Supply and Demand Comparison

		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	84,000	84,000	84,000	84,000	
	Demand totals	22,145	33,895	45,581	57,290	
	Difference	61,855	50,105	38,419	26,710	0
Second year	Supply totals	84,000	84,000	84,000	84,000	
	Demand totals	22,145	33,895	45,581	57,290	
	Difference	61,855	50,105	38,419	26,710	0
Third year	Supply totals	84,000	84,000	84,000	84,000	
	Demand totals	22,145	33,895	45,581	57,290	
	Difference	61,855	50,105	38,419	26,710	0

Regional Supply Reliability

Throughout the years, there have been studies that refer to the District's water source and its reliability. Bechtel Corporation was retained in the 1950s to perform various water supply studies and to complete the design and specifications for the original regional water system. During this time, Bechtel completed a detailed operations study of the reservoir storage to determine the safe yield of the original project pursuant to the District's downstream diversion requirements and the requirements in the District's water rights permits. The study was done on the basis of a 75MGD average annual diversion rate at Essex. Existing prior water rights downstream of Ruth Lake were incorporated into this study. Bechtel confirmed the safe yield of the reservoir to be 75 MG, assuming the driest period of record they studied (1923-1924). Bechtel reported "The Mad River Development will utilize the available supply and by storage regulation make this supply available for year-round diversion at Essex. The firm supply made available at Essex is measured by the amount of water the District can

divert under its permits in the driest year on record 1923-1924." (Reference: Engineering Report on Mad River Development, Bechtel Corporation, October 1960)

Subsequent to Bechtel's operations study, DWR calculated the safe yield of Ruth reservoir to be very close to what Bechtel had determined (Reference: Bulletin No. 142-1, North Coastal Hydrographic Area). The State also used the 1923-24 drought period in its determination.

These hydrological conditions were supported by subsequent studies by DWR, the U.S. Army Corps of Engineers, Bechtel Corporation, and Winzler and Kelly Engineering. In a study by DWR titled "Office Report on Preliminary Investigation of Mad River," DWR acknowledges that the Ruth Lake area where the District keeps its storage supply has "heavy and frequent precipitation." DWR also said in the report that the mean seasonal runoff of the Mad River as measured at Arcata at the time (1958) was 750,000 AFY, which is far more than the District's permitted 84,000 AFY and the actual projected water demands from its customers as shown in Table 7-4 W.

The U.S. Army Corps of Engineers also discusses the mean seasonal runoff of the Mad River in their 1968 report titled, "Interim Review Report for Water Resources Development, Mad River, California." The report states that the variation in annual runoff has ranged from a low of 280,000 AFY in the lowest year recorded at the time, to a high of 1,746,000 AFY in the year of the highest runoff recorded at the time. It also states that the minimum five-year average annual runoff was 650,000 AFY. These average annual runoff amounts show that the District has ample supply to support its customer demands. The report also describes the local climate in that it is typical of coastal areas of California with a large percentage of the rainfall occurring during major storms during the winter months of November through March. It reports that the average annual precipitation over the basin ranges from about 40 inches along the coastal plains to more than 70 inches in the central part of the basin, with an estimated basin average of approximately 63 inches.

In 1977, Winzler and Kelly Engineering did a drought deficiency analysis of R.W. Matthews Dam with then current data (including the drought of 1977) and determined the safe yield to be approximately 67 MGD (75,040 AFY), 8 MGD less than projected by Bechtel. Although the safe yield projected by Winzler and Kelly was slightly less than the one projected by Bechtel Corporation, it still far exceeds the District's current and projected demands from its wholesale customers (Table 7-4 W).

Furthermore, the results from the above studies by DWR, U.S. Army Corps of Engineers, Bechtel Corporation, and Winzler and Kelly Engineering are supported by the District's historical data. From the District's historical data, on average, Ruth Lake begins the water year on October 1 with approximately

31,000 AF of water, 64% of its 48,030 AF capacity. Most rainfall in the area occurs between November and April. In every year but one since 1969, there has been at least one large storm during this period, bringing 3 to 9 inches of rain over a seven-day period. This is almost always sufficient to fill the reservoir to capacity. There has only been one water year (1976/77) in which the reservoir was not filled to capacity. The average reservoir volume on May 1 (the end of the usual rainy season) is approximately 47,700 AF, over 99% of capacity. This storage allows the District to supplement low flows until the rains begin again in the fall. Seasonal or climatic shortages are only likely to occur after two consecutive rainy winter seasons with severely reduced rainfall and runoff (well below 50% of normal). This has not happened in the history of the District.

2.2 Water Service Reliability Assessment (HCSD Groundwater Wells)

HCSD relies on two water primary sources including HBMWD (wholesaler) and groundwater from District owned groundwater wells. The District relies in part on water supplied by the COE but COE purchases this water from HBMWD. Both of these sources are available at a consistent level of use and are not limited by specific legal, environmental, water quality, or climatic factors. HCSD has no specific plans to supplement or replace either of the existing sources of water. HCSD is in the process of a strategic level planning process to evaluate all possible water sources and water supply strategies. Information regarding the reliability of the purchased water from HBMWD is contained in the section above.

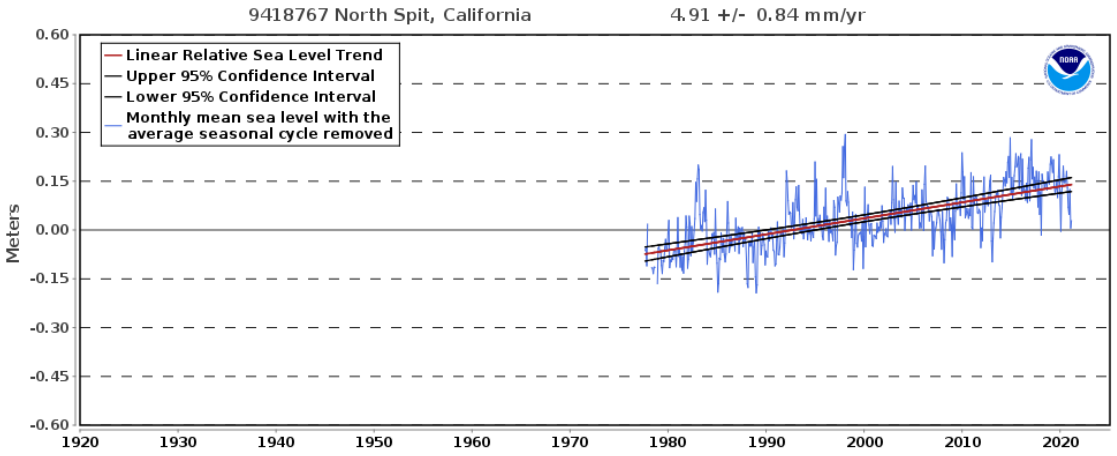
2.3 Service Reliability – Constraints on Water Sources (HCSD Groundwater Wells)

Potential constraints on the District's water source include, legal, environmental, or climate factors. Foreseeable legal constraints are not considered a limitation within the 25-year planning period. Currently and within the planning period the only foreseeable environmental issue that could limit the District's water supply from the groundwater wells is sea level rise.

