2010 Urban Water Management Plan

City of Red Bluff, California

Adopted Version

Prepared by: CRBPW

Table of Contents

List of Acronyms..... i

Executive Summary... 1

Section I: Need UWMP and Relationship to Other Planning Efforts..... 3

Section II: Water System and Service Area Characteristics..... 6

Section III: Water System Demand 13

Section IV: Water System Supply Sources..... 27

Section V: Water Supply Reliability and Water Shortage Contingency Planning..... 33

Section VI: Water Demand Management Measures..... 42

Section VII: Climate Change (optional)..... 48

Section VIII: Checklist (optional)..... 49

LIST OF ACRONYMS

Act California Urban Water Management Planning Act

ADWF average dry weather flow

AFY acre-feet per year

AMI advanced metering infrastructure

CCR California Code of Regulations

CDPH California Department of Public Health

CEQA California Environmental Quality Act

CRBMWS City of Red Bluff Municipal Water System

CPUC California Public Utilities Commission

DMM Demand Management Measure

DWR California Department of Water Resources

EPA United States Environmental Protection Agency

FY Fiscal Year

GPCD gallons per capita per day

GPD gallons per day

LOS level of service

MGD million gallons per day

MOU Memorandum of Understanding

NPDES National Pollutant Discharge Elimination System

OES Office of Emergency Services

PWWF peak wet weather flow

RWS Regional Water System

RWQCB Regional Water Quality Control Board

SB Senate Bill

SEMS Standardized Emergency Management System

SWRCB State Water Resources Control Board

UAFW Unaccounted for Water

UWMP Urban Water Management Plan

WCIP Water Conservation Implementation Plan

WSAP Water Shortage Allocation Plan

WSIP Water System Improvement Program

EXECUTIVE SUMMARY

Purpose

This 2010 Urban Water Management Plan (UWMP) has been prepared pursuant to the State of California's Urban Water Management Planning Act (ACT), which is contained in the California Water Code, Division 6, Part 2.6, Section 10610. The Act requires that urban water suppliers serving more than 3,000 customers or providing more than 3,000 acre-feet of water annually to develop an UWMP every fifth year ending in five and zero. Consistent with the purpose of the Act, this UWMP will facilitate local and regional water planning activities and support the City of Red Bluffs long-term water resource planning goals. The 2010 UWMP will also help ensure adequate water supplies are available to mmet community water needs of today and the future.

Coordination and Community Participation

Consistent with goals and values of the community, the City of Red Bluff incorporated consultants to engage the various agencies and community during the development of the 2010 UWMP. Coordination occurred among appropriate City of Red Bluff departments as well as other public agencies, including the the Dept. of Water Resources 2013 Tehama County Land and Water Use Workshop . It was the consultants intent to notify Local water retailers, public agencies, and special interest groups were notified of the City's intent to prepare the 2010 UWMP. Prior to the final review workshops and adoption notices will be posted at the library, Court House City Hall Bulletin Board, Published in the news paper and mailed to all Residence. Notices will be posted in both English and Spanish.

2010 UWMP and Future Growth

The 2010 UWMP was prepared using the growth projections that were developed for City of Red Bluff's General Plan (Housing Element) by the Housing and Community Development and Department of Finance, adopted September 15, 2009 along with the City of Red Bluff 2010 Greenhouse Gas Inventory and Baseline population projections. The population projections and growth assumptions contained in the General Plan Housing Element and 2010 Greenhouse Gas Inventory and baseline are consistent with the California Department of Water Resources (DWR) requirements for population projections in this 2010 UWMP.

Compliance with the Water Conservation Bill of 2009

In November 2009, the Water Conservation Act of 2009 was signed into California law as part of a comprehensive water legislation package. The purpose of the legislation is to reduce urban per capita water use statewide by twenty percent by the year 2020. As an urban water supplier, City of Red Bluff is required by law to reduce its per capita water use to 325 gallons per capita per day, as outlined in Section III. Because of the City's extensive water conservation and recycling programs, however, the City has already complied with 2020 water demand reduction targets. In fact, the City of Red Bluff *City of Red Bluff 2010 Urban Water Management Plan*- the per capita water use is projected to stay below the target value until at least 2030.

Future Water Supply, Demand, and Reliability

The City of Red Bluff receives one hundred percent of its drinking water supply from ground water. The water demand projections for the City are contained in section 3. The demand has increase to over 1,703,401,368 gallons of water as projected for 2010 and 1,873,042,880 gallons of water for 2020. Based on the data available on the Sacramento Valley Groundwater Basin (SVGB) and Tustin Aquifer it does not appear these demands have or will impact the aquifers. However, Conservation Measure as required by State Legislator action will help ensure this fact.

Programs to Ensure Future Water Supply Reliability

In addition to the goals, policies, and programs related to water supply in the City's General Plan Elements (summarized in Section 1 of this UWMP), the exploration of groundwater and water transfer opportunities described in Section 4 and the implementation of the water demand management measures described in Section 6 will help ensure future water supply reliability and sustainability for the community.

Organization of the UWMP

The format and contents of this UWMP conform to the guidelines provided by DWR, which reflect the requirements of the Urban Water Management Planning Act. Section 1 summarizes the City's need for the UWMP, including its relationship with the General Plan and other local and regional planning efforts, and describes public participation activities and interagency coordination regarding the UWMP. Section 2 describes the City's water system, including its service area, climate, population and other demographic factors affecting water supply planning.

Section 3 describes past, current and projected water system demands and includes the information and analysis required by the Water Conservation Bill of 2009. Section 4 describes the City's water supply sources, water transfer opportunities, and groundwater and desalinated water opportunities and includes a comprehensive description of the City's recycled water project. Section 5 assesses the reliability of the City's water supply and describes the City's water shortage contingency planning. Section 6 describes the comprehensive water demand management measures employed by the City, including active water conservation measures and regional coordination regarding demand management. Section 7 Climate Change (Optional) references the City of Red Bluff Greenhouse Gas Baseline and Performance Standards documents and materials reviewed or relied on in the preparation of the UWMP, and Section 8 (Optional) is the checklist developed by DWR to assist in preparation of the UWMP; not included.

Section I: Need UWMP and Relationship to Other Planning Efforts

Need

Since 1984, the State of California has required all urban water suppliers serving more than 3,000 customers or providing more than 3,000 acre-feet of water annually for municipal purposes to develop an Urban Water Management Plan (UWMP). The City of Red Bluff owns and operates a water utility that serves 14,076 people by supplying approximately 4,943 acre-feet of water annually. The Urban Water Management Planning Act (the "Act," contained in California Water Code, Division 6, Part 2.6,Sections 10610-10656) therefore requires the City to prepare an UWMP. The required contents of the UWMP are set forth in the Act. The Act directs urban water suppliers to describe and evaluate existing, and potentially available, sources of water supply, projected population and future water demand, demand management measures, strategies for responding to water shortages, and other relevant information and programs. Under the Act, the normal UWMP submittal cycle requires that they be prepared and submitted in December of the years ending in five and zero.

However, because of changes in UWMP requirements resulting from legislation passed in November 2009, State law extended the deadline for the 2010 plans to July 1, 2011. Although submitted in 2011, 2010 UWMPs will be referred to as 2010 UWMPs to retain consistency with the five-year submittal cycle. The primary purpose of the 2010 UWMP is to comply with State water planning law.

The UWMP is required in order for a water supplier to be eligible for DWR-administered State grants and loans as well as assistance during droughts. But more importantly, the UWMP will enable water agencies and, in turn, the State of California, to set targets and track progress toward decreasing daily per capita urban water use throughout the state. The UWMP is not just a State-required document. It reflects local and regional water planning activities, and supports the community's long-term water resource planning to help ensure that adequate water supplies are available to meet today's water needs as well as future water demands. The UWMP is just one component of the City's longterm planning process, and it is not the singular driver for community policy making. Instead, the UWMP more narrowly sets policy direction for securing and protecting the quality of our water supply for today and the future.

Relationship to Other Planning Efforts

The City of Red Bluff last General Plan amendment and update was in February of 2011. The General Plan is a blueprint for the City's future development. The General Plan Goals, Objectives and Policies are the most important to and therefore integrated into this 2010 UWMP.

Therefore, as indicated below with the various General Plan Goals, Objectives and Police the General Plan and the 2010 UWMP are integrated documents from a land use and water supply planning perspective. State law requires the integration of land use and water supply planning, and the City's General Plan and this 2010 UWMP are now consistent with that requirement.

Land Use Element

Goal-I Community Environment: Conserve and improve Groundwater, natural habitat , miner, aesthetic, soil and air resources in the Red Bluff planning Area.

Natural Environment and Conservation Element
GOALS

- Promote a continued supply of high quality ground and surface water in the City of Red Bluff.
- Conserve and improve groundwater, natural habitat, mineral, aesthetic, soil and air resources in the Red Bluff Planning Area (Land Use Element).
- Manage the treatment, reuse, removal and disposal of all solid waste generated within the City of Red Bluff (Land Use Element).

OBJECTIVE

- Maintain and protect watershed and recharge areas (including areas important to percolation such as Red Bank and Reed's Creek).
- Preserve and maintain the natural state (including soils and vegetation) in area where recharge and percolation occur.
- Minimize water waste and runoff in the Red Bluff Planning Area.
- Reduce the amount of sediments entering the waterways in the Red Bluff Planning Area.
- Minimize and mitigate the environmental contamination generated by hazardous wastes.

POLICIES

- Encourage all existing and new development (residential, commercial and industrial) to incorporate water conservation methods into plan design so that water waste, use and runoff can be minimized.
- Ensure the continued high quality of groundwater by encouraging projects, which minimize soil erosion.
- Restrict and limit, wherever possible, the alteration of natural drainageways and associated vegetation.
- Restrict urban intrusion into floodplains and associated Greenway zones.
- Reduce and minimize the use of paving in recharge areas, both on private lands and in public lands (including rights of way and utility easements).
- Encourage the continued use and development of programs which utilize reclaimed water.
- Educate the public on issues of hazardous waste generation, storage and disposal.
- Limit, and wherever possible disallow the intrusion of industrial and agricultural pollutant into the groundwater table.
- Encourage urban creek restoration (Land Use Element).
- All new residential subdivisions, commercial or industrial land development within the City Planning Area should be contingent upon water and sewer services including sewer, water and emergency vehicle access (Land Use Element).
- Require industry participation in waste treatment and recycling efforts (Land Use Element).

IMPLEMENTATION MEASURES

- Enforce all the guidelines provided by the Grading, Drainage and Ground Cover Policies and the Land Development Policies.
- Prepare, adopt and implement a household hazardous waste management plan.
- Provide all water customers with a list of common household products, which are considered hazardous by the Department of Health Services (see Appendix 1).
- Provide all water customers with information regarding the current methods available for disposal and or storage of hazardous waste (Appendix J).
- Require new projects, both private and public, to consider the use of drought-tolerant native vegetation for landscaping purposes.

