

City of Yuba City

2005

*Urban Water
Management Plan*



Table of Contents

	Page
Section One Agency Coordination	3
Section Two Supplier Service Area	5
Section Three Existing and Planned Water Sources	7
Section Four Water Sources - Groundwater	12
Section Five Reliability of Supply	14
Section Six Transfer or Exchange Options	17
Section Seven Water Use by Customer Type – Past, Present and Future	18
Section Eight Demand Management Measures	21
Section Nine Evaluation of DMMS Not Implemented	28
Section Ten Planned Water Supply Projects and Programs	29
Section Eleven Development of Desalinated Water	30
Section Twelve Current or Projected Supply Includes Wholesale Water	31
Section Thirteen Water Storage Contingency Plan Stage of Action	33
Section Fourteen Estimate of Minimum Supply for Next Three Years	36

	Page
Section Fifteen Catastrophic Supply Interruption Plan	37
Section Sixteen Prohibitions, Penalties and Consumption Reduction	39
Section Seventeen Analysis of Revenue Impacts of Reduced Sales During Shortages	41
Section Eighteen Draft Ordinance and Use Monitoring Procedures	42
Section Nineteen Recycled Water Plan Coordination	45
Section Twenty Recycled Water Plan Wastewater Quantity, Quality and Current Uses	46
Section Twenty-One Recycled Water Plan Potential and Projected Use, Optimization Plan With Incentives	49
Section Twenty-Two Water Quality Impacts on Reliability	52
Section 23 Water Service Reliability Projected Normal Water Year Supply and Demand	53
Section 24 Water Supply Reliability Projected Single-Dry-Year Supply and Demand Comparison	56
Section 25 Water Service Reliability Projected Multiple-Dry-Year Supply and Demand Comparison	58
Section 26 Adoption and Implementation of Urban Water Management Plan	63

List of Tables

	Page
Table 1 – Coordination with Appropriate Agencies	4
Table 2 – Population Projections	6
Table 3 – Climate	6
Table 4 – Permit 14045 Monthly Allotments Without Curtailment	8
Table 5 – Permit 18558 Monthly Allotments Without Curtailment	8
Table 6 – Permit 18558 Curtailments	9
Table 7 – Yuba County Water District Contract Allotments	9
Table 8 – State Water project Monthly Allotments Without Curtailment	10
Table 9 – Current and Projected Water Supplies Acre Feet Per Year	11
Table 10 – Amount of Groundwater Pumped – AF/Year	13

	Page
Table 11 – Amount of Groundwater projected to be pumped – AF/Year	13
Table 12 – Supply Reliability Acre Feet Per Year	15
Table 13 – Basis of Water Year Data	16
Table 14 – Factors Resulting in Inconsistency of Supply	16
Table 15 – Past, Current and Projected Water Deliveries	19
Table 16 – Additional Water Uses and Losses AF/Year	20
Table 17 – Total Water Use AF/Year	20
Table 18 – Agency Demand Projections Provided to Wholesale Suppliers AF/Year	31
Table 19 – Wholesaler Identified & Quantified Existing and Planned Sources of Water Available AF/Year	31
Table 20 – Future Water Supply Projects State Water Project	32
Table 21 – Future Water Supply Projects Yuba County Water District	32

	Page
Table 22 - Factors Resulting in Inconsistency of Wholesaler's Supply – State Water Project	32
Table 23 – Water Supply Shortage Stages and Conditions	34
Table 24 – Three Year Estimated Minimum Water Supply Acre Feet per Year	36
Table 25 – Mandatory Prohibitions	39
Table 26 – Consumption Reduction Methods	40
Table 27 – Penalties and Charges	40
Table 28 – Participating Agencies	45
Table 29 – Wastewater Collected and Treated – AF/Year	47
Table 30 – Disposal of Wastewater (non-recycled) AF/Year	47
Table 31 – Recycled Water Uses – Actual AF/Year	48
Table 32 – Recycled Water Uses – Potential AF/Year	50

	Page
Table 33 – Projected Future Use of Recycled Water in Service Area – AF/Year	50
Table 34 – Recycled Water Uses 2000 Projected Compared with 2005 Actual AF/Year	51
Table 35 – Methods to Encourage Recycled Water Use	51
Table 36 Current and Projected Water Supply Changes Due to Water Quality	52
Table 37 – Projected Normal Water Year Supply AF/Year	53
Table 38 – Projected Normal Water Year Demand AF/Year	53
Table 39 – Projected Normal Year Supply and Demand Comparison AF/Year	54
Table 40 – Actual Demands 2000 thru 2005	55
Table 41 – Average Year Monthly Supply	55
Table 42 – Critical Year Monthly Supply	55
Table 43 – Projected Single Dry Water Year Supply	56

	Page
Table 44 – Projected Single Dry Water Year Demand	57
Table 45 – Projected Single Dry Year Supply and Demand Comparison	57
Table 46 – Projected Supply During Multiple Dry Year Period Ending 2010	59
Table 47 – Projected Demand Multiple Dry Year Period Ending 2010	59
Table 48 – Projected Supply and Demand Comparison	59
Table 49 – Projected Supply During Multiple Dry Year Period Ending 2015	59
Table 50 – Projected Demand Multiple Dry Year Period Ending 2015	60
Table 51 – Projected Supply and Demand Comparison	60
Table 52 – Projected Supply During Multiple Dry Year Period Ending 2020	60
Table 53 – Projected Demand Multiple Dry Year Period Ending 2020	60

	Page
Table 54 – Projected Supply and Demand Comparison	61
Table 55 – Projected Supply During Multiple Dry Year Period Ending 2025	61
Table 56 – Projected Demand Multiple Dry Year Period Ending 2025	61
Table 57 – Projected Supply and Demand Comparison	61
Table 58 – Projected Water Supply Shortages	62

RESOLUTION NO. _____

**RESOLUTION OF THE CITY COUNCIL OF THE CITY
OF YUBA CITY TO ADOPT THE URBAN WATER
MANAGEMENT PLAN**

The City Council of the City of Yuba City does hereby resolve as follows:

WHEREAS, the California Legislature enacted Assembly Bill 797 (water Code Section 10610 et seq., known as the Urban Water Management Planning Act) during the 1983-1984 Regular Session, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, THE city is an urban supplier of water providing water to a population over 50,000; and

WHEREAS, the Plan shall be periodically reviewed at least once every five years, and that the City shall make any amendments or changes to its plan which are indicated by the review; and

WHEREAS, the Plan must be adopted, after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, the City has therefore prepared and circulated for public review a draft Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was held by the City Council on March 7, 2006.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Yuba City as follows:

The 2005 Urban Water Management Plan is hereby adopted and ordered filed with the City Clerk; the Utilities Director is hereby authorized and directed to file the 2005 Urban Water Management Plan with the California Department of Water Resources within 30 days after this date;

The Utilities Director is hereby authorized and directed to implement the Water Conservation Programs as set forth in the 2005 Urban Water Management Plan, which includes water shortage contingency analysis and recommendations to the City Council regarding necessary procedures, rules, and regulations to carry out effective and equitable water conservation and water recycling programs;

In a water shortage, the Mayor is hereby authorized to declare a Water Shortage Emergency according to the Water Shortage Stages and Triggers indicated in the Plan, and implement necessary elements of the Plan;

In a water shortage, the Utilities Director shall recommend to the City Council additional regulations to carry out effective and equitable allocation of water resources.

ADOPTED this 7th day of March 2006 by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

MAYOR

ATTEST:

City Clerk

Section 1

Agency Coordination

Water Code section 10620

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640)

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in area wide, regional, watershed, or basin wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(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.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(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.

Agency Coordination

Yuba City is an independent water supplier with four separate agreements that provide raw water supply for the City. Additionally, approximately 20% of Yuba City's water demand is met with groundwater. Yuba City does not purchase treated water from any other agencies; additionally, all water obtained through the four separate agreements is treated and delivered by the City within the city's sphere of influence.

City Utilities Department staff met and coordinated the Urban Water Management Plan with Yuba City Community Development Department, Public Works Department, Fire Department, and Police Department.

Report Preparation

City staff prepared the City of Yuba City's Urban Water Management Plan for 2005.

Resource Maximization

The Utilities Department completed a Water System Master Plan Update in May 2004. This plan outlines the projected water demands within the existing city limits, the City's sphere of influence and the former Hillcrest Water Company groundwater regions acquired by the City in May 2001. The Master Plan Update evaluates the current and future water needs for the City, the City's sphere of influence and projected growth within the City's service area. The report was prepared by the City to identify needed water system improvements to the existing infrastructure, expansion necessary to accommodate anticipated growth projected by the City's General Plan Update and methods to maximize available resources and minimize the need to import water.

Table 1
Coordination with Appropriate Agencies

	Participated in plan development	Commented on draft	Attended public meeting	Contacted for assistance	Received copy of draft	Sent notice of intention to adopt
Community Development			X	X		X
Utilities Department	X	X	X	X	X	X
Fire Dept			X			X
Police Dept			X			X
Sutter Co						X

Section 2 SUPPLIER SERVICE AREA

Water Code section 10631

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:
10631. (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in 5-year increments to 20 years or as far as data is available.

SUPPLIER SERVICE AREA

Yuba City is located within the northern Sacramento Valley. Summers are typically hot and dry, winters mild with moderate rainfall. Typically all rain occurs between October and May. Average rainfall is 21.48 inches per year. Prevailing winds are from the south at an average speed of four knots.

Yuba City is a typical mid-sized valley agricultural community that has experienced moderate growth. Population has approximately doubled in the last twenty years. Recent growth rate has been in excess of eight percent per year, with several large annexations of developed land. The economy is primarily based on agriculture and support businesses. The largest employers include fruit processors, government, retail outlets and service providers. The largest employer has less than 500 employees. The city was incorporated in 1908. Yuba City has served as the County Seat since 1856. In February 1910 the municipal water district was formed. In 1922 a sanitation department was formed and created a sewer system.

Much of Yuba City's land use pattern can be traced to its evolution as a primary service center within a large agricultural area focused on downtown Yuba City and the intersection of Highway 20 (Colusa Avenue) and Highway 99 as employment core. Much of the residential development in the City is low-density single-family housing and much of the commercial development is retail related. The median price of residential housing is approximately \$318,172. Median household income is \$34,658.

Yuba City is a full service city providing all traditional services police and fire protection, recreation, planning and building inspection, public works, redevelopment, water and sewer services.

Yuba City sphere of influence borders are the Feather River to the east, Pease Road to the north, Township Road to the west, and Bogue Road to the south. The current city limits encompass approximately one half of this area. Water service is provided, with few exceptions, to residents within the city limits. Currently Yuba City has approximately 16,890 water service connections as of September 2005. It is anticipated that most of the Sphere of Influence will be incorporated within the next ten to twenty years. Most residents within the Sphere of Influence, but outside the city limits, obtain their water from private wells or small municipal water districts.

