

**McKinleyville Community Services District**

**1656 Sutter Road**

**McKinleyville, CA 95519**

**2010 Urban Water Management Plan**

**Modified April, 2013**

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## **List of Acronyms and Abbreviations**

AFY	acre-feet per year
BMP	Best Management Practices
CSD(s)	Community Services District(s)
CFS	cubic feet per second
County	Humboldt County
GIS	geographic information system
HBMWD	District Humboldt Bay Municipal Water District
HCPD	Humboldt County Planning Division
DMMs	Demand Management Measures
DWR	California Department of Water Resources
DOF	California Department of Finance
Guidebook	2010 UWMP Guidebook by DWR
GPU	Humboldt County's General Plan Update
MG	million gallons
MGD	million gallons per day
PRA	Peak Rate Allocation
Plan	Urban Water Management Plan
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
UWMP	Act Urban Water Management Planning Act

## Introduction

This Urban Water Management Plan (UWMP) for the McKinleyville Community Services District (MCSD or District) has been prepared in accordance with the California Urban Water Management Planning Act of 1983 (AB 797) (UWMP Act) as amended, including amendments made per the Water Conservation Bill of 2009 (SBX7-7) and AB 1420 (addressing Demand Management Measures, DMMs). The overall intent of the UWMP is to describe an urban water supplier's water supplies and demands, as well as conservation efforts. According to the UWMP Act, all water suppliers with more than 3,000 connections or distributing more than 3,000 acre-feet per year (AFY) of water shall complete an UWMP every five years ending in \_5' and \_0.' The 2010 UWMPs would normally have been due on December 31, 2010, but a six month extension was granted to provide more time for water suppliers to address new water conservation requirements adopted by the legislature as part of the Comprehensive Water Package. According to the California Department of Water Resources (DWR), adoption of the 2010 UWMP was due by July 1, 2011. The 2010 UWMP was prepared and adopted during the summer of 2011. This updated plan was prepared in April of 2013, and adopted in May of 2013 by board resolution. MCSD has or will make the plan available for public review during normal business hours at the District Office. It contains all information required by the California Water Code, Division 6, Part 2.6. The District's UWMP plan was submitted originally in December 2005. The District operates a regional water system and provides service at the retail level. Since the early 1970s, the District has reliably supplied water to customers in McKinleyville, California. The District is a water distributor. All water is purchased from a regional supplier. The District pumps potable water from the supplier, maintains stand-by chlorination and delivers water to over 5,300 customers (2011).

The data used for preparing this report comes primarily from the District's operational records. Figures relating to watershed runoff were obtained from the United States Geological Survey (USGS). Current and projected population figures for Humboldt County (County) are based on data from the California Department of Finance (DOF) with guidance from the Humboldt County Planning Department (HCPD). In some sections, tables of information suggested in the DWR Guidebook (Guidebook) are not applicable to the District. However, a majority of the

tables from the Guidebook have been incorporated into this UWMP to help DWR's review process, even if they are not applicable to the District.

## Agency Coordination

During the original preparation of the 2010 UWMP contact was made with each of the other six municipal customers who also purchase water from our regional supplier. These municipal agencies qualify as an Urban Water Supplier as defined by the Urban Water Management Planning Act. The Humboldt Bay Municipal Water District (HBMWD), the regional supplier assisted all seven of the municipal agencies in the preparation of our Urban Water Management Plans. The seven agencies, and the HBMWD, had meetings over a of six month period to share information and complete the original 2010 UWMP. This update was completed to include additional information and descriptions.

Table 1							
Coordination with appropriate agencies							
Coordinating Agencies <sup>1,2</sup>	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved / No information
Humboldt Bay Municipal Water District	X	X		X	X	X	
City of Arcata	X			X	X	X	
City of Eureka	X			X	X	X	
City of Blue Lake					X	X	
Humboldt Community Services District	X			X	X	X	
Manila Community Services District					X	X	
Fieldbrook–Glendale Community Services District					X	X	
Humboldt County Planning Department	X			X	X	X	
General public		X	X			X	
Other							
<sup>1</sup> Indicate the specific name of the agency with which coordination or outreach occurred. <sup>2</sup> Check at least one box in each row.							

**Figure 1**

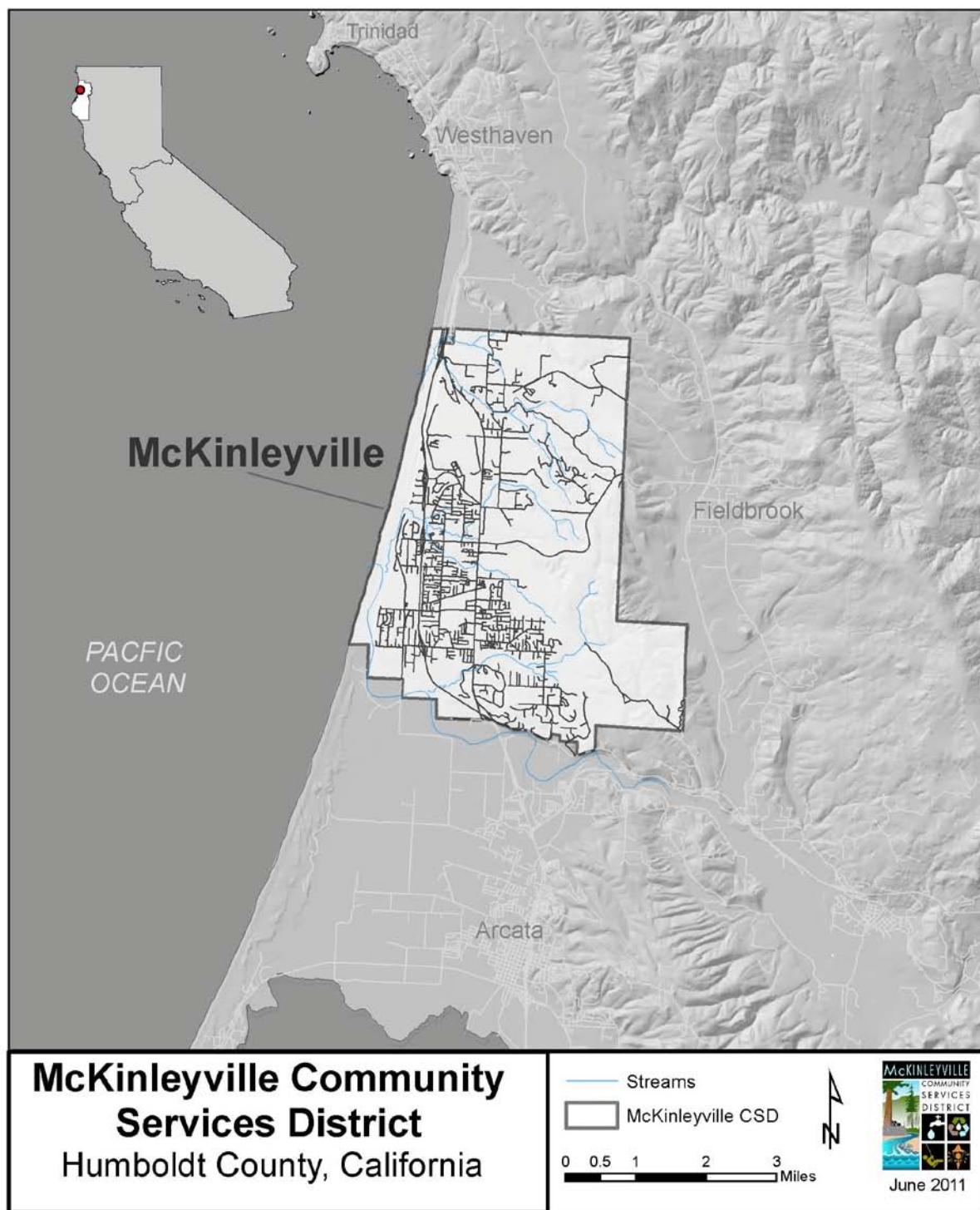
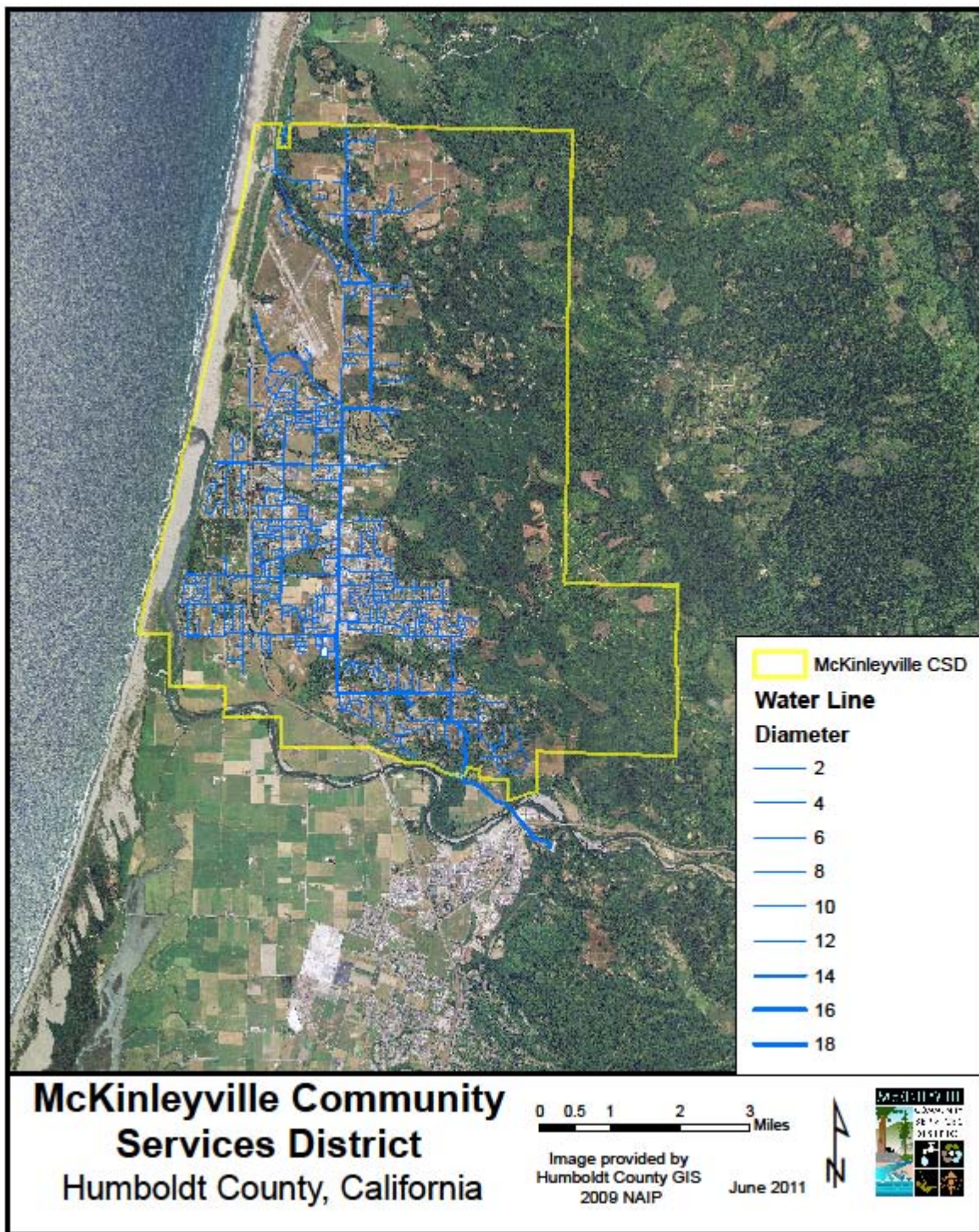




Figure 2



## **Service Area Information**

### **MCSD History**

McKinleyville Community Services District was created on April 7, 1970 when McKinleyville voters voted 589 "yes" votes against 151 "no" votes to form the District. Initially, the District had authority to serve water and treat sewer wastes. In 1972, the voters added street lighting powers, in 1985 the voters added recreational powers and in 1995 the voters authorized construction of the McKinleyville Library.

