

# 2005 Urban Water Management Plan



**CITY OF SANTA ROSA**

**2005 URBAN WATER MANAGEMENT PLAN**

May 30, 2006

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## **SECTION 1**

### **INTRODUCTION**

This Urban Water Management Plan (Plan) addresses the City of Santa Rosa (City) water system and includes a description of the water supply sources, magnitudes of historical and projected water use, and a comparison of water supply to water demands during normal, single-dry, and multiple-dry years. The City has received all of its potable water from Sonoma County Water Agency (Agency) since the early 1980s. The Agency provides water principally from the Russian River to the majority of the retail water providers in Sonoma County, and to a lesser degree in Marin County. The City also provides recycled water from its own Subregional Wastewater Reclamation System to some Santa Rosa irrigators.

This section provides background information on the Plan, an overview of coordination with other agencies, a description of public participation and Plan adoption, and organization of the Plan.

#### **1.1 Urban Water Management Planning Act**

The City Plan has been prepared in accordance with the Urban Water Management Planning Act (Act). The Act is defined by the California Water Code, Division 6, Part 2.6, and Sections 10610 through 10657. The Act became part of the California Water Code with the passage of Assembly Bill 797 during the 1983-1984 regular session of the California legislature. The Act requires every urban water supplier that provides water for municipal purposes to more than 3,000 connections, or supplying more than 3,000 acre-feet (ac-ft) of water annually, to adopt and submit a plan every five years to the California Department of Water Resources (DWR). Subsequent assembly bills have amended the Act. This plan serves as a long-range planning document for water supply.

#### **1.2 Resource Maximization and Import Minimization**

Water management tools have been used by the City to maximize water resources. The City has been committed to integrating water conservation into future supply and demand solutions for both the water system and the wastewater treatment/reuse system. By reducing the demand of current water customers and assuring that all new system uses are efficient, the

amount of water the City will need through the purview of the current General Plan has been reduced by 8 percent. A signatory of the California Urban Water Conservation Council's Memorandum of Understanding for Urban Water Conservation since 1998, the City has completed implementation of all Urban Best Management Practices for water retailers. A full discussion of the City's demand reduction efforts is included in Section 6 of this report.

### 1.3 Agency Coordination

The Act requires the City to coordinate the preparation of its Plan with other appropriate agencies and all departments within the City, including other water suppliers that share a common source, water management agencies, and relevant public agencies. The City coordinated the preparation of its Plan with the Agency, eight of its neighboring water providers that also utilize Agency water, the Santa Rosa Subregional Reclamation System, and the Santa Rosa Community Development Department. In addition, the City coordinated the preparation of the water demand projections in this Plan with the Association of Bay Area Government's (ABAG) demographic projections and the Santa Rosa General Plan. Table 1-1 provides a summary of the City's coordination with the appropriate agencies.

**Table 1-1. (DWR Table 1) Coordination with Appropriate Agencies**

	County Agency	Wastewater Agency Facilities	Other	Other
	Sonoma County Water Agency	Santa Rosa Subregional Reclamation System	Neighboring Water Agencies	Public
Participated in developing the Plan	x	x		
Commented on the draft	x	x	x	x
Attended public meetings	x	x	x	x
Was contacted for assistance	x	x		
Was sent a copy of the draft Plan	x	x	x	x
Was sent a notice of intention to adopt	x	x	x	x
Not involved/No information				

### 1.4 Public Participation and Plan Adoption

The City encouraged community and public interest involvement in the Plan update through public hearings and inspection of the draft document. Specifically, the City encouraged involvement of neighborhood associations, service groups, business leaders, local environmental groups, landscape professionals and associated groups, and agricultural growers associations. Public hearing notifications were published in *The Press Democrat*. A copy of the

published Notice of Public Hearing is included in Appendix A. The hearing provided an opportunity for all City water users to become familiar with the Plan and ask questions about its water supply in addition to the City's continuing plans for providing a reliable, safe, high-quality water supply. Copies of the draft Plan were made available for public inspection at the Santa Rosa City Manager's office, and at local public libraries.

This Plan was adopted by the City Council on June 27, 2006. A copy of the adopted resolution is provided in Appendix A.

### **1.5 Plan Organization**

The following is a list of the rest of the sections in this Plan:

- Section 2 provides a description of the service area, climate, water supply facilities, and distribution system.
- Section 3 presents historical and projected water use.
- Section 4 describes surface and groundwater supplies.
- Section 5 describes recycled water.
- Section 6 addresses water conservation and water shortage contingency planning.
- Section 7 provides a comparison of future water supply to demand.
- Appendices A through F provide relevant supporting documents.

## SECTION 2

### DESCRIPTION OF EXISTING WATER SYSTEM

This section describes the City's water system, including a description of the service area and its climate, and the water system facilities, including surface water supply facilities, groundwater supply facilities, and the distribution system.

#### **2.1 Description of Service Area**

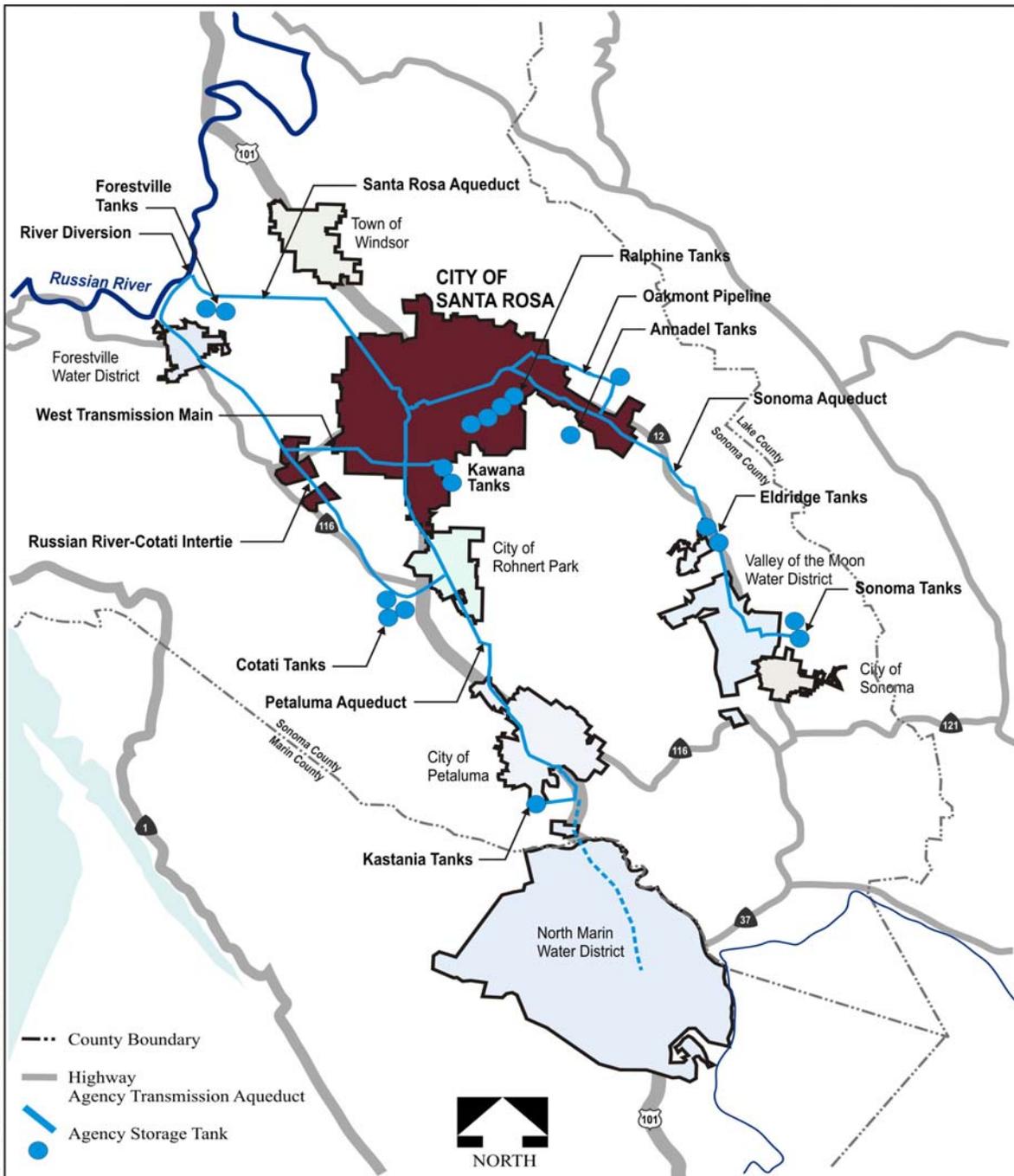
The City's service area, contiguous with the City's ultimate urban boundary, has a population of approximately 153,790 people. The City of Santa Rosa, situated in central Sonoma County, is located at the intersection of Highway 101 and Route 12. Settled in the early 1800's, the City is approximately 50 miles north of San Francisco and 30 miles east of the Pacific Ocean. Figure 2-1 illustrates the location of the City's service area and the Agency's transmission system.

#### **2.2 Climate**

The City's climate is influenced by the Pacific Ocean and is divided into wet and dry seasons. Approximately 93 percent of the annual precipitation normally falls during the wet season, October to May, with a large percentage of the rainfall typically occurring during three or four major winter storms. Winters are cool, and below-freezing temperatures occasionally occur. Summers are warm and the frost-free season is fairly long. Average annual precipitation in the Santa Rosa area is 29.6 inches. Prevailing winds are from the west and southwest. Table 2-1 summarizes monthly average evapotranspiration rates (ET<sub>o</sub>), rainfall, and temperatures.

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**Figure 2-1. City of Santa Rosa Water Service Area**



P:\127000\127280 - Sonoma County Water Agency\UWMPs\City of Santa Rosa\figures

<b>BROWN AND CALDWELL</b>	PROJECT 127280-005	SITE UWMP 2005, City of Santa Rosa	Figure 2-1
	DATE 4-24-06	TITLE City of Santa Rosa Water Service Area (Urban Growth Boundary)	

Source: Google Map data 2005 NAVTEC™  
 SCWA Water Supply Staff Report, November 2004

**Table 2-1. (DWR Table 3) Climate**

	Standard average ETo <sup>a</sup> (in)	Average rainfall <sup>b</sup> (in)	Average temperature <sup>b</sup> (°F)
January	0.82	6.44	47.23
February	1.44	5.26	51.27
March	2.87	3.89	53.56
April	4.31	1.83	56.56
May	5.26	0.69	61.48
June	6.14	0.25	67.07
July	6.30	0.03	70.10
August	5.76	0.11	69.80
September	4.25	0.31	68.06
October	3.10	1.58	62.23
November	1.38	4.03	53.14
December	0.86	5.20	47.33
Annual	42.49	29.63	58.95

Notes:

<sup>a</sup> Data recorded from Santa Rosa station 83, CIMIS database (January 1990 – October 2005). ETo, or evapotranspiration, is the loss of water from evaporation and transpiration from plants.

<sup>b</sup> 1952-2005 data recorded at Sonoma Station from NOAA website [www.wrcc.dri.edu](http://www.wrcc.dri.edu)  
 in = inches

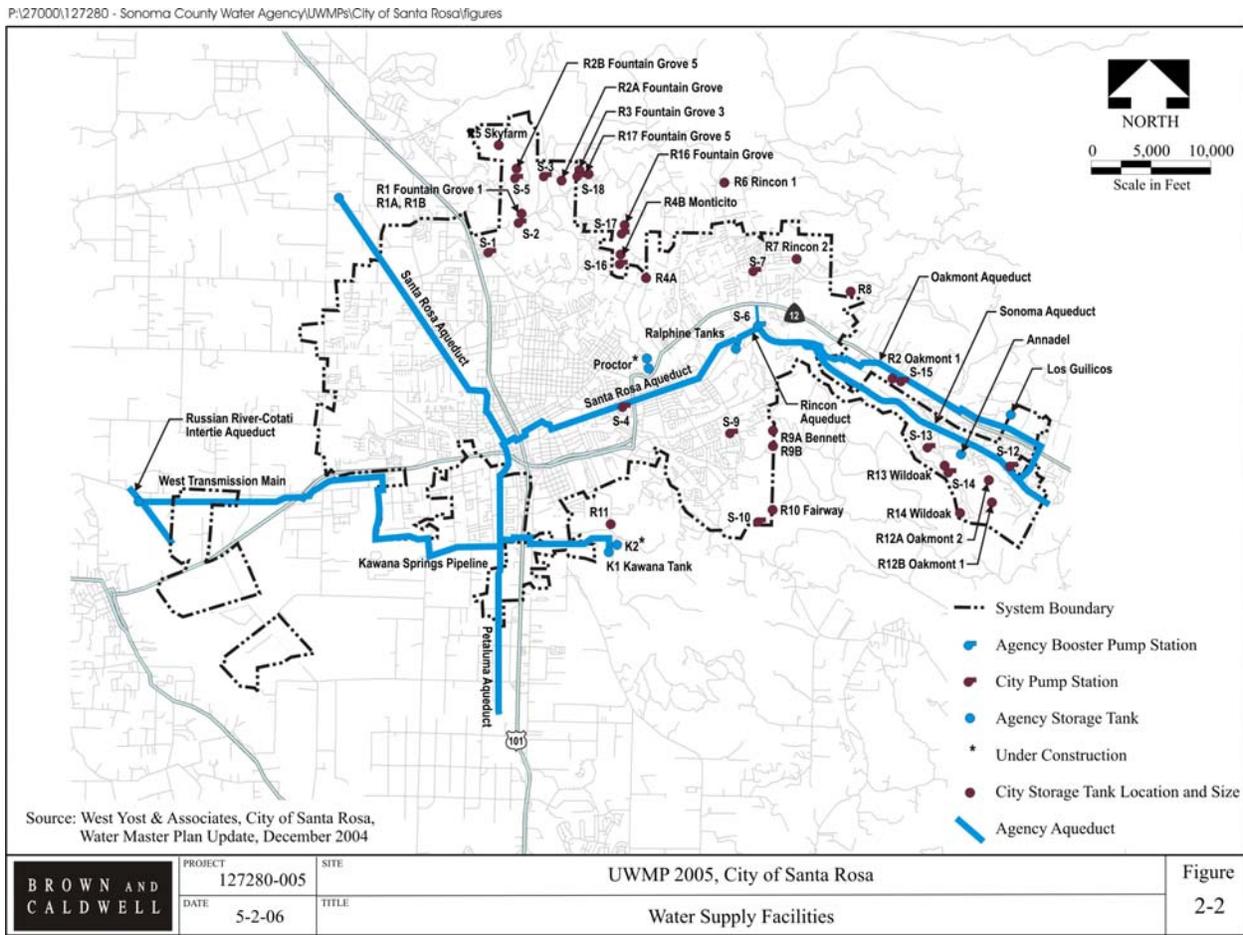
## 2.3 Water System Facilities Source Waters

The City has relied on the Agency’s supplies for potable water exclusively since the early 1980s. The City maintains a local source of groundwater supply, which has been used for emergency purposes only until very recently. Groundwater facilities are discussed in more detail in Section 2.3.2. The City maintains its own retail distribution system, including storage tanks and pumping stations, which are discussed in detail in Section 2.4. Figure 2-2 identifies the locations of the City’s water system facilities relative to the Agency facilities. Additional details regarding sources of water are included in Section 4.

### 2.3.1 Surface Water System Facilities

The City’s water supply from the Agency is predominantly surface water that is provided to the City via the Santa Rosa, Sonoma, and Petaluma Aqueducts that, in addition to the Kawana Pipeline, deliver water to the City through turnouts. The Agency’s water supply is provided by diversion of water from the Russian River, in addition to supplemental water from groundwater wells located in the Santa Rosa Plain. A description of the supply quantity and quality are included in Section 4. A map of the City’s existing water system that depicts the locations of storage tanks, wells, and pumping stations is presented on Figure 2-2.

**Figure 2-2. Water Supply Facilities**



**2.3.2 Groundwater Facilities**

The City owns eight groundwater well sites, two of these wells are inactive and out of service. Three of the remaining six wells are only operated for emergency purposes and remain on standby, and one of the remaining three wells is only used for landscape irrigation purposes. In 2004, Santa Rosa began to evaluate the use of some of its groundwater for regular supply to both add diversity to the City’s supply sources and to provide the supply needed for the growth anticipated in the General Plan. On August 5, 2004, the Santa Rosa Board of Public Utilities accepted the study *Evaluation of Potential Impacts Associated with Increased Groundwater Production from Farmers Lane Wells, W4-1 and W4-2* (WYA, 2004), and directed staff to proceed with an initial study pursuant to the California Environmental Quality Act on converting these two wells from standby to production. On November 4, 2004 the Santa Rosa Board of

Public Utilities adopted a Mitigated Negative Declaration and Mitigation and Monitoring Program for conversion of the Farmers Lane Wells 1 and 2 from standby to active status. Application to the California Department of Health Services for the conversion was made in early 2005. The change in status from standby to production was made by the California Department of Health Services on July 20, 2005. Though this water is currently not being used by the City for supply, it is available for use and it is expected that this will become part of Santa Rosa's regular supply. This supply may also be used to meet peak demand during the summer months before the actual annual volume is needed.

A detailed description of the groundwater basin from which the Farmers Lane wells are supplied, as well as the determination of reliable yield and recharge potential is presented in the study *Evaluation of Potential Impacts Associated with Increased Groundwater Production from Farmers Lane Wells, W4-1 and W4-2* noted above. As stated in that study:

*Santa Rosa's Farmers Lane wells are located near the mouth of Bennett Valley on the east side of the Santa Rosa Plain. The major geologic formations underlying the vicinity of the Farmers Lane wells include the Younger Alluvium, the Older Alluvium, the Glen Ellen and Huichica Formations, the Sonoma Volcanics, the Wilson Grove Formation and the Petaluma Formation. The wells are located within a major regional fault zone comprised of the Rodgers Creek and Healdsburg fault zones. The wells are 800 and 1000 feet deep and draw from the deep aquifer, which is predominately Sonoma Volcanics. This basin is not adjudicated nor has it been identified as overdrafted or to become overdrafted by the Department of Water Resources.*

Review of historic groundwater level data from the Farmers Lane wells and six nearby California Department of Water Resources monitoring wells (1/2 to one mile from the Farmers Lane wells) shows no change in groundwater levels over the 15 years, which were reviewed. The Farmers Lane wells have been in an artesian condition for years. Santa Rosa intends to utilize between 1,550 and 2,300 acre-feet annually from this source. The Mitigation and Monitoring Program for this project includes groundwater level monitoring and modified pumping if any decline in groundwater levels is detected.

The City also has approximately 2.1 mgd of groundwater capacity still on a stand-by emergency basis. Since the mid 1990's, Santa Rosa has had an adopted Capital Improvement Program for

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the development of the City's groundwater resources to provide an additional 8.7 mgd emergency groundwater supply suitable for potable use by the City.

Currently, no groundwater is being utilized within the water system to meet demand requirements. As shown in Table 2-2, groundwater well pumping rates range between 250 gallons per minute (gpm) to 1,500 gpm.

**Table 2-2. Groundwater Well Details**

Name (number)	Capacity (gpm)
Leete (W1)	250 <sup>d</sup>
Carley (W2-1)	700 <sup>a, d</sup>
Peters Spring (W2-2)	500 <sup>a, d</sup>
Freeway (W3)	Out of Service <sup>b</sup>
Farmers (W4-1)	900 <sup>a</sup>
Farmers (W4-2)	1,500 <sup>a</sup>
Farmers (W4-3)	300 <sup>a, c</sup>
Sharon Park (W6)	Inactive

Notes:

<sup>a</sup> Wells cannot all operate simultaneously due to current hydraulic constraints of the treatment system or receiving distribution system; therefore, individual well capacities cannot be summed to achieve a total system capacity.

<sup>b</sup> Not in service due to groundwater contamination caused by others.

<sup>c</sup> Not connected to City's potable water system. Strictly used for landscape irrigation.

<sup>d</sup> Wells on standby status; for emergency use only.

(West Yost & Associates, 2004)

gpm = gallons per minute

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### 2.3.3 Agency Groundwater Resources

The Agency supplements the Russian River water supply with three deep-water wells in the Santa Rosa Plain. A full discussion of the Agency's groundwater wells is provided in the Agency's Urban Water Management Plan.

## 2.4 **Distribution System**

The City receives Agency water through a series of 31 turnouts along the Agency's Santa Rosa, Sonoma, and Petaluma Aqueducts and the Kawana Pipeline. The City's major water distribution facilities consist of 22 treated water reservoirs and 16 booster pump stations. These facilities and the distribution pipelines are described in this section.

### 2.4.1 Storage

Twenty-two water storage tanks are sited throughout the City's water distribution system as shown on Figure 2-2. One additional tank is currently under construction. Individual reservoir storage capacities of current and future tanks range from 0.1 to 4.0 million gallons (MG) for a total capacity of 27.26 MG. Table 2-3 presents the characteristics of the City's storage facilities.

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**Table 2-3. Characteristics of Existing Storage Facilities**

Reservoir	Reservoir Capacity (MG)
<b>Aqueduct Zone</b>	
A-1	0.00
A-2	0.00
A-3	0.00
A-4	0.00
A-5	0.00
A-6	0.00
A-8	0.00
Proctor Heights <sup>a</sup>	5.20
<b>Aqueduct Zone Subtotal</b>	<b>5.20</b>
<b>Fountain Grove Pressure Zone</b>	
R1A	0.5
R1B	0.5
R2A	1
R2B	1.5
R3	0.5
<b>Fountain Grove Subtotal</b>	<b>4</b>
<b>Montecito Pressure Zone</b>	
R4A	0.5
R4B	2
R16	0.25
R17	0.75
<b>Montecito Subtotal</b>	<b>3.5</b>
<b>Skyfarm Pressure Zone</b>	
R5	0.3
<b>Skyfarm Subtotal</b>	<b>0.3</b>
<b>Rincon Valley Pressure Zone</b>	
R6	4
R7	2
R8	0.7
<b>Rincon Valley Subtotal</b>	<b>6.7</b>
<b>Bennett Valley Pressure Zone</b>	
R9A	2
R9B	2.5
R10	0.2
R11	1.16
<b>Bennett Valley Subtotal</b>	<b>5.86</b>
<b>Oakmont Pressure Zone</b>	
R15	0
R12A	0.5
R12B	1
R13	0.1
R14	0.1
<b>Oakmont Subtotal</b>	<b>1.7</b>
<b>Pressure Zones Subtotal</b>	<b>22.06</b>
<b>Total</b>	<b>27.26</b>

Notes:

<sup>a</sup> These storage tanks are either currently being constructed or designed. Each storage tank volume is included and considered in the existing storage capacity calculation (West Yost & Associates, 2004).

MG – million gallons

2.4.2 Pump Stations

The City maintains and operates 16 booster pump stations for delivery of water and to maintain water system pressure. Pump station capacity ranges from approximately 150 gallons per minute (gpm) to 5,000 gpm. The summary of the pump station characteristics is presented in Table 2-4.

**Table 2-4. Water System Pumping Facilities**

Pump Station	Pressure Zone Served	Capacity <sup>a</sup> (gpm)
S1	Fountain I	3,600
S2	Fountain II	3,000
S3	Fountain III	600
S4	Montecito I	4,200
S5	Skyfarm Valley	290
S6	Rincon Valley I	4,960
S7	Rincon Valley II	2,200
S8		900
S9	Bennett Valley I	2,500
S10	Bennett Valley III	133
S11		1,470
S12	Oakmont II	1,320
S13	Oakmont III	555
S14	Oakmont III	555
S15	Oakmont I	131
S16	Montecito II	750
S17	Montecito III	750
S18	Montecito III	750

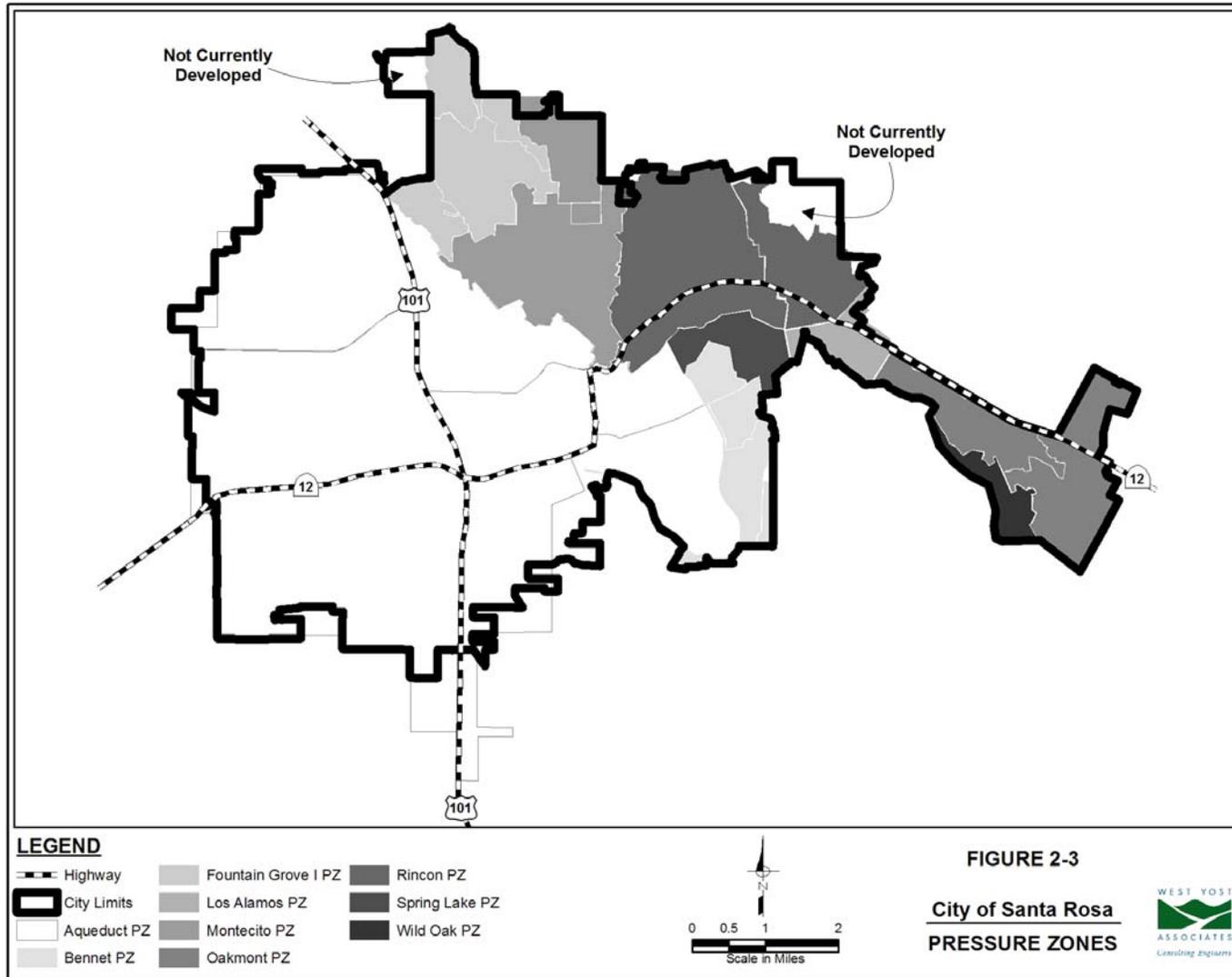
Notes:

<sup>a</sup> Defined as the total, firm capacity of the individual pump station with the largest unit in the pump station out of service (West Yost & Associates, 2004).  
 gpm = gallons per minute

### 2.4.3 Distribution Pipelines

The City's existing water distribution system is divided into 18 major pressure zones, and several smaller sub-zones, that are served by pipelines ranging in diameter from 4 to 24 inches. The majority of services are provided via 6-inch to 12-inch diameter mains. Pipe materials include asbestos cement, PVC, ductile iron, cement mortar lined and coated steel. Figure 2-3 illustrates the pressure zones and system configuration.

**Figure 2-3. Santa Rosa Pressure Zones**



## SECTION 3 HISTORICAL AND PROJECTED WATER USE

This section presents information regarding demographics, historical water use, and projections of future City water demands. A more detailed analysis of water use characteristics and projected population and water demands are presented in Appendix B.

### 3.1 **Employment, Land Use, and Population**

This section describes the City's employment and land use characteristics and current and projected future population.

#### 3.1.1 Employment Characteristics

Within the City's service area, employment is diversified across the public sector and the service and manufacturing industries, with a broad spectrum of commercial services such as technology, engineering, and construction. Regionally, employment in the agricultural industry is related to vineyards, livestock, orchards, silage crops, and timber; however, none of these enterprises are served by the City water service. Recreation and tourism are small but growing industries in the region (Sonoma County Water Agency, 2000a).

#### 3.1.2 Land Use Characteristics

Land use within the City is primarily residential, but also includes agricultural, industrial, commercial, and recreational land uses. No agricultural uses are supplied City water.

#### 3.1.3 Population Projections

Table 3-1 provides the current and projected population for the City's service area through the year 2030. The population projections come from the City's General Plan, but do not include persons classified as institutionalized.

**Table 3-1. (DWR Table 2) Population – Current and Projected**

Year	Population
2005	153,790
2010	165,535
2015	176,627
2020	187,067
2025	197,507
2030	206,294

### **3.2 Historic and Future Water Use**

This section outlines water use in the City by customer type, water sales to other agencies, additional water use, and past and projected water use. The analysis presented here was performed by Maddaus Water Management for all retail water providers that are signatory to the Eleventh Amended Agreement for Water Supply. Per page 5 of the Maddaus demand analysis, the demand projections reflect average weather conditions and do not reflect dry, hot, non-drought conditions. The City plans to supplement Agency supply with its own groundwater supplies as discussed in Section 4.2 of this Plan to meet consumptive needs during hot dry periods that do not also have drought conditions.