Implementation of the adopted General Plan policies and programs described above, together with the future responsibility of the City to re-evaluate its water demand projections on an ongoing basis through the UWMP process, will serve to ensure that the City has adequate water supplies to serve its anticipated demands and does not approve developments for which an adequate water supply is not available. The integration of the General Plan with this 2010 UWMP provides substantial enforcement capability on the part of the City to ensure the policies and programs are implemented. Said policies preclude the City from approving any development that does not demonstrate that adequate water supplies are available to serve the project.

Section II: Water System and Service Area Characteristics

Introduction

A variety of demographic factors may affect water use, including current and projected population, climate, population density, and the mix of customer types. This chapter provides information on the City of Red bluff's water service area characteristics, including a description of the service area, its climate, and population demographics. The mix of customer types and their past, current, and projected water use is provided in Section 3.

Description of Service Area

The City's water distribution system provides water retail services to the City of Red Bluff and portions of Tehama County outside the corporate limits, including Tehama College. The City's water service area presently covers approximately 9 square miles. Red Bluff and its service area is located on Interstate 5 at the junction of State Highway 99 in the north end of the Sacramento Valley Area. The Sacramento River bisects the City. Red Bluff is the County seat and serves as a major commercial center for the area.

Agriculture and tourism are the primary industries of the area along with a growing commercial base. The local economy fluctuates accordingly with the cycles of these industries. The City's service area varies in elevation, from about 250 mean sea level along to over 400 feet in the

In the Wilcox Oaks area. The City's water service area is shown in Section 3.

Climate

The climate of Red Bluff may be characterized as a subtropical summer-dry (inland Mediterranean) type. This climate has warm to hot summers and mild to cool winters, with a distinctive winter precipitation regime. The long, dry summer period is unique to this climatic type and is a feature shared commonly with most of the California. The winter season is characterized by the passage of mid-latitude cyclonic storms (wave cyclones) passing eastward from the Pacific Ocean and bringing moist, unstable air masses into interior Northern California. The actual number of storm centers of low pressure, as well as the strengths of associated cold and warm fronts, is quite different from year to year. This variability is the primary determinant of precipitation quantities from one year to another. Red Bluff typically receives around 22 inches of rain per year and at times this rainfall amount can be significant (over 2 inches of rain in a 24-hr period).

Average Annual Precipitation over the past 38 yrs. Table

Weather station **RED BLUFF MUNI AP, TEHAMA COUNTY** is at about 40.15°N 122.25°W. Height about 106m / 347 feet above sea level.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average
mm	106.9	85.7	69.1	38.0	19.6	11.2	1.5	5.2	15.6	34.7	85.2	94.6	568.5
inches	4.2	3.4	2.7	1.5	0.8	0.4	0.1	0.2	0.6	1.4	3.4	3.7	22.4

The City is located somewhat in the rain shadow of the Coast Ranges and precipitation quantities generally increase to double this amount along the western sides of the Sierra Nevada and three times as much near Sierra summits to the east.

There is a wide fluctuation in the annual precipitation at Red Bluff, from an absolute minimum of 7.20 inches in 1976 to an absolute maximum of 48.98 inches in 1983. Lengthy periods of wet years are rare, with the wettest two consecutive seasons providing about 70-80% greater than normal, and the wettest three consecutive seasons providing about 64% greater than the normal Annual Average. Snowfall is infrequent and usually very light in amount when it does occur. Precipitation during the late spring and summer months is confined to occasional convectional thundershower activity and is likewise quite light in amount.

Winter months are dominated by the passage of storms and by general cooling. Cooler air tends to settle into the northern Sacramento Valley from adjacent mountainous area, where radiational cooling during relatively calm, clear winter night can lead to low temperatures. Winter temperatures range from a monthly normal of 45.5 F for January to about 54 F March and November. Absolute minimum of 20 F have been recorded for both December and January. The rainiest months are between November and March, with 79% of the annual total being received during those five months. This concentration is significant in terms of stream regimes and peak periods of runoff leading to a potential flooding hazard in wet years.

The summer months are usually quite dry with only about 1.52 inches, 7% of the annual total, arriving in the five-month period of May-September. By mid-summer the Sacramento Valley is usually occupied by an elongated thermal low pressure due to intense heating accompanied by an elongated thermal low pressure due to intense heating of the land surface. The retreat northward of the winter storm tracks is accompanied by the domination of Northern California by massive atmospheric subsidence from the eastern margins of the north pacific subtropical high-pressure system. Warm, dry sinking air masses now dominate the Sacramento Valley and its foothills bringing clear skies and maximum sunshine exposure. Winter percentages of possible sunshine ranged from 52% in December to 69% in March. Summer percentages of possible sunshine range from 85% in May to 94-96% in July and August – leading to an annual figure of 79% .

Average summer temperatures range from 71.6 F to April to 98 F and 95.7 F in July and August. Record high temperatures of 119 F for July and 121 F for August have been recorded, and long periods of daily temperatures above 90 F are noted (27 for July and 25 for August). Relative humidities during the mid to late summer are also quite low, ranging between 10-23 % (late afternoon) for the June-September period.

The summer patterns of rainfall, sunshine, temperature, and relative humidity are crucial in explaining the seasonality of the wildland fire hazard in the Red Bluff region.

Prevailing winds are up the valley from the southeast and down the valley from the northwest. Highest wind speeds are usually southerly in association with frontal activity, frequently reaching 50-60 miles per hour (and occasionally greater reaching 85 miles per hour as defined within the California Building Code) with the strongest fronts (Lingenfelter, 1970). Northerly winds reach speeds of 30-40 mph and only rarely exceed 50 mph. These winds occur mainly in the fall-winter-spring month. Persistent radiation and evaporation fogs occur during winter months under the influence of a stagnant high-pressure system, and particularly if there are calm conditions and if the ground is saturated from recent rains. Wind scour acts to relieve foggy conditions; however, it is noted that the number of foggy days per year is increasing due to human air pollution. Like snowfall, fog and high wind are not important climatic hazardous variables on a long-term basis at Red Bluff. See Temperature Table on following page.

TEMPERATURE TABLE

Month	Average Daily Maximum Temperature (F)	Normal Monthly Temperature (F)	Percentage of Possible Sunshine
January	54.9	53.6	54
February	60.8	59.5	63
March	64.2	63.8	69
April	71.6	71.6	80
May	68.3	80.6	85
June	81.9	89.3	89
July	90.9	98.0	96
August	97.7	95.7	94
September	96.1	90.6	92
October	89.8	78.3	81
November	78.6	64.0	61
December	75.4	54.7	52
Annual	75.4	74.9	79

Source: National Climate Data Center (2008)

Population and Demographics

As discussed in Chapter 1, the population projections reported in this section have been coordinated with the City Planning Division and the General Plan that was adopted by the City Council. The City's General Plan used federal, state, and local population reports and linear regression projections techniques based on historical data that goes back to the turn of the century, which are the foundational building block for calculating the per capita water use values required by Section 10606.20(f) of the California Water Code. These reports were used for population values within the City's jurisdictional borders. However, because the City's water service area includes some adjacent areas located outside of the City's jurisdictional boundaries, estimates for these areas were calculated by multiplying the number of single family and multiple family dwelling units in these areas by average persons-per-household values (2.74 for single family and 2.6 for multiple family) 2008 City of Red Bluff Municipal Service Review and General Plan amendment update.

By adding the City population data to the outside-the-city population estimates, the total service area population estimate is achieved. The Population growth Table below shows current and projected population for the City's water service area through 2030.

City of Red Bluff (Urban Cluster) Population Numbers and Projections	
Year	City
2000 Census	13,147
2001 DOF	13,150
2002 DOF	13,350
2003 DOF	13,500
2004 DOF	13,550
2005 DOF	13,712
2006 DOF	13,650
2007 DOF	13,702
2008 DOF	13,828
2009 DOF	13,924
2010 CENSUS	14,076
A 0.70% or 0.007 growth rate based on a linear regression will be used for the 20 year Historical growth projections	
2011 DOF	13,984
2012 DOF	14,087
2013 DOF	14,186
2014	14,285
2015	14,384
2016	14,484
2017	14,585
2018	14,687
2019	14,789
2020	14,892
2021	14,996
2022	15,101
2023	15,207
2024	15,314
2025	15,421
2026	15,529
2027	15,638
2028	15,747
2029	15,857
2030	15,968

Population Forecast Notes.

Population projections are compiled for the City of Red Bluff from 2000 to 2030. Forecasts are based upon certain assumptions that are derived from Census and Department of Finance adjusted number between Censuses. The first is that trends of population growth, which have occurred during the past 20 years, will continue over the next 20 years. Inherent in the first assumption is the second that those economic and social forces, which have been operating during the past 20 years, will continue. The presumption is that economic growth, following the current recession, will resume at a moderate and stable annual rate. It is assumed that the rate of growth will resemble the immediate past rates of growth of 0.07%.

Other Demographic Factors Affecting Water Planning

Most future growth in the City is expected to be associated with new and infill mixed use developments, located in the south central area of the city around Kimball Road, along transit corridors So. Jackson/Kimball Rd., and in leftover Tentative Tract Map areas that still have development extensions left over from the 2006 bump period. The density of new residential development are expected to be More efficient than the dwellings or other development they coexist with. While these new developments will be more water-efficient because of regulatory requirements, the Greenhouse Gas Performance standards alone will require 15% more energy efficiencies that includes water, electricity and other service. Furthermore, the Green Building Code was adopted by the City of Red Bluff along with the States model Landscape Ordinance. Therefore, between the Greenhouse Gas Performance Standards that will result in 15% more conservation and efficiency, the Green building Code requirements and the DWR Model Landscape Ordinance Adoption August 3, 2010.

The City of Red Bluff has owned and operated its water system since 1921. The system sees an average growth rate of .7 percent annually as determined by linear regression technique (population growth method consistent with DWR guidelines and taken from General Plan Elements and 2010 CEQA Greenhouse Gas Inventory and Baseline). There are a total of 6,487 service connections active within the current water system.

Section III: Water System Demand

Overview

This chapter describes the various categories of customers using water in the City of Red Bluff and their associated future water demands. A historic summary of the City's water utility accounts and water use by customer class will be included along with 5-year water use projections out to 2030. The projections are based on anticipated customer growth in residential and commercial populations using appropriate water use factors. Furthermore the City's regulatory requirements regarding the Water Conservation Bill of 2009 as the 2009 legislation sets a goal of reducing urban per capita water use state-wide by 10 percent by 2015 and 20 percent by 2020. However, these performance standards are only required if the water service district uses 100 gallons per capita per day, otherwise the wise the district is exempt from the from the 5 percent minimum required reduction(s), Determining its Urban Water Use Target, comparing the Urban Water Use Target to the 5-year Baseline and Determining Interim Urban Water Use Target.

