URBAN WATER MANAGEMENT PLAN
2020 UPDATE

CITY OF SUSANVILLE, CALIFORNIA

December 2022

Public Works

720 South Street
Susanville, California 96130
Phone: 530-257-1041

Revision 20221128

City Council

Quincy McCourt, Mayor

Thomas Herrera, Mayor ProTem

Mendy Schuster

Kevin Stafford

Russ Brown

City Staff

Dan Newton, City Administrator

Robert Godman, Public Works Director

TABLE OF CONTENTS

APPENDIX

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS – Entities

CDPH ..... California Department of Public Health
DWR ..... Department of Water Resources
IRWMG ..... Integrated Regional Water Management Group
IRWMP ..... Integrated Regional Water Management Plan
SWRCB ..... State Water Resources Control Board
UWMP ..... Urban Water Management Plan
UWMPA ..... Urban Water Management Plan Act
UWMPGB ..... UWMP 2015 Guidebook
WMP ..... Water Master Plan

ABBREVIATIONS – Terminology & Units

AB ..... State Assembly Bill
ac ..... acre
ADD ..... Average Daily Demand
af ..... acre-feet
afy ..... acre-feet per year
bgs ..... below ground surface
CII ..... Commercial, Industrial and Institutional
CWC ..... California Water Code
DMM ..... Demand Management Measures
DU ..... dwelling unit
ET_0 ..... Reference Evapo-transpiration
ft ..... feet
gpd ..... gallons per day
gpcd ..... gallons per capita per day
MCL ..... Maximum Contaminant Level
MDD ..... Maximum Day Demand
MMG ..... million gallons
MMGD ..... million gallons per day
MMGY ..... million gallons per year
mg/L ..... milligrams per liter
PHG ..... Public Health Goal
SB ..... State Senate Bill
ULF ..... Ultra-Low Flush toilet

1 INTRODUCTION

1.1 Purpose

The Urban Water Management Plan (UWMP) is a requirement of the Urban Water Management Planning Act (UWMPA) (Division 6, Part 2.6 of the California Water Code (CWC) §10610-10656). The UWMPs must be prepared every five years and submitted to the Department of Water Resources (DWR). The submittal is required to meet the requirements of the UWMPA, including the most current amendments. The UWMPA applies to urban water suppliers with 3,000 or more connections or supplying more than 3,000 acre-feet (af) (978 MMG) of water annually.

UWMPs are required of the state's urban water suppliers in an effort to assist their resource planning and to ensure adequate water supplies are available for future use. A secondary purpose of the UWMP is to provide a plan for a series of actions to be implemented during water shortage situations. This report was prepared according to the requirements of the CWC, UWMPA and the UWMP Guidebook 2020 (April 2021).

1.2 Background

1.2.1 Urban Water Management Planning Act

In 1983, Assembly Bill (AB) 797 altered Division 6 of the CWC by producing the UWMPA. Since 1983, several amendments to the Act have modified and added to the requirements of the UWMPs submitted today. One such amendment required projections for water use to extend 20 years at 5-year intervals. Recently, this has been increased to a 25 year projection providing for a minimum 20-year projection up until the next UWMP is completed.

Various other amendments have increased requirements to include sections on recycled water use, demand management measures (DMMs), and water shortage contingency plans. Recycled water use sections were added to assist in evaluation of alternate water supplies for future use when projects exceed the current water supplies. Demand management measures must be clearly described including which measures are being implemented and which are scheduled for implementation in the future. Water contingency plans are to be prepared and coordinated with other water suppliers in the area for use during times of drought.

1.2.2 Previous Urban Water Management Plan

The City previously prepared an submitted the UWMP in 2010 and 2015; This 2020 UWMP retains critical relevant data from the 2010 and 2015 UWMP plan and provides relevant updates that comply with the new 2020 requirements and regulations.

2 PLAN PREPARATION

2.1 General UWMP Plan and Agency Information

This plan is an Individual UWMP prepared by the City of Susanville for Public Water System number 181001. The City of Susanville is a retail water supplier that operates its water system based on calendar years and Millions of Gallons (MMG) are the water unites as reported in this report. The City does not supply water to other water supply agencies.

Table 2.1-1(UWMGB 2-1): Public Water Systems

Submittal Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2020	Volume of Water Supplied 2020 *
Add additional rows as needed			
181001	City of Susanville	3,639	600
	TOTAL	3,639	600
**** Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES: Volume in MG (Millions of gallons)			

Table 2.1-2(UWMGB 2-2): Plan Identification

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

Table 2.1-3(UWMGB 2-3): Agency Identification

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

Table 2.1-4(UWMGB 2-4): Water Supplier Information Exchange

Submittal Table 2-4 Retail: Water Supplier Information Exchange
The retail Supplier has informed the following wholesale supplier(s) of projected water use in accordance with Water Code Section 10631.
Wholesale Water Supplier Name
Add additional rows as needed
none/Na

2.2 Plan Coordination

Legal Requirements:

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

§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 §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. The urban water supplier may consult with, and obtain comments from, a city or county that receives notice pursuant to this subdivision.

§10635(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

§10642 Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.

§10642 Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area.

Lassen County does not have a dependent special district serving culinary water in the area. The irrigation districts serving farms to the south and east of the City have water rights from drainage basins and therefore do not pump ground water for their customers. Brockman and Jensen Sloughs, which serve irrigation water, receive water from diversions on the downstream Susan River and from the Susanville Consolidated Wastewater Secondary Treatment Ponds. The City of Susanville is a participating member of the Lahontan Basin Regional Water Management Group (LBRWMG).

Table 2.2-1: Coordination with Appropriate Agencies

Coordinating Agencies[1]	Participated in Developing the Plan	Commented on the Draft	Attended Public Meetings	Was Contacted for Assistance	Was Sent a Copy of the Draft Plan	Was Sent a Notice of Intention to Adopt
LBRWMG Group					X	X
Susanville Sanitary District					X	X
Lassen County					X	X
Susanville Indian Rancheria					X	X

Table 2.2-2 (UWMGB 10-1): Notification to Cities and Counties

Submittal Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
None		
County Name *Drop Down List*	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
Lassen County	Yes	Yes
NOTES:Other Agencies Lassen County Irrgation, Honey Lake Valley RCD, Susanville Sanitary District.		

2.3 Plan Adoption, Submittal, and Implementation

Legal Requirements:

§10640 – 10621(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3.

§10642 After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

§10643 An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

§10644(a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

§10645 Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

The City will hold a public hearing and adopt the 2020 UWMP on (August ??, 2022). A copy of the adopting resolution is included in Appendix A. Prior to the public hearing; a notice will be published notifying the public of the pending hearing.

Once the UWMP has been adopted, a copy of the UWMP and amendments will be submitted to Lassen County, DWR and the State Library. Once submitted to DWR, a copy will be made available for public review within 30 days. The City will also file the appropriate electronic files to the DWR.

3 SYSTEM DESCRIPTION

3.1 Service Area Physical Description

Legal Requirements:

§10631(a) Describe the service area of the supplier.

§10631(a) (Describe the service area) climate.

3.1.1 Location

The City of Susanville is the county seat of Lassen County and is in the eastern slopes of the Sierra Nevada Mountains. The City is bordered to the west by the Sierra Nevada Mountain Range and to the West by the Cascade. The City is located on the western edge of the Honey Lake Valley Ground Water Basin.

The City of Susanville is approximately 4,258 feet above sea level and has an approximate land area of 6.5 square miles. Susanville is the only incorporated city within Lassen County's 4,557 square miles. According to the State of California Department of Finance The population of Susanville in 2015 was approximately 15,092 citizens; however, this includes the group quarter populations of the High Desert State Prison and the California Correctional Center as detailed in section 3.2.

Figure 3.1-1: Reginal Location Map

Figure 3.1-2: City Map

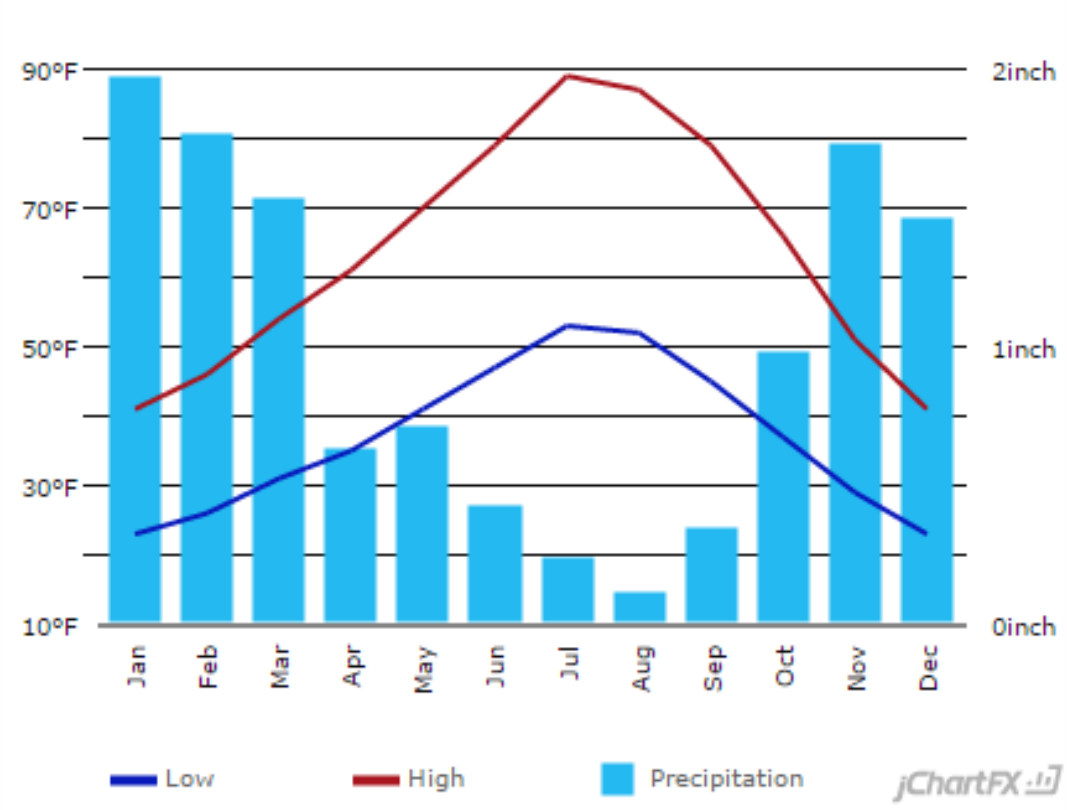
3.1.2 Climate

The City of Susanville has a semi-arid type climate. The majority of the annual rain fall occurs in the winter months. Annual precipitation averages 11.93 inches. Each year will include approximately 59 days of measurable precipitation.