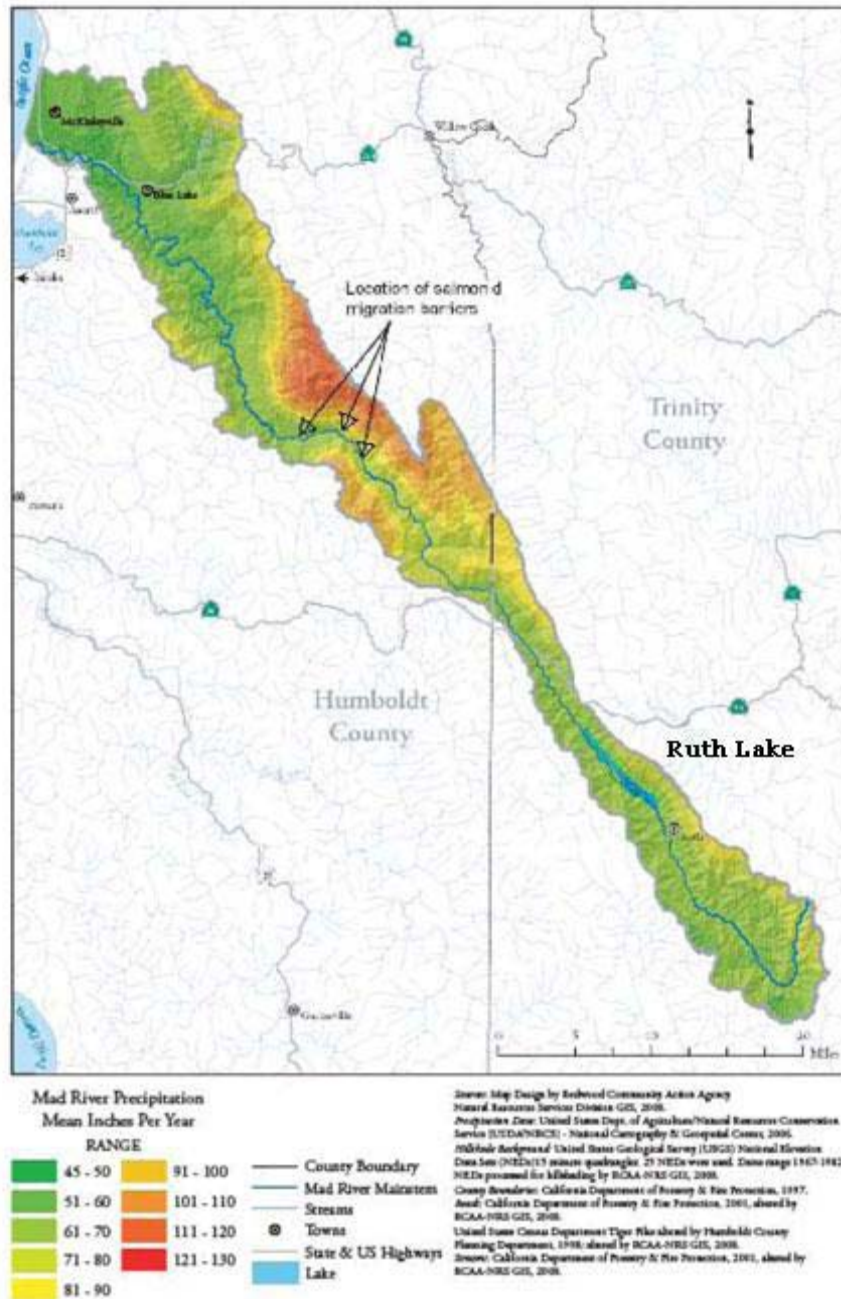
The District boundary encompasses 12,140 acres ranging from North Bank Road on the south to Patrick's Creek on the north. See Figure 1 and Figure 2. The District is an independent, special district governed by a five member Board of Directors elected by McKinleyville voters. The Board meets monthly on the third Wednesday of each month to set policy, consider projects and resolve disputes. The Board's directives are implemented by the District's 23 full-time and 42 part-time employees. The District office is located at 1656 Sutter Road; just east of Central Avenue. McKinleyville is the third largest community in Humboldt County after Eureka and Arcata with a population of 16,401 (2011). We currently have over 5,300 active water services. MCSD is proud of its record of solving problems. The Board has summed up its philosophy by adopting the following Mission Statement: "Provide McKinleyville with safe, adequate and reliable utility, lighting, open space, parks and recreation, and library services in an environmentally and fiscally responsible manner."

### **Climate**

Humboldt County's watersheds receive high annual rainfall. According to the National Oceanic and Atmospheric Administration (NOAA) and the Western Regional Climate Center (WRCC), rainfall at Eureka averages just less than 40 inches per year (data from 7/1/1948 to 9/30/2010). At Ruth, in Trinity County, where the Humboldt Bay Municipal Water District operates the R.W. Matthews Dam and the Ruth Reservoir, average rainfall is approximately 60 inches per year (data from 1/1/1930 to 7/31/1985). Some mountainous areas within the region often receive

more than 100 inches of rain per year, mostly during the period from November to April. The map below shows the mean annual precipitation in the Mad River Watershed.

**Figure 2. Mad River Watershed Assessment: Mean Annual Precipitation**





The following table shows average monthly rainfall, temperatures, and evapotranspiration (ETo) for the Ruth area.

<b>Climate</b> Month	Std Mo Avg ETo (Evapotranspiration) (Inches)	Average Rainfall (Inches)	Average Temperature Min - Max (Fahrenheit)
Jan	1.24	11.6	26.6 – 44.9
Feb	1.96	9.7	29.4 – 51.3
Mar	3.10	8.4	30.8 – 57.3
Apr	4.80	4.1	33.2 – 64.7
May	6.51	2.0	37.7 – 73.0
Jun	7.80	0.7	42.6 – 81.6
Jul	8.99	0.2	46.0 – 91.0
Aug	7.75	0.3	44.4 – 90.4
Sep	5.70	1.0	40.2 – 84.3
Oct	3.72	3.5	35.2 – 70.1
Nov	1.80	8.3	31.2 – 53.7
Dec	0.93	11.1	28.4 – 45.5
Annual	54.3	60.8	35.5 – 67.3

Rainfall and temperature data are from the Forest Glen weather data gathering station which is the closest station to the Ruth area. This information is provided by WRCC and NOAA under the U.S. Department of Commerce. The rainfall data is for the period from January 1, 1930 to July 31, 1985.

Evapotranspiration data for the Ruth area is from the statewide ETo Map and Table. This information is provided by the California Irrigation Management Information System (CIMIS) operated by the Office of Water Use Efficiency under the Department of Water Resources (DWR). According to DWR, evapotranspiration is the loss of water to the atmosphere by the combined process of evaporation, typically from soil and plant surfaces, and transpiration from plant tissues. The data above shows that more evapotranspiration occurs in the summer months versus the winter months. Evapotranspiration is a good indicator of how much water is needed by the surrounding vegetation for healthy growth and productivity.

The District maintains a weather station at our District Wastewater Treatment Facility. This area temperature is generally about 55 degrees with considerable fog and rain. Temperatures are typically in the low 50's and high 40's in the wintertime and high 50's to mid 60's all summer long due to heavy fog and strong north winds. The fall temperatures are in the mid 60's when the fog dissipates. Rainfall has averaged 63 inches for the last decade, with occasional rainfall up to 100 inches.

## Population Estimate

MCSD used a persons per connection and census data to estimate the past population of the services area. The Humboldt County General Plan indicates that there are 2.48 persons per residence. The average population growth from 2001-2011 is 2.52%. Future population was estimated by projecting the past average population growth. Using this approach resulted in the service area population estimates below:

Year	Population
2001	12,499
2002	12,829
2003	13,159
2004	13,489
2005	13,821
2006	14,284
2007	14,763
2008	15,170
2009	15,542
2010	15,998
2011	16,401
2015	18,118
2020	20,518
2025	23,237
2030	26,317

The above population estimates were used in determining gallons per capita day (GPCD) water use.

The US Census population data (ACS Demographic and Housing Estimates) for 2011 for the McKinleyville Census Designated Place indicates a population of 16,701. The census area and the MCSD service area overlap to a great extent. This US Census data was used to validate the persons per connection method used by MCSD to estimate population. The MCSD population estimate for 2011 is 16,401. There is less than a 2% difference between the MCSD estimate and the US Census data referenced above. The figure below shows the geographic boundary of the MCSD service area and the area used in the US Census.



## System Demands

The Water Conservation Bill of 2009 (SBX7-7) has a goal to achieve a 20 percent reduction in urban per capita water use statewide by 2020. Per capita water use rates in this region are low and likely benefit greatly from the moderate climate and abundant rainfall, as needs for agriculture and landscaping are often met with rainfall rather than municipal water. Section 3 of the DWR Guidebook and the California Water Code 10608.20(e) state that “An urban retail water supplier shall include in its urban water management plan ... due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the basis for determining those estimates, including references to supporting data.