#### **3.2.1. Water Use By Customer Type**

Water uses in the City include single-family, multi-family, commercial, institutional, industrial, and irrigation customers. The historical and projected number of connections and deliveries to the City's customers by sector are presented in Table 3-2. The projected deliveries include implementation of the plumbing code and water conservation savings from conservation Best Management Practices implemented through 2004. The projected deliveries do not include water savings from future water conservation implementation beyond the plumbing code.

#### **3.2.2. Water Sales to Other Agencies**

The City does not currently sell water to other agencies.

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**Table 3-2. (DWR Table 12) Past, Current, and Projected Water Deliveries<sup>(b)</sup>**

			Water Use Sectors					Total
			Single Family	Multi-family	Commercial, Industrial, and Institutional	Irrigation	New Single Family	
2000	metered <sup>a</sup>	# of accounts	38,522	2,826	2,710	1,487	N/A	45,545
		Deliveries ac-ft/yr	12,478	3,508	3,944	2,630	N/A	22,559
2005	metered	# of accounts	41,088	3,072	2,831	1,662	673	49,325
		Deliveries ac-ft/yr	13,253	3,976	4,107	2,807	259	24,402
2010	metered	# of accounts	41,088	3,306	3,236	1,789	3,863	53,282
		Deliveries ac-ft/yr	13,157	4,231	4,637	3,022	1,489	26,534
2015	metered	# of accounts	41,088	3,528	3,641	1,909	6,876	57,041
		Deliveries ac-ft/yr	13,030	4,449	5,172	3,224	2,649	28,525
2020	metered	# of accounts	41,088	3,736	4,046	2,021	9,711	60,603
		Deliveries ac-ft/yr	12,895	4,642	5,713	3,415	3,742	30,407
2025	metered	# of accounts	41,088	3,945	4,451	2,134	12,546	64,164
		Deliveries ac-ft/yr	12,771	4,836	6,258	3,605	4,835	32,305
2030	metered	# of accounts	41,088	4,120	4,598	2,229	14,933	66,967
		Deliveries ac-ft/yr	12,679	5,005	6,447	3,766	5,754	33,650

Note:

ac-ft/yr = acre-feet per year

<sup>a</sup> The City has no unmetered accounts.

<sup>b</sup> The City's most current information on low-income housing is from 2003. In 2003, the City had 1,707 very low-income units and 1,471 low-income units, but the data does not distinguished between Single and Multi Family, therefore associated water demands could not be determined. The City does not have projections for future low-income housing units, therefore associated water demands can not be determined for future low-income housing units.

Source: See Appendix B.

### 3.2.3. Unaccounted-for Water and Additional Water Use

Unaccounted-for water use is unmetered water use, such as that used for fire protection and training, system and street flushing, sewer cleaning, construction, system leaks, as well as that used by unauthorized connections. Unaccounted-for water use can also result from meter inaccuracies. Table 3-3 provides the estimated quantity of unaccounted-for system water losses.

At this time, the City does not use water for groundwater recharge, to prevent salt-water intrusion (saline barriers), or for other conjunctive uses.

**Table 3-3. (DWR Table 14) Additional Water Uses and Losses, ac-ft/yr**

Water Use	2000	2005	2010	2015	2020	2025	2030
Saline barriers	0	0	0	0	0	0	0
Groundwater recharge	0	0	0	0	0	0	0
Conjunctive use	0	0	0	0	0	0	0
Raw water	0	0	0	0	0	0	0
Recycled <sup>a</sup>	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Unaccounted-for system losses	753	1,832	1,993	2,144	2,286	2,428	2,536
Total	753	1,832	1,993	2,144	2,286	2,428	2,536

a Recycled water use is covered in Chapter 5.

### 3.2.4. Total Water Use

Past, present, and future water use for the system, which is the sum of the totals from Tables 3-2 and 3-3, is provided in Table 3-4.

**Table 3-4. (DWR Table 15) Total Water Use (under average weather conditions), ac-ft/yr**

Water Use	2000	2005	2010	2015	2020	2025	2030
Total water use	23,312	26,235	28,528	30,669	32,692	34,733	36,186

### 3.3 Demand on Wholesale Supply

The Agency currently provides 100 percent of the City's potable water supply. Table 3-5 provides the projected amount of water that the City expects to purchase from the Agency to meet water demands in the future.

**Table 3-5. (DWR Table 19) City Demand Projections to Wholesale Suppliers, ac-ft/yr<sup>(c)</sup>**

Wholesaler	2010	2015	2020	2025	2030
Sonoma County Water Agency <sup>a</sup>	29,100	29,100	29,100	29,100	29,100
SCWA <sup>b</sup>		1,169	3,142	5,133	6,536

<sup>a</sup> Current 11th Amended Agreement Entitlement

<sup>b</sup> Future potential supply which may be available to the City to meet the demands that have been identified in this UWMP.

<sup>c</sup> Remaining demand under average weather conditions (Table 3-4) to be met with recycled water (see Table 4-6 and Section 5).

## SECTION 4 WATER SUPPLY

The City currently uses Agency water and recycled water as its supply sources. The Russian River water supplied by the Agency is supplemented by three Agency-owned groundwater wells. This section describes the surface water and groundwater sources, quantities, supply constraints, and the reliability and water quality of the water supply sources. The City's use of recycled water is described in Section 5.

### 4.1 Agency Surface Water

This section describes the City's surface water supply, which is purchased from the Agency, as well as the physical and legal constraints to this supply. The surface water supply facilities are described in Section 2.

#### 4.1.1 Description

The City receives its primary water supply from the Agency's transmission system. The Agency is supplied by the federal Russian River Project, which it operates along with the Agency's appurtenant water transmission system. The Coyote Valley Dam, which creates Lake Mendocino on the East Fork Russian River, and Warm Springs Dam, which creates Lake Sonoma on Dry Creek (a tributary to the Russian River), are the key elements of the Russian River Project. The Agency manages releases at both reservoirs for water supply and to maintain required minimum flows in the Russian River and Dry Creek. Flood control releases from each of the reservoirs are controlled by the United States Army Corps of Engineers (USACE). Flows in the Russian River are augmented by Pacific Gas & Electric Company's (PG&E) Potter Valley Project, which diverts a portion of the Eel River flows to the East Fork of the Russian River. Water from the Russian River is diverted by the Agency near Forestville and conveyed via its transmission system (including diversion facilities, treatment facilities, pipelines, water storage tanks, booster pump stations, and groundwater wells) to its wholesale customers, including the City. Further detail on the City's water supply facilities and distribution system is included in Section 2.

#### 4.1.2 Physical and Legal Conditions

This section of the plan describes the water rights held by the Agency and the various conditions that may influence the water supply availability. The City's entitlement to the Agency's water supply is also described.

Water Rights. Four State Water Resources Control Board (SWRCB) permits<sup>1</sup> currently authorize the Agency to store water in Lake Mendocino (122,500 ac-ft) and Lake Sonoma (245,000 ac-ft) and to divert and redivert 180 cubic feet per second (cfs) of water from the Russian River, up to 75,000 ac-ft/yr. The permits also establish minimum instream flow requirements for fish and wildlife protection and Russian River recreational considerations. These minimum instream flow requirements vary according to the hydrologic cycle (i.e., dry water years versus normal water years) defined by the SWRCB's Decision 1610. The Agency meets the various instream flow requirements set by Decision 1610 by making releases from Coyote Valley Dam and Warm Springs Dam. The Agency has applied to the SWRCB to increase the Agency's Russian River rediversion right from 75,000 to 101,000 ac-ft/yr.

In the early 1990s, the Agency initiated a water project to increase the amount of water released from Lake Sonoma and diverted from the Russian River and to expand the transmission system. The Environmental Impact Report (EIR) for the water project was successfully challenged, and the Agency is in the process of preparing an EIR for a new water project. The new water project, the Water Supply, Transmission, and Reliability Project, must undergo environmental review in accordance with the California Environmental Quality Act (CEQA) and obtain project approval before it can proceed. The Draft EIR is anticipated to be released for public review at the end of 2006. Final EIR certification and project approval is expected to be considered by the Agency Board of Directors by the end of 2007.

Eleventh Amended Agreement. The *Eleventh Amended Agreement for Water Supply* (11<sup>th</sup> Amended Agreement), which was executed in 2001, generally provides for the finance, construction, and operation of new diversion facilities, transmission lines, storage tanks, booster pumps, conventional wells, and appurtenant facilities. The 11<sup>th</sup> Amended Agreement currently provides the contractual relationship between the Agency and the City and includes specific date of delivery and maximum amounts of water that the Agency will seek to supply to the City.

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<sup>1</sup> SWRCB Permits Numbers 12947A, 12949, 12950, and 16596.

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The 11<sup>th</sup> Amended Agreement defines the City's allocations as 29,100 ac/ft/yr and an average of 40.0 million gallons per day (mgd) from Reach 1 to 2 of the Intertie Aqueduct, 40.0 mgd from the Santa Rosa Aqueduct, 4.0 mgd from the Sonoma Aqueduct, or a maximum combined average total of 56.6 mgd for a one-month period from all aqueducts (Sonoma County Water Agency, 2001).

Though the City's existing supply from the Agency is relatively reliable, the following conditions, discussed in more detail below, could affect the City's long term sustainable water supply available from the Agency: completion of the Agency's Water Project EIR and success of the related petition to increase Russian River diversions; results of a Section 7 consultation being undertaken on the Russian River; seasonal hydrologic constraints on the Russian River diversion facilities; and future operation of the Potter Valley Project.

Water Project EIR. In 1998, the Agency's Board of Directors certified an environmental impact report (EIR) for the Agency's Water Supply and Transmission System Project (WSTSP) and approved the project. The objective of the WSTSP was to provide a safe, economical and reliable water supply to meet the defined future needs of the Agency's service area, which includes providing for the future water supply needs of the City. The WSTSP was expected to increase the amount of water SCWA diverts from the Russian River to 101,000 ac-ft/yr and increase the Agency's water transmission system average-day peak month delivery capacity from 92 to 149 mgd.

In 1999, a lawsuit was filed challenging the WSTSP EIR. In 2000, the trial court found the EIR to be adequate. On May 16, 2003, however, the Court of Appeals reversed the trial court's decision, concluding that the EIR was inadequate because it did not contain adequate cumulative impacts and alternatives analyses, and its description of the project's environmental setting was deficient. On November 9, 2004 the Agency adopted a resolution directing the preparation of a new EIR, the Water Supply, Transmission, and Reliability Project EIR (Water Project EIR) to address the inadequacies of the WSTSP and to more closely reflect current water supply circumstances. The draft Water Project EIR is expected to be released for public review in mid 2007.

Shortage Provisions. On August 11, 2003, the Agency sent a letter to its contractors, customers, and water diverters reporting under the Agency Russian River water rights permits stating that, due to the 2003 decision of the Court of Appeals, it would be inappropriate for water

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suppliers to anticipate water deliveries based on diversions of 101,000 ac-ft/yr. The letter further states that the Agency reported 63,841 ac-ft/yr in 2002 under its current secure rights to 75,000 ac-ft/yr. If demand exceeds 75,000 ac-ft/yr, taking into account other local supplies available to contractors, before the Agency's petition for increased diversion rights is approved, water supply reductions will be administered in accordance with applicable contract provisions or other arrangements where applicable. For the City and the other parties to the Eleventh Amended Agreement, the shortage provisions are defined in section 3.5 of that agreement. The shortage apportionment methodology relies, in large part, on peak month entitlement, and the City currently holds entitlement to 42 percent of the collective peak month entitlement of the parties to the Eleventh Amended Agreement.

Because certain factors in the shortage apportionment language in the Eleventh Amended Agreement are not defined, in September 2003, the Santa Rosa City Council sent a letter to the Agency Board asking for the adoption of a plan for implementing section 3.5 of the Eleventh Amended Agreement that takes into account the varying levels of water conservation efforts among the water contractors served by the Agency. The goal of this recommendation is to assure that retail water providers that have had aggressive conservation programs are not penalized by the use of "percentage reduction from historic consumption" to determine shortage allocations, and to not create a disincentive for future conservation savings.

To support this recommendation, the City contracted with West Yost Associates (WYA) to perform an illustrative analysis consistent with the shortage provisions of the Eleventh Amended Agreement. This analysis, *Methodology for Implementation of Shortage Provisions in the Eleventh Amended Agreement for Water Supply and Related Agreements* (WYA, September 2003), shows that if the Agency uses an average per capita methodology for determining the allocation of water under a shortage, the City, and other agencies with low per capita use, will have the full annual volume of the Eleventh Amended Agreement available under a scenario where the Agency has 75,000 ac-ft/yr. On April 18, 2006, the Agency Board adopted a shortage allocation methodology that considered per capita consumption. Under this plan, the City's annual entitlement, if Agency Transmission System deliveries were limited to 75,000 ac-ft/yr, would be the full entitlement of the 11<sup>th</sup> Amended Agreement or the Restructured Agreement.

Section 7 Consultation. An uncertainty facing the Agency's water supply is related to the recent listings of coho salmon, Chinook salmon, and steelhead as threatened under the federal

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Endangered Species Act (ESA). The Agency's water supply operations and maintenance activities are undergoing review by the National Oceanic and Atmospheric Administration – National Marine Fisheries Service (NOAA-NMFS). This review is being conducted as part of an ongoing Section 7 consultation process under the federal Endangered Species Act. Changes to the Agency's water supply operations and maintenance activities or to required minimum streamflows resulting from the consultation process might affect the ability of the Agency to use or deliver its water supply.

In accordance with Section 7(a)(2) of the ESA, federal agencies must consult with the U.S. Fish and Wildlife Service (USFWS) and/or NOAA Fisheries (depending on the species) to “insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat....” (50 CFR §402). The operation of Warm Springs and Coyote Valley dams and the Agency's rubber dam and fish screens all fall within the provisions of Section 7.

As part of the Section 7 consultation, a Biological Assessment was prepared to study the impact of current and potential future operations of facilities on the listed species in the Russian River. The final Biological Assessment was completed in September 2004. A Biological Opinion that covers current operations is expected in late 2006. Further environmental studies will be needed prior to the issuance of a Biological Opinion for future operations or facilities.

Seasonal Constraint. The ability of the Russian River to produce water is generally limited by the rate of recharge to the aquifer through the streambed. To augment this recharge capacity, the Agency has constructed several infiltration ponds that surround the Agency collector wells.

The Agency's water production capacity is complex and will vary from year to year based on a number of factors. In any given year, Agency production needs depend on demands, which are a function of temperature, precipitation and growth, and hydrologic conditions, which are a function of groundwater levels and the permeability of the river bed, that vary based on the number and duration of storm events. An Agency analysis of water trends from 1997 to 1999 concluded that stressed hydrologic conditions occurred in the fall/early winter, followed by non-stressed conditions in the winter, and stressed conditions again in the spring, prior to the rubber dam being raised (Robert Beach and Jay Jasperse, SCWA, 9/00). Stressed hydrologic

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conditions are determined by monitoring groundwater levels and noting the decline in water levels as the Agency pumps water to meet demands.

Agency staff is continuing to analyze the seasonal constraint and its potential impact on the ability to provide water to its customers. As non-peak demands continue to rise, the Agency will increasingly rely on using the inflatable dam more continuously throughout the year. Should the Agency be precluded from using the dam due to mechanical or environmental constraints, the production capacity of the Agency transmission system could be temporarily impaired.

Future Operation of the Potter Valley Project. Diversions from the Eel River in to the Russian River via Pacific Gas & Electric's Potter Valley Project are regulated by a number of agencies including the Federal Energy Regulatory Commission (FERC), and NOAA-NMFS. In 2004, FERC issued a final decision that reduced the amount of diversion from the Eel River into the Russian River by approximately 15 percent to protect Eel River fisheries. This decision formalized an interim decision that was made and implemented in 1999. Since the flow reductions were implemented in 1999, the Agency has not experienced any difficulties in operating the Russian River Project for water supply purposes or in meeting minimum streamflow requirements. Although there is some uncertainty surrounding this issue because the FERC decision is being appealed, there are no additional proposed reductions pending before FERC.

Temporary Impairment Memorandum of Understanding (MOU). On December 7, 1999 the Agency Board declared that the reliable summertime water production capacity of the SCWA transmission system was impaired because only 84 mgd average could be produced. From June 2000 to September 2005, a *Memorandum of Understanding Regarding Water Transmission System Capacity Allocation During Temporary Impairment* (Temporary Impairment MOU) was in effect between the Agency and its contractors. The MOU defined the water contractors' transmission system capacity during the Temporary Impairment. Under the Temporary Impairment MOU, the City's peak month allocation (during the "summer months" of June through September) was 36.3 mgd (Sonoma County Water Agency, 2000b).

The Temporary Impairment MOU contained several additional components of significance including: (1) an agreement that water conservation funds may be used for water conservation measures, recycled water projects, and standby local peak month production capacity projects that reduce peak demand on the system, as well as a funding commitment from the Agency; (2)

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a requirement that contractors use best efforts to achieve standby local capacity equal to 40 percent of peak month demand, if possible; (3) the accelerated implementation of specific conservation measures to alleviate peak summer demands; and (4) an agreement to coordinate with agencies with planning and zoning powers as well as building regulatory powers for water supply planning purposes and promotion of water efficiency tools (Sonoma County Water Agency, 2004a).

In January 2005, the Agency Board again declared a temporary impairment because the transmission and production capacity were limited to 92 mgd. The Temporary Impairment MOU expired on September 30, 2005. As of November 2005, the Agency and its water contractors are negotiating the terms of an extended Temporary Impairment MOU. The extended Temporary Impairment MOU, dated June 21, 2005, was distributed during an Agency Water Advisory Committee meeting and included a peak demand allotment of 39.1 mgd for the City during the summer months of 2006 through 2008. The City approved this MOU in September 2005. When the current extended Temporary Impairment MOU is approved by all parties, it will be effective through September 30, 2008 unless terminated earlier through a vote involving the parties subject to the MOU (Sonoma County Water Agency, 2005).

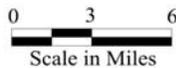
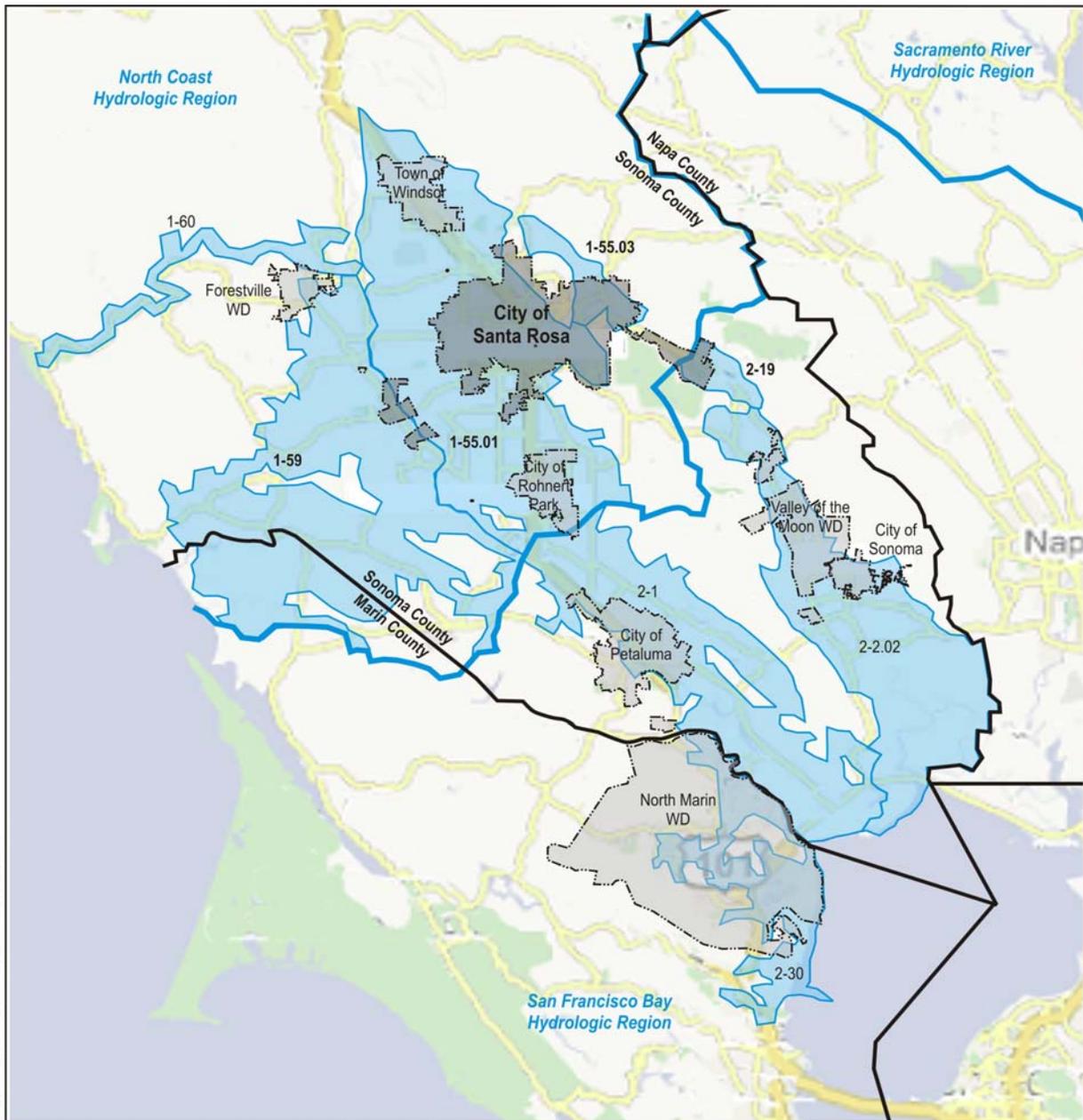
Restructured Agreement. Negotiations to establish a *Restructured Agreement for Water Supply* (Restructured Agreement), which will supersede of the 11<sup>th</sup> Amended Agreement, began in August of 2001 and continue to be in progress at the time of this report. The Restructured Agreement does not change Agency contractors' entitlements; however, it does differ from the 11<sup>th</sup> Amended Agreement by providing two additional components: (1) additional alternative water supply investments (conservation and recycling) and (2) Russian River watershed ecosystem restoration activities.

#### **4.2 Existing and Planned Groundwater Supply**

The City is located within the Santa Rosa Plain Sub-basin of the Santa Rosa Valley Groundwater Basin, located at the confluence of the Santa Rosa, Bennett, and Rincon Valleys (See Figure 4-1). Prior to the early 1980's, the City relied solely on groundwater from this sub-basin for its water supply. In the mid 1980's the Sonoma County Water Agency (SCWA or Agency) began supplying surface water to the City and other "prime" contractors, and by the late 1980s, the City had transitioned its supplies to rely solely on purchased surface water deliveries from the SCWA to meet its water demands.

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**Figure 4-1. Groundwater Basins**



Source: Google Map data 2005 NAVTEC™  
 DWR Bulletin 118, 2003 Update

- County Line and Name
- ▭ System Boundary and Name
- Hydrologic Region Boundary
- ▭ Groundwater Basin and Number

P:\127000\127280 - Sonoma County Water Agency\UWMPs\City of Santa Rosa\figures

<b>BROWN AND CALDWELL</b>	PROJECT 127280-005	SITE UWMP 2005, City of Santa Rosa	Figure 4-1
	DATE 10-18-05	TITLE Groundwater Basins	

However, as described in Section 2.3.2, the City does maintain a total of six groundwater wells: three are operated for emergency purposes only and remain on standby, the status of two wells was recently changed from standby to active status (by DHS), and one well is operated to provide minor amounts of landscape irrigation water supply only. A seventh well, the Freeway Well, was disconnected from the distribution system in 1990 due to the detection of organic compounds, see additional discussion under the Groundwater Quality Section. An eighth well, the Sharon Park well, is inactive. Pending the full availability of future water supplies from the Agency, the City may further supplement the Agency's surface water supply with additional groundwater production facilities.

A brief description of the groundwater resources available from the Santa Rosa Plain sub-basin (used by the City) follows, including discussion of the quality, water levels, management, and planned groundwater resources.

#### 4.2.1 Brief Description of the Santa Rosa Plain Sub-Basin

The Santa Rosa Plain sub-basin is bounded by the Russian River, the Mendocino Range flank, and the Healdsburg sub-basin on the north and west, the Sonoma and Mayacamas mountains to the east, a series of low hills, which form the divide between the Santa Rosa Valley and Petaluma Valley basins, to the south.<sup>2</sup> The Santa Rosa and Mark West Creeks principally drain the Santa Rosa Plain sub-basin.<sup>3</sup> (see Figure 4-2)

The portion of the sub-basin near the City consists of the Younger Alluvium, the Older Alluvium (alluvial fan deposits), the Glen Ellen and Huichica Formations, the Sonoma Volcanics, the Wilson Grove (formerly Merced) Formation, and the Petaluma Formation.<sup>4</sup> A description of these formations and their hydrogeologic properties is provided in Table 4-1, and a typical cross-section is illustrated on Figure 4-3.

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<sup>2</sup> Department of Water Resources, *Bulletin 118, Basin Number: 1-55.01*. Updated February 2004.

<sup>3</sup> Department of Water Resources, *Bulletin 118, Basin Number: 1-55.01*. Updated February 2004.

<sup>4</sup> West Yost & Associates, *Evaluation of Potential Impacts Associates with Increased Groundwater Production from Farmers Lane Wells, W4-1 and W4-2*. July 2004.