Table 3.1-1: Climate Characteristics

Month	Monthly Average Rainfall (inches)	Average Min. Temperature (ºF)	Average Max. Temperature (ºF)	Monthly Average Temperature (ºF)	Average Pan Evaporation (inches)	Monthly Average ETo (Zone 17) (inches per month)
January	1.97	23	41	32	0.00	1.02
February	1.77	26	46	36	4.65	1.72
March	1.54	31	54	43	6.45	3.50
April	0.63	35	61	48	9.97	4.92
May	0.71	41	70	56	13.59	6.19
June	0.43	47	79	63	15.33	7.30
July	0.24	53	89	71	17.21	8.42
August	0.12	52	87	70	16.0	7.51
September	0.35	45	79	62	11.83	5.41
October	0.98	37	66	52	8.28	3.38
November	1.73	29	51	40	4.76	1.53
December	1.46	23	41	32	3.52	0.86
Annual Total/Averages	11.93	36.8	63.7	50	111.59	51.76
Source: usclimatedata.com						

Figure 3.1-3: Climate Characteristics



3.2 Service Area Population

Legal Requirements:

> *§10631(a) (Describe the service area) current and projected population…The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier…*
>
> *§10631(a) …(population projections) shall be in five-year increments to 20 years or as far as data is available.*
>
> *§10631(a) Describe…other demographic factors affecting the supplier's water management planning.*

According to the State of California Department of Finance The population of Susanville in 2020 was approximately 13,717 citizens. The City of Susanville has two state prisons, High Desert State Prison, the California Correctional Center, that with annexation are now within the incorporated city area. The inmate population is approximately 5,641 and is counted in the overall population demographics for the City. However, the prisons operate independent water systems and therefore, the populations must be excluded from this water management plan.

The total unserved prison population in 2020 was 5,641. The 2020 served population is calculated to be 13,717 – 5,641 = 8,076.

The Susanville area has had a reduction in population from 2009 thru 2020. The prison population numbers are transient in nature and significantly affect the reported populations for the area. Although the growth rate may be negative and other reports have used a growth rate under 1% for the next several years, this UWMP will uses a 1% growth rate based on the 2020 population of 8,076. Using this, perhaps inflated, population growth forecast for future water demand requirements will provide for conservative planning. See table 3.2-2 for projected populations.

The City also provides water to the Susanville Indian Rancheria (SIR). There are two areas served; the lower Rancheria on Joaquin street, which is surrounded by the City limits; and the upper Rancheria north of Spring Ridge Road, which is north of Susanville, adjacent to, but not within the City limits. The homes located within the lower Rancheria are individually metered by the City, the residents are City Customers. The homes located in the upper Rancheria are not individually metered by the City. The upper Rancheria fills two 100,000 gallon tanks from the City's system and distributes water to the residents through the Rancheria's system. The Rancheria is the City's customer.

There are four large institutional water users on the City's system. Lassen Community College, Lassen County, Lassen High School, Susanville School District, and the City of Susanville.

Table 3.2-1: Historical Population 2000 to 2020

Table 3.2-1 Historical Population 2000 to 2015						
Calendar Year	Service Area Total Population	Unserved Prision Population	Distribution System Population	Distribution System Population Change	Distribution System %Population Change	10 Year Average % Population Change
2000	17089	8469	8620		0	
2001	17409	8676	8733	113	1.3%	
2002	17392	8456	8936	203	2.3%	
2003	17886	8670	9216	280	3.1%	
2004	18099	9000	9099	-117	-1.3%	
2005	18324	9001	9323	224	2.5%	
2006	18337	9070	9267	-56	-0.6%	
2007	18138	8987	9151	-116	-1.3%	
2008	17570	8479	9091	-60	-0.7%	
2009	17402	8298	9104	13	0.1%	
2010	17431	8439	8992	-112	-1.2%	0.4%
2011	17554	7963	9591	599	6.7%	1.0%
2012	16794	7442	9352	-239	-2.5%	0.5%
2013	15978	6482	9496	144	1.5%	0.3%
2014	15832	6689	9143	-353	-3.7%	0.1%
2015	15509	6380	9129	-14	-0.2%	-0.2%
2016	14614	5966	8648	-481	-5.3%	-0.6%
2017	15046	6435	8611	-37	-0.4%	-0.6%
2018	14954	6336	8618	7	0.1%	-0.5%
2019	15008	6227	8781	-715	-8.3%	-1.3%
2020	13717	5641	8076	-705	-8.0%	-2.0%
Note: The 10 year average % population change has transitioned to negative in 2014.						
The City will use a conservative 1% growth rate to project future water demands.						

Table 3.2-2 (UWMPGB 3-1): Population-Current and Projected

Submittal Table 3-1 Retail: Population - Current and Projected						
Population Served	2020	2025	2030	2035	2040	2045*(opt)*
	8,076	8,488	8,921	9,376	9,854	10,357
NOTES: Under 1% growth is projected for the area, 1% growth was used to allow conservative water demand planning.						

3.3 Water Sources Springs and Ground Water

Legal Requirements Water Sources:

§10631(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).

Legal Requirements Ground Water:

§10631(b) (Is) groundwater…identified as an existing or planned source of water available to the supplier…

§10631(b)(1) (Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

§10631(b)(2) (Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater.

§10631(b)(2) For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board.

§10631(b)(2) (Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

§10631(b)(2) For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

§10631(b)(3) (Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

§10631(b)(4) (Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

UWMPA requirements state that the water supplier must describe their existing and planned water supply sources for the next 20 years. The following description covers some of the legal requirements outlined above. Other requirements will be covered in section 7 Water Sources Supply Reliability and section 8 Water Shortage Contingency Plan.

The City water customer needs are met by utilizing water from Bagwell Springs (located one mile north of the city), Cady Springs (located two miles west of the city) and four wells (Well #1 and Well #3 and #4 and #5) located southeast in the city. Water from the wells is primarily utilized during the summer to supplement increased demands. The city also has additional caped wells, and locations for future new wells to meet the city's water demands.

Table 3.3-1: Water Sources Production Capacity Summary

Table 3.3-1 Water Sources Production Capacity Summary				
Water Source ID	Water Source Type	Water Source Name	Water Source Annual Capacity	Water Source Summer 1 Month
	Spring	Cady Springs	473.04	33.11
	Spring	Bagwell Springs	420.50	30.75
	Well	Well #1 (Bunyan)	367.92	30.66
	Well	Well #3	788.40	65.70
	Well	Well #4	367.92	30.66
	Well	Well #5 (College)	367.92	30.66
		TOTAL	2,785.70	221.54
NOTES: Volume in MMG (Millions of gallons). Spring annual capacities are based on an average. Spring 1 month capacity is based on 2015 (one of the lowest flow summer months on recored). Well capacities are based on 100% uptime a theretical maximum production capcity				

3.3.1 Cady Springs

Cady Springs is located about two and a half miles west of Susanville on the north slope of the Susan River Canyon. Cady Springs is at approximately 4,600 feet in elevation which is approximately 300 feet in elevation above the Susan River. The springs are located approximately 1,000 feet south of HWY 36. Locked gates and wire fencing control access to the springs. The springs are located on 40 acres of city owned property. The City acquired the water system and water rights from California Pacific National Corporation in 1986. The City has the right to use and consume the entire flow from Cady Springs. (Fleming vs. Bennett et. al., Lassen County Superior Court Action No. 4573, dated and filed April 18, 1940) Cady Springs produces an annual average of 900 gpm (473 MMG) in a dry year to 1,500 gpm (788.4 MMG) in a wet year. In August of 2015 Cady Springs produced an average flow of 742 gpm (33.11 MMG).

3.3.2 Bagwell Springs

Bagwell Springs is located on a wooded hillside about one and a half miles northwest of Susanville. The springs are approximately 4,485 feet in elevation. A locked gate and fencing control access to the springs. The City acquired the water system and water rights from CP National Corporation in 1986. CP National and therefore the City of Susanville has the right to use and consume for furnishing water to consumers in its water service area 2.45 cfs (1,122 gpm) (589.7 mg) of the flow of water from Bagwell Springs. (Fleming vs. Bennett et.al., Lassen County Superior Court Action No. 4573, dated & filed April 18, 1940) Bagwell Springs produces an annual average of 800 gpm (420.5 MMG). In August 2015 Bagwell Springs produced an average flow of 689 gpm (30.75 MMG).

3.3.3 Well #1 (Bunyan Well)

Well #1 and the pumping plant are located south of Riverside Drive and Grove Street. The casing is 12 inches diameter, with 320 feet of perforation between the depths of 130 and

450 feet below the ground surface. No gravel pack was constructed with this well. It was constructed in 1948. The 75 hp electric pumping unit is capable of producing about 700 gpm (367.92 MMG) annual production which is pumped directly into the water systems Pressure Zone 4. The pumping plant is turned on and off by sensing water levels in the South Street Tank. Well production is only limited by well capacity and not limited by water right. The well can produce approximately 700 gpm (30.66 MMG) in a single month based on 100% uptime.

3.3.4 Well #3

Well #3 was constructed in 1961 and is located approximately one half mile south of the city limit, off Johnstonville Road. The casing is 12 and 14 inches in diameter with 560 feet of perforation between the depths of 90 and 650 feet below the ground surface. The 200hp electric pump is capable of producing 1,500 gpm (788.4 MMG) annual production which is pumped directly into the water systems Pressure Zone 4. The pumping plant is turns on automatically by sensing water levels in the South Street Tank. Well production is only limited by well capacity and not limited by water right. The well can produce approximately 1,500 gpm (65.70 MMG) in a single month based on 100% uptime.

3.3.5 Well #4

Well #4 was constructed in 1992 and was online for the City of Susanville in 1995. It is located at the northwest corner of Orlo Drive and Skyline Drive. The steel casing is 8 inches in diameter with 125 to 225 feet of perforation at a depth of 290 feet below the ground surface. Well #4 produces approximately 700 gpm (367.92 MMG) annual production which and is used to augment the year-round water sources as needed. Well #4 is fully automated as of January 2003 and pumps to fill the Bagwell Springs Reservoir when the tank is depleted to a depth of 12 feet. Well production is only limited by well capacity and not limited by water right. The well can produce approximately 700 gpm (30.66 MMG) in a single month based on 100% uptime.

3.3.6 Well #5 (College Well)

Lassen Community College originally owned and operated Well #5, (know at the time as Well #2 to the college). The well was installed in the late 1960's. The college used this well to supply their water needs. The well was rebuilt in 2006. The purpose of the well was originally intended for geothermal power generation. The desired hot well was never located and the project was abandoned. This well is now developed as one of the resources available to obtain water as needed. The Well is capable of producing about 700 gpm (367.92 MMG) annual production. Well production is only limited by well capacity and not limited by water right. The well can produce approximately 700 gpm (30.66 MMG) in a single month based on 100% uptime.

3.4 Water Distribution System

3.4.1 Water lines and Customer Connections

The City of Susanville incorporated area is 6.5 square miles with approximately 3851 active service connections and approximately 110 of the active connections are outside of city limits. The City maintains approximately 60 miles of water main lines that service the customer connections in 6 different pressure zones. Customer meters are typically located on the property line and the average length of customer service lines is 25 feet.

3.4.2 Water Meters

All production sources are metered and the meters are considered highly accurate. Customer meters are also be considered highly accurate as 98% of them have been installed/replaced/upgraded since 2009. A portion of the customer meters were tested in 2016 to confirm accuracy

3.4.3 Water Storage

The City maintains 5 water storage tanks located thought the city with a total capacity of 3.88 MMG. These tanks are South Tank (0.5 MMG), Harris Tank (1.04 MMG), Bagwell Tank (0.5 MMG), Spring Ridge Tank (0.9 MMG), and Cady Tank (0.94 MMG).

3.4.4 Water Storage/Source Additional

The City maintains the 29acre freshwater Barry Reservoir that holds up to 36.8 million gallons. Currently the reservoir is not treated. This water source could be processed/treated to meet future potable demands and/or used to meet current irrigation supply needs.