Baseline daily per capita water use — how much water is used within an urban water supplier's distribution system area on a per capita basis. It is determined using water use and population estimates from a defined range of years.

Historic and Future Water Use by Customer Class

This section summarizes both historic and future water use by customer class.

Customer Classes

The City of Red Bluff water customers are divided into the following classes:

Single Family Residential: Attached or detached dwelling units that are individually metered.

Multiple Family Residential: Two or more dwelling units served by a individual water meters. Water use includes irrigation.

Commercial: Includes Buildings and space. Water use includes irrigation.

Industrial: Includes Buildings and space. Water use includes irrigation.

Institutional/Gov: Schools, City, County Churches includes irrigation.

Municipal/Public mostly Schools: some metered landscape.

Recycled: Water meters providing recycled water. Almost all recycled water is currently used for landscape irrigation along Interstate 5 (Caltrans).

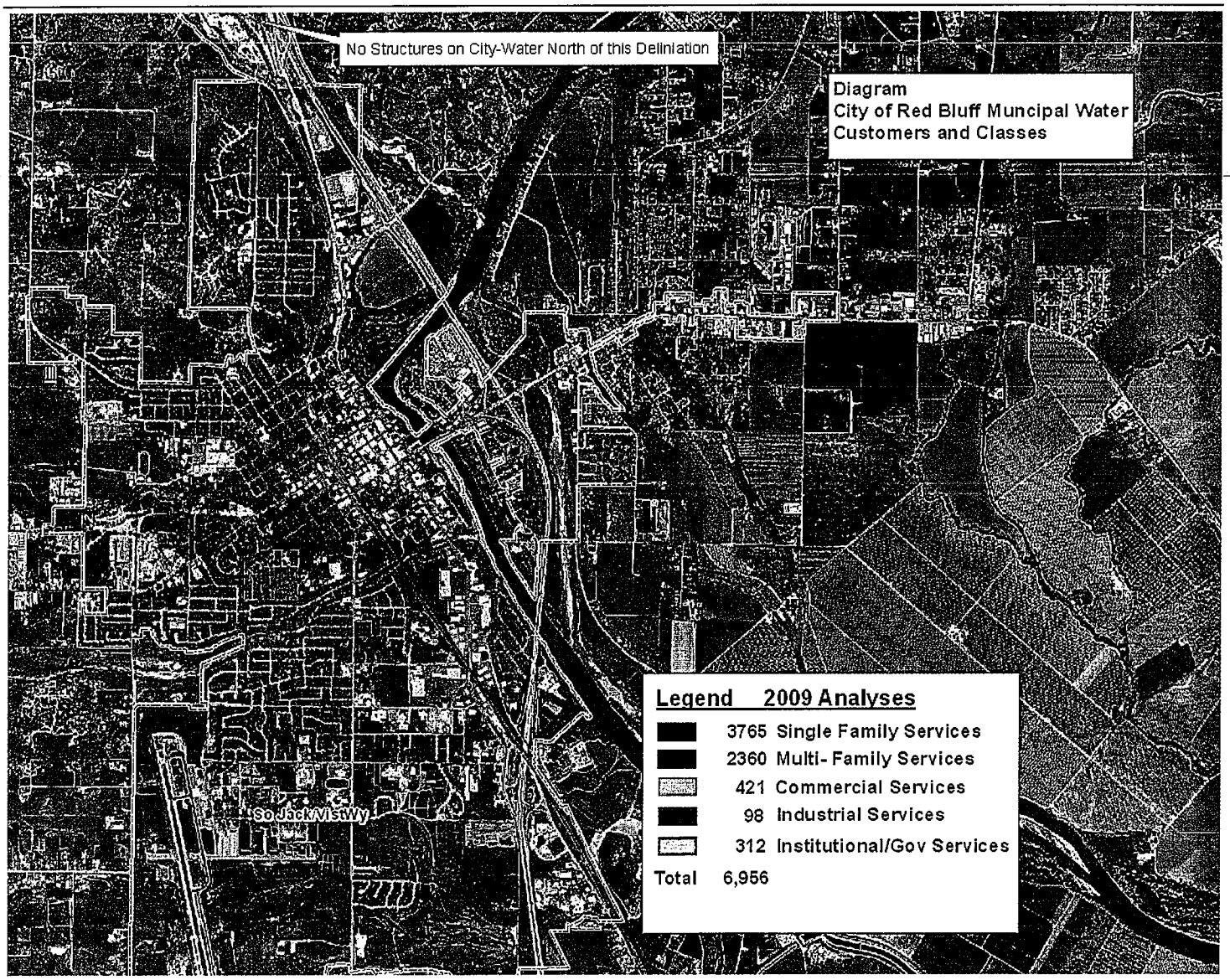
Historic Accounts and Water Use

The table below shows the number of water accounts by customer class for the last five years. The Water Department software Data was imported into the City GIS Database for quality control to reduce duplicating accounts that may have more than one meter servicing single customer such as Large Commercial use. Single family homes account for about 79 percent of accounts. Over the last five years, the City experienced only minor changes in the number of customer accounts. The most significant change occurred during the phase-in of the City's recycled water project (see Chapter 4), which has led to an ongoing conversion of potable water irrigation to recycled water irrigation along the Inter State 5 Corridor in Red Bluff (Caltrans Landscape Corridor).

Historic Number of Water Accounts by Customer Class

Customer Class	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Single Family	3,700	3,725	3,747	3,750	3,765
Multiple Family	2344	2352	2360	2360	2360
Commercial	395	398	412	418	421
Industrial	98	98	98	98	98
Municipal/Public	311	312	312	312	312
Total	6848	6881	6929	6938	6956
Recycle	1 (Caltrans)	1 (Caltrans)	1 (Caltrans)	1 (Caltrans)	1 (Caltrans)

The Diagram on the next page depicts the Customer Classes by location of each account and color for accounting integrity and verification.



The Table below shows shows water use by customer class for the last five fiscal years. Water use in 2005 and 2008 has been lower than previous years when related to the increase in accounts, partly as a result of rainy spring weather. Ongoing water conservation programs have also been a factor in reducing water use.

Historic Use of Water Accounts/Billing and public/meters by Custon
Class in AFY

Customer Class	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Single Family	2,691.92	2,763.69	2,754.99	2,561.68	2,843.23
Multiple Family	1,297.69	1,397.81	2,083.07	1,464.46	1,469.85
Commercial	731.98	815.95	818.14	840.69	950.48
Industrial	160.68	179.11	179.59	184.54	208.64
Municipal/Public	144.51	175.08	165.50	142.84	114.23
Fire	2.80	4.03	4.15	4.02	4.05
Other	0.00	0.00	0.00	0.00	0.00
Pre-Total	5,029.58	5,335.67	6,005.44	5,198.23	5,590.48
Recycled	34.39	11.79	47.09	57.73	59.17
Total Less Recycled	4,995.19	5,323.88	5,958.35	5,140.50	5,531.31

Recycled water sent to Caltrans for I-5 Irrigation					0.00
January	0	0.00	0	0.00	0.00
February	0	0.00	0.11	0.00	0.00
March	0	0.44	0.02	0.22	0.00
April	0.008	0.00	1.09	4.42	4.57
May	1.77	0.02	6.28	8.04	5.33
June	6.18	0.29	8.90	8.62	7.34
July	6.76	0.39	9.57	10.60	12.84
August	6.76	9.56	7.88	9.90	9.57
September	6.13	0.33	6.99	10.23	8.99
October	6.76	0.32	2.29	5.69	4.55
November	0	0.25	3.95	0.00	5.98
December	0	0.18	0.00	0.00	0.00
Total	34.39	11.79	47.09	57.73	59.17

Source City of Red Bluff Waste Water Reclamation Plant SMR Self Monitoring Report(s) 2005,2006,2007,2008,2009, 2010

Future Accounts and Water Use

The Table below shows projections in the number of water accounts by customer class in 5-year increments to 2030. The future growth in water accounts is directly related to projected growth in population, dwelling units, Commercial/Industrial and Public Services identified in the City of Red Bluff's General Plan Elements and 2010 Greenhouse Gas Baseline. Nearly all future residential growth is assumed to occur in single and multiple family developments within the Southern Central Area of Red Bluff around So. Jackson and Vista Way, along transit corridors. For the multiple family water customer class or Low income House Element needs, the list is expressed in expected number of dwelling units instead of accounts. The number of dwelling units is expected to increase significantly from 2009 to 20/30 according to the Regional Housing Needs estimates from HCD. The City estimates that as much as 10 to 15 percent of future housing construction will potentially be affordable to lower income households. This is based on recently constructed housing in Red Bluff during the first three years of the current Housing Element cycle, which runs from 2007 to 2014. The most reasonable basis for an estimate of future activity is to project the past ratio forward. It is important to note that the City's land use policies (particularly the Zoning Ordinance and the General Plan) have capacity for much more affordable housing development; however, the actual amount that will be constructed by 2030 is difficult to determine due to unknown factors including the availability of financing for affordable projects and the difficulty in assembling sites, among other limitations.

For the purposes of this UWMP, it is assumed that 15 percent of future residential development will be affordable to lower income households. Projected water use for lower income households is included in a separate line item in the table below.

Projected Number of Water Accounts by Customer Class					
Customer Class	**2010**	**2015**	**2020**	**2025**	**2030**
Single Family Averages 34 units a year over the past decade	3,780	3,950	4,120	4,290	4,460
Multiple Family Averages 21 units a year over the past decade	2,360	2465	2570	2675	2,780
Commercial Averages 6 units a year over the past decade	426	456	486	516	546
Industrial Averages 2 units a year over the past decade	98	108	118	128	138
Municipal/Public Averages 2 units a year over the past decade	312	314	316	318	320
Total	6,976	7,293	7,610	7,977	8,244
Low Income per 2009-2014 Housing Element RHNA VL 186 & Low 152 therefore 338/20 yrs. equals 17 a year or an additional 85 at 5 year increments	85 VL & Low included above	85 VL & Low included above	85 VL & Low included above	85 VL & Low included above	85 VL & Low included above

The table below shows the current water use factors associated with existing accounts except for fire which is a constant do to random fire hydrant testing and water truck bladder cleansing for health and safety; these accounts are relatively constant and will not be projected. Because of year-to-year fluctuations (e.g., caused by weather), water use factors for single family, commercial, industrial and municipal, accounts are based on the average water use per account over the last six fiscal years. For example, average single family home water use was 0.66 AFY from 2005 through 2009.