Constraints due to climate change are discussed in Section 3.3 and 4.8. As a result of this evaluation, it is concluded that climate change will affect the water supply and water demand very little in this area. Climate change was evaluated and considered and did not result in a change in the projected water supply or demand.

Future constraints on water supplies, due to declining groundwater levels is not anticipated based on the historic response (lack of response) of groundwater levels to changes in precipitation as shown later in this section.

The relative sea-level rise trend for Humboldt Bay by NOAA is shown below:



Source: National Oceanic and Atmospheric Administration, Center for Operational Oceanographic Products and Services. *Relative Sea Level Trend, 9418767 North Spit Humboldt Bay, California.* Accessed May 25, 2021 via https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=9418767

The projected relative sea level rise in Humboldt bay is 1 foot/40 years or 7.5 inches in the 25-year planning horizon. The three HCSD groundwater wells have surface elevations from 10 to 35 feet above sea level. HCSD groundwater wells will not likely be inundated by rising sea level in planning period (25-years).

Current water management strategies include:

- Identification and correction of water loss causes; and
- Continued monitoring of precipitation, and groundwater elevations in the Eureka Plain Groundwater Basin.

Currently there are no plans to supplement or replace the current water sources.

2.4 Reliability by Type of Year (HCSD Groundwater Wells)

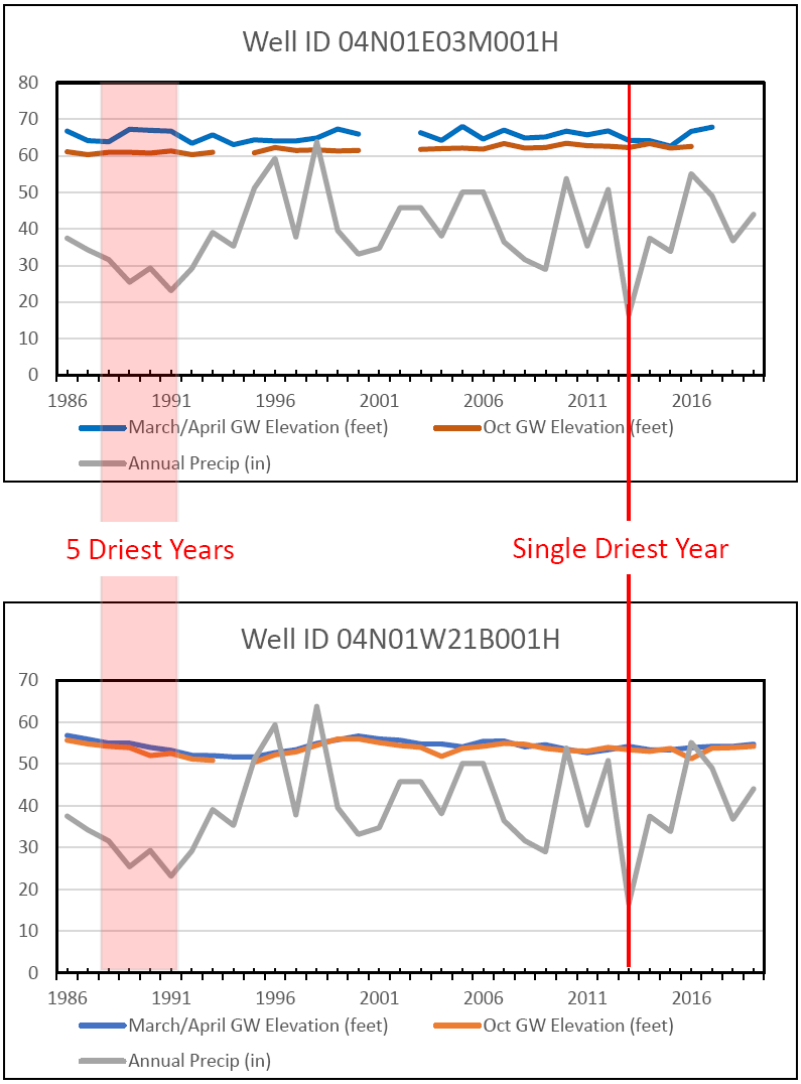
***Requirement**: Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:*

(A) an average water year,
(B) a single dry water year,
(C) multiple dry water years. (CWC 10631(c)(1))

Water from HCSD Groundwater Wells (Eureka, CA)

		Inches/Year	% of Average
1997	Average Single Year	37.82	100%
2013	Single Driest Year	16.6	44%
1976-1978	5-year Driest Years	27.76	73%

Groundwater elevation data was collected for several wells located within the Eureka Plain Groundwater basin to observe the effect of precipitation.



Based on groundwater depth measurements taken since 1988 (time of well installation) there has been no appreciable changes in water depth. Groundwater elevations in the wells are consistent and have not been significantly influenced by climatic variation (precipitation). Based on this information, the water produced from the HCSD groundwater wells is very reliable and not susceptible to drought conditions. HCSD water supply in various drought scenarios is shown In Tables 7-1 through 7-5 as 1,235 MGY which includes 1,076 MGY from HBMWD and 176 MGY from HCSD groundwater wells (5-year average production volume).

3.0 ANNUAL WATER SUPPLY AND DEMAND ASSESSMENT PROCEDURES

***Requirement**:* Water Code Section 10632(a)(2) The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

- The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.
- (B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

    - (i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.
    - (ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.
    - (iii) Existing infrastructure capabilities and plausible constraints.
    - (iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.
    - (v) A description and quantification of each source of water supply. Water Code Section 10632.1

3.1 Decision Making Process

The District's Annual Water Supply and Demand Assessment will follow the following approximate schedule:

- Second week of May – Data collection, precipitation data, groundwater elevation data, and the HBMWD Annual Water Assessment.

- Third week of May – Data evaluation. Determine current year unconstrained demand, current year available supply, identify existing infrastructure capabilities and plausible constraints, and generate the Draft-Annual Water Supply and Demand Assessment.

- Fourth week of May – Annual Water Supply and Demand Assessment reviewed by General Manager and finalized.

- First week in June – Notice of public meeting.

- Third week in June – Report presented to the HCSD Board of Directors

- July 1 - Annual Water Supply and Demand Assessment to the Department of Water Resources.

3.2 Data and Methodologies

HCSD will prepare Annual Water Supply and Demand Assessments utilizing the following data:

- Precipitation data from the Eureka

- Groundwater elevation data from CASGEM wells within the Eureka Plain Groundwater Basin.

- Projected current year unconstrained demand.

- Projected current year available supply.

- HBMWD Annual Water Supply and Assessment

The above data will be evaluated with similar methodologies and added to the analysis of water supply reliability contained in Section 2 of this plan. A finer time increment of analysis may be employed in the methodologies.