Table 2 provides population projections for the City from 2005 to 2025. Straight-line interpolation was used for years 2010 through 2025 population projections using the 3.4

percent annual growth rate reflected in the Census data for the period 1980 to 2000 and the 2005 General Plan.

Table 2 Population Projections					
	2005	2010	2015	2020	2025
Service Area Population	67,000	80,000*	95,500*	111,000*	133,000*

*Projecting 3.4% growth

Table 3 Climate						
	Jan	Feb	March	April	May	Jun
Standard Monthly Average Eto	0.87	1.57	3.22	4.86	6.28	7.51
Average Rainfall (inches)	4.36	3.52	2.91	1.61	0.64	0.23
Average Temperature (Fahrenheit)	46.0	51.4	55.3	60.8	67.7	74.5

Source: DWR, Office of Water Use Efficiency, California Irrigation Management Information Systems

Table 3 Climate (Continued)							
	July	Aug	Sept	Oct	Nov	Dec	Annual
Standard Monthly Average Eto	7.89	6.92	5.16	3.39	1.51	0.89	50.16
Average Rainfall (inches)	0.04	0.08	0.33	1.32	2.81	3.61	21.48
Average Temperature (Fahrenheit)	79.1	77.5	73.5	65.3	53.9	46.7	62.6

Source: DWR, Office of Water Use Efficiency, California Irrigation Management Information Systems

Section 3

EXISTING AND PLANNED WATER SOURCES

Water Code section 10631

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same 5-year increments [to 20 years or as far as data is available.]

EXISTING WATER SOURCES

Prior to 1969 Yuba City water supply was local groundwater. The water was hard and contained high levels of sulfides, iron and manganese. In 1965 the citizens passed a bond issue, 91 percent in favor, to construct a new surface water treatment plant. The plant was placed on line in 1969.

In 2001, Yuba City acquired Hillcrest Water District Company. Hillcrest Water District Company provided water service to four regions, within the City's Sphere of Influence. The groundwater supplied systems included approximately 4,600 service connections and thirteen active groundwater wells. In December 2004, approximately 1,100 of those connections were converted by the City to surface water connections and the four wells that service the Tierra Buena area were abandoned. In Regions 1 and 2/3, there are currently six active water wells and three standby wells. Currently, approximately 20% of the City's water demand is met with groundwater.

Yuba City's existing surface water sources include two appropriative water rights, State Water Resources Control Board Permit 14045 (Application Number 0A18025) and 18558 (Application Number A025751) and two surface water supply contracts. Existing water sources are as follows:

- State Water Resource Control Board Permit 14045 – Feather River
- State Water Resource Control Board Permit 18558 - Feather River
- Contract - Yuba County Water District - Feather River for 4,500 acre-feet per annum
- Contract - Department of Water Resources, State Water Project - Feather River for 9,600 acre-feet per annum
- Water wells – Regions 1 and 2/3

SWRCB Permit Number 14045 (Application Number A018025)

In 1964 Yuba City obtained the right to appropriate from the Feather River, pursuant to Application A018025, Permit 14045 "15.6 cubic feet per second by direct diversion to be diverted from January 1 to about July 1 and from about September 1 to December 31 of each year." Except for summer months, this permit is the basis of the City supply. Because it is one of the older permits, drought restrictions have only been applied twice. Drought restrictions occurred during the 1977 drought, our records do not indicate the degree of curtailment, and again in 1992 when the water could not be diverted in June.

In 1973, the Water Resources Control Board limited the City to 6,500 acre-feet per year because the full entitlement was not being used. With this limitation, the Permit can

provide up to 6500 acre-feet per year. There is no cost for water taken under this permit.

Table 4 Permit 14045 Monthly Allotments Without Curtailment			
Month	Acre Feet	Month	Acre Feet
January	959	July	0
February	866	August	0
March	959	September	928
April	928	October	959
May	959	November	928
June	928	December	959
		Total	6,500 Maximum

SWRCB Permit Number 18558 (Application Number A025751)

This permit allows the direct diversion of up to 21.0 cubic feet per second from the Feather River except during July, August and September. Permit 18558 was issued in 1978, and has a much lower priority and more restrictions than Permit 14045. Permit 18558 is subject to Term 91 curtailments. A tabulation of the commencement of the historical curtailment periods is detailed in Table 6. During normal runoff years, Permit 18558 diversion is curtailed at the end of June. During below normal runoff years Permit 18558 is curtailed in mid-May. Water was drawn from this permit for the first time in 2000. This permit will become more valuable as the winter water usage exceeds the demands of Permit 14045. There is no cost for water taken under this permit. Permit 18558 limits annual withdrawal to 9,000 acre-feet per year. The monthly total without the limit is 11,371 acre-feet.

Table 5 Permit 18558 Monthly Allotments Without Curtailment			
Month	Acre Feet	Month	Acre Feet
January	1291	July	0
February	1166	August	0
March	1291	September	0
April	1250	October	1291
May	1291	November	1250
June	1250	December	1291
		Total	9,000 Maximum

Table 6 Permit 18558 Curtailments			
Year	Term 91 Curtailement	Year	Term 91 Curtailement
1984	6/22	1995	None
1985	5/17	1996	7/22
1986	7/2	1997	6/18
1987	5/12	1998	None
1988	6/21	1999	6/29
1989	6/21	2000	6/28
1990	5/14	2001	6/6
1991	6/10	2002	6/20
1992	5/21	2002	11/15
1993	7/27	2003	7/11
1994	6/15	2004	5/31
		2005	None

Yuba County Water District

Yuba City negotiated a contract for water supply with Yuba County Water District (YCWD) originally in 1965. Amendments were made to the contract in 1970 and 1980. The agreement provides for direct diversion from the Feather River, as shown in Table 7, for each year through the end of calendar year 2010.

Table 7 Yuba County Water District Contract Allotments			
Month	Acre Feet	Month	Acre Feet
January	0	July	922
February	0	August	922
March	0	September	714
April	181	October	376
May	492	November	0
June	893	December	0
		Total	4,500

This contract is important in that it provides a base summer water supply. Supply under this contract has never been curtailed. The price of this water is tied to the consumer price index. Current price is approximately \$22.55 per acre-foot for the total contracted amount. Annual payments based on 4,500 acre-feet are made regardless of the amount of water actually used from this contract. This contract has never been curtailed or limited in supply. The contract is due to expire at the end of calendar year 2010 and the City is planning to renegotiate a new contract with YCWD.

Department of Water Resources, State Water Project

Yuba City executed this contract in 1963. The contract remains in force through 2035. Maximum allowable allocation is 9,600 acre-feet per year. The contract is presently used to supplement YCWD during the months of July and August. Water from this contract can be utilized in any month. From 2001 through 2005, water drawn on this contract has averaged 1,378 acre-feet per year, or approximately fifteen percent of full allocation.

Full allocations of water under this contract have been reduced several times. In 1990 and 1991 the allocations were reduced to twenty percent. The following year, in 1992 the allocation was forty-five percent. Current cost of this water is approximately \$27 per acre-foot of full allocation quantity. Yuba City has utilized the turnback pool program since 1999. This program allows allocated water, not used within the City to be sold to other Contractors. The price of sold water varied from the Delta water charge to one half of the Delta water charge.

Table 8 State Water Project Monthly Allotments Without Curtailment			
Month	Acre Feet	Month	Acre Feet
January	0	July	1600
February	0	August	1600
March	0	September	1600
April	1600	October	0
May	1600	November	0
June	1600	December	0
		Total	9,600

Water Wells

Yuba City maintains one additional water well, outside the former Hillcrest Water District Company area, which has a capacity of approximately 2.2 million gallons per day. The well is located at the City's water treatment plant. The well would be available for use in the event of an extreme water shortage.

Increased long-term water demands, due to a larger service area, and increased number of customers, will necessitate optimizing existing water supply. The reliability of the State Water Project allocations also necessitates augmentation to more reliably meet Yuba City customers' water supply needs.

Table 9 provides current and projected water supply information. This table assumes that none of the contracts for surface water are curtailed and contribution from existing water wells continues at the current rate.

**Table 9
Current and Projected Water Supplies
Acre Feet Per year**

Water Supply Sources	2005	2010	2015	2020	2025
SWRCB Permit 14045	6,500	6,500	6,500	6,500	6,500
SWRCB Permit 18558	9,000	9,000	9,000	9,000	9,000
Yuba County Water District	4,500	4,500	0	0	0
State Water Project	9,600	9,600	9,600	9,600	9,600
Groundwater	3,600	3,600	3,600	3,600	3,600
Total	33,200	33,200	28,700	28,700	28,700

Section 4
WATER SOURCES
GROUNDWATER

Water Code section 10631

(b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

- (1) 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.
- (2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court of the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

For basins that have not be adjudicated, 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.

- (3) 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.
- (4) 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.

Yuba City has not adopted a groundwater management plan as it has not used groundwater as a source of water during the past thirty-five years other than in emergency situations. However, recently Yuba City has been supplying drinking water from groundwater wells in the former Hillcrest Water Company's service area. In May 2001, Yuba City acquired the Hillcrest Water Company, which supplied drinking water from groundwater wells. The Hillcrest Water Company service area was comprised of five separate service regions supplied by a total of thirteen groundwater wells. One of the groundwater regions (2/3) was located within the city limits and the other four were located within unincorporated Sutter County. The City recently annexed Hillcrest Region 5. On December 13, 2004, Region 5 supply was converted to surface water.

On November 4, 2004, Region 1 citizens voted to not be annexed into the City and to not convert to surface water. The City's policy has been that all water service connection within the City limits would be on surface water. Accordingly, for planning purposes each of the three groundwater region's, still on well water, demands will continue to receive groundwater through 2025.

Currently, Regions 1, 2/3, 4A/5A and 4B/5B service needs are met by groundwater supply. The groundwater basin that provides the water is the Sacramento Valley Groundwater Basin,

Sutter Subbasin (identified as Groundwater Basin Number 5-21.62 by the Department of Water Resources). The Sutter Subbasin is bound on the north by the confluence of Butte Creek and the Sacramento River and the Sutter Buttes, by the Sacramento River on the west, by the confluence of the Sacramento River and Sutter Bypass on the south, and on the east by the Feather River. The principal sources of groundwater recharge are stream percolation, deep percolation of rainwater, and percolation of irrigation water. The groundwater depth throughout the Sutter Subbasin has remained relatively constant at approximately ten feet below the ground surface.