Water Use Factor by Class	
Customer Class	**AFY per Unit**
Single Family	0.66
Multiple Family	0.65
Commercial	2.03
Industrial	1.86
Municipal/Public	0.47

In 2010 the City of Red Bluff adopted the Green Building code. Therefore, while the low income multifamily developments are predicted to continue as one of the increasing development patterns within the City, there historical use factor is not too far off from single family at 0.65 AFY . As Department of Finance indicates the persons per household in 2010 was 2.42 therefore 2.42 multiplied by 2,360 households is 5,711 people. Taking the 0.65 AFY or 211803 gallons equivalent per household and dividing it by 365 days will give us the gallons per household, which is 580 gallons per day per dwelling unit; this amount does include the outdoor irrigation meters that also serve new multiple family developments, which are included in the Multiple family classification. Similar to multiple family units, water demands for irrigation is included in all customer classes (irrigation residential, irrigation-commercial/Industrial, and Municipal/public).

The Table below shows water use projections by customer class for the 20-year time frame of this UWMP (2030) in 5-year increments. The projections are calculated by taking the water use accounts Table and multiplying by the values shown in the water use factors. Unaccounted for water is assumed to be 9 percent of total potable water use, Please See Section 4 for more information.

Water Use Projections by Customer Class for 20 yrs. in 5 year increments

Customer Class	2010	2015	2020	2025	2030
Single Family	2,494.8	2,607.00	2,719.20	2,831.40	2,943.60
Multiple Family	1,534.0	1,602.25	1,670.50	1,738.75	1,807.00
Commercial	864.7	925.68	986.58	1,047.48	1,108.38
Industrial	182.2	200.88	219.48	238.08	256.68
Municipal/Publi	146.6	147.58	148.52	149.46	150.40
Fire	4.5	4.03	4.15	4.02	4.05
Other	0.0	0.00	0.00	0.00	0.00
Pre-Total	5,227.54	5,487.03	5,748.15	6,009.02	6,270.05
Recycled Water	42.04	42.4*	42.4*	42.4*	42.4*
Efficiency Standard	0	76	136	187	230
Future Water Conservation	0	82	129	382	387
Total Less Recycled	5,185.50	5,444.63	5,705.75	5,966.62	6,227.65

*Note. The Recycled water program is projected to continue, the estimated future numbers above are based on the 6 year average due to unforeseen weather and regulatory costs. WWRP Grey water testing may be increasing due to requirements from EPA. Currently Caltrans is not charge for the grey water, this may change in the short term future, which may reduce the amount Caltrans uses on Interstate 5. As one can see about 1% of the City's water is recycled. Staff would like to see that number increased. However, if regulator conditions increase that may not be possible due to burdensome cost. The total project water use is less Recycled water, Water Efficiency Standards imposed by Green Building Code and Landscape Ordinance Weather normalization methods, which are projected to reduce irrigation demand by 18% in the future and the Water Conservation as described in section 6.

The Table above includes a water efficiency standards offset regarding future water use. This offset, growing from 76 AFY in 2015 to 230 AFY in 2030, factors in the ongoing replacement of less water efficient water fixtures with more water efficient water fixtures. Toilets and clothes washers are the two most significant fixtures where this is occurring.

These savings do not require any action from the City—replacement naturally occurs as current fixtures wear out or are replaced because of remodeling, etc. The table also includes and offset for Future Water Conservation. As described in Section 6, future potable water use reductions are attributed to the implementation of Automated Metering Infrastructure that allows for real time monitoring, which will aide in the identification of leaks and their detection.

Prior to 1983, most toilets were designed to use five or more gallons per flush. In 1983, the California Plumbing Code changed requiring no more than 3.5 gallons per flush toilets in all new construction. In 1992, the California Plumbing Code was changed again requiring no more than 1.6 gallons per flush toilets in new construction. Because toilet manufacturers were still producing higher volume toilets for other states, however, such toilets were available for both new construction and replacement of existing toilets. It was not until a federal plumbing code change in January 1994 (as part of The Energy Policy Act of 1992), combined with another California Plumbing Code change (SB 1224, Killea), that 1.6 gallons per flush toilets became the effective standard for all installations. In 2007, an additional change to the California Plumbing Code (AB715 & Health and Safety Code 17921.4) began requiring toilets to be rated to use no more than 1.28 gallons per flush by 2014. In October 2009 the governor signed SB 407 which requires efficient toilets (rated up to 1.6 gallons per flush), faucets, and showerheads in all buildings. The law covers remodeled properties by 2014, all single-family homes by 2017, and multi-family and commercial buildings by 2019. It also requires sellers of property to disclose whether the property is in compliance with the law.

These legislative activities will lead to an even greater increase in the water efficiency of toilets throughout the City, the state and the nation. The penetration rate of toilets rated to use up to 1.6 gallons per flush in the City is estimated to range between 60 and 74 percent depending on customer class. To accelerate the conversion, the City has implemented programs to assist with replacing of toilets and the rehabilitation of older low income homes through the Home Funds programs since FY 2004/05 (see Chapter 6 for more detail on toilet replacements).

In February 2004, the California Energy Commission adopted water efficiency standards for clothes washers. In 2006, however, the Department of Energy (DOE) denied the California's request to institute standards more stringent than the federal government. The State of California filed suit in 2007, and in October of 2009, the Ninth Circuit Court of Appeals overturned DOE's judgment, and ordered DOE to re-consider its ruling.

As of this writing, it remains to be seen whether the federal government will allow California to put in place more stringent clothes washer standards, or will create national standards similar to those proposed by California. In any case, the water efficiency of clothes washers on the market has improved significantly in the last 10 years with the gallons per- load decreasing from about 40 to 20 gallons per load. The transformation of replacing old inefficient clothes washers with more efficient ones is expected to continue.

Requirements of Water Conservation Bill of 2009

In November 2009, SBX7-7, the Water Conservation Act of 2009, was signed into California law as part of a comprehensive water legislation package. The Water Conservation Act addresses both urban and agricultural water conservation. The urban provisions reflect the approach taken in California's 20x2020 Water Conservation Plan, which sets a goal of reducing urban per capita water use statewide by 10 percent by 2015 and 20 percent by 2020.

The DWR *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan* states four overall steps a water supplier needs to complete to meet the requirements of the Water Conservation Bill of 2009 in the 2010 UWMPs:

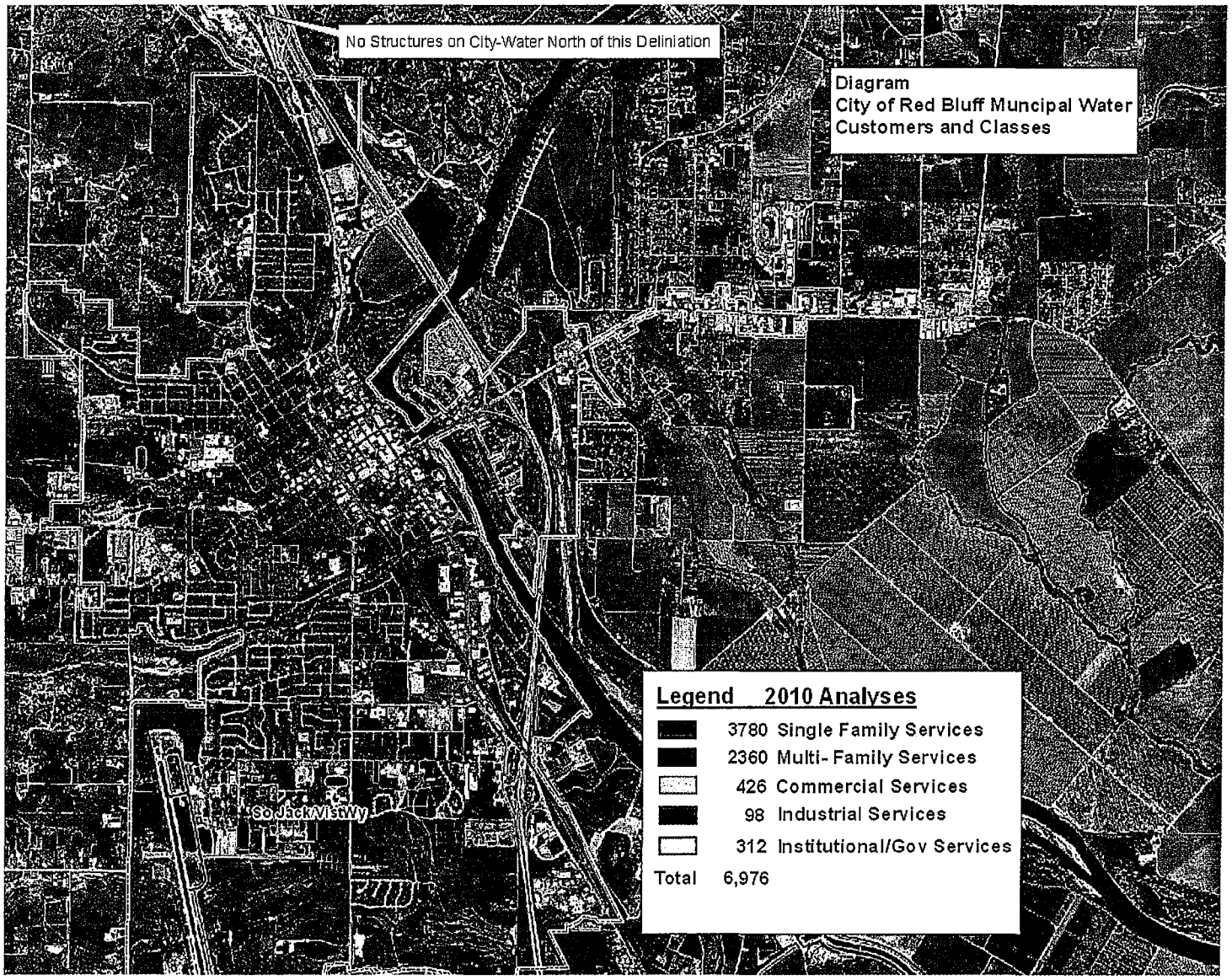
Step 1: Determine Base Daily Per Capita Water Use
Step 2: Determine Urban Water Use Target
Step 3: Compare Urban Water Use Target to the 5-year Baseline
Step 4: Determine Interim Urban Water Use Target

The Guidebook also provides four methods for calculating base daily per capita water use (defined below). This section identifies the City's water use reduction goals necessary to comply with the legislation using DWR's *Methodology 3: Base Daily Per Capita Water Use,* and provides the supporting information that was used in determining those goals.

Estimate of Service Area Population

A preliminary step in determining base daily per capita water use is defining the service area and estimating its population. The population projections in this 2010 UWMP use federal, state, and local population reports and projections as the foundational building block for calculating per capita values consistent with Section 10606.20(f) of the California Water Code (Code) and the City's General Plan and Greenhouse Gas Baseline. These reports were used for population values within the City's jurisdictional borders.

Because the City's water service area includes some adjacent areas located outside of the City's jurisdictional boundaries (Minimal about 100 users), estimates for these areas were calculated by multiplying the number of single family and multiple family dwelling units in these areas by average persons-per-household values (2.42 for single family (County customers)), consistent with projections made in the City's General Plan and 2010 Greenhouse Gas Baseline for existing development. By adding the City population data to the outside-the-city population estimates, the total service area population estimate is achieved. The Diagram below shows the City's water service area (for which the population projections were prepared); this figure also shows the City's jurisdictional boundary and its Sphere of Influence.