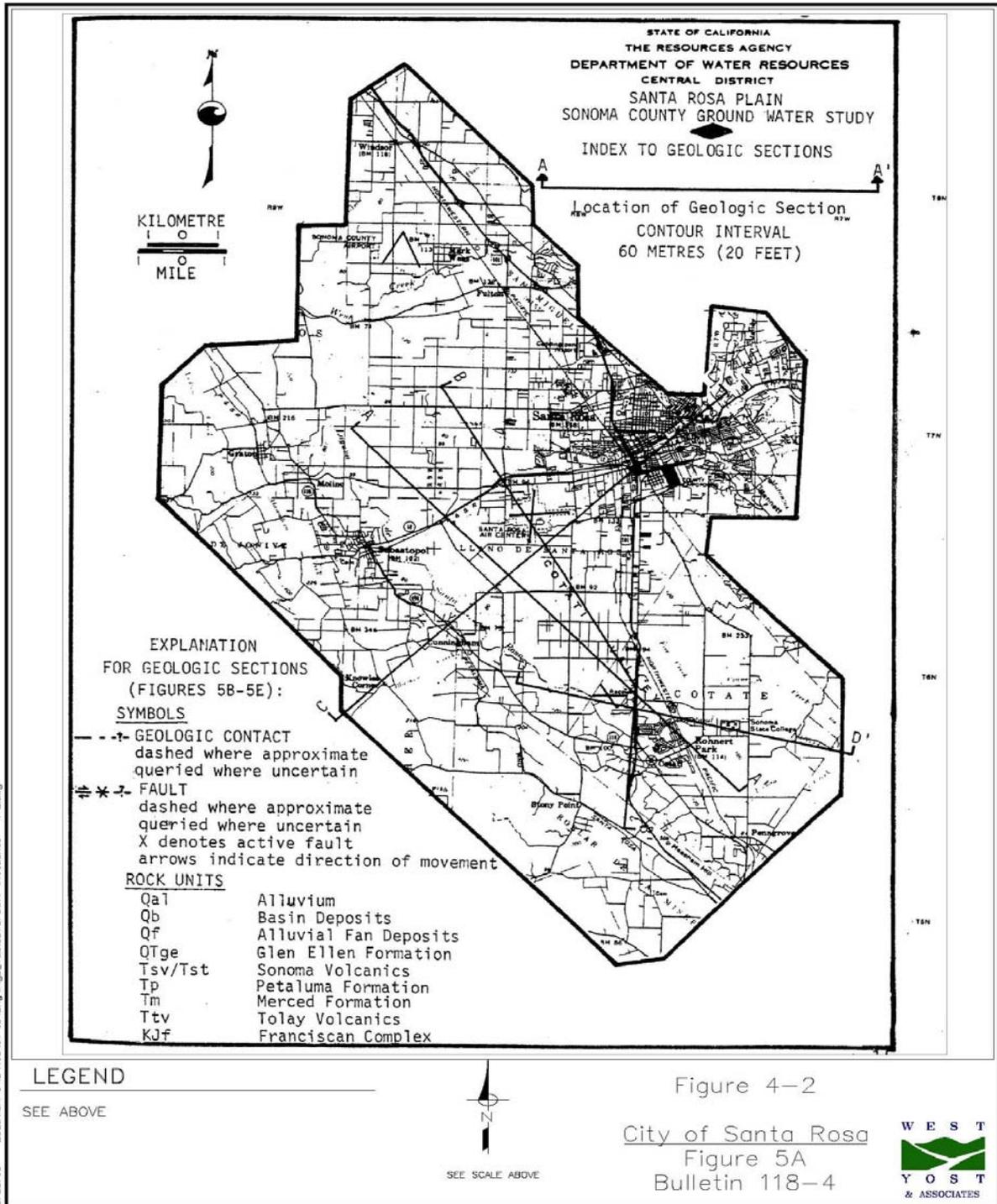
**Table 4-1. Summary of Geological Units<sup>(a)</sup>**

Geologic Unit	Map <sup>(b)</sup> Symbol	Lithology	Specific Yield	Comments
Younger Alluvium	Q	Interbedded layers of sand, silt, clay, and gravel	Variable (3-15%)	May contain objectionable levels of iron and manganese above secondary drinking water standards.
Older Alluvium (Alluvial Fan Deposits)	Qo	Fine sand, silt, and silty clay, coarse sand and gravel, with gravel more abundant near fan heads	Moderate to high (8-17%)	Lenses of very fine sand. Minor amounts of methane gas. May contain objectionable levels of iron and manganese above secondary drinking water standards.
Glen Ellen and Huichica Formations and related, undifferentiated continental deposits	QT	Cemented gravel, sand, silt and clay, local interbedded tuff	Low (3-7%)	Generally low yields unless a substantial thickness of coarse gravel and sand is penetrated. May contain objectionable levels of iron and manganese above secondary drinking water standards.
Sonoma Volcanics	Psv	Volcanic flows, agglomerates, and tuffs	Highly Variable (0-15%)	Variable yields. Some water has high boron content. Some waters thermal. Zones of hydrogen sulfide (H <sub>2</sub> S). May occasionally exceed secondary drinking water standards for iron and manganese.
Wilson Grove (formerly Merced) Formation	Pwg	Mostly marine coarse-to-fine grained sandstone with minor amounts of clay. Sandstone is typically yellow, gray, or buff-white in surface exposures and distinctively blue in subsurface cuttings.	High (10-20%)	Lenses of very fine sand. Drillers well logs generally describe this unit as blue sand, blue sandstone, cemented sand, or blue rock with some intervals of blue clay. Zones of high concentration of methane gas and hydrogen sulfide (H <sub>2</sub> S). May occasionally exceed secondary drinking water standards for iron and manganese. Water not as hard as other formations.
Petaluma Formation	Pp	Mostly non-marine clay and shale with minor amounts of sandstone	Low (3-7%)	Generally low yields. Yields may be higher for wells penetrating lenses of coarse material. Wilson Grove and Petaluma formations deposited at about the same time – drillers logs indicate alternating layers of blue sandstone and blue clay. Zones of hydrogen sulfide (H <sub>2</sub> S). May contain objectionable levels of iron and manganese

<sup>(a)</sup> Based on Table I in DWR Bulletin 118-4, Evaluation of Ground Water Resources Sonoma County, Volume 2: Santa Rosa Plain (September 1982)

<sup>(b)</sup> Geologic Map of the Santa Rosa Quadrangle, 1:250,000, California Geological Survey, 1999

Figure 4-2. Santa Rosa Sub-basin



05/22/05 Location: D:\CV\403\04-15\Eng\T\figs\TablesFor\UNPW\Attach01 - 4-2.dwg

**Figure 4-3. Santa Rosa Groundwater Cross-Section**

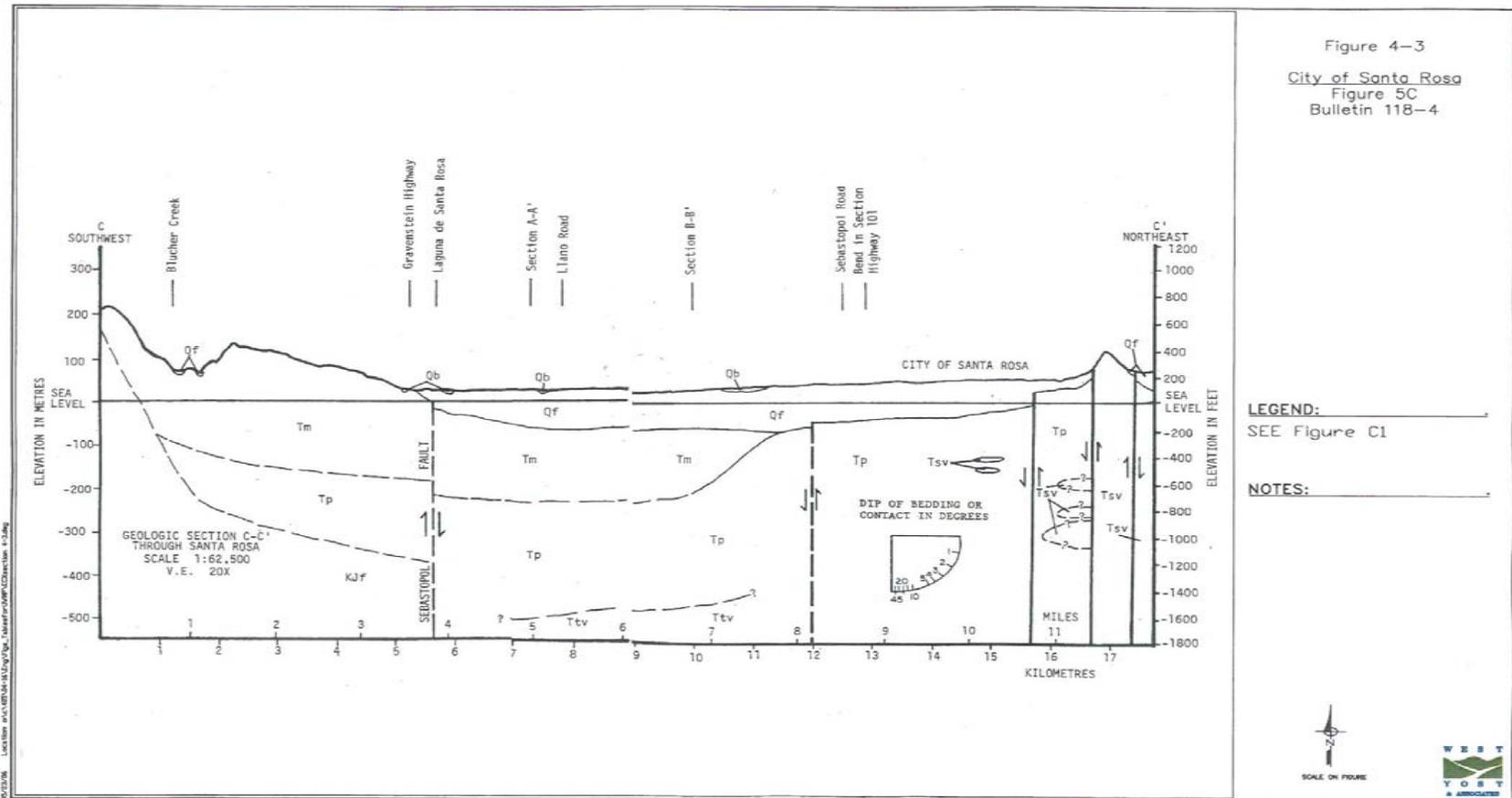


Figure 4-3  
 City of Santa Rosa  
 Figure 5C  
 Bulletin 118-4

LEGEND:  
 SEE Figure C1

NOTES:



#### 4.2.2 Quality

Groundwater underlying the City's service area generally meets primary and secondary drinking water standards for municipal water use, and is primarily characterized by sodium and magnesium bicarbonate.<sup>5</sup> Additionally, stiff diagrams for the City's Farmers Lane wells (going back to 1951) indicate that the general chemistry of the groundwater has been stable since 1951 and that the dominate ions are sodium, bicarbonate, and to a lesser degree, calcium, magnesium, and chloride.<sup>6</sup>

Review of historical water quality data for the Farmers Lane wells also indicated that organic compounds have not been detected in any of these wells over the sample period.<sup>7</sup> The stiff diagrams are presented in Appendix C.<sup>8</sup>

Review of historical water quality data from the City's other wells also indicated, that with the exception of the Freeway Well, all of the other City wells produce water that meets primary and secondary drinking water standards for municipal water use.

The Freeway Well was physically separated from the City's water distribution system in approximately 1990, at the request of DHS, after sampling results indicated the presence of volatile organic compounds. Subsequent evaluations under the direction of the RWQCB identified two responsible private parties for the observed impacts to the City's Freeway Well. Clean-up activities at these two source sites is underway, however the Freeway Well remains disconnected from the City's distribution system, and the City's lost groundwater supply capacity has yet to be replaced.

#### 4.2.3 Groundwater Levels

Historic groundwater trend data indicates that groundwater levels within the main portion of the sub-basin have generally remained constant or have slightly increased over the last 15 years,

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<sup>5</sup> Department of Water Resources, *Bulletin 118, Basin Number: 1-55.01*. Updated February 2004.

<sup>6</sup> West Yost & Associates, *Evaluation of Potential Impacts Associates with Increased Groundwater Production from Farmers Lane Wells, W4-1 and W4-2*. July 2004.

<sup>7</sup> West Yost & Associates, *Evaluation of Potential Impacts Associates with Increased Groundwater Production from Farmers Lane Wells, W4-1 and W4-2*. July 2004.

<sup>8</sup> West Yost & Associates, *Evaluation of Potential Impacts Associates with Increased Groundwater Production from Farmers Lane Wells, W4-1 and W4-2*. July 2004.

probably in response to the City's shift in supply source from groundwater to surface water.<sup>9</sup> Additionally, hydrographs for the Farmers Lane wells and six nearby California Department of Water Resources (DWR) wells were previously developed to help establish historical groundwater level fluctuations over time.<sup>10</sup>

Review of these hydrographs shows that groundwater elevations near the Farmers Lane wells have been high (within 10 to 30 feet of the ground surface), and stable since at least 1989, indicating that groundwater recharge is taking place and that additional groundwater yield from this area is possible.<sup>11</sup> In fact, the Farmers Lane Wells are experiencing artesian flow conditions. The hydrographs are presented in Appendix D.

#### 4.2.4 Groundwater Management

Several municipal water purveyors, including the City and private parties, use groundwater within the Santa Rosa Plain sub-basin. These municipal water purveyors and the County are working collectively to better understand and to ultimately try to manage the regional groundwater resources. As part of this joint effort, several of the water purveyors in the area, including the City, are working with the USGS on a large, multi-phased project, aimed at evaluating regional groundwater resources. The first phase of this project, data collection, is currently underway and expected to take several years.

The sub-basin is not adjudicated nor has it been identified as overdrafted or to become overdrafted by DWR.

#### 4.2.5 Planned Groundwater Resources

As previously discussed, the City relied solely on groundwater from this sub-basin for its water supply until the Agency began supplying surface water in the 1980's to meet 100 percent of the City's water demand. Additionally, there are no significant agricultural demand areas within the City's Urban Boundary, and therefore there are only minor demands on the groundwater resources in this area.

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<sup>9</sup> Department of Water Resources, *Bulletin 118, Basin Number: 1-55.01*. Updated February 2004.

<sup>10</sup> West Yost & Associates, *Evaluation of Potential Impacts Associates with Increased Groundwater Production from Farmers Lane Wells, W4-1 and W4-2*. July 2004.

<sup>11</sup> West Yost & Associates, *Evaluation of Potential Impacts Associates with Increased Groundwater Production from Farmers Lane Wells, W4-1 and W4-2*. July 2004.

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Therefore, the City has historically used groundwater in the region without adversely affecting resources, and is further evaluating the possibility of developing additional groundwater supplies (in addition to other potential supply sources, such as recycled water), to provide the City with reliable supplies through buildout of the adopted General Plan (2025).

Starting in 2004, the City began evaluating the use of a portion of the available groundwater resources for regular supply, to add both diversity to its water supply source portfolio and to potentially provide additional water supply and system peaking capacity. On August 5, 2004, the City’s Board of Public Utilities accepted the study Evaluation of Potential Impacts Associated with Increased Groundwater Production from Farmers Lane Wells, W41 and W4-2,<sup>12</sup> and directed City staff to proceed with an initial study pursuant to the California Environmental Quality Act on converting these two wells from standby to production.

On November 4, 2004, the Santa Rosa Board of Public Utilities adopted a Mitigated Negative Declaration and Mitigation and Monitoring Program for conversion of the Farmers Lane Wells from standby to active status. Application to the California Department of Health Services (DHS) for the conversion was made in early 2005, and DHS formally adopted the change July 20, 2005.

Though the City is not currently using these wells for water supply, they are available for use and the City expects that they will become part of their regular supply within the period covered by the adopted General Plan. These wells can supply approximately 1,550 acre-feet of groundwater per year during all anticipated hydrologic conditions and up to 2,300 acre-feet per year during normal or wet years. If the Agency is not able to secure additional diversion and re-diversion rights from the SWRCB, the City may need to rely on additional groundwater production facilities to help meet the water demands projected through buildout of the City’s adopted General Plan (year 2025). Table 4-2 summarizes the City’s existing groundwater supply during all hydrologic conditions through 2030.

**Table 4-2. Available Groundwater Supply during All Hydrologic Conditions**

Supply	2005	2010	2015	2020	2025	2030
Groundwater, acre-feet	1,550	1,550	1,550	1,550	1,550	1,550

<sup>12</sup> West Yost & Associates, *Evaluation of Potential Impacts Associates with Increased Groundwater Production from Farmers Lane Wells, W4-1 and W4-2*. July 2004.

The City also has approximately 2.1 mgd of groundwater production capacity still on a standby-by or emergency basis (from the following City wells: Leete, Carley, and Peters Springs). In the late 1990s, the City adopted a Capital Improvement Program to develop an additional 8.7 mgd of emergency, potable groundwater supply. The City has initiated this Program, and potential, future emergency well sites are being identified and evaluated.

The amount of groundwater pumped in the last five years and future pumping projections are shown in Tables 4-3 and 4-4.

**Table 4-3. Amount of Groundwater Pumped by the City – ac-ft/yr**

Basin Name(s)	2000	2001	2002	2003	2004
Santa Rosa Plain Subbasin	0	0	0	0	0
Percent of Total Water Supply	0	0	0	0	0

Note:  
 Source: Sonoma County Water Agency, 2004b.

**Table 4-4. Amount of Groundwater Projected to be Pumped by the City – ac-ft/yr**

Basin Name(s)	2005	2010	2015	2020	2025	2030
Santa Rosa Plain Subbasin <sup>a</sup>	0	900	1,800	2,300	2,300	2,300
Percent of Total Water Supply	0	3%	5.5%	6.6%	6.2%	6.0%

Note:  
<sup>a</sup> Based on Mitigated Negative Declaration. October 29, 2004. Farmers Lane Wells Conversion Project.

#### 4.2.6 Physical Constraints

The groundwater basin does not appear to have physical constraints for pumping if used on an emergency basis only. The long-term sustainable yield of the groundwater basin has not been specifically determined, and if new and existing groundwater wells were developed as a supply source, additional study of the sustainable yield would need to be conducted.

#### 4.2.7 Legal Constraints

There are no legal constraints on the City's use of its groundwater supply (Table 4-5).

**Table 4-5. City's Groundwater Pumping Rights – ac-ft/yr**

Basin Name	Pumping Right
Santa Rosa Plain Subbasin	Not limited
Total	Not limited

### **4.3 Desalination**

Desalinated water is not a viable option for City water supply, because the ocean is not immediately adjacent to the City and brackish groundwater is not present.

### **4.4 Transfer and Exchange Opportunities**

Currently, the City does not transfer and/or exchange water with other entities. It is not anticipated that transfers or exchanges would occur in the future. However, water transfers between the Agency's water contractors are authorized under the 11<sup>th</sup> Amended and Restructured Agreements. Such transfers and exchanges between Agency water contractors have been necessary in the past and may be necessary in the future to improve water reliability (Sonoma County Water Agency, 2000a).

### **4.5 Current and Projected Water Supplies**

This section provides current water supply quantities and projections of the City's future water supply quantities by source.

The City currently holds entitlement to 29,100 ac-ft/yr from the Agency, can utilize up to 2,300 ac-ft/yr from its own groundwater and can utilize approximately 340 ac-ft/yr from recycled water. Beginning in about 2017 or 2018, additional supply will be needed to meet the 2030 demand projections of this Plan. This additional supply will be provided by any combination of the following sources: possible further utilization of the City's own groundwater resources, additional entitlement from the Agency, and the City's own recycled water supplies. Per the following discussion, plans are in place to develop these supply options.

Plans for Expanded Urban Reuse. The City is the owner and operator of the Subregional Water Reclamation System, which treats and reclaims wastewater for the cities of Santa Rosa, Sebastopol, Rohnert Park and Cotati, and the County Southpark Sanitation District. In 2001, the City undertook the Incremental Recycled Water Program, which includes plans for recycled water urban reuse efforts. The Program outlines a water recycling alternative that can replace Santa Rosa potable water sources (not including private groundwater supply sources) up to a maximum of 2,200 ac-ft/yr upon implementation and 4,400 ac-ft/yr by 2020. In November 2003 the program EIR was certified, and in March 2004 the Final Master Plan was adopted. In April 2005 the City began work on the Santa Rosa urban reuse expansion conceptual plan. The City will begin designing individual projects that are consistent with the Final Master Plan in 2006/07,

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with operation beginning prior to 2010. The recycled water projections in Table 4-6 of this section represent the minimum anticipated future recycled water supply in the City.

Future Agency Supply. The City has formally requested additional entitlement beyond 29,100 ac-ft/yr from the Agency. Hydrologic modeling of the Russian River system in the 2000 UWMP indicated additional supply is available in storage for future demands of Agency contractors. To make this supply available for urban use, the Agency would need to develop a new project after the Water Supply, Transmission, and Reliability Project.

Future Groundwater. In addition to the two production wells (Farmers Lane wells 1 and 2), described in Section 4.2 of this Plan, the City has approximately 2.1 mgd of groundwater capacity still on a stand-by emergency basis. Since the mid 1990's, Santa Rosa has had an adopted Capital Improvement Program for the development of the City's groundwater resources to provide an additional 8.7 mgd emergency groundwater supply suitable for potable use by the City. In evaluating sites for new emergency wells, the City is also considering the potential for future additional production wells. If additional supplies from the Agency are not secured, the City may rely on additional groundwater production facilities for water supply through 2030.

**Table 4-6. (DWR Table 4) Current and Planned Water Supplies**

Water Supply Sources	2005	2010	2015	2020	2025	2030
Sonoma County Water Agency <sup>a</sup>	25,891	28,184	29,100	29,100	29,100	29,100
Supplier surface diversions	0	0	0	0	0	0
Transfers in or out	0	0	0	0	0	0
Exchanges in or out	0	0	0	0	0	0
Recycled water (projected use) <sup>c</sup>	344	344	400	450	500	550
Desalination	0	0	0	0	0	0
Other <sup>d</sup>	0	0	1,169	3,142	5,133	6,536
Average weather conditions total	26,235	28,528	30,669	32,692	34,733	36,186
Supplier produced groundwater <sup>b</sup>	0	900	1,800	2,300	2,300	2,300
Total	26,235	29,428	32,469	34,992	37,033	38,486

Notes:

<sup>a</sup> Water supplied from the Sonoma County Water Agency is rounded to the nearest hundred acre-feet.

<sup>b</sup> Based on Mitigated Negative Declaration. October 29, 2004. Farmers Lane Wells Conversion Project.

<sup>c</sup> Recycled water reported is for urban reuse only.

<sup>d</sup> Pursuant to discussion in this section, this increment of water can come from a variety of sources: Future recycled water use, additional local groundwater use, or the Agency supplies which may be available to meet City demands.

Future projects that may contribute to the City’s water supply from the Agency are summarized in Table 4-6. Table 4-7 summarizes the current and projected water supplies available to the City.

**Table 4-7. (DWR Table 17) Future Water Supply Projects**

Project Name	Projected Start Date	Projected Completion Date	Normal year ac-ft to City	Single-dry year yield ac-ft	Multiple-Dry Year		
					Year 1 ac-ft	Year 2 ac-ft	Year 3 ac-ft
Agency Water Supply, Transmission, and Reliability Project <sup>1</sup>			Data not available	Data not available	Data not available	Data not available	Data not available
Santa Rosa Expanded Urban Reuse <sup>2</sup>	2008	2015	550	550	550	550	550

Note:

<sup>1</sup> In compliance with CEQA, the Notice of Preparation to prepare an Environmental Impact Report for this project was released in February, 2005. Single-dry and multiple-day year data is not yet available.

<sup>2</sup> The minimum amount of recycled water available through the Expanded Urban Reuse project is 550 ac-ft/yr.

#### 4.6 Water Supply Reliability

This section presents the projected supplies available during single-and multiple-dry water years. Actions that would be undertaken during a short-term water supply curtailment are addressed in the Water Shortage Contingency Plan, which is presented in Appendix E.

##### 4.6.1 Reliability Comparison

The reliability of the City’s water sources is summarized in Table 4-8. The City’s surface water supply from the Agency is subject to reductions during dry years (seasonal and climatic shortages) pursuant to SWRCB water rights Decision 1610<sup>13</sup>. When the Lake Sonoma (total volume 381,000 ac-ft; water supply pool 212,000 ac-ft) water volume is less than 100,000 ac-ft, a 30 percent reduction in diversions is required. This condition has not been experienced on the Russian River system, even during the multiple dry year conditions of 1990 – 1992. It is not likely that a drought would reduce the volume of surface water available to the Agency, for reasons set forth in Table 5-2 and 5-3 of the Agency’s UWMP 2000. There is significant water in storage upon which the Agency is entitled to withdraw.

The City’s groundwater has not been used for supply for over 25 years. Records from the State of California Department of Water Resources monitoring wells in close proximity to the Farmers Lane wells 1 and 2 from 1989 through 2002 (those years readily available from the Department)

<sup>13</sup> SWRCB Decision 1610 was adopted in April 1986.

show no decline in groundwater elevation. The City’s maximum approved production from this source is 2,300 ac-ft/yr. Drought conditions could result in a one-third reduction in available groundwater yield, making the maximum groundwater available during drought conditions 1,550 ac-ft/yr.

The reliability of recycled water is not anticipated to be affected by single- or multiple-dry years.

**Table 4-8. (DWR Table 8) Year 2030 Supply Reliability - Percent of Normal ac-ft/yr**

Sources	Normal Water Year	Single-Dry Water Year	Multiple-Dry Water Years			
			Year 1	Year 2	Year 3	Year 4
Sonoma County Water Agency <sup>a</sup>	29,100	29,100	29,100	29,100	29,100	N/A <sup>b</sup>
Groundwater wells	0	1,550	1,550	1,550	1,550	1,550
Recycled water	550	550	550	550	550	550
Other <sup>c</sup>	6,536	6,536	6,536	6,536	6,536	6,536
Percent of Normal	100	100	100	100	100	N/A <sup>b</sup>

<sup>a</sup> Source: Agency’s 2000 Urban Water Management Plan. No reductions during single or multiple dry years.

<sup>b</sup> N/A – Not available. The Agency’s 2000 Urban Water Management Plan only modeled a 3-year multiple dry year period. Data is not available for a four-year multiple-dry year period.

<sup>c</sup> Pursuant to discussion in this section, this increment of water can come from a variety of sources: Future recycled water use, additional local groundwater use, or the Agency supplies which may be available to meet City demands. If this increment of water is met with recycled water or local groundwater, the full increment will be available.

Table 4-9 lists the years upon which the data in Table 4-8 are based.

**Table 4-9. (DWR Table 9) Basis of Water Year Data**

Water Year Type	Base Year(s)
Normal Water Year	1962
Single-Dry Water Year	1977
Multiple-Dry Water Years	1990 - 1992

Factors resulting in inconsistency of supply are summarized in Table 4-10. Alternatives to replace inconsistent sources may potentially include the development of groundwater wells, aquifer storage and recovery, use of recycled water, and increased conservation. Water quality issues are not anticipated to have a significant impact on water supply reliability. If applicable in the future, chemical contamination and the lowering of maximum contaminant levels (MCLs) for naturally occurring constituents can be mitigated by constructing new treatment facilities. These treatment facilities would have a significant cost.

**Table 4-10. (DWR Table 10) Description of the Factors Resulting in Inconsistency of Supply**

Name of supply	Legal	Environmental	Water Quality	Climatic
Sonoma County Water Agency	Current supply is stable with regard to these factors; future supply increase may not be stable due to delays in construction, approval of water rights application, or in environmental documentation		None	Drought could result in a curtailment of 30 percent or higher <sup>(a)</sup>
Groundwater	None	None	None	Drought could result in a 1/3 reduction in of yield
Recycled water	None	None	None	None

<sup>a</sup> The 30% curtailment is based on diversions of 101,000 ac-ft/yr and does not impact the approved 75,000 ac-ft/yr diversion that the Agency is currently entitled. Therefore the City supply, which is based on the 75,000 ac-ft /yr diversion, is not affected.

4.6.2 Wholesaler (Agency) Water Supply Projections

Agency projections that quantify water availability to the City through 2030 are presented in Table 4-11.

**Table 4-11. (DWR Table 20) Wholesaler Identified and Quantified Existing and Planned Sources of Water – ac-ft/yr**

Wholesaler sources	2010	2015	2020	2025	2030
Sonoma County Water Agency	29,100	29,100	29,100	29,100	29,100
SCWA <sup>a</sup>		1,169	3,142	5,133	6,536

<sup>a</sup> Future potential supply which may be available to the City to meet the demands that have been identified in this UWMP.

A water supply reliability comparison for the Agency supply is made in Table 4-12, considering three water supply scenarios: average/normal water year, single-dry water year, and multiple-dry water years.

**Table 4-12. (DWR Table 21) Wholesaler Supply Reliability – ac-ft/yr**

Wholesaler	Average / Normal Water Year	Single-Dry Water Year	Multiple-Dry Water Years			
			Year 1	Year 2	Year 3	Year 4
Sonoma County Water Agency	29,100	29,100	29,100	29,100	29,100	N/A <sup>a</sup>
Percent of Normal	100	100	100	100	100	N/A <sup>a</sup>

Source: Agency's 2000 Urban Water Management Plan.

<sup>a</sup> N/A – Not available. The Agency's 2000 Urban Water Management Plan only modeled a 3-year multiple dry year period. Data is not available for a four-year multiple-dry year period.

Table 4-13 lists the years upon which the data in Table 4-12 are based.

**Table 4-13. (DWR Table 9) Basis of Water Year Data**

Water Year Type	Base Year(s)
Normal Water Year	1962
Single-Dry Water Year	1977
Multiple-Dry Water Years	1990 – 1992

Factors resulting in inconsistency of the Agency’s supply are included in Table 4-14.

**Table 4-14. (DWR Table 22) Factors Resulting in Inconsistency of Wholesaler’s Supply**

Name of supply	Legal	Environment	Water Quality	Climatic
Sonoma County Water Agency	Current supply is stable with regard to these factors; future supply increase may not be stable due to delays in construction, approval of water rights application, or in environmental documentation		None	Drought could result in a curtailment of 30 percent or higher <sup>(a)</sup>

<sup>a</sup> The 30% curtailment is based on diversions of 101,000 ac-ft/yr and does not impact the approved 75,000 ac-ft/yr diversion that the Agency is currently entitled. Therefore the City supply, which is based on the 75,000 ac-ft /yr diversion, is not affected.

#### 4.7 Water Quality Impacts on Future Water Supply

The quality of the City’s water deliveries is regulated by DHS, which requires regular collection and testing of water samples to ensure that the quality meets regulatory standards and does not exceed MCLs. Both the City and the Agency perform water quality testing, which has consistently yielded results within the acceptable regulatory limits (Dyett & Bhatia, 2000).

The quality of existing surface water and recycled water supply sources over the next 25 years is expected to be adequate. Surface and groundwater (if used to supplement supplies during water shortage) will continue to be treated to drinking water standards, and no surface water, groundwater, or recycled water quality deficiencies are foreseen to occur in the next 25 years. Table 4-15 summarizes the current and projected water supply changes due to water quality.

**Table 4-15. (DWR Table 39) Current and Projected Water Supply Changes due to Water Quality – Percentage**

Water Source	2005	2010	2015	2020	2025	2030
Sonoma County Water Agency	0	0	0	0	0	0
Groundwater	0	0	0	0	0	0
Recycled water	0	0	0	0	0	0
Total	0	0	0	0	0	0

## SECTION 5 RECYCLED WATER

The City of Santa Rosa Utilities Department is responsible for the operation and management of the Santa Rosa Subregional Water Reclamation System (Subregional System). The Subregional System operates the Laguna and Oakmont Wastewater Treatment Plants, oversees the Industrial Pretreatment Program, and operates and maintains the recycled water system for more than 225,000 residents and 6,500 businesses for the northern California cities of Cotati, Rohnert Park, Santa Rosa, and Sebastopol; and the South Park Sanitation District and portions of unincorporated Sonoma County. As managing partner of the Subregional System, it is the City’s responsibility to operate the system economically and safely, and to plan for future regulatory changes and growth.