The Department of Water Resources (DWR) maintains several water quality wells in the Sutter Subbasin to monitor water quality trends. Recent analysis of groundwater collected from various wells showed the presence of contaminants in amounts that exceed State safe drinking water and aesthetic standards. It is expected that the groundwater quality will decline unless steps are taken to prevent the further deterioration of the resource. According to the estimated groundwater budget by DWR, the Sutter Subbasin has groundwater extracted at a higher rate (175,399 acre-feet per year) than the water is replenished (62,100 acre-feet per year).¹

Since 2001, an average of 3,300 acre-feet per year has been utilized in the five regions of the former Hillcrest Water Company's service area (see Table 10). The groundwater source has been sufficient to supply the demands of the area where groundwater is relied upon for domestic needs. Yuba City anticipates that the groundwater source will remain a reliable supply into the future. For planning purposes, 3,600 acre-feet of the City's annual water needs will be met by groundwater through 2025.

Table 10					
Amount of Groundwater Pumped – AF/Year					
Basin Name	2000	2001	2002	2003	2004
Sutter Subbasin	N/A	2,688	3,513	3,333	3,593
% of Total Water	N/A	18	22	21	20

Table 11				
Amount of Groundwater projected to be pumped – AF/Y				
Basin Name	2010	2015	2020	2025
Sutter Subbasin	3,600	3,600	3,600	3,600
% of Total Water	17	14	12	11

¹California Department of Water Resources Bulletin 118 (2004), Sacramento River Hydrologic Region, Sacramento Valley Groundwater Basin, Sutter Subbasin.

Section 5 RELIABILITY OF SUPPLY

Water Code section 10631

10631 (c). 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:

- (1) An average water year
- (2) A single dry water year
- (3) Multiple dry water years.

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

WATER SUPPLY RELIABILITY

Yuba City water source is the Feather River, north of the confluence with the Yuba River. Upstream dams on all forks of Feather River control flow in the Feather River. Oroville Dam is the primary upstream control. DWR operates Oroville Reservoir, 3,500,000 acre-feet capacity, for the State Water Project (SWP). This represents over sixty percent of the total SWP storage. The SWP maintains contracts of over 4,000,000 acre-feet. Due to the critical nature of water supply by the SWP there is an extremely small chance that the Feather River flow being so low that water could not be withdrawn. This results in a high reliability water source.

Oroville Dam was completed in 1967. Since the dam's completion, there has always been sufficient flow in the Feather River to allow withdrawal of some water. This includes the drought periods of the 1970's, 1980's and 1990's. In the event of a catastrophic problem that prevents any release from Lake Oroville, Yuba City would implement significant mandatory water conservation, and blend available surface water with standby well water.

Other than emergency conditions, it appears that sufficient water would always be available for withdrawal from the Feather River. Yuba City maintains adequate water supply permits and contracts, utilizing 3,600 acre-feet per year of groundwater, to meet the needs of its customers beyond 2020 under normal water year conditions, on an annual basis.

There are several ways that Yuba City can close the gap between supply and demand beyond 2020. These include:

1. Obtain additional water supply through contract.
2. Increased conservation effort.
3. Utilize additional groundwater.
4. Utilize recycled water.
5. Combination of 1 – 4.

Average year assumptions are as follows:

- Permit 14045 is not curtailed, 6,500 acre-feet available.
- Permit 18558 is not curtailed, 9,000 acre-feet available.
- YCWD is not curtailed, 4500 acre-feet available.
- SWP allocation is 77% with 7,392 acre-feet available.
- Groundwater is pumped at 3,600 acre-feet.
- Total 30,992 acre feet.

A single dry year assumptions (water year 1988, 99% of the time at or above):

- Permit 14045 is not curtailed, 6,500 acre-feet available.
- Permit 18558 is curtailed on June 21; however, 9,000 acre-feet available.
- YCWD is not curtailed, 4,500 acre-feet.
- SWP allocation is reduced to ten percent allocation, 960 acre-feet.
- Groundwater is pumped at 3,600 acre-feet.
- Total 24,560 acre-feet available.

The multiple dry year assumptions are (used water years 1990, 91 and 92):

- Permit 14045 is curtailed on June 1 in year 3; however, 6,500 acre-feet will be available.
- Permit 18558 is curtailed on May 14 of year 1, on June 10 in year 2 and on May 21 in year 3. However, in all three years, 9,000 acre-feet will be available.
- YCWD is not curtailed,
- SWP allocation is reduced to 21% for year one, 21% for year 2 and 35% for year three. Full allocation is 9,600 acre-feet. Accordingly, SWP supply will be 2,016, 2,016 and 3,360 acre-feet for years one through three, respectively.
- Groundwater is pumped at 3,600 acre-feet in each year.
- Total in year one – 25,616 acre-feet with restrictions to Permit 18558 in May and allocation reduced for SWP to 21%.
- Total in year two – 25,616 acre-feet with June restrictions to Permit 18558 and SWP allocation of 21%.
- Total in year three – 26,032 acre-feet with June restrictions to Permit 14045, May and June restrictions to Permit 18558 and SWP allocation of 35%.

Table 12 Supply Reliability Acre Feet Per Year					
Multiple Dry Years					
Water Source	Average/Normal Water Year	Single Dry Year	Year 1	Year 2	Year 3
Permit 14045	6,500	6,500	6,500	6,500	5,572
Permit 18588	9,000	9,000	9,000	9,000	9,000
YCWD	4,500	4,500	4,500	4,500	4,500
SWP	7,392	960	2,016	2,016	3,360
GW	3,600	3,600	3,600	3,600	3,600
Total	30,992	24,560	25,616	25,616	26,032

**Table 13
Basis of Water Year Data**

Water Year Type	Year Data is Based Upon
Average Water Year	1922 – 1994
Single Dry Water Year	1988
Multiple Dry Water Years	1990 – 1992

Source: Draft 2005 State Water Project Delivery Reliability Report

**Table 14
Describe Factors Resulting in Inconsistency of Supply**

Name of Supply	Legal	Environmental	Water Quality	Climatic
Permit 14045	X			X
Permit 18588	X			X
YCWD				
SWP				X

On an annual basis, under normal water year conditions Yuba City is able to meet the full needs of its customers beyond year 2020. However, during critically dry years, Yuba City is supply short for the high demand summer months of July, August and September. Chapter 23 will further discuss the summer shortage issue.

The City Ordinance does allow the City Council to declare an emergency condition and institute mandatory water conservation programs. These items include:

- Irrigation limitations to two times per week,
- No use of water on impermeable surfaces,
- All evaporative coolers must be recirculating type,
- Shutoff nozzles on all hoses,
- Large water users must submit a conservation plan
- Car wash limitations
- Water requirements for trees, shrubs and other plant materials except lawns
- Prohibition of fountains, ponds, etc.
- Restaurant restrictions

Yuba City normally operates its water distribution system at 50 to 60 psi. In the event of significant water shortages the system pressure could be reduced. System pressure is maintained using variable speed pumps. No elevated water storage tanks are in use. The pressure reduction would reduce demand and reduce the amount of distribution system leakage. The Yuba City Fire Department maintains direct contact with the water plant via radios and phones. In the event of a fire the system pressure can be increased almost instantly through the plant System Control and Data Acquisition system. This system allows remote operation of all water booster stations and reservoirs from the water plant. The water plant is staffed twenty-four hours per day, seven days per week.

Section 6
TRANSFER OR EXCHANGE OPTIONS

Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

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

Yuba City is currently exploring transfer or exchange options to firm up their summer water supply.

Section 7
WATER USE BY CUSTOMER TYPE – PAST, PRESENT AND FUTURE

Water Code section 10631

10631 (e)(1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, 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.

(2) Agricultural.

(3) The water use projections shall be in the same 5-year increments described in subdivision (a).

WATER USE

Yuba City operates a municipal water system for residential, commercial and industrial needs within its city limits and sphere of influence. Approximately twenty-five percent of connections serviced by Yuba City are outside the city limits, but within the sphere of influence. Yuba City is in the process of converting from a flat rate system to a metered system. As of September 2005, approximately seventy-five percent of the accounts have meters installed. Yuba City plans to convert the remaining unmetered services within the next 5 years. In the older portions of the town it may not be possible to meter all accounts due to multiple accounts on a single service, unknown locations of service, and other reasons.

Due to the lack of significant customer metering, historical usage records do not exist prior to 2000. Additionally, future account projections are based on a growth rate of 3.4 percent per year. The future water use projections are based on the following factors: single family home 0.56 ac-ft/acct, Multi-family 3.0 ac-ft/acct, commercial 3.4 ac-ft/acct and landscape of parks 4.0 ac-ft/acct.

**Table 15
Past, Current and Projected Water Deliveries**

Year		Water Use Sectors	Single Family	Multi-Family	Com-mercial	Indust-rial	Instit/ Gov	Land-scape	Ag	Total
2000	metered	# of accounts	6885	545	857	4	2	143	0	8,436
		Deliveries AF/y	3885	1633	2161	1834	7	568	0	10,081
	unmetered	# of accounts	340	61	94	0	1	0	0	496
		Deliveries AF/y	na	Na	na	0	3	0	0	1,064
2005	metered	# of accounts	10,743*	928	1,107	5	2	200	0	12,985
		Deliveries AF/y	6,016	2,784	3,764	2,250	7	800	0	15,621
	unmetered	# of accounts	3,835*	58	11	0	1	0	0	3,905
		Deliveries AF/y	2,148	174	37	0	3	0	0	2,362
2010	metered	# of accounts	17,056	1,154	1,295	5	2	234	0	19,746
		Deliveries AF/y	19,951	3,462	4,403	2,250	7	936	0	20,609
	unmetered	# of accounts	50	10	11	0	1	0	0	72
		Deliveries AF/y	28	30	37	0	3	0	0	99
2015	metered	# of accounts	19,956	1,350	1515	6	2	274	0	23,103
		Deliveries AF/y	11,175	4,050	5,151	2,250	7	1,096	0	23,729
	unmetered	# of accounts	50	10	11	0	1	0	0	72
		Deliveries AF/y	28	30	37	0	3	0	0	99
2020	metered	# of accounts	23,348	1,579	1,773	5	2	320	0	27,028
		Deliveries AF/y	13,075	4,737	6,028	2,250	7	1,280	0	27,377
	unmetered	# of accounts	50	10	11	0	1	0		72
		Deliveries AF/y	28	30	11	0	1	0	0	99
2025	metered	# of accounts	27,318	1,848	2,074	5	2	375	0	31,621
		Deliveries AF/y	15,298	5,544	7,052	2,250	7	1,500	0	31,650
	unmetered	# of accounts	50	10	11	0	1	0	0	72
		Deliveries AF/y	28	30	37	0	3	0	0	99

* Between 2000 and 2005 added 4600 accounts with acquisition of Hillcrest Water District Co.