## Baselines and Targets

The Methodology contained in Calculating Baseline and Compliance Urban Per Capita Water Use, (California Department of Water Resources, 2011) was used to determine the target and baseline values for MCSD (Tables 13-15). The data used for determination of baseline and targets is included below:

Year	Million Gallons /day (HBMWD)	Gallons /day (HBMWD)	Population	GPCD	10-yr Rolling Average	5-yr Rolling Average	95% of 5 year baseline	2015 GPCD Interim Goal
2001	1.5358	1,535,770	12,499	122.9				
2002	1.5743	1,574,293	12,829	122.7				
2003	1.5722	1,572,233	13,159	119.5				
2004	1.6291	1,629,068	13,489	120.8				
2005	1.5723	1,572,268	13,821	113.8				
2006	1.4942	1,494,238	14,284	104.6				
2007	1.5229	1,522,879	14,763	103.2		112.3547	106.737	109.5458
2008	1.5119	1,511,929	15,170	99.7		108.3919	102.9723	105.6821
2009	1.4872	1,487,170	15,542	95.7		103.3753	98.20656	100.7909
2010	1.5146	1,514,556	15,998	94.7	109.74	99.55777	94.57988	97.06883
2011	1.5253	1,525,321	16,401	93.0	106.75	97.23642	92.3746	94.80551



MCSD calculated individual baselines and targets. In 2008, MCSD did not have at least 10% of its 2008 measured retail water demand met through recycled water and therefore used a 10-year baseline. Technical methodology # 1 was used to determine gross water use and Technical methodology # 2 was used to determine the services population area. The first base period (10-year continuous period) was selected from 2001 to 2010. The average gallons/capita day (GPCD) for the 10- year base period was 110 GPCD. Using Method # 3 (95% of the regional goal of 130) to calculate the 2020 GPCD goal for the District results in 123 GPCD. The second baseline (5-year continuous period) was selected from 2003 to 2007. The average GPCD for the 5-year baseline was 112 GPCD. Since 95% of the 5-year baseline is 107 GPCD, less than the 2020 GPCD goal using Method # 3 (123 GPCD), the adjusted 2020 GPCD goal is 107 GPCD. The interim target goal for 2015 is 110 GPCD. A summary of GPCD baselines and goals is included below:

10-year Base GPCD	110
80% (10-year Base GPCD)	88
North Coast Region Statewide Baseline (1995-2005)	165
North Coast Region Statewide Interim Target by 2015	151
North Coast Region Statewide Target by 2020	137
95% of the North Coast Region Statewide Target by 2020	123
5-year Base Daily Per Capita Water Use	112
95% of the 5-year Base GPCD/ adjusted 2020 Urban Water Use Target	107 (Maximum goal)
<b>MCSD's Interim (2015) Goal</b>	<b>110</b>
<b>MCSD's 2020 Target</b>	<b>107</b>

According to our new water service records, MCSD has slow but consistent growth of about 1.8% annual service growth since the last five-year plan. This has reduced slightly from the previous five-year period. The District experiences modest growth from new subdivisions, apartments and seniors relocating from other regions of California. Very few commercial accounts are added each year with most being residential. This area is essentially a “bedroom community” of the Arcata/Eureka area to the south.

According to California Department of Finance 2000 and 2010 Census data, the number of persons per residence has dropped from 2.87 to 2.31. The total persons per residence is reducing



in size from previous decades. This trend will probably continue downward slowly as more single parent families and seniors move into this area. The average monthly residential usage is about 7500 gallons per month. The Humboldt County General Plan indicates 2.48 persons per residence. Multifamily developments are a requirement of the housing codes, but often multiple units are on single meters. Typically, multiple units use about one-third to one-half of the water usage of a single-family household. See Tables 3 & 4 for data.

Agricultural water demand has dropped considerably for the MCSD over the past three decades. We do have some small agricultural users for growing blue berries and a few nurseries. The local dairies use locally plentiful groundwater for irrigation. The District uses reclaimed wastewater to irrigate two separate parcels of pasture, diminishing the need for potable water to be used for pasture irrigation. Agricultural land in this area is slowly being converted to residential development. The District categorizes and bills customers on the basis of water consumption measured through water meters, installed when the District formed, billed in hundred cubic foot increments. The District distinguishes industrial, commercial, multi-family and single family customers. In the event of a declared water shortage, the MCSD Board of Directors would specify water conservation measures in accordance with the HBMWD delivery schedules. The MCSD would then implement its adopted Ordinance 10 with the appropriate water rationing allocations.

The MCSD has light commercial area of shops, stores, restaurants and two smaller shopping centers. The District does track commercial areas but we do have many home based businesses and “cottage industries” that make accurate commercial service number and usage difficult, but we estimate about 310 commercial services in our community.

There are no industrial accounts with the MCSD. The MCSD has a small institutional/governmental sector: the MCSD, a County Airport and maintenance yard, two elementary schools, middle and a high school, an animal control facility and a Coast Guard Air Station. See Tables 3 thru 7.

In 2009, McKinleyville Community Services District went from a 2-tiered pay schedule to a 3-tiered system. For the years, 2000 thru 2005, our customers averaged 120 gpcd usages. From 2006 thru 2010, that dropped from 105 gpcd to 95 gpcd average. In the year 2010, the gpcd was

95, trending down from 105 gpcd in 2006. In July 2012, MCSD went to a new 2 tiered billing system. Customers are billed from 0 – 8 ccf \$0.89 per ccf, above 8 ccf is billed at \$2.24 per ccf. Current rates are as follows:

5/8” meter: \$9.41 + usage

¾” meter: \$12.31 + usage

1” meter: \$18.11 + usage

1 ½” meter: \$32..61 + usage

2” meter: \$50.01 + usage

McKinleyville residents are very aware of the preciousness of water. So, while our population has continued to grow year after year, customers are using less water. For our SBX7x7 data starting in 2000, customers of MCSD have already started conserving water. MCSD will continue to push the water conservation efforts of the State of California. See Tables 14 and 15.

## **System Supplies**

The McKinleyville Community Services District has one source of water. Our sole source of water is purchased from The Humboldt Bay Municipal Water District (HBMWD). The water delivered from the HBMWD to the MCSD is through a single transmission main under the Mad River. The District then boosts the water from our North Bank Pump Station and sends water to two reservoir sites with 2.5 million gallons of storage at each site. The water distribution system has over 85 miles of mains and encompasses about 18 square miles. We maintain three separate pressure zones within the distribution system.

## The Humboldt Bay Municipal Water District

The water distributed by Humboldt Bay Municipal Water District is from Ruth Lake, which is located in Trinity County. The Mad River R.W. Matthews Dam, located at river mile 79, impounds water in Ruth Lake (Figure 3). The District manages releases from the dam to ensure



Figure 3 – R.W. Matthews Dam and Ruth Lake

sufficient supplies downstream throughout the year.

At Humboldt Bay Municipal Water District's Essex Operations Center located just northeast of Arcata, water is diverted and pumped to meet demand. Municipal water is pumped from an aquifer beneath the Mad River by four wells, called Ranney wells (Figure 4), situated within the riverbed at depths ranging from approximately 60 to 90 feet. Industrial water is diverted by a surface diversion facility.

Humboldt Bay Municipal Water District has appropriative water rights permits from the State Water Resources Control Board through the year 2029 for surface water storage and diversion.



Figure 4 – Ranney Wells in Bed of Mad River

Diversion is accomplished in different ways for different uses as mentioned earlier.

Humboldt Bay Municipal Water District water rights permits allow it to store and divert a combined 75 million gallons a day (MGD) from the Mad River. This totals 84,000 AFY, which represents 8.5% of the average annual runoff (982,600 AFY) of the Mad River Basin for the period from 1963 to 2010 (average annual runoff data provided by USGS at Gage Station 1148100 on the Mad River near Arcata, CA).

The Humboldt Bay Municipal Water District operates Ruth Reservoir, a 48,000 acre foot reservoir about 79 miles east of the coastal areas. This reservoir impounds only about 3% of the watershed and fills at a very rapid rate in normal rainfall years. Approximately 11 MGD is delivered to the municipal/district customers and entitlement is limited by actions taken during water shortage emergencies. Of the delivered water, a peak flow rate of 2.8 MGD is committed to serve the MCSD customers.

The MCSD receives the water delivery at the North Bank Pump Station having a bank of five pumps. Standby chlorination is available at this site should the chlorine residual from delivered water drop below 0.2 ppm. The District has (2) 1.5 Million gallons tanks, (2) 1.0 million gallon

tanks, a 100,000 and 150,000 gallon redwood tank and three booster stations throughout the distribution system.

## **Development of Desalinated Water**

There are no plans in this region for consideration of desalinated water. Due to our abundance of fresh water supply this is not a fiscally viable option.

## **Transfer and Exchange Opportunities**

Currently, McKinleyville Community Services District does not have the capability to transfer or exchange water with any other entities. We are currently having a 12” water main installed into the northbound lanes of the new highway 101 bridge. This will allow McKinleyville and Arcata to intertie with flexible hose.

## **Recycled Water Opportunities**

Due to our proximity to the Pacific Ocean, our climate, our abundance of precipitation, and our ETo, our residents, businesses and agriculture do not irrigate extensively. Water is abundant and relatively inexpensive in our area. Dual systems for recycle use would be extremely expensive for the piping installation. Additionally, tertiary treatment with nutrient removal would be required for recycle use in parks and lawn areas. Our pond plant produces secondary treatment but is not capable of producing such high quality effluent. Economics in this area simply will not allow such an expensive concept.

We irrigate pasture land for hay with 53% of our recycled wastewater, while an additional 5% goes to irrigating wetlands. Due to high rainfall in late fall, winter and spring, recycling is not a consideration, and accordingly, our recycled wastewater goes to the Mad River.

## **Future Water Projects**

**Water Storage Tanks:** The District's current storage capacity for potable water is 5.25 million gallons in six storage tanks located on McCluski Hill (100,000 & 150,000 gal.), Cochran Road (1 million & 1.5 million gallons) and Norton Road (1 million & 1.5 million gallons). This can leave a 24 hour backup water supply for McKinleyville water customers at peak flow. Two new 3-million gallon tanks are also planned for construction on the District's Murray Road site. MCSD is in the process of determining the viability of the Murray Road Tank Site due to seismic considerations. A cost analysis will be conducted to determine the feasibility of design at that site opposed to purchase of a location in a less sensitive location. New tanks would increase the District's storage capacity, enhance fire flows during peak summer usage and provide additional system capacity for new growth. MCSD has determined it would be more advantageous to initiate phased construction of two tanks at this location to spread the cost over a longer period of time and to enhance the operational flexibility of the system by having two tanks to allow for maintenance and redundancy.

**Emergency Water Supply:** The underground supply line from HBMWD's facility on the Mad River to the Ramey Pump Station may be vulnerable to failure in a major earthquake. If such an event were to occur during high stream flows, it could be several months before the supply line under the river and freeway could be repaired, restoring water supply to the Ramey Pump Station. A 12" emergency water main will be placed in the north bound span of the Highway 101 Mad River crossing. This provides a viable alternative due to the ability to intertie the Arcata and McKinleyville water system in the event of a catastrophe. Design was completed and an RFP was advertised and the contract has been awarded. The interties, valves and piping to complete the project will take place in FY12/13.

## **Reliability of Supply**

The North Coast is one of the only areas in California with an abundance of water. Droughts, while severe climatically, have not resulted in the level of water supply shortfalls that other areas of California routinely experience. The drought of 1976/1977 was the only declared water emergency on the North Coast. During that event, Ruth Lake storage was 52% of normal average volume and rainfall in the Ruth Lake area was 42% of historical average. The drought came to an end with heavy rains during November 1977. Even during the only declared water emergency on the North Coast MCSD did not experience restrictions. During this drought the MCSD supplies were sufficient to meet normal demand See Tables 27 and 28 for data.