4 SYSTEM DEMANDS

4.1 Current and Historical Water Demands

From 2001 thru 2010 water production was around 1,100 million gallons per year. From this data and population data the gpcd baseline was established at 328 with a 295 gpcd 2015 target (See section 2.2). In 2020 the City produced 815 MMG of water with a population of 8576 giving a 260 gpcd, slightly under 80% reduction from the 2010 baseline and target.

In 2020 the City produced 815 MMG of water, The City Delivered 661 MMG. This indicates a water loss of 154 MMG or 18.9% of water production see Table 4.1-1 below.

Table 4.1-1(UWMPGB 4-1): Demands for Potable and Raw Water 2020

Submittal Table 4-1 Retail: Demands for Potable and Non-Potable[1] Water - Actual			
Use Type	2020 Actual		
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Level of Treatment When Delivered Drop down list	Volume[2]
Add additional rows as needed			
Single Family		Drinking Water	404
Multi-Family		Drinking Water	77
Commercial		Drinking Water	180
		TOTAL	661
[1] Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4. Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3. [2]			
NOTES:			

4.2 Baselines and Targets (gpcd)

The 2010 gpcd baseline and targets are summarized in section 5 of this UWMP. The 2020 per capita water use target is 262 gpcd. The 2015 interim target is 295 gpcd. The city achieved 266 gpcd in 2015 (See table 5.2-2) exceeding the interim target of 295 by 29 gpcd. In 2020 the City achieve 260 gpcd, the required 80% reduction target set in 2021.

The City continues to use best management water conservation practices.

4.3 Water Demands

Legal Requirements:

§10631(e)(1) Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:

(A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; (I) Agricultural.

§10631(e)(2) The water use projections shall be in the same 5-year increments to 20 years or as far as data is available.

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

As illustrated below, the City's water use has been fairly constant from 2000 to 2010. Fluctuations, particularly in 2006, are likely caused by water production meter errors. From 2010 to the present water production, and gpcd, have decreased significantly as the city has focused water demand reducing measures including identifying and mitigating system leakage.

Table 4.3-1: Historical System Water Demands And Daily Per Capita Water Use

Table 4.3-1 Historical System Water Demands And Daily Per Capita Water Use-2000 to 2015						
Calendar Year	Service Area Total Population	Unserved Prision Population	Distribution System Population	Annual system gross water used (mgy)	Annual daily per capita use (gpcd)	Base & Target(gpcd)
2000	17089	8469	8620	1109	352	
2001	17409	8676	8733	1094	343	
2002	17392	8456	8936	1078	331	
2003	17886	8670	9216	1110	330	
2004	18099	9000	9099	1180	355	
2005	18324	9001	9323	1065	313	
2006	18337	9070	9267	853	252	
2007	18138	8987	9151	1171	351	
2008	17570	8479	9091	1158	349	
2009	17402	8298	9104	1027	309	
2010	17431	8439	8992	1199	365	328
2011	17554	7963	9591	1037	296	321
2012	16794	7442	9352	1090	319	315
2013	15978	6482	9496	1040	300	309
2014	15832	6689	9143	1011	303	303
2015	15509	6380	9129	846	254	296
2016	14614	5966	8648	766	243	291
2017	15046	6435	8611	808	257	285
2018	14954	6336	8618	782	249	279
2019	15008	6227	8781	760	237	273
2020	14217	5641	8576	815	260	268
Note: The 254 gpcd achieved in 2015 exceeded the 296 gpcd 2015 target.						
The City achieve 80% reduction from 2010 to 2020						

In 2020 the City produced 815 MMG of water, The City Delivered 661 MMG. This indicates a water loss of 154 MG or 18.9% of water production. See Table 4.1-1 for 2020 water by Use Type.

4.4 Water Demand Projections

Legal Requirements:

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

The population growth data summarized in Table 4.4-1 was used to estimate the future water use within the City. The distribution system population in 2020 was 8,576 and is projected to reach 11,173 by 2045. This is based on a 1% growth rate which is conservative.

The following table shows the projected water demand from 2020 through 2045 in MMG (millions of gallons) per year. This is based on the projected populations, the achieved gpcd of 260 in 2020, then continuing to reduce gcpd by 1 every 5 years thru 2045. The City notes that the required 2020 80% reduction to a (target: 262 gpcd, actual 260 gpcd) was achieved. The City will then continue to use best management practices in there water conservation efforts. It is anticipated that these efforts will continue to reduce gpcd.

Table 4.4-1: Projected Water Demand - 2020 to 2045

Table 4.2-3 Projected Water Demand - 2020 to 2045					
Calendar Year	Service Area Total Population	Unserved Prision Population	Distribution System Population	Targets and projected (gpcd)	Annual system gross water used (mgy)
2020	14275	5641	8634	260	815
2025	14251	5500	8751	259	827
2030	14370	5500	8870	258	835
2035	14490	5500	8990	257	843
2040	14612	5500	9112	256	851
2045	14736	5500	9236	255	860
Note: 260 gpcd is the 2020 actual / 262 gpcd is the 2020 80% reduction target.					
These numbers are based on gross water production that include system losses.					

The Table 4.4-2 below illustrate the projected water demand from 2020 through 2045 in MMG per year based on sector. The city is fully metered. The sector amounts of water usage are based on future population projections, target reductions in gpcd, and the current sector percentage as per current utility metered water usage. The sector breakdown is Single Family 61.1%, Multi-Family is 11.7%, Commercial is 27.2% making up the 100% total water use customers. It is not anticipated that future growth will make significant shifts in sector percentages.

Table 4.4-2 (UWMPGB 4-2): Gross Demands for Potable and Raw Water- Projected

Submittal Table 4-2 Retail: Use for Potable and Non-Potable[1] Water - Projected						
Use Type		Projected Water Use[2]				
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)	2025	2030	2035	2040	2045 (opt)
Add additional rows as needed						
Single Family		410	415	421	427	432
Multi-Family		78	79	80	81	83
Commercial		182	185	187	190	193
Other	System Losses	157	156	155	153	152
	TOTAL	827	835	843	851	860
[1] *Recycled water demands are NOT reported in this table. Recycled water demands are reported in Table 6-4.*						
NOTES:						

Future water demands are illustrated above in Table 4.4-2 with the losses included. Non-Revenue water is currently at approximately 20%. All future water demands illustrated above are based on continues improvements and continuing to reduce water demand and decrease the percentage of water losses Table 4.4-1 above. These gpcd targets will be achieved by reducing water consumption utilizing the Demand Management Measures (DMMs) (see section 9), improving production efficiency, reducing system losses, and other management methods that become apparent as the city actively matches water sources and production with demand. Available resources will be focused on the methods which are calculated to provide the greatest reduction in lower gpcd with compared to the cost to implement.

Table 4.4-3: Gross Demand Vrs Capacity by source 2015-2040 – Projected

Table 4.4-3 Gross Demand Vrs Capacity by source 2015 - 2040 - Projected											
Calendar Year	Cady Springs	Bagwell Springs	Well #1	Well #3	Well #4		Demand Total	Springs Total	Well Total	Springs %	Well %
Average	457.42	373.56	29.71	167.44	19.04		1059.88	830.98	228.91	78.4%	21.6%
1 yr Capacity	435.43	386.92	358.43	684.29	358.43		2223.50	822.35	1401.15	37.0%	63.0%
2020	317.00	289.00	10.00	179.00	20.00		815.00	606.00	209.00	74.4%	25.6%
2025	320.00	290.00	20.00	187.00	10.00		827.00	610.00	217.00	73.8%	26.2%
2030	320.00	290.00	20.00	195.00	10.00		835.00	610.00	225.00	73.1%	26.9%
2035	320.00	290.00	20.00	203.00	10.00		843.00	610.00	233.00	72.4%	27.6%
2040	320.00	290.00	20.00	211.00	10.00		851.00	610.00	241.00	71.7%	28.3%
2045	320.00	290.00	20.00	220.00	10.00		860.00	610.00	250.00	70.9%	29.1%
Note: 317 MMG Cady Springs and 289 MMG Bagwell Springs gives an average total springs flow of 606 MMG. The water demand total (see Demand Total above) from Table 4.4-2 can be achived by operating only one of the City's three wells. This future projection utilizes portions											

Table 4.4-2 and Table 4.4-3 above gives a conservative estimate that in 2045 that the city demand for water will be 860 MMG. It is anticipated that 250 MMG (29.1%) will need to come from the 1,759.6 MMG well pumping capacity. 250 MMG is 14.2% of the total available capacity. Table 6.6-2 Summarizes the Reasonably Available Volume and the Total Right or Safe Yield for each of the City's 5 water sources. As previously indicated none of the cities sources are limited by water right, only by current flow and well flow producing capacities. The City has ample water rights and capacity for the projected future demand.

Table 4.4-4 (UWMPGB 4-3): Total Water Demands

Submittal Table 4-3 Retail: Total Water Use (Potable and Non-Potable)						
	2020	2025	2030	2035	2040	2045 (opt)
Potable Water, Raw, Other Non-potable *From Tables 4-1R and 4-2 R*	661	670	679	688	698	708
Recycled Water Demand[1] *From Table 6-4*	0	0	0	0	0	0
Optional Deduction of Recycled Water Put Into Long-Term Storage[2]						
TOTAL WATER USE	661	670	679	688	698	708

[1] Recycled water demand fields will be blank until Table 6-4 is complete [2] *Long term storage means water placed into groundwater or surface storage that is not removed from storage in the same year. Supplier **may** deduct recycled water placed in long-term storage from their reported demand. This value is manually entered into Table 4-3.*

NOTES:

As illustrated in table 4.4-4 above total future water demands does not include recycled water. The Susanville Consolidated Sanitary District operates independent of the City. They receive, process and recycle all waste water.

4.5 Water Losses

Table 4.5-1 (UWMPGB 4-4): 12 Month Water Loss Audit Reporting

Submittal Table 4-4 Retail: Last Five Years of Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss [1,2]
01/2015	224.85
01/2016	111.33
01/2017	82.38
01/2018	120.5
01/2019	102.86
[1] *Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.* [2] ***Units of measure (AF, CCF, MG)*** *must remain consistent throughout the UWMP as reported in Table 2-3.*	
NOTES: MMG/Year	

4.6 Planned Future City Development

Legal Requirements:

§10910(a) Any city or county that determines that a project, as defined in section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

§10912 For the purpose of this part, the following terms have the following meanings:

§10912(a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

At this time there are no significant planned potential development or expansions approved by the City and it is unlikely within the planning horizon of this document. Although the City has limited inventory of unimproved subdivided residential lots where houses can be built upon receipt of a building permit. Population trends do not support the need for large scale residential development.

4.6.1 Water Savings and Low Income Projected Water Demands

Future water projections include some water savings as they are based on reducing gpcd through several water saving management methods the city is using. Regarding Low Income, the City is located in rural California were typically low income, very low income, moderate income, and higher income residence and homes are mingled together throughout the city. The city does not solicit income information. It's apparent that some low income family's live in single-family dwellings, and some well to do families live in condominiums or multi-family dwellings, for purpose of Low Income projected water demands see the multi-family demands projected in tables 4.4-2 above.