Table 16 Additional Water Uses and Losses AF/Year						
Water Use	2000	2005	2010	2015	2020	2025
Construction	28	30	30	35	35	40
Backwash and Settled Material at Water Plant	477	630	830	1100	1450	1900
Unmetered and Unaccounted for Water	1064	2,362	99	99	99	99
Total	1,569	3,022	959	1,234	1,584	2,039

Table 17 Total Water Use AF/Year						
Water Use	2000	2005	2010	2015	2020	2025
Sum of Tables 14 and 15	11,650	18,643	21,568	24,963	28,961	33,689

Section 8 Demand Management Measures

Water Code section 10631

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

- (1) A description of 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-low-flush toilet replacement program
- (2) A schedule of implementation for all water demand management measures proposed or described in the plan.
- (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.
- (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.

(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 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:

Yuba City is committed to the implementation of the most feasible water conservation plan. Yuba City is not signatory to the Memorandum of Understanding regarding Urban Water Conservation in California, MOU, and is therefore not a member of the California Urban Water Conservation Council, CUWCC. For purposes of responding to the Urban Water Management Planning Act, Yuba City will address the fourteen Demand Management Measures. Descriptions of the City's water conservation programs are covered within this Section. The City has, in good faith, tried to address and comply with all of the BMP targets listed in the CUWCC MOU where applicable.

The capacity of the Yuba City Water Treatment Plant is rated at 30 million gallons per day. An enlargement contract is currently underway that will increase the treatment capacity to 36

million gallons per day by summer 2007. Another enlargement is scheduled to be completed by 2010 that will increase the treatment capacity to 48 million gallons per day.

Water Code section 10631

(a) Water Survey programs for single-family residential and multifamily residential customers.

Yuba City has maintained an active water metering program for the last several years. The City ordinance stated that it was the intent to complete metering of all accounts within the City's Sphere of Influence by July 1, 2002. However, with the purchase of Hillcrest Water District Company in 2001, this objective has not been met. Within the next two years, the City anticipates having nearly 100% compliance. The number of metered and non-metered accounts is indicated in Table 15.

One important component of the metering system is that it allows usage information to be collected by the City and customers. Customers are billed per hundred cubic feet, hcf, of water used in a billing cycle. Historically, usage information had been provided to customers in hcf. The information did not meet the needs of the customers in that the units of usage had no meaning. In 1998, the billing system was modified to allow conversion of hundred cubic feet per month to gallons per day. Each bill now reports usage in hcf per month, gallons per day for current month, and gallons per day used during the same period last year. Customers have found this information more useful and understandable.

Customers are now provided with information that allows individual customers to track water usage in a form that they can understand – hundred cubic feet per day (hcf) and a statement that one hcf is equal to 748 gallons. Upon the conversion of the billing system, there were a large number of calls related to the perception of high water usage. Residential customers were hesitant to believe that they were using over 748 gallons or more per day of water.

Water conservation information is provided to every customer who makes a call related to his or her water usage. City employees will visit any home to assess water usage, determine if there are leaks, and to provide educational information. Irrigation methods, timing clocks, and other methods to conserve water outdoors are reviewed with customers. Customers are instructed on methods to determine if a toilet is leaking water.

Wherever feasible, irrigation meters have been installed. This allows customers with significant irrigation usage to manage water consumption. Yuba City completed the construction of a new community park in 1998. The park features a state of the art irrigation system that utilizes evaporation and transpiration rate to determine timing of water cycles. This new system has been effective in reducing water needs at the park.

The current billing system can prepare reports of the largest water users by meter size. Currently, Yuba City provides audit information to the top five percent of the water users by meter size. The intent of this program is to concentrate on residential water users, provide educational information, and audits if requested. The program has been effective in targeting the top water users.

Water Code section 10631

(b) Residential plumbing retrofit.

At least once per year, water bill inserts are used to educate customers about where and how water is used in a typical residential household. The benefits of low flow showerheads, aerators, and toilets are demonstrated. Information is also provided at all public events at which the Utilities Department participates. Yuba City will continue to provide educational information to customers.

Water Code section 10631

(c) System water audits, leak detection, and repair

Yuba City is responsive 24 hours a day in dealing with water distribution leaks. When requested, City maintenance crews can detect and repair waterline breaks.

Water Code section 10631

(d) Metering with commodity rates for all new connections and retrofit of existing connections

Yuba City water rate structure maintains a minimum charge dependent on the meter size and a per hcf charge for water usage over the minimum.

At its discretion, the City also requires irrigation meters. The minimum charge rate does not apply to irrigation meters. The irrigation meters allow customers to best monitor and conserve water used for irrigation. In the event of water shortages, these meters will be utilized for monitoring water allocations.

At its discretion, the City requires the use of compound meters for commercial and industrial accounts. These meters can best capture water usage at both high and low flow conditions.

All new accounts are installed with a water meter. Additionally, within the City limits a meter surcharge used to be added to all accounts that were not metered. The purpose of the surcharge was to collect sufficient funds to purchase and install meters. This charge began July 1992 and ended August 2000. All surcharge revenue was deposited in a separate fund used only for meter conservation costs. The funds may be used to install meters in the groundwater regions that currently are not metered.

The residential billing rate has a minimum of 16 hcf per household. Each hcf used over the minimum is billed at constant rate. Multiple family dwellings have a ten hcf minimum rate per dwelling. The remaining unmetered customers are billed at a rate that is higher than the average single-family home rate. Most customers see a reduction in their annual bill once converted to meters. Any unmetered customer may request a meter be installed. Under normal conditions, the meter is installed within one month of the request.

Water Code section 10631

(e) Large landscape conservation programs and incentives

As was discussed earlier, Yuba City has installed a test system that automatically adjusts irrigation schedules based on weather conditions. New parks constructed within the city sphere of influence will utilize similar systems.

Irrigation meters have been installed on all accounts that have a significant irrigation requirement. Customers use these meters to monitor usage and to ensure that water is being used in the most efficient manner possible.

All new landscape areas for commercial, industrial, institutional, governmental, and apartment developments require installation of dedicated landscape metering. This metering system allows property owners to manage their water usage related to landscape usage. This meter is billed separately from the domestic use meter and is excluded from the minimum billing criteria.

Water Code section 10631

(f) High-efficiency washing machine rebate programs.

The City of Yuba City has not incorporated washing machine rebate program within our water conservation strategy.

Water code section 10631

(g) Public information programs

Water conservation information is provided approximately three times per year with monthly bills. The information includes methods to conserve, demands of various activities and appliances, water treatment information, and source water protection. Yuba City Utilities Department provides information and educational information at several public events including multi-cultural festivals, health fairs, county fair and other public events. At these events, information related to landscape water use is available. These brochures discuss water requirements of various plantings, time of day irrigation scheduling, advantages of automatic irrigation control, and other information. Information is also included in water bill inserts.

Water is billed per hundred cubic feet. Historically, water usage was reported in hcf. Since 1998, the monthly bills include monthly hcf usage and conversion information to convert to gallons per day. This provides the largest number of calls related to water usage due to units that customers understand. A standard informational sheet has been prepared that describes water usage and options. This information is either mailed or hand delivered to customers who question their water usage. The bill also indicates same period last year usage in gallons per day.

Yuba City Utilities Department has a direct link to Yuba City's web site. The purpose of the web site is to provide information related to water treatment, water quality, and water conservation. A portion of the site includes conservation tips for both indoor and outdoor water usage.

Water Code section 10631

(h) School education Programs

Yuba City has purchased age appropriate water conservation educational information that can be provided to children. The primary distribution methods are water treatment plant tours and at public events. The water plant is toured several times per year by primary, high school, and college classes. The purposes of these tours are to provide information related to water source, source protection, water treatment, distribution system, and water conservation.

Yuba City Unified School District and the City of Yuba City conduct coordination meetings on a regular basis. The City Manager, City Council members, YCUSD Board members, YCUSD Superintendent, and various staff members attend these meetings. The purpose of these meetings is to coordinate activities of the two organizations. Educational opportunities are always discussed.

Water Code section 10631

- (i) Conservation programs for commercial, industrial, and institutional accounts.

All industrial water customers are metered and most commercial customers are metered. The surface water meter conversion program was completed by 2002. Cost of water is the same for all rate classes and meter sizes. There is not a discount for large water usage customers. This billing structure promotes self-monitoring and water conservation. As a general rule, meters three inch and larger are compound meters. These meters accurately measure low, average, and high flow demands. Industrial customers are inspected on an annual basis as part of the wastewater pretreatment program. During this inspection, water conservation and possibility of reducing water demand is discussed. This reduction benefits both the water and wastewater organizations.

Commercial customers are billed based on water consumption and sewage bills are based on water usage. Monthly bills reflect water usage in hcf. Commercial customers self monitor in order to reduce their monthly water and sewage bills. Currently, there is not an active program to inspect commercial businesses for water conservation issues.

All new industrial and commercial customers pay an initial water and sewer connection fee. The water connection is based on the meter size and anticipated water usage. The City Ordinance clearly defines how these calculations are made. An additional connection fee is administered on all customers that use more than five percent of meter capacity. Minimum monthly fee is based on meter size. This combination of charges ensures that conservation takes place and that customers are not allowed to install meters that are too large for their business.

The sewage connection fee is based on plumbing fixtures as defined in the Uniform Plumbing Code. During plan review, the City Community Development Building Department determines the number of plumbing fixtures and calculates the sewage connection fee. The Department also ensures that the most water efficient methods are utilized within a new commercial enterprise.

Water Code section 10631

- (j) Wholesale agency programs

Yuba City does not wholesale water.

Water Code section 10631

(k) Conservation pricing

Yuba City water charge consists of a flat charge based on water meter size and constant rate per hcf used above the minimum. The average residential customer usage is slightly above the minimum rate during winter months. This rate structure encourages conservation, since all water used above the baseline amount is charged to the customer. The typical flat rate customer will save money on an annual basis upon converting to metered rate. This rate structure encourages customers to request conversion to metered water.

Bartle Wells and Associates conducted a water rate study in October 1999. This study determined that the rates were designed to generate sufficient revenue to ensure financial health and stability of the water utility. The rates support both operating and anticipated capital needs. Customers pay their proportional share of operating and maintenance costs. The rate includes provisions for replacement of system facilities. All recommendations of the report were implemented by the City Council and included in the rate Ordinance. The Ordinance includes future annual rate adjustments of not less than 4.5 percent per year. These adjustments will be implemented every year. The purpose of these adjustments is to cover inflation and some future capital projects.

Yuba City is currently updating the water rate study and by early 2006, a new rate structure will be developed to support needed improvements to the water system infrastructure.

Water Code section 10631

(l) Water Conservation Coordinator

The Assistant Utilities Director and Water Plant Supervisor currently perform activities of a water conservation coordinator.

Water Code section 10631

(m) Waste water prohibition

The existing Water Ordinance prohibits waste of water and allows Yuba City to discontinue service if such conditions are not corrected.

All new business plans are reviewed to ensure that water conservation measures have been implemented. The existing Ordinance does not specifically identify business practices that must be implemented, but staff would only permit high water using businesses such as carwashes that utilize the best available technology.