## **Humboldt Bay Municipal Water District**

### **Overview**

The HBMWD provides potable water on a wholesale basis from its Domestic Water System to the cities of Arcata, Eureka, and Blue Lake; and to the Humboldt, Manila, Fieldbrook - Glendale and McKinleyville Community Services Districts (CSDs). Retail water service is provided to less than 200 customers who are generally located closer to the District's distribution system than to any other municipal water service. Raw water for industrial use from its Industrial Water System is available for any future industrial customer.

Wholesale water is provided to the HBMWD customers under long-term contracts. These contracts specifically assert the HBMWD's right, in accordance with the California Water Code, to suspend the water delivery requirements of the contracts if the District's Board declares that

an actual or potential water shortage exists, or if all wholesale customers and the District mutually agree to implement this Water Shortage Contingency Plan. During the 1976/77 drought, which was the only declared water emergency in the history of the District, it was the policy and practice of the District to set maximum use targets for its wholesale municipal customers, allowing them to choose how to meet those targets. Since the wholesale industrial customers could not operate effectively at significantly reduced water consumption levels, they were required to repair leaks and increase the efficiency of their water use. A reservoir capacity was set at which all deliveries to the industrial customers would cease. Fortunately, capacity did not fall to that level.

This plan operates on the same principles. The municipalities will retain responsibility for control of allotments provided under the provisions of this plan. Any potential wholesale industrial customers will face the reductions outlined in each action stage. HBMWD's 200 retail customers will be treated in accordance with the action stages of this plan.

MCSD is prepared to implement the measures as adopted in Ordinance 10 by the MCSD Board of Directors. This Ordinance 10 is in support of the *HBMWD Water Shortage Contingency Plan*; if a water shortage is declared. The MCSD Board of Directors must first declare that a water emergency exists, and then implement the Contingency Plan and enforce the measures of Ordinance 10.

Coordination and implementation of the Contingency Plan is assured through the activation of the HBMWD Drought Committee. This committee, established in 1977, is composed of wholesale customer representatives and the HBMWD. The committee's responsibilities include review of trigger data and input provisions regarding actual stage implementation. The HBMWD has a five stage rationing system to invoke during declared water shortages.

## **Coordination**

Coordination in implementing this Water Shortage Contingency Plan is assured through the activation of the Water Task Force. The first task force was formed in 1977. This task force



would be convened as necessary to address drought conditions or other significant events which could result in a supply shortfall. It is composed of representatives of the District and each of its wholesale customers. The committee's responsibilities include:

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

## **Stages of Action**

There are five defined drought action stages (Table 35). These stages may be implemented with or without a formal declaration of a water emergency by the HBMWD Board of Directors. In the event circumstances merit or require a declaration of a water shortage emergency, it is the intent of the HBMWD to rely on this plan to provide the primary framework to deal with such an emergency. The triggers attached to each stage are not intended to be absolute. Circumstances not currently foreseeable may dictate moving to a higher action stage before the trigger levels for that stage are reached. Conversely, action stage implementation may be postponed or suspended if there is sufficient natural flow in the river to meet downstream needs. Action stages will be terminated, in consultation with the Water Task Force, as rain, runoff, and lake levels permit.

## Stages and Conditions

As HBMWD, through its Water Resource Planning efforts, plans to service wholesale industrial water users in the future, the following stages and conditions assume that the District still is operating at normal levels prior to loss of its wholesale industrial customers. Without wholesale industrial customers, triggering of these stages would not occur as quickly and there would be lower flow requirements in the river.

- **Stage 1 – Controlled Release from Storage**

This means releasing from storage only the amount of water needed for in stream and water supply purposes.

- **Stage 2 – Optimizing Available Supply**

Reduction of peaking by wholesale industrial customers (if there are any industrial customers), resulting in narrower production ranges and a lower flow requirement in the river.

General voluntary water conservation measures with the municipalities, including public education efforts encouraging water conservation.

Consideration to implement Stage 2 will be triggered when the volume in Ruth Lake falls to 65% of capacity (31,200 AF) and the accumulated rainfall in the Ruth area is 70% or less of the historical average (49 inches). Other triggers to be considered are damage to system by flood, earthquake or other destruction; and accidental or intentional toxic spills in supply. The Water Task Force will review the trigger data and make recommendations regarding actual implementation of Stage 2.

- **Stage 3 – General Reduction**

All wholesale and retail customers of the District will be required to reduce usage by 10% to 15% over the previous two-year average actual use. It is estimated that this will

save between 2.7 MGD and 4.0 MGD, or up to 370 AF per month, based on actual usage (including previous average industrial use).

Consideration to implement Stage 3 will be triggered when Ruth Lake reaches 40% of capacity (19,200 AF) and accumulated rainfall is 60% or less of historical average (42 inches). The Water Task Force will review the trigger data and provide input regarding actual implementation of Stage 3.

- **Stage 4 – Usage Allocations**

Wholesale industrial water usage (if there were any industrial customers) will be limited to a maximum of 80% of the previous two years of actual average use. Each wholesale industrial customer will provide certification that water use is being optimized and that wasteful use of water is not occurring.

Use allocations reflecting 16% to 30% reductions will be established for the municipalities and retail customers using the previous two years actual average usage. The specific reduction will be determined on a biweekly basis based on rate of supply reduction, weather and other relevant factors. It is estimated that this will save between 4.0 MGD and 6.6 MGD or up to 610 AF per month over current usage.

Consideration to implement Stage 4 will be triggered when Ruth Lake reaches 30% of capacity (14,400 AF) and accumulated rainfall is 50% or less of historical average (35 inches). The Water Task Force will review the trigger data and provide input regarding actual implementation of Stage 4.

- **Stage 5 – Rationing**

Wholesale industrial water usage (if there were any industrial customers) will be limited to the amounts required for human consumption, sanitation, and fire protection. No water will be available for industrial processes. Municipal and retail customer usage will be reduced on a basis of up to 50% as may be determined by the rate of use of available supply and weather conditions. It is estimated that this will save up to 21 MGD or 1,930 AF per month over current usage.

Consideration to implement Stage 5 will be triggered when Ruth Lake reaches 25% of capacity (12,000 AF) and accumulated rainfall for the Ruth area continues at 50% or less of historical average (35 inches). The Water Task Force will review the trigger data and provide input regarding the actual implementation of Stage 5.

## **Projected Effect of Action Stages on Water Supply Reliability**

A primary goal of any Water Shortage Contingency Plan is to ensure, to the greatest extent possible, that the water supply will last until it can be replenished. To examine how well this plan might achieve that goal, some supply duration analyses have been performed. These analyses compare how long the water supply in the reservoir will last both with and without implementation of the plan. The calculations assume that no rainfall or other inflows to the reservoir occur and do not take into account minimum releases required for fish and wildlife, as these vary throughout the year. These analyses also assumed that the District was operating both its domestic and industrial systems and used a domestic water delivery of 11 MGD and an industrial water delivery of 16 MGD, totaling deliveries of 27 MGD. Flows for other water rights on the river were included; these total 1.585 MGD. Also, the calculations assumed that the action stages were put into effect as soon as the reservoir volume trigger point is reached and that the maximum reductions for each stage are implemented.

The analyses computed the number of days the supplies would last starting from the Stage 2 trigger point, which is when the lake reaches 65% of capacity (31,200 AF). If no reductions were made and the current delivery level of 27 MGD was maintained, this supply would last 352 days.

If the plan were followed as described above, the various stages would be implemented as follows:

- **Stage 2** would be implemented immediately. This stage doesn't require any reductions; deliveries would be maintained at the current level of 27 MGD.

- **Stage 3** would be reached on day 136 when the reservoir reached 40% of capacity (19,200 AF). This would lead immediately to 15% reductions to both municipal and industrial customers. This would reduce the production rate to 23 MGD.
- **Stage 4** would be reached on day 199 when the reservoir reached 30% of capacity (14,400 AF). This would lead immediately to 30% reductions in municipal deliveries and 20% reductions in industrial deliveries. This would reduce the production level to 21 MGD.
- **Stage 5** would be reached on day 235 when the reservoir reached 25% of capacity (12,000 AF). This would lead immediately to 50% reductions in municipal deliveries and reduce industrial water usage to amounts required for human consumption, sanitation, and fire protection (called 95% reduction for this analysis). This would reduce the production level to 8 MGD.
- Once in Stage 5, the supplies would last another 493 days, running out on day 728.

So, in this analysis, the duration of supplies more than doubled (from 352 days to 728 days) through the implementation of this Water Shortage Contingency Plan. An increase in normal water deliveries, especially HBMWD's entry into additional wholesale contracts for industrial water, would reduce the duration of the supplies.

If the above analyses were tested with the current scenario of a normal domestic water delivery of 9.90 MGD with no industrial water delivery, the supply would last 885.4 days with deliveries being maintained at 11.49 MGD (including flows for other water rights in the river). Therefore, HBMWD could continue delivering water to its seven municipal customers at a steady rate for approximately 2.42 years without triggering Stage 2 of the Water Shortage Contingency Plan.

## **Catastrophic Supply Interruption Plan**

In the event of a major earthquake, McKinleyville Community Services District has steps in our EOP that detail our response. We would monitor our tanks, pumps, etc through our SCADA system. While having operators out in the field doing visual inspections of facilities. The District's Emergency Action Plan (EAP) provides response procedures for catastrophic supply interruptions involving the R.W. Matthews Dam and Reservoir (Ruth Lake) at Ruth, such as an

earthquake. The District's Operations Plan (OP) provides procedures for system failures. Hazardous materials incidents are covered by numerous response plans depending on the nature of the incident.

## **Preparation Actions for a Catastrophe**

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

## **Analysis of Revenue Impacts of Reduced Sales During Shortages**

In the event of reduced sales during a shortage, the McKinleyville Community Services District would stand to lose in Stage Three approximately \$24,600 per month. If the shortage continued beyond Stage Three into Stage Four, MCSD would stand to lose approximately \$49,200 per month. If the shortage pushed MCSD into Stage Five, MCSD would stand to lose approximately \$82,000. These numbers were compiled using the 2010 Treasurers Monthly Report.

## **Prohibitions, Consumption Reduction Methods, and Penalties**

The MCSD Board of Directors adopted Ordinance No. 10 on June 17, 1977 that defines the conditions and procedures that will be adopted once a water emergency is declared. The initial stages are for a voluntary reduction of 10% of their fall usage. Voluntary reduction would apply

to outdoor uses such as washing cars, watering of plants, trees, vines, grass, porches, sidewalks, etc. Large users (over 50,000 gallons per month) shall not irrigate, sprinkle, water any shrubbery, ground cover, plants, gardens, trees or any other vegetation except as assigned the Manager after consultation.

At such time the General Manager determines that the water available to the MCSD is insufficient to meet the demand of customers of the District and that all water shall be reserved for human consumption, sanitation and fire protections and may order reduction of individual consumption as directed by the Board of Directors. Fines shall be levied of \$10.00 for the first offense, \$30.00 for the second offense and \$100.00 and a misdemeanor charge for the third offense. Further violations allow the General Manager to disconnect the water service. Reconnection shall not occur without all payment of fines and reconnection fees.