4.0 SIX STANDARD WATER SHORTAGE STAGES

4.1 Rationing Stages and Demand Reduction Goals

> ***Requirement:*** *Water Code Section 10632 (a)(3)(A) requires six standard water shortage levels corresponding to progressive ranges of up to 10-, 20-, 30-, 40-, and 50-percent shortages and greater than 50-percent shortage.*

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

Stage	Demand Reduction Goals
Stage 1-Voluntary Conservation	≤10%
Stage 2-Mandatory Conservation	10-20%
Stage 3-Mild Water Shortage	20-30%
Stage 4-Moderate Water Shortage	30-40%
Stage 5-Severe Water Shortage	40-50%
Stage 6-Critical Water Shortage Emergency	>50%

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

- Statewide drought conditions;
- Local drought conditions; and
- State regulations, notices, and orders.

Declaration of a Stage 6 Critical Water Shortage Emergency 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 a broad range of conditions.

5.0 SHORTAGE RESPONSE ACTIONS

During a **Stage I** water shortage voluntary water conservation is requested of all customers including the specific voluntary measures below:

Other - Customers must repair leaks, breaks, and malfunctions in a timely manner
Expand Public Information Campaign
Reduce water system losses

During a **Stage 2** water shortage water use as indicated in the table below are nonessential and are prohibited:

Landscape - Restrict or prohibit runoff from landscape irrigation
Pools and Spas - Require covers for pools and spas
CII - Lodging establishment must offer opt out of linen service
Other - Require automatic shut of hoses

During a **Stage 3** water shortage emergency, in addition to the restricted water uses in earlier Stages, water uses indicated below are nonessential and are prohibited:

Landscape - Prohibit certain types of landscape irrigation
Pools - Allow filling of swimming pools only when an appropriate cover is in place.
CII - Restaurants may only serve water upon request

During a **Stage 4** water shortage water use as indicated in the table below are nonessential and are prohibited:

CII - Commercial kitchens required to use pre-rinse spray valves
Other - Prohibit use of potable water for construction and dust control
Other - Prohibit use of potable water for washing hard surfaces
Landscape - Limit landscape irrigation to specific times

During a **Stage 5** water shortage water use as indicated in the table below are nonessential and are prohibited:

Landscape - Prohibit all landscape irrigation
Other - Prohibit vehicle washing except at facilities using recycled or recirculating water

During a **Stage 6** water shortage emergency, in addition to the restricted water uses in earlier stages, water uses indicated below are nonessential and are prohibited:

Implement or Modify Drought Rate Structure or Surcharge

6.0 COMMUNICATION PROTOCOLS

On an annual basis in the month of May, HCSD staff will perform an Annual Assessment of District water supplies, state regulatory requirements, notices, or orders, and determine if a water shortage emergency exists or is imminent within the HCSD water service area.

The results of the Annual Assessment will be communicated to the General Manager.

The General Manager will report the findings of the Annual Assessment to the Board of Directors before the end of June. The General Manager may recommend a water shortage emergency resolution to the Board of Directors if warranted.

If a water shortage emergency is declared, it will be communicated to the water customers, general public, interested parties, and local and regional government agencies utilizing any of the following methods: bill inserts, press releases, HCSD website, radio spots, social medial posts, and blog posts.

7.0 COMPLIANCE AND ENFORCEMENT

Fines and penalties and enforcement are established in the HCSD Code in Chapter 13.14. Enforcement actions include:

Fines and Penalties. Except as otherwise provided herein violations of any provision of this ordinance shall be punished as follows;

Violation	Classification	Penalty
First violation	Infraction	$ 10
Second violation	Infraction	$ 30
Third violation and subsequent violations within a 6-month period	Misdemeanor	$100

The Manager shall forthwith direct and cause disconnection of the water service of any person or customer cited for a misdemeanor under this section. Such service shall be restored only upon payment of the turn-on charge fixed by the Board of Directors as provided in the Basic Water Ordinance of the District. Each day any violation of this ordinance is committed or permitted to continue shall constitute a separate offense and shall be punishable as such hereunder. (Ord. 77-3, §8, 1977).

Enforcement Each Police Officer of the County of Humboldt shall, in connection with his duties imposed by law, diligently enforce the provisions of this ordinance. The Manager and all employees of the Humboldt Community Services District, and Humboldt Fire District #1, have the duty and are authorized to enforce the provisions of this ordinance and shall have all the powers and authority contained in California Penal Code Section 836.5, including the power to issue written notice to appear (Ord. 77-3, §9, 1977).

8.0 LEGAL AUTHORITY

The legal authority for this Water Shortage Contingency Plan is contained in the HCSD Ordinance Chapter 4.13.

9.0 CATASTROPHIC INTERRUPTION OF WATER SUPPLY

The California Safe Drinking Water Act mandates in Section 4029 that every public water system include a Disaster Response Plan as part of their Emergency Notification Plan. This plan will outline the steps to be taken to maintain or return water service to the District's customers after a major disaster.

HCSD has an Emergency Response Plan (ERP) that was updated in 2021 which describes the actions the District will take during a catastrophic interruption of water supplies.

9.1 Seismic Risk Assessment and Mitigation Plan

A copy of the most recent adopted local hazard mitigation plan or multi-hazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) that addresses seismic risk is include as Appendix C.

10.0 FINANCIAL CONSEQUENCES OF WSCP ACTIVATION

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. Revenue from water sales will be reduced and expenses including electricity (pumping) and supplies (treatment chemicals). Financial results will be closely monitored during any Water Shortage Emergency to ensure revenue is adequate.

In the event revenues decrease or are projected to decrease to a level impacting utility operations, the following options will be considered:

- Use of reserve funds if funds can be reduced to a level which still complies with other existing financial covenants;

- Use of capital improvement funds by deferring capital improvement projects as long as the deferment of projects does not pose a threat to public health or safety; and / or

- Implement excess use penalties.

11.0 MONITORING AND REPORTING

During a declared water shortage emergency, water production volumes will be reviewed 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.

12.0 WSCP REFINEMENT PROCEDURES

HCSD considers its WSCP as a dynamic tool that is the subject of refinements as needed to ensure that its shortage response actions are effective and to produce the desired results. If certain procedural refinements or new actions are identified by District staff, or suggested by customers or other interested parties, the District should have an identified mechanism to evaluate their effectiveness, incorporate them into the WSCP, and implement them quickly at the appropriate water shortage level.

13.0 SPECIAL WATER FEATURE DISTINCTION

HCSD is not aware of any water features that use potable water without a recirculation system.

14.0 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

The following steps will be used for the WSCP adoption, submittal, and to make it available to the public:

- Notification of public hearing – HCSD will notify cities, counties, and the public that they will be reviewing its WSCP and considering changes or amendments - At least 60 days prior to public hearing.

- Notification to the public – HCSD will provide two notifications - Published in a local newspaper at least once a week for two successive weeks prior to the Board of Directors meeting (public hearing).

- Public hearing and optional adoption – The District will allow for community input, considering economic impacts, and can be combined with the adoption meeting as long as the public hearing is on the agenda before the adoption.