Local water, wastewater, and planning agencies were consulted and participated in the development of the Subregional System’s Incremental Recycled Water Program (IRWP), which is the planning document developed to continually optimize the use of recycled water and offset demands on the potable water system. The alternatives investigated for the IRWP are further discussed in section 5.3. Table 5-1 listed the participating agencies:

**Table 5-1. (DWR Table 32) Participating Agencies**

Agency Type	Participated
Water Agencies: Cities of Cotati, Rohnert Park, Santa Rosa, Sebastopol, and Windsor; Sonoma County Water Agency	X
Wastewater Agencies: Cities of Cotati, Rohnert Park, Santa Rosa, Sebastopol; South Park Sanitation District	X
Groundwater Agencies: None	
Planning Agencies: County of Sonoma; Cities of Cotati, Rohnert Park, Santa Rosa, and Sebastopol	X

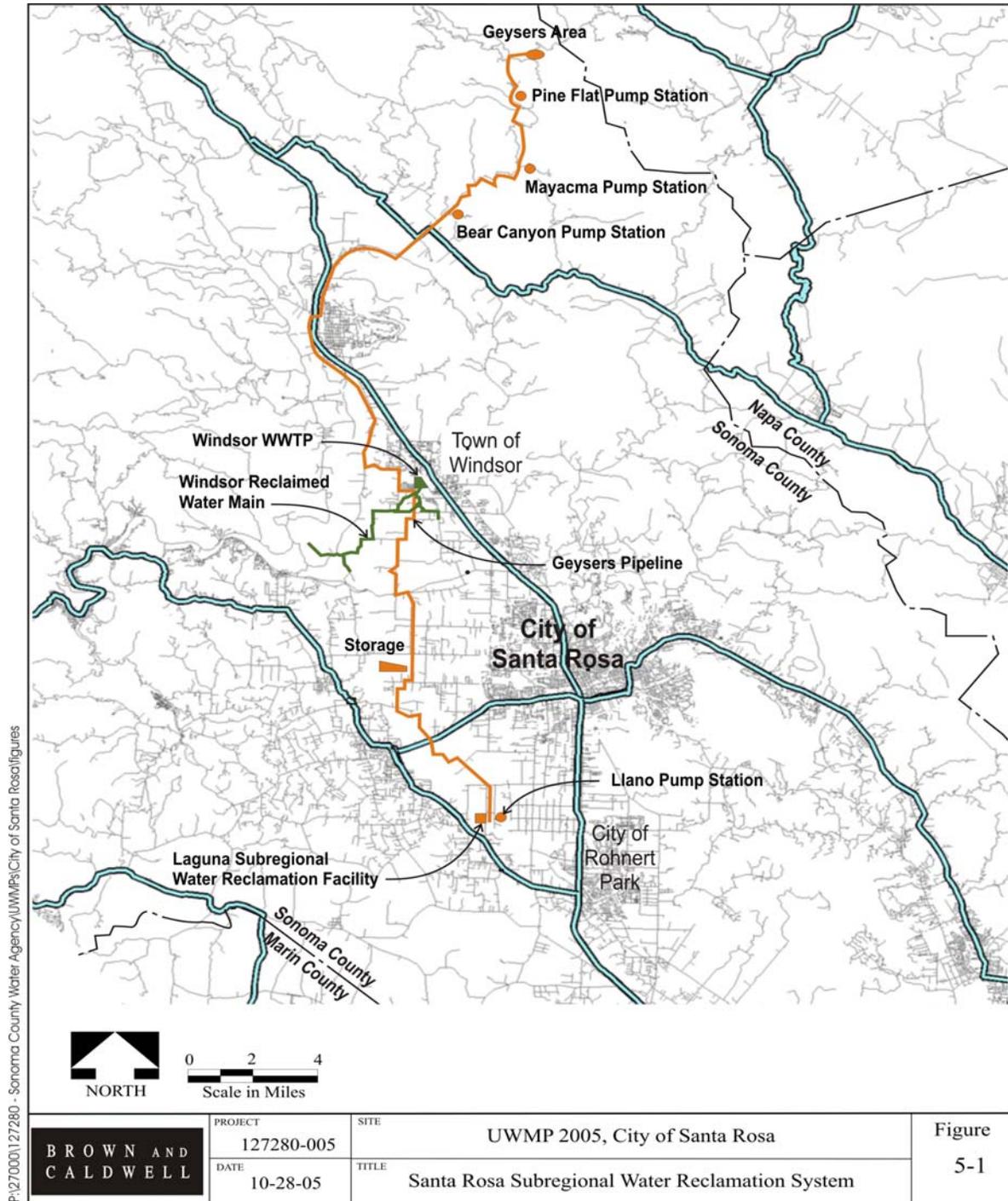
### 5.1 Wastewater System Description

The City operates the Laguna and Oakmont Wastewater Treatment Plants for the Subregional System. Figure 5-1 depicts the location of the wastewater treatment facilities and reclamation

facilities for all the partners in the Subregional System service area. The Laguna Wastewater Treatment Plant is a tertiary-level treatment facility that has an average daily dry weather flow of 16.5 million gallons per day and is permitted for 21.34 mgd average daily dry weather flow. The Plant takes wastewater from homes, businesses and industry located within the cities of Santa Rosa, Rohnert Park, Sebastopol and Cotati and the South Park Sanitation District. Over 500 miles of underground pipes bring wastewater to the treatment plant where water goes through three stages of treatment prior to disinfection, storage, and reuse. The water is treated to the highest level recognized in State water recycling regulations (Title 22). The Oakmont Treatment Plant is a satellite tertiary-level treatment facility that has an average daily flow of 0.5 million gallons and operates during summer months to provide recycled water to the Oakmont Golf Course. The current and projected volume of collected and treated wastewater and the amount that meets the recycled water standard from the Laguna Treatment Plant are shown in Table 5-2. The City contributes seventy five percent of these wastewater quantities.

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**Figure 5-1. Santa Rosa Subregional Water Reclamation System**



P:\27000\127280 - Sonoma County Water Agency\UWMP\City of Santa Rosa\figures

Source: Google Map data 2005 NAVTEC™  
 DWR Bulletin 118, 2003 Update

**Table 5-2. (DWR Table 33) Wastewater Collection and Treatment from the Subregional System– ac-ft/yr**

Type of Wastewater	2000	2005	2010	2015	2020	2025	2030
Wastewater collected and treated in service area	19,600	22,393	26,074	28,988	31,902	N/A <sup>a</sup>	N/A <sup>a</sup>
Quantity that meets recycled water standard	19,600	22,393	26,074	28,988	31,902	N/A <sup>a</sup>	N/A <sup>a</sup>

Note:

Values include flow from Santa Rosa, Sonoma State University, South Park County Sanitation District, Sebastopol, Rohnert Park, and Cotati, but does not include flow from the Oakmont Treatment Plant. Seventy-five percent of the flow comes from Santa Rosa and South Park County Sanitation District.

Source: City of Santa Rosa, IRWP Recycled Water Master Plan Table ES-2 (CH2MHILL and Winzler and Kelly, 2004)

<sup>a</sup> N/A – Not Available. The Recycled Water Master Plan only has projections through General Plan Buildout in 2020. Projections for 2025 and 2030 are not yet known.

## 5.2 Wastewater Disposal and Recycled Water Uses

The Subregional System’s primary point of discharge is via Delta Pond at the confluence of Santa Rosa Creek and the Laguna de Santa Rosa. The North Coast Regional Water Quality Control Board (NCRWQCB) regulates wastewater discharges from the Subregional System. Under the NCRWQCB guidelines, tertiary treated water can be discharged only between October 1 and May 15. Discharge cannot exceed five percent of the Russian River flow. The current and projected annual volume of discharged wastewater for the Subregional System is shown in Table 5-3.

**Table 5-3. (DWR Table 34) Discharge of Wastewater (Non-Recycled) from the Subregional System - ac-ft/yr**

Method of disposal	Treatment Level	2005	2010	2015	2020	2025	2030
Russian River	Tertiary	3,681	7,362	7,362	7,362	N/A <sup>a</sup>	N/A <sup>a</sup>
	Total	3,681	7,362	7,362	7,362	N/A <sup>a</sup>	N/A <sup>a</sup>

Note:

Source: IRWP Recycled Water Master Plan Figure ES-5 (CH2MHILL and Winzler and Kelly, 2004).

<sup>a</sup> N/A – Not Available. The IRWP Master Plan only has projections through 2020. Projections for 2025 and 2030 are not yet known.

The Subregional System is one of the largest recyclers of water in the world. The recycled water that leaves the Plant is high-quality, tertiary treated water that is safe for many reuse purposes, including irrigation of landscapes, agricultural crops, vineyards, playgrounds, golf courses, and public parks. The Subregional System’s existing urban reuse program irrigates many schools, parks and businesses in Rohnert Park, including Sonoma State University. In Santa Rosa, recycled water is used at sites including Finley Park, A Place to Play sports

complex and Oakmont Golf Course. Since the Plant opened in 1968, its volume of treated effluent water has increased from 2 mgd to an average of 22 mgd. In 2004, 6,400 acres of farmlands, vineyards, and public and private urban landscaping were irrigated with recycled water. Of that, 85% was used for agricultural purposes. The irrigation system is supported by storage reservoirs that can hold over 1.7 billion gallons of water, which allows the system to meet peak, hot summer day irrigation requirements.

Figure 5-1 depicts the location of the wastewater treatment facilities and reclamation facilities for all the partners in the Subregional System service area.

The Subregional System also supplies recycled water to the Geysers Recharge Project. Depletion of water in the Geysers steam field and the subsequent reduction in power production resulted in the development of the Geysers Recharge Project in 1998 (Geysers Project Website, 2005). Eleven mgd of tertiary-treated recycled water is injected into underground wells at depths of 4,000 to 11,000 feet, where it is heated to produce a clean, “dry” steam that is used in nearby electrical power plants.

Table 5-4 shows the current and potential recycled water uses for the Subregional System.

**Table 5-4. (DWR Table 35) Recycled Water Uses – Actual and Potential ac-ft/yr**

Type of Use	Treatment Level	2005	2010	2015	2020	2025	2030
Agriculture <sup>a</sup>	Tertiary	5,200	5,200	5,200	5,200	N/A <sup>f</sup>	N/A <sup>f</sup>
Landscape <sup>b</sup>	Tertiary	1,594	1,595	1,650	1,700	N/A <sup>f</sup>	N/A <sup>f</sup>
Wildlife Habitat		0	0	0	0	N/A <sup>f</sup>	N/A <sup>f</sup>
Created Wetlands <sup>c</sup>	Tertiary	0	Potential	Potential	Potential	N/A <sup>f</sup>	N/A <sup>f</sup>
Industrial		0	0	0	0	N/A <sup>f</sup>	N/A <sup>f</sup>
Geysers Recharge Project <sup>d</sup>	Tertiary	12,300	12,300	12,300	12,300	N/A <sup>f</sup>	N/A <sup>f</sup>
Other <sup>e</sup>	Tertiary	0	0	2,476	5,340	N/A <sup>f</sup>	N/A <sup>f</sup>
<b>Total</b>	<b>Tertiary</b>	<b>19,094</b>	<b>19,095</b>	<b>21,626</b>	<b>24,540</b>	<b>N/A<sup>f</sup></b>	<b>N/A<sup>f</sup></b>

Notes:

Source: IRWP: Recycled Water Master Plan Tables 3, 4, and 5 (CH2MHILL and Winzler and Kelly, 2004)

<sup>a</sup> Agricultural use offsets groundwater pumping. Includes areas outside of the City.

<sup>b</sup> Urban landscape use offsets potable water demand.

<sup>c</sup> Created Wetlands were identified as a potential recycled water use in the IRWP; however, a project and associated volumes have not been identified. This type of use would not offset potable water use.

<sup>d</sup> This type of use does not offset potable water use.

<sup>e</sup> The IRWP identified a range of options for additional recycled water use, including increased urban reuse, increased agriculture irrigation, and increased Geysers Recharge. This increment of water could come from any of the identified options.

<sup>f</sup> N/A – Not Available. The IRWP Master Plan only has projections through 2020. Projections for 2025 and 2030 are not yet known.

### 5.3 Projected Uses of Recycled Water

Reclamation and reuse are increasingly complex systems that must work continuously to balance the wastewater disposal needs of a growing population with new government regulations and the demands of recycled water users. As a result, in March 2004, the City approved the Incremental Recycled Water Program (IRWP) Master Plan. The IRWP investigated a number of potentially new, and the possible augmentation of existing, recycled water uses, including urban reuse, agriculture, Geysers Recharge Project, and created wetlands. The following discussion is taken from the IRWP Master Plan:

Urban Reuse: Some urban recycled water use will replace potable water currently used for urban irrigation. Staging construction of new pipelines and pump stations is necessary to provide additional urban reuse supply. Distribution of recycled water to the northwest and central areas of the City was determined to be the most cost effective. This would be followed by extension of the recycled water infrastructure into the southwest, southeast, and Bennett Valley areas within the City. Expansion of the recycled water program into the Fountaingrove and Rincon Valley areas of the City were considered to be the most expensive. Urban Reuse that offsets potable water use has the dual benefit of potable water offset and recycled water disposal and construction would initially focus on known potable water users.

Agricultural Reuse: As part of the master planning effort for the Subregional System, contacts were made with interested agriculture or viticulture groups in two key areas: the North County Agricultural Area (NCAA) and the East of Rohnert Park Agricultural Area. However, unlike urban reuse, no potable water offset is expected due to agricultural use of recycled water.

Geysers Recharge Project Expansion: Augmentation of the existing Geysers Recharge Project was discussed during the IRWP planning effort. A total of 19,800 ac-ft/yr annually could be managed by the Calpine Corporation at the Geysers recharge sites. Incremental expansion of the recycled water supplied to the Geysers Recharge Project was investigated based on existing infrastructure and the potential to augment existing pump stations.

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The volume of potential recycled water use, based on the amount potentially available, is shown in Table 5-4. However, a major factor that determines the use of recycled water and implementation of recycled water projects is the financial feasibility. Recycled water distribution systems require additional pipelines, storage tanks, and pumps. Proximity to the production of the recycled water and the distribution system is a major factor in considering use of recycled water. The actual projected future use of recycled water from the Subregional System service area for the next 25 years is shown in Table 5-5. The landscape irrigation values represent a minimum of future urban reuse. A decision on the extent of the urban reuse effort is expected in 2006/2007.

**Table 5-5. (DWR Table 36) Projected Future Use of Recycled Water in Subregional Service Area**

Type of Use	2010	2015	2020	2025	2030
Agriculture <sup>a</sup>	5,200	5,200	5,200	N/A <sup>e</sup>	N/A <sup>e</sup>
Landscape <sup>b</sup>	1,595	1,650	1,700	N/A <sup>e</sup>	N/A <sup>e</sup>
Wildlife Habitat	0	0	0	N/A <sup>e</sup>	N/A <sup>e</sup>
Created Wetlands	0	0	0	N/A <sup>e</sup>	N/A <sup>e</sup>
Industrial	0	0	0	N/A <sup>e</sup>	N/A <sup>e</sup>
Geysers Recharge Project <sup>c</sup>	12,300	12,300	12,300	N/A <sup>e</sup>	N/A <sup>e</sup>
Other <sup>d</sup>	0	2,476	5,340	N/A <sup>e</sup>	N/A <sup>e</sup>
Total	19,095	21,626	24,540	N/A <sup>e</sup>	N/A <sup>e</sup>

Note:

<sup>a</sup> Agricultural use offsets groundwater pumping.

<sup>b</sup> Urban landscape use offsets potable water demand.

<sup>c</sup> This type of use would not offset potable water use.

<sup>d</sup> The IRWP identified a range of options for additional recycled water use, including increased urban reuse, increased agriculture irrigation, and increased Geysers Recharge. This increment of water could come from any of the identified options.

<sup>e</sup> N/A – Not Available. The IRWP Master Plan only has projections through 2020. Projections for 2025 and 2030 are not yet known.

Projections for total recycled water use for landscape irrigation by the City for 2005 were made in the City's 2000 Urban Water Management Plan. Table 5-6 shows a comparison of the total projected 2005 recycled water use from the City's 2000 UWMP with the City's actual recycled water use in 2005.

**Table 5-6. (DWR Table 37) Recycled Water Uses in City Water Service Area 2000 Projection compared with 2005 Actual – ac-ft/yr**

Type of Use	2000 Projection for 2005 ac-ft/yr	2005 Actual Use, ac-ft/yr
Agriculture	0	0
Landscape	200	344
Wildlife Habitat	0	0
Wetlands	0	0
Industrial	0	0
Groundwater Recharge	0	0
Other (Geyser's Recharge)	0	0
Total	200	344

#### 5.4 Promotion of Recycled Water

The City's Board of Public Utilities and Council have approved \$30 million to assist with future reuse projects. In 2006/2007, the City will be adopting an expanded Urban Reuse program, which will include incentives for new connections and retrofit options. Possible incentives include a decreased user charge for recycled water customers, paying portions of the cost for existing potable water irrigation customers to retrofit to recycled water use, regulations for the mandatory hook up of new irrigation customers to recycled water, or a combination thereof.

In addition, the City's wholesaler, the Sonoma County Water Agency, encourages recycled water use by collecting, as part of its water rates, funds to be held in a special reserve for projects carried out by its prime water customers. A total of \$4,187,464 has been disbursed between the program's inception on July 1, 2000 and June 30, 2005. It is anticipated another \$8,812,536 will be disbursed in the next five years of program operation.

Methods to encourage recycled water use and the projected amount of recycled water uses are listed in Table 5-7.

**Table 5-7. (DWR Table 38) Methods to Encourage Recycled Water Use and Projected Results (ac-ft/yr)**

Actions	Acre-feet of Use Projected to Result from this Action				
	2010	2015	2020	2025	2030
Financial incentives: Decreased User Charge for recycled water Paying for portions of retrofit of existing customers to recycled water	798	825	850	875	900
Regulation: Mandatory hook up of new connections to recycled water	797	825	850	875	900
<b>Total</b>	<b>1,595</b>	<b>1,650</b>	<b>1,700</b>	<b>1,750</b>	<b>1,800</b>

## SECTION 6 WATER CONSERVATION

### 6.1 Introduction

Demand management is an integral part of the City of Santa Rosa’s (City) long-term water management strategy. Santa Rosa is committed to integrating water conservation into future supply and demand solutions for both the water system and the wastewater treatment/reuse system. The City has been implementing a water conservation program since the 1976-1977 drought and the program was further established in the early 90's with the hiring of the Water Conservation Coordinator position. In 1998, the City became a signatory to the California Urban Water Conservation Council’s (CUWCC) Memorandum of Understanding (MOU) Regarding Urban Water Conservation. As a signatory, the City is committed to implementing the urban water conservation Best Management Practices (BMPs) as outlined by the MOU. Table 6-1 summarizes the City’s implementation of the CUWCC BMPs.

**Table 6-1. California Urban Water Conservation Council Best Management Practices**

Best Management Practices, BMP	City of Santa Rosa	Sonoma County Water Agency <sup>a</sup>
BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers	✓	
BMP 02: Residential Plumbing Retrofit	✓	
BMP 03: System Water Audits, Leak Detection, and Repair	✓	
BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing	✓	
BMP 05: Large Landscape Conservation Programs and Incentives	✓	
BMP 06: High-Efficiency Washing Machine Rebate Programs	✓	✓
BMP 07: Public Education Programs	✓	✓
BMP 08: School Education Programs	✓	✓
BMP 09: Conservation Programs for Commercial, Industrial, and Institutional Accounts	✓	✓
BMP 10: Wholesale Agency Assistance Programs	NA	✓
BMP 11: Conservation Pricing	✓	
BMP 12: Conservation Coordinator	✓	
BMP 13: Water Waste Prohibition	✓	
BMP 14: Residential ULFT Replacement Programs	✓	

<sup>a</sup> These programs are being run in part by the Sonoma County Water Agency.

As part of the implementation of the 14 BMPs, the City offers technical support and incentives to single family residential, multi-family residential, commercial, industrial, and institutional customers, and large landscape customers. The City submits annual BMP activity reports to the CUWCC. In Appendix F, there are copies of the City’s most recent BMP activity reports (for fiscal years 2002/2003 and 2003/2004) as well as the most recent Coverage Reports for BMP implementation and water savings. The City is implementing all BMPs and the 2002/2003 and

2003/2004 BMP activity reports were deemed complete per the CUWCC. From 1994 – 2004, the City has saved a total of 18,854 acre-feet of water due to implementation of all BMPs (See Table 6-2).

## **6.2 Demand Management Measures Implementation**

This section describes the City's Current Water Conservation Program through the end of calendar year 2005, including implementation of each of the 14 urban water conservation BMPs and implementation of additional water conservation programs beyond the BMPs. Water savings calculations are taken from our most recent CUWCC Water Savings Report from 2003/2004.

The City actively implements all of the relevant BMPs as follows:

### **BMP 01 – Water Survey Programs for Single-Family and Multi-Family Residential Customers**

The City has completed the indoor portion of this measure through our “Go Low Flow” plumbing incentive programs. The “Go Low Flow” program was available to all utility customers from 1995 through 2002 and included an indoor audit and required replacement of high flow fixtures with ultra low flow toilets, low flow showerheads and faucet aerators. To achieve outdoor savings, the City complemented the “Go Low Flow Program” with education and outreach to single-family residential customers, including implementing a “Water Use Efficiency Calculator” on the web that allows customer to input landscape data to determine individual water budgets and compares this data to actual usage.

In 2004, the City developed and began implementing the residential “Conservation Check-Up” program, providing free water use surveys to all residential customers. The water use surveys are conducted by Water Conservation staff and include checking for interior and exterior property leaks, checking for ultra low flow toilets, low flow shower heads, and low flow faucets and distributing free low flow showerheads and faucet aerators as needed. The survey also provides recommendations for improving irrigation efficiency by measuring landscape areas, testing irrigation systems for efficiency, recommending irrigation system repairs and improvements, and providing customers with an irrigation schedule based on their individual landscape and evapotranspiration data. Customers are provided with a report of findings, water

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use efficiency recommendations, and water conservation brochures and educational material at the end of the audit.

The City recently determined that we were incorrectly reporting number of accounts instead of number of units for the Multi Family Residential (MFR) portion of this BMP. Since 1995, the City of Santa Rosa has completed surveys on a total of 11,037 MFR units. Based on our estimated number of MFR units in our base year (19,743), we have completed surveys on 56% of our base year MFR accounts, not 6.27% as currently calculated by the CUWCC coverage calculator. The Single Family Residential (SFR) portion of this BMP has always been reported correctly and the City has completed surveys on 49.29% of our base year SFR accounts.

**Implementation Schedule:** The City has completed implementation of the “Go Low Flow” plumbing incentive program. The City will continue to implement this BMP through marketing of the “Conservation Check-Up” program to all residential customers.

**Program Effectiveness Evaluation:** The “Go Low Flow” program was very effective for single family and multi family residential customers and resulted in significant sustainable savings. The “Conservation Check-Up” program has been well received by participants in both customer classes.

**Water Savings:** From 1994 – 2004, the City has achieved 1,846 acre-feet in water savings from 1994 through 2004 from implementation of this BMP.

### **BMP 02 – Residential Plumbing Retrofit**

The City has completed this BMP through participation in the City’s “Go Low Flow” plumbing incentive program, which required replacement of high flow fixtures with low flow showerheads and faucet aerators. Based on the high level of participation in the “Go Low Flow” program, the City worked with the CUWCC to determine the statistical sample size needed to determine compliance with this BMP. The City performed a random inspection survey and has shown statistically that the City has completed this BMP. The survey found that 87% of all single-family residential customers and at least 76% of multi-family residential customers have received, installed, and retained low-flow showerheads and faucet aerators.

**Implementation Schedule:** The City has completed the requirements of this BMP, but will continue to offer low-flow showerheads and aerators to all City customers.

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**Program Effectiveness Evaluation:** Based on survey results, this program was extremely effective with participation above and beyond the BMP requirement of 75% of single-family and multi-family residential customers having received and installed low flow showerheads and faucet aerators.

**Water Savings:** From 1994 – 2004, the City has achieved 597 acre-feet in water savings from implementation of this BMP

### **BMP 03 – System Water Audits, Leak Detection, and Repair**

The City's field staff uses traditional sounding equipment to complete a full survey of our distribution system annually. Any leaks that are detected are repaired immediately. The City's billing department notifies customers of potential property leaks by analyzing water use records for dramatic increases in water use and contacting customers individually. Field crews respond to water waste complaints and support customers in identifying leaks. In addition, as a preventative measure, the City implements a plastic service replacement program because it has been shown that plastic services can leak at a very high rate.

**Implementation Schedule:** The City is compliant with this BMP and will continue to implement it.

**Program Effectiveness Evaluation:** The City's robust program has led to unaccounted for water being less than 6% over the past nine years. This is well below the ten percent limit set by BMP 03.

**Water Savings:** The CUWCC limit set for unaccounted for water is 10%. The City's effective leak detection program has led to unaccounted for water being less than 6% for the past nine years.

### **BMP 04 – Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections**

The City has completed this BMP. All connections are metered, and a comprehensive meter maintenance and replacement program is in place to assure proper meter registering. In 2000, the City began implementing our "Service Split Incentive" program, which is an incentive program for multi-family residential and commercial/industrial/institutional customer sites with

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mixed-use meters. The program provided cash incentives to retrofit mixed-use meters with a dedicated irrigation meter and an indoor meter. In addition, the City requires all new multi-family residential and commercial/industrial/institutional customers to install separate meters for irrigation. For information on conservation pricing, please see BMP 11.

**Implementation Schedule:** The City is compliant with this BMP and will continue to implement it and to offer the mixed-use meter incentive program.

**Program Effectiveness Evaluation:** It is estimated that metered accounts use 15 percent less water than unmetered accounts. It can be concluded that without metering, the City would need to provide 15 percent more water than what is currently provided to supply all connections.

**Water Savings:** The City has always metered all connections and therefore the City's CUWCC Water Savings report does not calculate any water savings for this measure. Please see program effectiveness evaluation above.

### **BMP 05 – Large Landscape Conservation Programs and Incentives**

The City has completed implementation of this BMP. When new commercial water accounts are opened, the City sends a packet of information announcing all of landscape water conservation programs and services and our contact information. The City has determined water budgets for 93% of all dedicated irrigation accounts. All dedicated irrigation accounts with water budgets receive a monthly comparison of actual consumption to their water budgets on their monthly water bill. In 2001, the City, in partnership with Space Imaging consultants, received a grant to determine the feasibility of developing water budgets through landscape mapping. The City has completed implementation of the grant and is continuing to analyze the feasibility of developing water budgets through landscape mapping.

The City has developed and is implementing Large Landscape Water Use Surveys for all large landscape customers. The City publishes information about the landscape surveys on our website, in brochures and in letters to new commercial accounts. In addition, the City informs customers about these services at meetings, during our landscape workshops, and during phone conversations with customers. Water Conservation staff performs these free surveys, which include measuring landscape areas by plant type, checking irrigation systems for leaks, testing irrigation systems for efficiency, performing catch can tests on sprinkler systems,

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recommending irrigation system repairs and improvements, and providing customers with a water budget and an irrigation schedule based on their individual landscape and evapotranspiration data. The City implements our Irrigation Efficiency Rebate program, making a cash rebate available for all dedicated irrigation accounts that water less than a calculated "irrigation goal." In addition, the City has also analyzed additional water use reduction through a commercial ET timer feasibility study.

The City encourages the retrofitting of mixed-use meter accounts to dedicated irrigation accounts through our Service Split Incentive program that offers rebates to offset the cost of retrofitting mixed-use meters.

**Implementation Schedule:** The City is compliant with this BMP and will continue to implement it. The City will continue to determine water budgets until 100% of our dedicated irrigation accounts have water budgets. In addition, the City will continue to offer large landscape surveys, the Irrigation Efficiency Rebate Program, Service Split Incentive Program, and will continue to analyze the feasibility of developing water budgets through landscape mapping and achieving additional water use reduction through ET timers.

**Program Effectiveness Evaluation:** Ninety three percent of all dedicated irrigation accounts are receiving monthly water budget information on their water bill.

**Water Savings:** From 1994 – 2004, the City has achieved 3,839 acre-feet in water savings from implementation of this BMP.

#### **BMP 06 – High-Efficiency Washing Machine Rebate Programs**

The City has completed this BMP by participating in a regional washing machine rebate program for single-family residential customers that is administered by our water wholesaler, the Sonoma County Water Agency (Agency). The rebate program provides \$100 – 150, depending on the efficiency of the washing machine, to residential customers who buy high-efficiency clothes washers.

**Implementation Schedule:** The City is compliant with the BMP and will continue to implement it through the Agency's regional program.

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**Program Effectiveness Evaluation:** The City has participated in the regional washing machine rebate program since 1998. Through 2005, the City has rebated over 5,000 residential high-efficiency clothes washing machines.

**Water Savings:** From 1994 – 2004, the City has achieved 147 acre-feet in water savings from implementation of this BMP.

### **BMP 07 – Public Information Programs**

The City is compliant with this BMP by maintaining four distribution centers in City facilities, providing water conservation bill inserts in both English and Spanish, sending a Water Conservation Welcome Packet to all new accounts informing them of the City's water conservation programs, having a Water Conservation informational booth at Downtown Market every summer, staffing booths at numerous public events, providing information in English and Spanish through our Water Conservation Website, providing speakers to organizations, supporting the statewide Water Awareness Month campaign each May with a variety of activities, and producing our annual Water Fair, providing education and information about using water wisely.

**Implementation Schedule:** The City is compliant with this BMP and will continue to implement it.

**Program Effectiveness Evaluation:** The City receives feedback from customers, conducts market surveys to assess customers' knowledge of current programs, tracks hits on our website, and receives requests for presentations, information and materials from our customers.

**Water Savings:** Water savings have not been estimated for this measure. Please see program effectiveness evaluation above.

### **BMP 08 – School Education Programs**

The City's water wholesaler, the Sonoma County Water Agency (Agency), implements a regional water education program on behalf of all of its retail water agencies. The Agency's Water Education Program is designed to help educators teach students the "value" of water as an important natural resource and to promote water conservation and watershed stewardship. The program includes classroom instructional presentations; field study opportunities; teacher

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trainings and workshops; free curriculum materials aligned with the California State Frameworks; a lending library of videos, interactive models, and printed materials; production of a newsletter for teachers; and endorsement, participation, and financial sponsorship of events, assemblies, and workshops. All programs and materials are free to teachers in the service area.

Water Education Program packets with order forms are distributed in September to all schools in the service area for teachers to request education materials.

In addition, the City offers tours of the Laguna Wastewater Treatment Plant, incorporating information on water conservation and recycled water use, provides classroom presentations of our Water System Model, and holds an annual water conservation poster contest for 3<sup>rd</sup> and 4<sup>th</sup> grade students.