Table 4.6-1 (UWMPGB 4-5): Inclusion in Water Use Projections

Submittal Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	No
NOTES: Water savings are not included as this tools primary purpose is to ensure sufficient future water supplies.	

4.7 Water Use Reduction Plan

Legal Requirements:

> *CWC§10608.26 Urban wholesale water suppliers shall include in the urban water management plans . . . an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part (10608.36). Urban retail water suppliers are to prepare a plan for implementing the Water Conservation Bill of 2009 requirements and conduct a public meeting which includes consideration of economic impacts.*

Future water demands are illustrated above in Table 4.4-2 with the losses separated out. System loss are currently at approximately 20%. All future water demands illustrated above are based on continues improvements by achieving the 2020 target of 262 gpcd and then continuing to reduce water demand as illustrated. These gpcd targets will be achieved by reducing water consumption utilizing the Demand Management Measures (DMMs) (see section 9), improving production efficiency and utilization, reducing system losses, and other management methods that become apparent as the city moves forward. Available resources will be focused on the methods which are calculated to provide the greatest return or water savings compared with cost of implementation.

5 BASELINES AND TARGETS (gpcd)

Legal Requirements:

> *§10608.20(e) An urban retail water supplier shall include in its urban water management plan…due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.*

The Water Conservation Bill of 2009 (SBX7-7) that was enacted in November of 2009. To increase water use efficiency, requires urban water suppliers reduce the statewide average per capita daily water consumption by 20% by December 31, 2020. The Bill also requires urban water suppliers to report their base line daily per capita water use, Urban water use target, interim water use target, and compliance daily per capita water use.

5.1 Base Line

The base line daily per capita water use was calculated to be 328 gallons per-capita per day (gpcd) (see table 5.1-2 below). As per the DWR's methodology this was a 10 year average for the 11 year period from 2000 to 2010 excluding 2006. 2006 data was excluded from the average after consultation with DWR regarding the fact that the 2006 per capita use value of 243 gpcd is a significant outlier likely caused by a malfunctioning flow meter in 2006 located at Cady Springs.

Population data for the Susanville area was obtained from the Department of Finance web site www.dof.ca.gov. Prison population was subtracted from the population data as the prisons have their own water source.

Table 5.1-1: Base Daily Per Capita Water Use – 5 Year Average

Table 5.1-1 Base Daily Per Capita Water Use-5 Year Average						
Sequence	Calendar Year	Service Area Total Population	Unserved Prision Population	Distribution System Population	Annual system gross water used (MMGY)	Annual daily per capita use (gpcd)
1	2005	18304	8859	9445	1065	309
2	2006	18528	8918	9610	853	243
3	2007	18343	8833	9510	1171	337
4	2008	18216	8330	9886	1158	321
5	2009	17998	8153	9845	1027	286
6	2010	17947	8110	9837	1199	334
					Average Base Daily Per Capita Water Use:	317
Note: 2006 (outlier) not used in the 5 year average						

The above table 5.1-1 is data from 2005 through 2010, a five year range ending between

the end of 2007 and 2010, summarizes that data used to calculate the 5 year average baseline of 317 gpcd. 2009 (SBX7-7) requires that 2020 target (262 gpcd) be below (301 gpcd) 95% of (317 gpcd) the 5 year average.

Table 5.1-2: Base Daily Per Capita Water Use –10 Year Average

Table 5.1-2 Base Daily Per Capita Water Use-10 Year Average						
Sequence	Calendar Year	Service Area Total Population	Unserved Prision Population	Distribution System Population	Annual system gross water used (MMGY)	Annual daily per capita use (gpcd)
1	2000	17335	8551	8784	1109	346
2	2001	17428	8532	8896	1094	337
3	2002	17317	8316	9001	1078	328
4	2003	17658	8521	9137	1110	333
5	2004	18120	8847	9273	1180	349
6	2005	18304	8859	9445	1065	309
7	2006	18528	8918	9610	853	243
8	2007	18343	8833	9510	1171	337
9	2008	18216	8330	9886	1158	321
10	2009	17998	8153	9845	1027	286
11	2010	17947	8110	9837	1199	334
					Average Base Daily Per Capita Water Use:	328
Note: 2006 (outlier) not used in the 10 year average						

5.2 Targets

Table 5.2-1 (UWMPGB 5-1): Baselines and Targets Summary

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	*2000*	*2010*	*328*	*295*	*262*
5 Year	*2005*	*2010*	*317*		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES:					

The City's 2020 target is 262 gpcd. The City used 80% of the 10 year base line of 328 gpcd as per CWC 10608.20(b)(1) "Eighty percent of the urban retail water supplier's baseline per capita daily water use." 262 gpcd is also below 301 gpcd which is 95% of 317 gpcd the 5 year base line (See table 5.2-1 above). Interim targets are also calculated based on a 2% per year reduction, 321 in 2011 2%, 315 2012 4%, and so on. (see also table 5.2-2 below)

Table 5.2-2: Daily Per Capita (gpcd) Water Use 2010 – 2015 -> 2020

Table 5.2-2 Daily Per Capita Water Use-2011 to 2015 -> 2020						
Calendar Year	Service Area Total Population	Unserved Prision Population	Distribution System Population	Annual system gross water used (MMGY)	Annual daily per capita use (gpcd)	Base & Target(gpcd)
2010	17947	8110	9837	1199	334	328
2011	17510	7802	9708	1037	293	321
2012	16695	7442	9253	1090	323	315
2013	15807	6482	9325	1040	306	308
2014	15752	6689	9063	1011	306	302
2015	15092	6380	8712	846	266	295
2016	14614	5966	8648	766	243	289
2017	15046	6435	8611	808	257	282
2018	14954	6336	8618	782	249	276
2019	15008	6227	8781	760	237	269
2020	13717	5641	8576	815	260	262
Note: The 266 gpcd achieved in 2015 exceeded the 295 gpcd 2015 target.						
The City achieve the 80% reduction, (Act. 260 Targ. 262 gpcd), by the year 2020						

5.3 Target Compliance

The 2020 per capita water use target is 262 gpcd. The 2015 interim target was 295 gpcd. The city achieved 266 gpcd in 2015 (See table 5.2-2 above) exceeding the interim target of 295 by 29 gpcd. The City achieve a 260 gcpd in 2020 that exceed 262 gcpd target/the required 80% reduction by the year 2020.

Table 5.3-1 (UWMPGB 5-2): 2015 Target Compliance

Submittal Table 5-2: 2020 Compliance SB X7-7 2020 Compliance Form *Retail Supplier or Regional Alliance Only*				From
2020 GPCD				
Actual 2020 GPCD*	2020 TOTAL Adjustments*	Adjusted 2020 GPCD* *(Adjusted if applicable)*	2020 Confirmed Target GPCD*	Did Supplier Achieve Targeted Reduction for 2020? Y/N
260	*0*	*260*	*262*	*Yes*
**All cells in this table should be populated manually from the supplier's SBX7-7 2020 Compliance Form and reported in Gallons per Capita per Day (GPCD)*				
NOTES:				

6 Water Sources

Legal Requirements:

> *§10631(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).*

UWMPA requirements state that the water supplier must describe their existing and planned water supply sources for the next 20 years. The following description includes information such as water rights, an overdraft summary, any adjudication decrees and other pertinent information from the ground water management plan.

ADR Break Point 20220722

6.1 Water Supply Facilities

The City's water supply facilities are described and detailed in Section 3.3 above. The Following Table 6.1-1 below show the water supply sources from 2000 to 2020 Approximately 78% of the needed water has been supplied form spring sources while 22% has been provided by city owned and operated wells.

Table 6.1-1: Historical System Water Sources 2000 – 2020

Table 6.1-1 Historical System Water Sources 2000 - 2015											
Calendar Year	Cady Springs	Bagwell Springs	Well #1	Well #3	Well #4	Well #5	Total	Springs Total	Well Total	Springs %	Well %
2000	551.29	354.86	59.08	143.00	0.47	0.00	1108.70	906.15	202.55	81.7%	18.3%
2001	524.96	345.33	75.62	147.38	0.23	0.00	1093.52	870.29	223.23	79.6%	20.4%
2002	498.63	335.80	92.16	151.80	0.00	0.00	1078.39	834.43	243.96	77.4%	22.6%
2003	479.15	379.60	81.18	150.00	19.99	0.00	1109.92	858.75	251.17	77.4%	22.6%
2004	468.93	443.12	38.33	202.25	27.31	0.00	1179.94	912.05	267.89	77.3%	22.7%
2005	478.82	420.48	15.78	157.37	35.67	0.00	1108.12	899.30	208.82	81.2%	18.8%
2006	354.98	263.56	35.33	183.16	16.02	0.00	853.05	618.54	234.51	72.5%	27.5%
2007	502.51	397.47	1.42	204.04	35.28	29.84	1170.56	899.98	270.58	76.9%	23.1%
2008	482.80	396.32	11.44	218.10	20.51	29.17	1158.34	879.12	279.22	75.9%	24.1%
2009	454.93	391.55	12.30	131.91	16.89	19.82	1027.40	846.48	180.92	82.4%	17.6%
2010	435.43	386.92	11.87	158.39	37.14	16.03	1045.78	822.35	223.43	78.6%	21.4%
2011	447.15	383.97	18.26	150.74	17.38	19.25	1036.76	831.12	205.64	80.2%	19.8%
2012	439.77	382.12	1.84	212.71	29.25	24.73	1090.42	821.89	268.54	75.4%	24.6%
2013	417.43	381.94	13.59	179.78	24.25	22.85	1039.85	799.37	240.47	76.9%	23.1%
2014	408.48	372.38	6.96	178.33	20.44	24.79	1011.37	780.85	230.51	77.2%	22.8%
2015	373.42	341.53	0.24	110.15	3.79	16.87	846.00	714.95	131.05	84.5%	15.5%
2016	294.76	293.63	5.81	140.29	31.72	0.00	766.21	588.39	177.82	76.8%	23.2%
2017	383.07	292.86	0.85	100.87	29.91	0.00	807.56	675.93	131.63	83.7%	16.3%
2018	327.67	286.01	0.00	152.26	16.04	0.00	781.98	613.68	168.30	78.5%	21.5%
2019	337.53	287.03	0.03	118.90	16.65	0.00	760.14	624.56	135.58	82.2%	17.8%
2020	316.67	289.57	9.95	178.94	19.93	0.00	815.06	606.24	208.82	74.4%	25.6%
Average	427.54	353.62	23.43	160.49	19.95	9.68	994.72	781.16	213.55	78.6%	21.4%
1 yr Capacity	435.43	386.92	358.43	684.29	358.43	358.43	2581.93	822.35	1759.58	31.9%	68.1%
Note: 1 year capacity(MMG): For springs based on 2010 (a normal year).											
1 year capacity (MMG) on wells is based on pumping flow capacity (Wells are not limited by water rights).											

The City has the right to the total amount of water produced by the Cady Springs and the right to 2.45 cfs (1,122 gpm) (589.7 MG) in Bagwell Springs. Table 6.1-1 above shows an average total spring production of 781 MMG. and a 1 Year Capacity of 822 MMG. The one year capacity is based on the year 2010. 2010 is one of the historical lowest on record

prior to 2013 when the city started to divert water to avoided unnecessary chlorination. Numbers after 2013 are lower than the 2010 882 MMG as diverted water is not included in the total. However, the City has the water right to all the water so the 882 MMG 2010 number will remain the 1 yr Capacity for Cady Springs. Some years the springs have produced above 900 MMG.