Yuba City water, drawn out of the Feather River, is naturally soft and there is not a need for residential water softeners. Water bill inserts have provided educational information related to water quality. Information has been provided specifically related to water softeners and state that the devices are not recommended. Customers have been notified that if water softeners are utilized, it can result in increased lead and copper concentration in their water due to corrosion of household piping.

Water Code section 10631

(n) Residential ultra-low flush toilet replacement programs.

Yuba City has not implemented a replacement program for non-low flow to ultra-low-flow toilets.

Section 9 EVALUATION OF DMMS NOT IMPLEMENTED

Water Code section 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 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 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.

Of the fourteen Demand Management Measures described in Section 8, Yuba City has not implemented two. The two are high-efficiency washing machine rebate program and ultra-low-flush toilet replacement program. Through 2005, Yuba City has not explored the two additional options available to improve conservation efforts. Metering, leak control, conservation programs for landscaping, industrial and commercial customers, educating the customers and making their bill easy to decipher have helped reduce water usage. However, a thorough cost-benefit analysis has not been conducted on economic benefits of the additional conservation measures. Yuba City is currently looking at being more proactive into the future and will consider the additional conservation efforts during this evaluation.

Section 10

PLANNED WATER SUPPLY PROJECTS AND PROGRAMS

Water Code section 10631

(h) Include a description of 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.

Yuba City has two State Water Resources Control Board Permits, two surface water supply contracts and nine active water wells. The combination of permits, contracts and groundwater has been established such that they supply reliable water under all water conditions. However, the plan to convert all of the former Hillcrest Water District Company customers from groundwater to surface water has significantly impacted future water supply for the City. Accordingly, in this report 3,600 acre-feet of groundwater is assumed to be continued through 2025.

Of all of the water sources available to the City, the only water source that has the possibility of significantly affecting demand is the State Water Project contract. This contract will be significantly curtailed in critically dry years and during a series of dry years. Additionally, after 2010 the Yuba County Water District agreement expires.

In 1985, Yuba City entered into an agreement with Oroville-Wyandotte Irrigation District (OWID) to meet the full summer needs through 2035. OWID opted to cancel the contract in 1997 for technical reasons. Yuba City is currently discussing with OWID a new arrangement that will provide additional summer water. The State Water Project contract will continue to be used to supplement peak season needs, resulting in a more reliable summer water supply.

Yuba City intends to negotiate an extension to the YCWD contract that expires in 2010. Additionally, the City has currently entered into preliminary negotiation with other Feather River diverters, to firm up the City's summer month water supply.

In the event of insufficient surface water Yuba City would supplement the surface water supply with groundwater, purchase emergency surface water, implement mandatory rationing and more fully utilize recycled water. The City Council has established a \$300,000 fund that is reserved for purchase of emergency water.

Section 11
DEVELOPMENT OF DESALINATED WATER

Water Code section 10631 (i)

- (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.

Yuba City has no plans for development of desalinated water supply.

Section 12
CURRENT OR PROJECTED SUPPLY INCLUDES WHOLESALE WATER

Water Code section 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 type years 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 subdivision (b) and (c).

Yuba City has two State Water Resources Control Board Permits, two surface water supply contracts, operates nine groundwater wells and has several standby water wells. The combination of permits, contracts and groundwater has been established such that they supply reliable water under severe drought conditions. The only water source that has the possibility of significantly affecting the supply is the State Water Project contract. Under severe drought conditions the SWP allocation could be limited to 10% or lower.

Table 18				
Agency demand projections provided to wholesale suppliers				
AF/Y				
Wholesaler	2010	2015	2020	2025
SWP	9600	9600	9600	9600
YCWD	4500			

Table 19								
Wholesaler identified & quantified the existing and planned sources of water available to your agency in								
AF/Y								
Wholesale source	2010		2015		2020		2025	
	Existing	Planned	Existing	Planned	Existing	Planned	Existing	Planned
SWP Feather River	9600	9600	9600	9600	9600	9600	9600	9600

Table 19 (cont'd)								
Wholesaler identified & quantified the existing and planned sources of water available to your agency in								
AF/Y								
Wholesale source	2010		2015		2020		2025	
	Existing	Planned	Existing	Planned	Existing	Planned	Existing	Planned
YCWD Feather River	4500	4500	0	4,500	0	4,500	0	4,500

Table 20 Future Water Supply Projects					
			Multiple Dry Years AF to Agency		
Project Name	Normal year AF to agency	Single Dry Year AF to agency	Year 1	Year 2	Year 3
SWP	9600	960	2016	2016	3360

Table 21 Future Water Supply Projects					
			Multiple Dry Years AF to Agency		
Project Name	Normal year AF to agency	Single Dry Year AF to agency	Year 1	Year 2	Year 3
YCWD	4500	4500	4500	4500	4500

Table 22 Factors resulting in inconsistency of wholesaler's supply				
Name of Supply	Legal	Environmental	Water Quality	Climate
SWP				X

Section 13
WATER STORAGE CONTINGENCY
PLAN STAGE OF ACTION

Water Code section 10632

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

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

WATER SHORTAGE CONTINGENCY PLAN: STAGES OF ACTION

Currently, approximately 80% of Yuba City's water source is the Feather River and approximately 20% of the sphere of influence is serviced by groundwater wells. It is anticipated that ultimately all connections within Yuba City's sphere of influence will convert to surface water. However, in the meantime the plan is to continue to maintain 3,600 acre-feet of the annual supply from groundwater. Yuba City maintains two permits and two contracts for water supply from the Feather River as described in Section 3. Historically the only factor that has affected the reliability of these sources has been seasonal rain and snowfall.

Following is curtailment history for Yuba City's Feather River diversions:

- Permit 14045 has only been curtailed once since 1984,
- Permit 18558 has been curtailed several times,
- YCWD has never curtailed delivery in the last 30 years,
- SWP is subject to annual curtailment

Section 14 will describe water delivery under drought conditions. On an annual basis, under normal water year conditions Yuba City is able to meet the full needs of its customers beyond year 2020. However, during critically dry years, Yuba City is supply short for the high demand summer months of July, August and September. Chapter 23 will further discuss the summer shortage issue.

The City has a variety of options available to meet the added demand, they include:

- additional conservation
- increased use of groundwater wells
- better use of recycled water
- acquire supplemental surface water supply.

Table 23 portrays the rationing stages:

Table 23 Water Supply Shortage Stages and Conditions			
Shortage Condition	Stage	Customer Reduction Goal	Type of Rationing Program
Up to 20%	1	10%	Voluntary
20 to 30%	2	20%	Voluntary
30 to 40%	3	30%	Mandatory
40 to 50%	4	40%	Mandatory

Yuba City has developed a four stage conservation plan. The plan includes voluntary and mandatory stages. The development of the stages is based on current water supply contracts, and expected 3.4 percent annual growth of current customer base. Shortage conditions are based on percent reduction of water supply. With the projected summer month shortages, the customer reduction goals need to be reassessed so that supply more closely matches demands.

Prior to 2000, Yuba City residential water accounts were all flat-rate, and not metered. Several years ago Yuba City began an active program to convert the flat rate customers to meters. City Council approved a meter surcharge for all unmetered accounts. This fee was used to purchase and install the meters within the City's surface water system. Seventy five percent of all accounts within the Sphere of Influence are metered, a decrease as a result of the acquisition of Hillcrest Water District Company. Within the next five years, Yuba City expects to install meters on all but a few services within the Sphere of Influence. Monthly meter readings will be used to ensure compliance. In the event of a severe shortage meters could be read more frequently.

Supply shortages will trigger the different water rationing stages. Based on historical supply of water during drought conditions it is highly unlikely that shortages will take place in months other than July, August or September. Contracted water in other months far exceeds the expected demand, and Yuba City's water right contracts and permits have not been subject to curtailment in non-summer months.

During June, July and August the only available surface water contracts are with Yuba County Water District and State Water Project. Yuba County Water District has never curtailed or reduced delivery during the last 30 years. The State Water Project is subject to reduction in delivery. The back-up well can also supply water during summer months.

The critically dry year used in this report is 1988. The 3-year series of dry years used is 1990, 1991 and 1992. The five-year series used is 1988 to 1992. These years were selected after a review of the excerpts from the Draft 2005 State Water Project Delivery Reliability Report (SWPDRR). For the expected SWP allocation reduction in the dry year series, Study 7 data was used to identify the expected SWP allocation utilizing 2005 operations constraints. Additionally, the 1988 to 1992 drought was used because accurate delivery data is available.

The SWPDRR estimates that the allocation, under today's operational conditions, will be at 10% during the critically dry year (1988). Assuming a 90 percent reduction of State Water Project allocated water, Yuba City is supply short in the months July, August and September.

According to Table 6-1 of the SWPDRR, 10% or less allocation of SWP Table A will occur approximately less than 1% of the time.

Other factors that could affect the ability to deliver water from the Feather River include:

- Source water quality impacts due to illegal discharges to the Feather River,
- Accidental discharge of pollutants to the Feather River,
- Vandalism of the water pumping station,
- Other emergency condition.

In the event of severe water quality impacts of the Feather River several immediate steps would take place:

- Pumping of raw water from the Feather River would immediately stop
- Use of treated stored water would be initiated
- Large water customers would be told to shut down
- Mandatory water conservation would be required of all customers
- The City Emergency Operations Center would be activated

Section 14

ESTIMATE OF MINIMUM SUPPLY FOR NEXT THREE YEARS

Water Code section

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's water supply.

THREE YEAR MINIMUM WATER SUPPLY

The three year minimum water supply was assumed to be 1990 through 1992. The actual deliveries were used for the Permit 14045 and Yuba County Water District contract. Although Permit 180558 was not in use, Term 91 curtailment dates were used to determine the amount of water that would have been delivered if diversions were being made. The SWP delivery was assumed using the data from Study 7 as described in the draft 2005 SWP Delivery Reliability Report. The multiple dry year assumptions are as follows:

- Permit 14045 is not curtailed in year one or two, and zero June deliveries in year three. 6,500 acre-feet is available in all three years
- Permit 18558 is curtailed on May 14 for year one, June 10 for year two and May 21 for year three. 9,000 acre-feet is available in all three years.
- YCWD is not curtailed,
- SWP allocation is reduced to 21% allocation for year one and two and 35% allocation for year three. 2,016 acre-feet available in years one and two and 3,360 acre-feet available in year three.
- Groundwater is pumped at 3,600 acre-feet in each year.
- Total in year one – 25,616 acre feet with restrictions to Permit 18558 in May and June and 21% SWP allocation.
- Total in year two – 25,616 acre feet with June restrictions to Permit 18558 and SWP allocation of 21%.
- Total in year three – 26,032 acre feet with June restrictions to Permit 14045, May and June restrictions to Permit 18558 and SWP allocation of 35%.

