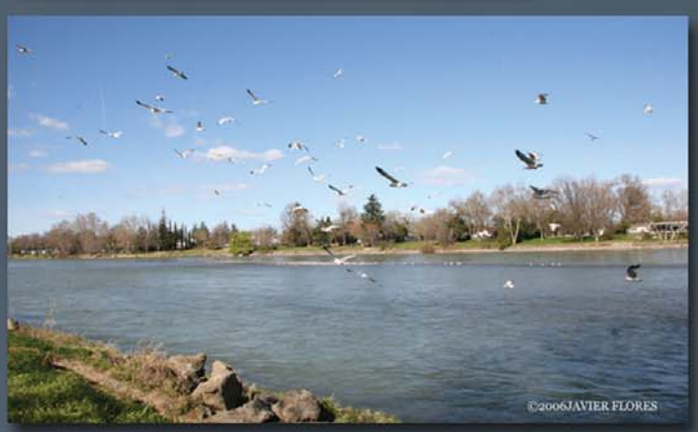

2015 Urban Water Management Plan Update

FINAL | February 2017

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City of Red Bluff
2015 Urban Water Management Plan

Contact Sheet

Date plan submitted to the Department of Water Resources: 02/07/2017

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The Water supplier is a: **City**

The Water supplier is a: **Retailer**

Utility services provided by the water supplier include: **Water, Wastewater**

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Date: 2017.02.07 13:52:48-08'00'

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CITY OF RED BLUFF

2015 URBAN WATER MANAGEMENT PLAN

FINAL
February 2017

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pw:\\Carollo/Documents\Client/CA/Red Bluff/9084E00/Deliverables\Red Bluff 2015 UWMP

City of Red Bluff

2015 URBAN WATER MANAGEMENT PLAN

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Chapter 1

INTRODUCTION AND OVERVIEW

1.1 BACKGROUND AND PURPOSE

The California Water Code (CWC, or Water Code) requires urban water suppliers within the state to prepare and adopt Urban Water Management Plans (UWMPs) for submission to the California Department of Water Resources (DWR). The UWMPs, which must be filed every five years, must satisfy the requirements of the Urban Water Management Planning Act (UWMPA) of 1983, including amendments that have been made to the Act. The UWMPA requires urban water suppliers servicing 3,000 or more connections, or supplying more than 3,000 acre-feet (AF) of water annually, to prepare a UWMP.

The purpose of the UWMP is to maintain efficient use of urban water supplies, continue to promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide a mechanism for response during water drought conditions. This document, which was prepared in compliance with the CWC, and as set forth in the 2015 Urban Water Management Plan Guidebook for Urban Water Suppliers (March 2016) established by the DWR, constitutes the City of Red Bluff (City) 2015 UWMP.

This 2015 UWMP was prepared in compliance with the UWMPA (CWC §10610 et seq.) and the Water Conservation Bill of 2009 (Senate Bill [SB] X7-7) by Carollo Engineers. Contact information for the City and Carollo Engineers is included in the Contact Sheet provided at the beginning of this document.

While water is a renewable resource, it is limited, and the City recognizes the importance of maintaining a high-quality and reliable long-term water supply that is essential to protect the local state economies. The main focus for the City is to provide high quality water, maximize the efficient use of water, and promote conservation.

1.2 URBAN WATER MANAGEMENT PLANNING AND THE CALIFORNIA WATER CODE

The CWC sections applicable to UWMPs are summarized in the sections below.

1.2.1 Urban Water Management Planning Act of 1983

In 1983, State Assembly Bill (AB) 797 modified the CWC Division 6 by creating the UWMPA. Several amendments to the original UWMPA, which were introduced since 1983, have increased the data requirements and planning elements to be included in the UWMPs.

Initial amendments to the UWMPA required that total projected water use be compared to water supply sources over the next 20 years, in 5-year increments. Recent DWR guidelines

also suggest projecting through a 25-year planning horizon to maintain a 20-year timeframe until the next UWMP update has been completed.

Other amendments require that UWMPs include provisions for recycled water use, demand management measures (DMMs), and a water shortage contingency plan. The UWMPA requires inclusion of a water shortage contingency plan which meets the specifications set forth therein. Recycled water was added in the reporting requirements for water usage and figures prominently in the requirements for evaluation of alternative water supplies, when future projections predict the need for additional water supplies. Each urban water purveyor must coordinate the preparation of the water shortage contingency plan with other urban water purveyors in the area, to the extent practicable. Water suppliers must also describe their water DMMs that are being implemented, or are scheduled for implementation.

In addition to the UWMPA and its amendments, there are several other regulations that are related to the content of the UWMP. In summary, the key relevant regulations are:

- AB 1420: Requires implementation of DMMs/Best Management Practices (BMPs) and meeting the 20-by-2020 targets to qualify for water management grants or loans.
- AB 1465: Requires water suppliers to describe opportunities related to recycled water use and stormwater recapture to offset potable water use.
- Amendments SB 610 (Costa, 2001), and AB 901 (Daucher, 2001): Require counties and cities to consider information relating to the availability of water to supply new large developments by mandating the preparation of further water supply planning and Water Supply Assessments.
- SB 1087: Requires water suppliers to report single-family residential (SFR) and multi-family residential (MFR) projected water use for lower income areas separately.
- Amendment SB 318 (Alpert, 2004): Requires the UWMP to describe the opportunities for development of desalinated water, including but not limited to, ocean water, brackish water, and groundwater, as long-term supply.
- AB 105 (Wiggins, 2004): Requires urban water suppliers to submit their UWMPs to the California State Library.
- SB X7-7: Requires development and use of new methodologies for reporting population growth estimates, base per capita use, and water conservation. An agency can choose from four methods to establish their intermediate (2015) and year 2020 water conservation targets.

1.2.2 Applicable Changes to the Water Code since 2010 UWMPs

Changes to the CWC since 2010 UWMPs are summarized in Table 1-1.

Table 1-1 Applicable Changes to the Water Code since 2010 UWMPs

Topic	CWC Section	Legislative Bill	Summary
Demand Management Measures	10631 (f) (1) and (2)	AB 2067, 2014	Requires water suppliers to provide narratives of water demand management measures.
Submittal Date	10621 (d)	AB 2067, 2014	Requires each urban water supplier to submit its 2015 plan to the DWR by July 1, 2016.
Electronic Submittal	10644 (a) (2)	SB 1420, 2014	Requires the plan, or amendments to the plan, to be submitted electronically to DWR.
Standardized Forms	10644 (a) (2)	SB 1420, 2014	Requires the plan, or amendments to the plan, to include any standardized forms, tables, or displays specified by DWR.
Water Loss	10631 (e) (1) (J) and (e) (3) (A) and (B)	SB 1420, 2014	Requires a plan to quantify and report on distribution system water loss.
Estimated Future Water Savings	10631 (e) (4)	SB 1420, 2014	Provides for water use projections to display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans, when that information is available and applicable to an urban water supplier.
Voluntary Reporting of Energy Intensity	10631.2 (a) and (b)	SB 1036, 2014	Provides for an urban water supplier to include certain energy-related information, including, but not limited to, and estimate of the amount of energy used to extract or divert water supplies.
Defining Water Features	10632	AB 2409, 2014	Requires urban water suppliers to analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains separately from swimming pools and spas.

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

Beginning in 2016, retail water suppliers are required to comply with the water conservation requirements in SB X7-7 in order to be eligible for State water grants or loans. Refer to Chapter 4 for detailed information on SB X7-7.

1.3 ABBREVIATIONS AND DEFINITIONS

To conserve space and improve readability, the following abbreviations are used in this report. The abbreviations are spelled out in the text the first time the phrase or title is used in each chapter and subsequently identified by abbreviation only.

AB	Assembly Bill
AF	Acre-Feet
AMI	Advanced Metering Infrastructure
AMR	Automatic Meter Reading
ASAR	Adjusted Sodium Adsorption Ratio
AWWA	American Water Works Association
BMPs	Best Management Practices
Caltrans	California Department of Transportation
CASGEM	California Statewide Groundwater Elevation Monitoring
CCR	California Code of Regulations
CF	Cubic Feet
CII	Commercial, Industrial, and Institutional
CIMIS	California Irrigation Management Information Systems
City	City of Red Bluff
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DDW	California Division of Drinking Water
DMMs	Demand Management Measures
DWR	California Department of Water Resources

EDD	California Employment Development Department
ERP	Emergency Response Protocol
ETo	Evapotranspiration
^{o}F	Degrees Fahrenheit
FCWCD	Flood Control and Water Conservation District
GC	Groundwater Commission
gpcd	Gallons per Capita per Day
gpm	Gallons per Minute
GSA	Groundwater Sustainability Agency
HUD	United States Department of Housing and Urban Development
I-5	Interstate 5
IRWM	Integrated Regional Water Management
LAFCo	Tehama Local Agency Formation Commission
MFR	Multi-Family Residential
MG	Million Gallons
mgd	Million Gallons per Day
mL	Milliliter
MOU	Memorandum of Understanding
MPN	Most Probable Number
No.	Number
NPDES	National Pollutant Discharge Elimination System
RHNA	Regional Housing Need Allocation
RHNAP	Regional Housing Need Allocation Plan
RP	Reference Point
RUWMP	Regional Urban Water Management Plan
SB	Senate Bill

SFR	Single-Family Residential
SGMA	Sustainable Groundwater Management Act of 2014
SOI	Sphere of Influence
SPRR	Southern Pacific Railroad
TCLG	Tehama County Local Governments
TDS	Total Dissolved Solids
USDA	United States Department of Agriculture
UWMP	Urban Water Management Plan
UWMPA	Urban Water Management Planning Act
WDR	Waste Discharge Requirements
WRP	Wastewater Reclamation Plant

PLAN PREPARATION

The City of Red Bluff (City) previously prepared an Urban Water Management Plan (UWMP) in 2010. This 2015 UWMP serves as an update to the 2010 UWMP.

This section includes specific information on how the UWMP was developed, including efforts in coordination and outreach.

2.1 BASIS FOR PLAN PREPARATION

California Water Code (CWC, or Water Code) 10617 requires that urban water suppliers with 3,000 or more service connections or supplying 3,000 or more acre-feet (AF) of water per year prepare an UWMP every five years. The California Health and Safety Code defines a "Public Water System" as one that provides water for human consumption and has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days of the year. The number of municipal connections and volume of water supplied in 2015 by the City is reported in Table 2-1. The City only manages one Public Water System and is not participating in a Regional UWMP.

Table 2-1 Retail Only: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
CA5210004	City of Red Bluff	4,865	3,166
	TOTAL	4,865	3,166

NOTES: Units of measure in this UWMP are acre-feet (AF). Source: Large Water Systems 2015 Annual Report to the Drinking Water Program for Year Ending December 31, 2015.

2.2 INDIVIDUAL PLANNING AND COMPLIANCE

This 2015 UWMP reports solely on the City's service area, as shown in Table 2-2. The City has notified and coordinated with appropriate regional agencies and constituents.

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

2.3 CALENDAR YEAR AND UNITS OF MEASURE

The City is reporting on a calendar year basis and therefore, 2015 data includes the months of January to December 2015. Table 2-3 indicates the City's type of reporting year, and the units of measure for reporting water volumes throughout the 2015 UWMP.

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF

2.4 COORDINATION AND OUTREACH

The Urban Water Management Planning Act (UWMPA) requires that the UWMP identify the water agency's coordination with appropriate nearby agencies.

The City coordinated its efforts with relevant agencies and parties to ensure that the data and issues discussed in the plan are presented accurately.

2.4.1 Wholesale and Retail Coordination

Retail agencies that receive a water supply from one or more wholesalers are required to provide wholesalers with projected water demand from that source, in five-year increments for 20 years. The City does not purchase or receive water from a wholesaler; therefore, Table 2-4 has been left blank.

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name *(Add additional rows as needed)*

2.4.2 Coordination with Other Agencies and the Community

The City solicited participation from other agencies, organizations, and the community for the preparation of the 2015 UWMP. Table 2-5 summarizes how the UWMP preparation was coordinated.

Table 2-5 Coordination with Appropriate Agencies								
Coordinating Agencies	Participated in Developing the Plan	Notified of UWMP Update	Notified of Public Hearing	Attended Public Meetings	Was Contacted for Assistance	Was Sent a Copy of the Draft Plan	Was Sent a Notice of Intention to Adopt	Not Involved No Information
City Management	✓	✓	✓		✓	✓	✓	
City Planning Department	✓	✓	✓		✓	✓	✓	
City Public Works Department (1)	✓	✓	✓		✓	✓	✓	
City Fire Department	✓	✓	✓		✓	✓	✓	
Tehama County Flood Control and Water Conservation District		✓	✓			✓	✓	
California Department of Transportation		✓	✓			✓	✓	
El Camino Irrigation District			✓			✓	✓	
Los Molinos Mutual Water Company			✓			✓	✓	
General Public		✓	✓			✓	✓	
Notes: (1) Includes Water, Wastewater, Parks, and Recreation Departments.								

At the present time, the City relies on the underlying groundwater basin as its sole water supply source. Accordingly, the City has endeavored to work closely with the other entities that draw upon the groundwater basin. For the development of this UWMP and other regional water planning efforts focusing on the long-term management of the shared groundwater basin, the City worked closely with area water purveyors and public interest groups.

2.4.3 Notice to Cities and Counties

The City provided formal written notification to Tehama County Flood Control and Water Conservation District (FCWCD) and the California Department of Transportation (Caltrans) that the City's UWMP was being updated. In accordance with the UWMPA, this notification was provided at least 60 days prior to the public hearing of the plan. Electronic copies of the final UWMP will be provided to these agencies no later than 30 days after its submission to the California Department of Water Resources (DWR). Appendix A contains copies of the outreach documents.

SYSTEM DESCRIPTION

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) include a description of the water system, service area, and various aspects of the area served including climate, population, and other demographic factors.

3.1 GENERAL DESCRIPTION

The City of Red Bluff (City) is located in Tehama County on the northern edge of the Sacramento Valley. The City is approximately 30 miles south of Redding and 130 miles northwest of the City of Sacramento along Interstate 5 (I-5).

The largest land use category is residential, which accounted for approximately 60 percent of acreage within the City limits in 1992. Commercial (neighborhood, central, and general) and industrial (light, general, and limited) make up approximately 16 percent and 10 percent, respectively, of acreage within the City limits in 1992. Other land uses include the airport, recreational, and public land (2012 General Plan Land Use Element).

The current City limits (5,008 acres) represent all incorporated lands that are governed by the City. The City limits roughly extend from north of the Wilcox Oaks Golf Course to south of Langley Road; and from Baker Road on the west and I-5 on the east.

The City's service area provides retail water services to the City and portions of Tehama County outside the City limits, including the water main extension along Antelope Boulevard to the east of the City limits and Shasta College - Tehama Campus. The City's water service area is approximately 9 square miles.

The City Sphere of Influence (SOI) boundary was adopted by the Tehama Local Agency Formation Commission (LAFCo). According to the City's 2012 General Plan Land Use Element, the boundaries of the City's SOI boundaries are as follows:

- North: The north edge of the 100-year floodplain of Blue Tent Creek to the east right-of-way of I-5, then south to the northeast edge of the 100-year floodplain of Dibble Creek, southeast and across the Sacramento River and then to the existing SOI boundary north of Antelope Boulevard. There minor expansions of the SOI boundary along the north and south margins of Antelope Boulevard.
- East: Extend the SOI boundary from previous terminus north and south of Antelope Boulevard to the east margin of the 100-year floodplain of the Salt Creek overflow (west branch), from the previous SOI boundary at Wiltsey Road, south along Philbrook Avenue, to Sykes Avenue, then west to Paynes Creek Slough, diagonally southwest to Williams Avenue and song the previous SOI boundary following

Williams Avenue, the City limits boundary to Sale Lane and south to Gilmore Ranch Road, then west to the edge of I-5, south to the west bank of the Sacramento River and southeast edge of the 100-year floodplain of Red Bank Creek.

- South: The south edge of the 100-year floodplain of Red Bank Creek from the Sacramento River to a point west of the junction of Rawson and Pimentel Roads then west to a point 500 feet west of the southerly extension of Paskenta Road.
- West: North along a line 500 feet west of Paskenta Road to the south edge of the 100-year flood of Reeds Creek, then north and east along that boundary to Baker Road, then north, west and north along the City Limit continuing north along the west edge of Baker Road to Beegum Road (Highway 36) then northeast to the west margin of the Southern Pacific Railroad (SPRR) right-of-way and north to a point where the south margin of the 100-year floodplain of Blue Tent Creek meets the SPRR right-of-way, northeast across the floodplain to its northeast edge to complete the SOI boundary.

3.1.1 Description of Transmission, Treatment, and Distribution Facilities

The City of operates a public water system under a permit issued by the California Division of Drinking Water (DDW) (formerly the California Department of Public Health). The permit was first issued in 1971 and is amended as improvements are added to the system. DDW makes routine inspections of the water system and is the recipient of all test results. The City is regulated by Title 22 of the California Code of Regulations (CCR).

The City owns, maintains, and operates water supply wells, storage tanks, and water lines throughout the City. The water supplied by the City is not altered or treated prior to distribution. The City has two portable chlorination units that could be used to treat water on an emergency basis. The City manages and maintains over 80 miles of water lines spanning 4 to 24 inches in diameter, 13 active groundwater wells, and two 3 million gallon (MG) water storage facilities. The City pumps and delivers water to its residential (including single-family residential [SFR] and multi-family residential [MFR]), commercial, industrial, and institutional (CII) customers within the service area.

Future water supply projects include proposed replacement of three existing wells with a single new well. Refer to Chapter 6 for detailed information on future water projects.

3.2 SERVICE AREA BOUNDARY MAP

Figure 3-1 shows the City limits, SOI, water service area, and the main distribution system components (large diameter pipelines and water tanks).

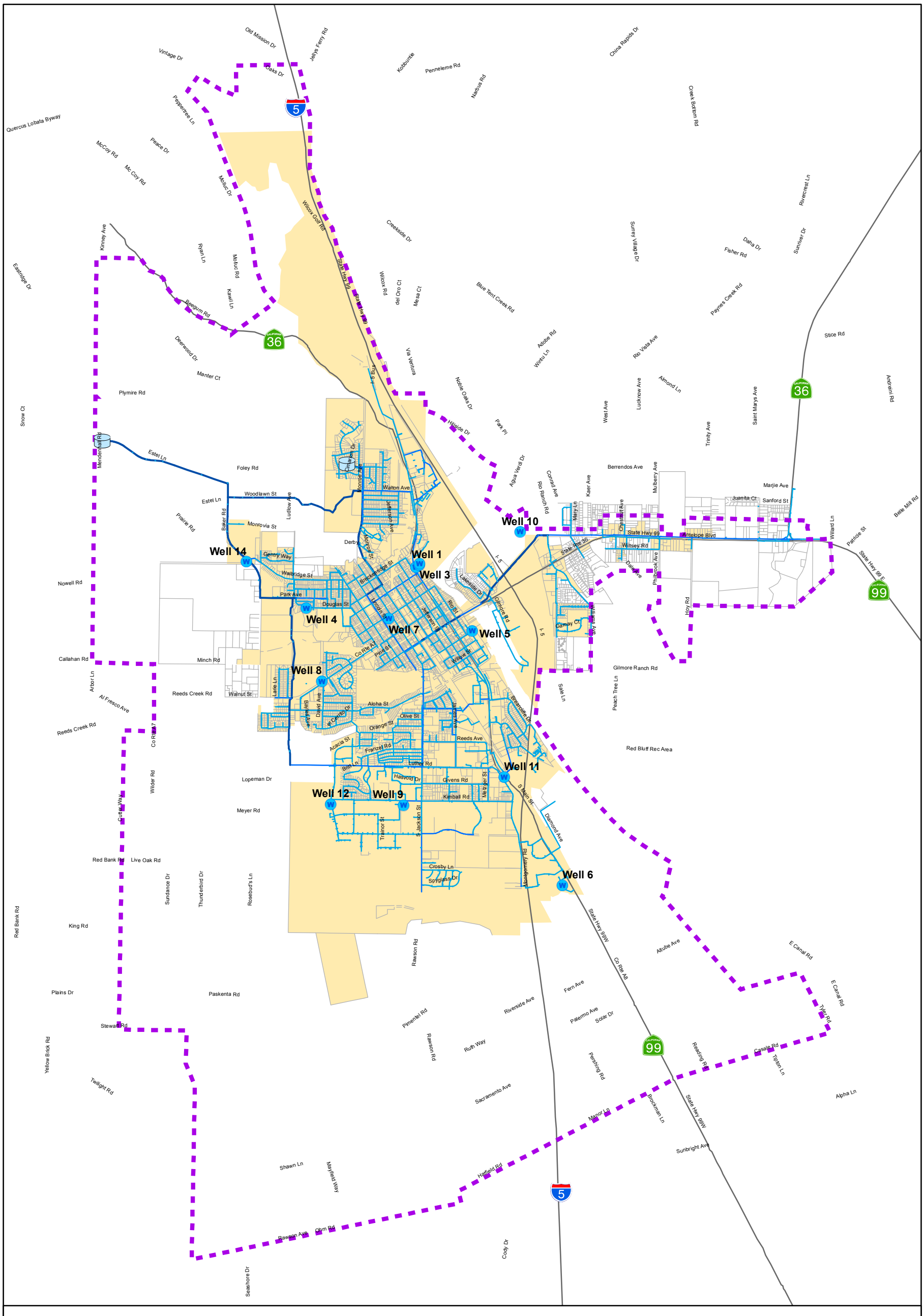

Figure 3-1
Current Water Service Area
2015 Urban Water Management Plan Update
City of Red Bluff

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3.3 SERVICE AREA CLIMATE

The City has a Mediterranean-type climate with dry, hot summers and cool, wet winters. Temperature, rainfall, and evapotranspiration (ETo) averages for the City are presented in Table 3-0.