Base Daily Per Capita Water Use

Per capita water is calculated by dividing the total service area population by gross water use. Gross water use equals the total volume of water (Groundwater, etc.) that enters the distribution system of an urban water supplier, with some exclusions. Gross water use must be calculated over a continuous 12-month period (calendar or fiscal year) for the purposes of determining base per capita water use. The only applicable exclusion for the calculation of gross water use in Red Bluff's case is recycled water.

The DWR Guidebook defines Base Daily Per Capita Water Use as the average gallons per-capita-per-day (GPCD) use over a continuous 10-year period. The period must end no earlier than December 31, 2004 and no later than December 31, 2010. The City used the baseline period 2000 through 2009 to calculate an average value of 330 GPCD. As shown in the Table below, which summarizes historical daily per capita water use for the City of Red Bluff, per capita water use has ranged between 311 and 385 gallons GPCD over the last 11 fiscal years.

Daily Per Capita Water Use

Year (12 Months)	Population	Total Water Use AF	Recycled Water Use AF	Gross Water Use AF	Per Capita Water Use GPCD
2000	13,147	4,588	0	4,588	311
2001	13,150	4,633	0	4,633	314
2002	13,350	4,679	0	4,679	313
2003	13,500	4,725	0	4,725	313
2004	13,550	4,771	0	4,771	314
2005	13,712	4,995	34	4,961	322
2006	13,650	5,324	12	5,312	347
2007	13,702	5,958	47	5,911	385
2008	13,828	5,141	58	5,083	328
2009	13,924	5,531	59	5,472	350

Gross water use equals Total Water Use minus Recycled Water Use. Per Capita Water Use equals Gross Water Use divided by Population (converted into gallons per day).

Urban Water Use Target

As noted above, the DWR Guidebook outlines four methodologies for determining the 2020 urban water use target for each water supplier. The City of Red Bluff selected *Methodology 3: Base Daily Per Capita Water Use*; it provides a 2020 target for the City of 325 GPCD, which is 95 percent of the 2020 Urban Water Use Target for the City of Red Bluff based on the customer class projections table and 2020 population projection tables of 1,859,226,779 gallons a year divided by 14,892 person then divided by 365 days in a year (342 Gallons GPCD) times 95% equals the 2020 Base Daily Per Capita Water Use target for 2020 or 325 GPCD.

Urban Water Use Target to 5-year Baseline

The SBX7-7 legislation includes a minimum water use reduction requirement. The requirement ensures that each water agency's 2020 urban water use target is below 95 percent of its 5-year base per capita water use. Agencies have flexibility in defining their 5-year base, but it must be a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010. The City's 5-year base period is 2005 to 2009. The average water use for this period (346 GPCD) is multiplied by 0.95 under the methodology; the result is 329 GPCD. This value is then compared to the City's 2020 per capita water use target of 325 GPCD to ensure that 325 GPCD is at least 95 percent of the 5-year base. Because 95 percent of the 5-year base value (329 GPCD) is greater than the City of Red Bluffs 2020 target (325 GPCD), the 2020 target value does not need to be reduced to achieve at least 95 percent of the base. The City's 2020 target is in compliance with SBX7-7 therefore remains at 325 GPCD, which is 95 percent of the 2020 Base Daily Per Capita Water Use target for the City of Red Bluff in 2020.

Interim Urban Water Use Target

The legislation sets forth an interim urban water use target to ensure progress toward the 2020 target. The interim target focuses on the year 2015. At this point, water suppliers are required to reduce water demand to the midpoint between their 10-year baseline urban water use year and their 2020 urban water use target. For the City of Red Bluff, the interim target is 328 GPCD (330 and 325 GPCD). The Table on the next page summarizes the GPCD values associated with SBX7-7 legislation.

SBX7-7 Compliance Target Values for Per Capita Water Use

SBX7-7 Requirement	Daily Per Capita Water use (GPCD)
10-Year Base 2000 to 2010	330
5-Year Base 2006 to 2010 multiplied by 0.95	329
2015 Interim Water Use Target	328
2020 Water Use Target	325

Water Conservation Implementation Plan

Retail water suppliers are required to develop an implementation plan for compliance with the Water Conservation Bill of 2009. The plan is to provide a general description of how the supplier intends to reduce per capita water use to meet its urban water use target while discussing any potential economic impacts that may result from the water use reduction program. In 2008, The City of Red Bluff meet its 2015 target and the projection show that the City will meet the 2015 Target (2015 AFY projected 5286.63 divided by 14,384 equals .367 AFY or 119587 Gallons a year per capita divided by 365 equals 327.6 GPCD) with Conservation Measures. The 2020 projections thru 2030 show that the City will meet the targets with Conservation Measures (2020 AFY projected 5440.75 divided by 14,892 equals .364 AFY or 118609 Gallons a year per capita divided by 365 equals 325 GPCD) and (2030 AFY projected 5610.85 divided by 15,968 equals .351 AFY or 114373 Gallons a year per capita divided by 365 equals 313 GPCD). These projections show that the City will continue to meet those targets to 2030 and beyond with the incorporation of Conservation Measures as described below and in further detail within Section 6.

The 2015, 2020 & 2030 formulas above includes a water efficiency standards offset regarding future water use. This offset, growing from 76 AFY in 2015 to 230 AFY in 2030, factors in the ongoing replacement of less water efficient water fixtures with more water efficient water fixtures. Toilets and clothes washers are the two most significant fixtures where this is occurring. The savings do not require any action from the City—replacement naturally occurs as current fixtures wear out or are replaced because of remodeling, etc. The table also includes and offset for Future Water Conservation. As described in Section 6, future potable water use reductions are attributed to the implementation of Automated Metering Infrastructure that allows for real time monitoring, which will identifies leaks and their detection.

Prior to 1983, most toilets were designed to use five or more gallons per flush. In 1983, the California Plumbing Code changed requiring no more than 3.5 gallons per flush toilets in all new construction. In 1992, the California Plumbing Code was changed again requiring no more than 1.6 gallons per flush toilets in new construction. Because toilet manufacturers were still producing higher volume toilets for other states, however, such toilets were available for both new construction and replacement of existing toilets. It was not until a federal plumbing code change in January 1994 (as part of The Energy Policy Act of 1992), combined with another California Plumbing Code change (SB 1224, Killea), that 1.6 gallons per flush toilets became the effective standard for all installations. In 2007, an additional change to the California Plumbing Code (AB715 & Health and Safety Code 17921.4) began requiring toilets to be rated to use no more than 1.28 gallons per flush by 2014. In October 2009 the governor signed SB 407 which requires efficient toilets (rated up to 1.6 gallons per flush), faucets, and showerheads in all buildings. The law covers remodeled properties by 2014, all single-family homes by 2017, and multi-family and commercial buildings by 2019. It also requires sellers of property to disclose whether the property is in compliance with the law.

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As a result of the Legislatures regulatory actions above, the City will not implement any other specific programs for the purpose of complying with the 2009 bill as the standard practices and implementation of new state mandated components and programs will be sufficient. Instead, the City will continue to reduce potable water demands above and beyond targets delineated in SBX7-7.

Potable water demand reductions will occur through the City's recycled water program (further described in Section4) and its comprehensive set of demand management measures outlined in Section 6. The City of Red Bluff will also implement General Plan policies as outlined above ins Section 2 of the Land Use and Natural Environment and Conservation Elements which require aggressive implementation of water conservation policies and programs. The implementation of these policies will help minimize the impacts of potential water supply shortfalls through effective water demand management. The City will continuously monitor GPCD values to ensure compliance targets are being met.

Section IV: Water System Supply Sources

Introduction

This section describes the City of Red Bluffs existing and planned sources of water supply. The History will provide a little background for the body of the section which will

History

The City of Red Bluff owns and operates the municipal water supply and distribution system. The system was purchased from a local private company in 1921. During the early 1920's there were approximately 3,100 people in need of water services. Today, there are 14,076 people and approximately 6,487 water service connections.

The major source before the 1921 sale f the service system was the Sacramento River. This source was abandoned in 1921, and Antelope Creek was added at a later year. The Antelope Creek source was abandoned in 1963. Presently, all municipal drinking water is taken from ground wells (City of Red Bluff Public Works Department 2010).

Water Supply and Consumption

The City of Red Bluff's water distribution system is completely self-supplied, therefore not requiring the purchase of water from outside sources. All the groundwater comes from the Sacramento Valley Groundwater Basin (SVGB). The SVGB supplies groundwater for the majority of Tehama County, and the county supplies approximately 21% of the recharge for the basin. Red Bank and Reed's Creek play an important role in the recharge (Tehama County Planning Department 1983, 111-28).

The water supplied to the residents of Red Bluff comes from two 3 million gallon tanks and twelve ground water wells. The ground water table is considered to be abundant with levels from 130 to 160 feet below surface elevation, in recent years the Diversion Dam gates have been permanently removed allowing for an anticipated drop of 6 to 8 feet in ground water. While the water at 130 to 160 is abundant the City wells average dept of 500 feet maintains uninterrupted and sustainable . The water table has remained relatively stable on the west side of the river, even in the years of drought and it is not anticipated that there will be a water shortage in the near future (through 2030); especially at the 400 feet level. The depth of the aquifer occasionally fluctuates resulting in increased energy consumption for the electric well pumps motors (City of Red Bluff Public Works Department 2009).

The average annual rainfall in the City of Red Bluff is 22 inches. The majority of this precipitation comes during the period from November through April. Summers are hot and dry, and winters are moderately cold. During the summer months of July and August, temperatures in excess of 100 degrees F are common. It is during these summer months that the highest water usage and demand occurs .

In 1991, the system produced a total of 1,498,700,000 gallons of water, and served a population of 12,568. The month of maximum water use was June, in which 200.5 million gallons of water were consumed (City of Red Bluff Public Works Department 1992). Today the demand has increase to over

5228AF 1,703,401,368 gallons of water as projected for 2010 and 1,873,042,880 gallons of water for 2020. Based on the data available on the Sacramento Valley Groundwater Basin (SVGB) and Tustin Aquifer it does not appear these demands will impact the aquifers. However, Conservation Measure as required by State Legislator action will help ensure this fact.

The largest consumer group was the 'general and residential', consuming a total of 1,312,790,229 gallons of water. The second largest user was the commercial sector with a total of 281,789,797 gallons. The industrial and municipal sector utilized the least amount with approximately 59,396,198 gallons a year each.