To meet Yuba City's projected demand during a three-year drought, additional measures will need to be taken to balance supply and demand. The options include:

- Additional conservation
- Increased use of groundwater wells
- More efficient use of recycled water
- Acquire supplemental surface water supply.

Table 24 Three Year Estimated Minimum Water Supply Acre Feet per Year		
Year 1	Year 2	Year 3
25,616	25,616	26,032

Source: Multiple dry water year projections for period 1990 to 1992 (DWR Study 7, 2005)

Section 15

CATASTROPHIC SUPPLY INTERRUPTION PLAN

Water Code section

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.

Yuba City obtains its water supply from the Feather River. The historical maximum day supply was 22 mgd. The Yuba City water plant is rated at 30 million gallons per day. An enlargement contract is currently underway that will increase the treatment capacity to 36 million gallons per day by summer 2007. Another enlargement is scheduled to be completed by 2014 that would increase the treatment capacity to 48 million gallons per day. Firm capacity is met with the largest piece of equipment out of service for maintenance or other reason. This same philosophy will be continued as future plant upgrades occur. Plant capacity with major pieces of equipment out of service will always be more than demand.

The water plant maintains an emergency diesel powered generator sized to run the entire plant at peak load. The generator continuously monitors availability of PG&E electricity. In the event of a power outage the generator is online within ten seconds. The generator contains sufficient fuel to run 24 hours at full load, longer under a reduced load. Additional fuel is stored at the water plant, Public Works Corporation Yard, and wastewater plant. In addition Yuba City maintains contracts for emergency delivery of fuel.

Yuba City is not located within a high activity seismic zone. The risk of earthquake is minor. All water plant improvements are designed to meet seismic standards.

Another potential catastrophic water supply interruption would be a significant reduction in flow in the Feather River due to drought or upstream reservoir failures. Yuba City maintains up to thirteen million gallons of treated water in storage. Yuba City also maintains back-up water supply wells, within the groundwater system and one at the water treatment plant, that can be used in the event surface water is not available.

The eastern boundary of Yuba City is the Feather River. Feather River flow is controlled by upstream reservoirs and levee system. Yuba City experienced a significant flood in 1955. Levees on the other, east, side of the Feather River failed in 1985 and 1997. Yuba City was evacuated in 1997 due to potential failure of the levee system. Significant improvements have been made to the levee system since 1997 including stabilization rock, slurry walls and relief wells.

Annually, City staff conducts an emergency drill simulating a flood or other significant catastrophe. City staff has visited other cities that have recovered from significant flood events to learn from their experience. A detailed slow rise flood emergency plan has been prepared. Yuba City is fully certified under the Standardized Emergency Management System, SEMS, and maintains access to all benefits associated with the system.

Yuba City public safety operates an emergency telephone system. This system can be programmed to dial up to 8 numbers at a time with a prerecorded message. Yuba City maintains a mutual aid agreement with Roseville that adds an additional sixteen lines. This system could make up to 1440 calls per hour. All customers with phones, listed or unlisted,

could be notified in less than eight hours. In the event of a need to immediately reduce water consumption this system can be put into place within an hour. Other emergency notification methods include police car patrolling with loud speakers, radio, cable television, and low power radio station.

Yuba City has developed a relationship with the local cable company that includes the use of Channel 5 as a method of communicating emergency information to all area subscribers. Messages can be quickly placed on Channel 5 informing residents of the local emergency and desired actions on their part.

Local radio station AM1600 is designated as the local emergency response radio station. The station is located in Yuba City. In the event of an emergency the station can inform residents of the local emergency and desired actions on their part.

The City owns and maintains a low power radio system. This system operates 24 hours per day with a prerecorded message. In the event of an emergency, the message can be easily changed to inform residents of requested actions.

Employees are on standby weekends and holidays. In the event of a localized emergency condition, the police dispatcher can contact standby personnel and call in additional personnel if required. The water plant is staffed 24 hours per day, 7 days per week.

Section 16

PROHIBITIONS, PENALTIES AND CONSUMPTION REDUCTION

Water Code section

- 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.
- (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.
- (f) Penalties and charges for excessive use, where applicable.

WATER SHORTAGE CONTINGENCY PLAN: PROHIBITIONS

The Yuba City Municipal Code section 6-6.19 contains emergency water restriction criteria that must be met once the City Council declares an emergency. A summary of the prohibitions is shown below in Table 25.

Table 25 Mandatory Prohibitions		
Examples of Prohibitions	Stage When Prohibitions is Voluntarily Requested	Stage When Prohibition Becomes mandatory
Street & Sidewalk Cleaning	2	3
Washing Cars	2	3
Residential Landscape Restrictions	2	3
Plumbing Leak Requirements	2	3
Gutter Flooding	2	3
Recirculating Evaporative Coolers	2	3
Public, Commercial and Industrial Landscape Restrictions	2	3
Automatic Shut Off Nozzles	2	3
Commercial Nurseries	2	3
Decorative Water Facilities	2	3
Restaurants	2	3

A summary of the reduction methods is shown below in Table 26.

**Table 26
Consumption Reduction Methods**

Examples of Consumption Reduction Methods	Stage When Method Takes Effect
Demand Reduction Education	All Stages
Reduced Water Pressure	4
Use Prohibitions	3
Water Shortage Pricing	4
Plumbing Fixture Replacements – Water Conserving	3
Voluntary Rationing	1
Mandatory Rationing	3

The Yuba City Municipal Code section 6-6.20 contains enforcement measures that will take place once the City Council declares an emergency. A summary of the enforcements is shown below in Table 19.

**Table 27
Penalties and Charges**

Penalties and Charges	Stage When Penalty Takes Effect
Flat Fine	3
Flow restrictions	4
Termination of Service	4

Section 17

Analysis of revenue impacts of reduced sales during shortages

Water Code Section

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

The Yuba City water utility is a financially independent enterprise. In the event of a significant drought, or water shortage, resulting in reduced customer demand, there would be reduction in revenues. Metered customers are billed per unit of water used, with a minimum monthly fee determined by the meter size. If there were a significant reduction in demand due to customer conservation measures, reduction of income would also take place. A decrease in expenses related to power costs, raw water costs and chemicals to treat the water would also occur with a decrease in demand for water.

The Utility could absorb a reduction of income without a required rate adjustment. The Water Enterprise maintains an operating reserve of at least 10% to cover unanticipated costs or possible reduction in revenues. In either case, these funds are available in order to prevent any need to immediately raise rates. Reserves could be drawn upon in the short-term until the rate structure could be evaluated and long-term adjusted if required. Further, the City Council has reserved \$300,000 for emergency water purchases. These funds could also be used toward rate stabilization if required.

As of June 30, 2005 the water fund maintained reserves and set asides for capital projects of over \$11,000,000. The annual operating budget, including capital contribution (\$1,100,000) and depreciation (\$855,000) is \$8,635,260 for fiscal year 2005/2006.

Section 18

DRAFT ORDINANCE AND USE MONITORING PROCEDURES

Water Code section 10632

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

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

The following is a draft water shortage Resolution. The City Council would be required to act on this Resolution. The City Council meets two times per month, but can schedule emergency meetings if required.

DRAFT RESOLUTION NO. _____

DRAFT RESOLUTION OF THE CITY COUNCIL OF THE CITY OF YUBA CITY AUTHORIZING THE UTILITIES DIRECTOR TO DECLARE A WATER SHORTAGE EMERGENCY

The City Council of the City of Yuba City does hereby resolve as follows:

PURSUANT to California Water Code Section 350 et seq., the Council has conducted duly noticed public meeting to establish the criteria under which a water shortage emergency may be declared.

WHEREAS, the Council finds, determines and declares as follows:

- (a) The City is the municipal water purveyor for the Yuba City Water Utility.
- (b) The demand for water service is not expected to lessen.
- (c) When the combined total amount of water supply available to the City from all sources falls at or below the Stage II triggering levels described in the 2005 Urban Water Management Plan, the City will declare a water shortage emergency. The water supply would not be adequate to meet the ordinary demands and requirements of water consumers without depleting the City’s water supply to the extent that there may be insufficient water for human consumption, sanitation, and fire protection. This condition is likely to exist until precipitation and inflow dramatically increases or until water system damage resulting from a disaster are repaired and normal water service is restored.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Yuba City hereby directs the Utilities Director to find, determine, declare and conclude that a water shortage emergency condition exists that threaten the adequacy of water supply, until the City’s water supply is deemed adequate. After the declaration of a water shortage emergency, the Utilities Director is directed to determine the appropriate Rationing Stage and implement the City’s Water Shortage Emergency Response.

LET IT FURTHER BE RESOLVED, that the Council shall periodically conduct proceedings to determine additional restrictions and regulations which may be necessary to safeguard the adequacy of the water supply for domestic, sanitation, and fire protection.

AYES:

NOES:

ABSTAIN:

ABSENT:

MAYOR

ATTEST:

CITY CLERK

Use Monitoring Procedure

Under normal water supply conditions water production figures are recorded daily. The Water Plant Supervisor monitors water production. Totals are reported monthly to the Assistant Utilities Director and to the California Department of Health Services.

Once a Stage 2 shortage is declared the Water Plant Supervisor will begin to track, and graph, water production and determine if the voluntary goal is being achieved. Results of the review will be reported to the Assistant Utilities Director weekly.

If the City Council declares a Stage 3 condition the reduction of demand will be monitored daily. Weekly reports will be presented to the Utilities Director, and updates as required to the City Manager and City Council. Use of the media will also take place to inform citizens on a weekly basis of their conservation status.

In an emergency shortage the City Emergency Operations Center will be activated. The Operations Center would be staffed 24 hours per day with top city managers including Police Department, Fire Department, Public Works, Finance and Utilities. Water storage is instantly available via the departments SCADA system. Updates to the public will made to the media through a public information officer. Information will also be transmitted on the City public radio station.

Section 19
RECYCLED WATER PLAN
COORDINATION

Water Code Section 10633

10633. The plan shall 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, and shall include all of the following:

Yuba City provides wastewater services to citizens within the city limits. Additionally, Yuba City has developed a Wastewater System Master Plan Update that was adopted by City Council in December, 2005.

Table 28 Participating Agencies	
Participating Agencies	Role in Plan Development
Water - City of Yuba City	Developed Water Master Plan
Wastewater - City of Yuba City	Developed Wastewater System Master Plan
Groundwater - City of Yuba City	Developed Water Master Plan
Planning - City of Yuba City	Developed General Plan
City of Yuba City City of Marysville Linda County Water District Olivehurst Public Utilities District	Participants in Sutter-Yuba Regional Recycled Water Facilities Master Plan

Section 20
RECYCLED WATER PLAN
WASTEWATER QUANTITY, QUALITY AND CURRENT USES

Water Code section 10633 (a-c)

(a) A description of 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.

(b) A description of the quantity of treated wastewater that meets recycled water standards is being discharged and is otherwise available for use in a recycled water project.