- Adoption – The adoption hearing is for the Board of Directors to formally adopt the WSCP.

- Plan submittal – HCSD will update and submit its 2020 WSCP to DWR by July 1, 2021.

- Plan availability - No later than 30 days after adoption – HCSD will submit the WSCP to the California State Library, Humboldt County, HBMWD and COE.

- Amending an adopted WSCP – If the District amends an adopted WSCP, each of the steps for notification, public hearing, adoption, and submittal must also be followed for the amended plan.

APPENDIX A
CALIFORNIA WATER CODE SECTION 350-359

13.0 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

The following steps will be used for the WSCP adoption, submittal, and to make it available to the public:

- Notification of public hearing – HCSD will notify cities, counties, and the public that they will be reviewing its WSCP and considering changes or amendments - At least 60 days prior to public hearing.

- Notification to the public – HCSD will provide two notifications - Published in a local newspaper at least once a week for two successive weeks prior to the Board of Directors meeting (public hearing).

- Public hearing and optional adoption – The District will allow for community input, considering economic impacts, and can be combined with the adoption meeting as long as the public hearing is on the agenda before the adoption.

- Adoption – The adoption hearing is for the Board of Directors to formally adopt the WSCP.

- Plan submittal – HCSD will update and submit its 2020 WSCP to DWR by July 1, 2021.

- Plan availability - No later than 30 days after adoption – HCSD will submit the WSCP to the California State Library, Humboldt County, HBMWD and COE.

- Amending an adopted WSCP – If the District amends an adopted WSCP, each of the steps for notification, public hearing, adoption, and submittal must also be followed for the amended plan.

WATER CODE
SECTION 350-359

350. The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, may declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

351. Excepting in event of a breakage or failure of a dam, pump, pipe line or conduit causing an immediate emergency, the declaration shall be made only after a public hearing at which consumers of such water supply shall have an opportunity to be heard to protest against the declaration and to present their respective needs to said governing board.

352. Notice of the time and place of hearing shall be published pursuant to Section 6061 of the Government Code at least seven days prior to the date of hearing in a newspaper printed, published, and circulated within the area in which the water supply is distributed, or if there is no such newspaper, in any newspaper printed, published, and circulated in the county in which the area is located.

353. When the governing body has so determined and declared the existence of an emergency condition of water shortage within its service area, it shall thereupon adopt such regulations and restrictions on the delivery of water and the consumption within said area of water supplied for public use as will in the sound discretion of such governing body conserve the water supply for the greatest public benefit with particular regard to domestic use, sanitation, and fire protection.

354. After allocating and setting aside the amount of water which in the opinion of the governing body will be necessary to supply water needed for domestic use, sanitation, and fire protection, the regulations may establish priorities in the use of water for other purposes and provide for the allocation, distribution, and delivery of water for such other purposes, without discrimination between consumers using water for the same purpose or purposes.

355. The regulations and restrictions shall thereafter be and remain in full force and effect during the period of the emergency and until the supply of water available for distribution within such

area has been replenished or augmented.

356. The regulations and restrictions may include the right to deny applications for new or additional service connections, and provision for their enforcement by discontinuing service to consumers wilfully violating the regulations and restrictions.

357. If the regulations and restrictions on delivery and consumption of water adopted pursuant to this chapter conflict with any law establishing the rights of individual consumers to receive either specific or proportionate amounts of the water supply available for distribution within such service area, the regulations and restrictions adopted pursuant to this chapter shall prevail over the provisions of such laws relating to water rights for the duration of the period of emergency; provided, however, that any distributor of water which is subject to regulation by the State Public Utilities Commission shall before making such regulations and restrictions effective secure the approval thereof by the Public Utilities Commission.

358. Nothing in this chapter shall be construed to prohibit or prevent review by any court of competent jurisdiction of any finding or determination by a governing board of the existence of an emergency or of regulations or restrictions adopted by such board, pursuant to this chapter, on the ground that any such action is fraudulent, arbitrary, or capricious.

359. (a) Notwithstanding any other provision of law that requires an election for the purpose of authorizing a contract with the United States, or for incurring the obligation to repay loans from the United States, and except as otherwise limited or prohibited by the California Constitution, a public water agency, as an alternative procedure to submitting the proposal to an election, upon affirmative vote of four-fifths of the members of the governing body thereof, may apply for, accept, provide for the repayment together with interest thereon, and use funds made available by the federal government pursuant to Public Law 95-18, pursuant to any other federal act subsequently enacted during 1977 that specifically provides emergency drought relief financing, or pursuant to existing federal relief programs receiving budget augmentations in 1977 for drought assistance, and may enter into contracts that are required to obtain those federal funds pursuant to the provisions of those federal acts if the following conditions exist:

(1) The project is undertaken by a state, regional, or local governmental agency.

(2) As a result of the severe drought now existing in many parts

of the state, the agency has insufficient water supply needed to meet necessary agricultural, domestic, industrial, recreational, and fish and wildlife needs within the service area or area of jurisdiction of the agency.

(3) The project will develop or conserve water before October 31, 1978, and will assist in mitigating the impacts of the drought.

(4) The agency affirms that it will comply, if applicable, with Sections 1602, 1603, and 1605 of the Fish and Game Code.

(5) The project will be completed on or before the completion date, if any, required under the federal act providing the funding, but not later than March 1, 1978.

(b) Any obligation to repay loans shall be expressly limited to revenues of the system improved by the proceeds of the contract.

(c) No application for federal funds pursuant to this section shall be made on or after March 1, 1978.

(d) Notwithstanding the provisions of this section, a public agency shall not be exempt from any provision of law that requires the submission of a proposal to an election if a petition requesting such an election signed by 10 percent of the registered voters within the public agency is presented to the governing board within 30 days following the submission of an application for federal funds.

(e) Notwithstanding the provisions of this section, a public water agency that applied for federal funds for a project before January 1, 1978, may make application to the Director of the Drought Emergency Task Force for extension of the required completion date specified in paragraph (5) of subdivision (b). Following receipt of an application for extension, the Director of the Drought Emergency Task Force may extend the required completion date specified in paragraph (5) of subdivision (b) to a date not later than September 30, 1978, if the director finds that the project has been delayed by factors not controllable by the public water agency. If the Drought Emergency Task Force is dissolved, the Director of Water Resources shall exercise the authority vested in the Director of the Drought Emergency Task Force pursuant to this section.

(f) For the purposes of this section, "public water agency" means a city, district, agency, authority, or any other political subdivision of the state, except the state, that distributes water to the inhabitants thereof, is otherwise authorized by law to enter into contracts or agreements with the federal government for a water supply or for financing facilities for a water supply, and is otherwise required by law to submit those agreements or contracts or any other project involving long-term debt to an election within that public water agency.

APPENDIX B
CALIFORNIA WATER CODE SECTION 10632

WATER CODE
SECTION 10632

10632. (a) The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:

(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions that are applicable to each stage.

(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

(3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(6) Penalties or charges for excessive use, where applicable.