The Manager is instructed to see that water is distributed equitably to the customers in such a water emergency condition. These regulations shall remain in effect until the Board of Directors act to declare the water emergency no longer exists.

## **DMMs**

We have recently replaced our Water Conservation Coordinator. Due to staff limitations, this position is now tasked to a Customer Service Representative II. As this employee gets his bearings in this position, special attention will be paid to the DMM's.

### **A: Water survey programs for single-family residential and multifamily residential customers:**

No surveys of single-family units are offered at this time. According to our meter reading records, our customers use only 236 gallons per residence per day, or 95 Gallons Per Capita Day (GPCD). Due to this low usage amount water audits are not appropriate at this time. When a customers' usage exceeds 2ccf from the prior year, customer service representatives investigate to determine if usage is slowly moving up. If usage proves to be moving up, they will call the

customer and advise them of possible leak, and instruct them in how to locate their water meter and instruct them on locating a leak. If customer is unable to inspect for a leak, we send a service worker out to help.

### **B Residential plumbing retrofit:**

This program consists of installing physical devices to reduce the amount of water used or to limit the amount of water, which can be served to the customer. In accordance with State Law, low flow fixtures have been required on all new construction since 1978. In addition, State legislation enacted in 1990 requires all new buildings after January 1, 1992 to install Ultra-Low Flush Toilets (ULFT).

Several studies suggest that savings resulting from miscellaneous interior retrofit fixtures can range between 25 and 65 gpd per housing unit. The studies also suggest that installation of retrofit fixtures in older single-family homes tends to produce more savings, while newer multi-family homes tend to produce fewer savings per housing unit.

MCSD performed a cost-benefit analysis on this DMM and found that it was not cost effective to implement. The cost-benefit analysis is included in Appendix E

### **C: System water audits, leak detection, and repairs.**

The MCSD meters **ALL** uses and records **ALL** water sales and uses of parks facilities. System leaks are infrequent and immediately repaired. The water distribution system is only about 40 years old and the system is kept in excellent condition. The District experiences only a few service leaks per year and very infrequent main leaks. A water audit is performed each year on water purchased, purchased water sold and all known losses or uses. Our water loss for fiscal year 2010/11 was 8.5% of water purchased totaling about 188 acre-feet last year. This water loss amount can mostly be explained by older meters that are under-registering. With 85 miles of water mains this amount suggests further efforts would generate a very small return on the effort required to make an exhaustive water audit and aggressive leak-monitoring program. We monitor our system closely and consider our response level to be more than adequate at this time. We track and contact customers about unusual increases in their monthly usage and talk to them about any possible leaks and how to check their meters and plumbing. McKinleyville



Community Services District is in the process of replacing all meters with radio read meters. This will hopefully be finished by the 2015 UWMP. The new water meters will also help with water wastage as they will note if water is running 24 hours straight. This will be an immense help to meter readers as well as office staff, in locating leaks. The meters have a +/- .01% error factor. This process will take some time however, that will make our efforts to manage leaks and assist customers with locating leaks easier. In fiscal year 2010/11 McKinleyville Community Services District experienced zero main line leaks and 15 service leaks.

**D: Metering with commodity rates for all new connections and retrofit of existing connections:**

All 5300 services are metered in the district. Rates are two tiered to encourage low use and reward conservation. Use 800 cubic feet and under is charged at a rate of \$0.89 per hundred cubic feet and 900 cubic feet and over is billed at \$2.24 per hundred cubic feet.

**E: Large landscape conservation programs and incentives:**

All new subdivisions forming open space zones are required to install meters and encouraged to install drip systems and plant native plants that need little to no watering. The District manages many of these subdivision open space zones and ensures that conservation measures are met. The District encourages landscape watering via separate meters and drip systems. Residential subdivisions are often required to have front setbacks with landscape zones maintained through benefit assessment fees. The MCSD had accepted many of the open space and landscape zones as a condition of development.

There are twenty-eight such open space zones maintained by the District. Commercial business and apartments install irrigation meters since sewer fees are linked to water usage. Irrigation meters reward those customers by keeping their water rates lower without the additional sewer charge. The District currently has limited large landscapes, during the 2005 thru 2010 years the landscape accounts used less than 1% of our total gross water use. We do not expect additional landscape zones that are not planted with native vegetation.

**F: High-efficiency washing machine rebate programs:**

These units are very expensive, ranging in price from \$400 to upwards of \$1,000. In these difficult economic times, this is not a practical solution. Pacific Gas and Electric does offer incentive programs for those installing energy saving appliances and replaces many of these items at no charge for seniors. The amount of the incentive program is dependent upon the user's consumption patterns. The McKinleyville Community Services District would respectfully request an exemption to this DMM, due to lack of funds at this time. The District is currently going thru the process of having a rate study done, due to lower usage, we are losing revenue.

#### **G: Public information programs:**

McKinleyville Community Services District is currently undergoing a change of command in the Water Conservation Coordinator position. The new coordinator will be looking into the MCSD tri annual newsletters as well as, the educational opportunities at the local schools.

The District publishes a newsletter (every four months) and we frequently remind customers of the need to conserve and not dispose of hazardous material down the sewer due to environmental concerns. Lot sizes here are small. We emphasize early morning watering, drip systems or night time sprinkler systems to conserve energy and water. We provide system usage and give tips on how to detect leaks and keep their water usage to a minimum. The District mails out approximately 16,000 newsletters per year reminding and educating our customers to check for leaks. We show them how to check their water meters should they suspect high usage. We also advise them how to irrigate properly not to over-water lawns or gardens. In March of 2010, McKinleyville Community Services District sponsored a local nursery, while they put on a free landscape class, free to the public, at our offices. During the class, the nursery employees discussed proper watering, native vegetation integration, and landscape beautification. They then went on to replace the landscaping in front of the main office of the District. Now the landscaping requires no watering at all.

#### **H: School education programs:**

The Water Conservation Coordinator will meet with school groups or classes that request classroom presentations on the water cycle, recycling information, pollution concerns and water

supply interest. We pass out water conservation kits to children with rulers, erasers, balloons, note pads and other items to educate them on the effect of water leaks and protection of the water source. We purchase these kits to distribute to children of school age, targeted mainly to those in elementary school. McKinleyville Community Services District is getting its new Water Conservation Coordinator up and running and will be investigating new and improved ways to reach the local youth.

**I: Conservation programs for commercial, industrial and institutional accounts:**

No specific program is offered at this time. The District has no Industrial users, and most commercial uses are for small businesses that serve our residential community. Our water rate structure rewards low users both for water and sewer rates. In 2005, the entire commercial and institutional water usage accounted for only 8.9% of total water usage. In 2010, while we gained an additional 116 commercial accounts, the water usage in commercial/institutional usage only increased to 12.3%. Our commercial accounts located on the main thruway in McKinleyville also have our Parks and Recreation Department monitor water usage and is landscaped by the Parks and Recreation Department as well. The plants located in these open space zones are native to this area and require little to no irrigation at all.

MCSD performed a cost-benefit analysis on this DMM and found that it was not cost effective to implement. The cost-benefit analysis is included in Appendix E

**J: Wholesale agency programs:**

The MCSD is strictly a retailer for our local customers.

**K: Conservation pricing:**

Customers are billed from 0 – 8 per hundred cubic feet \$0.89 per hundred cubic feet, above 8 per hundred cubic feet is billed at \$2.24 per hundred cubic feet. Current rates are as follows:

5/8" meter: \$9.41 + usage

3/4" meter: \$12.31 + usage

1" meter: \$18.11 + usage

1 ½” meter: \$32..61 + usage

2” meter: \$50.01 + usage

Irrigation: \$9.41 if 5/8” meter + usage

Sewer Rate: residential is \$12.83 per living unit

Commercial is \$12.83 per unit + usage at \$1.09 per hundred cubic foot.

**L: Water Conservation Coordinator:**

Our Water Conservation Coordinator is a Customer Services Representative II. They will be publishing articles in the local newspaper and the District’s tri-annual newsletter. The Water Conservation Coordinator is responsible to conduct annual water loss audits of the distribution system. All identified leaks are immediately repaired and assistance is given to residents in timely repairs of their private plumbing facilities. There is no specific budget amount for this activity, but we are in the process of updating our conservation effort.

**M: Water waste prohibition:**

The District in 1977 has published in our Ordinances the prohibition of water wastage and authorized the General Manager to take immediate action up to and including turning off the water service if timely action by the resident does not occur to repair the leak.

**Rule 7.02. WATER WASTE.** 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 District may discontinue the service if such conditions are not corrected within five days after giving the customer written notice.

McKinleyville Community Services District has Ordinance 10 which specifically targets water waste during a water emergency. It is located in Appendix B.

**N: Residential ultra-low-flush toilet replacement programs:**

The District does not have an active program to change out low-flush toilets. New homes and remodels all utilize low-flush units. Over time all the residences in the district will be changed

out by new construction or attrition. McKinleyville Community Services District is a small CSD. We have a population of approximately 16,000. A majority of our residents work in the surrounding cities of Eureka and Arcata. McKinleyville is a small, bedroom community for the larger cities.

MCSD performed a cost-benefit analysis on this DMM and found that it was not cost effective to implement. The cost-benefit analysis is included in Appendix E

# Tables

Table 1							
Coordination with appropriate agencies							
Coordinating Agencies <sup>1,2</sup>	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved / No information
Humboldt Bay Municipal Water District	X	X		X	X	X	
City of Arcata	X			X	X	X	
City of Eureka	X			X	X	X	
City of Blue Lake					X	X	
Humboldt Community Services District	X			X	X	X	
Manila Community Services District					X	X	
Fieldbrook–Glendale Community Services District					X	X	
Humboldt County Planning Department	X			X	X	X	
General public		X	X			X	
Other							
<sup>1</sup> Indicate the specific name of the agency with which coordination or outreach occurred. <sup>2</sup> Check at least one box in each row.							

Table 2						
Population — current and projected						
	2010	2015	2020	2025	2030	Data source <sup>2</sup>
Service area population <sup>1</sup>	15,998	18,118	20,518	23,237	26,317	1994-2010 water connections averaged to get total and divided by year county numbers, census al
<sup>1</sup> Service area population is defined as the population served by the distribution system. See Technical Methodology 2: Service Area Population (2010 UWMP Guidebook, Section M). <sup>2</sup> Provide the source of the population data provided.						