**Implementation Schedule:** The Agency will continue to implement this BMP on behalf of the City. The City will continue to offer treatment plant tours, classroom presentations, and the annual water conservation poster contest.

**Program Effectiveness Evaluation:** Through implementation of the School Education program, the following students were reached in 2003 and 2004 (data for 2000 – 2002 not available):

<b>Number of Students Reached by School Education Program in 2003 and 2004</b>				
	<b><i>Grades K – 3</i></b>	<b><i>Grades 4 – 6</i></b>	<b><i>Grades 7 – 8</i></b>	<b><i>High School</i></b>
2003	2,047	2,225	810	305
2004	2,337	2,275	195	593
<b>Total Number of Students</b>	4,384	4,500	1,005	898

**Water Savings:** Water savings have not been estimated for this measure. Please see program effectiveness evaluation above.

### **BMP 09 – Conservation Programs for Commercial, Industrial, and Institutional Accounts**

The City has completed the Ultra Low Flush Toilet (ULFT) toilet replacement track of this BMP by replacing 4,356 toilets and associated showerheads and aerators at 1,041 Commercial, Industrial and Institutional (CII) customer sites through the City's "Go Low-Flow" Plumbing

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Incentive program. The City continues to offer a direct install version of the “Go Low-Flow” program for CII customers where the City pays for a plumber to go to the customer site and replace all inefficient toilets, showerheads and aerators with low flow models. The City offers site surveys for CII customers, which include a review of all water uses, including plumbing, process and cooling water, and makes recommendations for efficiency improvements.

To comply with the target water use reduction track of this BMP, the City continues to implement our Sustained Reduction Rebate and Best Available Technologies programs.

The City’s Sustained Reduction Rebate program began in 1996 and offers CII customers a rebate of \$100 for every 1,000 gallons per month of sustained water reduction due to process or hardware changes. For new restaurant, commercial kitchen and laundromat customers, the City offers a Best Available Technologies program which allows customers who install all of the most efficient water technologies available to pay a reduced demand fee.

Since 2000, the City has offered an on-going rebate program for the replacement of commercial washing machines with high efficiency horizontal axis commercial washing machines.

Depending on the efficiency of the horizontal axis washing machine, the rebate ranges from \$300 - \$450 per machine. Through June 2005, the City has rebated 363 commercial washing machines.

The City has also participated in the Rinse & Save pre-rinse spray nozzle replacement program. A regional program funded by the California Public Utilities Commission and administered by the CUWCC, this program replaces high water use pre-rinse spray nozzles with 1.6 gallons per minute high efficiency pre-rinse spray nozzles at restaurants and commercial kitchens. Through 2005, the City has replaced 352 nozzles through this program.

**Implementation Schedule:** The City will continue to implement both tracks of this BMP. The City will continue to offer the ULFT replacement program, CII surveys, Sustained Reduction Rebate program, Best Available Technologies program, Pre-Rinse Spray Nozzle program, and commercial washing machine rebates.

**Program Effectiveness Evaluation:** The “Go Low-Flow” program has been very effective for CII customers. The ULFT replacement track of this BMP is complete and target water use reduction is on track for completion by 2008.

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**Water Savings:** From 1994 – 2004, the City has achieved 3,575 acre-feet of water savings from the implementation of both tracks of this BMP.

### **BMP 10 – Wholesale Agency Programs**

The City is not a wholesale potable water provider and does not plan to be a potable water wholesaler in the future. This BMP is not applicable to Santa Rosa.

### **BMP 11 – Conservation Pricing**

The City's current rate structure has several effective conservation components: approximately 85% of the total revenue from water and sewer rates is generated from the commodity charges, while approximately 15% is generated from fixed charges; water rates cover the cost of water service; sewer charges are based on metered water use, and the City's rate is uniform for both water and sewer.

In 2007, the City will implement an increasing block tiered rate structure for single-family residential and dedicated irrigation customers.

**Implementation Schedule:** The City is in compliance with this BMP and will continue to implement this BMP. In 2007, the City will implement an increasing block tiered water rate structure.

**Program Effectiveness Evaluation:** The City has a low fixed charge and high commodity rate for both water and sewer rates. A recent review of water use found that the City has the lowest water use in the single-family sector in the region. This is attributed to our conservation programs and conservation pricing.

**Water Savings:** Water savings have not been estimated for this measure. Please see program effectiveness evaluation above.

### **BMP 12 – Water Conservation Coordinator**

The City currently has 4 full time staff implementing water conservation programs. Since January 1991, the City has had a full time Water Conservation Program Coordinator. In June 1994, a full time Water Conservation Technician was added to the conservation staff. The Technician performs residential audits, implements the public information program, water waste

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ordinance program, and staffs the water conservation hotline. In January 1994, a Water Conservation Representative was hired to implement indoor conservation programs for all residential and commercial customers. In 1998, an additional Water Conservation Representative was hired to implement outdoor water conservation programs for all residential, commercial and large landscape customers.

**Implementation Schedule:** The City is in compliance with this BMP and will continue to implement this BMP.

**Program Effectiveness Evaluation:** There is no formal method used by the City to evaluate this measure. However, the success of the other BMPs directly relates to the effectiveness of the Water Conservation Program Coordinator and Water Conservation Staff.

**Water Savings:** Water savings have not been estimated for this measure. Please see program effectiveness evaluation above.

### **BMP 13 – Water Waste Prohibition**

In May 1999, the City adopted Water Waste Ordinance No. 3426 which prohibits waste of water, non re-circulating ornamental fountains, and inefficient fixtures. The ordinance gives the City the authority to discontinue service if water waste is not corrected. The ordinance prohibits any water waste due to plumbing leaks, unattended open hoses, broken sprinkler heads or irrigation lines, excessive irrigation running off property, and excessive irrigation spraying off property. Any reported water waste incident receives immediate response from field staff. If water waste is identified, a door tag is left at the property to notify the customer of the violation and follow-up technical assistance is provided.

In January 2001, information about efficient water softeners was distributed to the public.

**Implementation Schedule:** The City is in compliance with the BMP and will continue to implement this BMP.

**Program Effectiveness Evaluation:** All water waste complaints are tracked in the City's database.

**Water Savings:** Water savings have not been estimated for this measure. Please see program effectiveness evaluation above.

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## **BMP 14 – Residential Ultra-Low Flush Toilet Replacement Programs**

The City has completed implementation of this BMP. The “Go Low-Flow” Plumbing Incentive Program was launched in May 1995 and closed in December 2002. A total of 41,981 residential toilets were replaced in this campaign – 29,941 toilets were replaced at 17,575 single-family residential accounts and 12,490 toilets were replaced at 2,723 multi-family residential accounts. Of the total estimated number of eligible 3.5 – 7 gallon per flush toilets in residential accounts, the City replaced 47% of single-family residential toilets and 60% of multi-family residential toilets with ULFT’s through this program.

**Implementation Schedule:** The City has completed the requirements of this BMP. The City may develop an incentive program for replacement of high flow toilets with high efficiency toilets if cost effective.

**Program Effectiveness Evaluation:** This program was extremely effective with high levels of participation among single-family and multi-family residential customers.

**Water Savings:** From 1994 – 2004, the City has achieved 8,847 AF in water savings from implementation of this BMP.

Table 6-2: CUWCC Water Savings Report below provides a summary of the gross water savings from Santa Rosa’s BMP implementation as calculated by the CUWCC Water Savings Reports.

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**Table 6-2. CUWCC Water Savings Report Gross Water Savings 1994-2004**  
**All Water Savings in Acre-Feet**

	BMP 1	BMP 2	BMP 4	BMP 5	BMP 6	BMP 9	BMP 9a	BMP 14	Total
<b>1994</b>	15	0	0	0	0	37	0	44	96
<b>1995</b>	49	0	0	0	0	9	0	149	207
<b>1996</b>	83	0	0	0	0	41	0	295	419
<b>1997</b>	150	0	0	0	0	166	0	577	893
<b>1998</b>	192	0	0	0	0	121	0	745	1,058
<b>1999</b>	195	28	0	22	10	302	0	842	1,399
<b>2000</b>	183	42	0	41	17	670	0	885	1,838
<b>2001</b>	268	91	0	912	19	538	0	1,217	3,045
<b>2002</b>	258	139	0	908	20	523	0	1,291	3,139
<b>2003</b>	241	145	0	979	33	502	0	1,401	3,301
<b>2004</b>	212	152	0	977	48	666	0	1,401	3,456
<b>Total</b>	1,846	597	0	3,839	147	3,575	0	8,847	18,851

### 6.3 Demand Management Measures Not Implemented

The City is implementing all applicable Best Management Practices of the California Urban Water Conservation Council's Memorandum of Understanding regarding Urban Water Conservation.

**SECTION 7**  
**WATER SUPPLY VERSUS DEMAND COMPARISON**

This section provides a comparison of the projected water supply and demand for the City from 2005 through 2030. Water supply to demand comparisons are also provided for single-dry year and multiple-dry year scenarios. The water demands are developed in Section 3, water supplies are defined in Section 4, and recycled water supplies are presented in Section 5 of this report. Decreased water use resulting from water conservation is accounted for in the Section 3 water demands.

**7.1 Normal Water Supply vs. Demand Comparison**

The analysis compares the projected normal water supply available to the City and required customer demands from 2010 to 2030, in five-year increments. The projected available normal climate year water supply and demands are presented in Tables 7-1 and 7-2, respectively.

**Table 7-1. (DWR Table 40) Projected Normal Water Supply – ac-ft/yr**

(from DWR Table 4)	2010	2015	2020	2025	2030
Supply	28,528	30,669	32,692	34,733	36,186
Percent of year 2005	109%	117%	125%	132%	138%

**Table 7-2. (DWR Table 41) Projected Normal Water Demand – ac-ft/yr**

(from DWR Table 15)	2010	2015	2020	2025	2030
Demand	28,528	30,669	32,692	34,733	36,186
Percent of year 2005	109%	117%	125%	132%	138%

Note:  
 Demands assume compliance with local plumbing codes

The comparison of projected water supply and demand is presented in Table 7-3.

**Table 7-3 (DWR Table 42) Projected Supply and Demand Comparison – ac-ft/yr**

	2010	2015	2020	2025	2030
Supply totals	28,528	30,669	32,692	34,733	36,186
Demand totals	28,528	30,669	32,692	34,733	36,186
Difference	0	0	0	0	0
Difference as Percent of Supply	0	0	0	0	0
Difference as Percent of Demand	0	0	0	0	0

## 7.2 Dry Year Water Supply vs. Demand Comparison

It is not likely that a drought would reduce the volume of surface water available to the Agency, for reasons set forth in Table 5-2 and 5-3 of the Agency's UWMP 2000. There is significant water in storage upon which the Agency is entitled to withdraw. Tables 7-4 through 7-6 provide a comparison of a single dry year water supply with projected total water use over the next 25 years, in five-year increments. Dry year water supply is based on Agency modeling from the Agency's 2000 Urban Water Management Plan because the 2005 Agency Urban Water Management Plan is not yet completed.

**Table 7-4. (DWR Table 43) Projected Single-Dry Year Water Supply – ac-ft/yr**

	2010	2015	2020	2025	2030
Supply	28,528	30,669	32,692	N/A <sup>a</sup>	N/A <sup>a</sup>
Percent of projected normal	100%	100%	100%	N/A <sup>a</sup>	N/A <sup>a</sup>

<sup>a</sup> N/A – Not Available. The Agency's 2000 Urban Water Management Plan only provides projections through 2020.

**Table 7-5. (DWR Table 44) Projected Single-Dry Year Water Demand – ac-ft/yr**

	2010	2015	2020	2025	2030
Demand	28,528	30,669	32,692	34,733	36,186
Percent of projected normal	100%	100%	100%	100%	100%

**Table 7-6. (DWR Table 45) Projected Single-Dry Year Supply and Demand Comparison – ac-ft/yr**

	2010	2015	2020	2025	2030
Supply totals	28,528	30,669	32,692	N/A <sup>a</sup>	N/A <sup>a</sup>
Demand totals	28,528	30,669	32,692	34,733	36,186
Difference	0	0	0	N/A <sup>a</sup>	N/A <sup>a</sup>
Difference as Percent of Supply	0 %	0%	0%	N/A <sup>a</sup>	N/A <sup>a</sup>
Difference as Percent of Demand	0 %	0%	0%	N/A <sup>a</sup>	N/A <sup>a</sup>

<sup>a</sup> N/A – Not Available. The Agency's 2000 Urban Water Management Plan only provides projections through 2020.

Tables 7-7 through 7-18 compare the total water supply available in multiple dry water years with projected total water use over the next 20 years, in one-year increments. The Agency supply data is based on the Agency's 2000 Urban Water Management Plan because the Agency's 2005 Urban Water Management Plan is not available. Groundwater supply reliability is based on discussion in Section 4.2.5 of this report. Recycled water is assumed to be available even during multiple dry years. Individual year data is derived from the trend line of the known 5-year increments.

**Table 7-7. (DWR Table 46) Projected Supply during Multiple-Dry Year Period Ending in 2010 – ac-ft/yr**

	2006	2007	2008	2009	2010
Supply	26,694	27,152	27,611	28,069	28,528
Percent of projected normal	100%	100%	100%	100%	100%

**Table 7-8. (DWR Table 47) Projected Demand Multiple-Dry Year Period Ending in 2010 - ac-ft/yr**

	2006	2007	2008	2009	2010
Demand	26,694	27,152	27,611	28,069	28,528
Percent of projected normal	100%	100%	100%	100%	100%

**Table 7-9. (DWR Table 48) Projected Supply and Demand Comparison during Multiple-Dry Year Period Ending in 2010 – ac-ft/yr**

	2006	2007	2008	2009	2010
Supply totals	26,694	27,152	27,611	28,069	28,528
Demand totals	26,694	27,152	27,611	28,069	28,528
Difference	0	0	0	0	0
Difference as Percent of Supply	0%	0%	0%	0%	0%
Difference as Percent of Demand	0%	0%	0%	0%	0%

**Table 7-10. (DWR Table 49) Projected Supply during Multiple-Dry Year ending in 2015 – ac-ft/yr**

	2011	2012	2013	2014	2015
Supply	28,956	29,384	29,813	30,240	30,669
Percent of projected normal	100%	100%	100%	100%	100%

**Table 7-11. (DWR Table 50) Projected Demand Multiple-Dry Year Period Ending in 2015 - ac-ft/yr**

	2011	2012	2013	2014	2015
Demand	28,956	29,384	29,813	30,240	30,669
Percent of projected normal	100%	100%	100%	100%	100%

**Table 7-12. (DWR Table 51) Projected Supply and Demand Comparison during Multiple-Dry Year Period Ending in 2015- ac-ft/yr**

	2011	2012	2013	2014	2015
Supply totals	28,956	29,384	29,813	30,240	30,669
Demand totals	28,956	29,384	29,813	30,240	30,669
Difference	0	0	0	0	0
Difference as Percent of Supply	0%	0%	0%	0%	0%
Difference as Percent of Demand	0%	0%	0%	0%	0%

**Table 7-13. (DWR Table 52) Projected Supply during Multiple-Dry Year Period Ending in 2020 – ac-ft/yr**

	2016	2017	2018	2019	2020
Supply	31,073	31,478	31,882	32,287	32,692
Percent of projected normal	100%	100%	100%	100%	100%

**Table 7-14. (DWR Table 53) Projected Demand Multiple-Dry Year Period Ending in 2020 – ac-ft/yr**

	2016	2017	2018	2019	2020
Demand	31,073	31,478	31,882	32,287	32,692
Percent of projected normal	100%	100%	100%	100%	100%

**Table 7-15. (DWR Table 54) Projected Supply and Demand Comparison during Multiple-Dry Year Period Ending in 2020 – ac-ft/yr**

	2016	2017	2018	2019	2020
Supply totals	31,073	31,478	31,882	32,287	32,692
Demand totals	31,073	31,478	31,882	32,287	32,692
Difference	0	0	0	0	0
Difference as Percent of Supply	0%	0%	0%	0%	0%
Difference as Percent of Demand	0%	0%	0%	0%	0%

**Table 7-16. (DWR Table 55) Projected Supply during Multiple-Dry Year Period Ending in 2025 – ac-ft/yr**

	2021	2022	2023	2024	2025
Supply	N/A <sup>a</sup>				
Percent of projected normal	N/A <sup>a</sup>				

<sup>a</sup> N/A – Not Available. The Agency's 2000 Urban Water Management Plan only provides projections through 2020.

**Table 7-17. (DWR Table 56) Projected Multiple-Dry Year Period Ending in 2025 - ac-ft/yr**

	2021	2022	2023	2024	2025
Demand	33,100	33,508	33,916	34,324	34,733
Percent of projected normal	100%	100%	100%	100%	100%

**Table 7-18. (DWR Table 57) Projected Supply and Demand Comparison during Multiple-Dry Year Period Ending in 2025 – ac-ft/yr**

	2021	2022	2023	2024	2025
Supply totals	N/A <sup>a</sup>				
Demand totals	33,100	33,508	33,916	34,324	34,733
Difference	N/A <sup>a</sup>				
Difference as Percent of Supply	N/A <sup>a</sup>				
Difference as Percent of Demand	N/A <sup>a</sup>				

<sup>a</sup> N/A – Not Available. The Agency's 2000 Urban Water Management Plan only provides projections through 2020.

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**APPENDIX A**

**Urban Water Management Plan Public Hearing and Resolution**

RESOLUTION NO. 26613

RESOLUTION OF THE COUNCIL OF THE CITY OF SANTA ROSA ADOPTING THE "CITY OF SANTA ROSA 2005 URBAN WATER MANAGEMENT PLAN"

WHEREAS, the State of California Urban Water Management Planning Act requires all urban water purveyors serving over 3,000 connections or over 3,000 acre-feet of water annually to prepare an Urban Water Management Plan every five years; and

WHEREAS, the City of Santa Rosa is an urban supplier of water to approximately 49,000 connections supplying approximately 24,400 acre-feet of potable water annually; and

WHEREAS, the purpose of the Urban Water Management Planning Act is to assure sound planning for and efficient management of water resources in the urban sector; and

WHEREAS, the City's last plan was prepared in 2000; and

WHEREAS, the Urban Water Management Planning Act also requires all urban water purveyors serving over 3,000 connections or over 3,000 acre-feet of water annually to develop an Urban Water Shortage Contingency Plan; and

WHEREAS, the City of Santa Rosa has the authority and responsibility to adopt water demand reduction measures within its district's boundaries; and

WHEREAS, the City of Santa Rosa adopted its first Urban Water Shortage Contingency Plan in 1992; and

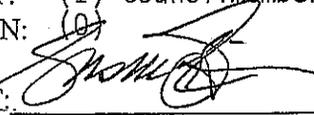
WHEREAS, the City has prepared the "City of Santa Rosa 2005 Urban Water Management Plan" and the "City of Santa Rosa Urban Water Shortage Contingency Plan 2006" per the requirements of the Urban Water Management Planning Act; and

WHEREAS, at its meeting on June 15, 2006, the Board of Public Utilities recommended that the Council adopt the "City of Santa Rosa 2005 Urban Water Management Plan" and the "City of Santa Rosa Urban Water Shortage Contingency Plan 2006."

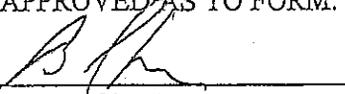
NOW, THEREFORE, BE IT RESOLVED that the Council of the City of Santa Rosa adopt the "City of Santa Rosa 2005 Urban Water Management Plan and the City of Santa Rosa Urban Water Shortage Contingency Plan 2006."

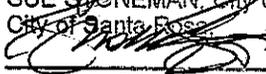
IN COUNCIL DULY PASSED this 27th day of June, 2006.

AYES: (6) Mayor Bender; Councilmembers Blanchard, Condron, Martini, Pierce, Rabinowitsh  
NOES: (0)  
ABSENT: (1) Councilmember Sawyer  
ABSTAIN: (0)

ATTEST:   
City Clerk

APPROVED:   
Mayor

APPROVED AS TO FORM:   
City Attorney

I hereby certify that the foregoing is a true and correct copy of an resolution duly and regularly adopted by the Council of the City of Santa Rosa at a regular meeting thereof held June 27, 2006  
SUE STONEMAN, City Clerk  
City of Santa Rosa  
 Dated 6/28/06  
City Clerk / Deputy City Clerk

PROOF OF PUBLICATION

(2015.5 C.C.P.)

STATE OF CALIFORNIA

County of Sonoma

I am a citizen of the United States and a resident of the county aforesaid: I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of The Press Democrat, a newspaper of general circulation, printed and published DAILY IN THE City of Santa Rosa, County of Sonoma; and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sonoma, State of California, under the date of November 29, 1951, Case number 34831, that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates to wit:

June 9

all in the year 2006

I certify (or declare) under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct.

Dated at Santa Rosa, California, this

9th day of June

2006

*Carol Loveland*

SIGNATURE

This space for County Clerk's Filing Stamp

RECEIVED

JUN 12 2006

CITY OF SANTA ROSA  
CITY CLERK

Proof of Publication of

**CITY OF SANTA ROSA  
NOTICE OF PUBLIC HEARING**

**ADOPTION OF THE CITY OF SANTA ROSA'S 2005 URBAN WATER MANAGEMENT PLAN**

Notice is hereby given that a public hearing will be conducted by the City Council on Tuesday, June 27, 2006, at or after 5:00 p.m., in the City Council Chamber, City Hall, 100 Santa Rosa Avenue, Santa Rosa. The purpose of the public hearing will be to receive public comment and recommendations prior to the City Council adopting the City of Santa Rosa's "2005 Urban Water Management Plan" (which includes the "2006 Urban Water Shortage Contingency Plan" as an Appendix.)

The "2005 Urban Water Management Plan" will also be reviewed by the Board of Public Utilities on Thursday, June 15, 2006 at or after 1:30 p.m. in the Mayor's Conference Room, City Hall, 100 Santa Rosa Avenue, Santa Rosa.

Copies of the "2005 Urban Water Management Plan" are available for public inspection at:  
City Hall, City Manager's Office, 100 Santa Rosa Avenue, Santa Rosa; Utilities Department, City of Santa Rosa, 69 Stony Circle, Santa Rosa; and Santa Rosa Central Library, 211 E Street, Santa Rosa during regular business hours. The document is also available for review at the City of Santa Rosa's website.

If you cannot attend, you are encouraged to submit written comments and recommendations prior to the public hearing. Comments and questions may be directed to Jennifer Burke, Senior Water Resources Planner, Utilities Department, City of Santa Rosa, P.O. Box 1678, Santa Rosa, CA 95402, telephone 707-543-3938.

SUE STONEMAN, City Clerk, City of Santa Rosa

For accessible meeting information  
please call (707) 543-3016  
TDD (707) 543-3031 

1692392 - Pub. Jun. 9, 2006 11.

June 27, 2006

**SANTA ROSA CITY COUNCIL AGENDA AND SUMMARY REPORT  
REGULAR MEETING  
CITY HALL, 100 SANTA ROSA AVENUE  
JUNE 27, 2006**

**3:30 P.M. (MAYOR'S CONFERENCE ROOM – ROOM 10)**

**1. CALL TO ORDER AND ROLL CALL**

**2. STUDY SESSION – NONE**

**3. ANNOUNCEMENT OF CLOSED SESSION ITEM(S) AND ADJOURNMENT TO CLOSED SESSION(S) (MAYOR'S CONFERENCE ROOM – ROOM 10)**

**3.1 CONFERENCE WITH LABOR NEGOTIATORS**

Agency Designated Representatives: Fran Elm, Employee Relations Manager; Karen Walker, Director, Human Resources and Jeff Kolin, City Manager.

Employee Organizations: Police Management Association (representing City employee Unit 9 – Police Sergeants); Service Employees International Union Local 707 (representing City employee Unit 8 – Transit); Operating Engineers, Local 3 (representing City employee Unit 3 – Maintenance); Santa Rosa Firefighters Local 1401 (representing City employee Unit 2 – Firefighting).

**3.2 CONFERENCE WITH LEGAL COUNSEL - ANTICIPATED LITIGATION**

Significant exposure to litigation pursuant to subdivisions (b)(1) and (3)(C) of Government Code section 54956.9. One potential case.

**3.3 CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION**

Significant exposure to litigation pursuant to subdivisions (b)(1) and (3)(B) of Government Code section 54956.9. One potential case.

**3.4 ADJOURN CLOSED SESSION(S) AND RECONVENE TO OPEN SESSION IN CITY COUNCIL CHAMBERS**

**4:00 P.M. (CITY COUNCIL CHAMBERS)**

**4. ANNOUNCEMENT OF ROLL CALL**

**5. REPORT, IF ANY, ON STUDY SESSION(S) AND CLOSED SESSION(S)**

**6. PROCLAMATIONS/PRESENTATIONS**

**\*6.1 PROCLAMATION – KEN DAVENPORT – APPRECIATION FOR VOLUNTEER SERVICE**

**6.2 PRESENTATION – RECOGNIZING ALEXANDER’S VAN AND STORAGE FOR CONTRIBUTIONS TO PEANUTS ON PARADE**

**6.3 PROCLAMATION – SPRING CLEAN 2006**

PUBLIC COMMENT ON AGENDA ITEMS: Comments from the public will be allowed on all agenda items, except for public hearing items, at the time each item is called. Comment on public hearing items may be made when the hearing is opened.

PUBLIC COMMENTS ON NON-AGENDA ITEMS: Comments from the public on non-agenda items will be heard under Agenda Item 12.

**7. STAFF BRIEFINGS – NONE**

This time is reserved for City staff to brief the Council on departmental issues of interest. No action will be taken on these matters except to possibly place a particular item on a future agenda for Council consideration.

**8. APPROVAL OF MINUTES – MAY 6, 2006 REGULAR MEETING**

**9. STATEMENTS OF ABSTENTION BY COUNCILMEMBERS**

**10. CONSENT ITEMS**

**10.1 MOTION – OFFICE SPACE LEASE EXTENSIONS**

This motion, recommended by the Administrative Services Department, authorizes the extension of two leases for 2700 square feet of office space at 141 Stony Circle for a two-year period with three one-year extension options with Madalyn, LLC, Sausalito, California, in the estimated total amount of \$392,000 for the first two-year period; and authorizes the City Manager to execute the leases for the first two-year period.

**10.2 MOTION – CONTRACT EXTENSION – GRAFFITI ERADICATION SERVICES**

This motion, recommended by the Administrative Services Department, extends Contract No. 04-6761 for graffiti eradication services with M. Sjoen Painting, Santa Rosa, for an additional one-year term with no increase in contract unit prices. The total amount for the one-year extension is \$180,000, plus a \$30,000 contract contingency to cover possible administrative change orders.

**10.3 RESOLUTION – REQUEST BY THE SANTA ROSA CITY SCHOOL DISTRICT TO AMEND THE FIR RIDGE HOLDING AGREEMENT**

This resolution, recommended by the Department of Economic Development and Housing, approves and authorizes execution of a Sixth Amendment to the Holding Agreement which extends the timeline for the Santa Rosa City School District to begin construction of employee housing on a six-acre Fountaingrove site from June 30, 2006 to June 30, 2007.

**10.4 ORDINANCE ADOPTION – REVISED CITY CODE CHAPTER 13-04 STREET**

## **ENCROACHMENT**

This ordinance, introduced at the Council's June 20, 2006 Regular Meeting, revises Chapter 13-04 of the City Code – Street Encroachment.

### **10.5 ORDINANCE ADOPTION - REZONING OF 2.43 ACRES FROM THE RR-20 DISTRICT TO THE R-1-6 DISTRICT AT 1130 GORDON LANE**

This ordinance, introduced at the Council's June 20, 2006 Regular Meeting, rezones 2.43 acres to the R-1-6 District at 1130 Gordon Lane.

## **11. REPORT ITEMS**

### **11.1 REPORT – ADA PARATRANSIT SERVICES**

**BACKGROUND:** This contract awards a three year contract, in the total amount of \$2,612,000, to the lowest responsive bidder, MV Transportation Inc., to provide paratransit services in compliance with the Americans with Disabilities Act (ADA) within the City of Santa Rosa. In addition, the resolution authorizes a \$285,000 increase in FY 2006-07 appropriations to fund the first year of the contract and provides for a contract contingency of \$100,000. The appropriation increase will be funded through available State TDA funds.

**RECOMMENDATION:** The Department of Transit and Parking recommends that Council, by resolution, accept the proposal of MV Transportation Inc., to provide ADA paratransit services, approve a professional services agreement, and authorize an increase in FY 2006-07 appropriations.

### **11.2 REPORT – LOS ALAMOS ROAD – FAWN DRIVE ANNEXATION BOUNDARY SETTING**

**BACKGROUND:** The Department of Community Development has received a request to annex several properties located in the vicinity of Los Alamos Road and Fawn Drive. Based upon the properties requested by the applicants and a sentiment survey of two additional properties, the Department of Community Development is recommending that the annexation boundary include eight parcels totaling 8.24 acres located on the south side of Fawn Drive (5740 and 5770 Fawn Drive) and located on the west side of Los Alamos Road (848 through 870 Los Alamos Road).

**RECOMMENDATION:** It is recommended by the Department of Community Development that the Council, by resolution, set the annexation boundaries to include eight parcels totaling 8.24 acres located at 5740 and 5770 Fawn Drive and 848-870 Los Alamos Road.