(7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(8) A draft water shortage contingency resolution or ordinance.

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

(b) Commencing with the urban water management plan update due December 31, 2015, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

APPENDIX C
HCSD MULTI-HAZARD MITIGATION PLAN

10. HUMBOLDT COMMUNITY SERVICES DISTRICT

10.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact
David Hull, General Manager
5055 Walnut Drive
Eureka, CA 95503
Telephone: (717) 443-1340, ext. 216
e-mail Address: dhull@humboldtcsd.org

Alternate Point of Contact
Mickey Hulstrom, Community Services Manager
5055 Walnut Drive
Eureka, CA 95503
Telephone: 707-443-4558, ext. 225
e-mail Address: mhulstrom@humboldtcsd.org

10.2 JURISDICTION PROFILE

10.2.1 Overview

Humboldt Community Services District is a special district created in 1952 to provide water, sewer, and street lighting. A five-member elected Board of Directors governs the District. The Board assumes responsibility for the adoption of this plan while the General Manager will oversee its implementation.

10.2.2 Service Area and Trends

The Humboldt Community Services District originally was formed to serve the unincorporated area surrounding the City of Eureka known as Pine Hill, Cutten, and Rosewood. The District's designated service areas expanded throughout the years to include other unincorporated areas of Humboldt County known as Myrtletown, Humboldt Hill, Fields Landing, King Salmon, Pigeon Point and Freshwater.

As of July 2018, the District serves 7,698 water connections, 6,326 sewer connections, and 523 street lights with a current staff of 21. Funding comes primarily through rates and revenue bonds. The district service area covers 15.4 square miles, serving a population of about 22,894.

Based on new residential construction service connections between June 2013 thru June 2018, the growth rate within HCSD's service area during that time period was 1.3%. During that time period there were 101 new construction residential water and/or sewer connections. It is expected that approximately the same growth rate will occur between 2019-2023.

10.2.3 Assets

Table 10-1 summarizes the critical assets of the district and their value.

Table 10-1. Special Purpose District Assets

Asset	Value
Property	
33.91 acres of land	$476,198
Equipment	
1 metered connection to Humboldt Bay Municipal Water District	$1,000,000
3 metered connections to the City of Eureka	$100,000
5 un-metered connections to the City of Eureka	$375,000
Rolling stock (26 vehicles)	$1,872,996
6 Sewer meter stations	$375,000
Fields Landing	$75,000
South Broadway	$75,000
Hoover	$75,000
F Street	$75,000
Hemlock	$75,000
Allard	$75,000
Total:	$4,199,194
Critical Facilities and Infrastructure	
10 steel water storage tanks	$15,000,000
13 water booster stations	$2,600,000
28 Sewer lift stations	$5,600,000
75 miles of sewer collection main	$79,200,000
114 miles of water main	$90,288,000
Main office compound complete with vehicle and equipment storage and parts storage facilities	$4,139,684
Wells 1 through 3	$1,400,000
South Bay Well – South Broadway Humboldt Hill	$500,000
Spruce Point Well – South Broadway, Humboldt Hill	$500,000
Princeton Well – Foot of Princeton Street, Humboldt Hill	$400,000
Total:	$198,227,684

10.3 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 10.9 identifies these as community capacity building mitigation actions.

10.3.1 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 10-2 summarizes existing codes, ordinances, policies, programs or plans that are applicable to this hazard mitigation plan.

10.3.2 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 10-3. 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 10-4.

Table 10-2. Planning and Regulatory Capability

Plan, Study or Program	Date of Most Recent Update	Comment
HCSD Code	2014	
HCSD Standard Plans and Specifications	2017	
Sanitary Sewer Management Plan	2018	
Capital Improvement Program	Updated and approved annually	Covers 5-year timeframe
HCSD Emergency Response Plan	2018	

Table 10-3. 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 10-4. Administrative and Technical Capability

Staff/Personnel Resource	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Engineering/HCSD/District Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering/HCSD/District Engineer
Planners or engineers with an understanding of natural hazards	Yes	Engineering/HCSD/District Engineer
Staff with training in benefit/cost analysis	Yes	Engineering/HCSD/District Engineer
Surveyors	No	Contractor as needed
Personnel skilled or trained in GIS applications	Yes	Engineering/HCSD/Engineering Tech
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	HCSD Superintendent
Grant writers	Yes	Administration/General Manager
Other	No	

10.3.3 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 10-5.

10.3.4 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 10-6 summarizes the jurisdiction's adaptive capacity for climate change.

Table 10-5. 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**	No
Do you use social media for hazard mitigation education and outreach? • **If yes, please briefly describe**	No
Do you have any citizen boards or commissions that address issues related to hazard mitigation? • **If yes, please briefly specify**	Yes 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 Emergency Response Plan; Sanitary Sewer Management Plan
Do you have any established warning systems for hazard events? • **If yes, please briefly describe**	Yes Included in Sanitary Sewer Management Plan

Table 10-6. Adaptive Capacity for Climate Change

Criterion	Jurisdiction Rating[a]
Technical Capacity	
Jurisdiction-level understanding of potential climate change impacts *Comment:*	High
Jurisdiction-level monitoring of climate change impacts *Comment:*	High
Technical resources to assess proposed strategies for feasibility and externalities *Comment:*	High
Jurisdiction-level capacity for development of greenhouse gas emissions inventory *Comment:*	Low
Capital planning and land use decisions informed by potential climate impacts *Comment:*	Low
Participation in regional groups addressing climate risks *Comment:*	Low
Implementation Capacity	
Clear authority/mandate to consider climate change impacts during public decision-making processes *Comment:*	High
Identified strategies for greenhouse gas mitigation efforts *Comment:*	Low
Identified strategies for adaptation to impacts *Comment:*	Medium
Champions for climate action in local government departments *Comment:*	Low
Political support for implementing climate change adaptation strategies *Comment:*	Medium
Financial resources devoted to climate change adaptation *Comment:*	Low
Local authority over sectors likely to be negative impacted *Comment:*	High

Criterion	Jurisdiction Rating[a]
Public Capacity	
Local residents knowledge of and understanding of climate risk *Comment:*	Medium
Local residents support of adaptation efforts *Comment:*	Low
Local residents' capacity to adapt to climate impacts *Comment:*	Low
Local economy current capacity to adapt to climate impacts *Comment:*	Low
Local ecosystems capacity to adapt to climate impacts *Comment:*	High

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.

10.4 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 10.10 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.

10.4.1 Existing Integration

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

- Capital Improvement Program – The Capital Improvement Plan contains projects that can help mitigate potential hazards. HCSD will act to ensure consistency between the hazard mitigation plan and the current and future capital improvement plans. The hazard mitigation plan may identify new possible funding sources for capital improvement projects and may result in modifications to proposed projects based upon results of the risk assessment.
- Emergency Response Plan—The Emergency Response Plan provides guidance on responses to mitigate hazards.
- Sanitary Sewer Management Plan – The Sanitary Sewer Management Plan provides guidance on sewer spill prevention and response including health assessment and public notification in order to mitigate hazards.