Table 3-0 Climate Characteristics

Month	Standard Monthly Average ETo [1] (inches)	Monthly Average Rainfall [1] (inches)	Monthly Average Temperature [1] (°F)		
			Average	Minimum	Maximum
January	1.39	0.07	48.80	40.70	59.35
February	2.40	1.04	53.60	42.40	67.15
March	3.62	1.31	56.85	44.95	69.95
April	6.13	1.31	61.00	46.30	75.90
May	7.42	0.01	67.20	53.50	79.70
June	8.70	0.00	79.10	62.40	93.90
July	8.37	0.01	79.10	64.50	92.40
August	5.67	0.00	75.95	59.40	91.40
September	5.42	0.60	71.85	56.80	88.55
October	3.76	0.85	65.20	52.20	81.15
November	1.85	2.05	51.00	40.80	63.45
December	0.92	5.16	48.25	42.15	55.05
Annual	**55.65**	**12.41**			

Notes:

(1) Source: CIMIS Station 222 Gerber South. Represents monthly average from August 2014 to March 2016.

Climate data is from the California Irrigation Management Information Systems (CIMIS) Gerber South Station Number (No.) 222 (activated in August 2014). ETo values, which serve as indicators of how much water is required to maintain healthy agriculture and landscaping, range from 0.92 inches (December) to 8.70 inches (July). Average annual rainfall is approximately 12.4 inches (value reflects the sum of monthly average rainfall). The majority of rainfall occurs from November through April. Monthly precipitation has been as high as 8.91 inches (December 2014). The January mean temperature is 49 degrees Fahrenheit (°F), with an average high of 59°F and an average low of 41°F. The July mean temperature is 79°F with an average high of 92°F and an average low of 65°F.

3.3.1 Climate Change

The California Water Code (CWC, or Water Code) does not require that UWMPs address climate change; therefore, the potential water supply and demand effects related to climate change have not been included in this UWMP.

The Climate Change Vulnerability Assessment is included as Appendix B. No vulnerabilities were identified for *Water Supply* and *Sea Level Rise* categories. For the category of *Water Demand*, it was noted that water use can vary by more than 50 percent seasonally. The City also indicated that water use curtailment measures are effective. For the category of *Water Quality* and *Flooding*, it was noted that increased wildfires are a threat in the region; however, increased erosion does not pose a water quality concern. Critical infrastructure lies within the 200-year floodplain and the region lies within the Sacramento-San Joaquin Drainage District, as noted within the *Flooding* category. For the category of *Ecosystem and Habitat Vulnerability*, it was noted that the region has endangered or threatened species in addition to rivers in the region with quantified environmental flow requirements (Shasta Dam discharges). For the category of Hydropower, it was noted that hydropower is a source of electricity in the region (Shasta Dam).

3.4 SERVICE AREA POPULATION AND DEMOGRAPHICS

This section summarizes historical, current, and projected population trends in the City. Population projections are essential to the planning process and form the basis for most planning decisions, yet projecting future growth is far from an exact science given the complex set of variables that can affect the rate of growth. Typically, projections are developed by taking past patterns and combining them with assumptions regarding the future to obtain an estimate of future growth rates. These projections serve to provide the City insight on the type and quantity of future growth as well as guidance regarding future planning activities; therefore, such planning activities can only be as effective as the ability of local officials to anticipate population growth.

The current and projected population for the City is contained in Table 3-1. From 2000 through 2010, the population grew from 13,147 (2000 Census) to 14,076 (2010 Census). Since 2010, the City has experienced a slow rate of growth of approximately 0.4 percent per year (2014-2019 Housing Element Update). The projected populations were estimated based on an annualized population growth rate of 0.4 percent.

Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	14,414	14,705	15,001	15,303	15,612	15,927
NOTES: 2015 population is per SB X7-7 Method for Population Estimates DWR Population Tool. Projected populations assume 0.4% annual population growth.						

3.4.1 Other Demographic Factors

The City is the county seat and has become an important commercial hub for the area. Agriculture and tourism are the primary industries in the area. The 2014-2019 Housing Element Update indicates that the majority of housing units are single-family detached homes (60 percent). According to the 2014-2019 Housing Element Update, the fastest growing occupations in the region (Tehama, Glenn, and Colusa Counties) in 2004 through 2014 are instructional coordinators, assemblers and fabricators, installation and repair workers, machinists, and construction and building inspectors. City-specific employment information is not available.

Analyzing demographic data can yield important information about possible shifts in demand for City water service. The median age in the City is 32.2, with 75 percent of the population being over 16 years of age (2010 Census). The population is split 48 to 52 percent male to female, respectively. The number of housing units was 5,872 (2010 Census). The California Employment Development Department (EDD) classified the entire incorporated area of the City as a Disadvantaged Community, as the median household income for the City was $32,782 in 2010 (2014-2019 Housing Element Update). The EDD reported a 16.2 percent unemployment rate for 2010 and an 8.4 percent unemployment rate for 2015. The EDD reported a 16.2 percent unemployment rate for 2010 and an 8.4 percent unemployment rate for 2015.

SYSTEM WATER USE

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) identify the quantity of water supplied to the agency's customers including a breakdown by user classification. This section describes the water system demands and water demand projections.

4.1 RECYCLED VERSUS POTABLE AND RAW WATER DEMAND

This Chapter covers potable and raw water demand. Recycled water is addressed comprehensively in Chapter 6.

4.2 WATER USES BY SECTOR

Water demands served by the City of Red Bluff (City) are primarily residential (includes single-family residential [SFR] and multi-family residential [MFR]), commercial, industrial, and institutional (CII), and landscape irrigation. All connections in the City are metered, with the exception of eight unmetered commercial/institutional connections.

The following water use sectors and associated metered deliveries for 2009, as shown in Table 4-0, were reported in the City's 2010 UWMP.

Table 4-0 2009 Water Deliveries

Use Type	Metered Volume
Single-Family Residential	2,843
Multi-Family Residential	1,470
Commercial	950
Industrial	209
Municipal/Public	114
Fire	4
Other	0
Total	**5,590**

Notes:

(1) Units of measure in this UWMP are acre-feet (AF). Source: 2010 UWMP.

The actual demands for potable water are presented in Table 4-1 for the 2015 calendar year. Discrepancy in volume reported for each use type in 2009 and 2015 calendar years may be due to reclassification of use types.

Table 4-1 Retail: Demands for Potable and Raw Water - Actual

Use Type *(Add additional rows as needed)*	2015 Actual		
Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Single Family		Drinking Water	1,209
Multi-Family		Drinking Water	469
Commercial	Includes Industrial	Drinking Water	1,083
Institutional/Governmental		Drinking Water	11
Other	Irrigation	Drinking Water	0
Other	Unbilled Authorized Consumption	Drinking Water	147
Losses		Drinking Water	245
		TOTAL	3,166

NOTES: Units of measure in this UWMP are acre-feet (AF). Source: City 2015 Itemized Water Use Estimates.

Table 4-2 contains the projected potable and raw water demands from 2020 through 2040. The demand projections are based on the City's 2020 target water use (includes conservation) and the projected populations. To project the number of connections per customer sector, it was assumed that the number of connections will grow consistently with the projected water demands; this is based on the relative distribution of customer types, accounts, and water use reported for 2015. However, the customer sector water deliveries in Table 4-2 are only general estimates of projected use, and may vary significantly based on future development and water conservation measures taken by each customer sector. Ultimately, the implementation, magnitude, and type of future development will determine the distribution of water use per customer sector.

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type *(Add additional rows as needed)* Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
		2020	2025	2030	2035	2040-opt
Single Family		1,868	1,906	1,945	1,984	2,024
Multi-Family		725	740	755	770	786
Commercial	Includes Industrial	1,674	1,707	1,742	1,777	1,813
Institutional/Governmental		18	18	18	19	19
Other	Irrigation	0	0	0	0	0
Other	Unbilled Authorized Consumption	228	232	237	242	247
	TOTAL	4,513	4,603	4,697	4,792	4,889
NOTES: Units of measure in this UWMP are acre-feet (AF).						

The City's total water demands for potable and raw water, and recycled water demand, based on the figures presented in Table 4-1, Table 4-2, and Table 6-4, are summarized in Table 4-3. The City provides recycled water to the California Department of Transportation (Caltrans), as described by Chapter 6.

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 *(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	3,166	4,513	4,603	4,697	4,792	4,889
Recycled Water Demand* *From Table 6-4*	53	88	88	88	88	88
TOTAL WATER DEMAND	3,219	4,601	4,691	4,785	4,880	4,977
**Recycled water demand fields will be blank until Table 6-4 is complete.*						
NOTES: Units of measure in this UWMP are acre-feet (AF).						

4.3 DISTRIBUTION SYSTEM WATER LOSSES

Distribution system water losses ("real" losses) are the physical water losses from the water distribution system and the supplier's storage facilities, up to the point of customer consumption. The estimated distribution system water loss for the most recent 12-month period available (2015 calendar year) based on the draft American Water Works Association (AWWA) Method Guidance "Water Resources Water Audit Manual" is reported in Table 4-4.

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
01/2015	245
** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*	
NOTES: Units of measure in this UWMP are acre-feet (AF). Based on *draft AWWA Water Resources Water Audit* .	

4.4 ESTIMATING FUTURE WATER SAVINGS

"Passive" savings are water savings from codes, standards, ordinances, or transportation and land use plans. As shown in Table 4-5, future water savings are not included in the total water use projections (Table 4-2).

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

4.5 WATER USE FOR LOWER INCOME HOUSEHOLDS

As shown in Table 4-5, lower income household demand projections are included in the total water use projections (Table 4-2 and Table 4-3).

The most recent Tehama County Local Governments (TCLG) Regional Housing Need Allocation Plan (RHNAP) has determined that the City has a housing construction need of 323 units for the planning period 2014-2019. Of these units, 23 percent should be affordable to very low-income households, 16 percent to low-income households, 19 percent moderate-income households, and 43 percent above moderate-income households. Very low- and low-income housing needs represent 125 housing units of the City's total housing allocation.

The 2014-2019 Housing Element Update lists 223 new housing units for very low-, and low-income levels. This exceeds the regional housing need allocation (RHNA) of 125 low- and very low-income housing units (2014-2019 TCLG RHNAP).

Some of the programs related to providing low-income and affordable housing in the City's 2014-2019 Housing Element Update are listed below:

- Utilize State and Federal assistance to the fullest extent possible to develop lower income housing for families, including farmworkers
- Continue the rehabilitation of substandard residential units using available subsidies for lower income residents (both owner and rental units)
- Pursue the use of local and State funds to preserve lower income housing opportunities in the City's mobile home parks
- Continue to encourage the use of United States Department of Agriculture (USDA), United States Department of Housing and Urban Development (HUD), and other programs to maximize participation by low income multifamily housing owners and local residents in various Rental Assistance Programs

BASELINES AND TARGETS

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) identify the baseline water demand, urban water use target, and interim urban water use target for the City of Red Bluff (City).

The base daily per capita use is the first step in determining the various urban water use targets over the 20-year planning horizon. The current per capita use sets the “baseline” on which the urban and interim water use targets are determined. These targets are necessary to judge compliance with the 2020 use reductions set forth in the Water Conservation Bill of 2009 (Senate Bill [SB] X7-7).

5.1 BASELINE PERIODS

The first step in developing the baseline water use for the City is determining the applicable range and years for which the baseline average will be calculated. The UWMPA stipulates an agency may use either a 10 or 15-year average to determine its baseline. If 10 percent or more of total water deliveries in 2008 were from recycled water, then the agency can use a 15-year average baseline. Since the City had approximately one percent recycled water deliveries in 2008, a 10-year average must be used for baseline determination. In addition to the 10-year baseline, a 5-year baseline is also calculated, which will be used to establish the minimum criteria for the City’s use reduction targets. A summary of the 10-year baseline range (2001 to 2010) and 5-year baseline range (2006-2010) is included in Table 1 of the SB X7-7 Verification Forms (Appendix C).

5.2 SERVICE AREA POPULATION

Service area population is reported for each year in the baseline periods as well as 2015, the compliance year, in Table 3 of the SB X7-7 Verification Forms (Appendix C). The UWMPA requires that the 2010 census data be used in the baseline population calculations for the 2015 UWMP. The City did use the 2010 census data for its baseline population calculations in the 2010 UWMP; however, the City has recalculated their baseline populations as described below.

5.2.1 Population Methodology

The City's service area boundaries overlap by approximately 59 percent with the boundaries of the City limits. The City's service area boundary is estimated based on water meter locations. As shown in Table 2 of the SB X7-7 Verification Forms (Appendix C), the California Department of Water Resources (DWR) Population Tool for population estimates is used. The DWR Population Tool utilizes census data and electronic maps of the City's service area to obtain population data for census years. Residential connections were used

to calculation the population for the non-census years. The results of the DWR Population Tool are included as Appendix D.

5.3 GROSS WATER USE

"Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier with certain acceptable exclusions (i.e., recycled water, long term storage, conveyed to another urban water supplier, and agricultural use). Gross water use is reported for each year in the baseline periods as well as 2015, the compliance year, in Table 4 of the SB X7-7 Verification Forms (Appendix C).

As shown in Table 4-C.4 of the SB X7-7 Verification Forms (Appendix C), the City is eligible for process water deductible exclusion. However, the City is not subtracting process water from their gross water use.

5.4 BASELINE DAILY PER CAPITA WATER USE

The baseline daily per capita water use in each of the baseline years is calculated in Table 5 of the SB X7-7 Verification Form (Appendix C) by dividing annual gross water use by annual service area population. The average baseline daily per capita water use is summarized in Table 6 of the SB X7-7 Verification Form (Appendix C) for the 10-year baseline, 5-year baseline, and 2015 compliance year.

5.5 2015 AND 2020 TARGETS

The UWMPA requires urban water suppliers to determine the interim and urban water use targets for 2015 and 2020, respectively. As shown in Table 7 of the SB X7-7 Verification Forms (Appendix C), the 2020 target method is Method 1.

The 2015 interim water use target is the planned daily per capita water use in 2015, a value halfway between the baseline daily per capita water use and the 2020 urban water use target (2015 UWMP Guidebook).

The 2020 urban water use target is how much water is planned to be delivered, in 2020 to each resident within an urban water supplier’s distribution system area, taking into account water conservation practices that currently are and plan to be implemented (2015 UWMP Guidebook).

5.5.1 Target Methods

Four target methods have been developed, and identify the specific steps water suppliers shall follow to establish these targets. A brief description of each method, as well as the water use calculated using each methodology is included below.

5.5.1.1 Method 1 – 80 Percent of Base Daily Per Capita Water Use

Method 1 requires an urban water supplier to first determine the base daily per capita use. In order to determine the target using Method 1, 80 percent of the base daily per capita use (10-year base period) is calculated. Based on the 10-year baseline daily per capita use of 342 gallons per capita per day (gpcd) determined previously, the target use for Method 1 is 274 gpcd. This is shown in Table 7-A of the SB X7-7 Verification Forms (Appendix C).

5.5.1.2 Method 2 – Performance Standards

Method 2 requires water suppliers to use baseline commercial, industrial, and institutional (CII), indoor residential, and landscaped area water use to calculate a water use target. Based on the nature of the data required to determine a target using Method 2 and lack of metered usage data over the baseline period, it is not feasible for the City to use this methodology.

5.5.1.3 Method 3 – 95 Percent of Hydrologic Region Target

Method 3 requires water suppliers to use the hydrologic region target to calculate a water use target for 2020. In order to determine the target using Method 3, 95 percent of the region-specific conservation goal is calculated. Based on a target of 176 gpcd for the Sacramento River region, the Method 3 target is 167 gpcd. This is shown in Table 7-E of the SB X7-7 Verification Forms (Appendix C).

5.5.1.4 Method 4 – Savings by Water Sector

Method 4 identifies water savings obtained through identified practices and subtracts them from the base daily per capita water use value identified for the water supplier. The water savings identified that can be used to reduce the base daily per capita water use value include:

- Indoor residential use savings
- Metered savings
- CII savings
- Landscape and water loss savings

To calculate the CII savings, a retail water supplier must have data for the entire baseline period used in the base daily capita water use calculation. The City does not have metered water use data over the baseline period (2001-2010); therefore, it is not feasible for the City to use this methodology.

5.5.2 5-Year Baseline - 2020 Target Confirmation

The final step in determining the applicability of the water use target for the City is to confirm that the water use targets meet the minimum reduction requirements as defined by

DWR. To confirm the target, the 5-year average baseline (358 gpcd) previously determined is used. In order to meet the minimum criteria, the chosen 2020 urban water use target must fall below 95 percent of the 5-year baseline, which is 341 gpcd for the City. This is shown in Table 7-F of the SB X7-7 Verification Forms (Appendix C).

5.5.3 2015 Interim Urban Water Use Target

The 2015 Interim Target is the value halfway between the 10- year baseline gpcd and the confirmed 2020 Target. The Interim 2015 Target is 308 gpcd, as shown in Table 8 of the SB X7-7 Verification Forms (Appendix C).

5.5.4 Summary of Baselines and Targets

A summary of the various baselines, 2015 interim use target, and the confirmed 2020 target are summarized in Table 5-1. The 2020 water use target was determined using Method 1, which corresponds to 80 percent of the 10-year baseline. According to the 2015 UWMP Guidebook, this target is valid since it is less than the target confirmation criteria of 308 gpcd.

Table 5-1 Baselines and Targets Summary
Retail Agency or Regional Alliance Only

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	*2001*	*2010*	*342*	*308*	*274*
5 Year	*2006*	*2010*	*358*		

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

5.6 COMPLIANCE DAILY PER CAPITA WATER USE

"Compliance daily per-capita water use means the gross water use during the final year of the reporting period. Water suppliers are required to calculate their actual 2015 water use (2015 calendar year) and evaluate whether their per capita 2015 target use was met and assess progress towards achieving their 2020 target water use. Refer to Table 5-2 and SB X7-7 Table 7-9 (Appendix C) for 2015 compliance.

Table 5-2: 2015 Compliance *Retail Agency or Regional Alliance Only*								
Actual 2015 GPCD*	2015 Interim Target GPCD*	**Optional Adjustments to 2015 GPCD** Enter "0" if no adjustment is made *From Methodology 8*					2015 GPCD* *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
196	308				0	196	196	Yes
**All values are in Gallons per Capita per Day (GPCD)*								

In 2015, the City usage was 196 gpcd and the 2015 interim target was 308 gpcd. Therefore, meeting the 2020 target (274 gpcd) should not be difficult for the City.

City water usage decreased by approximately 175 gpcd from 2010 to 2015. This decrease may have been due to the drought, recession, local business closures, and/or the City's water conservation efforts. The savings associated with the demand management measures (DMMs) that the City is currently implementing and plans to implement will continue to result in a reduction of water use. This will help the City meet the 2020 water use target without disproportionately burdening any customer sector.

SYSTEM SUPPLIES

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) include a description of the agency's existing and future water supply sources for the next 20 years.

6.1 PURCHASED OR IMPORTED WATER

The City of Red Bluff (City) does not purchase or import any water from other water suppliers or other entities.

6.2 GROUNDWATER

The City currently utilizes local groundwater as its sole water supply source. The City extracts its water supply from the underlying Sacramento Valley Groundwater Basin, Red Bluff Subbasin via 13 active groundwater wells scattered throughout the water service area (refer to Figure 3-1). Table 6-0 lists the active groundwater wells for the City. The pumping capacities of the City's active wells currently range from approximately 300 to 2,500 gallons per minute (gpm).

Table 6-0 Water Supply Wells

Well Location	Well No. (1)	Depth, feet	Flow, gpm
1254 Main Street (2)	1	300	307
1254 Main Street(2)	2	370	318
1250 Main Street(2)	3	272	675
1295 Redbud Avenue	4	518	765
115 Sycamore Street	5	276	580
2585 Sister Mary Columbia Drive	6	492	650
827 Cedar Street	7	478	950
1730 Walnut Street	8	520	785
945 Kimball Road	9	383	718
215 White Road	10	625	2,475
1220 Montgomery Road	11	520	628
1700 Airport Boulevard	12	463	718
2410 Stoll Road	14	580	996

Notes:

(1) No. = Number. Well No. 13 is inactive.

(2) Wells No. 1 -3 are proposed for replacement with a single well. Refer to Section 6.8 for additional details.