The City ground water (well) production is not limited by water right but by pumping capacity. Table 6.1-1 above show a total well capacity of 1759.6 MG This capacity is a maximum capacity as it is based on 100% uptime.

Table 6.1-2: Historical System Water Sources Worst Case Month 2010 – 2020

Table 6.1-2 Historical System Water Sources Worst Case Month												
Calendar Year	Cady Springs	Bagwell Springs	Well #1	Well #3	Well #4	Well #5	1 Month Total	1 Year Total	1 Mth % of Year Total	Spring %	Well %	1Month %Capacity (Base: 210 MMG)
2010 July	36.13	32.79	8.89	43.74	15.83	6.71	144.09	1045.78	13.78%	47.8%	52.2%	145.7%
2011 July	37.98	32.75	0.04	54.50	6.03	5.42	136.71	1036.76	13.19%	51.7%	48.3%	153.6%
2012 July	37.24	32.43	0.41	55.43	9.54	6.10	141.14	1090.42	12.94%	49.4%	50.6%	148.8%
2013 July	34.92	32.50	8.41	50.23	10.20	5.34	141.59	1039.85	13.62%	47.6%	52.4%	148.3%
2014 July	33.20	31.64	5.21	49.24	9.74	5.52	134.55	1011.37	13.30%	48.2%	51.8%	156.1%
2015 August	33.11	30.75	0.13	31.04	1.53	4.75	101.31	846.00	11.98%	63.0%	37.0%	207.3%
2016 July	33.61	30.80	0.00	45.23	10.99	0.00	120.63	766.21	15.74%	53.4%	46.6%	174.1%
2017 July	41.54	31.32	0.00	41.43	11.31	0.00	125.60	807.56	15.55%	58.0%	42.0%	167.2%
2018 July	38.15	31.02	0.00	50.18	7.09	0.00	126.44	781.98	16.17%	54.7%	45.3%	166.1%
2019 July	39.90	31.08	0.00	42.26	4.60	0.00	117.84	760.14	15.50%	60.2%	39.8%	178.2%
2020 August	38.01	30.47	0.02	43.24	6.65	0.00	118.39	815.06	14.53%	57.8%	42.2%	177.4%
1 Yr Capacity	435.43	386.92	358.43	684.29	358.43	358.43		2581.93		31.9%	68.1%	
1 Mth Capacity	33.01	30.47	29.87	57.02	29.87	29.87	210.11			30.2%	69.8%	
Note: 1 year capacity for springs is based on 2010 (a normal year), wells are based on pumping capacity.												
1 Month Capacity: For springs is based on worst case month, For wells 1 month pumping capacity .												

Table 6.1-2 above is a review of water producing capacities based on a worst-case month. The worst-case month each year occurs when water demand is maximum and wells operated to meet this demand. The maximum demand occurred in July for most years and occurred in August In 2015 and 2020. The one month total capacity of 210 MMG is based on the worst-case spring minimum production observed in August 2020, and well production capacity based on 100% uptime for a 1 month period. 100% uptime/runtime on a well is achievable if proper maintenance and repairs are performed during shoulder none use months. However, it is not anticipated that such runtimes will be required for this UWMP report horizon of 2045.

Table 6.1-2 shows excess system capacity during worst case months for all years reported. In August 2020 the city used 118 MG of the available 210 MMG of capacity giving a 177% Capacity available to meet demand.

Table 6.1-2 shows the worst-case Month water demand as a percentage of the total year demand. The average 1 month demand would be 1/12 of the year demand or 8.3%. The table shows this value varying from 12% up to 16.2%.

For purposes of reviewing available capacity to meet the future water demands from 2020 through 2045 as summarized in Table 4.4-4, it will be assumed that 16% of the years projected water demand will be the demand one month, the worst case month.

Table 6.1-3: Demand Vrs Capacity 2015-2045 Worst-Case Month

Table 6.1-3 Demand Vrs Capacity 2015 - 2045						
	2020	2025	2030	2035	2040	2045
Yr Demand	815	827	835	843	851	860
1 Mth Demand	130	132	134	135	136	138
1 Mth Capacity	210	210	210	210	210	210
Excess Capacity	80	78	76	75	74	72
%Capacity	161.0%	158.7%	157.2%	155.7%	154.2%	152.6%
Note: 1 Month(Mth) demand is based on 16% of the year(Yr) demand(2018 act.)						
Projecting to 2045 indicates the system has 52% excess capacity						

Table 6.1-3 shows that in 2045 the city will have 152% capacity or 52% excess capacity to meet the projected 1 month 138 MMG demand that is 16% of the 860 MMG projected annual demand. It is noted that 52% excess capacity in 2045 is conservative as it was based on worst case spring flows and a higher 16% (normal 12% to 13.8%) percentage of the annual demand. For the foreseeable future, the City has excess production capacity that will handle system demands during worst case summer demand months.

6.2 Ground Water

Legal Requirements:

§10631(b) (Is) groundwater…identified as an existing or planned source of water available to the supplier…

§10631(b)(1) (Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

§10631(b)(2) (Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater.

§10631(b)(2) For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board.

§10631(b)(2) (Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

§10631(b)(2) For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

§10631(b)(3) (Provide a) detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

§10631(b)(4) (Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

6.2.1 Groundwater Description and Management Plan

The City's water supply facilities are described and detailed in Section 3.3 above. This includes detailed descriptions of four wells that the city uses when spring flows are insufficient to keep up with demand. The Table 6.1-1 above show the water supply sources including the four wells and total water pumped "Well Total" from 2000 to 2020 approximately 22% of the needed water has been supplied from the city owned ground water sources.

The City wells draw water from the Honey Lake Valley Groundwater Basin (Basin Number 6-4) that is a part of the North Lahontan Hydrologic Region. The surface area is 311,750 acres or 487 square Miles) USGS Bulletin 118.

The basin water-bearing formations are made up of both sedimentary and volcanic rock. The City of Susanville has joined the Lahontan Basins Integrated Regional Water Management group to manage protect the water basin and their water rights.

6.2.2 Groundwater Levels and Historical Trends

The average groundwater levels declined during the early 1990'a and then recovered to pre-1990 levels. Although it is assumed that the water basin level

has varied over the past 25 years, the Cities owned and operated wells have not experienced any adverse operations due to water basin levels.

6.2.3 Sources of Recharge

The major sources of groundwater recharge is direct infiltration of precipitation in the upland areas, and infiltration of streamflow in alluvial-fan areas accounting for approximately 80 percent of total recharge. The remaining 20 percent consists of infiltration of surface water and irrigation flow on the valley floor. (USGS 1990). Subsurface flow may also enter the basin from Secret Valley through Pliocene lake sediments which appear to be continuous beneath the lava field separating the two valleys (DWR 1963).

6.2.4 Existing and Projected Groundwater Pumping

The City has historically relied on groundwater pumping for only 21% - 25% of its water supply see Table 6.1-1 above). This table also show the quantities of groundwater the City has pumped over the last 20 years with a maximum of 279 mg in 2008. 279 MMG is around 16% of the total pumping capacity 1759.58 MMG also shown in table 6.1-1 above.

Table 6.2-1 (UWMPGB 6-1): Groundwater Volume Pumped

Submittal Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
☐	All or part of the groundwater described below is desalinated.					
Groundwater Type *Drop Down List May use each category multiple times*	Location or Basin Name	2016*	2017*	2018*	2019*	2020*
Add additional rows as needed						
Alluvial Basin	Lahontan	177.8	131.6	168.3	135.6	208.8
	TOTAL	178	132	168	136	209
* *Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

Based on the water demand projections in Table 4.4-2 above, in 2045 the total demand is projected to be 860 MMG. It is conservatively anticipated that springs will supply 80% or, 688 MMG of this demand and the remaining 172 MMG (20%) will be supplied by ground water pumping. 172 MMG is 9.7% of the total pumping capacity 1759.58 MMG. The city has ample groundwater capacity and water rights for the current forecasted future. Table 6.2-2 below summarizes the Reasonably Available Volume and the Total Right or Safe

Yield for each of the City's 6 water sources. As previously indicated none of the cities sources are limited by water right, only by current flow and well flow producing capacities. The City has ample water rights and capacity for the projected future demand.

Table 6.2-2: Water Sources Production Capacity Summary

Table 6.2-2 Water Sources Production Capacity Summary				
Water Source ID	Water Source Type	Water Source Name	Reasonably Available Volume	Water Source Total Right or Safe Yield
	Spring	Cady Springs	435	500
	Spring	Bagwell Springs	387	400
	Well	Well #1 (Bunyan)	251	323
	Well	Well #3	480	617
	Well	Well #4	251	323
	Well	Well #5 (College)	251	322
		TOTAL	2,055	2,485
NOTES: Volume in MMG (Millions of gallons). Spring Right or Safe Yield is based on Achieved sustainable flows during the past 15 years and the Reasonably Available flow is based on flows in 2010. Well Flow Total right or Safe Yield is based on Well capacities with 90% operation. Reasonably Available Volume is based on 70% operation.				

Table 6.2-3 (UWMPBG 6-8): Water Supplies Actual

Submittal Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2020		
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		Actual Volume*	Water Quality Drop Down List	Total Right or Safe Yield* (optional)
Add additional rows as needed				
Surface water (not desalinated)	Cady and Bagwell	605	Drinking Water	900
Groundwater (not desalinated)	4 Wells	214	Drinking Water	1,585
	Total	819		2,485
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES: The springs normally produce 850 to 900 MG per year. Wells Safe Yield is based on 90% of the Maximum Yield, the amount the 4 Wells could produce, 1,761 MG with 100% uptime. Water rights do not limit water sources only water production capacity.				

Table 6.2-3 above and Table 6.2-4 below shows a Total Safe Yield is 900 MMG for Spring and 1,585 MG for wells giving a total Safe Yield of 2,485 MMG. The Safe Yield for the Wells is based on 90% of the maximum yield 1,761 MMG the amount the wells could produce with 100% uptime. The Springs safe yield is based on normal production. Table 6.2-4 below shows a conservative 822 MMG for total spring production, and a conservative 1,233 MMG of total Reasonable Available Volume of 2,055 MMG. Spring Safe Yield is based on achieved sustainable flows during the past 15 years and the spring reasonably available flow is based on flows in 2010. Well flow total right or safe yield is based on well capacities with wells at 90% operation. Reasonably available volume for wells is based on 70% operation.

Table 6.2-4 (UWMPBG 6-9): Water Supplies – Projected and Total Safe Yield

Submittal Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply * Report To the Extent Practicable									
Drop down list May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool		2025		2030		2035		2040		2045 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Add additional rows as needed											
Surface water (not desalinated)	Gady and Bagwell Springs	822	900	822	900	822	900	822	900	822	900
Groundwater (not desalinated)	4 Wells	1,233	1,585	1,233	1,585	1,233	1,585	1,233	1,585	1,233	1,585
Total		2,055	2,485	2,055	2,485	2,055	2,485	2,055	2,485	2,055	2,485
*Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Table 2-3.											
NOTES											

6.3 Transfer or Exchange Opportunities

Legal Requirements:

> *§10631(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.*

The City has sufficient water supply sources to meet demand and does not transfer or Exchange water with any other entity.