10.4.2 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:

- Capital Improvement Projects—Capital Improvement Projects may take into consideration hazard mitigation potential as a means of evaluating project prioritization.
- Self-Sustainability Plan – This plan would identify water system operations and upgrades to accommodate providing water to HCSD customers should one of the District's two water systems be disrupted by hazards.

10.5 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 10-7 lists past occurrences of natural hazards for which specific damage was recorded in the Humboldt Community Services District. Other hazard events that broadly affected the entire planning area, including Humboldt Community Services District, are listed in the risk assessments in Volume 1 of this hazard mitigation plan.

Table 10-7. Natural Hazard Events

Type of Event	FEMA Disaster #	Date	Damage Assessment
Severe Weather	4301-DR-CA	2-2017	$36,181
Earthquake	N/A	1/9/2010	$40,000
Earthquake	N/A	7/9/2007	$150,000
Flooding, severe weather and landslides	DR-1628	2/3/2006	$22,000
Severe weather	N/A	12/1995	$57,161
Winter storms, flooding, landslides	DR-1044	1/09/1995	$3,875
Earthquake	N/A	1994	$158,446
Earthquake	DR-943	04/04/1992	$23,993

10.6 HAZARD RISK RANKING

Table 10-8 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 10-8. Hazard Risk Ranking

Rank	Hazard Type	Risk Rating Score (Probability x Impact)	Category
1	Earthquake	45	High
2	Severe Weather	27	High
3	Landslide	21	High
4	Drought	30	High
5	Flood	18	High
6	Wildfire	18	Medium
7	Tsunami	24	Low
8	Dam Failure	12	Low

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

10.7 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 Humboldt Hill/Fields Landing/King Salmon communities in the Humboldt Community Services District are serviced by a single ~2-mile long force main. This force main is located adjacent to Humboldt

Bay and crosses the Little Salmon earthquake fault. If this force main is inoperative for any reason, it will leave a population of approximately 4,000 people without sewer service. Due to the length and location of the force main, it could be days before a repair can be made. The vulnerability is stranding these people without sewer service and no viable alternative until the main is repaired and put back into service.

Mitigation actions addressing these issues were prioritized for consideration in the action plan presented in Section 1.9.

10.8 STATUS OF PREVIOUS PLAN ACTIONS

Table 10-9 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 10-9. 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
HCSD-1—Retrofit Tanks		X		
Comment: Initiated for three tanks in 2017				
HCSD-2—Enhance water supply system for fire prevention, in areas rated high by Cal Fire			X	2
Comment: Work being done on larger system components that will lead to this project				
HCSD-3—Acquire support equipment such as backup generators and water pumps	X			
Comment: Replacement only required by State -State has now rescinded this replacement requirement				
HCSD-4—Engineering feasibility study of Critical Facilities for structural and non-structural mitigation			X	4
Comment: Ongoing				
HCSD-5—Promote public awareness of the risk associated with natural hazards to HCSD rate payers via public information means available to HCSD			X	5
Comment: Ongoing				
HCSD-6—Install earthquake valves on tanks	X			
Comment: One tank completed				
HCSD-7—Remove tree at Donna Drive tank	X			
Comment: Done with HCSD resources				
HCSD-8—Develop and implement a plan to pump water from H.H. system to rest of District		X		
Comment: Background research and facility upgrades to accomplish this effort are ongoing, but the actual "Plan" document has not been initiated yet.				
HCSD-9—Upgrade water system for fire protection on Ivy League Streets in H.H. area			X	9
Comment: Not yet initiated due to other priorities for the HCSD's limited resources				
HCSD-10—Artino St landslide repair	X			
Comment: Done with HCSD resources				
HCSD-11—Donna Dr. pump house rehab		X		
Comment: To be completed as a part of the Donna Drive tank rehab				
HCSD-12—Ridgewood Booster Station pump	X			
Comment: Done with HCSD resources				

Action Item from Previous Plan	Completed	Removed; No Longer Feasible	Carried Over to Plan Update: Check if Yes	Carried Over to Plan Update: Action # in Update
HCSD-13—Pine Hill SLS rebuild		X		
Comment: Not yet initiated due to other priorities for the HCSD's limited resources				
HCSD-14—Truesdale pump upgrade		X		
Comment: Five pumps to be replaced over next five years – One replaced for 2017/18				
HCSD-15—Hubbard pump upgrade	X			
Comment: Done with HCSD resources				
HCSD-16—Hillcrest/ Vista/Linda water main upgrade (fire protection)			X	11
Comment: Not yet initiated due to other priorities for the HCSD's limited resources				

10.9 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED ACTIONS

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

Table 10-10. 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 HCSD 1—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						
Existing	3, 4, 10	TBD	TBD	High	HMGP, PDM, FMA	Long-term
Action HCSD 2— Enhance water supply system for fire prevention in areas rated high by Cal Fire.						
Hazards Mitigated: All hazards						
New & Existing	1, 2, 3, 4, 5	HCSD	TBD	High	Staff Time, HCSD	Short-term
Action HCSD 3—Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan.						
Hazards Mitigated: All hazards						
New and Existing	1, 5, 8	HCSD	TBD	Low	Staff Time, HCSD	Short-term
Action HCSD 4— Engineering feasibility study of Critical Facilities for structural and non-structural mitigation						
Hazards Mitigated: All hazards						
New & Existing	1, 2, 3, 4, 5	HCSD	TBD	Med	HCSD, HMGP, PDM	Long term
Action HCSD 5—Promote public awareness of the risk associated with natural hazards to HCSD rate payers via public information means available to HCSD						
Hazards Mitigated: All hazards						
New & Existing	6, 7, 8	HCSD	TBD	Low	HCSD, HMGP, PDM	Short term
Action HCSD 6— Additional water storage tank at Ridgewood for fire protection						
Hazards Mitigated: Wildfire, earthquake, landslide, severe weather						
New & Existing	1, 2, 3, 4, 5	HCSD	TBD	High	HCSD, HMGP, PDM	Short term
Action HCSD 7— Install flood protection at the Hoover sewer lift station						
Hazards Mitigated: Flood, severe weather						
Existing	2, 3, 9	HCSD	TBD	Med	HCSD, HMGP, PDM	Short term

Applies to New or Existing Assets	Objectives Met	Lead Agency	Support Agency	Estimated Cost	Sources of Funding	Timeline[a]
Action HCSD 8—Replace Fields Landing force main with more flood and earthquake resistant material						
Hazards Mitigated:	Earthquake, flood, tsunami, severe weather					
Existing	1, 2, 3, 4	HCSD	TBD	High	HMGP, PDM	Long term
Action HCSD 9— Upgrade water system for fire protection on Ivy League Streets in Humboldt Hill area						
Hazards Mitigated:			Wildfire			
Existing	1, 2, 3, 4, 5	HCSD	Humboldt Bay Fire	Med	HCSD, HMGP, PDM	Long term
Action HCSD 10— Replace Mike Lane sewer main with more flood and earthquake resistant material						
Hazards Mitigated:	Earthquake, severe weather					
Existing	1, 2, 3, 4	HCSD	TBD	Med	HMGP, PDM	Long term
Action HCSD 11— Upgrade water system for fire protection on Hillcrest/ Vista/Linda Streets in Humboldt Hill area						
Hazards Mitigated:	Wildfire					
Existing	1, 2, 3, 4, 5	HCSD	Humboldt Bay Fire	Med	HCSD, HMGP, PDM	Long term