6.2.1 Basin Description

The City is located within the geomorphic province known as the Central Valley, which is divided into the Sacramento Valley and the San Joaquin Valley. The groundwater underlying the City is part of the larger Sacramento Valley Groundwater Basin within the Sacramento River Hydrologic Region. The City relies upon groundwater from the Red Bluff Subbasin (California Department of Water Resources [DWR] Groundwater Basin Number 5-21.50) of the Sacramento Valley Groundwater Basin as its sole source of domestic potable water. The Red Bluff Subbasin is an un-adjudicated basin that supports both municipal and agricultural users. DWR Bulletin 118, “California’s Groundwater,” contains a detailed description of the Red Bluff Subbasin and its characteristics and conditions. A copy of the Red Bluff Subbasin description is included in Appendix E (last updated in February 2004).

The City’s water supplies are entirely obtained from the Sacramento Valley Groundwater Basin, Red Bluff Subbasin. However, the City limits and Sphere of Influence (SOI) also overly the Antelope Subbasin of the Sacramento Valley Groundwater Basin (DWR Groundwater Basin Number 5-21.54). The Antelope Subbasin is an un-adjudicated basin that supports both municipal/industrial and agricultural users. DWR Bulletin 118 contains a detailed description of the Antelope Subbasin and its characteristics and conditions. A copy of the Antelope Subbasin description is included in Appendix E (last updated in February 2004).

6.2.2 Groundwater Management

The Sustainable Groundwater Management Act of 2014 (SGMA) requires that the groundwater basins within Tehama County be managed by one or more groundwater sustainability agencies (GSAs) on or before June 30, 2017. The City has supported the Tehama County Flood Control and Water Conservation District's (FCWCD) Board of Directors (i.e. Tehama County Board of Supervisors) proposal to become the GSA for all 11 groundwater basins located within Tehama County. The "Groundwater Commission" or GC will consist of 11 members including 1 member from the City of Red Bluff. The City is the largest water supplier in Tehama County. The City will remain actively engaged to ensure the City's needs and concerns are carefully considered.

6.2.3 Overdraft Conditions

DWR has continuously monitored the groundwater level at a California Statewide Groundwater Elevation Monitoring (CASGEM) well in the Sacramento Valley Groundwater Basin, Red Bluff Subbasin (CASGEM Well Number [No.] 401835N1222319W001) in Red Bluff since 1952. Figure 6-1 shows the groundwater levels at the well from 1952 to 2016. Overall, there does not appear to be any increasing or decreasing trends in the groundwater levels. According to the DWR Bulletin 118, there was a decline of 3 to 7 feet associated with the 1976 to 1977 and 1987 to 1994 droughts, followed by a recovery to pre-drought conditions of the early 1970s and 1980s. Overall, there does not appear to be any increasing or decreasing trends in the groundwater levels.

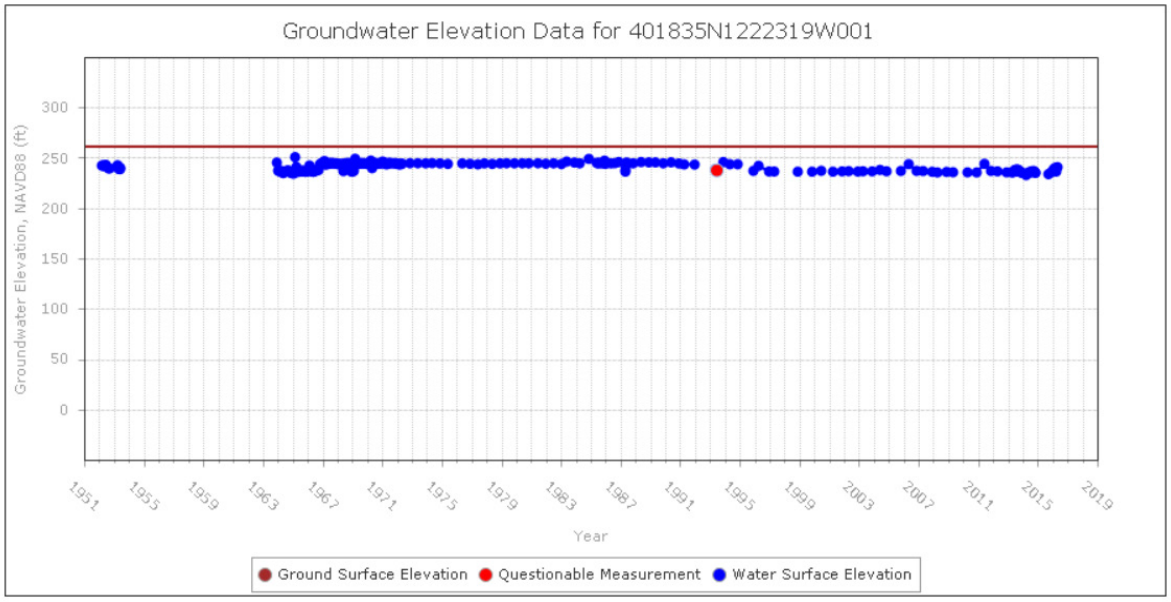

Figure 6-1 Red Bluff Subbasin Groundwater Levels

DWR has continuously monitored the groundwater level at a CASGEM well in the Sacramento Valley Groundwater Basin, Antelope Subbasin (CASGEM Well No. 401897N1222049W001) since 2000. This well is within the City SOI. Figure 6-2 shows the groundwater levels at the well from 2000 to 2016. Overall, there does not appear to be any increasing or decreasing trends in the groundwater levels. According to the DWR Bulletin 118, there was a decline of 5 to 10 feet associated with the 1976 to 1977 and 1987 to 1994 droughts, followed by a recovery to pre-drought conditions of the early 1970s and 1980s. Generally, groundwater level data show a seasonal fluctuation of approximate 2 to 15 feet for normal and dry years.

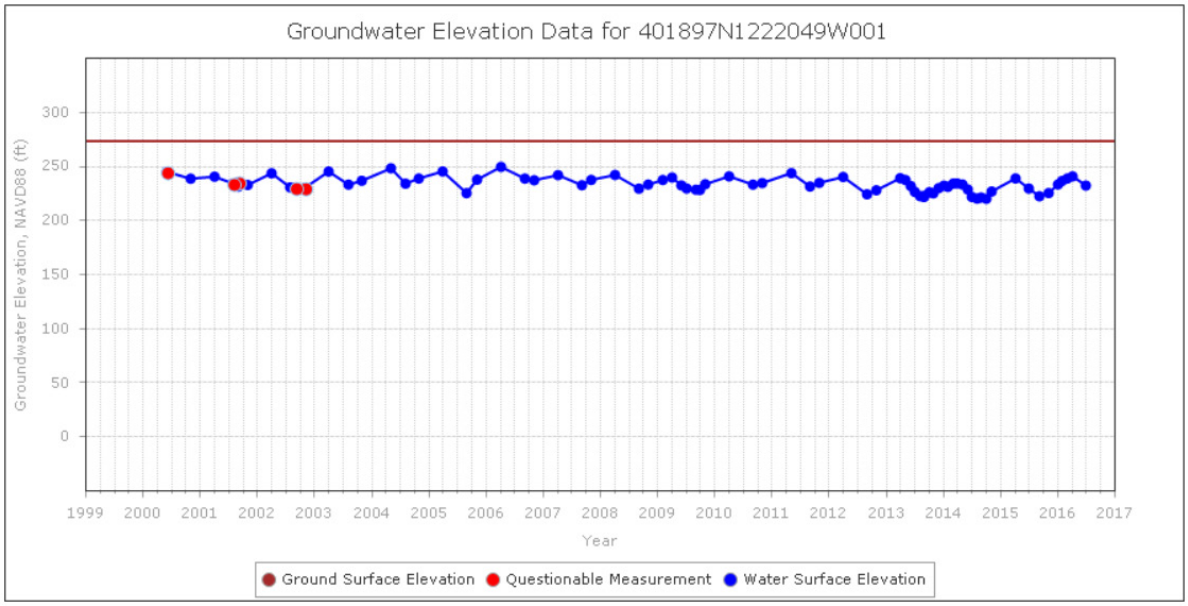

Figure 6-2 Antelope Subbasin Groundwater Levels

6.2.4 Historical Groundwater Pumping

The historical volume of groundwater pumped by the City over the past five years is provided in Table 6-1. The City's water supplies are entirely obtained from the Sacramento Valley Groundwater Basin, Red Bluff Subbasin.

Table 6-1 Retail: Groundwater Volume Pumped

☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type *Drop Down List* *May use each category multiple times*	Location or Basin Name	2011	2012	2013	2014	2015
Add additional rows as needed						
Alluvial Basin	Sacramento Valley Basin, Red Bluff Subbasin	3,488	4,223	4,452	3,804	3,166
	TOTAL	3,488	4,223	4,452	3,804	3,166

NOTES: Units of measure in this UWMP are acre-feet (AF). Source: Large Water Systems Annual Reports to the Drinking Water Program.

6.3 SURFACE WATER

The City does not have any surface water sources as part of its water supply.

6.4 STORMWATER

The City has not identified any opportunities related to stormwater recapture to offset potable water use.

6.5 WASTEWATER AND RECYCLED WATER

The UWMPA requires that the UWMP address opportunities for development of recycled water and include a description of existing recycled water applications, quantities of wastewater currently being treated to recycled water standards, limitations on the use of available recycled water, an estimate of projected recycled water use, the feasibility of said projected uses, and practices to encourage the use of recycled water.

6.5.1 Recycled Water Coordination

The City owns the Red Bluff Wastewater Reclamation Plant (WRP) that collects and treats all wastewater within the service area. Therefore, the City coordinates recycled water use within the service area and does not rely on an outside facility or agency.

6.5.2 Wastewater Collection, Treatment Systems, and Disposal

6.5.2.1 Wastewater Collected Within Service Area

The City owns and maintains the WRP, which is operated by Severn Trent Services. The City owns and maintains gravity sewer pipelines and forcemains, sewer lift stations, and pump stations. The WRP is located east of Interstate 5 (I-5) and north of Shasta College - Tehama Campus. The City collects wastewater from residential, commercial, industrial, and institutional (CII) customers within the service area.

The WRP is permitted to treat 2.5 million gallons per day (mgd) and currently operates at approximately 1.1 mgd. Treatment consists of screening for removal of large solids, aerated grit removal, primary sedimentation, activated sludge treatment with secondary clarification, filtration, and chlorination/dechlorination. Primary and waste activated sludge are treated by aerobic digestion and stored in sludge storage basins, until dewatered and dried in sludge drying beds.

Table 6-2 contains current wastewater volumes collected within the City limits in 2015.

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2015 service area covered by wastewater collection system *(optional)*					
	Percentage of 2015 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
Add additional rows as needed						
City of Red Bluff	Metered	2,060	City of Red Bluff	Wastewater Reclamation Plant	Yes	Yes
Total Wastewater Collected from Service Area in 2015:		2,060				
NOTES: Units of measure in this UWMP are acre-feet (AF). The City WRP staff believes that the volume of wastewater collected (volume of wastewater treated in Table 6-3) measurement is not a true representation of actual flow. Additionally, the volume of wastewater collected includes flow recycle from the secondary clarifier and filter backwash.						

6.5.2.2 Wastewater Treatment and Discharge within Service Area

Advanced secondary treated effluent, where median concentration of total coliform is not to exceed 23 most probable number (MPN) per 100 milliliter (mL), is used for irrigation purposes and/or is discharged to the Sacramento River. The discharge is regulated under National Pollutant Discharge Elimination System (NPDES) Waste Discharge Requirements (WDR) Order No. R5-2013-0044. Table 6-3 identifies the volume of treated wastewater discharged within the service area in 2015.

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015										
☐	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.									
							2015 volumes			
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level *Drop down list*	Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
City of Red Bluff Wastewater Reclamation Plant	EFF-001	Sacramento River	CA0078891	River or creek outfall	Yes	Secondary, Disinfected - 23	2,060	1,201	53	0
						Total	2,060	1,201	53	0
NOTES: Units of measure in this UWMP are acre-feet (AF). The City WRP staff believes that the volume of wastewater treated (volume of wastewater collected in Table 6-2) measurement is not a true representation of actual flow. Additionally, the volume of wastewater treated includes flow recycle from the secondary clarifier and filter backwash.										

6.5.3 Recycled Water System

The City's WRP produces disinfected secondary recycled water per the recycled water criteria defined by the Division of Drinking Water (DDW) (formerly the California Department of Public Health) under California Administrative Code, Division 4, Title 22, California Code

of Regulations (CCR). The City provides recycled water to the California Department of Transportation (Caltrans) for landscape irrigation. No infrastructure exists at this time to support recycled water use within the City.

6.5.4 Recycled Water Beneficial Uses

6.5.4.1 Current and Planned Uses of Recycled Water

The City provides recycled water to Caltrans for irrigation along the southeastern I-5 corridor in the City limits. Projected recycled water uses include expanded irrigation by Caltrans north to the Adobe Road overcrossing, including servicing of off-ramp islands as well as medians. The current and projected recycled water uses are summarized in Table 6-4.

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

☐	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.
Name of Agency Producing (Treating) the Recycled Water:	City of Red Bluff Water Reclamation Plant
Name of Agency Operating the Recycled Water Distribution System:	City of Red Bluff Water Reclamation Plant
Supplemental Water Added in 2015	
Source of 2015 Supplemental Water	

Beneficial Use Type	General Description of 2015 Uses	Level of Treatment *Drop down list*	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation			0	0	0	0	0	0
Landscape irrigation (excludes golf courses)	Caltrans (I-5 Landscape)	Secondary, Disinfected - 23	53	88	88	88	88	88
Golf course irrigation			0	0	0	0	0	0
Commercial use			0	0	0	0	0	0
Industrial use			0	0	0	0	0	0
Geothermal and other energy production			0	0	0	0	0	0
Seawater intrusion barrier			0	0	0	0	0	0
Recreational impoundment			0	0	0	0	0	0
Wetlands or wildlife habitat			0	0	0	0	0	0
Groundwater recharge (IPR)*			0	0	0	0	0	0
Surface water augmentation (IPR)*				0	0	0	0	0
Direct potable reuse				0	0	0	0	0
Other *(Provide General Description)*			0	0	0	0	0	0
		Total:	53	88	88	88	88	88

**IPR - Indirect Potable Reuse*

NOTES: Units of measure in this UWMP are acre-feet (AF). 2015 source: City of Red Bluff Water Reclamation Plant Self-Monitoring Report.

6.5.5 Planned Versus Actual Use of Recycled Water

The recycled water use projection for 2015 from the 2010 UWMP is compared to the 2015 actual use in Table 6-5.

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual			
☐	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.		
Use Type		**2010 Projection for 2015**	**2015 Actual Use**
Agricultural irrigation		0	0
Landscape irrigation (excludes golf courses)		42	53
Golf course irrigation		0	0
Commercial use		0	0
Industrial use		0	0
Geothermal and other energy production		0	0
Seawater intrusion barrier		0	0
Recreational impoundment		0	0
Wetlands or wildlife habitat		0	0
Groundwater recharge (IPR)		0	0
Surface water augmentation (IPR)		0	0
Direct potable reuse		0	0
Other	*Type of Use*	0	0
Total		42	53
NOTES: Units of measure in this UWMP are acre-feet (AF). 2015 source: City of Red Bluff Water Reclamation Plant Self-Monitoring Report.			

6.5.6 Actions to Encourage and Optimize Future Recycled Water Use

The City supports use of recycled water and has taken steps to promote the use of recycled water and increase awareness among City stakeholders. Expansion of recycled water usage in the City, for uses such as golf course and park irrigation, would require increased treatment (advanced secondary treated effluent where median concentration of total coliform is not to exceed 2.2 MPN/100 mL) and construction of recycled water infrastructure. As shown in Table 6-6, the City does not plan to expand recycled water use at this time.

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
☑	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
Section 6.5.6	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Add additional rows as needed			
		Total	0

6.6 DESALINATED WATER OPPORTUNITIES

The UWMPA requires that the UWMP address the opportunities for development of desalinated water, including ocean water, brackish water, and groundwater.

At the present time, the City does not foresee any opportunities for the use of desalinated water, including ocean water, brackish ocean water, and brackish groundwater, as a long-term supply since the City is not located near the coast or a brackish groundwater source.

6.7 EXCHANGES OR TRANSFERS

The UWMPA requires the UWMP to address the opportunities for development of short- or long-term transfer or exchange opportunities. The City is relatively isolated from neighboring potable water systems and, due to this isolation, the City is not participating in any inter-connection programs with neighboring purveyors. Therefore, transfer or exchange opportunities are not immediately available to the City.

6.7.1 Exchanges

Water exchanges entail water being delivered by one water user to another water user, with the receiving water user providing water in return at a specified time or when the conditions of the parties' agreements are met. The City does not have any planned or potential water exchanges.

6.7.2 Transfers

Water transfers entail a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer, sale, lease, or exchange of water or water rights. The City does not have any planned or potential water transfers.

6.7.3 Emergency Interties

The City does not have any emergency interties in which transfers of water can be made.

6.8 FUTURE WATER PROJECTS

The current City policy is to accommodate new potable water demands through additional groundwater pumping. This pumping capacity is to be provided via new wells. Wells No. 1 through 3 (as listed in Table 6-0) are proposed for replacement with a single well with a flow of 2,400 gpm. Table 6-7 contains the City's future water projects. The project's planned implementation year and expected increase in the water supply has not been included as this project is only in discussion stages at this time.

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.					
☑	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
Section 6.8	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type *Drop Down List*	Expected Increase in Water Supply to Agency *This may be a range*
	Drop Down List (y/n)	*If Yes, Agency Name*				
Add additional rows as needed						
One Well	No				All Year Types	
NOTES: Units of measure in this UWMP are acre-feet (AF).						

6.9 SUMMARY OF EXISTING AND PLANNED SOURCES OF WATER

The actual source and volume of water for the year 2015 is presented in Table 6-8. The projected water supply for 2020, 2025, 2030, 2035, and 2040 are included in Table 6-9. The projected water supply is based on demand projections and incorporates water conservation associated with Senate Bill (SB) X7-7. The projected supply available to the City assumes that new wells will be developed in the future if warranted by demand. As shown in Table 6-9, the City anticipates it can supply all of its water demands with groundwater from the Red Bluff Subbasin through the planning horizon.

6.10 CLIMATE CHANGE IMPACTS TO SUPPLY

The California Water Code (CWC, or Water Code) does not require that UWMPs address climate change. The potential water supply effects related to climate change have not been included in this UWMP. However, the Integrated Regional Water Management (IRWM) Climate Change Vulnerability Assessment has been completed and is included as Appendix B (Refer to Section 3.3.1).

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*		Actual Volume	Water Quality *Drop Down List*	Total Right or Safe Yield *(optional)*
Add additional rows as needed				
Purchased or Imported Water		0		
Groundwater		3,166	Raw Water	
Surface water		0		
Stormwater Use		0		
Recycled Water		53	Recycled Water	
Desalinated Water		0		
Exchanges		0		
Transfers		0		
	Total	3,219		0
NOTES: Units of measure in this UWMP are acre-feet (AF).				

Table 6-9 Retail: Water Supplies — Projected

Water Supply	Additional Detail on Water Supply	Projected Water Supply *Report To the Extent Practicable*									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		**2020**		**2025**		**2030**		**2035**		**2040** *(opt)*	
		Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Add additional rows as needed											
Purchased or Imported Water		0		0		0		0		0	
Groundwater		4,513		4,603		4,697		4,792		4,889	
Surface water		0		0		0		0		0	
Stormwater Use		0		0		0		0		0	
Recycled Water		88		88		88		88		88	
Desalinated Water		0		0		0		0		0	
Exchanges		0		0		0		0		0	
Transfers		0		0		0		0		0	
Total		4,601	0	4,691	0	4,785	0	4,880	0	4,977	0

NOTES: Units of measure in this UWMP are acre-feet (AF).

WATER SUPPLY RELIABILITY

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) address the reliability of the agency's water supplies. This includes supplies that are vulnerable to seasonal or climatic variations. In addition, an analysis must be included to address supply availability in a single-dry year and in multiple-dry years.

7.1 CONSTRAINTS ON WATER SOURCES

7.1.1 Water Supply Reliability

There are two aspects of supply reliability that can be considered. The first relates to immediate service needs and is primarily a function of the availability and adequacy of the supply facilities. The second aspect is climate-related, and involves the availability of water during mild or severe drought periods. This section examines the reliability of the water supply available to the City of Red Bluff (City), under both normal and dry conditions.

When assessing the adequacy of the water supply, the City's current water system is limited by the pumping and water system storage capacity. If warranted by demand, it is assumed the City would construct new wells and supply facilities. When assessing the vulnerability of the water supply due to seasonal or climatic changes, the City groundwater supply has not been impacted in the past.

Table 7-0 contains a summary of factors affecting water supply reliability and that may pose an opportunity for inconsistency in supply. Water quantity represents the potential supply limitation of the pumping capacity. Climatic factors are selected as the City would be required to comply with state mandates for conservation.