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

Wastewater System Description

Yuba City provides both water and wastewater services to citizens within the city limits. Yuba City originally was a rural city with sewage treatment provided by individual septage systems, and water supplied by individual wells. Sometime prior to 1950 the city constructed a municipal sewage treatment plant, and collection system. New development connected to the municipal system, and existing commercial and residential properties were provided an opportunity to connect. In the early 1970's the original sewage treatment plant was abandoned, and the current facility constructed. The treatment plant is a pure oxygen activated sludge secondary treatment process, with disinfection and dechlorination.

Connection to the sewage system was never made mandatory for existing customers utilizing septage tanks. The Sutter County Department of Health Services can require a customer to connect to the municipal system if their individual septic tank or leach system fails. All new customers within the city limits are required to connect into the municipal system. This result in customers within the city limits who have retained their septage systems and are not connected to the municipal system.

Directly adjacent to the city limit is development that has taken place in the county. With limited exceptions, municipal sewage treatment has not been available to county residents. As Yuba City incorporates these areas sewage service is available if these residents want to connect. The current cost of connection for the average customer converting from septage tanks to municipal sewer is approximately \$15,000 per household. The cost includes capacity fee, new sewer lines, and new sewer connection. Due to the high conversion cost most customers do not connect until their septage system fails.

The wastewater and water service areas are generally the same. The current wastewater plant has a rated capacity of 7.0 million gallons per day, mgd, and is currently averaging approximately 6.0 mgd. However, recent construction modifications increased the plant capacity approximately up to 10.5 mgd. The City is in the process of gaining approval to increase the rated capacity of the plant to 10.5 mgd. Treated wastewater can be discharged to the Feather River (downstream of the confluence with Yuba River) or to rapid infiltration and evaporation ponds (located in the Feather River floodplain) year around.

Yuba City completed a wastewater master plan in Fall, 2005. This plan outlines the projected population growth, and wastewater flows through 2030. The summary of wastewater data collected and treated is as shown in Table 29. The quantity that meets recycled standards is 100% assuming uses of recycled water does not require tertiary treatment (a funding source does not currently exist to implement the needed capital improvement projects).

Table 29 Wastewater Collected and Treated - AF/Year							
	2000	2005	2010	2015	2020	2025	2030
Wastewater collected and treated in service area	6,537	7,281	9,970	12,210	14,490	17,418	20,387
Quantity that meets recycled standard	100%	100%	100%	100 %	100 %	100 %	100 %

Source (2010 to 2030): 2005 Wastewater Master Plan

Table 30 indicates the approximate amount of treated wastewater disposed to the Feather River.

Table 30 Disposal of Wastewater (non-recycled) AF/Y						
Method of disposal	Treatment Level	2005	2010	2015	2020	2025
Feather River	Secondary	5,971	8,849	11,090	13,366	16,298
In Plant Use	Secondary					
Groundwater Recharge & Evaporation	Secondary					
Total		5971	8849	11090	13366	16298

Yuba City Wastewater Treatment Facility started the use of treated wastewater effluent for landscape irrigation purposes in the third quarter of year 2005. Table 31 indicates the approximate treated wastewater effluent usage during year 2005.

**Table 31
Recycled Water Uses - Actual AF/Y**

Type of Use	Treatment Level	2005 AF/F
Agriculture		
Landscape/Plant Use	Secondary	212
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
Other		
Total		

Section 21
RECYCLED WATER PLAN
POTENTIAL AND PROJECTED USE, OPTIMIZATION PLAN WITH
INCENTIVES

Water Code section 10633 (d-g)

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

(e) 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.

(f) A description of 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.

(g) 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.

Yuba City provides wastewater treatment services for the entire area served by city water supply, except for those customers utilizing septage tanks. Treated wastewater is discharged to the Feather River downstream of the confluence with the Yuba River, and can be discharged to rapid infiltration and evaporation ponds if needed year around. Yuba City Wastewater Treatment Facility uses the treated effluent for irrigating the onsite landscaping and plant process uses. The summary of future recycled water (treated effluent) uses is estimated in Table 32. The water does not meet Title 22 requirements for unrestricted use and has not been used offsite.

Nolte and Associates issued a Yuba City water reclamation feasibility analysis in March 1998. This report concluded that water reclamation is technically feasible. Facilities could be constructed to produce water of the quality suitable for all uses likely in the area. It was also concluded that for a program to be successful there must be a customer base for use of the water. The report developed estimates that indicated the cost to produce reclaimed water is greater than the customary supplies for both agricultural and urban irrigators. Therefore, there did not appear to be a market incentive at this time for use of reclaimed water.

In 2005 the Wastewater Master Plan, approved by City Council, recommended a dual pipe system within the Sphere of Influence, for future use of reclaimed water. Additionally, a study to investigate the economic viability of reclaimed water was approved by Yuba City Council on September 20, 2005. This study will be a joint study with the communities Marysville, Linda County Water District and Olivehurst Public Utilities District. Currently no estimates are available for the projected future use of recycled water in service area (Table 33).

**Table 32
Recycled Water Uses - Potential AF/Y**

Type of Use	Treatment Level	2010	2015	2020	2025	2030
Agriculture						
Landscape	Secondary	515	515	515	515	515
Wildlife Habitat						
Wetlands						
Industrial						
Groundwater Recharge						
Total		515	515	515	515	515

**Table 33
Projected Future Use of Recycled Water in Service Area - AF/Y**

Type of Use	2010	2015	2020	2025	2030
Agriculture					
Landscape					
Wildlife Habitat					
Wetlands					
Industrial					
Groundwater Recharge					
Other					
Total projected use of Recycled water	0	0	0	0	0

In the 2000 Urban Water Master Plan, no projections were made for the recycled water usage for year 2005. However, on-site usage of reclaimed water, at the wastewater plant, is approximately 212 AF/Y for irrigation purposes (Table 34).

Table 34
Recycled water Uses
– 2000 Projected compared with 2005 actual
- AF/Y

Type of Use	2000 Projection for 2005	2005 actual use
Agriculture		
Landscape	0	212
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
Other		
Total	0	212

As mentioned earlier a study to investigate the economic viability of reclaimed water was approved by Yuba City Council on September 20, 2005. Currently no estimates are available for the projected uses of recycled water (Table 33). The study will be completed before the next reporting cycle in 2010. Accordingly, data for methods to encourage recycled water use will then be available.

Table 35
Methods to Encourage Recycled water Use

Actions	AF of use projected to result from this action				
	2010	2015	2020	2025	2030
Financial incentives					

Section 22
WATER QUALITY IMPACTS ON RELIABILITY

Water Code section 10634

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.

Yuba City does not anticipate a reduction in supply as a result of water quality issues.

Table 36					
Current and Projected Water Supply Changes Due to Water Quality Percentage					
Water Source	2005	2010	2015	2020	2025
Permit 14045					
Permit 18558					
YCWD					
SWP					
Groundwater					

Section 23
WATER SERVICE RELIABILITY
PROJECTED NORMAL WATER YEAR SUPPLY AND DEMAND

Water Code section 10635

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 the state, regional, or local agency population projections within the service area of the urban water supplier.

SUPPLY AND DEMAND COMPARISON PROVISIONS

Table 37 shows the current water supply for a normal year. It indicates that in normal years, Yuba City water supply entitlements and contracts will meet expected demands beyond 2020. This is based on the assumption that Permits 14045 and 18558 are renewed with current conditions and the Yuba County Water District contract is either replaced or renewed when it expires in 2010. Demand records for the last five years were reviewed. The maximum month during this period was projected to current conditions, assuming 3.4 percent growth per year.

Table 37					
Projected Normal Water Year Supply					
AF/Y					
	2010	2015	2020	2025	2030
Supply	30,992	30,992	30,992	30,992	NA
% of Normal Year	100	100	100	100	NA

Table 38					
Projected Normal Water Year Demand					
AF/Y					
	2010	2015	2020	2025	2030
Demand	21,568	24,963	28,961	33,689	NA
% of 2005	1.15	1.36	1.55	1.8	NA

Table 39
Projected Normal Year Supply and Demand Comparison
AF/Y

	2010	2015	2020	2025
Supply Totals	30,992	30,992	30,992	30,992
Demand Totals	21,568	24,963	28,963	33,689
Difference	9,424	6,029	2,031	-2,697
Difference as % of Supply	30	19	7	-9
Difference as % of Demand	44	24	7	-8

Table 39 projects that the current water supply will meet demands beyond the year 2020 for normal years.

Actual shortages would occur sooner due to the nature of Yuba City's raw water supply contracts. Water diversions under Permits 14045 and 18558 are not available during the summer months due to the permits' season of diversion. Winter month water supply contracts far exceed expected demands well beyond 2025. Summer raw water supply is currently met with the Yuba County Water District and State Water Project contracts. The YCWD contract has never been curtailed and is considered a very reliable water source. However, this contract expires in 2010. The State Water Project contract is not as reliable during dry years and curtailments are regularly enacted.

July through September is the critical period for determining adequate water supply. Table 40 shows the actual deliveries for the time period 2000 up to November 2005. The deliveries are shown in a monthly pattern. Table 41 shows supply for the average water year and Table 42 displays supply for the critically dry year. For the critically dry year, in the months July and August, Yuba City is approximately 50% short of meeting demand. There are several options available to the City to meet their citizens water needs. They include: additional water supply through contracts, utilize additional groundwater during dry years, more fully utilize recycled water or increased conservation effort.

Table 40										
Actual Demands										
2000 thru 2005										
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	O
2000	726	588	685	1,008	1,071	1,338	1,349	1,396	1,205	9
2001*	765	667	859	934	1,534	1,684	1,988	1,952	1,611	1,3
2002	788	756	910	1,231	1,539	1,877	2,082	1,974	1,737	1,4
2003	815	747	929	992	1,373	1,912	2,238	1,940	1,782	1,6
2004	879	822	1,176	1,508	1,876	2,087	2,205	2,138	1,928	1,4
2005	917	844	998	1,197	1,518	1,842	2,324	2,425	2,096	1,7

Table 41										
Average Year Monthly Supply										
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	O
14045	672	579	672	640	672	641	0	0	640	6
18558	1,232	1,107	1,232	1,191	583	0	0	0	0	1,3
YCWD	0	0	0	181	492	893	922	922	714	3
SWP	0	0	0	1,232	1,232	1,232	1,232	1,232	1,232	
Groundwater	130	120	220	315	435	445	500	475	400	2
TOTAL	2,034	1,806	2,124	3,559	3,414	3,211	2,654	2,629	2,986	2,5

Table 42										
Critical Year Monthly Supply										
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	O
14045	630	530	639	600	672	641	0	0	928	6
18558	968	844	968	1,191	1,291	874	0	0	0	9
YCWD	0	0	0	181	492	893	922	922	714	3
SWP	0	0	0	0	0	240	240	240	240	
Groundwater	130	120	220	315	435	445	500	475	400	2
TOTAL	1,598	1,374	1,607	1,972	2,455	2,648	1,162	1,162	1,882	1,9

* Acquired Hillcrest Water District Company (Approximately 4,600 connections)

Section 24
WATER SUPPLY RELIABILITY
PROJECTED SINGLE-DRY-YEAR SUPPLY AND DEMAND
COMPARISON

Water Code section 10635

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 the state, regional or local agency population projections within the service area of the urban water supplier.