Table 10-11. 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]
HCSD 1	3	Med	Medium	Yes	Yes	No	Medium	High
HCSD2	5	High	High	Yes	Yes	No	Medium	High
HCSD3	3	Low	Low	Yes	No	Yes	High	Low
HCSD4	5	Medium	Medium	Yes	Yes	No	High	High
HCSD5	3	Low	Low	Yes	No	No	Low	Low
HCSD6	5	High	High	Yes	Yes	No	High	High
HCSD7	3	High	Medium	Yes	Yes	No	High	High
HCSD8	4	High	High	Yes	Yes	No	Medium	High
HCSD9	5	High	High	Yes	Yes	No	Medium	High
HCSD10	4	High	Medium	Yes	Yes	No	Medium	High
HCSD11	5	High	Medium	Yes	Yes	No	Medium	High

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

Table 10-12. 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	1, 4, 6, 11, 12	1, 3, 4, 11, 12	2, 7	1, 3, 11, 12		1, 4, 6, 11, 12	1, 11	
Severe Weather	4, 6, 8, 11, 12	3, 4, 8, 11, 12	2, 7	3, 8, 11, 12		4, 6, 8, 11, 12	1, 11	
Landslide	1, 6	1, 3, 4	2, 7	1, 3		1, 4	1	
Drought	6		2, 7					
Flood	1, 6, 8, 11	1, 3, 8, 11	2, 7	1, 3, 8, 11		1, 8, 11	1, 11	
Medium-Risk Hazards								
Wildfire	1, 4, 5, 6, 9, 10	1, 3, 4, 5, 9, 10	2, 7	1, 3		1, 4, 5, 9, 10	1	
Low-Risk Hazards								
Tsunami	1, 6, 11	1, 3, 11	2, 7	1, 3, 11		1, 11	1, 11	
Dam Failure			2, 7					

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

10.10 REVIEW AND INCORPORATION OF RESOURCES FOR THIS ANNEX

10.10.1 Existing Reports, Plans, Regulatory Tools and Other Resources

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

- HCSD FY 2018/19 Capital Improvement Program with details for FY 2018/19 through FY 2022/23. This document provides details of current and future capital improvement projects that have been prioritized by HCSD staff and approved by the HCSD Board of Directors.
- HCSD Sanitary Sewer Management Plan – Updated April 2018
- HCSD Emergency Response Plan – Updated April 2018

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 Bay Area Plan – Sea Level Rise Vulnerability Assessment – January 2018

10.10.2 Staff and Local Stakeholder Involvement in Annex Development

This HCSD annex was developed in collaboration with various departments within HCSD including Engineering, Community Services, Construction, Operations and Maintenance and Finance. In addition to reviewing and providing input on the contents of this Annex, HCSD staff also relied heavily upon the FY 2018/19 HCSD Capital Improvement Program that includes details for FY 2018/19 through FY 2022/23. These same department personnel were also involved in listing, prioritizing and reviewing the contents of the FY 2018/19 CIP document which was reviewed by District's Board of Directors at three public meetings and ultimately approved on June 26, 2018. Local planners met during March 2019 to review the risk assessment for this community and to identify appropriate actions to mitigate the risks. Attendees are listed in Table 10-13.

Table 10-13. Participants in Hazard Mitigation Action Plan Development Workshop

Name	Title, Organization
John Friedenbach	General Manager, Humboldt Bay Municipal Water District
Tim Latham	Superintendent, Humboldt Community Services District
Mickey Hulstrom	Community Services Manager, Humboldt Community Services District
Michael Hansen	Water and Wastewater Superintendent, City of Eureka
Aldaron Laird	Consultant (Sea Level Rise Vulnerability) Trinity Associates

APPENDIX D
HCSD CODE CHAPTER 4.13

Chapter 4.13
Rules and Regulations for Rationing Water During a Water Shortage Emergency

Sections:

Water Shortage Rules - Purpose. The Board of Directors of Humboldt Community Services District has declared that a water shortage emergency condition prevails in the area served by -the Humboldt Community Services District due to conditions prevailing throughout the State of California and especially in the service area of the Humboldt Bay Municipal Water District.

This ordinance is intended to allocate equitably the water available to the Humboldt Community Services District during such emergency to the end that sufficient water will be available to human consumption, sanitation, and fire protection. The specific uses regulated or prohibited in this Ordinance are nonessential, if allowed would constitute wastage of water and should be prohibited pursuant to the Water Code Section 350 et. seq., Water Code Section 71640 et. seq., and the common law. The actions taken hereinafter are exempt from the provisions of the California Environmental Quality Act of 1970 as projects undertaken as immediate action necessary to prevent or mitigate an emergency pursuant to Section 15071 (c) of the State EIR guidelines. (Ord. 77-3, §1, 1977).

Definitions. For the purpose of this ordinance, the following terms, phrases, words, and their derivations shall have the meaning given herein. When not inconsistent with the context, words used in the present tense include the future, words in the plural number include the singular number, and words in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

A. "District" is Humboldt Community Services District.
B. "Board of Directors" is the elected Board of Directors of Humboldt Community Services District.
C. "Customer" is any person using water supplied by the Humboldt Community Services District.
D. "Manager" is the Manager of the Humboldt Community Services District.
E. "Person" is any person, firm, partnership, association, corporation, company, or organization of any kind.
F. "Water" is water from the Humboldt Community Services District.
G. "Outdoor surface" is any patio, porch, verandah, driveway, or sidewalk.
H. "Nonessential use" is any use not required.
I. "Nonessential user" is any user other than a domestic residential customer or facility providing for health and safety .

(Ord. 77-3, §2, 1977).

Application. The provisions of this ordinance shall apply to all customers using water both in and outside the Boundaries of Humboldt Community Services District, regardless of whether any customer using water shall have a contract for water service with the Humboldt Community Services District. (Ord. 77-3, §3, 1977).

Large Water Users. No person whose historic monthly average water use of any three month period exceeds 50,000 gallons per month, hereinafter called "large water users", shall irrigate, sprinkle, or water any shrubbery, trees, lawns, grass, ground covers, plants, vines, gardens, vegetables, flowers, or any other vegetation except as approved by the Manager after consultation with individual large water users. (Ord. 77-3, §4, 1977).

Further prohibition. No person or customer shall cause or permit any water furnished to him or her by the Humboldt Community Services District to run to waste in a gutter or otherwise. (Ord. 77-3, §5, 1977).