### **11.3 REPORT – REVISED CITY CODE CHAPTER 9-20 PROHIBITING SMOKING IN OR AROUND WORKPLACES AND PUBLIC PLACES**

**BACKGROUND:** The Council is being asked to consider a proposed ordinance revising Chapter 9-20 of the City Code – Prohibiting Smoking In Or Around Workplaces And Public Places, which would update the existing ordinance to make it comply with changes in state law and extend the prohibition of smoking to certain public outdoor areas, as specifically identified within the proposed ordinance. The proposed implementation date of the ordinance is September 1, 2006.

**RECOMMENDATION:** It is recommended by the Police Department, Department of Recreation and Parks, and the Department of Transit and Parking, that the Council introduced the proposed ordinance revising Chapter 9-20 of the City Code-Prohibiting Smoking In Or Around Workplaces And Public Places.

#### **11.4 REPORT – SIX MONTH UPDATE OF OPERATIONS AT SAMUEL L. JONES HALL HOMELESS SHELTER**

BACKGROUND: The Samuel L. Jones Hall Homeless Shelter is an 80-bed, year-round facility for homeless individuals in Santa Rosa. Following the first six months of operations, City staff and Catholic Charities, the Shelter operator, will present an overview of operations to the Council.

RECOMMENDATION: No Council action is requested on this item.

#### **11.5 REPORT – INTRODUCTION OF AN ORDINANCE REQUIRING THE INSPECTION AND REPAIR OF SEWER LATERALS UPON THE SALE OR TRANSFER OF PROPERTY**

BACKGROUND: Pursuant to the October 2005 settlement agreement between the City and Northern California River Watch, staff is required to recommend the adoption by the Council of an ordinance requiring the inspection of private laterals prior to the sale of property.

The recommended ordinance would require the inspection and repair, if necessary, of all laterals more than 10 years old upon the sale or transfer of real property. Staff will review the content of the recommended ordinance, which is attached to the staff report, and discuss various means of implementing the ordinance and the possible timing of such implementation.

RECOMMENDATION: Utilities Department staff recommends that the Council introduce an ordinance requiring inspection, testing and repair of certain private sewer laterals upon sale or transfer of property.

**5:00 P.M.**

#### **11.6 PUBLIC HEARING – 2005 URBAN WATER MANAGEMENT PLAN**

BACKGROUND: Each urban water purveyor serving more than 3,000 connections or 3,000 acre-feet annually is required by the State of California Urban Water Management Planning Act to prepare and submit an Urban Water Management Plan (Plan) every five years. As in past years, the Sonoma County Water Agency is preparing a regional Plan for all of its prime water contractors which is scheduled to be complete later this year. However, in order to apply for grant money from the State of California, the City must have its 2005 Plan adopted and submitted to the Department of Water Resources by July 1, 2006.

The 2005 Plan also includes an update to the City's Urban Water Shortage Contingency Plan, which is included in Appendix E of the Plan. The City's Urban Water Shortage Contingency Plan details how a community would react to a reduction in water supply up to 50%. Santa Rosa's current Urban Water Shortage Contingency Plan was adopted in 1992 and has been in effect for the past 14 years.

Council will consider the 2005 Urban Water Management Plan and the update to the Urban Water Shortage Contingency Plan.

RECOMMENDATION: It is the recommendation of the Board of Public Utilities and the Utilities Department that the Council, by resolution, adopt the City of Santa Rosa 2005 Urban Water Management Plan and the 2006 Urban Water Shortage Contingency Plan, which is an appendix to the 2005 Urban Water Management Plan.

#### **11.7 PUBLIC HEARING – ADOPTION OF ZONING CODE, BY REFERENCE, AND**

**AMENDING ITS TITLING SYSTEM TO CONFORM TO THAT UTILIZED IN THE REMAINDER OF THE SANTA ROSA CITY CODE**

BACKGROUND: The new Zoning Code, which is Title 20 of the Santa Rosa City Code, was adopted in August 2004 and has been amended four times since then. The Zoning Code utilized an entirely different referencing system in the designation of its chapters and articles which conflicts with the uniform system used in all other Titles of the City Code. This item, following the required public hearing, proposes the adoption, by reference, of the new Zoning Code with its four amendments, as it has been compiled to date, and, by further amendment, inserting the uniform titling/referencing system used throughout all other parts of the City Code. No change in the substantive provisions or the basic format and structure of the Zoning Code would occur.

RECOMMENDATION: It is recommended by the City Clerk, Director of Community Development, and the City Attorney that following the close of the public hearing, the Council adopt the ordinance, introduced at its June 6, 2006, meeting, which adopts, by reference, the new Zoning Code, as amended to date, and revises its titling system to conform to that used in the remainder of the City Code.

**12. PUBLIC COMMENTS ON NON-AGENDA MATTERS**

This is the time when any person may address the Council on matters not listed on this agenda, but which are within the subject matter jurisdiction of the Council. Each speaker is allowed three minutes. To address the Council you are requested to complete the yellow Speaker's Card and give it to the City Clerk.

**13. WRITTEN COMMUNICATIONS (AND POSSIBLE COUNCIL ACTION)**

**\*13.1 NOTICE OF SUBMITTAL OF FINAL MAP – MEDA SUBDIVISION**

**14. MAYOR'S/COUNCILMEMBERS' REPORTS**

**\*14.1 RECONSIDERATION OF ADOPTION OF THE ORDINANCE APPROVING AND ADOPTING THE REDEVELOPMENT PLAN**

This item, placed on the agenda by Mayor Bender at the request of Vice Mayor Blanchard, seeks Council reconsideration of the adoption of Ordinance No. 3782 on June 20, 2006, Ordinance of The Council of The City of Santa Rosa Approving And Adopting the Redevelopment Plan For The Gateways Redevelopment Project Area. Vice Mayor Blanchard has expressed concern regarding the inclusion of the power of eminent domain in the adopted Redevelopment Plan due to pending federal and state eminent domain initiatives and legislation.

**15. CITY MANAGER'S/CITY ATTORNEY'S REPORTS**

**16. [IF NEEDED] – ANNOUNCEMENT OF ADDITIONAL CLOSED SESSION ITEM(S), ADJOURNMENT TO CLOSED SESSION(S), RECONVENEMENT TO OPEN SESSION, AND ANNOUNCEMENTS, IF ANY**

**17. ADJOURNMENT OF MEETING**

**UPCOMING MEETINGS**

**APPENDIX B**

**Santa Rosa Historical Water Use and  
Revised Customer Water Demand Projections for the City of Santa Rosa**

## SANTA ROSA HISTORICAL WATER USE

### Water Production Data

Water production data for Santa Rosa was acquired, as reported in thousands of gallons per month. The data for the years 2002 through 2004 are listed below, in MGD.

Year	Production, MGD
2002	21.81
2003	20.53
2004	21.42
Average	21.25

### Water Billing Data

We developed five monthly water use tracking models from the historical water billing data using the monthly data provided by Santa Rosa. We performed a regression analysis the time series of per account water use versus month that considered which weather variables best would account for variation in use due to the weather (weather normalization). Some general comments follow, and then brief comments on each billing category's model. The purpose of each model is to determine the average water use per account per day to forecast additional future water use as new accounts are added.

The residential data is for January 1994 through December 2004. The Commercial data is for January 1995 through December 2004. The results are quite stable and the level of usage in this base period can be projected to annual water usage. We are providing a graph of the pattern of water use for each customer group with a few of our interpretive comments that can either be accepted or the City can provide a more knowledgeable interpretation. These graphs have four lines (two of them have five lines):

1. Weather normalized actual water use expressed in terms of gallons per day per account (gpd/a). The weather normalization statistically derives the impact of weather on water use and restates actual water use to the level it would be with normal weather. (Normal weather is based on long term average weather for each month.)
2. A 13 month weighted moving average is calculated that runs through the center of the data, giving an easy-to-visualize picture of the pattern of use.
3. An average of the last three years is given as a potential base point for demand projections and as a reference for viewing the stability or volatility of recent years. In two cases, more than one reference line is given.

A regression model forecast is given for the last two years of actual data by month and for 2005 just as a reference forecast. This forecast simply projects the pattern of the prior three years without any consideration given to any conservation or other measures that the City might take that would change the water use. This material is similar to what was sent to the City earlier this year.

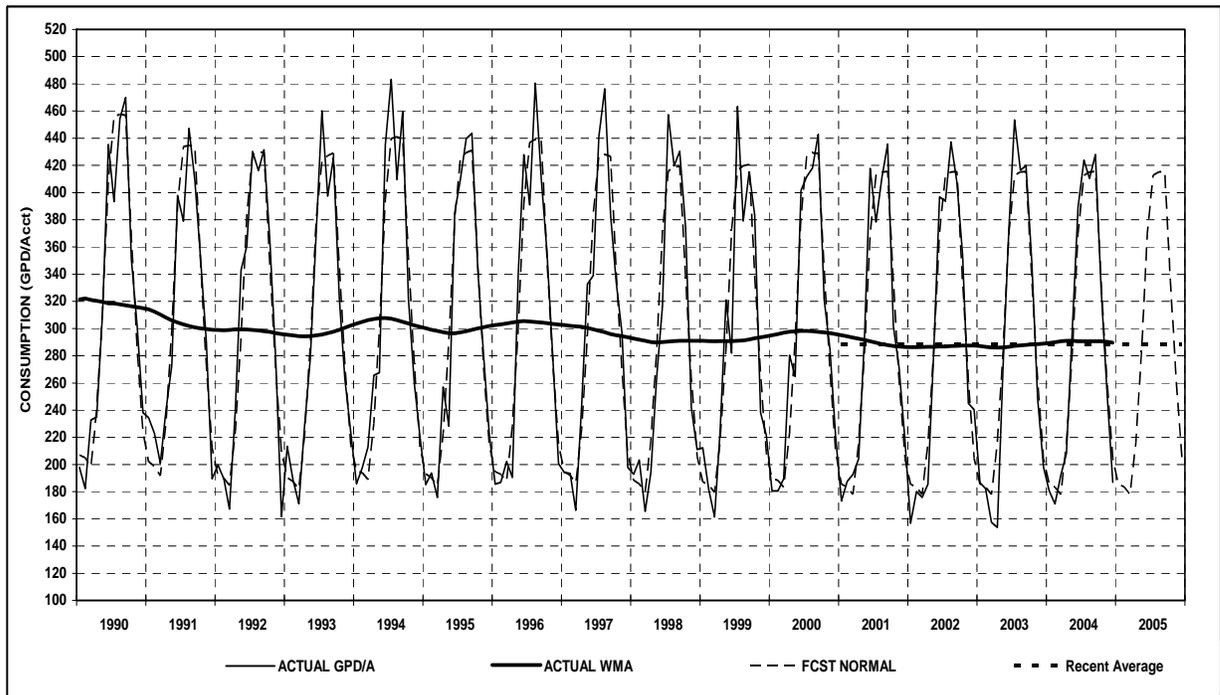
The City of Santa Rosa only has four categories that they segment water sales for: SFR, MFR, Commercial and Irrigators (which are all commercial). They did some moving of accounts between the COM and the IRR categories in the 2000-2001 period such that the pattern of use for these categories reflects some change which is described in brief findings by customer type below.

### Single Family Residential (SFR)

There is a very steady pattern of use from 1990 through 2004 with a slight downward drift the might be related to new accounts (and existing account replacements) using more water efficient fixtures and a general awareness of water shortages supported by higher prices. Santa Rosa uses a single unit water rate (plus service charge) which is designed to bring in the revenues required for operating the utility; so there is no “conservation pricing” impact to measure.

We were somewhat surprised by the strong correlation of the weather variables. As usual, the overall annual effect from weather is not as strong, but it is for many of the individual months.

We think the recent average (2001-2004) of 288.3 gpd/a probably reflects some natural and programmatic conservation effort and should be the starting point.



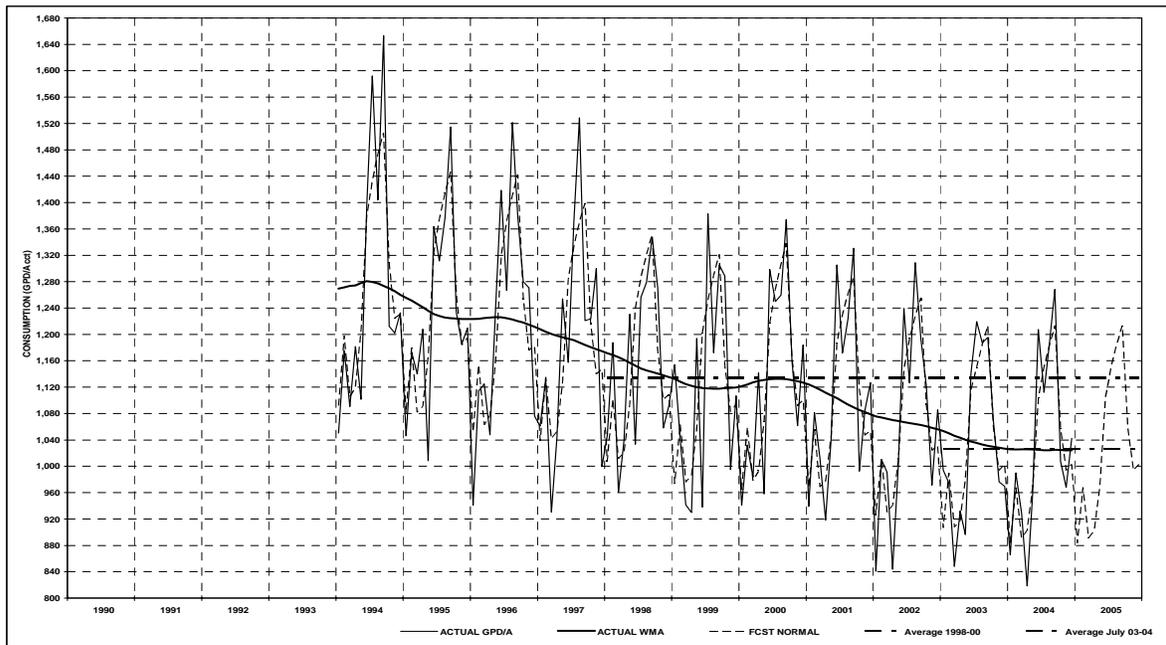
## Multi Family (MFR)

This category reflects the sharp drop in per account (and per DU in the previous analysis) that we thought might be attributable to reduced tourist activity because of the economic downturn in 2000. But the pattern has continued and appears to have stabilized in 2003 and 2004.

Although some of the decline could relate to conservation, we believe the major factor in the decline is the vacancy rate. Vacancy in 1998-2000 averaged 0.82%; in 2003-04 5.10% and in 2004 6.19% according to Meridian Commercial's data provided by the City. Vacancy correlates strongly with the decline from 2000 to 2004. The drop in use from 1994 to 1999 was apparently caused for shifting account mix. Therefore we think that a gpd/a somewhere between the 98-00 rate of 1134.3 and the July 2003 through 2004 rate of 1026.9 would be appropriate for forecasting. The question is: what is the expected normal vacancy rate? That would provide the answer. The regression analysis yields a coefficient of -22.78 gpd/a per percentage of vacancy. This is about the same as the slope  $(1134-1027)/(0.82-5.10)=-25.2$ .

The recommended value for the water demand projection purposes is the 2004 level plus 5.5 times the regression coefficient of 25.2 or 1,165.5 gpd/a. This value of 1,165.5 gpd/a corresponds to a vacancy rate of 0.5 percent (which is the current 6 percent minus 4.5 to 5.5 percent which is believed to be a temporary phenomenon.)

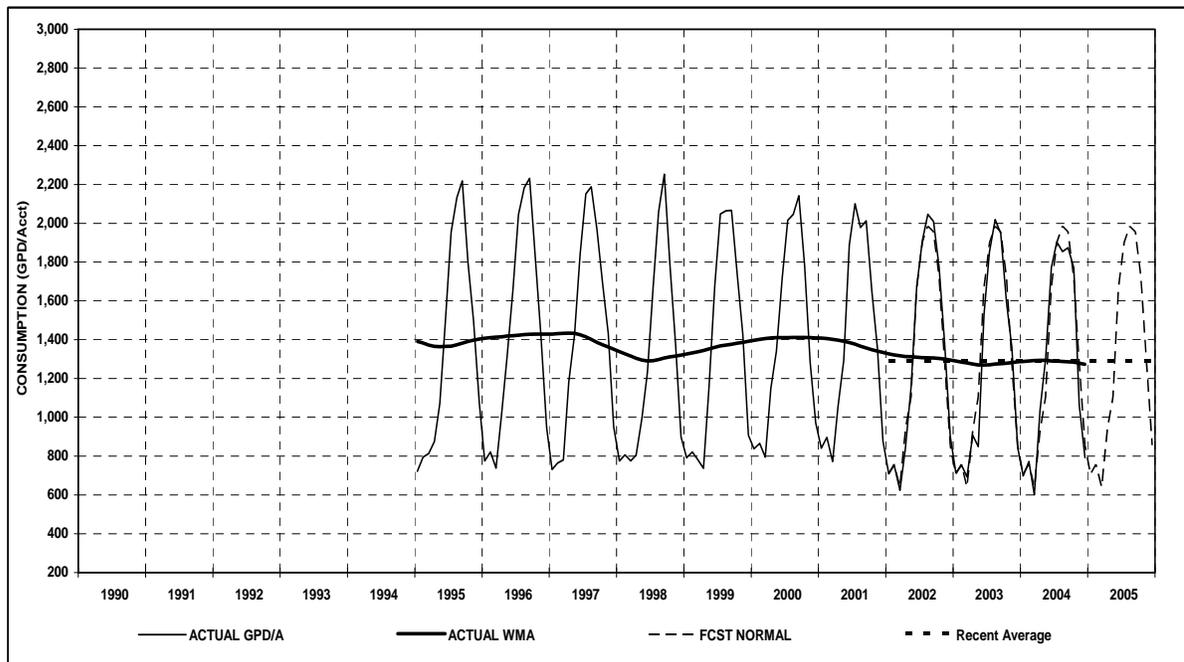
The regression for weather variables was significant for MFR but not as strongly as for SFR. We suspect impact of weather this is due to the irrigation that is not captured in the separate IRR account category, which is reportedly only for commercial accounts. The seasonal pattern is modest for MFR compared with SFR.



### Commercial with Irrigation (COM w/Irrig)

Because of the switching of accounts from COM to IRR during the period (1995-2004), we did a separate model for the combination of COM and IRR. The pattern of water use is quite stable with modest downturn beginning in 2002. There is a different seasonality in the last three years vs. the prior years and we used different seasonal indices to reflect this in the model for this combination and for the separate models for COM and IRR.

We plan to track IRR separately. For this model we would use the average of the last three years (02-04) which is 1291.7, because the earlier years probably include some kind of reclassifications of customer classes. Notice in the COM only model there is virtually no account growth, but in the COM + IRR there is a 1.2% annual growth. This account growth has a lower gpd/a than the prior average.

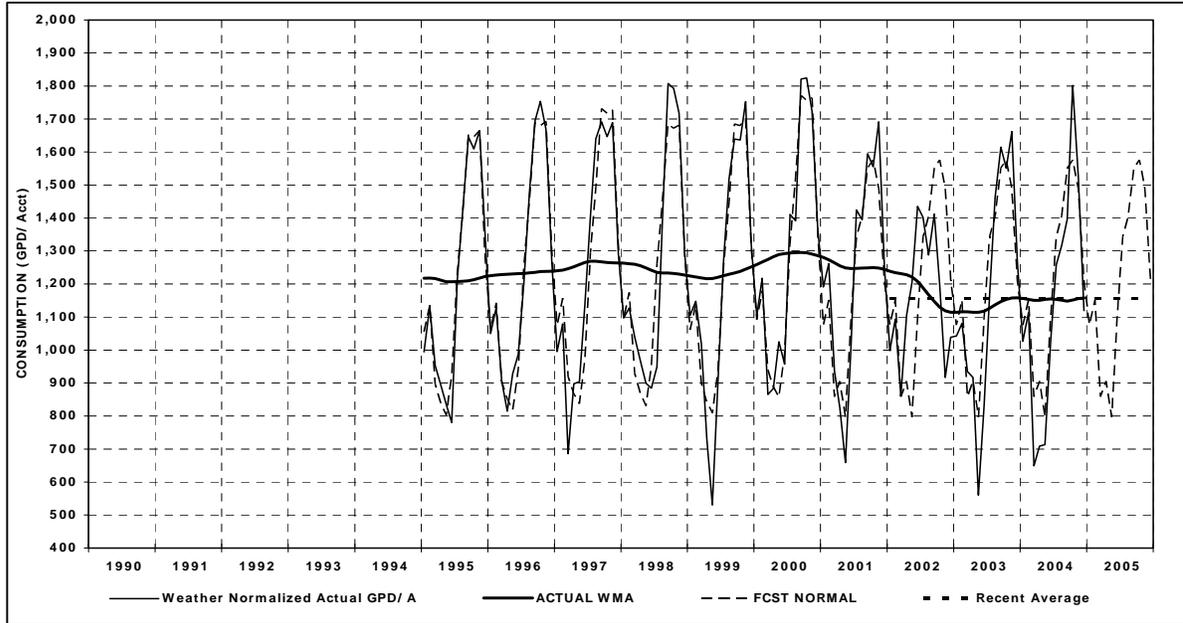


Again, weather variables were strongly significant, which would be expected with the significant irrigation content.

### Commercial without Irrigation (COM without IRR)

Tracking of the commercial (excluding commercial irrigator account) reflects a drop in per account use at the time of the transfer of accounts in 2002. The seasonality also changed consistent with these transfers. The COM water use in 2003 and 2004 appears to have stabilized. The seasonality of COM customers is about midway between SFR and MFR which is somewhat of a surprise. This must represent some irrigation use as supported by the strong weather correlation, but the high level of summer use could be closely tied to the tourist activity in Santa Rosa during the summer. We plan to use COM separately; therefore we would suggest using the 2002-04 level (1156.5 gpd/a) for the same reasons mentioned above for the combined situation.

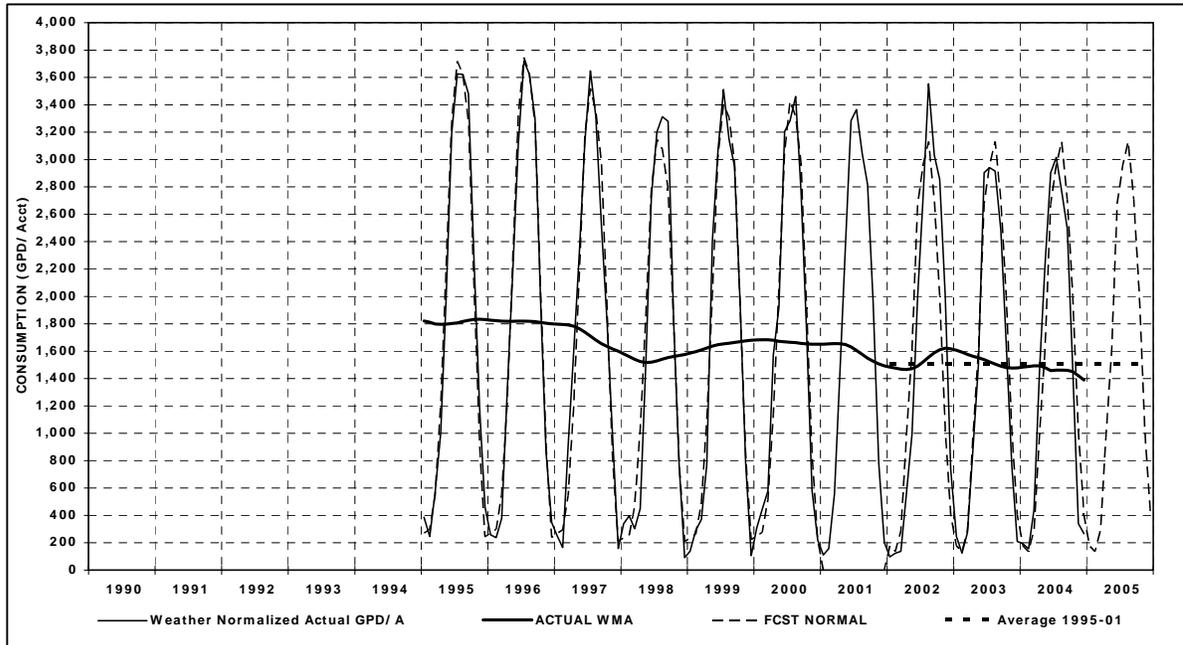
## SR COM without IRR



## Irrigation (IRR)

This account group reflects some instability during transition of COM accounts to the IRR category in 2002 and after. But the pattern in 2003 and 2004 is basically stable. The seasonal pattern is extreme as would be expected for IRR accounts. And the impact of weather on water use for IRR accounts is the highest of all customer groups. As with the two above, we recommend to use the 2002-04 period average (1,508.1 gpd/a).

## SR Irrigation Accounts





## MEMORANDUM

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Date: November 3, 2005

To: Virginia Porter, City of Santa Rosa

From: William Maddaus, Maddaus Water Management

Subject: ***Revised Customer Water Demand Projections  
Summary of Data Inputs, Assumptions and Results***

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### LIST OF CHANGES SINCE SEPTEMBER 26, 2005 MEMO

The following changes have been made to the demand projections.

1. Included population and employment buildout values from the City of Santa Rosa 2002 General Plan to Section 1.
2. The commercial water use factor, in gallons/account/day was increased 12.3 percent to the 2000 value of 1299 gpd/a from the prior value of 1156 gpd/a which was the 2002 to 2004 average account use. A detailed explanation for these new commercial water use value is provided in MWM memo dated October 26, 2005 titled ***Commercial Water Demand Factors for Water Demand Projections***.
3. Changed the listed historical unaccounted for water on the water use input sheet to 3.2 percent, the average of the 1999-2004 annual reports to CA DWR. The previously agreed upon value for planning purposed used in the projection remained at 7 percent so this change had no net impact on the results.
4. Added statement about average versus dry year demands on page 5.
5. Made minor word changes in memo.

As a result the demand projection for 2030 has increased 2.2 percent to 32.3 mgd.  
(The new demand values are shown in Table 4-1 with the plumbing code included).

### LIST OF CONTENTS

The following five pieces of information are included in this packet:

1. Future Population and Employment Projections (Attachment 1)
2. Historical Water Use and Demographic Data Inputs to the Model (Attachment 2)

3. Key Assumptions for the Model (Attachment 3)
4. Alternative Water Demand Projections (Attachment 4)
5. Demand Tables for Urban Water Management Plan (Attachment 5)

Each of these will be discussed in individual sections below. As this information has not been concurred with by local agencies, all of the provided information is subject to change.

## **1. FUTURE POPULATION AND EMPLOYMENT PROJECTIONS**

### ***Description of Population and Employment Forecasts (Attachment 1)***

There are generally two main sources of population and employment projections that can be used in this model. Below is a list of the two data sources that can be used to generate future water demands.

#### **Available Demographic Projections**

- *Local General Plan (population and employment)* – Typically these plans, depending upon when they were published, have a population and jobs forecast for 2020 and build out. In the 2002 Santa Rosa General Plan Housing Element of the General Plan has a limit on the number of dwelling units permitted, a buildout population and a buildout employment within the urban growth boundary.
- *ABAG (population and employment)* - As mentioned above, ABAG recently published a report in 2005 that includes population and employment estimates for each city in the Bay Area. This report also provides projections for 2005, 2010, 2015, 2020, and 2025.

At the City's request the Santa Rosa the current General Plan was used as the source of population and employment forecasts. These were in turned used for the demand projections. The population presented is *Residential or Household* population and excludes persons classified as institutionalized. Household population at buildout is projected to be 206,284 persons. Total employment at buildout is projected to be 158,400.

## **2. WATER USE AND DEMOGRAPHIC DATA INPUTS TO MODEL**

### ***Description of "Water Use Data Input Sheet" (Attachment 2)***

Attachment 2 is a two-page print out of an Excel spreadsheet. The purpose of this "Water Use Data Input Sheet" is to gather and document basic information about the individual service area. The data shown on the "Water Use Data Input Sheet" can be broken into two main categories, (a) current water use data and (b) demographic data. Each area is broken out below and helps to provide some basic definitions and assumptions.

#### **(a) Water Use Data**

- *Base Year* – This is the starting year for the analysis. For this project, the recent average weather normalized data was selected as the base year for two reasons:
  1. 2004 shows less of an effect of the recession.

(The year 2002-3 shows a dip in water demand in many areas due to reduction in economic activity)

2. 2004 had relatively “normal” climate conditions – i.e. not a drought or excessively wet year, so weather adjustments were minor

- Average gal/day/acct- This is the amount of water in gallons that is used per day, per account.
- Indoor/outdoor water use – This is the amount of water per account split into the percent that is used indoors. The corresponding remaining percent of water is used outdoors.
- Consumption by customer class- This shows the annual amount of water used for an entire calendar year, broken down by customer class (Single Family, Multi Family, Commercial, Irrigation, etc)
- Provision for New Single Family Account Use– For selected agencies, and upon their specific request, a new category can be created to model water use of new single family homes. This value is held constant in the baseline projection and not subject to plumbing codes. It is assumed that all new homes are built to the current plumbing code with low flow showerheads and low flush (1.6 gallon per flush) toilets. The plumbing codes continue to work on the existing accounts. The new home single family account use for Santa Rosa is 344 gallons/day/account is held constant in the baseline projection and not subject to plumbing codes. The plumbing codes continue to work on the existing accounts.
- Unaccounted for water (UFW) - The difference between the amount of water purchased and the amount of water that was billed. Data provided by the agency was used, if provided, unless UFW was less than 7 percent, in which case 7 percent was used. The City of Santa Rosa has agreed to use 7 percent for future UFW planning purposes.
- Water Produced– This is the total amount of potable water produced by Forestville Water District. The water can come from multiple sources including amount purchased from SCWA, purchased from other agencies, local surface water, or obtained from groundwater. This does not include recycled water.
- Peak day factor – The ratio of water produced on the maximum day of the year to that produced on the average day. The value used in the recent SCWA Water Master Plan for agencies was used where available; otherwise a value of 1.6 was used. The City of Santa Rosa requested to use a peak day factor of 2.0.