There are five improvements made to the system in 1991. These improvements include: the completion of a computerized system for improved management and design; alternation (lowered bowls 40 feet) of well No. 8; the addition of three dedicated sampling stations; the replacement of 2,100 feet of deteriorated and undersized mains; and the closing of the loop near Walnut and Bayless Street. Since the early 1990's the City added a second 3 million gallon take and broke the City into two pressure zones high to the north and west and low central city and east. The low pressure zone still has 1400 GPM on its eastern most fire hydrant

Water Distribution System

Red Bluff taps groundwater supplies to meet its water needs. Water pumped from 14 City owned municipal water wells provide an ample supply for the community. All wells are equipped with meters for tracking the amount of water being pumped. The well flow meters are read on a monthly basis with the data recorded for later use.

The average depth of the wells is 500 feet with water levels typically standing around 70 feet. The pumping capacities of the wells range from 550 to 2600 gallons per minute serving three pressure zones. Two three million gallon reservoirs serve as storage facilities. A combination of level control devices at the reservoirs and pressure switches at strategic well locations provides control for the City water system. Water is pumped directly into the distribution piping system without chemical treatment. The water distribution system includes more than 70 miles of pipeline improvements. There are no additional sources of water used by the City's system.

The City pumped 4762 acre-feet of water from the Sacramento Valley, Red Bluff ground water sub-basin during 2005. Pumping levels have remained fairly constant over the past few years. No significant decreases in groundwater levels have been observed as a result of pumping by the City system. Groundwater quantity and quality are sufficient to meet the demands of the City.

Leak Detection

The City's estimates its unaccounted-for water rate at about 9 percent; it is difficult to estimate because the reporting system NEMRIC uses billing Totals from the Monetary column to estimate quantity in cubic feet and does not take into account the Base Rate for the meter cost monthly. This rate is believed to be below the industry standard of 10 percent established by the U.S. Environmental Protection Agency (EPA) and also by the California Urban Water Conservation Council (CUWCC). The City monitors its electronic water meter system remotely for the rate of of use and repairs system leaks immediately when found; City staff performs surveys on water mains and service lines on an ongoing basis (See Section 6 for more detail and analyses).

Water Quality Monitoring and Control

The City of Red Bluff has an excellent source of ground water, which has consistently maintained a high level of purity. Each year, the city prepares an annual water report that contains information regarding water source and quality. These reports were mandated by the State of California and began in 1989. Each year, a copy of this report is distributed to every consumer.

The State has Maximum Contaminant Levels for mineral and chemicals in drinking water. The State Department of Health Services establishes these standards for drinking water based on the National Interim Primary Drinking Water Regulations (promulgated by the Environmental Protection Agency).

The Maximum Containment Levels and the corresponding levels detected in the Red Bluff wells are presented in each annual report. The parameters of the report include: Clarity, Microbiological, Organic Chemicals, Inorganic Chemicals, Radioactivity, and Additional Constituent.

Bacteriological sources require testing four times a month and the results of these tests are reported to the State Department of Health Services on a monthly basis. These samples are taken by the City and tested at Basic laboratory in Redding, Ca. Radiological test are preformed every six years at a private laboratory. Pesticides are also tested, but only on an as requested basis.

In recent times as well as our historical data show water quality levels have remained constantly high, with an occasional notice due to well maintenance.

Water Transfer Opportunities

A water transfer is essentially a reallocation of water among water users. There are a wide variety of water transfer types, and they provide substantial flexibility in the allocation and use of water in California (SWRCB, 2002). Some water transfers require the construction of new water conveyance facilities to actually move water from one location to another, while other water transfers involve reallocation of water through "paper" mechanisms (e.g., contracts, etc.). Water transfers generally involve import or export of water from one basin or county to another. The City does not currently have any agreements or contracts for the transfer or exchange of water as the the Sacramento Valley Groundwater Basin (SVGB) and Tustin Aquifer have ample amount for the City and Tehama County.

Therefore, as the Sacramento River Recharges the Sacramento Valley Groundwater Basin, which is regulated by Shasta Lake Reservoir and winter tributaries as Water shortage Allocation Plan would not be feasible, as no other entity in Northern California would have water available if Shasta Lake Dried up. However, the Tustin Aquifer under Red bluff and Tehama County would be able to provide the necessary ground water for years to come.

Desalinated Water Opportunities

Desalination involves converting seawater or brackish water into fresh water by removing salt and other minerals. Opportunities do not exist to use desalinated water.

Recycled Water Supply

This section of the Plan describes the existing and future recycled water opportunities available in the City of Red Bluff water service area. The City of Red Bluff has been recycling grey water from the Waste Water Reclamation plant located along the I-5 corridor in the southeaster section of the City.

The amount of water fluctuates based on the weather and needs from Caltrans as Caltrans Interstate 5 acts as a barrier to the rest of the City. Therefore, the relationship with Caltrans and the City regarding grey water use has served both parties well. On the other hand the Freeway acts as a barrier to extending the Grey water for recycling purposes to anyone or any ware else. Caltrans currently does not pay for the grey water it uses, as recycling the water water reclamation plants effluent is a highly regarded policy. The table on the top of the next page shows the last 5 years of Recycled water use.

Recycled water sent to Caltrans for I-5 Irrigation					0.00
January	0	0.00	0	0.00	0.00
February	0	0.00	0.11	0.00	0.00
March	0	0.44	0.02	0.22	0.00
April	0.008	0.00	1.09	4.42	4.57
May	1.77	0.02	6.28	8.04	5.33
June	6.18	0.29	8.90	8.62	7.34
July	6.76	0.39	9.57	10.60	12.84
August	6.76	9.56	7.88	9.90	9.57
September	6.13	0.33	6.99	10.23	8.99
October	6.76	0.32	2.29	5.69	4.55
November	0	0.25	3.95	0.00	5.98
December	0	0.18	0.00	0.00	0.00
Total	34.39	11.79	47.09	57.73	59.17

Source City of Red Bluff Waste Water Reclamation Plant SMR Self Monitoring Report(s) 2005,2006,2007,2008,2009, 2010

Currently Caltrans is not charge for the grey water, this may change in the short term future, which may reduce the amount Caltrans uses on Interstate 5. As one can see about 1% of the City's water is recycled. Staff would like to see that number increased. However, if regulator conditions increase that may not be possible due to burdensome cost.

The waste water Treatment plant processes over 1.5 MGD of effluent, of which a substantial portion could be diverted from the River. However, Caltrans would have to start paying for the grey water or at least the Tests the EPA may require along with the expansion of its infrastructure within the Interstate-5 corridor. With that in mind, the Recycled water program is projected to continue, any estimated future numbers will be based on the 5 year average due to unforeseen weather and regulatory costs.

Section V Water Supply Reliability and Water Shortage Contingency Planning

Introduction

Section 5 describes reliability of water supplies and addresses specific impacts relevant to the City of Red Bluff along with water shortage contingency planning and how the City will cope with shortages of varying magnitude.

System improvements

Over the past couple of years include a new SCADA System and the construction of a new, 3 million gallon, steel storage tank. The City's main water system has been slit into two main pressure zones. In areas where pressures had typically been in the 35 to 40 psi range, the new storage tank enables us to furnish pressures in the 70 to 80 psi range. New water mains constructed along Baker and Paskenta Roads have enabled us to strengthen the water system and make it much more reliable. Several thousand feet of new water lines have been installed to replace or up-size existing old main lines. The City's flushing program, valve-exercising program and fire hydrant testing and replacement programs are all ongoing. The city currently has less than two hundred flat-rate water services and hopes to have them converted to metered services by the end of 2006. Upon the completion of the metering of the flat-rate services, we will convert the remaining manual read water meters to new Badger, radio-read meters which will enable us to return to monthly meter reading.

Reliability of Water Supply and characteristics.

Red Bluff taps groundwater supplies to meet its water needs. Water pumped from 14 City owned municipal water wells provide an ample supply for the community. All wells are equipped with meters for tracking the amount of water being pumped. The well flow meters are read on a monthly basis with the data recorded for later use. The average depth of the wells is 500 feet with water levels typically standing around 70 feet. The pumping capacities of the wells range from 550 to 2600 gallons per minute serving three pressure zones. Two three million gallon reservoirs serve as storage facilities. A combination of level control devices at the reservoirs and pressure switches at strategic well locations provides control for the City water system. Water is pumped directly into the distribution piping system without chemical treatment. The water distribution system includes more than 70 miles of pipeline improvements. There are no additional sources of water used by the City's system.

The City pumped 4762 acre-feet of water from the Sacramento Valley, Red Bluff ground water sub-basin during 2005. Pumping levels have remained fairly constant over the past few years. No significant decreases in groundwater levels have been observed as a result of pumping by the City system. Groundwater quantity and quality are sufficient to meet the demands of the City.

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The only emergency the City can presume at a probable level that would impact water supply in Red Bluff other than a specific terrorist attack would have to do with power outages and as of 2009 the city modified the Wells and pump station Breaker box to accept the City's emergency Generator, of which it has 4. 4 portable generators would be enough to provide the City with redundant water for a lengthy period of time as the two 3 million gallon takes provide gravity pressure.

Drought Planning

The reliability of water supply system is expressed in terms of the system's ability to deliver water during periods of drought. Reliability is assessed in terms of the amount and frequency of water delivery reductions (deficiencies) required to balance customer demands with available supplies in drought periods. The plentiful supply of ground water , at levels as shallow as 100 feet on either side of the Sacramento River diminishes any drought inhibitions or reliability issues. However, a Water Shortage Contingency Plan has been adopted as outlined below:

WATER SHORTAGE CONTINGENCY PLAN

Preparation for Catastrophic Water Supply Interruption

Water Code

10632 The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632(c) 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.

Water Shortage Emergency Response

When responding to emergencies that can cause water supply shortages, the City of Red Bluff has in place an Emergency/Disaster Response Plan defining how it will respond to emergencies and/or disasters that are likely to affect its water supply operations. The plan identifies the following service goals:

- To continue minimum service levels and mitigate the public health risks from drinking water contamination that may occur during a disaster or other emergency event, and
- To provide reliable water service and minimize public health risks from unsafe drinking water during those events.

The City of Red Bluff Emergency/Disaster Response Plan designates responsible personnel and chain of command and identifies responsibilities. An inventory of system resources that are used for normal operations and available for emergencies, including maps and schematic diagrams of the water system, lists of emergency equipment, equipment supplies and emergency contracts are kept at the Emergency Operations Center (EOC). The Fire Department Training Center, located at 1015 Kimball Road, Red Bluff, has been designated as the communication network emergency operations center for the City.

Coordination procedures with governmental agencies for health and safety protection, technical, legal and financial assistance and public notification procedures are continually being developed and updated through regulation and experience and will be added as necessary to the Emergency/Disaster Response Plan.

In the event of an emergency, responsible personnel will, as quickly as possible, determine the status of other employees, assess damage to water system facilities, provide logistics for emergency repairs, monitor progress of repairs and restoration efforts and communicate with health officials and water users (according to "Emergency Notification" on file with the Department of Health Services and Tehama County Environmental Health), and document damage and repairs.