6.4 Desalinated Water Opportunities

Legal Requirements:

> *§10631(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.*

6.4.1 Brackish Water and/or Groundwater Desalination

The ground water that the City relies on is not brackish or in need of desalination. If this were to change in the future, the City will consider this option.

6.4.2 Seawater Desalination

Due to the geographic location of the City, desalination of seawater for use by the City is not practical or economically feasible.

6.5 Recycled Water Opportunities

Legal Requirements:

§10633 Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.

§10633(a) (Describe) the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

§10633(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.

§10633(c) (Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

§10633(d) (Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

§10633(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 of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

§10633(f) (Describe the) actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

§10633(g) (Provide a) plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

The City of Susanville does not own or operate a waste water treatment facility. Waste water collected is handled by the Susanville Consolidated Sanitary District. They are the entity reviewing and perusing recycled water opportunities.

6.6 Future Water Projects

Legal Requirements:

§10631(h) (Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

Table 6.6-1 (UWMPGB 6-7): Expected Future Water Supply Projects or Programs

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

As Illustrated in Table 6.1-3 the City has excess water production capacity for the planning horizon 2040 of this report. The City also has additional pumping water rights that they currently are not using. Currently there are no expected future water supply projects to provide a production increase.

The City has a 640 MG tank located above the ridge near Cady Springs that has not been connected or integrated into the water system. The City has plans to integrate this tank into the water system and adjust the current water management plan to maximize the benefits of additional storage capacity.

Cady Springs also has a significant amount of water that is not being capture by the current collection system. The City is considering the cost-effectiveness of improving the collection system at the Cady Springs location in increase water production.

7 WATER SOURCES SUPPLY RELIABILITY

7.1 Water Supply Reliability

Legal Requirements:

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

§10631(c)(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

7.1.1 Frequency and Magnitude of Supply Deficiencies

This section discusses the reliability of water supplies and their vulnerability to seasonal and climatic shortages. The City has historically used mostly spring sources to meet their water demands. The city also has sufficient ground water supply to meet 100% of the water demand if needed. Groundwater supplies are not immediately impacted by droughts, and, as a result, there is no history of any water supply deficiencies for the City water system.

Regarding the groundwater supply, the most likely reasons the City would have a deficiency would be due to coliform contamination, pump failure, well collapse or other mechanical or structural failure. Another scenario would be a declining groundwater table due to lack of recharge. In this scenario, well pumps would need to be lowered and/or the well deepened. The City has a sufficient 1 month well capacity (146.63 mg) to meet the total peak month (144.1 mg worst year 2010) water demand see Table 6.1-2, however, wells usually only supply 50% of this demand. The city has sufficient standby water production capacity that a short-term loss of a well, or a spring line failure, would not affect the ability to meet water demand.

In addition, the most immediate threat of water shortage could arise from damage due to an earthquake, or an extended power outage. An exceptionally long hot spell during summer months or high winds causing power outages are the main concern due to climate. Customers are encouraged to water lawns during early morning hours and for shorter period of time when temperatures exceed normal. The water system is gravity fed from Springs and the system has 2.94 MG receiver capacity. That are typically kept a minimum two-thirds full level at all times. During an extended power supply emergency, the City has generators that can provide some water and the city can institute a water conservation emergency which would limit water use.

7.1.2 Basis of Water Year Data

Surface water, or springs, are more affected by drought conditions than wells. The springs historically have produced above 900 mg and even during drought years the springs consistently produce above 800 mg. Table 6.6-4 used 822 mg as a reasonably available flow for springs and 1,233 mg as a reasonably available flow for wells giving a

total reasonably available volume of 2,055 mg. It is noted that if spring flow should drop due to severe drought conditions, well flow could easily be increased to maintain the same reasonably available volume of 2,055 mg. This is illustrated historically in the Table 7.1-1 below basis of water year data. In the average year 2013 the city had 198% of the required annual supply, and maintained above 175% even during dryer years between 2005-2011.

Table 7.1-1 (UWMPGB 7-1): Basis of Water Year Data

Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)			
Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	Available Supplies if Year Type Repeats	
		☐ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____	
		☑ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available *	% of Average Supply
Average Year	2018	2055	100%
Single-Dry Year	2017	2055	100%
Consecutive Dry Years 1st Year	2011	2055	100%
Consecutive Dry Years 2nd Year	2012	2055	100%
Consecutive Dry Years 3rd Year	2013	2055	100%
Consecutive Dry Years 4th Year	2014	2055	100%
Consecutive Dry Years 5th Year	2015	2055	100%
Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES:			

7.1.3 Supply Reliability

During drought years, water use patterns typically change. Outdoor water use will typically increase as irrigation is used to replace the decrease in precipitation. When necessary, the increase in outdoor use can be offset, in part, by increasing mandatory conservation measures. The diversity of springs and wells within the cities supply system, allows that, If spring flow should drop due to drought or severe conditions, well flows can be increased to maintain the same reasonably available volume of 2,055 mg. As discussed earlier, this reasonable available volume is broken down by individual source in table 6.2-2 and by

spring total (822 mg) and well totals (1,233 mg) in table 6.2-4. The well component is based on 70% operation. At 90% operation this number increases to 1,585 mg. 90% operation for a well or even 100% operation is easily achievable for short durations 60 to 90 days with proper maintenance. Because of the diversity and supply options the city owns, the reasonable available supply remains constant at 2,055 mg even during several years of drought see table 7.1-2 below

7.1.4 Projected Normal Water Year Demands

The normal year water demands are based on the historical data and population projections developed above. The demand and supply data is discussed in more detail in the Sections 4 and 6, respectively.

Table 7.1-2 (UWMPGB 7-2): Normal Year Supply and Demand Comparison

Submittal Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 *(Opt)*
Supply totals *(autofill from Table 6-9)*	2,055	2,055	2,055	2,055	2,055
Demand totals *(autofill from Table 4-3)*	827	835	843	851	860
Difference	1,228	1,220	1,212	1,204	1,195
NOTES:					

7.1.5 Projected Single Dry Water Year

Table 7.1-3 (UWMPGB 7-3): Single Dry Year Supply and Demand Comparison

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2025	2030	2035	2040	2045 (Opt)
Supply totals*	2,055	2,055	2,055	2,055	2,055
Demand totals*	790	800	810	821	832
Difference	1,265	1,255	1,245	1,234	1,223
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES:					

Because of the diversity of supply options the city owns the reasonable available supply remains constant at 2,055 mg even during several years of drought.

7.1.6 Projected Multiple Dry Water Years

Table 6.2-2 above indicates at total right or safe yield of 2,485 mg. This number is 430 MMG above the reasonably available volume of 2,055 MMG. Based on the 430 MMG the City has two sources above Cady Springs (435 MMG), and Well #3 (480 MMG), and four sources below Bagwell Springs (387 MMG), and wells 1,4, and 5 each at (251 MMG). The City could lose any single source, for the entire year, which is unlikely, and still maintain the 2,055 MMG reasonable available volume. Because of this diversity of supply options the city owns the reasonable available supply remains constant at 2,055 MMG even during several years of drought. See table 7.1-4 below

Table 7.1-4 (UWMPGB 7-4): Multiple Dry Years Supply and Demand Comparison

Submittal Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	2,055	2,055	2,055	2,055	2,055
	Demand totals	790	800	810	821	832
	Difference	1,265	1,255	1,245	1,234	1,223
Second year	Supply totals	2,055	2,055	2,055	2,055	2,055
	Demand totals	790	800	810	821	832
	Difference	1,265	1,255	1,245	1,234	1,223
Third year	Supply totals	2,055	2,055	2,055	2,055	2,055
	Demand totals	790	800	810	821	832
	Difference	1,265	1,255	1,245	1,234	1,223
Fourth year	Supply totals	2,055	2,055	2,055	2,055	2,055
	Demand totals	790	800	810	821	832
	Difference	1,265	1,255	1,245	1,234	1,223
Fifth year	Supply totals	2,055	2,055	2,055	2,055	2,055
	Demand totals	790	800	810	821	832
	Difference	1,265	1,255	1,245	1,234	1,223
Sixth year *(optional)*	Supply totals	2,055	2,055	2,055	2,055	2,055
	Demand totals	790	800	810	821	832
	Difference	1,265	1,255	1,245	1,234	1,223
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES:						

7.2 Factors Affecting Supply Reliability

The City of Susanville has two primary water source in the form of two independent springs, and 4 independent wells. The springs combined total supply 100% of water demand during several months of the year. The 4 wells can supply 150% of water demand year around if necessary. Even with conservative capacity numbers, a total reasonable available volume of 2,055 MMG, the water supply sources together can supply over 200% of the City's water demand for the planning horizon the year 2040 of this UWMP report.

7.2.1 Legal

At this time the groundwater supplies the City relies upon are neither in the process of adjudication nor the subject of any new legislation limiting them.

7.2.2 Environmental

The status of the environmental situation in California is routinely changing because of new legislation, regulations, court decisions and endangered species issues. Should new environmental legislation/regulations become effective, it could potentially affect water supply. Because of the mixture of groundwater and surface (Springs) water within the City, it is anticipated that alterations to the water supply could be made to accommodate these changes, should they occur.

7.2.3 Water Quality

Water quality standards are reviewed periodically as new constituents are deemed 'of concern' and MCLs are established or modified. City staff will monitor changes to drinking water standards and respond accordingly.

It is conceivable that an MCL may change or be introduced that removes a portion of the water supply for the City for a short period until treatment can be developed or new supplies can be developed. For the purposes of this UWMP, no loss of supply is assumed to occur as a result of changing water quality standards.

7.2.4 Climatic

As climate change occurs and begins to affect water supply conditions more, alterations in the water supply planning arena will have to take place. Climate change elements such as drought or massive flooding could strongly affect supply reliability, therefore requiring the City to make modification to their water supplies. Within the time frame of this UWMP, climate change is not assumed to affect the water supply. The City will adapt to any changes by utilizing its groundwater to overcome any short term shortage.

7.2.5 Disaster

A disaster that damages the main water lines bringing spring water flows into the city and or damages water mains causing leakage and to loss or contamination of stored water supplies and or a disaster that causes power outages for extended periods of time, not allowing well operation, could potently deplete water storage reservoirs. Some of the risk

associated with disaster(s) are mitigated by the fact that the two springs are located in separate quadrants of the city, and the four wells and several storage tanks are located thought the city. A disaster in one area hopefully would not affect or would have minimal effect on other areas.

8 Water Shortage Contingency

8.1 Water Shortage Contingency Planning

Legal Requirements:

§10632(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

§10632(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

§10632(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

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

§10632(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures or the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

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

Water Shortage Contingency Planning is an essential element of Urban Water Management Planning. Failed wells, pumping equipment, and pipelines; natural disasters; power outages; source contamination; and various other factors; are real issues that could lead to water shortages within the City of Susanville. Reliable water sources are critical to the health and welfare of the public. Proper planning provides for the assessment and identification of appropriate responses that can be implemented in the event of a water shortage.

Planning for drought is an important issue. The lessons learned in 2015 when the State of California Water Board imposed a 36% conservation mandate on the City of Susanville are incorporated into this Water Shortage Contingency Plan. The State Water Board adopted an Emergency Water Regulation requiring the City to implement its Water Shortage Contingency Plan. Through the implementation and enforcement of the plan, the City gained an understanding of what worked well and what needed changing. Additionally, the City learned which strategies are the most effective for water conservation within our community. Water use practices in Susanville are not unique, a significantly greater amount of water is utilized in the summer than in the winter months. Susanville does however, experience extremes; there is high demand for water to irrigate outdoor landscapes in our hot, arid climate, and no outdoor watering in the winter months due to the cold, freezing weather and dormant turf.