The single-dry-year minimum water supply was assumed to be 1988. The actual deliveries were used for the Permit 14045 and Yuba County Water District contract. Although Permit 18558 was not in use, Term 91 curtailment dates were used to determine the amount of water that would have been delivered if diversions were being made. The SWP delivery was assumed using the data from Study 7 as described in the draft 2005 SWP Delivery Reliability Report. The single-dry-year assumptions are as follows:

- Permit 14045 is not curtailed.
- Permit 18558 is curtailed on May 14, with 9,000 acre-feet available.
- YCWD is not curtailed,
- SWP allocation is reduced to 10%. Full allocation is 9,600 acre-feet. Accordingly, SWP supply will be 960 acre-feet.
- Groundwater is pumped at 3,600 acre-feet.
- Total for single-dry-year – 24,560 acre-feet with restrictions to Permit 18558 in May and June and allocation reduced for SWP to 10%.

Table 43					
Projected Single Dry Water Year Supply					
AF/Y					
	2010	2015	2020	2025	2030
Supply	24,560	24,560	24,560	24,560	NA
% of Normal Year	79	79	79	79	NA

**Table 44
Projected Single Dry Water Year Demand
AF/Y**

	2010	2015	2020	2025	2030
Demand	21,568	24,963	28,961	33,689	NA
% of 2005	1.15	1.36	1.55	1.8	NA

**Table 45
Projected Single Dry Year Supply and Demand Comparison
AF/Y**

	2010	2015	2020	2025
Supply Totals	24,560	24,560	24,560	24,560
Demand Totals	21,568	24,963	28,961	33,689
Difference	2,992	-403	-4,401	-9,129
Difference as % of Supply	12	-2	-18	-37
Difference as % of Demand	14	-2	-15	-27

Currently, Yuba City is short of water supply in a critically dry year, during the months of July, August and September. Additionally, Yuba City is approximately 10,000 acre-feet short in the year 2025 during the critically dry year. However, there are several options available to the City to meet future demand. As discussed earlier they include: additional water supply through contracts, utilize additional groundwater during dry years, more fully utilize recycled water or mandatory conservation.

Section 25
WATER SERVICE RELIABILITY
PROJECTED MULTIPLE-DRY-YEAR SUPPLY AND DEMAND
COMPARISON

Water Code Section 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 the state, regional or local agency population projections within the service area of the urban water supplier.

The multiple-dry-year water supply was assumed to be 1988 through 1992 for the five-year increment. The actual supplies delivered during the five-year period were used for the Permits 14045 and 18558 as well as Yuba County Water District contract. The SWP delivery was assumed using the data from Study 7 as described in the draft 2005 SWP Delivery Reliability Report. The multiple dry year assumptions are as follows:

The multiple dry year assumptions are (used water years 1988 to 1992):

- Permit 14045 is curtailed on June 1 in year five.
- Permit 18558 is curtailed on June 21 both years one and two. In year three, curtailment takes place on May 14. In year four, deliveries are curtailed on June 10. In year five, the supply is curtailed on May 21.
- YCWD is not curtailed.
- Groundwater will be pumped at 3600 acre-feet per year.
- SWP allocation for the five year period is as follows:
 - Year 1 10%
 - Year 2 85%
 - Year 3 21%
 - Year 4 21%
 - Year 5 35%
- Total in year one – 24,560 acre-feet with restrictions to Permit 18558 in June and allocation reduced for SWP to 10%.
- Total in year two – 31,760 acre-feet with June restrictions to Permit 18558 and SWP allocation of 85%.
- Total in year three – 25,616 acre-feet with May and June restrictions to Permit 18558 and SWP allocation of 21%
- Total in year four – 25,616 acre-feet with June curtailment to Permit 18588 and SWP allocation of 21%.
- Total in year five – 26,032 acre-feet with June restrictions on Permit 14045, May 21 curtailment for Permit 18588 and SWP allocation of 35%.

**Table 46
Projected Supply During Multiple
Dry Year Period Ending 2010
AF/Y**

	2006	2007	2008	2009	2010
Supply	24,560	31,760	25,616	25,616	26,032
% of Normal Year	79	102	83	83	84

**Table 47
Projected Demand Multiple Dry Year
Period Ending 2010
AF/Y**

	2006	2007	2008	2009	2010
Demand	19,374	19,923	20,471	21,020	21,568
% of Projected Normal	100	100	100	100	100

**Table 48
Projected Supply and Demand Comparison
AF/Y**

	2006	2007	2008	2009	2010
Supply Totals	24,560	31,760	25,616	25,616	26,032
Demand Totals	19,374	19,923	20,471	21,020	21,568
Difference	5,186	11,837	5,145	4,596	4,464
Difference as % of Supply	21	37	20	18	17
Difference as % of Demand	27	59	25	22	21

**Table 49
Projected Supply During Multiple
Dry Year Period Ending 2015
AF/Y**

	2011	2012	2013	2014	2015
Supply	24,560	31,760	25,616	25,616	26,032
% of Normal Year	79	102	83	83	84

**Table 50
Projected Demand Multiple Dry Year
Period Ending 2015
AF/Y**

	2011	2012	2013	2014	2015
Demand	22,604	23,381	23,964	24,401	25,713
% of Projected Normal	100	100	100	100	100

**Table 51
Projected Supply and Demand Comparison
AF/Y**

	2011	2012	2013	2014	2015
Supply Totals	24,560	31,760	25,616	25,616	26,032
Demand Totals	22,604	23,381	23,964	24,401	24,963
Difference	1,956	8,379	1,652	1,215	1,069
Difference as % of Supply	8	26	6	5	1
Difference as % of Demand	9	36	7	5	1

**Table 52
Projected Supply During Multiple
Dry Year Period Ending 2020
AF/Y**

	2016	2017	2018	2019	2020
Supply	24,560	31,760	25,616	25,616	26,032
% of Normal Year	79	102	83	83	84

**Table 53
Projected Demand Multiple Dry Year
Period Ending 2020
AF/Y**

	2016	2017	2018	2019	2020
Demand	26,525	27,134	27,591	27,933	28,961
% of Projected Normal	100	100	100	100	100

**Table 54
Projected Supply and Demand Comparison
AF/Y**

	2016	2017	2018	2019	2020
Supply Totals	24,560	31,760	25,616	25,616	26,032
Demand Totals	25,963	26,712	27,274	27,696	28,961
Difference	-1,403	5,048	-1,658	-2,080	-2,929
Difference as % of Supply	-8	15	-8	-9	-11
Difference as % of Demand	-7	17	-7	-8	-10

Table 55 Projected Supply During Multiple Dry Year Period Ending 2025 AF/Y					
	2021	2022	2023	2024	2025
Supply	24,560	31,760	25,616	25,616	26,032
% of Normal Year	79	102	83	83	84

Table 56 Projected Demand Multiple Dry Year Period Ending 2025 AF/Y					
	2021	2022	2023	2024	2025
Demand	30,143	31,030	31,694	32,193	33,689
% of Projected Normal	100	100	100	100	100

Table 57 Projected Supply and Demand Comparison AF/Y					
	2021	2022	2023	2024	2025
Supply Totals	24,560	31,760	25,616	25,616	26,032
Demand Totals	30,143	31,030	31,694	32,193	33,689
Difference	-5,583	731	-6,078	-6,577	-7,657
Difference as % of Supply	-23	2	-24	-26	-29
Difference as % of Demand	-19	2	-19	-20	-23

The annual totals listed in the previous tables do not accurately capture the actual shortage amounts. Yuba City's water supply is long in the winter months and short in the summer months. As a result, Yuba City has several months where it's supply will be sufficient for the next 20 years and during the summer months is currently deficient. Table 58 contains a summary of the predicted shortages.

Table 58						
Projected Water Supply Shortages						
Critical Year Monthly Supply						
	Jan	Feb	March	April	May	June
Total	1,598	1,374	1,607	1,972	2,455	2,648
Year	Water Demands 2005 thru 2025					
2005	917	844	998	1197	1518	1842
Shortage						
2010	1,084	998	1,180	1,415	1,794	2,177
Shortage						
2015	1,281	1,180	1,395	1,672	2,120	2,573
Shortage						
2020	1,514	1,395	1,649	1,976	2,506	3,041
Shortage		21	42	4	51	393
2025	1,789	1,649	1,949	2,336	2,962	3,594
Shortage	191	275	342	364	507	946

Table 58							
Projected Water Supply Shortages (Continued)							
Critical Year Monthly Supply							
	July	Aug	Sept	Oct	Nov	Dec	Total
Total	1,162	1,162	1,882	1,974	1,528	1,598	24,560
Year	Water Demands 2005 thru 2025						
2005	2,324	2,425	2,096	1,726	1,047	969	
Shortage	1,162	1,263	214				2,639
2010	2,747	2,866	2,477	2,040	1,238	1,145	
Shortage	1,585	1,704	595				3,884
2015	3,247	3,387	2,928	2,411	1,463	1,353	
Shortage	2,085	2,225	1,046	437			5,793
2020	3,838	4,004	3,461	2,850	1,729	1,599	
Shortage	2,676	2,842	1,579	876	201	1	8,686
2025	4,536	4,733	4,091	3,369	2,044	1,890	
Shortage	3,374	3,571	2,209	1,395	516	292	13,982

In summary, during the critically dry year, Yuba City is water supply deficient. Projecting until 2025, the shortage is as follows:

- 2005 – 2,700 acre-feet
- 2010 – 4,000 acre-feet
- 2015 – 6,000 acre-feet
- 2020 – 9,000 acre-feet
- 2025 – 14,000 acre-feet.

Section 26

ADOPTION AND IMPLEMENTATION OF UWMP

Law

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. 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. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

Public Participation

Yuba City educates its customers about water conservation issues through bill inserts, participation at public events, and tours of the water treatment plant. A formal public session was held for review and comment on the draft plan before the City Council's approval.

Notices of the public meeting were posted at City Hall, published in the local newspaper, and provided on local access cable television. Copies of the draft plan were available at City Hall.

Plan Adoption

The Yuba City Utilities Department prepared the Urban Water Management Plan during the fall of 2005. The plan was adopted by the City Council on March 7, 2006, and submitted to the California Department of Water Resources. A copy of the Resolution of Plan Adoption is included in the appendix. This plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 (Urban Water Management Planning).