Table 7-0 Factors Resulting in Inconsistency of Supply

Source Information		Source Limitation					
Water Supply Sources	Specific Source Name	Water Quantity(1)	Legal	Environmental	Water Quality(2)	Climatic(3)	Additional Information
Groundwater	Sacramento Valley Basin Red Bluff Subbasin	Yes	-	-	No	Yes	-

Notes:
(1) Limited by pumping capacity.
(2) Water quality factors may require additional treatment of the groundwater.
(3) The City would be required to comply with state mandates for conservation.

7.1.2 Water Supply Quality

The UWMPA requires that the UWMP include a discussion of water quality impacts on the reliability of an agency's water supplies.

In general, groundwater quality in the Red Bluff Subbasin is very good, and as such has a limited effect on the City's ability to provide its service area with a reliable source of high quality drinking water. Nor does it have a significant effect on water management strategies or supply reliability. California Department of Water Resources (DWR) Bulletin 118, "California's Groundwater," contains a detailed description of the Red Bluff Subbasin Impairments. Impairments include high magnesium, total dissolved solids (TDS), calcium, adjusted sodium adsorption ratio (ASAR), and phosphorus. The groundwater is not altered or treated prior to distribution. The City's drinking water meets all applicable water quality regulations (See Appendix F for a copy of the City's 2015 Consumer Confidence Report).

7.2 RELIABILITY BY TYPE OF YEAR

This section considers the City's water supply reliability during three water scenarios: average water year, single-dry water year, and multiple-dry water years. An average year is also referred to as a "normal" year.

These scenarios are defined as follows:

- **Average Year:** a year, or an averaged range of years, that most closely represents the average water supply available to the City. Generally a year in the historical sequence that most closely represents median runoff levels and patterns. It is defined as the median runoff over the previous 30 years or more. This median is recalculated every 10 years.

- **Single-Dry Year:** the year that represents the lowest water supply available to the City. Generally considered to be the lowest annual runoff for a watershed since the water-year beginning in 1903. Suppliers should determine this for each watershed from which they receive supplies.

- **Multiple-Dry Years:** the period that represents the lowest average water supply available to the City for a consecutive multiple year period. Generally considered to be the lowest average runoff for a consecutive multiple year period (three years or more) for a watershed since 1903.

Since the source for the City is exclusively groundwater, the runoff tables are not deemed as suitable for selecting year types since the timing for recharge would vary. Groundwater elevation data were analyzed for California Statewide Groundwater Elevation Monitoring (CASGEM) Well Number (No.) 401835N1222319W001 located in the Red Bluff Subbasin in Red Bluff. The ground surface elevation is 261.9 feet and the reference point (RP) elevation is 262 feet. Data was available from 1952 through 2016. The median groundwater elevation

over the 64 years (1952-2016) was 244.5 feet. The 64 year minimum was 233.7 feet in 2014. Groundwater elevation records were reviewed for the years 2000 to 2015. Using the median over the 64 years, the average year would be 2011 (average elevation 241.3). The single-dry year would be 2014 and the multiple-dry years would be 2008 through 2010.

A prolonged drought has historically had little extended effect upon the availability of supply since the only source is groundwater. Data demonstrates that periods of drought have resulted in short-term increases in the depth to groundwater due to the slower than normal aquifer recharge. Historically, the water table has recharged and depth to groundwater returned to average levels in the years following periods of drought. To date, the temporary increase in depth to groundwater has not impacted the City's ability to supply water, nor has there been any significant impact upon the well water quality. The volume available and supply by water year type cannot be accurately determined since the water pumped is based on demand that includes the conservation measures implemented that year. Therefore, there is no anticipated difference in supply and demand. This may change in the 2020 UWMP based on the impact of the 2012 to 2015 drought on groundwater levels and any changes in groundwater management that could occur in the future.

As described above, the specific years identified for average, single-dry, and multiple-dry water years presented in Table 7-1 were developed based on the CASGEM Program historical groundwater level records for the Red Bluff Subbasin. As discussed above, the available supply cannot be quantified. Therefore, the box indicating that the quantification of available supplies is not compatible with Table 7-1 has been checked, but the water type years have been included.

Table 7-1 Retail: Basis of Water Year Data				
Year Type	Base Year *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000*	Available Supplies if Year Type Repeats		
		☑	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location Section 7.2	
		☐	Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available		% of Average Supply
Average Year	2011			100%
Single-Dry Year	2014			
Multiple-Dry Years 1st Year	2008			
Multiple-Dry Years 2nd Year	2009			
Multiple-Dry Years 3rd Year	2010			
Multiple-Dry Years 4th Year *Optional*				
Multiple-Dry Years 5th Year *Optional*				
Multiple-Dry Years 6th Year *Optional*				
Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.				
NOTES: Units of measure in this UWMP are acre-feet (AF). Quantification of available supplies is not compatible with this table and is provided in Section 7.2.				

7.3 SUPPLY AND DEMAND ASSESSMENT

7.3.1 Supplies and Demands for a Normal Water Year

Table 7-2 provides an estimate of the projected normal year supply and demand totals. As shown in Table 7-2, the City is anticipated to have sufficient water production capabilities to support the growth of the community.

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	4,601	4,691	4,785	4,880	4,977
Demand totals *(autofill from Table 4-3)*	4,601	4,691	4,785	4,880	4,977
Difference	0	0	0	0	0
NOTES: Units of measure in this UWMP are acre-feet (AF).					

7.3.2 Supplies and Demands for a Single-Dry Water Year

Table 7-3 provides an estimate of the projected single-dry year supply and demand totals. Demand reductions due to water shortage stage rationing measures are not included in the single-dry year demand estimates.

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	4,601	4,691	4,785	4,880	4,977
Demand totals	4,601	4,691	4,785	4,880	4,977
Difference	0	0	0	0	0
NOTES: Units of measure in this UWMP are acre-feet (AF).					

7.3.3 Supply and Demand for Multiple-Dry Water Year Periods

Table 7-4 provides an estimate of the projected multiple-dry year supply and demand totals. Demand reductions due to water shortage stage rationing measures are not included in the multiple-dry year demand estimates.

7.4 REGIONAL SUPPLY RELIABILITY

The City is maximizing the use of local water resources (groundwater) and reducing waste through the implementation of demand management measures (DMMs) (see Chapter 9.0). The City's efforts help to minimize the need to purchase water from other agencies and construct new wells.

The City has supported the Tehama County Flood Control and Water Conservation District's (FCWCD) Board of Directors (i.e. Tehama County Board of Supervisors) proposal to become the groundwater sustainability agency (GSA) for all 11 groundwater basins located within Tehama County. The City will remain actively engaged to ensure the City's needs and concerns are carefully considered.

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	4,601	4,691	4,785	4,880	4,977
	Demand totals	4,601	4,691	4,785	4,880	4,977
	Difference	0	0	0	0	0
Second year	Supply totals	4,601	4,691	4,785	4,880	4,977
	Demand totals	4,601	4,691	4,785	4,880	4,977
	Difference	0	0	0	0	0
Third year	Supply totals	4,601	4,691	4,785	4,880	4,977
	Demand totals	4,601	4,691	4,785	4,880	4,977
	Difference	0	0	0	0	0
Fourth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Fifth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year *(optional)*	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
NOTES: Units of measure in this UWMP are acre-feet (AF).						

WATER SHORTAGE CONTINGENCY PLAN

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) include an urban water shortage contingency analysis that addresses 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. In addition to actions, the City of Red Bluff (City) is required to develop mandatory prohibitions against specific water use during shortages and consumption reduction methods during the most restrictive stages. A copy of Ordinance Number (No.) 1037 amending Section 24.18 et. seq of the City Code (Conservation and Rationing Stages Section) is included in Appendix G. The City's Conservation and Rationing Stages Section serves as their Water Shortage Contingency Plan and may be amended as needed without amending this 2015 UWMP.

8.1 STAGES OF ACTION

The stages of action in response to water supply shortages, including up to a 50 percent reduction in water supply, are summarized in Table 8-1. Detailed descriptions of each stage of action are included in the Conservation and Rationing Stages Section (Appendix G). Stage I is the normal operating stage for the water system.

Table 8-1 Retail
Stages of Water Shortage Contingency Plan

Stage	Complete Both	
	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition *(Narrative description)*
Add additional rows as needed		
I	0-10%	Voluntary Compliance with Conservation Measures
II	10-20%	Moderate Water Shortage
III	20-30%	Serious Water Shortage
IV	30-40%	Severe Water Shortage
V	40-50%	Disaster Shortage/Rationing

[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*

For planning purposes, the City has assumed that the above stages could result in water shortages created by a loss of pumping capacity caused by either well or distribution system failure or via state mandate to reduce groundwater pumping.

Section 10620 (d)(2) of the California Water Code (CWC, or Water Code) requires that the City coordinate, to the extent practicable, preparation of its urban water shortage contingency plan with other urban water suppliers and public agencies in the area. The City does not have any interconnections between its potable water system and potable water systems operated by other water suppliers.

The Director of Public Works, with the concurrence of the City Manager, may declare a Stage II, Stage III, Stage IV, or Stage V water system operation for water conservation and rationing for a period not to exceed 15 days. Any declared stage to be extended beyond 15 days must be approved by the City Council. The City Council is also vested with the authority to invoke the stages of action, based upon the recommendation of the City's Director of Public Works. Stages will be implemented when circumstances warrant as determined by the Director of Public Works, City Manager, and the City Council, or as State mandates water use restrictions.

Customers will be notified via new media and other methods of stages of action of water shortage emergency and implementation of mandatory conservation measures. In Stage IV water emergency, industrial users will be notified specifically via telephone and will be asked to voluntarily shutdown production.

8.2 PROHIBITIONS ON END USES

Table 8-2 contains mandatory prohibitions and the water shortage stage when they are enacted. These prohibitions are detailed in the Conservation and Rationing Stages Section (Appendix G).

On May 9, 2016, the Governor of California issued an Executive Order declaring the following practices be permanently prohibited:

- Hosing off sidewalks, driveways, and other hardscapes
- Washing automobiles with hoses not equipped with a shut-off nozzle
- Using non-recirculated water in a fountain or other decorative water feature
- Watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation
- Irrigating ornamental turf on public street medians

In the event any provision of this Chapter or the Conservation and Rationing Stages Section (Appendix G) conflicts or overlaps with any mandatory State regulation related to water conservation, the most stringent shall apply.

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users *Drop down list* *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *Drop Down List*
Add additional rows as needed			
I-V	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
I-V	Landscape - Limit landscape irrigation to specific times		Yes
III-V	Landscape - Limit landscape irrigation to specific days		Yes
IV-V	Landscape - Prohibit certain types of landscape irrigation		Yes
V	Landscape - Prohibit all landscape irrigation		Yes
N/A	Landscape - Other landscape restriction or prohibition		No
III-V	CII - Lodging establishment must offer opt out of linen service		Yes
III-V	CII - Restaurants may only serve water upon request		Yes
N/A	CII - Commercial kitchens required to use pre-rinse spray valves		No
N/A	CII - Other CII restriction or prohibition		No
III-V	Water Features - Restrict water use for decorative water features, such as fountains		Yes
N/A	Pools and Spas - Require covers for pools and spas		No
N/A	Pools - Allow filling of swimming pools only when an appropriate cover is in place.		No
IV-V	Other water feature or swimming pool restriction		Yes
I-V	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		Yes
I-V	Other - Require automatic shut of hoses		Yes
N/A	Other - Prohibit use of potable water for construction and dust control		No
I-V	Other - Prohibit use of potable water for washing hard surfaces		Yes
IV-V	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water		Yes

8.2.1 Defining Water Features

The water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, are to be defined separately from swimming pools and spas in the 2015 UWMPs and supporting documents. The Conservation and Rationing Stages Section (Appendix G) specifically identifies and defines the water features to which prohibitions are applicable, thus meeting the requirement.

8.3 PENALTIES, CHARGES, OTHER ENFORCEMENT OF PROHIBITIONS

The following penalties take effect in Stage II. Any customer violating the water conservation and rationing provisions set forth in the Conservation and Rationing Stages Section (Appendix G), shall be penalized as follows:

- **First Violation:** Written warning
- **Second Violation:** Written warning, water service penalty, and installation of flow-restricting device on the customer's water service
- **Third and Additional Violations:** Written warning, misdemeanor, and disconnection of water service

The penalties or charges for excessive use during water shortages are detailed in the Conservation and Rationing Stages Section (Appendix G).

8.4 CONSUMPTION REDUCTION METHODS

The UWMPA requires that the UWMP include an urban water shortage contingency analysis that addresses methods to reduce consumption. Table 8-3 contains consumption reduction methods by water shortage stage.

Table 8-3 Retail Only:
Stages of Water Shortage Contingency Plan - Consumption Reduction Methods

Stage	Consumption Reduction Methods by Water Supplier *Drop down list* *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*
Add additional rows as needed		
I-V	Improve Customer Billing	
I-V	Offer Water Use Surveys	
I-V	Decrease Line Flushing	
I-V	Reduce System Water Loss	
II-V	Expand Public Information Campaign	
II-V	Increase Frequency of Meter Reading	
III-V	Increase Water Waste Patrols	
V	Moratorium or Net Zero Demand Increase on New Connections	

8.5 DETERMINING WATER SHORTAGE REDUCTIONS

The UWMPA requires that the UWMP include a means to determine the actual water use reduction from implementing the stages of the Conservation and Rationing Stages Section (Appendix G). Reductions in water use for each user can be determined based on meter readings.

8.6 REVENUE AND EXPENDITURE IMPACTS

According to the UWMPA, the UWMP is required to include an urban water shortage contingency analysis that addresses the financial impacts from reduced water sales and proposed measures to overcome deficits (e.g., development of a reserve account or special rate adjustments).

The City is fully metered (with the exception of eight unmetered commercial/institutional connections) and City customers are billed volumetrically. Therefore, the City may experience a decrease in revenue with reduced water sales during a water shortage. Although the variable costs of supplying water will be reduced as water usage decreases, the fixed costs will remain constant. The variable costs are linked to the operation of the wells (power and usage-based maintenance). The fixed costs are independent of well operation and include the debt for the capital improvement associated with the development of the wells and salaries for maintenance and operations personnel.

To overcome a reduction in revenue due to a water shortage the City could adjust the water rates or develop a reserve fund.

8.6.1 Drought Rate Structures and Surcharges

The City's Conservation and Rationing Stages Section (Appendix G) does not include drought rate structures or surcharges.

8.6.2 Use of Financial Reserves

The City has an annual General Reserve Fund established that can be utilized for a financially qualifying event, such as providing for the continued operation of the water system in the event of a decline in water service revenue.

8.6.3 Other Measures

The City will consider postponement of capital improvements and operational measures to temporarily reduce power and chemical costs as a means to overcome impacts from water shortage contingency planning to revenues and expenditures.

8.7 RESOLUTION OR ORDINANCE

The CWC requires that the City develop mandatory provisions and a draft water shortage contingency resolution as part of the UWMP to reduce water use, including prohibitions against specific wasteful practices, such as gutter flooding. The Conservation and Rationing Stages Section (City Code Section 24.18 et. seq.) is included in Appendix G.

8.8 CATASTROPHIC SUPPLY INTERVENTION

The UWMPA requires that the City develop stages of action to be undertaken during a catastrophic interruption of water supply or the City's water treatment facilities that could include flooding, major fire emergencies, regional power outage, an earthquake, water contamination, and acts of sabotage. In response to these possibilities, the City has developed an Emergency Response Plan (December 2009), which 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.
- To provide reliable water service and minimize public health risks from unsafe drinking water during those events.

The City will take the following actions in the event of a catastrophic supply interruption:

- Initiate full Emergency Response Protocol (ERP) activation.
- Follow State Incident Command System.
- Coordinate alternative water supply, as needed, or consider alternate (interim) treatment schemes.
- Issue public notice and issue follow-up media press releases.

8.9 MINIMUM SUPPLY FOR NEXT THREE YEARS

The CWC requires that the City estimate the minimum water supply available during each of the next three years (2017, 2018, and 2019). Assuming demands are similar to the current drought condition demands, the minimum supply for the next three years is estimated to be the 2015 demand. As discussed in Section 7.2, the supply cannot be accurately estimated. The estimate for the minimum supply for the next three years is included in Table 8-4.

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	3,166	3,166	3,166
NOTES: Units of measure in this UWMP are acre-feet (AF).			

The City's reliance upon groundwater for its sole source of supply has effectively insulated the City from the effects of a prolonged drought, with the exception of increasing depth to groundwater due to a slower than normal aquifer recharge.

DEMAND MANAGEMENT MEASURES

This Chapter presents details of the Demand Management Measures (DMMs) contained in the Urban Water Management Planning Act (UWMPA), as well as the City of Red Bluff's (City's) existing and planned efforts to further develop their water conservation program. The City is committed to water conservation and has implemented or plans to implement several policies and on-going programs that promote and encourage water conservation.

The UWMPA presents two distinct methods for providing information related to DMMs. One method is to be a signatory to the Memorandum of Understanding (MOU) regarding Urban Water Conservation in California. The MOU requires the preparation of an annual report, which can be used to fulfill the DMM requirements of the Urban Water Management Plan (UWMP). However, the City is not a signatory to the MOU and therefore not a member of the California Urban Water Conservation Council (CUWCC) and does not prepare annual reports for the CUWCC. The other method for a water supplier, who is not member of CUWCC and not a signatory to the MOU, is to describe their current water conservation programs and demonstrate how they comply with the DMMs specified in Water Code Section 10631. The UWMPA was amended in 2014 to streamline DMMs from 14 specific measures to 6 more general requirements and an "other" category.

9.1 WATER WASTE PREVENTION ORDINANCES

This DMM involves adoption of an ordinance prohibiting water waste. The City Code contains the Prevention of Waste Ordinance (Section 24.11) (see Appendix H). This Water Waste Prevention Ordinance is in place at all times and is not dependent upon a water shortage for implementation. See Chapter 8 for detailed information on stages of action, prohibitions of end uses, and penalties.

9.1.1 Implementation over the Past Five Years

The effectiveness of this DMM can be determined by a decrease in violators. The City reported the following number of violations over the past five years as shown in Table 9-1. These are the total violations for the calendar year, regardless of the stage of action.

Table 9-1 Water Waste Prevention Ordinances Violations in the Last Five Years	
Year	**Number of Violations [1]**
2011	No Record of Violations
2012	No Record of Violations
2013	No Record of Violations
2014	5
2015	No Record of Violations

Notes:

(1) Only violations recorded by the City are included. Per interviews with City Staff, many of the past violations were completed without documentation.

9.1.2 Planned Implementation

The City will continue to enforce this DMM and will work to improve record keeping of violations. The effectiveness of this DMM will be evaluated by monitoring the number of warnings and offenses. If an area is determined to have excessive violations, the City may implement a specific public outreach program informing the public about the Water Use Policy.

9.2 METERING

Installing water meters and billing for actual water use provides a strong incentive for customers to use less water and equalizes service cost for each customer to their actual use (i.e., high water users would pay a more equitable share of the system costs). Water metering can reduce exterior landscape water use and can also achieve a modest reduction in interior water use.

9.2.1 Implementation over the Past Five Years

All City customers are metered (with the exception of 8 unmetered commercial/institutional connections). The City has advanced metering infrastructure (AMI) and automatic meter reading (AMR).

9.2.2 Planned Implementation

The best way to evaluate the effectiveness of metering is periodic review of customer water use.

9.3 CONSERVATION PRICING

Water conservation is encouraged through a pricing system that rewards customers who use less water with financial incentives, while high water users are charged a higher rate. Often this is implemented through a tiered pricing system.

9.3.1 Implementation over the Past Five Years

The City has an increasing-tier water rate schedule (rates effective July 15, 2012). These metered water rates consist of a monthly rate based on meter size as well as a rate per 100 cubic feet (CF) based on usage (see Appendix I).

The City bills residential user classes for sewer service on a flat rate schedule. Commercial user classes are billed at a rate per 100 CF based on usage (see Appendix I).

9.3.2 Planned Implementation

The City may consider charging a sewer service rate based on water consumption for all user classes.

9.4 PUBLIC EDUCATION AND OUTREACH

The City has implemented public education and outreach for water demand management through coordination with other agencies and provision of programs promoting water conservation, public service announcements, newspaper articles, website (http://www.cityofredbluff.org/), and distribution of mailers and door hangers.

9.4.1 Implementation over the Past Five Years

Table 9-2 reports the number of documents distributed and public events held to promote water conservation over the past five years. Public water conservation and informational events have been coordinated and hosted by the Red Bluff Community Center utilizing local and state speakers. Informational presentations were performed in the local elementary schools, in conjunction with the City Fire Department. Additionally, the Red Bluff Community Center has coordinated and hosted events for Red Bluff High School and Shasta College - Tehama Campus that offered extra credit assignments in the areas of water conservation and drought issues.

Table 9-2 Public Education Implementation Over Past Five Years		
Year	Number of Documents Distributed	Number of Public Events[1]
2011	4,776	No Record of Events
2012	4,815	No Record of Events
2013	4,833	No Record of Events
2014	4,850	No Record of Events
2015	4,865	6

Notes:

(1) Only public events recorded by the City are included. Per interviews with City Staff, many of the past public events were completed without documentation.