Demand on water sources is low during the non-irrigation season (October - March). Two springs can supply the City's Water needs and several supply redundancies result because no City wells are needed to meet demand. As a result water shortage concerns are minimal during the non-irrigation season.

The most practical focus for water conservation in Susanville is outdoor water use. During the irrigation season (April-September) the demand on water sources is greatly increased requiring the City to pump ground water. The production capacity of the City's wells and springs is fully adequate to meet peak demand; however, output reduction or loss of one or more sources during peak irrigation season could create a water shortage in Susanville. The City has had two events over the past 10 years where system failures have resulted in water

shortage concerns. The first was a crushed Cady Springs pipeline during the peak irrigation season, the second was a failure in well four during the peak irrigation season.

The purpose of the Water Shortage Contingency Plan is to be prepared reduce water demand on available water sources to insure adequate supply for human consumption, sanitation, fire protection, commercial, industrial and medical needs.

Stages of the City's Water Shortage Contingency Plan

There are three grouped stages of the City's water shortage contingency plan;

Stage 1,2 - Water Shortage **Awareness** 5% -20%

Stage 3,4 - Water Shortage **Alert** 21% -30%

Stage 5-6 - Water Shortage **Emergency** 31% - 50% Plus

Table 8.1-1 (UWMPGB 8-1): Water Shortage Contingency Plan Actions

Submittal Table 8-1 Water Shortage Contingency Plan Levels		
Shortage Level	**Percent Shortage Range**	**Shortage Response Actions** (*Narrative description*)
1	Up to 10%	Run addtioanl wells as needed (Awareness)
2	Up to 20%	Run addtioanl wells as needed (Awareness)
3	Up to 30%	Run addtioanl wells as needed (Alert)
4	Up to 40%	Run addtioanl wells as needed (Alert)
5	Up to 50%	Run addtioanl wells as needed (Emergency)
6	>50%	Run addtioanl wells as needed (Emergency)
NOTES:		

8.1.1 Stage I, II Water Shortage Awareness:

The City's supply (treatment) and/or distribution system is able to meet the future projected water demands of its customers in the immediate future. Some restrictions do apply in an effort to reduce water consumption. Water conservation is encouraged through public education.

Note: 5-20% Expected Conservation of City's Monthly Use.

1. Irrigation water shall be confined to the consumer's property and shall not be allowed to run off to adjoining property or to the roadside ditch, gutter, i.e. landscape irrigation, beyond the point of saturation.
2. Free-flowing hoses for any use shall be prohibited. Customers shall be encouraged to use automatic shutoff devices on any hose or filling apparatus, including evaporative coolers.
3. Leaking consumer pipes or faulty sprinklers shall be repaired immediately.
4. All pools, spas, and ornamental fountains/ponds shall be equipped with a re-circulation pump, and shall be constructed to be leak proof.
5. All industries and large water users, such as schools, supermarkets, civic buildings etc. are encouraged to develop a water conservation plan indicating 15% reduction in water usage, and submit to the City of Susanville for approval within thirty (30) days of this declaration.
6. The City of Susanville shall encourage water reclamation for any agricultural, commercial, or industrial facility, as long as health and safety requirements can be met.
7. All new developments (homes) shall be required to install low flow devices (i.e., toilets and shower heads). All devices are to be approved by the Susanville City Council prior to construction.
8. Restaurant customers shall receive water only upon request.
9. Implementation of Stage I Drought Surcharge as depicted in September 2016 City of Susanville Water Rate Analysis and Calculations Report.

8.1.2 Stage III, IV Water Shortage Alert

There is a probability that the City's supply (treatment) and/or distribution system will not be able to meet all water demands of the City's customers. Additional restrictions apply in an effort to increase the conservation by 10% above Stage One.

Note: 21-40% Expected Conservation of City's Monthly Use.

1. All requirements of prior Stages in addition to the following items.

2. All industries and large commercial potable water users, such as schools, supermarkets, civic buildings, etc., shall update their Water Conservation Plans to indicate a 25% reduction in water use, and submit to the City of Susanville for approval within thirty (30) days of this declaration.

3. Parks and school grounds shall be watered at night only, three nights per week, and shall update their Water Conservation Plan to indicate a 25% reduction in water use and submit to the City of Susanville for approval within thirty (30) days of this declaration.

4. All new developments (homes) shall be required to install low flow devices, i.e., toilets and shower heads, and to pay a $300 fee to the City of Susanville prior to construction for purchase of water conservation retrofit kits.

5. Upon a Stage Two declaration, no new turf, i.e. natural grass lawns, sod, seed, natural grass sports fields, etc., shall be installed.

6. All residential and commercial customers shall be required to water between the hours of 7:00 PM and 10:00 AM and for only three (3) days per week. They shall also be encouraged to use low flow sprinkler heads and/or drip systems.

7. Washing of driveways and parking lots, except as necessary for health and safety, shall be prohibited.

8. Implementation of Stage II Drought Surcharge as depicted in September 2016 City of Susanville Water Rate Analysis and Calculations Report.

8.1.3 Stage V, VI Water Shortage Emergency:

The City's supply or distribution system will not be able to meet all the demands of the City's customers.

Note: 41-50% (plus) Expected Conservation of City's Monthly Use.

1. All of the requirements of prior Stages plus the following additional items.

2. Residential and commercial landscaping and or lawn irrigation with potable City of Susanville limited to one day per week.

3. All industries and large commercial potable water users, such as schools, supermarkets, civic buildings, etc., shall update their Water Conservation Plan to indicate a 50% reduction in water use and submit to the City of Susanville for approval within 15 days of the declaration.

4. Flushing of sewers and fire hydrants shall be prohibited except in cases of emergency.

5. No potable water from the City of Susanville system shall be used for construction purposes, such as dust control, compaction, or trench jetting.

6. Implementation of Stage III Drought Surcharge as depicted in September 2016 City of Susanville Water Rate Analysis and Calculations Report.

8.1.4 Implementation of Water Shortage Contingency Plan

During times of water shortage, City Council may implement the appropriate stage of the Water Shortage Contingency Plan. The corresponding drought surcharge as depicted in the 2016 City of Susanville Water Rate Analysis and Calculations Report may be implemented immediately.

The other items presented in the Plan are not legally enforceable until an urgency ordinance is passed as permitted by law. The Water Shortage Contingency Plan is not codified in Susanville's municipal code. Additionally, City Council will use the water shortage contingency plan as guidance in creating an urgency ordinance and will identify appropriate measures to achieve required conservation based on the needs at the time. Appropriate measures may include, but are not limited to those items defined in the Water Shortage Contingency Plan.

Upon adoption of an urgency ordinance, violators will be subject to monetary penalties in accordance with local, state, and federal law.

Table 8.1-2 (UWMPGB 8-2): Demand Reduction Actions

Submittal Table 8-2: Demand Reduction Actions				
Shortage Level	Demand Reduction Actions *Drop down list* *These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *For Retail Suppliers Only Drop Down List*
Add additional rows as needed				
1-2	Expand Public Information Campaign	N/A		Yes
3-4	Expand Public Information Campaign	N/A		Yes
5-6	Expand Public Information Campaign	N/A		Yes
NOTES:				

Table 8.1-3(UWMPGB 8-3): Supply Augmentation and other Actions

Submittal Table 8-3: Supply Augmentation and Other Actions			
Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier *Drop down list* *These are the only categories that will be accepted by the WUEdata online submittal tool*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*
Add additional rows as needed			
1-2	Other Actions (describe)	N/A	Run Additional Well(s) as needed
3-4	Other Actions (describe)	N/A	Run Additional Well(s) as needed
5-6	Other Actions (describe)	N/A	Run Additional Well(s) as needed
NOTES:			

8.2 Water Quality

Legal Requirements:

> *§10634 The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.*

The City's springs and groundwater quality are fairly consistent;

It is not anticipated that water quality will adversely affect water supply in the near future. In the instance that a well or spring water source has water quality issues, an alternative water supply will be put in place to compensate for the loss.

8.3 Drought Planning

Legal Requirements:

§10631(c)(1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) an average water year, (B) a single dry water year, (C) multiple dry water years.

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

§10632(b) 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.

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

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

Past drought conditions have had little effect on the water supply as the City's springs slight reductions has easily been replaced with pumped groundwater.

As discussed in **Table 8.1-1**, the stages of rationing vary from 15% (Stage 1) to 50% and higher (Stage IV). Stage 1 is considered the lowest level of rationing and is voluntary, while Stage 3 is the highest level and mandatory with a goal of reducing the customer usage by at least 50% in response to a water supply shortage of 35% to 50%.

9 DEMAND MANAGEMENT MEASURES (DMM)

9.1 DMMs

Legal Requirements:

§10631(f)(1) and (2) (Describe and provide a schedule of implementation for) each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (A) water survey programs for single-family residential and multifamily residential customers; (B) residential plumbing retrofit; (C) system water audits, leak detection, and repair; (D) metering with commodity rates for all new connections and retrofit of existing connections; (E) large landscape conservation programs and incentives; (F) high-efficiency washing machine rebate programs; (G) public information programs; (H) school education programs; (I) conservation programs for commercial, industrial, and institutional accounts; (J) wholesale agency programs; (K) conservation pricing;(L) water conservation coordinator; (M) water waste prohibition; (N) residential ultra-lowflush.

§10631(f)(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

§10631(f)(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

§10631(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

The City of Susanville is not a signatory to the Memorandum of Understanding of the Urban Water Conservation in California (MOU) and is not a member of the California Urban Water Conservation Council (CUWCC). The City of Susanville is a part of the Lahontan water basin integrated regional water management program. The City actively works with regional agencies to ensure that current and future water demands are planned for and met.

The City of Susanville has address the Demand Management Measures concerning the Urban Water Management Planning Act by addressing the potential programs that the City could implement while complying with the Best Management Practices targets in the CUWCC/MOU where applicable.

9.1.1 Water Survey Programs

This program involves making free water audits available, upon request, to all residential customers. The audit would include identification of any leaks inside or outside the home, reviewing water usages with the customer and recommending improvements for the customer to implement.

2010 Plan: The City of Susanville has implemented water audits based on two key indicators; First, when the water meter is being read. If current flow rates seem abnormal the meter reader will immediately perform an exterior site review to identify potential leaks. Additionally, contact is made with the owner to try and identify potential leaks. Second, the utility billing program generates a list of potential leak customers based on prior read and use rates. Contact is made with the water use customers to identify why abnormal flow has occurred. The City will continue to use the computer based utility billing system to identify and resolve water system problems.

2015: The City has upgraded water meters and now has the ability to collect usage history on customer meters extending back 40 days. When high use is detected on an account through the normal billing cycle, a technician is dispatched to assess the service for a leak. If evidence of a leak exists, the technician will pull the usage history so that customer can be informed of the nature of the leak and when it began. The City also recently completed a Water Rate Analysis and Calculations report, which forecasts operational costs over the next five years. The report included an annual expense for water conservation programs. The water rates have been increased which will allow the City to budget for the implementation of conservation programs in the upcoming fiscal year. A significant contributor of water demand within the City is outdoor residential watering, conservation programs focused on outdoor watering audits will provide the biggest benefit toward the City's conservation goals.