The City has in place the steps that will be taken to resume normal operations in the event of the following types of service interruptions:

- Leaks or service interruption (result of earthquake, etc.)
- Low system pressure (result of earthquake, fire, etc.)
- Power outage
- Contamination of source and/or transmission/distribution system
- Physical destruction of facility (sabotage)

The City has enough supplies (pipe, valves, etc.) in stock to perform spot repairs on the City of Red Bluff Municipal Water System.

All significant water outages (widespread and lasting more than eight hours) or disinfection failure will be reported to the Department of Health Services or Local Primary Agency by telephone or other rapid means. All emergencies will be documented along with action taken, and kept in the files of the water system office. Acts of sabotage will be reported to the local law enforcement agency.

Supplemental Water Supplies

The City maintains supplemental water supplies in the form of storage within the transmission and distribution system and water system storage reservoirs. The City maintains a total storage of 6.0 million gallons in two reservoirs; the Village Drive Reservoir (3,000,000 gallons), and the Mendenhall Road Reservoir (3,000,000 gallons). (Under Construction, completion expected December 2005).

Water Transfers

The City does not presently engage in the purchase or exchange of water supplies from other agencies, nor does it have plans to initiate any new water transfers in the near future.

Long Term Additional Water Supply Options

The City's current water supply is sufficient to meet the consumptive, irrigation and industrial water needs of its customers through the year 2020, and possibly beyond. Future water supply options will likely involve the construction of one or more additional wells, thereby increasing the available water supply.

Water Shortage Contingency Ordinance/Resolution

Water Code

10632(h) A draft water shortage contingency resolution or ordinance.

City of Red Bluff Water Shortage Response

The City of Red Bluff prepared a Water Shortage Contingency Plan in 1992. The Plan was developed prior to the recent transmission and distribution system upgrades, and was based on the probability that a water shortage emergency would be caused by transmission capacity limits and not supply deficiencies or by other disaster related events impacting the water supply.

The City has not experienced a water source deficiency. In theory, the worse case situation would be that the water system's transmission capacity is unable to meet consumer demand. However, with the recent upgrades to the City's water transmission system, the probability of this situation occurring has lessened from what it was prior to the upgrades, therefore making it an unlikely situation.

Stages of Action

Water Code

10632 The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply and an outline of specific water supply conditions which are applicable to each stage.

Rationing Stages and Reduction Goals

The City Council of the City of Red Bluff is vested with the authority to invoke the various "stages" of action described in the City's Water Shortage Contingency Plan, based upon the recommendation of the Director of Public Works.

The City developed a four stage-rationing plan to invoke during declared water shortages. The action stages and trigger levels have been developed to implement the Water Shortage Contingency Plan. The rationing plan includes voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage. The rationing stages are triggered by water levels in the City's Village Drive and Mendenhall Road storage facilities.

Unforeseeable circumstances may cause declaration of a higher action stage or postponement of an action stage other than when trigger levels occur. The Director of Public Works will determine the action stage. All restrictions under each applicable action stage will be implemented immediately upon declaration of such stage. Lifting of an emergency action stage and resumption to the normal operating stage will be determined by the Director of Public Works based on current conditions affecting the water supply. The rationing stages are described in detail below.

Stage 1 – Voluntary Conservation Measures. Voluntary compliance with conservation measures.

The City may initiate a water conservation program to provide public information on ways to reduce water use. Water customers and the community will be made aware of the emergency action stages and restrictions under the Water Shortage Contingency Plan.

Customers are encouraged to reduce water usage by taking the following voluntary water conservation measures:

1. Refrain from landscape watering between the hours of 10:00am and 6:00pm;
2. Refrain from allowing water run off from any lawns, landscapes, or garden into adjoining streets, gutters, sidewalks, parking lot or alley;
3. Refrain from hosing or washing sidewalks, walkways, driveways, parking lots, or other hard surfaced areas:
4. Refrain from washing cars, boats, trailers, or other vehicles except by hose with a shutoff nozzle and bucket;
5. Equip any hose with a shutoff nozzle and bucket;
6. Promptly repair all leaks in plumbing fixtures, water lines, and sprinkler systems;
7. Equip ornamental fountains, ponds or lakes with a water recycling system;
8. Equip commercial car washes with a water recycling system;

9. Refrain from filling or refilling a swimming pool, spa, or hot tub;
10. Install low flow shower heads, low flush water closets, and faucet aerators;
11. Operators of restaurants provide on each table a notice of water emergency and refrain from serving drinking water except upon specific request of a customer;
12. Operators of hotels and motels provide in each room a notice of water emergency.

This will be the normal operating stage for the water system.

Stage II – Mandatory Conservation Measures. Mandatory implementation of conservation measures.

Customers shall comply with Stage I measures 1. – 12.

Customers will be notified via news media and other methods of this stage of water shortage emergency and implementation of mandatory conservation measures.

Industrial water users will be specifically notified via telephone and City staff will make every attempt to keep them informed of the status of the water emergency so they can prepare for a possible shutdown of production.

Stage III – Serious Water Shortage. Mandatory Reduction

Customers will be notified via news media and other methods of this stage of water shortage emergency. Industrial users will be notified specifically via telephone and will be asked to voluntarily shutdown production during a Stage III water emergency.

City staff will make every attempt to keep the industrial users informed of the status of a water emergency prior to the declaration of a Stage III water emergency so they can prepare for a possible shutdown of production.

The following water uses will be prohibited for all water users:

1. Landscape irrigation or watering of lawns or gardens;
2. Washing of cars, boats, trailers or other vehicles;
3. Washing down of driveways, sidewalks, buildings, windows, or any outdoor surface;
4. Filling of swimming pools, spas, or hot tubs;
5. Serving of drinking water at restaurants unless requested;
6. Filling or operating of ornamental fountains, ponds, or lakes;
7. Sewer system maintenance, fire protection training, or flushing of hydrants;
8. Street cleaning or dust control;
9. Use of hydrant meters for construction purposes.

Stage IV – Disaster Shortage/Rationing. Major catastrophe or contamination of the water supply. Priorities for all water use will be for human consumption, sanitation, and fire protection.

All water users will be limited to amounts required for human consumption, sanitation, and fire protection. No water will be available for nonessential use or for commercial or industrial processes.

Customers will be notified via news media and other methods of this stage of water shortage emergency.

If contamination of the water supply occurs, consult with County/State health officials on the need to institute a boil order before use of any water.

Priority by Use

The City does not have a priority for use of available potable water based on customer type during a water shortage emergency. Water conservation and water use measures apply to all customers.

Health and Safety Requirements

The City will provide information to its customers regarding health and safety requirements during a water shortage emergency when the water shortage occurs. Customers will be notified via news media and other methods regarding important health and safety requirements.

Water Shortage Stages and Triggering Mechanisms

As the water purveyor, the City of Red Bluff must provide the minimum health and safety water needs to the community at all times. The rationing program triggering levels shown below were established to ensure that this goal is met.

Stage I This will be the normal operating stage for the water system.

Stage II This stage will take effect when the tank levels at the Village Drive and/or Mendenhall Road storage facilities fall below 50% of their storage capacity.

Stage III This stage will take effect when the tank level at the Village Drive and/or Mendenhall Road storage facilities fall below 35% of storage capacity.

Stage IV This stage will take effect when a disaster related event impacting the water supply occurs.

Water Allotment Methods

The City does not have a method of allocating water based on customer type during a water shortage emergency. Water conservation and water use measures apply to all customers, and specific customers (i.e., industrial) will be contacted directly by the City regarding water allotment and conservation measures.

Prohibitions, Consumption Reduction Methods and Penalties

Water Code

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632(d) 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(e) 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(f) Penalties or charges for excessive use, where applicable.

Mandatory Prohibitions on Water Wasting

Due to the abundant supply of water from the groundwater basin, the City does not currently have a need to implement any mandatory prohibitions on water wasting. Warnings will be issued for water waste, over-watering and water leaks.

Excessive Use Penalties

Since the City does not have any mandatory prohibitions on water wasting, there are no excessive use penalties. Warnings will be issued for water waste, over-watering and water leaks.

Revenue and Expenditure Impacts and Measures to Overcome Impacts

Water Code

10632 The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632(g) 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.

10632(g) An analysis of the impacts of each of the proposed measures to overcome those revenue and expenditure impacts, such as the development of reserves and rate adjustments.

Reduction Measuring Mechanism

10632 The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

Mechanism to Determine Reductions in Water Use

Because of the City's abundant supply of water from the groundwater basin, the City does not anticipate the need to implement drought condition water management policies. Therefore, reductions in water use are not determined.

Water Quality Monitoring and Control

The City of Red Bluff has an excellent source of ground water, which has consistently maintained a high level of purity. Each year, the city prepares an annual water report that contains information regarding water source and quality. These reports were mandated by the State of California and began in 1989. Each year, a copy of this report is distributed to every consumer.

The State has Maximum Contaminant Levels for mineral and chemicals in drinking water. The State Department of Health Services establishes these standards for drinking water based on the National Interim Primary Drinking Water Regulations (promulgated by the Environmental Protection Agency).

The Maximum Containment Levels and the corresponding levels detected in the Red Bluff wells are presented in each annual report. The parameters of the report include: Clarity, Microbiological, Organic Chemicals, Inorganic Chemicals, Radioactivity, and Additional Constituent.

Bacteriological sources require testing four times a month and the results of these tests are reported to the State Department of Health Services on a monthly basis. These samples are taken by the City and tested at Basic laboratory in Redding, Ca. Radiological test are preformed every six years at a private laboratory. Pesticides are also tested, but only on an as requested basis.

In recent times as well as our historical data show water quality levels have remained constantly high, with an occasional notice due to well maintenance.

Section VI: Water Demand Management Measures

Introduction

This section describes the City of Red Bluff water demand management measures (DMMs). The City is implementing all the relevant DMMs described in the Urban Water Management Planning Act, among others. The City has been, and continues to be, a leader in water use efficiency, improving water supply reliability and sustainability for the community.

Water Conservation Programs

The City of Red Bluff is committed to the conservation of its water resource. The City actively promotes the following "Demand Management Measures" throughout the community:

DMM 1, Interior and exterior water audits and incentive programs for single-family residential, multi-family residential, and governmental and institutional customer

This activity will be available when the system is fully metered. The City currently encourages all users to implement the water conservation measures described.

DMM 2, Plumbing

Promote the low flow plumbing fixture standards for new construction and encourage all others to replace old fixtures through building department code enforcement and educational literature.

DMM 3, Distribution system leaks

The City is continuously monitoring the system for leaks in the City's lines as well as those of private owners. Any leaks found are reported immediately to the Water Division and repairs are scheduled or coordinated with City staff and private owners. Leak detection equipment was purchased in the 00/01 budget year to assist with this effort.

DMM 4, Metering

The City has been working toward a fully metered system since 1999 and expects to be fully metered by the end of 2006. Currently all building permits require the installation of water meters, if not already metered. Unmetered service rates are set higher than metered services to encourage owners to convert to metered service. Iso hydrant meters are required for all developments that use City water during the construction process.