Table 3

## Water deliveries — actual, 2005

	2005				
	Metered		Not metered		Total
Water use sectors	# of accounts	Volume	# of accounts	Volume	Volume
Single family	4773	326	0	0	999
Multi-family	650	121	0	0	370
Commercial	194	56	0	0	172
Industrial	0	0	0	0	0
Institutional/governmental	11	14	0	0	43
Landscape	9	3	0	0	9
Agriculture	6	6	0	0	18
Other	0	0	0	0	0
<b>Total</b>	<b>5643</b>	<b>525</b>	<b>0</b>	<b>0</b>	<b>525 acre-feet per year</b>
Units (circle one):   acre-feet per year <b>million gallons per year</b> cubic feet per year					

Table 4

## Water deliveries — actual, 2010

	2010				
	Metered		Not metered		Total
Water use sectors	# of accounts	Volume	# of accounts	Volume	Volume
Single family	5061	330	0	0	330
Multi-family	1365	90	0	0	90
Commercial	310	33	0	0	33
Industrial	0	0	0	0	0
Institutional/governmental	10	5	0	0	5
Landscape	18	4	0	0	4
Agriculture	5	6	0	0	6
Other	0	0	0	0	0
<b>Total</b>	<b>6769</b>	<b>466.62</b>	<b>0</b>	<b>0</b>	<b>466.62</b>
Units (circle one):   acre-feet per year <b>million gallons per year</b> cubic feet per year					

Table 5

## Water deliveries — projected, 2015

	2015				
	Metered		Not metered		Total
Water use sectors	# of accounts	Volume	# of accounts	Volume	Volume
Single family	5,449	444	0	0	444
Multi-family	1,552	126	0	0	126
Commercial	340	28	0	0	28
Industrial	0	0	0	0	0
Institutional/governmental	10	1	0	0	1
Landscape	23	2	0	0	2
Agriculture	6	1	0	0	1
Other	0	0	0	0	0
<b>Total</b>	<b>7,380</b>	<b>602</b>	<b>0</b>	<b>0</b>	<b>602</b>
Units (circle one):   acre-feet per year   million gallons per year   cubic feet per year					

Table 6

## Water deliveries — projected, 2020

	2020				
	Metered		Not metered		Total
Water use sectors	# of accounts	Volume	# of accounts	Volume	Volume
Single family	5,637	436	0	0	436
Multi-family	1,645	127	0	0	127
Commercial	370	29	0	0	29
Industrial	0	0	0	0	0
Institutional/governmental	10	1	0	0	1
Landscape	28	2	0	0	2
Agriculture	6	1	0	0	1
Other	0	0	0	0	0
<b>Total</b>	<b>7,696</b>	<b>596</b>	<b>0</b>	<b>0</b>	<b>596</b>
Units (circle one):   acre-feet per year   million gallons per year   cubic feet per year					



Table 7

## Water deliveries — projected 2025, 2030, and 2035

	2025		2030		2035 - optional	
	metered		metered		metered	
Water use sectors	# of accounts	Volume	# of accounts	Volume	# of accounts	Volume
Single family	5,925	436	6213	439		
Multi-family	1,785	131	1925	136		
Commercial	400	30	430	31		
Industrial	0	0	0	0		
Institutional/governmental	10	1	10	1		
Landscape	33	3	38	3		
Agriculture	6	1	6	1		
Other						
<b>Total</b>	<b>8,159</b>	<b>601</b>	<b>8,622</b>	<b>610</b>	<b>0</b>	<b>0</b>

Units (circle one):    acre-feet per year    million gallons per year    cubic feet per year

Table 8

## Low-income projected water demands

Low Income Water Demands <sup>1</sup>	2015	2020	2025	2030	2035 - opt
Single-family residential	1211ccf	2421ccf	3631ccf	4841ccf	
Multi-family residential	1816ccf	3631ccf	5446ccf	7261ccf	
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Units (circle one):    acre-feet per year    million gallons per year    cubic feet per year

<sup>1</sup>Provide demands either as directly estimated values or as a percent of demand.

Table 9 (Not Applicable to MCSD)

## Sales to other water agencies

Water distributed	2005	2010	2015	2020	2025	2030	2035 - opt
name of agency	N/A	N/A	N/A	N/A	N/A	N/A	N/A
name of agency	N/A	N/A	N/A	N/A	N/A	N/A	N/A
name of agency	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Units (circle one):    acre-feet per year    million gallons per year    cubic feet per year

Table 10

Additional water uses and losses							
Water use <sup>1</sup>	2005	2010	2015	2020	2025	2030	2035 -opt
Saline barriers	0	0	0	0	0	0	0
Groundwater recharge	0	0	0	0	0	0	0
Conjunctive use	0	0	0	0	0	0	0
Raw water	0	0	0	0	0	0	0
Recycled water	0	0	0	0	0	0	0
System losses	49	82	60	59	60	61	0
Other (define)	0	0	0	0	0	0	0
<b>Total</b>	<b>49</b>	<b>82</b>	<b>60</b>	<b>59</b>	<b>60</b>	<b>61</b>	<b>0</b>
Units (circle one):   acre-feet per year   million gallons per year   cubic feet per year							
<sup>1</sup> Any water accounted for in Tables 3 through 7 is not included in this table.							

Table 11

Total water use							
Water Use	2005	2010	2015	2020	2025	2030	2035 - opt
Total water deliveries (from Tables 3 to 7)	525	467	602	596	601	610	
Sales to other water agencies (from Table 9)							
Additional water uses and losses (from Table 10)	49	82	60	59	60	61	
<b>Total</b>	<b>573.8</b>	<b>549</b>	<b>662</b>	<b>655</b>	<b>661</b>	<b>671</b>	<b>0</b>
Units (circle one):   acre-feet per year   million gallons per year   cubic feet per year							

Table 12

Retail agency demand projections provided to wholesale suppliers							
Wholesaler	Contracted Volume <sup>3</sup>	Peak Rate Allocations	2010	2015	2020	2025	2030
Humboldt Bay Municipal Water District	N/A	2.8 MGD	549	662	655	661	671
Units (circle one):   acre-feet per year   million gallons per year   cubic feet per year							
<sup>1</sup> Any water accounted for in Tables 3 through 7 is not included in this table.							

Table 13

Base period ranges			
Base	Parameter	Value	Units
10- to 15-year base period	2008 total water deliveries	552 MG	<i>see below</i>
	2008 total volume of delivered recycled water	0	<i>see below</i>
	2008 recycled water as a percent of total deliveries	0	Percent
	Number of years in base period <sup>1</sup>	10	Years
	Year beginning base period range	2001	
	Year ending base period range <sup>2</sup>	2010	
5-year base period	Number of years in base period	5	Years
	Year beginning base period range	2003	
	Year ending base period range <sup>3</sup>	2007	

Units (circle one): acre-feet per year million gallons per year cubic feet per year

<sup>1</sup>If the 2008 recycled water percent is less than 10 percent, then the first base period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first base period is a continuous 10- to 15-year period.

<sup>2</sup>The ending year must be between December 31, 2004 and December 31, 2010.

<sup>3</sup>The ending year must be between December 31, 2007 and December 31, 2010.

Table 14

Base daily per capita water use — 10- to 15-year range				
Base period year		Distribution System Population	Daily system gross water use (mgd)	Annual daily per capita water use (gpcd)
Sequence Year	Calendar Year			
Year 1	1996	10138		
Year 2	1997	10344		
Year 3	1998	10567		
Year 4	1999	10703		
Year 5	2000	12169		
Year 6	2001	12499	1.5358	122.9
Year 7	2002	12829	1.5743	122.7
Year 8	2003	13159	1.5722	119.5
Year 9	2004	13489	1.6291	120.8
Year 10	2005	13821	1.5723	113.8
Year 11	2006	14284	1.4942	104.6
Year 12	2007	14763	1.5229	103.2
Year 13	2008	15170	1.5119	99.7
Year 14	2009	15542	1.4872	95.7
Year 15	2010	15998	1.5146	94.7
Base Daily Per Capita Water Use <sup>1</sup>				110

<sup>1</sup>Add the values in the column and divide by the number of rows.

Table 15

Base daily per capita water use — 5-year range				
Base period year		Distribution System Population	Daily system gross water use (mgd)	Annual daily per capita water use (gpcd)
Sequence Year	Calendar Year			
Year 1	2003	13,159	1,5722	119.5
Year 2	2004	13,489	1,6291	120.8
Year 3	2005	13,821	1,5723	113.8
Year 4	2006	14,284	1,4942	104.6
Year 5	2007	14,763	1,5229	103.2
Base Daily Per Capita Water Use <sup>1</sup>				112
<sup>1</sup> Add the values in the column and divide by the number of rows.				

Table 16							
Water supplies — current and projected							
Water Supply Sources		2010	2015	2020	2025	2030	2035 – opt
Water purchased from <sup>1</sup> :	Wholesaler supplied volume (yes/no)						
Humboldt Bay Municipal Water District	YES	549	662	655	661	671	
Supplier-produced groundwater <sup>2</sup>							
Supplier-produced surface water							
Transfers in							
Exchanges In							
Recycled Water							
Desalinated Water							
Other							
Other							
Total		549	662	655	661	671	
Units (circle one):   acre-feet per year <b>million gallons per year</b> cubic feet per year <sup>1</sup> Volumes shown here should be what was purchased in 2010 and what is anticipated to be purchased in the future. If these numbers differ from what is contracted, show the contracted quantities in Table 17. <sup>2</sup> Volumes shown here should be consistent with Tables 17 and 18.							

Table 17

## Wholesale supplies — existing and planned sources of water

Wholesale sources <sup>1,2</sup>	Contracted Volume <sup>3</sup>	2015	2020	2025	2030	2035 - opt
<b>Humboldt Bay Municipal Water District</b>	2.8 MGD	1,022	1,022	1,022	1,022	
(source 2)						
(source 3)						
<p>Units (circle one):    acre-feet per year    <b>million</b>  <b>gallons per year</b>    cubic feet per year</p> <p><sup>1</sup>Water volumes presented here should be accounted for in Table 16.</p> <p><sup>2</sup>If the water supplier is a wholesaler, indicate all customers (excluding individual retail customers) to which water is sold. If the water supplier is a retailer, indicate each wholesale supplier, if more than one.</p> <p><sup>3</sup>Indicate the full amount of water</p>						

Table 18 (Not Applicable to District)

## Groundwater — volume pumped

Basin name(s)	2006	2007	2008	2009	2010
N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A
<b>Total groundwater pumped</b>	N/A	N/A	N/A	N/A	N/A
<b>Groundwater as a percent of total water supply</b>	N/A	N/A	N/A	N/A	N/A
Units (circle one):    acre-feet per year    million gallons per year    cubic feet per year					
<sup>1</sup> Indicate whether volume is based on volumetric meter data or another method					

Table 19 (Not applicable to MCSD)

## Groundwater — volume projected to be pumped

Basin name(s)	2015	2020	2025	2030	2035 - opt
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
<b>Total groundwater pumped</b>	N/A	N/A	N/A	N/A	N/A
<b>Percent of total water supply</b>	N/A	N/A	N/A	N/A	N/A
	N/A				
Units (circle one):    acre-feet per year    million gallons per year    cubic feet per year					
Include future planned expansion					

Table 20 (Not Applicable to MCSD)

Transfer and exchange opportunities			
Transfer agency	Transfer or exchange	Short term or long term	Proposed Volume
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
<b>Total</b>			
Units (circle one):    acre-feet per year    million gallons per year    cubic feet per year			