## **(b) Demographic Data**

- Census 2000 – The 2000 Census data was used as a reference when determining population and household sizes for each individual city (and/or unincorporated area) serviced by the water agencies.
- Department of Finance 2004 estimate- The State of California Department of Finance provides official estimates between censuses. The 2004 total population for the City of Santa Rosa service area was taken directly from the 2004 Department of Finance data. To obtain household population, the Group Quarters population was subtracted from total population.
- Single and multi family dwelling units- The 2004 single family dwelling units is equal to the number single family accounts for 2004. The 2004 estimates were created by applying a growth factor to the 2000 data.
- Special procedure for service areas not contiguous with city boundaries – When a service area serves outside a city boundary, estimates were generated either from census data when available for the unincorporated areas, or by the agency if known. If neither of the two above sources were available, then the modeling team made estimates.
- Employment data (ABAG) – The employment figures were gathered from the Association of Bay Area Governments (ABAG) report dated 2005. These numbers were developed regionally, and are based on the 2000 Census.

In summary, the key features of this sheet include the existing 2004 (baseline) level of water use, 2004 baseline accounts in each customer category, and 2004 baseline forecasts for population.

### 3. KEY ASSUMPTIONS FOR THE MODEL

#### *Key Assumptions for the Model (Attachment 3)*

The one page table shown in Attachment 3 shows some of the key assumptions used in the model. The assumptions having the most dramatic effect on the results are the natural replacement rate of fixtures, how residential or commercial future use is projected, and finally the percent of unaccounted for water.

### 4. WATER DEMAND PROJECTIONS

#### *Development of the Water Demand Projections Table and Graph (Attachment 4)*

Water demand projections were developed out to the year 2034 using the Demand Side Management Least Cost Planning Decision Support System (DSS) model. This model incorporates information from the:

- “Water Use Data Sheet” and the “Key Assumptions” shown in Attachments 2 and 3
- Questions asked of agencies

- Agency provided data
- 2000 Census data
- 2000 to 2004 Department of Finance population data

Attachment 4 shows the projected demands with and without plumbing codes and appliance standards. This page includes both a table and a graph. Each will be described below.

California law requires that for new construction after January 1, 1992 only fixtures meeting the following standards can be installed in new buildings:

- Toilet – 1.6 gal/flush maximum
- Urinals – 1.0 gal/flush maximum
- Showerhead and Faucets – 2.5 gal/min at 80 psi

Replacement of fixtures in existing buildings is governed by the Federal Energy Policy Act that requires only the above can be sold after January 1, 1994 for residential use and January 1, 1997 for commercial toilets. This law governs natural replacement.

New clothes washers are required to meet increased energy efficiency standards in 2004 and 2007. It is expected that this will lead to water efficiency improvements (efficient washers use at least 33% less water) by no later than 2007. We have assumed that by 2007, 30 percent of washers purchased will be efficient, by 2010, 50 percent purchased will be efficient, by 2015, 75 percent will be efficient, and by 2020, 100 percent purchased will be efficient.

### **Graph of projected demands (Figure 4-1)**

Figure 4 shows the projection at five-year increments. The graph shows projections through 2034.

### **Table of water demand projections (Table 4-1)**

The table of water demands projections includes:

1. The water demand projections are based on the future population and employment projections shown and described above in Attachment 4.
2. Table 1-1 shows the population and employment projections used to prepare the demand projections.
3. Projections were made *with and without* the plumbing codes
4. Projections are for potable water only. It does not include recycled water use. Recycled water use and projections are included in Chapter 5 of UWMP.

### **Dry Year Demands**

The demand projections reflect average weather conditions and **do not** reflect drier, hotter, non-drought conditions.

## **5. WATER DEMAND PROJECTIONS – 2005 URBAN WATER MANAGEMENT PLAN (UWMP) FORMAT**

### ***Conversion of the Water Demand Projections Table and Graph to 2005 UWMP Format (Attachment 5)***

The 2005 Urban Water Management Plan Guidance Document from the California Department of Water Resources (Ca DWR) requests that future demand information be in a specific format. Provided in Attachment 5 are the five tables relating to future average day demands they requested. The demand projection shown is the “with Plumbing Code” demands and is otherwise the same as appeared in the above table and graph. The demand projections in the Urban Water Management Plan will be included in Chapter 3.

### **NEXT STEPS**

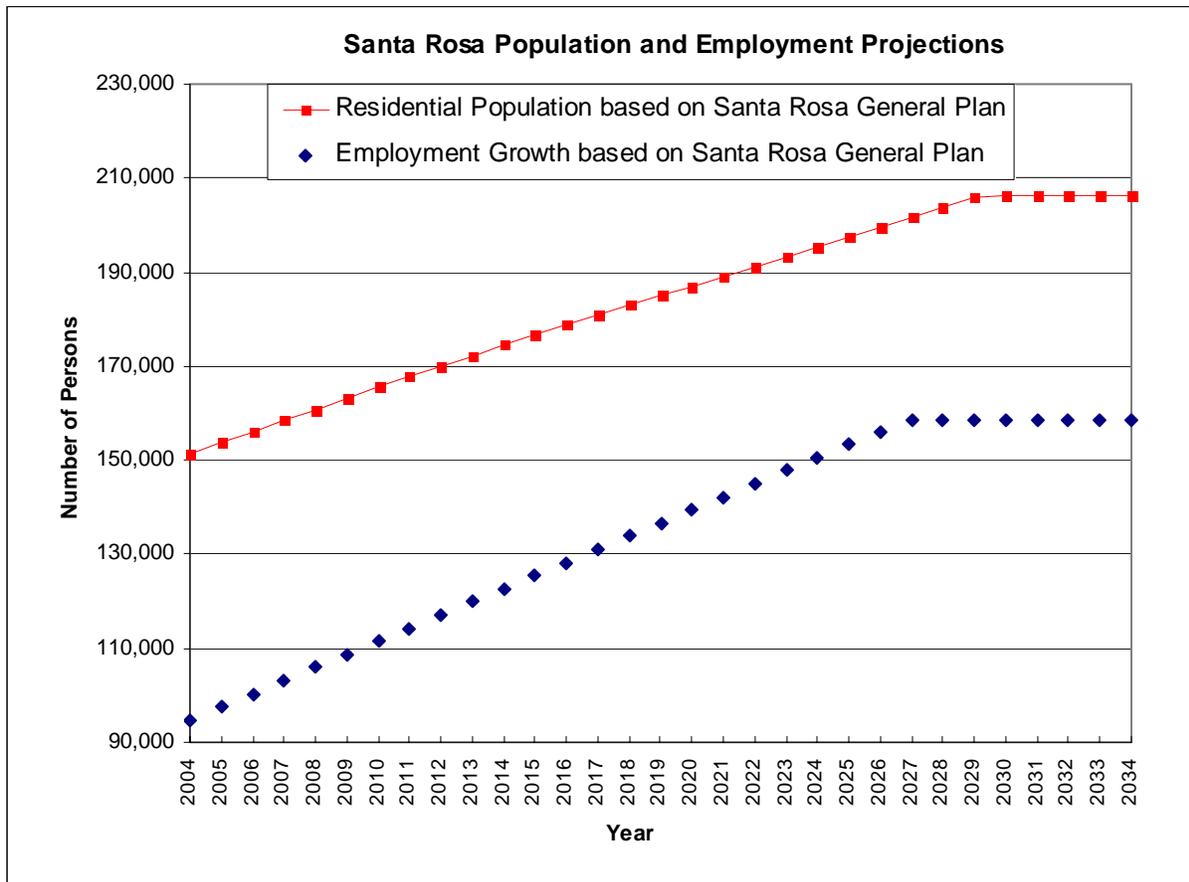
The following five steps remain to finalize the demand projections and evaluate conservation measures.

1. Contractor to concur with baseline projection
2. Evaluate Tier One conservation measures with the model
3. Develop projections with alternative levels of conservation
4. Provide information on the cost-effectiveness of water conservation
5. Identify individual agency projections with planned conservation

### **ATTACHMENTS**

Attachment 1	Future Population and Employment Projections (Figure 1-1 and Table 1-1)
Attachment 2	Water Use Data Input Sheet
Attachment 3	Key Model Assumptions (Table 3-1)
Attachment 4	Alternative Water Demand Projections (Figure 4-1, Table 4-1)
Attachment 5	UWMP Tables for Chapter 3 (Ca DWR format)

## Attachment 1 – Population and Employment Projections



**FIGURE 1-1**  
Population and Employment Projections for City of Santa Rosa

**TABLE 1-1**  
Population and Employment Results for City of Santa Rosa

Projection	Population						
	2004	2005	2010	2015	2020	2025	2030
Population	151,310	153,790	165,535	176,627	187,067	197,507	206,294
Employment	94,734	97,526	111,484	125,442	139,400	153,358	158,400

## Attachment 2 – Water Use Data Input Sheet (Page 1)

Santa Rosa WD Water Service Area <sup>1</sup>														
DSS Input Sheet														
November 2, 2005														
Base Year Average Use and Indoor Percentages by Billing Category for DSS Model <sup>2</sup>														
Year	Single family		Multifamily*		Commercial		Irrigation							
	Average, gpd/a	Indoor	Average, gpd/a	Indoor	Average, gpd/a	Indoor	Average, gpd/a	Indoor						
2004	288.3	59%	1157.9	83%	1299.2	79%	1508.1	0%						
<table border="1" style="margin: auto;"> <thead> <tr> <th colspan="2">New Single Family</th> </tr> <tr> <th>Average, gpd/a</th> <th>Indoor</th> </tr> </thead> <tbody> <tr> <td>344</td> <td>59%</td> </tr> </tbody> </table>									New Single Family		Average, gpd/a	Indoor	344	59%
New Single Family														
Average, gpd/a	Indoor													
344	59%													
*Increased by 25.2 times 5.2 to increase 2004 water use data to a more representative vacancy of 0.5 percent.														
NOTE: All categories are monthly data														
Data for DSS Model - - Base Year 2004														
Category	Number of Accounts FY. 2004 <sup>3</sup>	Water Use 2004 gpd/a <sup>2</sup>	Water Use, MGD 2004	Use Profile Percent	Water Use gpd	Indoor Water Use gpd								
Single family	41,088	288.3	11,845	55.39%	110.6	65.5								
Multifamily*	3,022	1,157.9	3,499	16.37%	79.2	65.7								
Commercial	2,750	1,299.2	3,572	16.71%										
Irrigation	1,635	1,508.1	2,466	11.53%										
New Single Family	1	344	0.000	0.00%	132.0	86.9								
Total Billed in 2004	48,496	4,597	21,383	100.00%	Weather Normalized Usage for 2004									
Total Water Produced Non-Weather Normalized <sup>4</sup>			21.4	MGD										
Unaccounted For Water (UFW) <sup>5</sup> =			3.2%	Percent	From CA DWR Annual Reports 1999 to 2004									
<b>Projected UFW for DSS Model =</b>			<b>7.0%</b>	Percent	7% if actual is < 7%, otherwise = agreed upon by agency for 30 year forecast									
<b>Water Produced for use in DSS Model for 2004 =</b>			<b>22.99</b>	MGD	Add UFW % to Total Billed Water Use									
					Water Produced = Billed / (1 - Projected UFW for DSS Model) 22.992									
Peaking Factor			2.0	Provided by Agency										
<b>Peaking Factor for DSS Model=</b>			<b>2.0</b>	Provided by Agency										
<div style="display: flex; justify-content: space-between;"> <span style="border: 1px solid black; padding: 2px;"> </span> - Blue cells are entered by modeler</div> <div style="display: flex; justify-content: space-between;"> <span style="border: 1px solid black; padding: 2px;"> </span> - Yellow cells are input to DSS Model</div>														
NOTES														
1 - Communities served includes City of Santa Rosa service area.														
2 - Average gpd/a is based on a 12-month moving average through December 2004. Indoor use is based on average of 2 lowest consecutive months in the winter if meters read bimonthly, or single lowest month if meters read monthly.														
3 - Number of accounts is from data provided by water agency for this project (see worksheet with account data in this file)														
4 - Total water produced for 2004 was provided by City of Santa Rosa.														
5 - Unaccounted for Water (UFW) is the percent difference between the total potable water produced and the total potable billed water use.														
6 - For reference see additional population estimates provided in population and employment estimates corresponding to service area table.														
7 - Initial estimate based on census data for renter occupied units. For reference see table with 2000 census data for corresponding water service area.														
8 - Group Quarters Population includes Institutionalized and non-Institutionalized persons and assumes their water use is in the Commercial sector.														
Definitions / Abbreviations														
ABAG	Association of Bay Area Governments	HHS	household size											
DOF	Department of Finance	NA	not available											
DSS	Decision Support System Model	MF	multi family											
du	dwelling unit	MGD	million gallons per day											
FY	Fiscal Year	No.	number											
gpd	gallons per capita / per day	Pop	population											
gpd/a	gallons per day / per account	Res	residential											
gpd	gallons per day	SF	single family											
		UFW	unaccounted for water											
<b>Data Prepared :</b>	May 1, 2005	By: M. Maddaus												
<b>Revised:</b>	November 2, 2005	By: W. Maddaus												

# Attachment 2 – Water Use Data Input Sheet (Page 2)

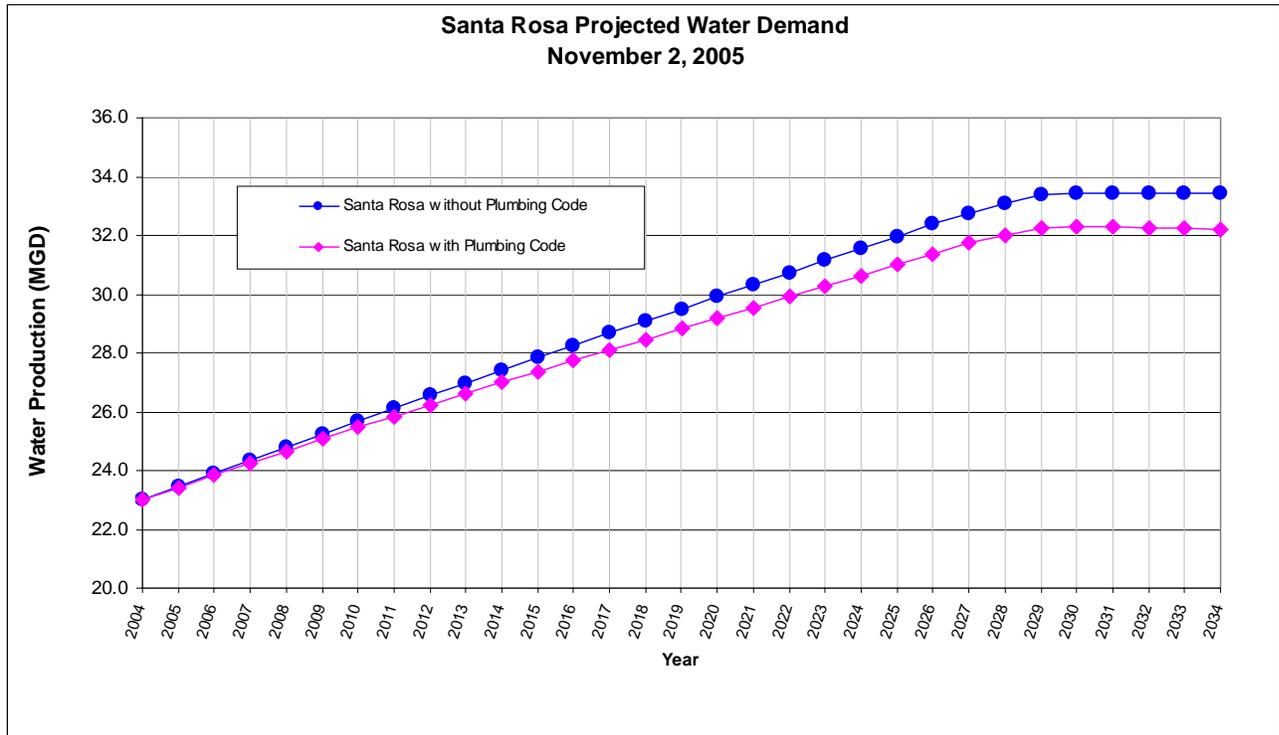
Santa Rosa WD Water Service Area <sup>1</sup>					
Reconcile agency account billing data and census data					
<b>Total Dwelling Units in Census 2000 for Santa Rosa</b>					
	<b>2000 Units</b>	<b>No. Buildings</b>	<b>Service Area Billing Accounts - Year 2000<sup>1</sup></b>	<b>Difference between billing and census data</b>	<b>Data Sources / Notes</b>
<b>Single family</b>					
1-detached	33,454	33,454			
1-attached	5,460	5,460			
Subtotal	38,914	38,914	37,855	-1,059	When difference is negative some of the attached units (1,059) classified by City as Multifamily
<b>Multi family</b>					
2-units	1,448	724			
3-4 units	3,204	915			
5 to 9 units	3,426	489			Assumes average of 7 units per account
10-19 units	2,318	155			Assumes average of 15 units per account
20 or more units	5,328	107			Assumes average of 50 units per account
mobile homes	456	9			Assumes average of 50 mobile home units per master meter
Subtotal	16,180	2,399	2,786	386	When difference positive, must be more than one meter on MF building
MF Average =	6.7	units/building	5.8	units/account	Typical value of DUs/account
Total SF + MF units =	55,094				
<b>2000 Group Quarters Data</b>		<b>2000 Census Data</b>		<b>2002 Santa Rosa General Plan</b>	
Institutionalized	1,558	Average household size	2.57	Table 8- 2: Schedule of Housing Units	
Non-Institutionalized	2,248	Average household size of owner-occupied unit	2.56	<b>Timeframe</b> <b>Maximum Housing Units Per Year</b>	
Total	3,806	Average household size of renter-occupied unit	2.57	2001 – 2005	950
		Homeowner vacancy rate (percent)	0.70	2006 – 2010	900
		Rental vacancy rate (percent)	2.10	2011 – 2015	850
				2016 – 2020	800
				Santa Rosa has adopted a growth management control where they are limiting the growth.	
				Housing unit growth rates found in Chapter 8 page 5	
<b>Population and Household Size in Census 2000 for Santa Rosa</b>					
	<b>Census 2000</b>	<b>Santa Rosa Service Area Department of Finance 2004</b>	<b>Estimated Residential Service Area 2004 Population</b>	<b>Data Sources / Notes</b>	
Total Population from Census data <sup>2</sup> =	147,595	155,121		Estimated growth from 2000 to 2004 (ABAG Jurisdictional Projections):	4.18%
Subtract Group Quarters Population =	3,806	3,811		Estimated employment growth from 2000 to 2004 (ABAG Employment Projections):	0.13%
Residential Population =	143,789	151,310		Water use for the institutionalized population is accounted for in nonresidential billing categories	
Avg. Residential HHS <sup>3</sup> =	2.61			Residential population shown corresponds to the city or cities represented by Census data	
MF Pop @ MF HHS <sup>4</sup> =	2.57	41,583	44,198	44,198	29.2%
SF Pop =		102,206	107,112	107,112	70.8%
SF HHS <sup>5</sup> =		2.63	2.61		
			Total	151,310	100.0%
				Population used in model without institutionalized population	
<b>Estimate Service Area Dwelling Units for 2004</b>					
SF Res	41,088	Equals No. of Single Family accounts for 2004			
MF Res	16,856	Equals No. Dwelling Units from cell M21 (2000 Census Data) plus growth in accounts for four years from cell U36			
<b>Population and Employment Estimates Corresponding to Service Area</b>					
	<b>Population</b>	<b>Employment</b>			
2000 Census data for jurisdiction	147,595	NA			
2000 ABAG (jurisdictional)	147,595	87,060	ABAG number without the Santa Rosa Rural areas		
2005 ABAG Projection (jurisdictional)	155,300	87,200	ABAG number without the Santa Rosa Rural areas		
2000 ABAG (subregional)	165,849	94,590	ABAG number without the Santa Rosa Rural areas		
2005 ABAG Projection (subregional)	175,600	94,770	ABAG number without the Santa Rosa Rural areas		
2003 Department of Finance Benchmark	154,112		From State of California Department of Finance (DOF) table E-4 as of 1-1-2003. Website www.dof.ca.gov		
2004 Department of Finance Estimate	155,121		From State of California Department of Finance table E-4 as of 1-1-2004. Website www.dof.ca.gov		
2005 Department of Finance Estimate	156,268		From State of California Department of Finance table E-4 as of 1-1-2005. Website www.dof.ca.gov		
2020 Data in General Plan (2002)	195,300	139,400	Santa Rosa General Plan Chapter 2 page 2-19 and 2-20. Or page 16 through 18 of Chapter 2. Table 2-2 for Total Population, Table 2-4 for Employment		
Buildout Data in General Plan (2002)	210,100	158,400	Santa Rosa General Plan Chapter 2 page 2-19 and 2-20. Or page 16 through 18 of Chapter 2. Table 2-3 for Buildout Population, Table 2-5 for Buildout Employment		
2004 Employment in Service Area (input to DSS Model) =		94,734	Service Area Employment was provided by Santa Rosa Water District		

### Attachment 3 – Key Model Assumptions

**TABLE 3-1  
List of SCWA Baseline Demand Projection Assumptions for DSS Model**

<b>Parameter</b>	<b>Model Input Value, Assumptions, and References</b>
Base Year	2004
Peak Day Factor	2.0
Unaccounted for Water, % of Water Production	Calculated from historical production and sales data or 7%, whichever is greater; constant over time
Population Projection, 2005 to 2034	City of Santa Rosa General Plan
Employment (Jobs) Projection 2005-2034	City of Santa Rosa General Plan
Number of Water Accounts for Base Year	Data submitted by customers for 2004
Distribution of Water Use Among Categories	Data submitted by customers for most recent year
Indoor/Outdoor Water Use Split by Category, % of Total	Monthly data submitted by customers
Residential End Uses, %	AWWARF Report "Residential End Uses of Water" 1999
Non-Residential End Uses, %	Professional judgment and AWWARF Report "Commercial and Institutional End Uses of Water" 1999
Residential Fixture Efficiency (Current existing fixtures installed in residential units)	Census 2000, Housing age by type of dwelling plus natural replacement plus rebate program (if any). Reference "High Efficiency Plumbing Fixtures - Toilets and Urinals" Koeller & Company July 23, 2005. Reference Consortium for Efficient Energy ( <a href="http://www.cee1.org">www.cee1.org</a> )
Water Savings for Fixtures, gal/capita/day	AWWARF Report "Residential End Uses of Water" 1999
Non-Residential Fixture Efficiency (Current fixtures installed in non-residential facilities)	Census 2000, assume commercial establishments built at same rate as housing, plus natural replacement plus rebate program (if any)
Residential Frequency of Use Data, Toilets, Showers, Washers, Uses/user/day	Falls within ranges in AWWARF Report "Residential End Uses of Water" 1999
Non-Residential Frequency of Use Data, Toilets and Urinals, Uses/user/day	Estimated based using AWWARF Report "Commercial and Institutional End Uses of Water" 1999
Natural Replacement Rate of Fixtures	Residential Toilets 3% (newer toilets), 4% (older toilets) Commercial Toilets 4% Residential Showers 4% Residential Clothes washers 6.7% A 4% replacement rate corresponds to 25 year life of a new fixture based on data published in "High Efficiency Plumbing Fixtures - Toilets and Urinals" Koeller & Company July 23, 2005. A 4% replacement rate is also the CUWCC recommended value. A 6.67% replacement rate corresponds to 15 year washer life based on "Bern Clothes Washer Study, Final Report., Energy Division, Oak Ridge National Laboratory, for U.S. Department of Energy, March 1998, Internet address: <a href="http://www.energystar.gov">www.energystar.gov</a>
Project Future Residential Water Use	Based on Projected Population Growth
Project Future Commercial Water Use	Based on Projected Employment Growth
Project Future Irrigation Water Use	Based on Projected Population Growth

## Attachment 4 –Projected Potable Water Demands



**FIGURE 4-1**  
**Baseline Potable Water Use Projections for City of Santa Rosa**

**TABLE 4-1**  
**Baseline Potable Water Use Results for City of Santa Rosa**

Data Source for Projection		Plumbing Code	Total Potable Water Production, Average Day (MGD)						
Residential	Non-Residential		2004*	2005	2010	2015	2020	2025	2030
General Plan	General Plan	Included	23.0	23.4	25.5	27.4	29.2	31.0	32.3
General Plan	General Plan	Not Included	23.0	23.5	25.7	27.8	29.9	32.0	33.4

\*Note: Increase to 23.0 MGD in 2004 is due to change in vacancy rate for Multifamily and adjustments to Commercial water use. The net change was to increase the Multifamily and Commercial per account water usage, which increases the total water use for the 2004 base year.

**Attachment 5 –Urban Water Management Plan Tables for Chapter 3 of UWMP - Santa Rosa**

Table 3-1 below provides population projections for the City of Santa Rosa.

**Table 3-1. (DWR Table 2). Population – Current and Projected**

Year	Population
2005	153,790
2010	165,535
2015	176,627
2020	187,067
2025	197,507

**3.2 Past, Current, and Future Water Use**

**3.2.1 Water Use By Customer Type**

The historical and projected number of connections and deliveries to the City’s water distribution system, by sector is identified below on Table 3-2.

**Table 3-2. (DWR Table 12). Past, Current and Projected Water Deliveries**

		Water Use Sectors						
			Single Family	Multifamily	Business	Irrigation	New Single Family	Total
2000	metered	# of accounts	To be completed by Brown and Caldwell					
		Deliveries AF/Y	To be completed by Brown and Caldwell					
2005	metered	# of accounts	41,088	3,072	2,831	1,662	673	49,325
		Deliveries AF/Y	13,253	3,976	4,107	2,807	259	24,402
2010	metered	# of accounts	41,088	3,306	3,236	1,789	3,863	53,282
		Deliveries AF/Y	13,157	4,231	4,637	3,022	1,489	26,534
2015	metered	# of accounts	41,088	3,528	3,641	1,909	6,876	57,041
		Deliveries AF/Y	13,030	4,449	5,172	3,224	2,649	28,525
2020	metered	# of accounts	41,088	3,736	4,046	2,021	9,711	60,603
		Deliveries AF/Y	12,895	4,642	5,713	3,415	3,742	30,407
2025	metered	# of accounts	41,088	3,945	4,451	2,134	12,546	64,164
		Deliveries AF/Y	12,771	4,836	6,258	3,605	4,835	32,305
2030	metered	# of accounts	41,088	4,120	4,598	2,229	14,933	66,967
		Deliveries AF/Y	12,679	5,005	6,447	3,766	5,754	33,650

### 3.2.2 Water Sales to Other Agencies

The City does not currently sell water to any other agency.

**Table 3-3. (DWR Table 13). Sales to Other Agencies**

Water Distributed	2000	2005	2010	2015	2020	2025	2030
N/A	0	0	0	0	0	0	0

### 3.2.3 Unaccounted-for Water and Additional Water Use

For this project unaccounted for water is defined to be the difference between water produced and water sold to customers. Unaccounted-for water use normally includes unmetered water use such as for fire protection and training, system and street flushing, sewer cleaning, construction, system leaks, and unauthorized connections. Unaccounted-for water can also result from meter inaccuracies.

<b>Table 3-4. (DWR Table 14). Additional Water Uses and Losses, AF/yr</b>							
Water Use	2000	2005	2010	2015	2020	2025	2030
Saline barriers	N/A						
Groundwater recharge	N/A						
Conjunctive use	N/A						
raw water	N/A						
recycled	N/A						
Unaccounted-for system losses		1832	1993	2144	2286	2428	2536
Total	0	1832	1993	2144	2286	2428	2536

### 3.2.4 Total Water Use

The total past, present and future water use for the system is shown in the table below.