9.4.2 Planned Implementation

Public information can be one of the best tools to conserve water. The City will continue to promote water conservation in the Red Bluff community and will work to improve record keeping of public events. The Water Conservation Coordinator could enhance the program by coordinating additional opportunities for community speakers and special events. Additionally, the Building Department could provide additional information/coordination during building permit phase for new and older homes.

9.5 PROGRAMS TO ASSESS AND MANAGE DISTRIBUTION SYSTEM REAL LOSS

This DMM focuses on the water distribution system itself, and includes water audits, leak detection, and repair. The first step in a water audit is relatively straightforward, involving comparison of the amount of water produced with the amount of water delivered to customers. The difference is termed “unaccounted water,” which includes actual losses (leaks) in the distribution system, authorized but unmetered use (e.g., hydrant flushing and firefighting), unauthorized water use, and meter error.

9.5.1 Implementation over the Past Five Years

The City is continuously monitoring the distribution system for leaks. Any leaks found are reported immediately to the Water Division and repairs are scheduled or coordinated with City staff and private owners. The City performs surveys on water mains and service lines on an ongoing basis. The number of repaired leaks and length of pipeline replacement over the past five years in reported in Table 9-3.

Table 9-3 Loss Management Implementation Over Past Five Years		
Year	Number of Repaired Leaks [1]	Pipeline Replacement (feet) [1]
2011	No Record of Repairs	No Recorded Length
2012	No Record of Repairs	No Recorded Length
2013	10	No Recorded Length
2014	10	No Recorded Length
2015	No Record of Repairs	No Recorded Length

Notes:

(1) Only repairs recorded by the City are included. Per interviews with City Staff, many of the past repairs or pipeline replacements were completed without documentation.

9.5.2 Planned Implementation

The City will work to improve record keeping of repairs and pipeline replacement.

The best way to evaluate the effectiveness of this program is to compare water production data at the wells with water consumption from the City's customers. The City has metered all services and installed flow meters on each of the water supply wells so that the production rate of each well can be monitored regularly. The City plans to compare production and consumption records to audit the performance of the water system. This will allow the City to identify and correct system inefficiencies, thus reducing system losses. The results of this performance audit will be presented in the 2020 UWMP update.

9.6 WATER CONSERVATION PROGRAM COORDINATION AND STAFFING SUPPORT

This DMM entails designating a water conservation coordinator responsible for managing water conservation efforts and evaluating the results. The Water Conservation Coordinator tasks may include, but are not limited to monthly tracking of production versus consumption, enforcement of water use restrictions, and implementation of conservation programs.

9.6.1 Implementation over the Past Five Years

The Director of Public Works and Water Division Supervisor share the Water Conservation Coordinator responsibilities. The Interim Director of Public Works is Robin Kampmann (rkampmann@cityofredbluff.org, (530) 527-2605 ext. 3055). The Water Division Supervisor is Marvin Eckles (meckles@cityofredbluff.org, (530) 527-4300). The program budget over the past five years is reported in Table 9-4.

Table 9-4 Water Conservation Program Over Past Five Years	
Year	Program Budget
2011	$7,500
2012	$7,500
2013	$7,500
2014	$7,500
2015	$7,500

9.6.2 Planned Implementation

The effectiveness of this DMM is determined by the work performed by the Water Conservation Coordinator. The City may set up performance standards and goals, and compare them with the results. The City may also educate community volunteers to aid the City in water conservation efforts.

9.7 OTHER DEMAND MANAGEMENT MEASURES

The City provides access to state rebate programs for turf replacement. The City does not plan to implement rebate programs or other DMMs in the future.

9.8 PLANNED IMPLEMENTATION TO ACHIEVE WATER USE TARGETS

In 2015, the City usage was 196 gpcd and the 2015 interim target was 308 gpcd. Therefore, meeting the 2020 target (274 gpcd) should not be difficult for the City.

PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

The City of Red Bluff (City) prepared this 2015 Urban Water Management Plan (UWMP). A completed UWMP checklist is included in Appendix J.

10.1 INCLUSION OF ALL 2015 DATA

The 2015 UWMPs must include the water use and planning data for the entire year of 2015. The City is reporting on a calendar year basis and therefore, 2015 data includes the months of January to December 2015.

10.2 NOTICE OF PUBLIC HEARING

A public hearing was held on January 17, 2017, prior to adoption of the UWMP at City Hall Council Chambers, 555 Washington Street. Notices were provided to Tehama County Flood Control and Water Conservation District (FCWCD), the California Department of Transportation (Caltrans), El Camino Irrigation District, Los Molinos Mutual Water Company, and the public. The public hearing provided an opportunity for the public to provide input on the plan before it was adopted. Additionally, the public hearing provided an opportunity for the City's customers, residents, and employees to learn and ask questions about the current and future water supply of the City.

10.2.1 Notice to Cities and Counties

The City does not provide water supplies to other cities or counties. Tehama County, as shown in Table 10-1, was provided 60 day notification (prior to the public hearing) that the City was in the process of preparing the 2015 UWMP. The 60 Day Notification letter to Tehama County is included in Appendix A. The notice of public hearing to Tehama County is included in Appendix A.

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Red Bluff	☐	☑
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Tehama County	☑	☑

10.2.2 Notice to the Public

The Urban Water Management Planning Act (UWMPA) requires that the UWMP show the water agency solicited public participation. The notice to the public was included in a local newspaper as prescribed in Government Code 6066. This notice included the time and location of the public hearing, in addition to the location of where the UWMP was available for public inspection.

On January 7, 2017 and January 11, 2017, the City placed a notice in the Red Bluff Daily News (local newspaper). The City posted this notice at City Hall stating that its UWMP was being updated and that a public hearing was to be conducted to address comments and concerns from members of the community. The notice stated that a public review period was scheduled through January 17, 2017. A copy of this notification is included in Appendix A. The Draft 2015 UWMP was made available for public inspection at City Hall (555 Washington Street) and the Tehama County Library (645 Madison Street) during regular business hours. A copy of the Draft 2015 UWMP was also posted on the City's Website (http://www.cityofredbluff.org/) to facilitate the public review of the document.

10.2.3 Notice to Agencies and Organizations

Caltrans, El Camino Irrigation District, and Los Molinos Mutual Water Company were provided notice that the City was in the process of preparing the 2015 UWMP. These agencies and organizations were provided 60 day notification (prior to the public hearing) and a notice of public hearing, including the time and location. The 60 Day Notification letter to Caltrans and the notices of public hearing are included in Appendix A.

10.3 PUBLIC HEARING AND ADOPTION

The plan was adopted by City Council at a public hearing on January 17, 2017. The City Resolution is included in Appendix K. The hearing provided an opportunity for the City's customers, residents, and employees to learn and ask questions about the current and future water supply of the City. At the hearing, the UWMP, water use targets, and conservation implementation plan were discussed.

10.3.1 Adoption

After the public hearing, the 2015 UWMP was adopted as prepared.

10.4 PLAN SUBMITTAL

The public hearing is to be followed by submittal of the UWMP to the California Department of Water Resources (DWR), the California State Library, and Tehama County (see Commitment to Distribute in Appendix A).

10.4.1 Submission to DWR

The 2015 UWMP will be submitted to DWR within 30 days of adoption.

10.4.2 Electronic Data Submission

The 2015 UWMP, in addition to tabular data, will be submitted using WUE data submittal tool.

10.4.3 Submission to the California State Library

The 2015 UWMP will be submitted in hardcopy format to the California State Library within 30 days of adoption.

10.4.4 Submission to Cities and Counties

The 2015 UWMP, which includes the City's Water Shortage Contingency Plan, will be submitted in electronic format to Tehama County within 30 days of adoption.

10.5 PUBLIC AVAILABILITY

Within 30 days of submitting the UWMP to DWR, the adopted UWMP will be available for public review during normal business hours at the locations specified herein.

10.6 AMENDING AN ADOPTED UWMP

The plan may be updated at any time when the urban water supplier believes significant changes have occurred in population, land use, and/or water sources that may affect the contents of the plan. Copies of amendments or changes to the plan shall be submitted

electronically to DWR, the California State Library, and any cities or counties which the City provides water supplies within 30 days of adoption.

Appendix A

OUTREACH DOCUMENTS

CITY OF RED BLUFF

555 Washington Street Red Bluff, California 96080 (530) 527-2605 Fax (530) 529-6878 www.ci.red-bluff.ca.us

June 1, 2016

California Department of Transportation
1490 George Drive
Redding, CA 96003

Attention: Mike Farrar

Subject: **Notice of Preparation of the 2015 City of Red Bluff Urban Water Management Plan**

Dear Mike,

Pursuant to the requirements of the California Water Code, Division 6, Part 2.6 Urban Water Management Planning, Section 10621 (b), every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

This letter is intended to notify your agency that the City of Red Bluff (City) is in process of preparing the 2015 Urban Water Management Plan (UWMP). Based on the City's current schedule, we expect to have a public review draft of the 2015 UWMP available for review in June 2016, at which point your agency will receive a notification letter that the draft UWMP is available for public review.

If your agency would like to submit comments or provide input to the City in anticipation of the development of the 2015 UWMP, please submit written copies to:

R. Scott Miller
City of Red Bluff
Associate Civil Engineer
555 Washington Street
Red Bluff, CA 96080

Sincerely,

R. Scott Miller
Associate Civil Engineer

cc: Nicola Fontaine, Carollo Engineers, Inc.

CITY OF RED BLUFF

555 Washington Street Red Bluff, California 96080 (530) 527-2605 Fax (530) 529-6878 www.ci.red-bluff.ca.us

June 1, 2016

Tehama County Flood Control and Water Conservation District
9380 San Benito Avenue
Gerber, CA 96035-9701

Attention: Ryan Teubert

Subject: **Notice of Preparation of the 2015 City of Red Bluff Urban Water Management Plan**

Dear Ryan,

Pursuant to the requirements of the California Water Code, Division 6, Part 2.6 Urban Water Management Planning, Section 10621 (b), every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

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If your agency would like to submit comments or provide input to the City in anticipation of the development of the 2015 UWMP, please submit written copies to:

R. Scott Miller
City of Red Bluff
Associate Civil Engineer
555 Washington Street
Red Bluff, CA 96080

Sincerely,

R. Scott Miller
Associate Civil Engineer

cc: Nicola Fontaine, Carollo Engineers, Inc.

CITY OF RED BLUFF

555 Washington Street Red Bluff, California 96080 (530) 527-2605 Fax (530) 529-6878 www.ci.red-bluff.ca.us

December 27, 2016

Tehama County Flood Control and Water Conservation District
9380 San Benito Avenue
Gerber, CA 96035-9701

Attention: Ryan Teubert

Subject: **Public Hearing Notice**

Dear Ryan,

Pursuant to the California Water Code section 10642, the City Council of the City of Red Bluff will conduct a Public Hearing to take testimony regarding the adoption of the updated Urban Water Management Plan for the City of Red Bluff. The hearing is scheduled for January 17, 2017 at 7:00 PM or as soon thereafter as possible on the following in the City Hall Council Chambers at 555 Washington Street, Red Bluff. A copy of the Urban Water Management Plan can be reviewed by visiting the City's web site at http://www.cityofredbluff.org/. Interested persons are invited to attend. In compliance with the ADA, if you need assistance to participate in this meeting, you should contact the City at (530) 527-2605. Notification 72 hours prior to the meeting will enable the City to make reasonable arrangements to assure accessibility to this meeting. Council Chambers are handicapped accessible.

For questions concerning the document, please contact:
R. Scott Miller
smiller@cityofredbluff.org
Phone: (530) 527-2605 x 3063

Written comments are requested by the close of business on January 17, 2017.
Send written comments to:
R. Scott Miller
Associate Civil Engineer
City of Red Bluff
555 Washington Street
Red Bluff, CA 96080

Sincerely,

CITY OF RED BLUFF

R. Scott Miller
Associate Civil Engineer

cc: Nicola Fontaine, Carollo Engineers, Inc.

CITY OF RED BLUFF

555 Washington Street Red Bluff, California 96080 (530) 527-2605 Fax (530) 529-6878 www.ci.red-bluff.ca.us

December 27, 2016

California Department of Transportation
1490 George Drive
Redding, CA 96003

Attention: Mike Farrar

Subject: **Public Hearing Notice**

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Pursuant to the California Water Code section 10642, the City Council of the City of Red Bluff will conduct a Public Hearing to take testimony regarding the adoption of the updated Urban Water Management Plan for the City of Red Bluff. The hearing is scheduled for January 17, 2017 at 7:00 PM or as soon thereafter as possible on the following in the City Hall Council Chambers at 555 Washington Street, Red Bluff. A copy of the Urban Water Management Plan can be reviewed by visiting the City's web site at http://www.cityofredbluff.org/. Interested persons are invited to attend. In compliance with the ADA, if you need assistance to participate in this meeting, you should contact the City at (530) 527-2605. Notification 72 hours prior to the meeting will enable the City to make reasonable arrangements to assure accessibility to this meeting. Council Chambers are handicapped accessible.

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smiller@cityofredbluff.org
Phone: (530) 527-2605 x 3063

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Send written comments to:
R. Scott Miller
Associate Civil Engineer
City of Red Bluff
555 Washington Street
Red Bluff, CA 96080

Sincerely,

CITY OF RED BLUFF

R. Scott Miller
Associate Civil Engineer

cc: Nicola Fontaine, Carollo Engineers, Inc.

CITY OF RED BLUFF

555 Washington Street Red Bluff, California 96080 (530) 527-2605 Fax (530) 529-6878 www.ci.red-bluff.ca.us

December 27, 2016

El Camino Irrigation District
8451 Hwy. 99-W
Gerber, CA 96035

Attention: Cody McKenzie

Subject: **Public Hearing Notice**

Dear Cody:

Pursuant to the California Water Code section 10642, the City Council of the City of Red Bluff will conduct a Public Hearing to take testimony regarding the adoption of the updated Urban Water Management Plan for the City of Red Bluff. The hearing is scheduled for January 17, 2017 at 7:00 PM or as soon thereafter as possible on the following in the City Hall Council Chambers at 555 Washington Street, Red Bluff. A copy of the Urban Water Management Plan can be reviewed by visiting the City's web site at http://www.cityofredbluff.org/. Interested persons are invited to attend. In compliance with the ADA, if you need assistance to participate in this meeting, you should contact the City at (530) 527-2605. Notification 72 hours prior to the meeting will enable the City to make reasonable arrangements to assure accessibility to this meeting. Council Chambers are handicapped accessible.

For questions concerning the document, please contact:
R. Scott Miller
smiller@cityofredbluff.org
Phone: (530) 527-2605 x 3063

Written comments are requested by the close of business on January 17, 2017.
Send written comments to:
R. Scott Miller
Associate Civil Engineer
City of Red Bluff
555 Washington Street
Red Bluff, CA 96080

Sincerely,

CITY OF RED BLUFF

R. Scott Miller
Associate Civil Engineer

cc: Nicola Fontaine, Carollo Engineers, Inc.

CITY OF RED BLUFF

555 Washington Street Red Bluff, California 96080 (530) 527-2605 Fax (530) 529-6878 www.ci.red-bluff.ca.us

December 27, 2016

Los Molinos Mutual Water Company
25162 Josephine Street
Los Molinos, CA 96055

Attention: Darrell Mullins

Subject: **Public Hearing Notice**

Dear Darrell,

Pursuant to the California Water Code section 10642, the City Council of the City of Red Bluff will conduct a Public Hearing to take testimony regarding the adoption of the updated Urban Water Management Plan for the City of Red Bluff. The hearing is scheduled for January 17, 2017 at 7:00 PM or as soon thereafter as possible on the following in the City Hall Council Chambers at 555 Washington Street, Red Bluff. A copy of the Urban Water Management Plan can be reviewed by visiting the City's web site at http://www.cityofredbluff.org/. Interested persons are invited to attend. In compliance with the ADA, if you need assistance to participate in this meeting, you should contact the City at (530) 527-2605. Notification 72 hours prior to the meeting will enable the City to make reasonable arrangements to assure accessibility to this meeting. Council Chambers are handicapped accessible.

For questions concerning the document, please contact:
R. Scott Miller
smiller@cityofredbluff.org
Phone: (530) 527-2605 x 3063

Written comments are requested by the close of business on January 17, 2017.
Send written comments to:
R. Scott Miller
Associate Civil Engineer
City of Red Bluff
555 Washington Street
Red Bluff, CA 96080

Sincerely,

CITY OF RED BLUFF

R. Scott Miller
Associate Civil Engineer

cc: Nicola Fontaine, Carollo Engineers, Inc.

CITY OF RED BLUFF

City of Red Bluff
555 Washington St.
Red Bluff, CA 96080

December 27, 2016

Red Bluff Daily News
Attn: Daleen Baker
P.O. Box 220
Red Bluff, CA 96080

Dear Editor:

Please publish the enclosed notices on the date(s) noted below.

January 7, 2017 **January 11, 2017**

Additionally, please forward a Proof of Publication, together with your invoice, upon completion of the ad. Please direct your invoice to: Robin Kampmann / Anita Rice.

The text of the notice is being provided via e-mail.

Sincerely,

CITY OF RED BLUFF

R. Scott Miller
Associate Civil Engineer

cc: Nicola Fontaine, Carollo Engineers, Inc.

enclosure(s)

PUBLIC HEARING NOTICE

Pursuant to the California Water Code section 10642, the City Council of the City of Red Bluff will conduct a Public Hearing to take testimony regarding the adoption of the updated Urban Water Management Plan for the City of Red Bluff. The hearing is scheduled for January 17, 2017 at 7:00 PM or as soon thereafter as possible on the following in the City Hall Council Chambers at 555 Washington Street, Red Bluff.

Interested persons are invited to attend. In compliance with the ADA, if you need assistance to participate in this meeting, you should contact the City at (530) 527-2605. Notification 72 hours prior to the meeting will enable the City to make reasonable arrangements to assure accessibility to this meeting. Council Chambers are handicapped accessible.

A copy of the Urban Water Management Plan can be reviewed by visiting the City's web site at http://www.cityofredbluff.org/.

For questions concerning the document, please contact:

R. Scott Miller

smiller@cityofredbluff.org

Phone: (530) 527-2605 x 3063

Written comments are requested by the close of business on January 17, 2017.

Send written comments to:

R. Scott Miller

Associate Civil Engineer

City of Red Bluff

555 Washington Street

Red Bluff, CA 96080

Commitment to Distribute the 2015 Urban Water Management Plan (UWMP)

The documentation currently included in these appendices satisfies California Water Code (CWC) parts 10621(b) and 10642.

Two other sections of the CWC specify UWMP documentation that must take place after the submission of the supplier's UWMP to the California Department of Water Resources (DWR). These parts are as follows:

- Part 10644(a), requiring documentation that within 30 days of submitting the UWMP to DWR, the adopted UWMP has been or will be submitted to the California State Library and any city or county to which the supplier provides water.
- Part 10645, requiring documentation that the supplier will make the UWMP available for public review no later than 30 days after submission to DWR.

In order to satisfy these requirements, the City will perform the following actions:

- The City will submit its 2015 UWMP to DWR.
- The City will send a printed or electronic copy of its 2015 UWMP to the California State Library and to the cities and counties within which it provides water. The City will do this within 30 days from filing with DWR.
- The City will make their 2015 UWMP available for public review within 30 days from filing with DWR.

Appendix B

CLIMATE CHANGE VULNERABILITY ASSESSMENT

The Climate Change Vulnerability Assessment is taken from the Climate Change Handbook for Regional Water Planning, USEPA and DWR, 2011. The vulnerability assessment highlights those water-related resources that are important to a region and are sensitive to climate change.

I. Water Demand

☐ *Are there major industries that require cooling/process water in your planning region?*

- As average temperatures increase, cooling water needs may also increase.
- Identify major industrial water users in your region and assess their current and projected needs for cooling and process water.

☒ *Does water use vary by more than 50% seasonally in parts of your region?*

- Seasonal water use, which is primarily outdoor water use, is expected to increase as average temperatures increase and droughts become more frequent.
- Where water use records are available, look at total monthly water uses averaged over the last five years (if available). If maximum and minimum monthly water uses vary by more than 25%, then the answer to this question is "yes"
- Where no water use records exist, is crop irrigation responsible for a significant (say >50%) percentage of water demand in parts of your region?

☐ *Are crops grown in your region climate-sensitive? Would shifts in daily heat patterns, such as how long heat lingers before night-time cooling, be prohibitive for some crops?*

- Fruit and nut crops are climate-sensitive and may require additional water as the climate warms.

☐ *Do groundwater supplies in your region lack resiliency after drought events?*

- Droughts are expected to become more frequent and more severe in the future. Areas with a more hardened demand may be particularly vulnerable to droughts and may become more dependent on groundwater pumping.

☒ *Are water use curtailment measures effective in your region?*

- Droughts are expected to become more frequent and more severe in the future. Areas with a more hardened demand may be particularly vulnerable to droughts.

☐ *Are some instream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?*

- Changes in snowmelt patterns in the future may make it difficult to balance water demands. Vulnerabilities for ecosystems and municipal/agricultural water needs may be exacerbated by instream flow requirements that are:
    1. not quantified,
    2. not accurate for ecosystem needs under multiple environmental conditions including droughts, and
    3. not met by regional water managers.