Table 21

Recycled water — wastewater collection and treatment							
Type of Wastewater	2005	2010	2015	2020	2025	2030	2035 - opt
Wastewater collected & treated in service area	1060	1,222	1,342	1,443	1,544	1,644	
Volume that meets recycled water standard							
Units (circle one):    acre-feet per year    million gallons per year    cubic feet per year							

Table 22

Recycled water — non-recycled wastewater disposal						
Method of disposal	Treatment Level	2010	2015	2020	2025	2030
Agricultural irrigation	Secondary	553	771	765	818	871
Wetlands	Secondary	50	67	72	77	82
Name of method	Secondary	N/A		N/A		N/A
Name of method	Secondary	N/A		N/A		N/A
<b>Total</b>		603	838	0837	885	953
Units (circle one):    acre-feet per year    million gallons per year    cubic feet per year						

Table 23

Recycled water — potential future use						
User type	Description	Feasibility <sup>1</sup>	2015	2020	2025	2030
Agricultural irrigation	RANCH IRRIGATION		53%	53%	53%	53%
Landscape irrigation <sup>2</sup>						
Commercial irrigation <sup>3</sup>						
Golf course irrigation						
Wildlife habitat						
Wetlands	MARSHES		5%	5%	5%	5%
Industrial reuse						
Groundwater recharge						
Seawater barrier						
Geothermal/Energy						
Indirect potable reuse						
Other (user type)	RIVER DISCHARGE		42%	42%	42%	42%
Other (user type)						
<b>Total</b>		0	100%	100%	100%	100%
<i>Units (circle one):    acre-feet per year    million gallons per year    cubic feet per year</i> <sup>1</sup> Technical and economic feasibility. <sup>2</sup> Includes parks, schools, cemeteries, churches, residential, or other public facilities) <sup>3</sup> Includes commercial building use such as landscaping, toilets, HVAC, etc) and commercial uses (car washes, laundries, nurseries, etc)						

Table 24

## Recycled water — 2005 UWMP use projection compared to 2010 actual

Use type	2010 actual use	2005 Projection for 2010 <sup>1</sup>
Agricultural irrigation	553	541
Landscape irrigation <sup>2</sup>		
Commercial irrigation <sup>3</sup>		
Golf course irrigation		
Wildlife habitat		
Wetlands	50	44
Industrial reuse		
Groundwater recharge		
Seawater barrier		
Geothermal/Energy		
Indirect potable reuse		
Other (user type)		
Other (user type)		
<b>Total</b>	<b>603</b>	<b>585</b>

Units (circle one): **acre-feet per year**    million gallons per year    cubic feet per year

<sup>1</sup>From the 2005 UWMP. There has been some modification of use types. Data from the 2005 UWMP can be left in the existing categories or modified to the new categories, at the discretion of the water supplier.

<sup>2</sup>Includes parks, schools, cemeteries, churches, residential, or other public facilities)

<sup>3</sup>Includes commercial building use such as landscaping, toilets, HVAC, etc) and commercial uses (car washes, laundries, nurseries, etc)

Table 25 (Not applicable to MCSD)

## Methods to encourage recycled water use

Actions	Projected Results					
	2010	2015	2020	2025	2030	2035 - opt
Financial incentives						
name of action						
name of action						
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Units (circle one):    acre-feet per year    million gallons per year    cubic feet per year



Table 26								
Future water supply projects								
Project name <sup>1</sup>	Projected start date	Projected completion date	Potential project constraints <sup>2</sup>	Normal-year supply <sup>3</sup>	Single-dry year supply <sup>3</sup>	Multiple-dry year first year supply <sup>3</sup>	Multiple-dry year second year supply <sup>3</sup>	Multiple-dry year third year supply <sup>3</sup>
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total</b>			0	0	0	0	0	0
Units (circle one):    acre-feet per year    million gallons per year cubic feet per year <sup>1</sup> Water volumes presented here should be accounted for in Table 16. <sup>2</sup> Indicate whether project is likely to happen and what constraints, if any, exist for project implementation. <sup>3</sup> Provide estimated supply benefits, if available.								

Table 27	
Basis of water year data	
Water Year Type	Base Year(s)
Average Water Year	2000
Single-Dry Water Year	1977
Multiple-Dry Water Years	1990, 1991, 1992

Table 28					
Supply reliability — historic conditions					
Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years			
		1990	1991	Year 3	Year 4
452.6	200	445	422.3	449.5	
Percent of Average/Normal Year:	44%	98.32%	93.31%	99.32%	

million gallons per year

Table 29

## Factors resulting in inconsistency of supply

Water supply sources <sup>1</sup>	Specific source name, if any	Limitation quantification	Legal	Environmental	Water quality	Climatic	Additional information
<b>Humboldt Bay Municipal Water District</b>	Ruth Reservoir	1,022					

Units (circle one):    acre-feet per year    **million gallons per year**    cubic feet per year

<sup>1</sup>From Table 16.

Table 30

## Water quality — current and projected water supply impacts

Water source	Description of condition	2010	2015	2020	2025	2030	2035 – opt
Mad River Storage & Diversions	Good	0	0	0	0	0	

Units (circle one):    acre-feet per year    million gallons per year    cubic feet per year

Table 31

## Supply reliability — current water sources

Water supply sources <sup>1</sup>	Average / Normal Water Year Supply <sup>2</sup>	Multiple Dry Water Year Supply <sup>2</sup>		
		Year 2011	Year 2012	Year 2013
Humboldt Bay Municipal Water District	452.6	556.74	562.31	567.93
Percent of normal year:	100.0%	123.01	124.24	125.48
<i>Units (circle one):    acre-feet per year    million gallons</i> <i>per year    cubic feet per year</i> <sup>1</sup> From Table 16. <sup>2</sup> See Table 27 for basis of water type years.				

Table 32

## Supply and demand comparison — normal year

	2015	2020	2025	2030	2035 - opt
Supply totals (from Table 16)	1,022	1,022	1,022	1,022	
Demand totals (From Table 11)	662	655	661	671	
Difference	360	367	361	351	
Difference as % of Supply	35%	36%	35%	34%	
Difference as % of Demand	54%	56%	55%	52%	
<i>Units are in acre-feet per year.</i>					

**Table 33****Supply and demand comparison — single dry year**

	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035 - opt</b>
<b>Supply totals<sup>1,2</sup></b>	1,022	1,022	1,022	1,022	
<b>Demand totals<sup>2,3,4</sup></b>	662	655	661	671	
<b>Difference</b>	360	367	361	351	
Difference as % of Supply	35%	36%	35%	34%	
Difference as % of Demand	54%	56%	55%	52%	

*Units are in acre-feet per year.*

<sup>1</sup>Consider the same sources as in Table 16. If new sources of water are planned, add a column to the table and specify the source, timing, and amount of water.

<sup>2</sup>Provide in the text of the UWMP text that discusses how single-dry-year water supply volumes were determined.

<sup>3</sup>Consider the same demands as in Table 3. If new water demands are anticipated, add a column to the table and specify the source, timing, and amount of water.

<sup>4</sup>The urban water target determined in this UWMP will be considered when developing the 2020 water demands included in this table.

Table 34

## Supply and demand comparison — multiple dry-year events

		2015	2020	2025	2030	2035 - opt
Multiple-dry year first year supply	Supply totals <sup>1,2</sup>	1,022	1,022	1,022	1,022	
	Demand totals <sup>2,3,4</sup>	662	655	661	671	
	Difference	360	367	361	351	
	Difference as % of Supply	35%	36%	35%	34%	
	Difference as % of Demand	54%	56%	55%	52%	
Multiple-dry year second year supply	Supply totals <sup>1,2</sup>	1,022	1,022	1,022	1,022	
	Demand totals <sup>2,3,4</sup>	662	655	661	671	
	Difference	360	367	361	351	
	Difference as % of Supply	35%	36%	35%	34%	
	Difference as % of Demand	54%	56%	55%	52%	
Multiple-dry year third year supply	Supply totals <sup>1,2</sup>	1,022	1,022	1,022	1,022	
	Demand totals <sup>2,3,4</sup>	662	655	661	671	
	Difference	360	367	361	351	
	Difference as % of Supply	35%	36%	35%	34%	
	Difference as % of Demand	54%	56%	55%	52%	

Units are in acre-feet per year.

<sup>1</sup> Consider the same sources as in Table 16. If new sources of water are planned, add a column to the table and specify the source, timing, and amount of water.

<sup>2</sup> Provide in the text of the UWMP text that discusses how single-dry-year water supply volumes were determined.

<sup>3</sup> Consider the same demands as in Table 3. If new water demands are anticipated, add a column to the table and specify the source, timing, and amount of water.

<sup>4</sup> The urban water target determined in this UWMP will be considered when developing the 2020 water demands included in this table.

Table 35

**Water shortage contingency — rationing stages to address water supply shortages**

<b>Stage No.</b>	<b>Water Supply Conditions</b>	<b>% Shortage</b>
Stage 1	Controlled Release from Storage	
Stage 2	Optimizing Available Supply	
Stage 3	General Reduction	10% to 15%
Stage 4	Usage Allocations	16% to 30%
Stage 5	Rationing	50%

*One of the stages of action must be designed to address a 50 percent reduction in water supply.*

# APPENDIX A

## Urban Water Management Plan checklist, organized by subject

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
<b>PLAN PREPARATION</b>				
4	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.	10620(d)(2)		PAGE 6
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		APPENDIX D
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		APPENDIX C
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		APPENDIX C
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		APPENDIX C
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		APPENDIX C
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		APPENDIX C
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		APPENDIX C
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		APPENDIX C

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		APPENDIX C
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		PAGE 10
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		PAGE 10
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in “Baseline Daily Per Capita Water Use.” See Section M.	PAGE 38
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	PAGE 38
12	Describe other demographic factors affecting the supplier’s water management planning.	10631(a)		PAGE 10
SYSTEM DEMANDS				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		PAGE 39
2	<i>Wholesalers:</i> Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. <i>Retailers:</i> Conduct at least one public hearing that includes general discussion of the urban retail water supplier’s implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	APPENDIX C
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		PAGE 15
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for 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, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider ‘past’ to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	PAGE 31



No.	UWMP requirement <sup>a</sup>	Calif. Water	Additional clarification	UWMP location
		Code reference		
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	PAGE 32
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		PAGE 38
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The ‘existing’ water sources should be for the same year as the “current population” in line 10. 2035 and 2040 can also be provided.	PAGE 23
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate “not applicable” in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	N/A
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		N/A
16	Describe the groundwater basin.	10631(b)(2)		N/A
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		N/A
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate “not applicable” in the UWMP location column.	10631(b)(2)		N/A
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate “not applicable” in the UWMP location column.	10631(b)(2)		N/A

No.	UWMP requirement <sup>a</sup>	Calif. Water	Additional clarification	UWMP location
		Code reference		
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		N/A
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	N/A
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		PAGE 21
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		PAGE 22
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		PAGE 21
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		PAGE 21
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		PAGE 46
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		PAGE 46
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		PAGE 48
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		PAGE 48
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		PAGE 48
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		PAGE 48

No.	UWMP requirement <sup>a</sup>	Calif. Water	Additional clarification	UWMP location
		Code reference		
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		PAGE 48
<b>WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING <sup>b</sup></b>				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		PAGE 49
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		PAGE 23
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		N/A
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		PAGE 28
36	Provide 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.	10632(b)		PAGE 28
37	Identify 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.	10632(c)		PAGE 26
38	Identify 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.	10632(d)		PAGE 54
39	Specify 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.	10632(e)		PAGE 54
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		PAGE 54
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), 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.	10632(g)		PAGE 30

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		PAGE 61
~	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		PAGE 15
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	For years 2010, 2015, 2020, 2025, and 2030	PAGE 15
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		PAGE 53
<b>DEMAND MANAGEMENT MEASURES</b>				
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	PAGE 38
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		PAGE 38
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		N/A
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	PAGE 38
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	N/A

The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.