DMM 5, Large landscape water users

All customers having large landscaped areas are required to account for landscape water separate from their domestic use. This provides the City with an enhanced ability to track various water usage's and improves oversight of water wasting throughout the system. The City also adopted a policy that encourages the use of drought resistant, low water demand vegetation.

DMM 6, Landscape water conservation requirements for new and existing commercial, industrial, institutional, governmental, and multi-family developments

The City employs a groundcover and landscaping policy that encourages water conservation and separate metering of irrigation water. As soon as the system is fully metered we will have the control necessary for proper implementation.

DMM 7 & 8, Public/School information

Information is distributed to customers and schools through mailings and personal presentations at various classrooms and events. The annual Consumer Confidence Report, mailed to each water customer, contains information on the City's water source, permit to operate, chemical treatment, drinking water standards and testing requirements, and a water quality analysis of the water delivered by the City.

DMM 9, Commercial and industrial water conservation

Same response as DMM1.

DMM 10, New commercial and industrial water use review

This activity is currently accomplished on a minimal basis by reviewing usage on a random basis.

DMM 11, Conservation pricing

The City should be fully metered by the end of 2006 and conservation pricing implemented thereafter.

DMM 12, Landscape water conservation for new and existing single-family homes

This function is ongoing for new single-family homes through our groundcover and landscaping policy. Existing unmetered homes will continue to be addressed through customer education until the system if fully metered.

DMM 13, Water wasting

Observed water wasters are notified of the problem and forced to install a water meter if the situation continues.

DMM 14, Recycling plan

The City is also working with local water users to promote water reclamation practices. Reclaimed water from the City's Wastewater Treatment Facility is used to irrigate on site landscaping and adjacent highway landscaping. If Caltrans were to expand freeway landscaping, infrastructure exists to supply more recycled water to those areas. The effluent limitations are the same as the Sacramento River, described below. Infrastructure does not exist outside of what was installed for highway landscaping, however, future use could include golf course and park irrigation. The majority of the treated--reclaimed--effluent is discharged into the Sacramento River for downstream uses. The effluent limitations on the discharge are Biochemical Oxygen Demand-10mgs per liter, Suspended Solids-10mgs per liter, Chlorine Residual-.02mgs per liter (daily maximum) and Total Coliform Organisms-23 most probable number (weekly median). Unrestricted use of recycled water would have to be disinfected to less than 2.2 MPN as per Title 22 CCR, with corresponding increased treatment cost. Businesses in the community such as car washes are encouraged to install re-circulating systems. Any plan for the reuse of water is balanced by comparing the cost of providing the infrastructure necessary to serve the project with the cost to provide water through conventional means. The City continues to seek opportunities to use recycled or reclaimed water, however, there is limited opportunity for expanding use of recycled water due to cost of installing a conveyance system.

DMM 15, Water conservation coordinator

The Director of Public Works and Water Division Supervisor share this responsibility. Once the system is fully metered, this activity will be refined.

DMM 16, Financial incentives

Full system metering is necessary before a program that meets the needs of all users can be implemented.

DMM 17, Ultra low flush toilet replacement

The City encourages all customers to use water-conserving devices, however no formal rebate program for fixture changeout is in place. The oversight necessary to properly conduct the program is beyond our staffing capabilities at this time.

Water Outlook

Close monitoring of the City's existing well levels do not indicate a potential water shortage problem in the foreseeable future. All efforts are being expended for the efficient use of the ground water pumped into the City's system. The City's current level of system oversight is appropriate for its size. The City will continue to upgrade, enhance, monitor, and explore new ways to provide quality water system service to its customers.

Additional Water Conservation Demand Management Programs

In addition to the active conservation DMMs described above, the City implements additional programs based on legislative actions, which are described below.

The 2015, 2020 & 2030 formulas includes a water efficiency standards offset regarding future water use. This offset, grows from 76 AFY in 2015 to 230 AFY in 2030, factors in the ongoing replacement of less water efficient water fixtures with more water efficient water fixtures. Toilets and clothes washers are the two most significant fixtures where this is occurring. The savings do not require any action from the City—replacement naturally occurs as current fixtures wear out or are replaced because of remodeling, etc. The table also includes and offset for Future Water Conservation. As described in Section 6, future potable water use reductions are attributed to the implementation of Automated Metering Infrastructure that allows for real time monitoring, which will identifies leaks and their detection.

Prior to 1983, most toilets were designed to use five or more gallons per flush. In 1983, the California Plumbing Code changed requiring no more than 3.5 gallons per flush toilets in all new construction. In 1992, the California Plumbing Code was changed again requiring no more than 1.6 gallons per flush toilets in new construction. Because toilet manufacturers were still producing higher volume toilets for other states, however, such toilets were available for both new construction and replacement of existing toilets.

It was not until a federal plumbing code change in January 1994 (as part of The Energy Policy Act of 1992), combined with another California Plumbing Code change (SB 1224, Killea), that 1.6 gallons per flush toilets became the effective standard for all installations. In 2007, an additional change to the California Plumbing Code (AB715 & Health and Safety Code 17921.4) began requiring toilets to be rated to use no more than 1.28 gallons per flush by 2014. In October 2009 the governor signed SB 407 which requires efficient toilets (rated up to 1.6 gallons per flush), faucets, and showerheads in all buildings. The law covers remodeled properties by 2014, all single-family homes by 2017, and multi-family and commercial buildings by 2019. It also requires sellers of property to disclose whether the property is in compliance with the law.

These legislative activities will lead to an even greater increase in the water efficiency of toilets throughout the City, the state and the nation. The penetration rate of toilets rated to use up to 1.6 gallons per flush in the City is estimated to range between 60 and 74 percent depending on customer class. To accelerate the conversion, the City has implemented programs to assist with replacing of toilets and the rehabilitation of older low income homes through the Home Funds programs since FY 2004/05 (see Chapter 6 for more detail on toilet replacements).

In February 2004, the California Energy Commission adopted water efficiency standards for clothes washers. In 2006, however, the Department of Energy (DOE) denied the California's request to institute standards more stringent than the federal government. The State of California filed suit in 2007, and in October of 2009, the Ninth Circuit Court of Appeals overturned DOE's judgment, and ordered DOE to re-consider its ruling. As of this writing, it remains to be seen whether the federal government will allow California to put in place more stringent clothes washer standards, or will create national standards similar to those proposed by California. In any case, the water efficiency of clothes washers on the market has improved significantly in the last 10 years with the gallons per- load decreasing from about 40 to 20 gallons per load. The transformation of replacing old inefficient clothes washers with more efficient ones is expected to continue.

As a result of the Legislatures regulatory actions above, the City will not implement any other specific programs for the purpose of complying with the 2009 bill as the standard practices and implementation of new state mandated components and programs will be sufficient. Instead, the City will continue to reduce potable water demands above and beyond targets delineated in SBX7-7.

Potable water demand reductions will occur through the City's recycled water program (further described in Section4) and its comprehensive set of demand management measures outlined in Section 6. The City of Red Bluff will also implement General Plan policies as outlined above ins Section 2 of the Land Use and Natural Environment and Conservation Elements which require aggressive implementation of water conservation policies and programs. The implementation of these policies will help minimize the impacts of potential water supply shortfalls through effective water demand management. The City will continuously monitor GPCD values to ensure compliance targets are being met.

Leak Detection/Identfication/Resolution

The City's estimates its unaccounted-for water rate at about 9 percent; it is difficult to estimate because the reporting system NEMRIC uses billing Totals from the Monetary column to estimate quantity in cubic feet and does not take into account the Base Rate for the meter cost monthly. This rate is believed to be below the industry standard of 10 percent established by the U.S. Environmental Protection Agency (EPA) and also by the California Urban Water Conservation Council (CUWCC). The City monitors its electronic water meter system remotely for the rate of of use and facilitates repairs to system leaks immediately when found; City staff performs surveys on water mains and service lines on an ongoing basis (See Section 6 for more detail and analyses).

The City has been in the process of replacing old manual meter reads with AMI over the past 5 years and the replacement is about 95% complete; there are still a few manual meter reads in the system that are being investigated as the system is old and not all customers were tracked efficiently due to damaged, fire demolisoned structures. Through the capability of remote meter reading and water management tools, the City routinely trouble shoots and monitors it electronic water meter system remotely for the rate of use and facilitates repairs to system leaks immediately when found. This capability is already active for about 95% of the customer classes as noted above, the focus of the following discussion is on the single-family customer class.

The water savings derived from leak detection can be significant. Research showed leaks averaged 30.7 gallons per day per home for 732 California homes participating in the same study, and 21.9 gallons per day per home for 1,200 homes participating in a 1996 national study. (AWWARF, 1999). Assuming 26.0 gallons per day per home and multiplying by the 3,950 in 2015 (conservative estimate since program in its infancy would utilize 63% of value and reduce leakage) to 4,460 in 2030 single-family homes in the City of Red Bluff, there is an estimated range from 2015 115 AFY of leakage to 130 AFY of Leakage in 2030 (Since the program really started recently a conservative estimate until all the staff gets experience and fully up to speed would utilize 63% of value and reduce leakage; around 2020 the staff should be at journeymen level and other customer classess should be able to benefit from the program at the estimated range of up to 3 times (Single family accounts for about 47% the value by 2030, this would take into account multi-family, commercial etc. along with more that 63% of the single family homes).

AMI can greatly improve the speed at which leaks are identified and repaired. The water savings from leak repair is hard to quantify, but a conservative assumption is noted above. The addition of other customer classes will add to this savings, but leakage data and rates from these classes are unknown.

Section VII Climate Change (optional)

DWR suggests that an urban water suppler consider in its 2010 UWMP potential water supply and demand effects related to climate change. The City of Red Bluff has undertaken a proactive approach to State Legislature and new Development Standards/Regulations adopted by the State. The purpose and need of the Greenhouse Gas Inventory and Performance Standards are to provide new developers/contractors/and property owners with a means to understand the requirements for development within the City of Red Bluff, as the Greenhouse Gas regulations and standards fluctuate dramatically from jurisdiction to jurisdiction.

Basically, the document and the performance standards are an administrative document that identifies and outlines Co2e emitting sources and Co2e offsetting methods in order to reduce future Co2e emissions from projects and associated growth emitters (mobile sources) by 15% from the City's quantified 2010 Co2e Greenhouse Gas Baseline.

The Threshold of Significance is substantiated in the proposed documents for New Land Use/Buildings and Development related emissions, which will be reduced by at least 15% through Energy Efficiency including water conservation and standard industry features (Low flush Toilets, aerated faucets, water conserving sprinkler heads and systems etc.).These features will be incorporated through project design components including but not limited to remodels.

Section VIII Completed UWMP Checklist (optional)

This section was not completed due to the City's limited resources. Thank you for your consideration of this document thought.