II. Water Supply

☐ *Does a portion of the water supply in your region come from snowmelt?*

- Snowmelt is expected to decrease as the climate warms. Water systems supplied by snowmelt are therefore potentially vulnerable to climate change.
- Where watershed planning documents are available, refer to these in identifying parts of your region that rely on surface water for supplies; if your region contains surface water supplies originating in watersheds where snowpack accumulates, the answer to this question is "Yes."
- Where planning documents are not available, identify major rivers in your region with large users. Identify whether the river's headwaters are fed by snowpack.

☐ *Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climate-sensitive systems outside your region?*

- Some imported or transferred water supplies are sources from climate-sensitive watersheds, such as water imported from the Delta and the Colorado River.

☐ *Does part of your region rely on coastal aquifers? Has salt intrusion been a problem in the past?*

- Coastal aquifers are susceptible to salt intrusion as sea levels rise, and many have already observed salt intrusion due to over-extraction, such as the West Coast Basin in southern California.

☐ *Would your region have difficulty in storing carryover supply surpluses from year to year?*

- Droughts are expected to become more severe in the future. Systems that can store more water may be more resilient to droughts.

☐ *Has your region faced a drought in the past during which it failed to meet local water demands?*

- Droughts are expected to become more severe in the future. Systems that have already come close to their supply thresholds may be especially vulnerable to droughts in the future.

☐ *Does your region have invasive species management issues at your facilities, along conveyance structures, or in habitat areas?*

- As invasive species are expected to become more prevalent with climate change, existing invasive species issues may indicate an ecological vulnerability to climate change.

III. Water Quality

☒ *Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby which could pose a water quality concern from increased erosion?*

- Some areas are expected to become more vulnerable to wildfires over time. To identify whether this is the case for parts of your region, the California Public Interest Energy Research (PIER)Program has posted wildfire susceptibility projections as a Google Earth application at: *http://cal-adapt.org/fire/*. These projections are only the results of a single study and are not intended for analysis, but can aid in qualitatively answering this question. Read the application's disclaimers carefully to be aware of its limitations.

☐ *Does part of your region rely on surface water bodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents potentially exacerbated by climate change?*

- Warming temperatures will result in lower dissolved oxygen levels in water bodies, which are exacerbated by algal blooms and in turn enhance eutrophication. Changes in streamflows may alter pollutant concentrations in water bodies.

☐ *Are seasonal low flows decreasing for some waterbodies in your region? If so, are the reduced low flows limiting the waterbodies' assimilative capacity?*

- In the future, low flow conditions are expected to be more extreme and last longer. This may result in higher pollutant concentrations where loadings increase or remain constant.

☐ *Are there beneficial uses designated for some water bodies in your region that cannot always be met due to water quality issues?*

- In the future, low flows are expected decrease, and to last longer. This may result in higher pollutant concentrations where loadings increase or remain constant.

☐ *Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?*

- While it is unclear how average precipitation will change with temperature, it is generally agreed that storm severity will probably increase. More intense, severe storms may lead to increased erosion, which will increase turbidity in surface waters. Areas that already observe water quality responses to rainstorm intensity may be especially vulnerable.

IV. Sea Level Rise

☐ *Has coastal erosion already been observed in your region?*

- Coastal erosion is expected to occur over the next century as sea levels rise.

☐ *Are there coastal structures, such as levees or breakwaters, in your region?*

- Coastal structures designed for a specific mean sea level may be impacted by sea level rise.

☐ *Is there significant coastal infrastructure, such as residences, recreation, water and wastewater treatment, tourism, and transportation) at less than six feet above mean sea level in your region?*

- Coastal flooding will become more common, and will impact a greater extent of property, as sea levels rise. Critical infrastructure in the coastal floodplain may be at risk.
- Digital elevation maps should be compared with locations of coastal infrastructure.

☐ *Are there climate-sensitive low-lying coastal habitats in your region?*

- Low-lying coastal habitats that are particularly vulnerable to climate change include estuaries and coastal wetlands that rely on a delicate balance of freshwater and salt water.

☐ *Are there areas in your region that currently flood during extreme high tides or storm surges?*

- Areas that are already experiencing flooding during storm surges and very high tides, are more likely to experience increased flooding as sea levels rise.

☐ *Is there land subsidence in the coastal areas of your region?*

- Land subsidence may compound the impacts of sea level rise.

☐ *Do tidal gauges along the coastal parts of your region show an increase over the past several decades?*

- Local sea level rise may be higher or lower than state, national, or continental projections.
- Planners can find information on local tidal gauges at *http://tidesandcurrents.noaa.gov/sltrends/sltrends_states.shtml?region=ca*

V. Flooding

☒ *Does critical infrastructure in your region lie within the 200-year floodplain? DWR's best available floodplain maps are available at: http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/best_available_maps/*

- While it is unclear how average precipitation will change with temperature, it is generally agreed that storm severity will probably increase. More intense, severe storms may lead to higher peak flows and more severe floods.
- Refer to FEMA floodplain maps and any recent FEMA, US Army Corps of Engineers, or DWR studies that might help identify specific local vulnerabilities for your region. Other follow-up questions that might help answer this question:

    1. What public safety issues could be affected by increased flooding events or intensity? For example, evacuation routes, emergency personnel access, hospitals, water treatment and wastewater treatment plants, power generation plants and fire stations should be considered.
    2. Could key regional or economic functions be impacted from more frequent and/or intense flooding?

☒ *Does part of your region lie within the Sacramento-San Joaquin Drainage District?*

- The SSJDD contains lands that are susceptible to overflows from the Sacramento and San Joaquin Rivers, and are a key focus of the Central Valley Flood Protection Plan. (*http://www.water.ca.gov/cvfmp/program.cfm*).

☐ *Does aging critical flood protection infrastructure exist in your region?*

- Levees and other flood protection facilities across the state of California are aging and in need of repair. Due to their overall lowered resiliency, these facilities may be particularly vulnerable to climate change impacts.
- DWR is evaluating more than 300 miles of levees in the San Joaquin and Sacramento Rivers Valleys and the Delta (http://www.water.ca.gov/levees/).

☐ *Have flood control facilities (such as impoundment structures) been insufficient in the past?*

- Reservoirs and other facilities with impoundment capacity may be insufficient for severe storms in the future. Facilities that have been insufficient in the past may be particularly vulnerable.

☒ *Are wildfires a concern in parts of your region?*

- Wildfires alter the landscape and soil conditions, increasing the risk of flooding within the burn and downstream areas. Some areas are expected to become more vulnerable to wildfires over time. To identify whether this is the case for parts of your region, the California Public Interest Energy Research Program (PIER) has posted wildfire susceptibility projections as a Google Earth application at: http://cal-adapt.org/fire/. These projections are the results of only a single study and are not intended for analysis, but can aid in qualitatively answering this question. Read the application's disclaimers carefully to be aware of its limitations.

VI. Ecosystem and Habitat Vulnerability

☐ *Does your region include inland or coastal aquatic habitats vulnerable to erosion and sedimentation issues?*

- Erosion is expected to increase with climate change, and sedimentation is expected to shift. Habitats sensitive to these events may be particularly vulnerable to climate change.

☐ *Does your region include estuarine habitats which rely on seasonal freshwater flow patterns?*

- Seasonal high and low flows, especially those originating from snowmelt, are already shifting in many locations.

☐ *Do climate-sensitive fauna or flora populations live in your region?*

- Some specific species are more sensitive to climate variations than others.

☒ *Do endangered or threatened species exist in your region? Are changes in species distribution already being observed in parts of your region?*

- Species that are already threatened or endangered may have a lowered capacity to adapt to climate change.

☐ *Does the region rely on aquatic or water-dependent habitats for recreation or other economic activities?*

- Economic values associated with natural habitat can influence prioritization.

☒ *Are there rivers in your region with quantified environmental flow requirements or known water quality/quantity stressors to aquatic life?*

- Constrained water quality and quantity requirements may be difficult to meet in the future.

☐ *Do estuaries, coastal dunes, wetlands, marshes, or exposed beaches exist in your region? If so, are coastal storms possible/frequent in your region?*

- Storm surges are expected to result in greater damage in the future due to sea level rise. This makes fragile coastal ecosystems vulnerable.

☐ *Does your region include one or more of the habitats described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change http://www.endangered.org/its-getting-hot-out-there/ ?*

- These ecosystems are particularly vulnerable to climate change.

☐ *Are there areas of fragmented estuarine, aquatic, or wetland wildlife habitat within your region? Are there movement corridors for species to naturally migrate? Are there infrastructure projects planned that might preclude species movement?*

- These ecosystems are particularly vulnerable to climate change.

VII. Hydropower

☒ *Is hydropower a source of electricity in your region?*

- As seasonal river flows shift, hydropower is expected to become less reliable in the future.

☐ *Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generation facilities or conditions for hydropower generation in your region?*

- Energy needs are expected to increase in many locations as the climate warms. This increase in electricity demand may compound decreases in hydropower production, increasing its priority for a region.

Appendix C

SB X7-7 VERIFICATION FORM

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

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	5,198	Acre Feet
	2008 total volume of delivered recycled water	58	Acre Feet
	2008 recycled water as a percent of total deliveries	1.12%	Percent
	Number of years in baseline period[1, 2]	10	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range[3]	2010	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range[4]	2010	

[1] If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period. *[2] The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.*

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

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

NOTES:

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

SB X7-7 Table 3: Service Area Population		
Year		**Population**
10 to 15 Year Baseline Population		
Year 1	2001	12,324
Year 2	2002	12,007
Year 3	2003	12,451
Year 4	2004	13,276
Year 5	2005	13,228
Year 6	2006	14,267
Year 7	2007	12,541
Year 8	2008	12,661
Year 9	2009	13,541
Year 10	2010	13,386
Year 11		
Year 12		
Year 13		
Year 14		
Year 15		
5 Year Baseline Population		
Year 1	2006	14,267
Year 2	2007	12,541
Year 3	2008	12,661
Year 4	2009	13,541
Year 5	2010	13,386
2015 Compliance Year Population		
2015		14,414
NOTES:		

SB X7-7 Table 4: Annual Gross Water Use *

Baseline Year *Fm SB X7-7 Table 3*		Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	Deductions					Annual Gross Water Use
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	2001	4,404			-		-	4,404
Year 2	2002	4,576			-		-	4,576
Year 3	2003	4,619			-		-	4,619
Year 4	2004	4,706			-		-	4,706
Year 5	2005	4,762			-		-	4,762
Year 6	2006	4,969			-		-	4,969
Year 7	2007	5,538			-		-	5,538
Year 8	2008	5,230			-		-	5,230
Year 9	2009	5,278			-		-	5,278
Year 10	2010	5,556			-		-	5,556
Year 11	0	-			-		-	-
Year 12	0	-			-		-	-
Year 13	0	-			-		-	-
Year 14	0	-			-		-	-
Year 15	0	-			-		-	-
10 - 15 year baseline average gross water use								**4,964**
5 Year Baseline - Gross Water Use								
Year 1	2006	4,969			-		-	4,969
Year 2	2007	5,538			-		-	5,538
Year 3	2008	5,230			-		-	5,230
Year 4	2009	5,278			-		-	5,278
Year 5	2010	5,556			-		-	5,556
5 year baseline average gross water use								**5,314**
2015 Compliance Year - Gross Water Use								
2015		3,166	-		-		-	**3,166**

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

NOTES: Units of measure are acre-feet (AF).

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

Complete one table for each source.

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

Baseline Year *Fm SB X7-7 Table 3*		Volume Entering Distribution System	Meter Error Adjustment* *Optional (+/-)*	Corrected Volume Entering Distribution System
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2001	4,404		4,404
Year 2	2002	4,576		4,576
Year 3	2003	4,619		4,619
Year 4	2004	4,706		4,706
Year 5	2005	4,762		4,762
Year 6	2006	4,969		4,969
Year 7	2007	5,538		5,538
Year 8	2008	5,230		5,230
Year 9	2009	5,278		5,278
Year 10	2010	5,556		5,556
Year 11	0			-
Year 12	0			-
Year 13	0			-
Year 14	0			-
Year 15	0			-
5 Year Baseline - Water into Distribution System				
Year 1	2006	4,969		4,969
Year 2	2007	5,538		5,538
Year 3	2008	5,230		5,230
Year 4	2009	5,278		5,278
Year 5	2010	5,556		5,556
2015 Compliance Year - Water into Distribution System				
2015		3,166		3,166

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

NOTES: Units of measure are acre-feet (AF). Source: Large Water Systems Annual Reports to the Drinking Water Program. 2001 volume based on Field Log Totals.

SB X7-7 Table 4-B: Indirect Recycled Water Use Deduction *(For use only by agencies that are deducting indirect recycled water)*

Baseline Year *Fm SB X7-7 Table 3*		Surface Reservoir Augmentation					Groundwater Recharge			**Total Deductible Volume of Indirect Recycled Water Entering the Distribution System**
		Volume Discharged from Reservoir for Distribution System Delivery	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility*	Transmission/ Treatment Losses	Recycled Volume Entering Distribution System from Groundwater Recharge	
10-15 Year Baseline - Indirect Recycled Water Use										
Year 1	2001			-		-			-	-
Year 2	2002			-		-			-	-
Year 3	2003			-		-			-	-
Year 4	2004			-		-			-	-
Year 5	2005			-		-			-	-
Year 6	2006			-		-			-	-
Year 7	2007			-		-			-	-
Year 8	2008			-		-			-	-
Year 9	2009			-		-			-	-
Year 10	2010			-		-			-	-
Year 11	0			-		-			-	-
Year 12	0			-		-			-	-
Year 13	0			-		-			-	-
Year 14	0			-		-			-	-
Year 15	0			-		-			-	-
5 Year Baseline - Indirect Recycled Water Use										
Year 1	2006			-		-			-	-
Year 2	2007			-		-			-	-
Year 3	2008			-		-			-	-
Year 4	2009			-		-			-	-
Year 5	2010			-		-			-	-
2015 Compliance - Indirect Recycled Water Use										
2015				-		-			-	-

**Suppliers will provide supplemental sheets to document the calculation for their input into "Recycled Water Pumped by Utility". The volume reported in this cell must be less than total groundwater pumped - See Methodology 1, Step 8, section 2.c.*

NOTES: Units of measure are acre-feet (AF).

SB X7-7 Table 4-C: Process Water Deduction Eligibility *(For use only by agencies that are deducting process water) Choose Only One*	
☐	**Criteria 1**- Industrial water use is equal to or greater than 12% of gross water use. Complete SB X7-7 Table 4-C.1
☐	**Criteria 2** - Industrial water use is equal to or greater than 15 GPCD. Complete SB X7-7 Table 4-C.2
☐	**Criteria 3** - Non-industrial use is equal to or less than 120 GPCD. Complete SB X7-7 Table 4-C.3
☐	**Criteria 4** - Disadvantaged Community. Complete SB x7-7 Table 4-C.4
NOTES:	

SB X7-7 Table 4-C.1: Process Water Deduction Eligibility

Criteria 1

Industrial water use is equal to or greater than 12% of gross water use

Baseline Year *Fm SB X7-7 Table 3*		Gross Water Use Without Process Water Deduction	Industrial Water Use	Percent Industrial Water	**Eligible for Exclusion Y/N**
10 to 15 Year Baseline - Process Water Deduction Eligibility					
Year 1	2001	4,404		0%	NO
Year 2	2002	4,576		0%	NO
Year 3	2003	4,619		0%	NO
Year 4	2004	4,706		0%	NO
Year 5	2005	4,762		0%	NO
Year 6	2006	4,969		0%	NO
Year 7	2007	5,538		0%	NO
Year 8	2008	5,230		0%	NO
Year 9	2009	5,278		0%	NO
Year 10	2010	5,556		0%	NO
Year 11	0	-			NO
Year 12	0	-			NO
Year 13	0	-			NO
Year 14	0	-			NO
Year 15	0	-			NO
5 Year Baseline - Process Water Deduction Eligibility					
Year 1	2006	4,969		0%	NO
Year 2	2007	5,538		0%	NO
Year 3	2008	5,230		0%	NO
Year 4	2009	5,278		0%	NO
Year 5	2010	5,556		0%	NO
2015 Compliance Year - Process Water Deduction Eligiblity					
2015		3,166		0%	NO

NOTES:

SB X7-7 Table 4-C.2: Process Water Deduction Eligibility					
Criteria 2 Industrial water use is equal to or greater than 15 GPCD					
Baseline Year *Fm SB X7-7 Table 3*		Industrial Water Use	Population	Industrial GPCD	**Eligible for Exclusion Y/N**
10 to 15 Year Baseline - Process Water Deduction Eligibility					
Year 1	2001		12,324	-	NO
Year 2	2002		12,007	-	NO
Year 3	2003		12,451	-	NO
Year 4	2004		13,276	-	NO
Year 5	2005		13,228	-	NO
Year 6	2006		14,267	-	NO
Year 7	2007		12,541	-	NO
Year 8	2008		12,661	-	NO
Year 9	2009		13,541	-	NO
Year 10	2010		13,386	-	NO
Year 11	0		-		NO
Year 12	0		-		NO
Year 13	0		-		NO
Year 14	0		-		NO
Year 15	0		-		NO
5 Year Baseline - Process Water Deduction Eligibility					
Year 1	2006		14,267	-	NO
Year 2	2007		12,541	-	NO
Year 3	2008		12,661	-	NO
Year 4	2009		13,541	-	NO
Year 5	2010		13,386	-	NO
2015 Compliance Year - Process Water Deduction Eligibility					
2015			14,414	-	NO
NOTES:					

SB X7-7 Table 4-C.3: Process Water Deduction Eligibility							
Criteria 3 Non-industrial use is equal to or less than 120 GPCD							
Baseline Year *Fm SB X7-7 Table 3*		Gross Water Use Without Process Water Deduction *Fm SB X7-7 Table 4*	Industrial Water Use	Non-industrial Water Use	Population *Fm SB X7-7 Table 3*	Non-Industrial GPCD	**Eligible for Exclusion Y/N**
10 to 15 Year Baseline - Process Water Deduction Eligibility							
Year 1	2001	4,404		4,404	12,324	319	NO
Year 2	2002	4,576		4,576	12,007	340	NO
Year 3	2003	4,619		4,619	12,451	331	NO
Year 4	2004	4,706		4,706	13,276	316	NO
Year 5	2005	4,762		4,762	13,228	321	NO
Year 6	2006	4,969		4,969	14,267	311	NO
Year 7	2007	5,538		5,538	12,541	394	NO
Year 8	2008	5,230		5,230	12,661	369	NO
Year 9	2009	5,278		5,278	13,541	348	NO
Year 10	2010	5,556		5,556	13,386	371	NO
Year 11	0	-		-	-		NO
Year 12	0	-		-	-		NO
Year 13	0	-		-	-		NO
Year 14	0	-		-	-		NO
Year 15	0	-		-	-		NO
5 Year Baseline - Process Water Deduction Eligibility							
Year 1	2006	4,969		4,969	14,267	311	NO
Year 2	2007	5,538		5,538	12,541	394	NO
Year 3	2008	5,230		5,230	12,661	369	NO
Year 4	2009	5,278		5,278	13,541	348	NO
Year 5	2010	5,556		5,556	13,386	371	NO
2015 Compliance Year - Process Water Deduction Eligiblity							
2015		3,166		3,166	14,414	196	NO
NOTES:							

SB X7-7 Table 4-C.4: Process Water Deduction Eligibility

Criteria 4

Disadvantaged Community. A "Disadvantaged Community" (DAC) is a community with a median household income less than 80 percent of the statewide average.

SELECT ONE

"Disadvantaged Community" status was determined using one of the methods listed below:

☐ **1. IRWM DAC Mapping tool**
http://www.water.ca.gov/irwm/grants/resources_dac.cfm

If using the IRWM DAC Mapping Tool, include a screen shot from the tool showing that the service area is considered a DAC.

☑ **2. 2010 Median Income**

	California Median Household Income		Service Area Median Household Income	Percentage of Statewide Average	**Eligible for Exclusion? Y/N**
2015 Compliance Year - Process Water Deduction Eligibility					
	2010	$60,883	$32,782	54%	YES

NOTES:

SB X7-7 Table 4-D: Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*						
Name of Industrial Customer		*Industrial Customer 1*				
Baseline Year *Fm SB X7-7 Table 3*		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2001					-
Year 2	2002					-
Year 3	2003					-
Year 4	2004					-
Year 5	2005					-
Year 6	2006					-
Year 7	2007					-
Year 8	2008					-
Year 9	2009					-
Year 10	2010					-
Year 11	0					-
Year 12	0					-
Year 13	0					-
Year 14	0					-
Year 15	0					-
5 Year Baseline - Process Water Deduction						
Year 1	2006					-
Year 2	2007					-
Year 3	2008					-
Year 4	2009					-
Year 5	2010					-
2015 Compliance Year - Process Water Deduction						
2015						-
NOTES:						

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2001	12,324	4,404	319
Year 2	2002	12,007	4,576	340
Year 3	2003	12,451	4,619	331
Year 4	2004	13,276	4,706	316
Year 5	2005	13,228	4,762	321
Year 6	2006	14,267	4,969	311
Year 7	2007	12,541	5,538	394
Year 8	2008	12,661	5,230	369
Year 9	2009	13,541	5,278	348
Year 10	2010	13,386	5,556	371
Year 11	0	-	-	
Year 12	0	-	-	
Year 13	0	-	-	
Year 14	0	-	-	
Year 15	0	-	-	
10-15 Year Average Baseline GPCD				**342**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2006	14,267	4,969	311
Year 2	2007	12,541	5,538	394
Year 3	2008	12,661	5,230	369
Year 4	2009	13,541	5,278	348
Year 5	2010	13,386	5,556	371
5 Year Average Baseline GPCD				**358**
2015 Compliance Year GPCD				
2015		14,414	3,166	**196**

NOTES: Units of measure are acre-feet (AF).