## APPENDIX B

### ORDINANCE NO. 10

#### AN ORDINANCE ESTABLISHING RULES AND REGULATIONS FOR RATIONING WATER DURING A WATER SHORTAGE EMERGENCY AND ESTABLISHING OPENALTIES FOR VIOLATIONS THEREOF

BE IT ORDAINED BY the Board of Directors of the McKinleyville Community Services District as follows:

Section 1. The Board of Directors of the McKinleyville Community Services District has declared that a water shortage emergency condition prevails in the area served by the McKinleyville 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 McKinleyville 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 © of the State EIR Guidelines.

Section 2. 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. The word “shall” is always mandatory and not merely directory.

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

Section 3. Application. The provision of this ordinance shall apply to all customers using water both in and outside the McKinleyville Community Services District, regardless of whether any customer using water shall have a contract for water service with the McKinleyville Community Services District.

Section 4. Certain uses regulated. From and after the time this ordinance becomes effective, or is implemented as is hereinafter provided, until rescinded by the board of Directors, a voluntary system of water rationing shall apply to all irrigation, car and outdoor surface washing in the McKinleyville Community Services District as follows:

- a. Irrigation sprinkling or watering of shrubbery, trees, lawns, grass, ground covers, plants, vines, gardens, or any other vegetation, washing of cars, sidewalks, driveways, porches or other outdoor surfaces shall be regulated in a manner as to not exceed individual average flows for the months of October, November, and December 1976, less 10%. No fine or penalty shall

be imposed and no water service shall be terminated for failure to observe the provisions of this section.

Section 5. Large water users. The requirements of Sections 4 of this ordinance to the contrary notwithstanding, 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 assigned by the Manager after consultation with individual large water users.

Section 6. Further prohibition. No person or customer shall cause or permit any water furnished to him or her by the McKinleyville Community Services District to run to waste in any gutter or otherwise.

Section 7. Manager may prohibit swimming pool filling, car and outdoor surface washing and irrigation. Whenever the Manager determines that the water available to the McKinleyville Community Services District is insufficient to permit any swimming pool filling, car and outdoor surface washing, irrigation, watering, or sprinkling 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 swimming pool filling, irrigation, watering, or sprinkling 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 as indicated in order of the Manager. Violations shall be punished as provided in Section 9 of this ordinance. The manager shall use every available means to inform customers that such order is in effect.

Section 8. Manager may limit the amount of water delivered to customers. Whenever the Manager determines the water available to the McKinleyville Community Services District is insufficient to meet the demands of customers of the district and that all water available to said District should be used solely 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 9 of this ordinance.

a. While this ordinance is in effect, no additional water use by a customer, shall be permitted unless the Manager determines that the health, safety, or welfare of the public might be endangered.

Section 9. Fines and Penalties. Except as otherwise provided herein, violations of any provision of this ordinance shall be punished as follows:

<u>Violation</u>	<u>Classification</u>	<u>Penalty</u>
First Violation	Infraction	\$10.00
Second Violation	Infraction	\$30.00
Third Violation and Subsequent violations within a 6 month period	Misdemeanor	\$100.00

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. 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.

Section 10. Enforcement.

a. The Manager and all employees of the McKinleyville Community Services District 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 of violation.

Section 11. When ordinance is effective.



a. 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.

b. The provisions of this ordinance shall be of no further force or effect when the Board of Directors determines that a water shortage no longer exists.

ADOPTED THIS 16<sup>TH</sup> DAY OF JUNE 1977

## APPENDIX C

### Resolution No. 2011-20

#### Resolution of the McKinleyville Community Services District Board of Directors Adopting the District's 2010 Urban Water Management Plan

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

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

Whereas, the Urban Water Management Planning Act as amended requires urban water suppliers to address components of the Water Conservation Bill of 2009 (SBX7-7), which sets an overall goal of reducing the state's per capita urban water use by 20% by December 31, 2020; and

Whereas, the Urban Water Management Planning Act requires the submission of Urban Water Management Plans in years ending in 5 and 0; and

Whereas, the McKinleyville Community Services District last prepared and submitted an Urban Water Management Plan in 2005; and

Whereas, the 2010 Urban Water Management Plan must be adopted by July 1, 2011, after public review and hearing, and filed with the Department of Water Resources within thirty days of adoption; and

Whereas, the McKinleyville Community Services District has therefore prepared and made available for public review a draft of the Urban Water Management Plan, and a properly noticed public meeting regarding the Plan was held by the Board of Directors on July 20, 2011.

Now therefore be it resolved, that the Directors of the McKinleyville Community Services District adopt the 2010 Urban Water Management Plan and authorizes its submission to the California Department of Water Resources.

**PASSED and ADOPTED** at a Regular Meeting of the Board of Directors of the McKinleyville Community Services District this 17<sup>th</sup> day of August, 2011 by the following roll call vote:

AYES: CORBETT, COUCH, MAYO, EDWARDS

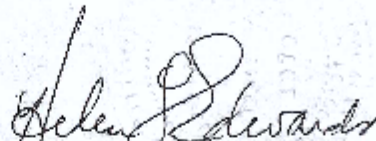
NOES: NONE

ABSTAIN: NONE

ABSENT: WENNER IOLM

Attest:

  
Sharon L. Denison, Board Secretary

  
Helen Edwards, Board President

## APPENDIX D

### McKinleyville Press

1660 Central Ave. Ste F  
P.O. Box 2593  
McKinleyville, CA 95519  
(707) 839-0795

MCSD  
P.O. BOX 2037  
MCKINLEYVILLE, CA 95519

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

STATE OF CALIFORNIA }  
County of Humboldt

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years. I am the publisher of the McKinleyville Press, a newspaper of general circulation, published weekly in the town of McKinleyville, County of Humboldt, and which newspaper has been adjudged a newspaper of general circulation as defined by the laws of the State of California by the Superior Court of the County of Humboldt, State of California, under the date of Feb. 15, 2000, Case No. CV000019. 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;

7/20  
IN THE YEAR 2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct  
7/27/11

Dated at McKinleyville, California

  
Signature

This space is for the County Clerk's Filing Stamp

PAID

JUL 28 2011

McK. C.S.D.

#### Proof of Publication

McKinleyville CA. The purpose of the hearing is to invite and accept public input on the draft 2010 Urban Water Management Plan. The draft UWMP Plan is available for public review at the District Office at 1656 Sutter Road, McKinleyville or available on-line at [www.mckinleyvillecsd.com](http://www.mckinleyvillecsd.com). Please direct comments or questions to Norman Shopay, General Manager, 1656 Sutter Road, McKinleyville CA 95519 (707) 839-3251/fax (707) 839-8456.

Public Notice  
McKinleyville Community Services District  
Notice of Public Hearing  
The McKinleyville Community Services District (MCSD) will hold a public hearing on Wednesday, July 20, 2011, at 7:00PM at Azalea Hall, 1620 Pickett Road,

# APPENDIX E

## Cost Benefit Analysis (five year)

	DMM B	DMM I	DMM N
	Residential plumbing retrofit	Conservation programs for commercial, industrial and institutional accounts	Residential ultra-low-flush toilet replacement programs
Program Costs			
Capital expenditures incurred by MCSD for equipment or conservation devices.	\$ 2,500.00	\$ -	\$ -
Financial incentives to other water suppliers or retail customers.	\$ -		\$ 2,500.00
Operating expenses for staff or contractor to plan, design, or implement the program.	\$ 2,400.00	\$ 2,400.00	\$ 2,400.00
Costs to the environment.			
Total	\$ 4,900.00	\$ 2,400.00	\$ 4,900.00
Program Benefits			
Cost avoided by MCSD of constructing production, transport, storage, treatment, distribution capacity and wastewater treatment facilities.	585.825	52.644	702.99
Operating costs avoided by MCSD, including but not limited to, energy, and labor associated with the water deliveries that no longer must be made.	\$ 585.83	\$ 52.64	\$ 702.99
Cost avoided of water purchases by MCSD.	\$ 1,701.36		\$ 2,041.63
Total	\$ 2,873.01	\$ 105.29	\$ 3,447.61
Benefit Cost Ratio	0.59	0.04	0.70
Cost of Water per million Gallon	\$ 1,243.00	\$ 1,243.00	\$ 1,243.00
Water Savings (MG/5 years)	1.37	0.12	1.64

	DMM B	DMM I	DMM N
	Residential plumbing retrofit	Conservation programs for commercial, industrial and institutional accounts	Residential ultra-low-flush toilet replacement programs
Program Costs			
Capital expenditures incurred by MCSD for equipment or conservation devices.	10-\$50 kits per year	NA	NA
Financial incentives to other water suppliers or retail customers.	NA	NA	10-\$50 incentives per year
Operating expenses for staff or contractor to plan, design, or implement the program.	Contractor \$1,600 program development \$800 per year operations	Contractor \$1,600 program development \$800 per year operations	Contractor \$1,600 program development \$800 per year operations
Costs to the environment.			
Program Benefits			
Cost avoided by MCSD of constructing production, transport, storage, treatment, distribution capacity and wastewater treatment facilities.	\$428 / MG	\$428 / MG	\$428 / MG
Operating costs avoided by MCSD, including but not limited to, energy, and labor associated with the water deliveries that no longer must be made.	\$428 / MG	\$428 / MG	\$428 / MG
Cost avoided of water purchases by MCSD.	\$1,243 / MG	\$1,243 / MG	\$1,243 / MG

<b>Water Savings (MGY)</b>				
	25 gallons per day per household, Year 1-20, Year 2-40, Year 3-60, Year 4-80, year 5-100	Commercial/Institutional 41 MGY	30 gallons per day per household Year 1-20, Year 2-40, Year 3-60, Year 4-80, year 5-100	
Gallons per day per household (facility)	25	10% reduction over 5 years (.41 MG)	30	
Year 1	91,250.00	8,200.00	109,500.00	
Year 2	182,500.00	16,400.00	219,000.00	
Year 3	273,750.00	24,600.00	328,500.00	
Year 4	365,000.00	32,800.00	438,000.00	
Year 5	456,250.00	41,000.00	547,500.00	
<b>Total Gallons</b>	<b>1,368,750.00</b>	<b>123,000.00</b>	<b>1,642,500.00</b>	