9.1.2 Residential Plumbing Retrofit

This DMM involves installing water savings devices within residences, business and other usage locations to reduce the amount of water used or to limit the amount of water delivered to the connection. These devices include low flow showerheads, faucet aerators with flow restrictors and low flow toilets. State law began requiring low-flow fixtures on all new construction in 1978, with an increase in stringency of the regulation in 1992, which required Ultra-Low-Flush toilets.

2010 Plan: The City provides low flow shower heads free to its customers. The City of Susanville, with its public education programs (see DMM 7), currently promotes and encourages water users to upgrade to new low water use fixtures and appliances as appliances wear out and need replacement. This includes plumbing retrofits fixtures, High-efficiency washing machines, and ultra-low-flush toilets. The City does not provide any subsidies or rebates for plumbing retrofits or appliance replacement at the present time. Such rebate programs are not locally cost-effective (the present value of the local benefits is less than the present value of local costs to implement) Supporting documentation is provided in the Return on Investment" section below. The City has required new development to include low-flow/low flow flush devices since 1996. The City has considered implementing a retrofit program for single and multi-family customers

occupying structures predating 1996.

2015/2020: The City will continue the 2010 plan as stated above.

9.1.3 Water System Audits

The Water System Audits involve accounting for any water loss throughout the system by quantifying the amount of water used and the amount delivered. The difference is the water loss. Once the loss is quantified, the DMM requires that the leaks be isolated and a plan for repair implemented.

2010 Plan: The City of Susanville currently has monthly meter readings for all water entering and leaving the water system. Following meter readings an audit to find leaks is done to evaluate the system as a whole. Water audits and leak detection is a regular program. Leaks are repaired as they are discovered. Leak detection is done through meter monitoring and visual inspection. The City staff is trained by AWWA – DWR co-sponsored training programs. The water department has a staff of five individuals, two of which are D-1 certified and two more are D-2 certified. The fifth is a new employee and is training to become certified and should do so in the next two years. This program has reduced water consumption and water costs by reducing the need to run a second well during the summer months. Meter calibration and meter change out program was implemented in 1996 and is still underway. On average, City Water Department crews survey and inspect approximately 35 miles of main and laterals each year. The City has an annual valve exercise program using the City Water Department crews and the City Fire Department. In addition, the City Fire Department has standardized the fire hydrants and associated fire protection equipment.

2015: Senate Bill 555 requires all urban water suppliers in California to conduct validated Water Loss Audits by October 2017. The City has chosen to participate in the Water Loss Technical Assistance Program (TAP) provided by AWWA to achieve compliance with the Bill. The Water Loos TAP supports the City with guidance for preparing annual required Water Loss Audits, and validation of the Water Loss Audits are in compliance with Senate Bill 555.

9.1.4 Metering and Commodity Rates

The Metering DMM entails installing water meters on all new connections and implementing a plan to retrofit all existing unmetered connections.

2010 Plan: The City is currently fully metered for all customers sectors, including single-family, multi-family, commercial, industrial, institutional and government facilities. Some fire sprinkler systems are not metered. Historically, a monthly service fee was charged for connecting a fire suppression system to the city water supply. The service fee was removed several years ago but is currently being reviewed for reinstatement. The City will continue to install and read meters on all services, and continue to conduct meter calibration and replacement programs. Meter installation costs are included in the new service fees and the meter replacement and rotation program costs are included in the Water Department Budget.

2015/2020: The City will continue the 2010 plan as stated above.

9.1.5 Landscape and Irrigation Programs

DMM5 consists of assigning water budgets to dedicated irrigation or mixed-use meters and providing audits to those meters.

2010 Plan: The City of Susanville currently encourages water users to reduce water consumption by implementing low water demand landscaping. The City has adopted the "Model Water Efficient Landscape Ordinance" based on the California Code of Regulations Title 23. Water Division 2. Department of Water Resources Chapter 2.7. Ordinance Dated September 10, 2009. The City does not provide any subsidies or rebates for landscaping at the present time, but does promote state programs such as DWR's turf replacement program. Many rebate programs are not locally cost-effective (the present value of the local benefits is less than the present value of local costs to implement) Supporting documentation is provided in the Return on Investment" section below.

2015/2020: The City will continue the 2010 plan as stated above.

9.1.6 Washing Machine Rebate Program

The Washing Machine Rebate DMM provides a financial incentive to customers who install high-efficiency washing machines in lieu of traditional machines in their homes.

2010 Plan: See DMM #2 "Retrofits/Rebates residential plumbing/High-efficiency washing machine/ultra-low-flush toilet replacement" above.

2015/2020: The City will continue the 2010 plan as stated above.

9.1.7 Public Information Program

The Public Information DMM involves dissemination of information to the public through brochures, press releases, educational flyers, commercials, water conservation flyers and conservation kits, to name a few.

2010 Plan: Currently the City promotes water conservation through it's quarterly bulletin mailed with utility bills as well as radio and newspaper public service announcements.

2015/2020: The City has been providing educational fliers in utility billings. The City annually participates in local Earth Day events and home and garden shows by sponsoring booths and passing out educational materials and low flow shower heads. An emphasis is placed on outdoor watering.

9.1.8 School Education Program

The School Education Program provides for an educational process that provides materials and assistance for educating middle school, high school and college aged students about water issues including conservation and usages.

2010 Plan: This DMM is grouped in DMM 7 “Public information and School education programs” above.

2015/2020: The City will continue the 2010 plan as stated above

9.1.9 Commercial, Industrial, and Institutional Conservation Programs

The conservation program for CII Users involves replacing existing toilets with ultra-low-flow toilets in CII facilities within the city. Additionally, surveys are provided for these customers to evaluate their water usage and help with possible ways to save.

2010 Plan: The City of Susanville currently promotes water conservation and water waste prevention through zero or minimal cost efforts associated and in conjunction with other promotional efforts.

2015/2020: The City’s current rate structure includes an increase during the irrigation season April through October that result in all users having incentives to conserve.

9.1.10 Wholesale Agency Programs

DMM10 applies to wholesale water suppliers. The City does not supply wholesale water and therefore this DMM does not apply.

9.1.11 Conservation Pricing

This DMM would implement a tiered water rate structure to encourage conservation. The City already has implemented this type of rate structure. The following tables detail the tiered billing structure.

2015/2020: The City’s current rate structure includes rate increase based on use that result in all users having incentives to conserve.

9.1.12 Water Conservation Coordinator

A Water Conservation Coordinator (WCC) would be responsible for coordinating water conservation programs and activities including the public information program and education program.

2015/2020: The City does not have a dedicated WCC at this time, but those duties are managed by other department personal.

9.1.13 Water Waste Prohibition

The City has a "No Waste" Ordinance in place which includes prohibitions on various wasteful water uses such as lawn watering during mid-day hours, washing sidewalks and driveways with potable water, and allowing plumbing leaks to go uncorrected more than 24 hours after customer notification.

2015/2020: City municipal code 13.08.070, prohibits water wastage. The penalty for water wastage is that the water is disconnected. In addition, the City has prepared its staff to enforce state water emergency conservation regulations. Three public works staff members have completed a PC 832 course which allows for the writing of citations.

9.1.14 Ultra Low Flush Toilet Replacement

The City has determined for its system, a toilet replacement program would be too costly. According to the EPA, the average person flushes the toilet 5.1 times per day. California City has an average of 3.07 people per residence, which yields 15.66 flushes per day. A standard toilet uses an average of 3.5 gallons per flush (gpf), while a low flush toilet uses 1.28 gpf.

Table 9.1-1: Low Flush Toilet Cost/Benefit Analysis

Flushes per Day[1]	15.66
Gallons Saved per Flush[2]	2.22
Water Savings per Rebate (mg)	0.01297
Cost of Rebate[3]	$100
Cost per mg	$837

Notes:
[1] *EPA Toilet Supporting Statement*
[2] Standard Toilets use 3.5 gallons per flush; Low Flush Toilets use 1.28 gallons per flush per EPA guidelines
[3] Cost of Rebate includes hard cost of rebate and soft cost of managing and implementing rebate program.

As shown above, utilizing the rebate program would equate to a cost of $837 per million gallons of water produced. When pumping is required the City produces their water for approximately $200 per million gallons and the cost is much less 70% of the year when the city is able to utilize spring flows. The high cost of water savings for this program makes it economically infeasible to implement within the City.

9.2 DMM Return on Investment

The City of Susanville currently promotes water conservation and water waste prevention through public education, monitoring customer usage history, enforcement of state and local regulations, distribution of low flow shower heads, and quantity rates. The City's most prominent conservation success has come from system reconfigurations that optimize the accounting of water produced entering the system.

Some of the DMM's of the UWMP Act (CWC 10631) above are not locally cost-effective (the present value of the local benefits is less than the present value of the local costs to implement). The return on investment does not justify implementation. (See 10631.5(a)) (or page B-1 of Part II UWMP Supporting Information). This is primarily the case because of the unique geographical location of the city, and the Cities water rights that allows the city to obtain 90% of the required Annual Consumption water supply from two springs. These springs have consistently supplied water with very little deviation in the flow rates. During extreme drought years the springs only dropped about 5% in flow. During extreme hot summer weather conditions, pumping is required to keep up with water demands primarily caused by landscape. Based on winter water demand flow rates, and annual water consumption, none landscape water demand accounts for 30% of the Cities annual water usage. Additionally, during summer months, none landscape water consumption accounts for less than 20% of the monthly consumption.

All water supply systems in the City must be maintained regardless of water source or water demand. The City has a moral and legal obligation to insure that the water system operate in the most cost effective and efficient manner based on current known and future projected best management practices. Best management practices, as well as moral obligations, require the city to try and minimize water rates while ensuring sufficient revenue to cover water system costs. Currently, 90% of the City's water supplies come from free flowing springs and hence have a $0.0 dollar incremental cost. Any efforts to reduce this water consumption will decrease water department revenues requiring an increase in water rates to make up the difference. This unique situation allows the City both morally and ethically to allow a customer who wants to water there "Extravagant" flower beds, and pay for the water, go ahead, because, if we do not use it we will have to waste it, as over flow, and we will not only loose the water but also the revenue that water could have generated.

2015/2020: Recent drought has caused the City to closely evaluate its water supply and demand. Given the climate in Susanville, winter month per capita use is over three times less than summer use. Several of the DMM's identified in the UWMP Act (CWC 10631), particularly those that pertain to indoor water use, have very low rates of return for the costs to provide the programs. The most cost effective DMM's are those that relate to water leak evaluations and repairs, and outdoor watering. The City of Susanville customers are very adept at conserving water when a need exists to do so. However, recent statewide historic drought has had a minimal impact on City water supplies. State regulations have created a strong regulatory need to conserve but the City has not experienced a water shortage. Conservation for conservation sake is a personal choice for many, but when there is a not a strong local need to conserve it is difficult to get community buy in. The most effective conservation option for the City is to charge more

for the water that is used. See section 9.1.11 DMM Conservation Pricing. The City of Susanville has taken this approach by recently increasing the quantity rate for water. The rate study used to support the increase included a modest capital improvement program that will replace several thousand feet of deteriorated and leaking water mains. This should go toward reducing the volume of non-revenue water annually produced by the City.