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	342
5 Year Baseline GPCD	358
2015 Compliance Year GPCD	196
NOTES: Units are gallons per capita per day (GPCD).	

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

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	**2020 Target GPCD**
342	**274**

NOTES: Units are gallons per capita per day (GPCD).

SB X7-7 Table 7-B: Target Method 2 Target Landscape
Water Use

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-C: Target Method 2

Target CII Water Use

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-D: Target Method 2 Summary

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☑	100%	Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☐		Tulare Lake	188	179
☐		South Lahontan	170	162
☐		South Coast	149	142
☐		Colorado River	211	200
Target *(If more than one region is selected, this value is calculated.)*				**167**

NOTES: Units are gallons per capita per day (GPCD).

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
358	341	274	**274**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.

[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.

NOTES: Units are gallons per capita per day (GPCD).

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
274	342	**308**
NOTES: Units are gallons per capita per day (GPCD).		

SB X7-7 Table 9: 2015 Compliance

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments *(in GPCD)* Enter "0" if Adjustment Not Used			TOTAL Adjustments	Adjusted 2015 GPCD	2015 GPCD *(Adjusted if applicable)*	**Did Supplier Achieve Targeted Reduction for 2015?**
		Extraordinary Events	Weather Normalization	Economic Adjustment				
196	308	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	*From Methodology 8 (Optional)*	-	196	196	**YES**

NOTES: Units are gallons per capita per day (GPCD).

Appendix D

DEPARTMENT OF WATER RESOURCES POPULATION TOOL

WUEdata - Red Bluff City Of

Sign Out

Please print this page to a PDF and include as part of your UWMP submittal.

Confirmation Information

Generated By	Water Supplier Name	Confirmation #	Generated On
Nicola Fontaine	Red Bluff City Of	5658719718	7/19/2016 8:44:03 AM

Boundary Information

Census Year	Boundary Filename	Internal Boundary ID
1990	Carollo_Assumed_Boundary.kml	1219
2000	Carollo_Assumed_Boundary.kml	1219
2010	Carollo_Assumed_Boundary.kml	1219

Baseline Period Ranges

10 to 15-year baseline period

Number of years in baseline period: 10

Year beginning baseline period range: 2001

Year ending baseline period range[1]: **2010**

5-year baseline period

Year beginning baseline period range: 2006

Year ending baseline period range[2]: **2010**

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

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

Persons per Connection

Year	Census Block Level Total Population	Number of Connections *	Persons per Connection
1990	**11,617**	3100	**3.75**
1991	-	-	3.71
1992	-	-	3.67
1993	-	-	3.64
1994	-	-	3.60
1995	-	-	3.56
1996	-	-	3.52
1997	-	-	3.48
1998	-	-	3.45
1999	-	-	3.41
2000	**12,488**	3701	**3.37**
2001	-	-	3.37
2002	-	-	3.37
2003	-	-	3.37
2004	-	-	3.37
2005	-	-	3.37
2006	-	-	3.36
2007	-	-	3.36
2008	-	-	3.36
2009	-	-	3.36
2010	**13,386**	3988	**3.36**
2015	**-**	**-**	**3.35 ****

Population Using Persons-Per-Connection

Year		Number of Connections *	Persons per Connection	Total Population
10 to 15 Year Baseline Population Calculations				
Year 1	2001	3658	3.37	**12,324**
Year 2	2002	3565	3.37	**12,007**
Year 3	2003	3698	3.37	**12,451**
Year 4	2004	3944	3.37	**13,276**
Year 5	2005	3931	3.37	**13,228**
Year 6	2006	4241	3.36	**14,267**
Year 7	2007	3729	3.36	**12,541**
Year 8	2008	3766	3.36	**12,661**
Year 9	2009	4029	3.36	**13,541**
Year 10	2010	3988	3.36	**13,386**
5 Year Baseline Population Calculations				
Year 1	2006	4241	3.36	**14,267**
Year 2	2007	3729	3.36	**12,541**
Year 3	2008	3766	3.36	**12,661**
Year 4	2009	4029	3.36	**13,541**
Year 5	2010	3988	3.36	**13,386**
2015 Compliance Year Population Calculations				
2015		4305	3.35 **	**14,414**

Hide Print Confirmation

Appendix E

DEPARTMENT OF WATER RESOURCES BULLETIN 118

Sacramento Valley Groundwater Basin, Red Bluff Subbasin

- Groundwater Basin Number: 5-21.50
- County: Tehama
- Surface Area: 266,750 acres (416 square miles)

Basin Boundaries and Hydrology

The Red Bluff Subbasin is bounded on the west by the Coast Ranges, on the north by the Red Bluff Arch, on the south by Thomes Creek and on the east by the Sacramento River. The Red Bluff Arch is a hydrologic divide between the Redding Basin to the north and the Sacramento Valley. The Red Bluff Subbasin is likely contiguous with the Corning Subbasin at depth. Annual precipitation in the subbasin ranges from 19- to 27-inches with higher precipitation occurring to the north.

Hydrogeologic Information

Water-Bearing Formations

The Red Bluff Subbasin aquifer system is composed of continental deposits of late Tertiary to Quaternary age. The Quaternary deposits include Holocene stream channel deposits and Pleistocene Modesto and Riverbank formations. The Tertiary deposits consist of Pliocene Tehama and Tuscan formations.

Holocene Stream Channel Deposits. These deposits consist of unconsolidated gravel, sand, silt and clay derived from the erosion, reworking, and deposition of adjacent Tehama Formation and Quaternary stream terrace deposits found at or near the surface along stream and river channels. The thickness varies from 1-to 80-feet (Helley and Harwood 1985). This unit represents the upper part of the unconfined zone of the aquifer. Although it is moderately to highly permeable it is not a significant contributor to groundwater because of its limited areal extent.

Pleistocene Modesto Formation. The Modesto Formation (deposited between 14,000 to 42,000 years ago) consists of poorly indurated gravel and cobbles with sand, silt, and clay derived from reworking and deposition of the Tehama and Riverbank formations. The deposit ranges from less than 10 feet to nearly 200 feet across the valley floor (Helley and Harwood 1985). The terrace deposits are observed along Thomes, Elder, and Red Bank Creeks.

Pleistocene Riverbank Formation. The Riverbank Formation (deposited between 130,000 to 450,000 years ago) consists of poorly-to-highly permeable pebble and small cobble gravels interlensed with reddish clay sands and silt. The formation ranges from less than one foot to over 200 feet thick depending on location (Helley and Harwood 1985). Riverbank terrace deposits are observed along Thomes, Pine, Dibble, Reeds, Red Bank, Oat and Elder Creeks.

Pliocene Tehama Formation. The Tehama Formation consists of sediments originating from the Coast Range and Klamath Mountains, and is the primary

source of groundwater for the subbasin. The majority of the Tehama Formation consists of fine-grained sediments indicative of deposition under floodplain conditions (McManus 1993). The thickness of coarse-grained beds of sand and gravel, as indicated by drill log data, are typically no more than 5- to 10-feet. The majority of both coarse and fine-grained sediments appears unconsolidated or moderately consolidated. The thickness of the formation is estimated to be up to 1,200 feet north of the City of Corning (DWR 2000).

Pliocene Tuscan Formation. The Tuscan Formation consists of volcanic gravel and tuff-breccia, fine- to coarse-grained volcanic sandstone, conglomerate and tuff, and tuffaceous silt and clay; derived predominantly from andesitic and basaltic sources of the Cascade Range. In the subsurface the Tuscan Formation is found juxtaposed with the Tehama Formation in the axis of the valley near the Sacramento River. Permeability is moderate to high with yields ranging from 100 to 1,000 gpm, excluding areas where beds of the impermeable tuff-breccia exist.

Restrictive Structures

The Red Bluff Arch is a hydrologic divide between the Redding Basin to the north and the Sacramento Valley.

Groundwater Level Trends

Review of hydrographs for long-term comparison of spring-spring groundwater levels indicates a decline of 3- to 7-feet associated with the 1976-77 and 1987-94 droughts, followed by a recovery to pre-drought conditions of the early 1970's and 1980's. Generally, groundwater level data show a seasonal fluctuation ranging from 5- to 10-feet for unconfined, semi-confined, and composite wells. Wells constructed in confined aquifers can fluctuate up to 50 feet. Overall, there does not appear to be any increasing or decreasing trends in the groundwater levels.

Groundwater Storage

The storage capacity of the subbasin was estimated based on estimates of specific yield for the Sacramento Valley as developed in DWR (1978). Estimates of specific yield, determined on a regional basis, were used to obtain a weighted specific yield conforming to the subbasin boundary. The estimated specific yield for the subbasin is 7.9 percent. The estimated storage capacity to a depth of 200 feet is approximately 4,208,851 acre-feet.

Groundwater Budget (Type B)

Estimates of groundwater extraction for the Red Bluff Subbasin are based on a survey conducted by the California Department of Water Resources in 1994. The survey included landuse and sources of water. The estimate of groundwater extraction for agricultural use is estimated to be 81,000 acre-feet. Groundwater extraction for municipal and industrial uses is 8,900 acre-feet. Deep percolation from applied water is estimated to be 20,000 acre-feet.

Groundwater Quality

Characterization. Calcium-magnesium bicarbonate and magnesium-calcium bicarbonate are the predominant groundwater types in the subbasin. Total dissolved solids (TDS) concentrations range from 120- to 500-mg/L and average 207 mg/L (DWR unpublished data).

Impairments. Impairments include high magnesium, TDS, calcium, ASAR, and phosphorus.

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	41	2
Radiological	33	0
Nitrates	41	0
Pesticides	23	0
VOCs and SVOCs	16	0
Inorganics – Secondary	41	4

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: 50 – 1,200	Average: 363 (4 Well Completion Reports)
	Total depths (ft)	
Domestic	Range: 20 – 780	Average: 197 (3293 Well Completion Reports)
Municipal/Irrigation	Range: 22 – 465	Average: 207 (18 Well Completion Reports)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
DWR	Groundwater levels	29 wells semi-annually
USBR	Groundwater levels	1 well semi-annually
DWR	Miscellaneous water quality	10 wells biennially
Department of Health Services and cooperators	Miscellaneous water quality	56

Basin Management

Groundwater management:	Tehama County adopted a groundwater management ordinance in 1994. Tehama County adopted a countywide AB 3030 plan in 1996.
Water agencies	
Public	Tehama County Flood Control and Water Conservation District. El Camino ID, Elder Creek WD, Gerber-Los Flores Community Service District, Gerber Water Works Inc., Tehama Ranch M.W.C., Proberta WD, Rawson WD, Thomes Creek WD, City of Red Bluff.
Private	

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Errata

Changes made to the basin description will be noted here.

Sacramento Valley Groundwater Basin, Antelope Subbasin

- Groundwater Basin Number: 5-21.54
- County: Tehama
- Surface Area: 18,710 acres (29 square miles)

Basin Boundaries and Hydrology

The Antelope Subbasin comprises the portion of the Sacramento Valley Groundwater Basin bounded on the west by the Sacramento River, on the north by the Red Bluff Arch, on the northeast by the Cascade Range, and the southeast by Antelope Creek. The Antelope Subbasin is contiguous with the Dye Creek Subbasin to the south. Annual precipitation in the subbasin ranges from 23- to 27-inches, increasing to the east.

Hydrogeologic Information

Water-Bearing Formations

The aquifer system in this subbasin is comprised of continental deposits of Tertiary to late Quaternary age. The Quarternary deposits include Pleistocene Modesto and Riverbank Formations. The Tertiary deposits include the Pliocene Tehama Formation and the Tuscan Formation. The Tuscan Formation is the primary water producing zone in the basin.

Pleistocene Modesto Formation. The Pleistocene Modesto Formation (deposited between 14,000 to 42,000 years ago) consists of poorly indurated gravel and cobbles with sand, silt and clay derived from reworking and deposition of the Tehama, Tuscan, and Riverbank Formations. Well logs for wells drilled on the floodplain east of Red Bluff indicate that coarse grained clean sand and gravel extend to a depth of approximately 50 feet below the surface. Below this depth, cemented gravel, sandstone, and hard clay of the Tehama and Tuscan Formations are encountered (Omsted and Davis 1961). The Modesto Formation yields limited groundwater due to its limited thickness (DWR 1987).

Pleistocene Riverbank Formation. The Pleistocene Riverbank Formation (deposited between 130,000 and 450,000 years ago) is observed in the far northern extents of the subbasin. The Riverbank Formation yields limited groundwater due to its limited thickness and areal extents.

Pliocene Tuscan Formation. The Tuscan Formation is composed of volcanic breccia, tuff, tuff breccia, volcanic sandstone and conglomerate, basalt flows, and tuffaceous silt and clay. The formation is mostly consolidated tuff in the area of exposure east of the valley in the Cascade Range foothills. From there tuff breccias grade westerly into volcanic sands, gravels, and clay (DWR 1978). The Tuscan Formation is the major water-bearing aquifer in the northeastern portion of the Sacramento Valley. Thickness of the formation within the subbasin is approximately 1,500 feet (DWR 1987).

Pliocene Tehama Formation. The Tehama Formation interfingers with the Tuscan Formation along the Sacramento River and is exposed in westside

Sacramento River banks. The formation consists of fluvial deposits of predominantly silt and clay with gravel and sand interbeds (DWR 1987). The formation is identified within the subbasin at depths ranging from 100- to 150- feet (DWR 1987).

Recharge Areas

Recharge is from inflow from the Sacramento River, Salt Creek, and Antelope Creek. In an investigation conducted by U.S. Bureau of Reclamation, the upper and intermediate aquifer zones (located between the local groundwater elevation and 150 feet in depth) intercept the Sacramento River. Diurnal fluctuations in river stage produce diurnal water level fluctuations in the deeper aquifer zone (Ely 1994).

Restrictive Structures

The Inks Creek fold system is a series of northeast-trending folds north of the Antelope Subbasin. The system isolates the Redding Groundwater Basin from the Sacramento Valley Basin. The fold system is a hydrologic drainage divide and separates the Red Bluff Arch from the Chico Monocline (DWR 1987).

Groundwater Level Trends

Review of hydrographs for long-term comparison of spring-spring groundwater levels indicates a decline of 5- to 10-feet associated with the 1976-77 and 1987-94 droughts, followed by a recovery to pre-drought conditions of the early 1970's and 1980's. Generally, groundwater level data show a seasonal fluctuation of approximate 2- to 15-feet for normal and dry years. Overall, there does not appear to be any increasing or decreasing trends in groundwater levels.

Groundwater Storage

The storage capacity of the subbasin was estimated based on estimates of specific yield for the Sacramento Valley as developed in DWR (1978). Estimates of specific yield, determined on a regional basis, were used to obtain a weighted specific yield conforming to the subbasin boundary. The estimated specific yield for the subbasin is 7.2 percent. The estimated storage capacity to a depth of 200 feet is approximately 269,179 acre-feet.

Groundwater Budget (Type B)

Estimates of groundwater extraction for the Antelope Subbasin are based on a survey conducted by the California Department of Water Resources in 1994. The survey included landuse and sources of water. Estimates of groundwater extraction for agricultural and municipal/industrial uses are 17,000 and 2,100 acre-feet respectively. Deep percolation of applied water is estimated to be 3,800 acre-feet.

Groundwater Quality

Characterization. Groundwater in the subbasin is characterized as calcium-magnesium bicarbonate and magnesium-calcium bicarbonate. Total dissolved solids (TDS) range from 119- to 558- mg/L, averaging 280 mg/L (DWR unpublished data).

Impairments. High concentrations of boron, chloride, and TDS are found in groundwater in the vicinity of Salt Creek and Little Salt Creek. Nitrate concentrations of 20- to 45- mg/L have been observed within the west-central portion of the basin (DWR 1987).

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	17	0
Radiological	10	0
Nitrates	17	0
Pesticides	6	0
VOCs and SVOCs	3	0
Inorganics – Secondary	17	3

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: 300 – 800	Average: 575 (4 Well Completion Report)
	Total depths (ft)	
Domestic	Range: 40 - 450	Average: 104 (702 Well Completion Reports)
Municipal/Irrigation	Range: 40 - 600	Average: 176 (92 Well Completion Reports)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
DWR	Groundwater levels	4 wells semi-annually
DWR	Miscellaneous water quality	5 wells biennially
Department of Health Services	Miscellaneous water quality	22

Basin Management

Groundwater management:	Tehama County adopted a groundwater ordinance in 1994. Tehama County adopted a countywide AB3030 plan in 1996.
Water agencies	
Public	Tehama County Flood Control and Water Conservation District, City of Red Bluff
Private	

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Errata

Changes made to the basin description will be noted here.

Appendix F

2015 CONSUMER CONFIDENCE REPORT

2015 CITY OF RED BLUFF CONSUMER CONFIDENCE REPORT

PUBLIC WATER SYSTEM #5210004

The City of Red Bluff operates a public water system under a permit issued by the State Water Resources Control Board (State Board). The permit was first issued in 1971 and is amended as improvements are added to the system. The State makes routine inspections of the water system and is the recipient of **all** test results. The City is regulated by Title 22 of the California Code of Regulations. This annual report includes water quality data through December 31, 2015. For additional information concerning this Consumer Confidence Report, contact **Public Works (530) 527-2605 extension 3067.**

Este informe contiene informatión muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

THE FOLLOWING ARE DEFINITIONS OF SOME OF THE TERMS USED IN THIS REPORT:

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.
Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (USEPA).
Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
Minimum Reporting Level (MRL): The smallest measured concentration of a substance that can be reliably measured by using a given analytical method.

Primary Drinking Water Standards (PDWS): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.
ppm: parts per million or milligrams per liter (mg/L). One ppm or mg/l is equal to : One inch in 16 miles, One second in 11.5 days or One minute in two years.
ppb: parts per billion or micrograms per liter (ug/L) One ppb or ug/l is equal to: One second in nearly 32 years, Single penny in $10,000,000 or One pinch of salt in 10 tons of potato chips.
pCi/L: Pico curies per liter (a measure of radiation)
AL: Action Level

SOURCE OF WATER

The City currently operates 13 wells, varying in depth from 250' to 625' and varying in capacity from 480 to 2,400 gallons per minute. The water supplied by the 13 wells is not altered or treated prior to distribution. The City currently has two 3 million gallon water storage facilities.

An assessment of the drinking water sources for the City of Red Bluff Water System was completed in February 2003. A copy of this assessment is available by contacting the Public Works Dept. at 530-527-2605 ext. 3067. The sources that are considered most vulnerable are those in close proximity to gas stations, underground storage tanks, sewer and septic collection systems and industrial manufacturers.

WATER QUALITY ANALYSIS

The following "range of test values", reflect the most recent analysis of the 13 well sites. All chemicals reported have no Public Health Goal (PHG).

DISTRIBUTION SYSTEM MICROBIOLOGICAL QUALITY OF WATER

CONTAMINANT	SAMPLE DETECTIONS	MCL	SOURCE OF BACTERIA
Total Coliform Bacteria	0	< 2	Naturally present in environment
Fecal Coliform or E. coli	0	A routine sample and a repeat sample detect total coliform and either sample also detects fecal coliform or E. coli	Human and animal fecal waste

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems. The City tests four samples from the distribution system on a weekly basis for coliform organisms. The State Board regulations specify that no more than one routine sample is to be positive for coliform in a month.

INDIVIDUAL TAP MONITORING FOR LEAD AND COPPER

Monitoring of individual customer's taps from locations within the water system is performed for lead and copper. This monitoring is done periodically to verify that the delivered water does not contain lead or copper. Triennial testing for lead and copper is required by the State Board on a varied schedule. **Thirty** samples were collected in September 2013. The State allows monitoring for some contaminants less than once per year because the concentrations of these contaminants do not change frequently.

LEAD / COPPER	# OF SAMPLES	90th PERCENTILE	# OF SAMPLES OVER AL	AL
Lead	30	.0015 **mg/l**	0	.015 **mg/l**
Copper	30	.088 **mg/l**	0	1.3 **mg/l**

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

UNREGULATED CONTAMINANT MONITORING RULE (UCMR3)

CONTAMINANT	RANGE DETECTED	AVERAGE	MRL	NO MCL SET BY STATE	DATE SAMPLED
Chromium 6+	1.1--6.1 ug/L	4.06 ug/L	0.030 ug/L	N/A	December 2015
Chromium, Total	1.2—5.9 ug/L	3.87 ug/L	0.20 ug/L	N/A	December 2015
Strontium, Total	140—280 ug/L	218.46 ug/L	0.30 ug/L	N/A	December 2015
Vanadium, Total	4.2—18 ug/L	12.89 ug/L	0.20 ug/L	N/A	December 2015

Unregulated contaminant monitoring helps USEPA and the State Water Resources Control Board to determine where certain contaminants occur and if it is necessary to regulate them.