Manager may prohibit, Whenever the Manager determines that the water available to the Humboldt Community Services District is insufficient to permit nonessential use and that all water then available to said District should be used solely for human consumption, sanitation, and fire protection, he may order and direct individually or collectively that nonessential use shall not be permitted by any person or customer. While such order is in effect, no person or customer shall fill with District furnished water, any swimming pool, wash any car or any outdoor surface, irrigate, sprinkle, or water any shrubbery, trees, lawns, grass, ground covers, plants, vines, gardens, vegetables, flowers, or any other vegetation or allow any other nonessential use of water as designated by order of the Manager. Violations shall be punished as provided in Section 10 of this ordinance. The Manager shall use every available means to inform customers that such order is in effect. (Ord. 77-3, §6, 1977).

Manager may limit the amount of water delivered to customers. Whenever the Manager determines the water available to the Humboldt Community Services District is insufficient to meet the demands of customers of the District and that all water available to said City should be protected for human consumption, sanitation and fire protection, he may order limits be imposed on individual consumption as determined and specified by resolution of the Board of Directors including penalties in addition to those specified in Section 10 of this ordinance. (Ord. 77-3, §7, 1977).

Fines and Penalties. Except as otherwise provided herein violations of any provision of this ordinance shall be punished as follows;

Violation	Classification	Penalty
First violation	Infraction	$ 10
Second violation	Infraction	$ 30
Third violation and subsequent violations within a 6-month period	Misdemeanor	$100

The Manager shall forthwith direct and cause disconnection of the water service of any person or customer cited for a misdemeanor under this section. Such service shall be restored only upon payment of the turn-on charge fixed by the Board of Directors as provided in the Basic Water Ordinance of the District. Each day any violation of this ordinance is committed or permitted to continue shall constitute a separate offense and shall be punishable as such hereunder. (Ord. 77-3, §8, 1977).

Enforcement Each Police Officer of the County of Humboldt shall, in connection with his duties imposed by law, diligently enforce the provisions of this ordinance. The Manager and all employees of the Humboldt Community Services District, and Humboldt Fire District #1, have the duty and are authorized to enforce the provisions of this ordinance and shall have all the powers and authority contained in California Penal Code Section 836.5, including the power to issue written notice to appear (Ord. 77-3, §9, 1977).

When ordinance is effective. The provisions of this ordinance shall be in full force and effect only upon adoption by this Board of Directors of a resolution declaring that a water emergency condition prevails pursuant to California Water Code Section 350 and following. The provisions of this ordinance shall be of no further force or effect when the Board determines that a water shortage no longer exists (Ord. 77-3, §10, 1977).

[Note - this shaded section may no longer be valid due to the provisions in Ord. 77-3, §10]

APPENDIX E
NOTICE OF PUBLIC HEARING FROM THE LOCAL NEWSPAPER

The Times-Standard
PO Box 3580
Eureka, CA 95502
707-441-0571
legals@times-standard.com

2092635

HUMBOLDT COMMUNITY SERVICES
DISTRICT/LEGAL/TSL
PO BOX 158
CUTTEN, CA 95534

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
County of Humboldt

FILE NO. NOTICE OF PUBLIC HEARING

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-mentioned matter. I am the principal clerk of the printer of THE TIMES-STANDARD, a newspaper of general circulation, printed and published daily in the City of Eureka, County of Humboldt, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Humboldt, State of California, under the date of June 15, 1967, Consolidated Case Numbers 27009 and 27010; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit,

06/12/2021, 06/19/2021

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Eureka, California,
This 25th day of June, 2021

Robin Imholte

Legal No. **0006583932**

HUMBOLDT COMMUNITY SERVICES DISTRICT
NOTICE OF PUBLIC HEARING

Notice is hereby given that on Tuesday, June 22, 2021 at 5:00 p.m. or as soon thereafter as the matter can be heard, the Board of Directors of the Humboldt Community Services District (HCSD) will hold a public hearing in accordance with the Governor's Executive Orders N-25-20 and N-29-20 via teleconference utilizing the Zoom Website (https://zoom.us) Meeting ID 85703258897, Passcode 081040. Access may also be achieved by telephone only by dialing 1-669-900-9128 followed by the Meeting ID and Passcode.

This public hearing is held to receive public comment and testimony regarding the Draft Revised Humboldt Community Services District (HCSD) 2020 Urban Water Management Plan (UWMP). The public hearing will also be held for the purposes to solicit input for the HCSD's intention to approve the Revised UWMP.

A copy of the Draft 2020 UWMP is available on the District's website home page at:
www.humboldtcsd.org for review.

Any and all interested parties are invited to attend and be heard at this public hearing. Further information can be obtained from the HCSD by telephone at (707) 443-4558.

Terrence Williams, General Manager
Humboldt Community Services
District

APPENDIX F
HCSD RESOLUTION 2021-08

RESOLUTION 2021-08

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE HUMBOLDT COMMUNITY SERVICES DISTRICT

ADOPTING THE HCSD 2020 URBAN WATER MANAGEMENT PLAN and WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, the District prepared a 2020 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the requirements of the California Department of Water Resources (DWR) pursuant to Urban Water Management Act (UWMP Act) and the Water Conservation Bill of 2009; and

WHEREAS, the UWMP Act requires development and implementation of a written UWMP that reports, describes, and evaluates the following four areas:

- Water deliveries and uses;
- Water supply sources;
- Efficient water uses; and
- Demand Management Measures (DMMs), including implementation strategy and schedule, and public notification requirements; and

WHEREAS, the Board's UWMP and WSCP will be updated every five years as required by the UWMP Act; and

WHEREAS, the purpose of the UWMP and WSCP is for water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies are available to meet existing and future water demands; and

WHEREAS, the evaluation of four areas effecting the District's water supply will allow District staff to better manage the water distribution system and help to ensure efficient and cost effective operation of the District's water system into the future; and

WHEREAS, the procedural requirements of the UWMP and WSCP include public notice, Board review and approval, that the District has completed, considered and adopted the Plan; and

WHEREAS, the Public Hearing was noticed in a local newspaper of general circulation for two consecutive weeks prior to the Public Hearing; and

WHEREAS, a proposed draft copy of the District's 2020 UWMP and WSCP was posted to the District's website for more than ten (10) days; and

WHEREAS, the District did not receive any comments as a result of the website posting stated the District Board of Directors would consider this for approval and would receive public comments during a Board meeting.

NOW THEREFORE, BE IT RESOLVED that the Board of Directors of the Humboldt Community Services District hereby approves the HCSD 2020 Urban Water Management Plan and Water Shortage Contingency Plan and its implementation.

PASSED, APPROVED, AND ADOPTED at a regular meeting of the Board of Directors of the Humboldt Community Services District held this 22nd day of June 2021, by the following roll call vote:

AYES: BENZONELLI, BONGIO, GARDINER, HANSEN, MATTEOLI

NOES: NONE

ABSENT: NONE

Alan Bongio, Board President

ATTEST:

Brenda K. Franklin, Board Secretary