RADIOLOGICAL WATER QUALITY

Results of water sample analyses performed to measure radiological constituents. The water system is in compliance if the level does not exceed 5 pico Curies per liter (pCi/l). Results of 10/19/2007 test for constituents were <1.0 to <3.0 (pCi/l). Composite Sampling test for Gross Alpha, Radium 226, Radium 228 and Uranium met the new regulations mandated by the State.

SODIUM AND HARDNESS

Although sodium and hardness do not have MCL's they are of interest to many consumers who are concerned about sodium intake and may believe that the hardness of the water could affect their health.

CONTAMINANT	RANGE DETECTED	MCL	DEGREE
Sodium	12. – 26. mg/L	N/A	Considered low
Hardness	67.1 – 98.5 mg/L	N/A	0-50/soft, 300-up/very hard

ARSENIC

While your drinking water meets the current Federal & State standard for arsenic, it does contain low levels of arsenic. The standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The California Department of Health Services continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

CONTAMINANT	RANGE DETECTED	MCL	SAMPLED
Arsenic	2.--4. Ug/L	10 ug/L	2014

GENERAL INFORMATION ON DRINKING WATER

CONTAMINANT	RANGE DETECTED	MCL	SAMPLED
Copper (Cu)	.004--.01 ug/L	1.3 ug/L	2014
Fluoride(F) Natural Source	0.0--0.01 mg/L	2.0 mg/L	2014
Nitrate (AS NO3)	2.0—8.6 mg/L	45 mg/L	2015
Sulfate (SO4)	1.8--6.0 mg/L	500 mg/L	2014

Nitrate in drinking water at levels above 10 mg/L is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA Safe Drinking Water Hotline at 1-800-426-4791.

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

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

Contaminants that may be present in source water include:

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

In order to ensure that tap water is safe to drink, USEPA and the SWRCB (State Water Resources Control Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. SWRCB regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Water customers reviewing this report are asked to share this information with any tenant or water user on their premises. We think it is important for you, our customer, to have current and factual information about your water supply.

Information that deals with decisions about our water system is announced during the Red Bluff City Council meetings on the first and third Tuesdays of every month at 7 p.m. in the Council Chambers at 555 Washington Street. Agendas are posted at City Hall and on our website www.cityofredbluff.org. An online version of this report is also available at www.cityofredbluff.org/public notices.

Appendix G

CITY CODE CONSERVATION AND RATIONING STAGES SECTION

Attachment B

Ordinance No. 1037

AN URGENCY ORDINANCE OF THE CITY OF RED BLUFF REGARDING WATER CONSERVATION, AND AMENDING SECTION 24.18 et. seq. OF THE RED BLUFF CITY CODE

The City Council of the City of Red Bluff does ordain as follows:

SECTION 1. This urgency ordinance is adopted pursuant to California Constitution, Article XI, Section 7 and Government Code section 36937(b).

SECTION 2. The City Council finds and declares as follows:

(A) The availability of source water for the City of Red Bluff may be affected by numerous factors including regulatory mandates imposed by the State Water Resources Control Board.

(B) Water production facilities failures, water distribution infrastructure failures, contamination of supply, or other factors may result in emergency conditions that threaten the water utility's ability to provide for public health and safety.

(C) On January 17, 2014 and on April 25, 2014, the Governor issued proclamations of a state of emergency under the California Emergency Services Act based on continued drought.

(D) On April 1, 2015, the Governor issued an Executive Order that directed the State Water Resources Control Board to impose restrictions on water suppliers to achieve a statewide 25% reduction in potable urban water usage.

(E) On May 5, 2015 the State Water Resources Control Board adopted emergency regulations mandating a reduction in potable urban water usage.

(F) The City's Water Shortage Contingency Plan, currently in force does not adequately address all the factors that may affect the City's ability to respond to diminished source capacity, emergency conditions or mandates from the State.

(G) There is a direct nexus between the availability of water supply and the immediate preservation of the public health and safety.

(H) The City Council finds that immediate preservation of the public peace, health and safety requires that this ordinance become effectively immediately upon adoption so the City can implement the water conservation mandates from the State Water Resources Control Board.

SECTION 3. In order to protect the health, safety and welfare of the citizens of Red Bluff, Chapter 24: Water, Article I: GENERAL PROVISIONS, Section 24.18 et. seq. of the Code of The City of Red Bluff is amended to read as follows:

§ 24.18 INTENT.

It is the intent of the City to encourage the conservation of the City's water supply for the greatest public benefit to minimize the wasteful use of water and to make provisions for emergency rationing of water when necessary.

§ 24.19 DECLARATION OF WATER SHORTAGE EMERGENCY.

The Director of Public Works, with the concurrence of the City Manager, may declare a Stage II, Stage III, Stage IV or Stage V water system operation for water conservation and rationing for a period not to exceed 15 calendar days. Any declared stage to be extended beyond 15 days must be approved by the City Council.

§ 24.20 CONSERVATION AND RATIONING STAGES.

(A) The City Council of the City 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.

(B) The City has developed a five stage rationing plan to invoke during declared water shortages. The action stages 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. Stages will be implemented when circumstances warrant as determined by the Public Works Director, City Manager and the City Council, or as the State mandates water use restrictions.

(C) The Director of Public Works will recommend an appropriate 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.

(1) **Stage I - Voluntary compliance with conservation measures**. This is the normal operating stage for the water system. The City may initiate a water conservation program to provide public information on ways to reduce water use. Customers are encouraged to reduce water usage by taking the following voluntary water conservation measures:

(a) Refrain from landscape watering except between the hours of 9:00 pm until 8:00 am.

(b) Refrain from allowing water runoff from any lawns, landscapes, or garden into adjoining streets, gutters, sidewalks, parking lot or alley.

(c) Refrain from hosing or washing sidewalks, walkways, driveways, parking lots, or other hard surfaced areas.

(d) Refrain from washing cars, boats, trailers, or other vehicles except by hose with a shutoff nozzle and bucket.

(e) Equip any hose with a shutoff nozzle.

(f) Promptly repair all leaks in plumbing fixtures, water lines, and sprinkler systems.

(2) **Stage II –Moderate Water Shortage**. Mandatory implementation of conservation measures. Voluntary conservation measures in Stage I become mandatory. Customers shall comply with all provisions of Stage I measures (a) through (f), plus the following:

(a) Equip new commercial car washes with a water recycling system.

(b) All new construction must install low flow shower heads, low flush toilets, and faucet aerators.

(c) Construction Projects and Industrial Use: water service for construction projects and industrial use shall be addressed on a case-by-case basis.

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

(3) **Stage III – Serious Water Shortage**. Mandatory Conservation. Includes all of the Stage II measures plus the following:

(a) Landscape watering by any means including automatic irrigation systems, hose-end sprinklers, drip irrigation, hand-held hose, or bucket is prohibited except on the following days between the hours of midnight and 8:00 am and again on the same day between the hours of 9:00 pm until midnight.

(1) Customers whose street addresses end with an odd number may water only on Wednesday and Sunday and only within the permitted time period.

(2) Customers whose addresses end with an even number may water only on Tuesday and Saturday and only within the permitted time period.

(b) Operation of ornamental fountains, ponds or lakes is prohibited without a water recycling system.

(c) Operators of restaurants must provide on each table a notice of water emergency and refrain from serving drinking water except upon specific request of a customer.

(d) Operators of hotels and motels must provide in each room a notice of water emergency and the option to choosing not to have towels and linens laundered daily.

(e) Public Facilities: water service to parks, cemeteries and other public facilities shall comply with the restrictions set forth in this section.

(4) **Stage IV - Severe Water Shortage**. Mandatory reduction. Includes all Stage III measures plus the following:

(a) 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 IV water emergency.

(b) 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 IV water emergency so they can prepare for a possible shutdown of production.

(c) The following potable 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 other than at commercial facilities with water recycling.

(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 ornamental fountains, ponds, or lakes.

(7) Sewer system maintenance, fire protection training, or flushing of hydrants.

(8) Street cleaning.

(9) Use of hydrant meters for construction purposes.

(4) **Stage V - 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.

(a) 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.

(b) Customers will be notified via news media and other methods of this stage of water shortage emergency and water use restrictions.

§ 24.21 ENFORCEMENT.

Any customer violating the water conservation and rationing provisions regulations set forth in this chapter, shall receive a written warning for the first violation. Upon a second violation, the customer shall receive a second written warning and the City may, at its discretion, install a flow-restricting device on the customer's water service. All costs to install and remove the flow-restricting device shall be paid by the violating customer. Any willful violation after issuance of the second written warning shall constitute a misdemeanor and the City may, at its discretion, disconnect the water service.

§ 24.22 WATER SERVICE PENALTY.

In addition to those provisions set forth in § 24.21, any violator receiving a second written notice will be assessed a water service penalty for any "excessive use of water" which is defined as water use that exceeds the average water use for the account for the prior 12 months. The penalty for the "excessive use of water" shall be double the account billing rate.

§ 24.23 TERMINATION OF SERVICE.

For violations resulting in third written notices and continued excessive use of water, the City may, at its discretion, disconnect water service and not reinstate service until a specific water conservation plan has been developed with the violating customer.

§ 24.24 APPEALS.

Any decision or declaration made by the Director of Public Works under this section may be appealed to the City Manager. Any decision made by the City Manager under this section may be appealed to the City Council. Any appeal shall be made in writing, setting forth the nature of the disagreement with the decision or declaration made, the reasons to support the disagreement, and the relief sought. Any determination by the City Council shall be final.

§ 24.25 CUMULATIVE REMEDIES.

The remedies available to the City to enforce §§ 24.18 et seq. are in addition to any other remedies available under the City's municipal code or any state statutes or regulations and do not replace or supplant any other remedy but are cumulative.

SECTION 4. This Ordinance is an urgency ordinance necessary for the immediate preservation of the public peace, health, and safety. Pursuant to Government Code section 36937, this ordinance shall take effect immediately upon adoption by four-fifths of the City Council, and prior to the expiration of fifteen (15) days from the adoption thereof shall be published at least one time in the Red Bluff Daily News, a newspaper of general circulation.

* * * *

The foregoing was adopted at a regular meeting of the Red Bluff City Council on May 19, 2015 by the following vote:

AYES: Councilmembers:

NOES: Councilmembers:

ABSENT OR NOT VOTING: Councilmembers:

_____
Clay Parker, MAYOR

ATTEST:

_____
Jo Anna Lopez, City Clerk

APPROVED AS TO FORM:

_____
Richard Crabtree, City Attorney

Appendix H

CITY CODE PREVENTION OF WASTE SECTION

§ 24.11 PREVENTION OF WASTE.

Each consumer is responsible to keep his or her water system free from leakage or waste. Upon failure to do so, the Director of Public Works may shut off the water supply to the premises. The water may be shut off only after 24 hours notice is given to the occupant pursuant to § 24.22.

(`61 Code, § 24.12) (Ord. 304, passed 5-21-1956; Am. Ord. 359, passed 3-18-1986; Am. Ord. 908, passed 6-20-2000; Am. Ord. 958, passed 3-1-2005; Am. Ord. 966, passed 2-7-2006)

Appendix I

WATER AND SEWER RATE SCHEDULE

City of Red Bluff Water Rates:

Rates effective July 15, 2012

BASE METER RATES		
3/4"	Meter	15.04
1"	Meter	25.78
1 1/2"	Meter	48.33
2"	Meter	60.24
3"	Meter	82.69
4"	Meter	205.81
6"	Meter	454.39

CONSUMPTION RATES	
VOLUME	PRICE
Cubic Feet	Per 100 Cubic Feet
1 - 2,500	0.79
2,501 - 4,000	0.74
4,001 - 6,000	0.69
6,001 - 8,000	0.66
8,001 - 12,000	0.62
12,001 - 20,000	0.61
20,001 - 36,000	0.55
36,001 - 68,000	0.54
Greater than 68,001	0.48

City of Red Bluff Sewer Rates:

Pursuant to City Ordinance 832, the following is a list of Sanitary Sewer Service Fees

Rates effective July 15, 2012

User Class	*Monthly Rate*
Single Family	$34.00
Mobile Homes on individual lots	$24.00
Condominiums	$34.00
Townhouses	$34.00
Mobile Homes (in park), per unit	$24.00
Apartment, per unit	$24.00
Commercial:	
Minimum*	$34.00
Bakery	$3.63 per 100 cubic ft**
Restaurant	$2.99 per 100 cubic ft**
All Others	$2.69 per 100 cubic ft**

Gallons per cubic foot

1 cubic foot = 7.48051945 US gallons

1 US gallon = 0.133680556 cubic feet

* The minimum rate for sewage service is based upon the sewer discharge of 400 cubic feet per month for bakeries, 500 cubic feet per month for restaurants and 1,100 cubic feet per month for all other commercial users.

** Per 100 cubic feet of sewage discharge, or fraction thereof, exceeding the minimum discharge allowance.

Appendix J

COMPLETED UWMP CHECKLIST

Checklist Arranged by Subject

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	**Section 2.1**
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	**Section 2.4.2**
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	**Section 2.4.2**
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	**Section 3.1**
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	**Section 3.3**
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	**Section 3.4**
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	**Section 3.4.1**
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	**Section 3.4 and 5.2**
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	**Section 4.2**
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	**Section 4.3**
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	**Section 4.5**
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	**Section 5.5**
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and	Baselines and Targets	Chapter 5 and App E	**Chapter 5**

	compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.			
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	**Section 5.5.2**
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	**Section 5.6**
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	**N/A (Section 5.6)**
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	**N/A**
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	**Section 5.6**
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	**Chapter 6**
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	**Section 6.2**
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	**Section 6.2.2**
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	**Section 6.2.1**
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	**N/A (Section 6.2.1)**
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	**Section 6.2.3**
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of	System Supplies	Section 6.2.4	**Section 6.2.4**

	groundwater pumped by the urban water supplier for the past five years			
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	**Section 6.9**
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	**Section 6.7**
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	**Section 6.8**
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	**Section 6.6**
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	**N/A (Section 2.4.1)**
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	**N/A**
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	**Section 6.5.1**
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	**Section 6.5.2**
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	**Section 6.5.2.2**
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	**Section 6.5.3 and 6.5.4**
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	**Section 6.5.6**
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description	System Supplies (Recycled Water)	Section 6.5.4	**Section 6.5.4, Section 6.9**

	of the actual use of recycled water in comparison to uses previously projected.			
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	**Section 6.5.6**
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	**Section 6.5.6**
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	**Section 7.4**
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	**Section 7.1**
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years.	Water Supply Reliability Assessment	Section 7.2	**Section 7.2**
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	**Section 7.1**
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability.	Water Supply Reliability Assessment	Section 7.1	**Section 7.1**
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	**Section 7.3**
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	**Section 8.1**
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	**Section 8.9**
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	**Section 8.8**
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	**Section 8.2**
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	**Section 8.4**

10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	**Section 8.3**
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	**Section 8.6**
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	**Section 8.7**
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	**Section 8.5**
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	**Chapter 9**
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	**N/A**
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	**N/A**
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	**Section 10.3**
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	**Section 10.2.1**
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	**Section 10.4.1. (See Commitment to Distribute in Appendix A)**
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	**Section 10.4.4**

10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	**Sections 10.2.2, 10.3, and 10.5**
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	**Section 10.2.1**
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	**Section 10.3.1**
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	**Section 10.4.3. (See Commitment to Distribute in Appendix A)**
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	**Section 10.4.4. (See Commitment to Distribute in Appendix A)**
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	**Section 10.4.2 and 10.6**
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	**Section 10.5**

Appendix K

CITY ADOPTION RESOLUTION

Exhibit B

RESOLUTION NO. 02-2017

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF RED BLUFF ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN

WHEREAS, the City Council of the City of Red Bluff has prepared and made available to the public for review, an Urban Water Management Plan, dated December 22, 2016, in compliance with the requirements contained in part 2.6 of Division 6 of the Water Code of the State of California; and

WHEREAS, the City Council of the City of Red Bluff held a public meeting to receive comments from the public on the plan prior to adoption; and

WHEREAS, the City Council of the City of Red Bluff coordinated closely with the California Department of Water Resources and the United States Bureau of Reclamation on the completion of this document.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Red Bluff approves the following:

1. The 2015 Urban Water management Plan is hereby adopted; and
2. The preparation and adoption of the 2015 Urban Water Management Plan is exempt from the California Environmental Quality Act pursuant to Water Code Section 10652 and CEQA Guidelines Section 15282(v); and
3. The City Manager or his designee is hereby authorized and directed to file this Plan with the California Department of Water Resources.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Red Bluff does hereby adopt Resolution No. 2-2017.

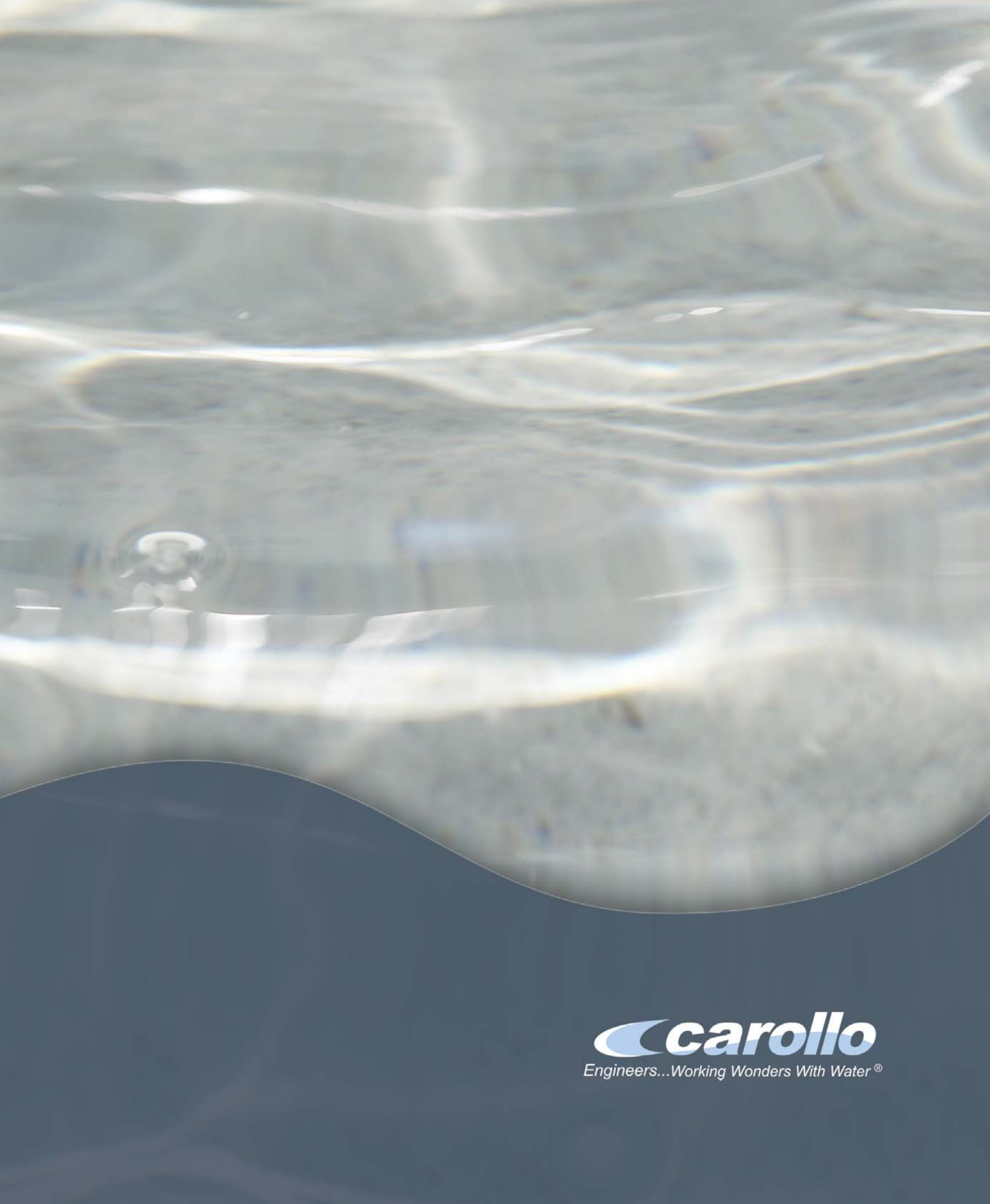
PASSED AND ADOPTED at a regular meeting of the City Council of the City of Red Bluff held on January 17, 2017 by the following vote:

Ayes:	Council Member(s):	Jones, Jackson, Parker, Schmid and Jenkins
Noes:	Council Member(s):	None
Abstained:	Council Member(s):	None
Absent:	Council Member(s):	None

Gary Jones, Mayor
City of Red Bluff

Attest:

Cassidy DeRego, City Clerk
City of Red Bluff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