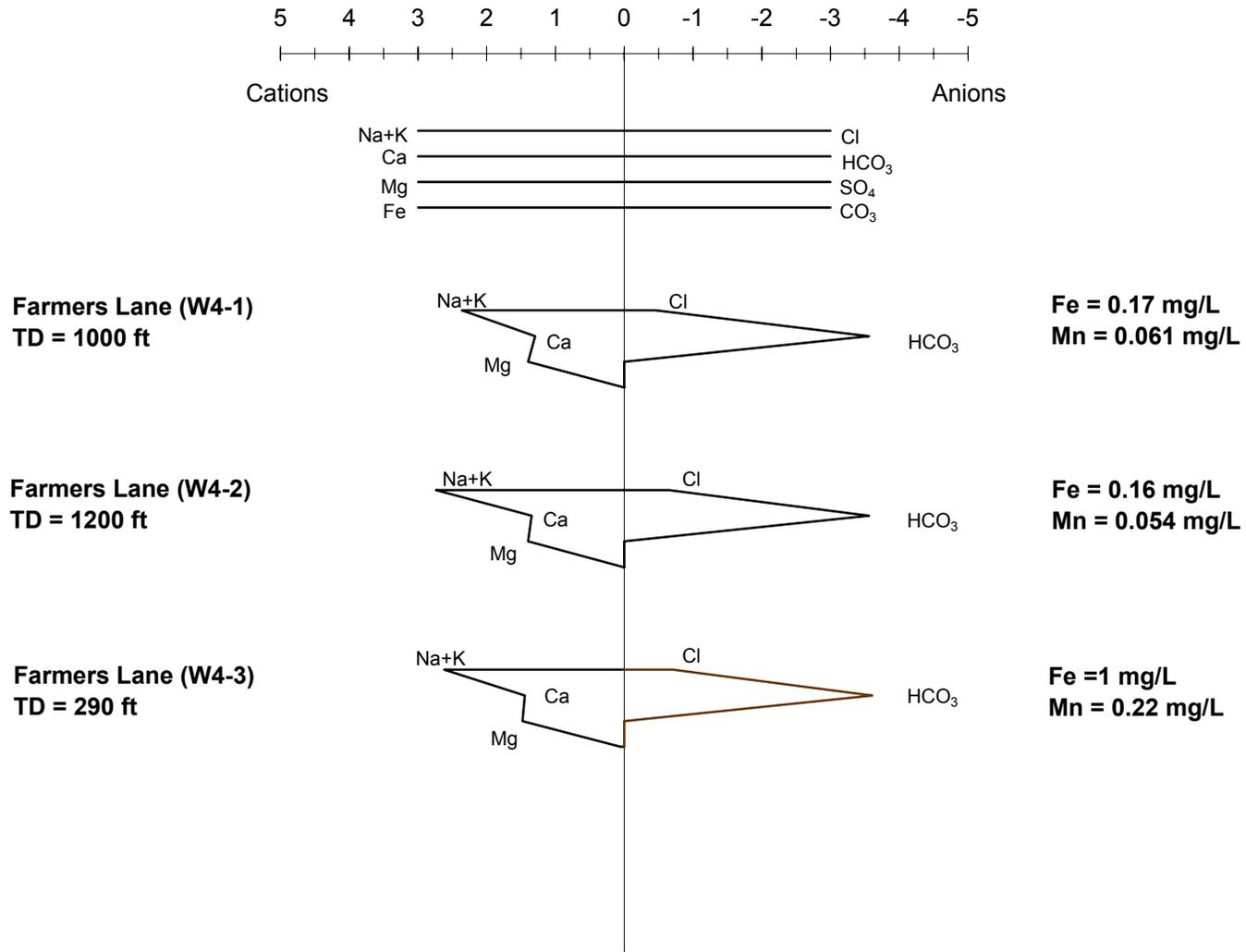
<b>Table 3-5. (DWR Table 15). Total Potable Water Use, AF/yr</b>							
Water Use	2000	2005	2010	2015	2020	2025	2030
<i>(Total of Tables 3-2, 3-3, 3-4)</i>		26,235	28,528	30,669	32,692	34,733	36,186

\*Total Water use is potable only. Does not include recycled water use. Recycled water use and projection is in Chapter 5 of UWMP.

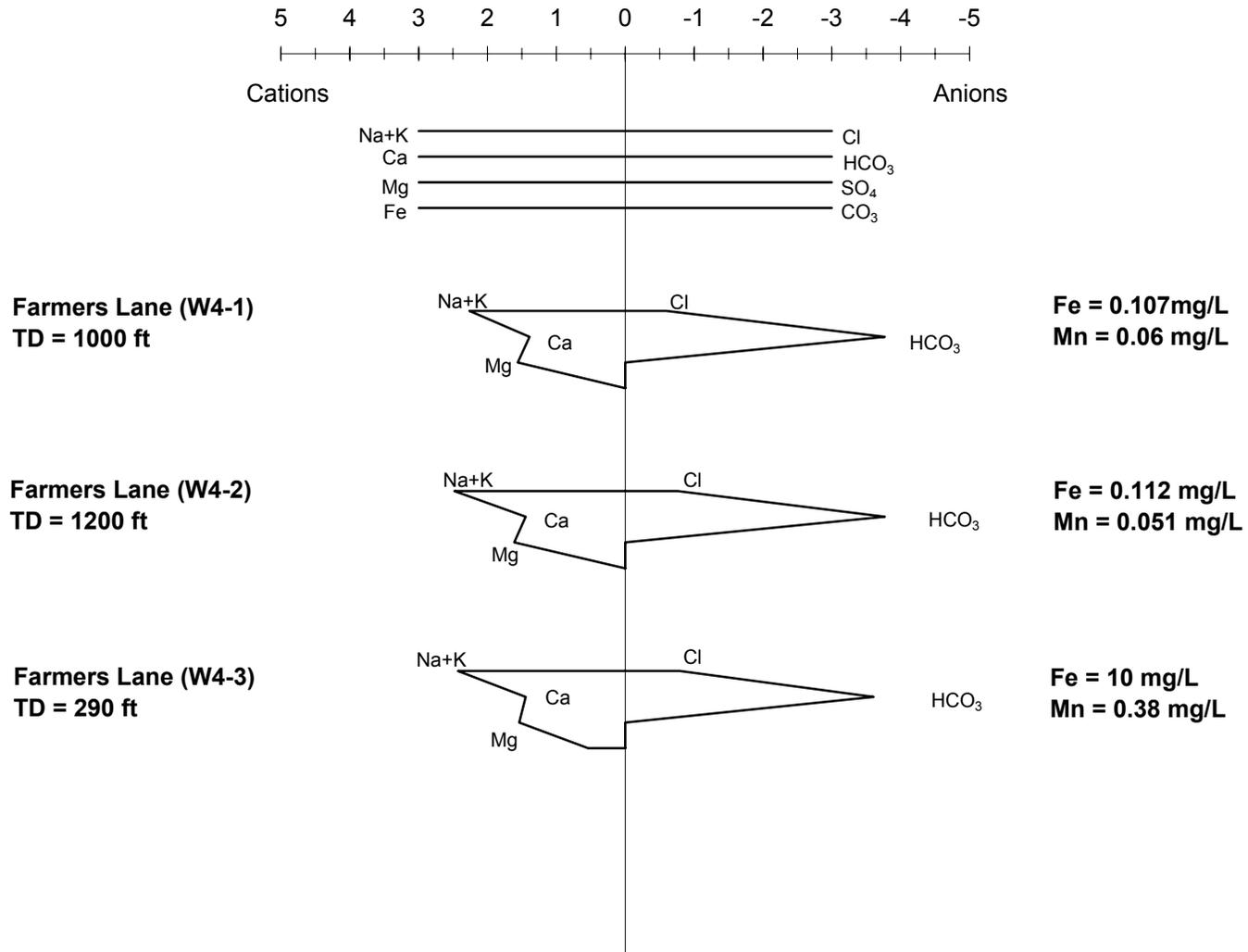
## **APPENDIX C**

### **Farmers Lane Wells Diagrams**

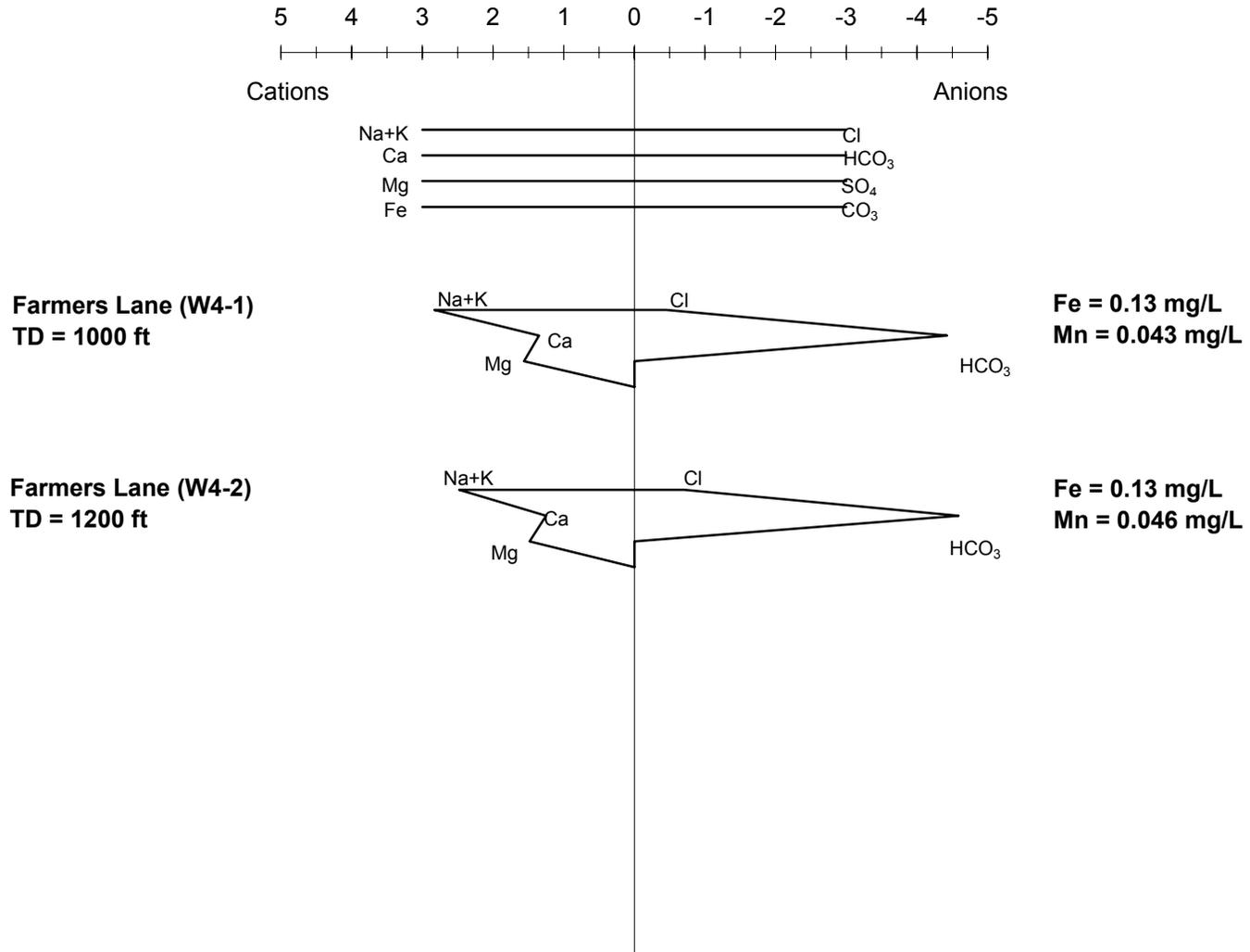
**City of Santa Rosa Farmers Lane Wells**  
**Water Quality Variation - Sampling Date July-October 2002**



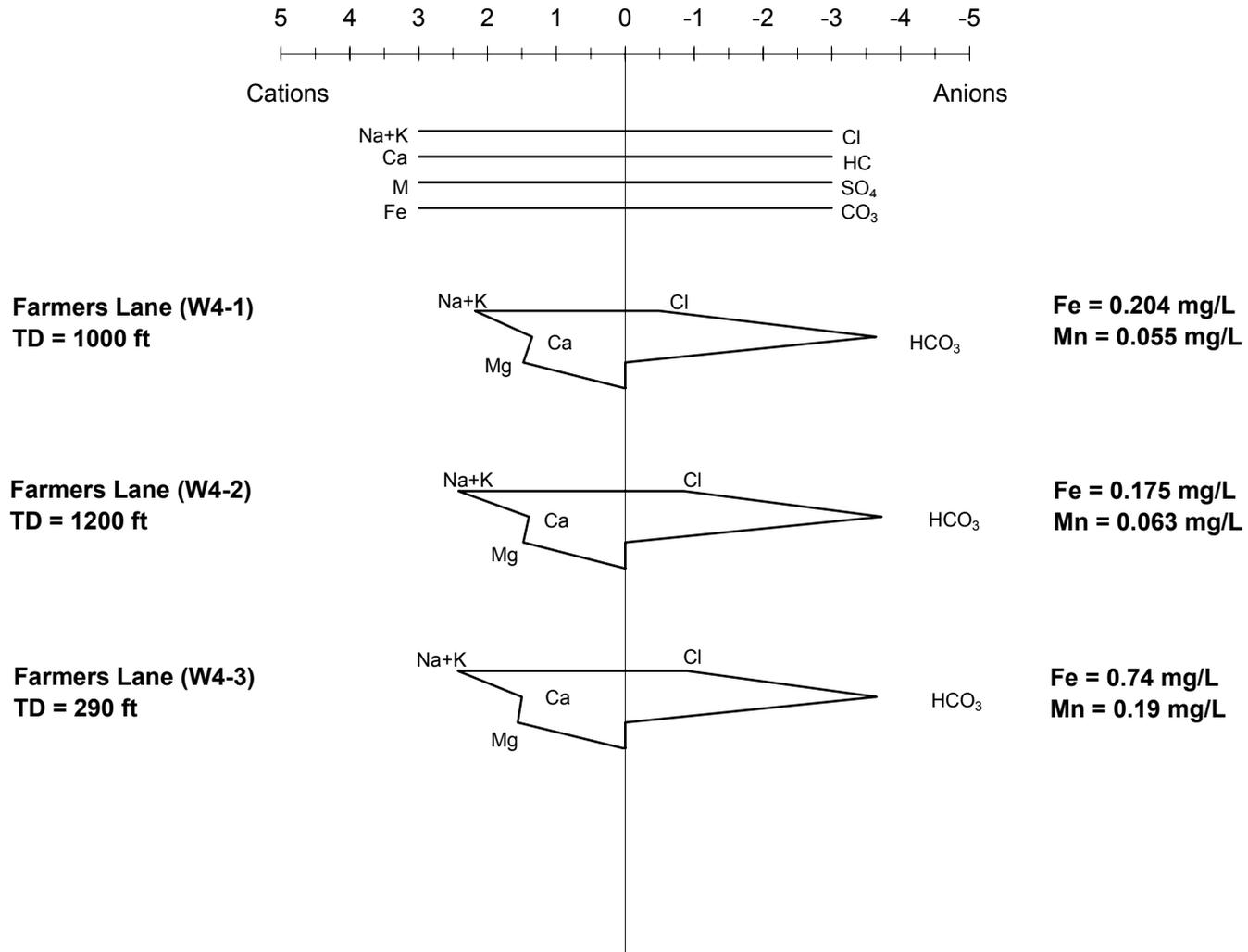
**City of Santa Rosa Farmers Lane Wells  
Water Quality Variation - Sampling Date 7/25/01**



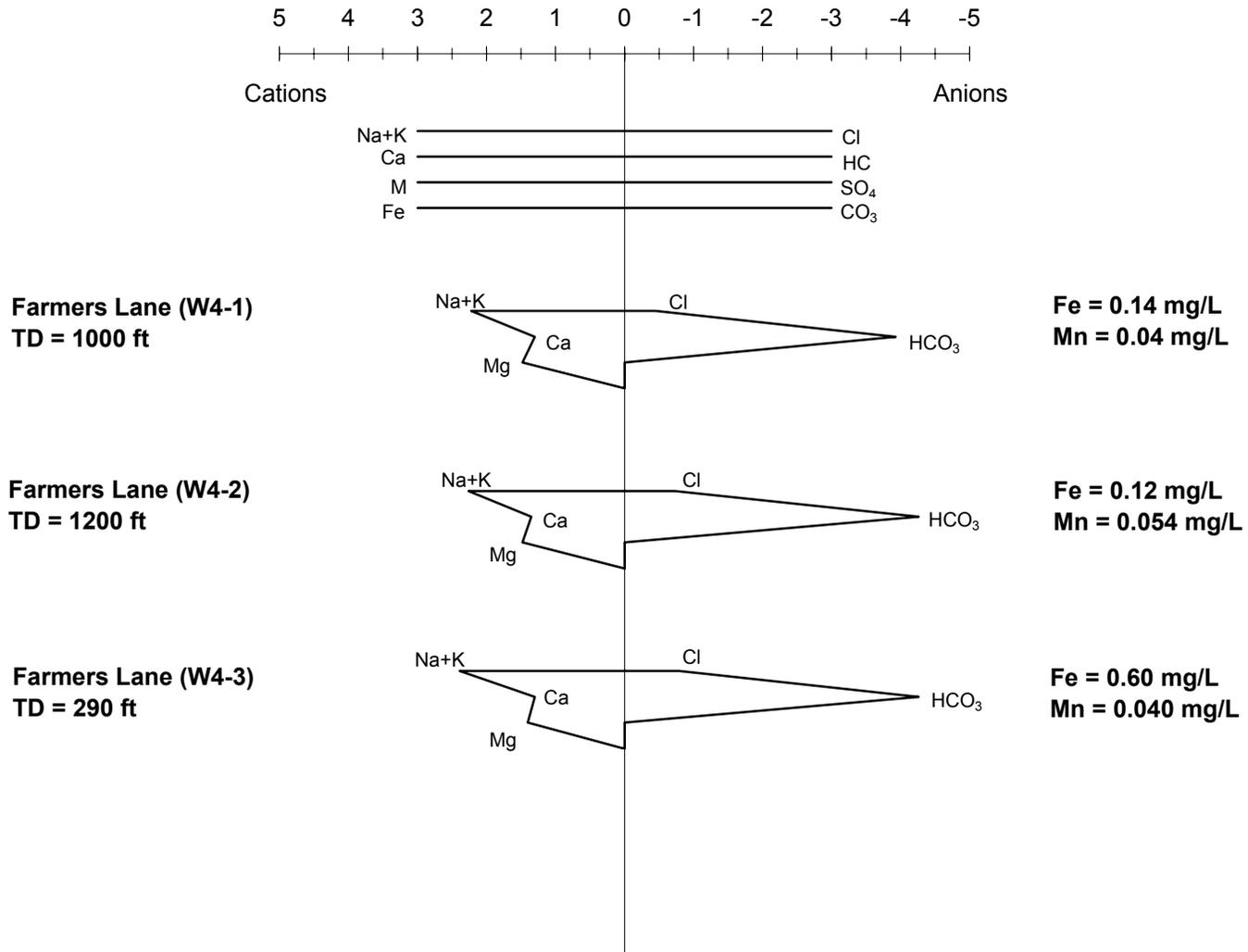
**City of Santa Rosa Farmers Lane Wells**  
**Water Quality Variation - Sampling Date June-September 2000**



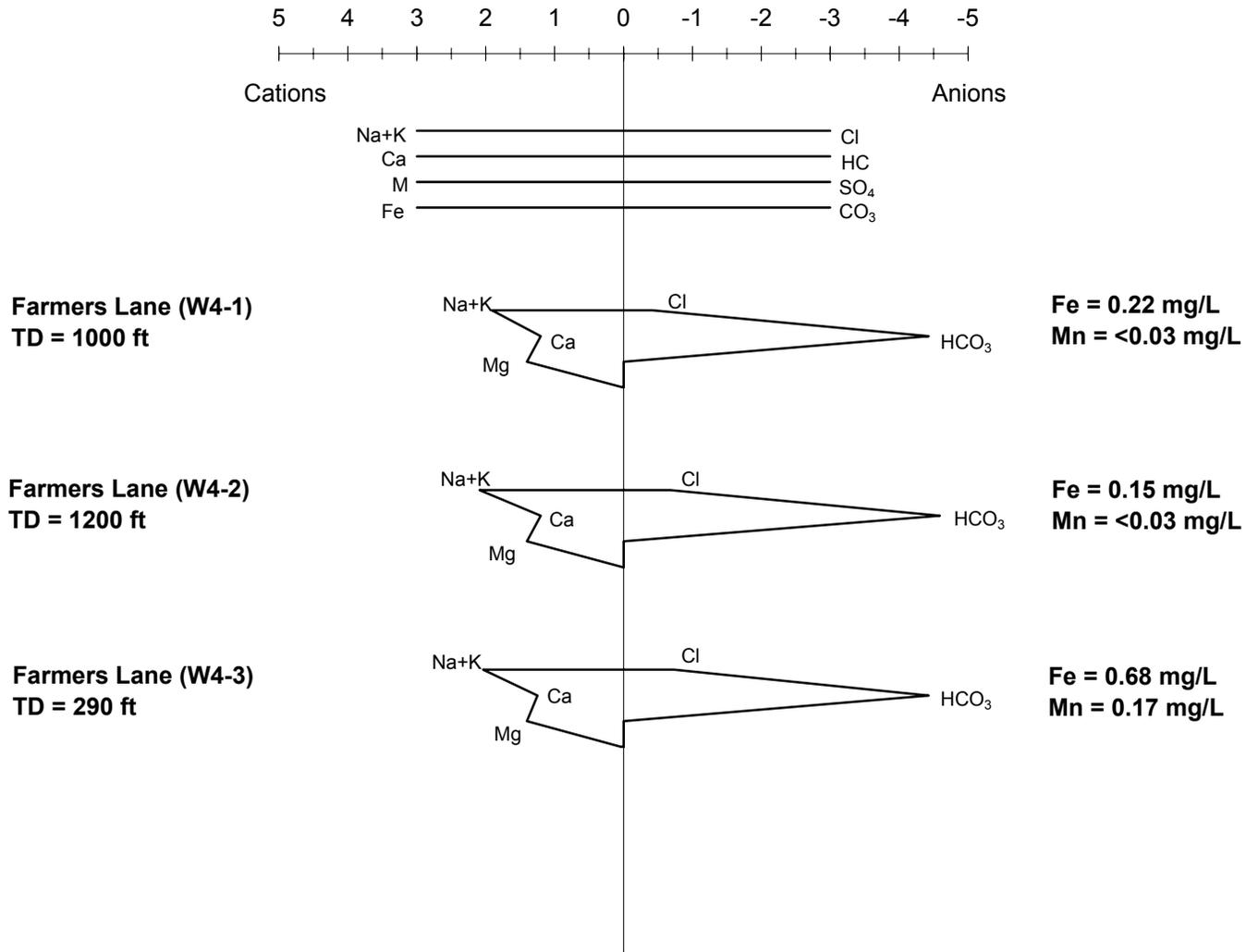
**City of Santa Rosa Farmers Lane Wells  
Water Quality Variation - Sampling Date 6/8/99**



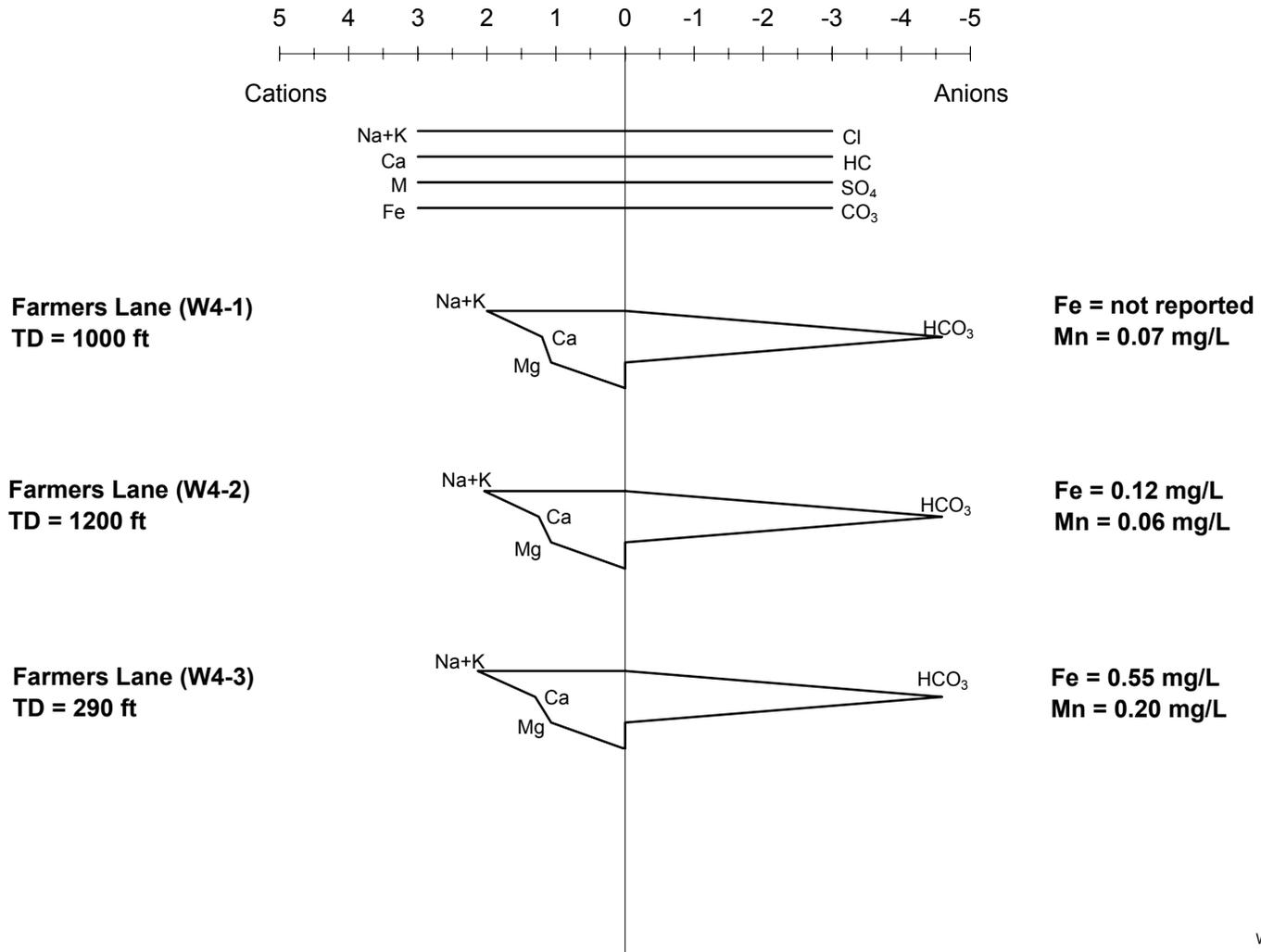
**City of Santa Rosa Farmer Lane Wells  
Water Quality Variation - Sampling Date 5/25/95**



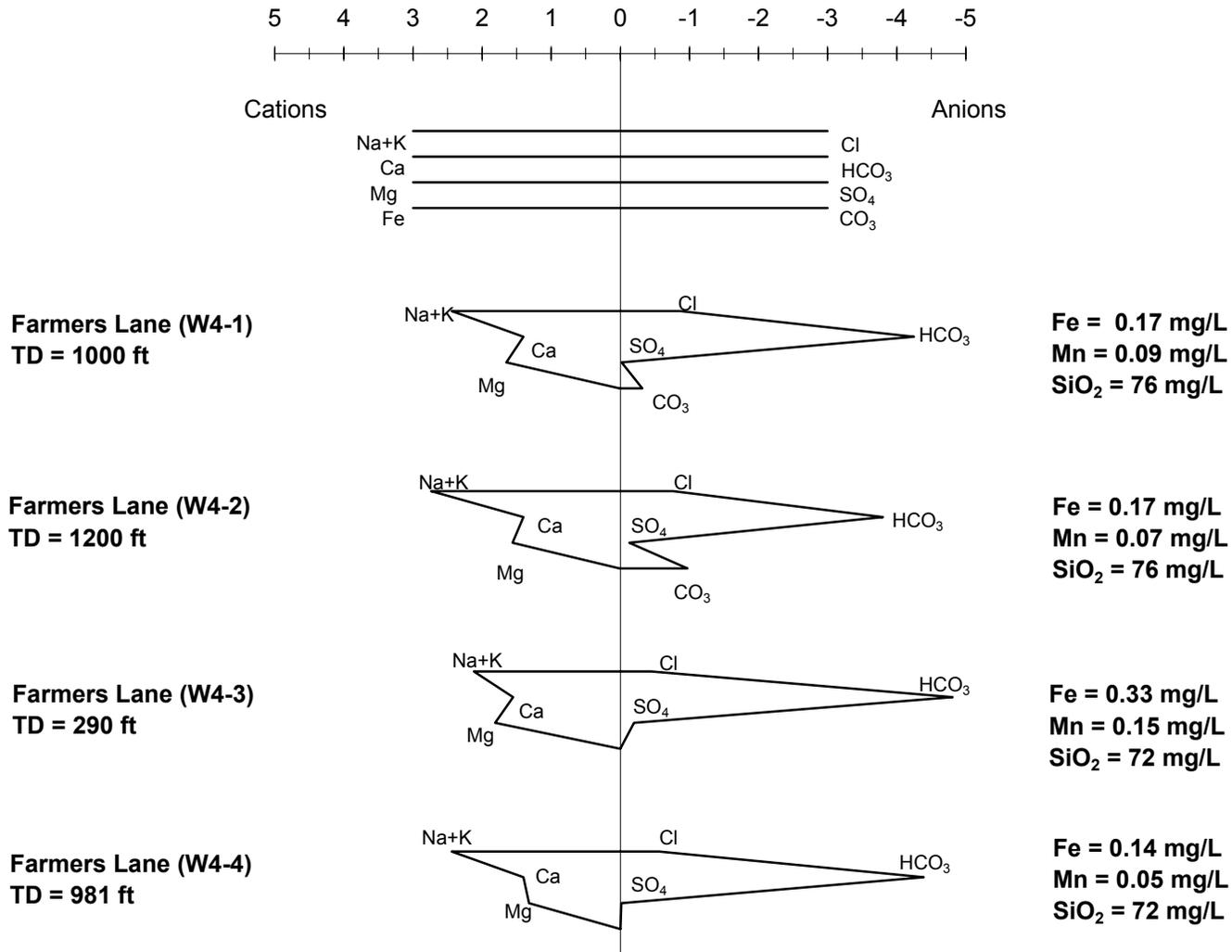
**City of Santa Rosa Farmer Lane Wells  
Water Quality Variation - Sampling Date 2/8/89**



**City of Santa Rosa Farmer Lane Wells  
Water Quality Variation - Sampling Date 2/24/86**



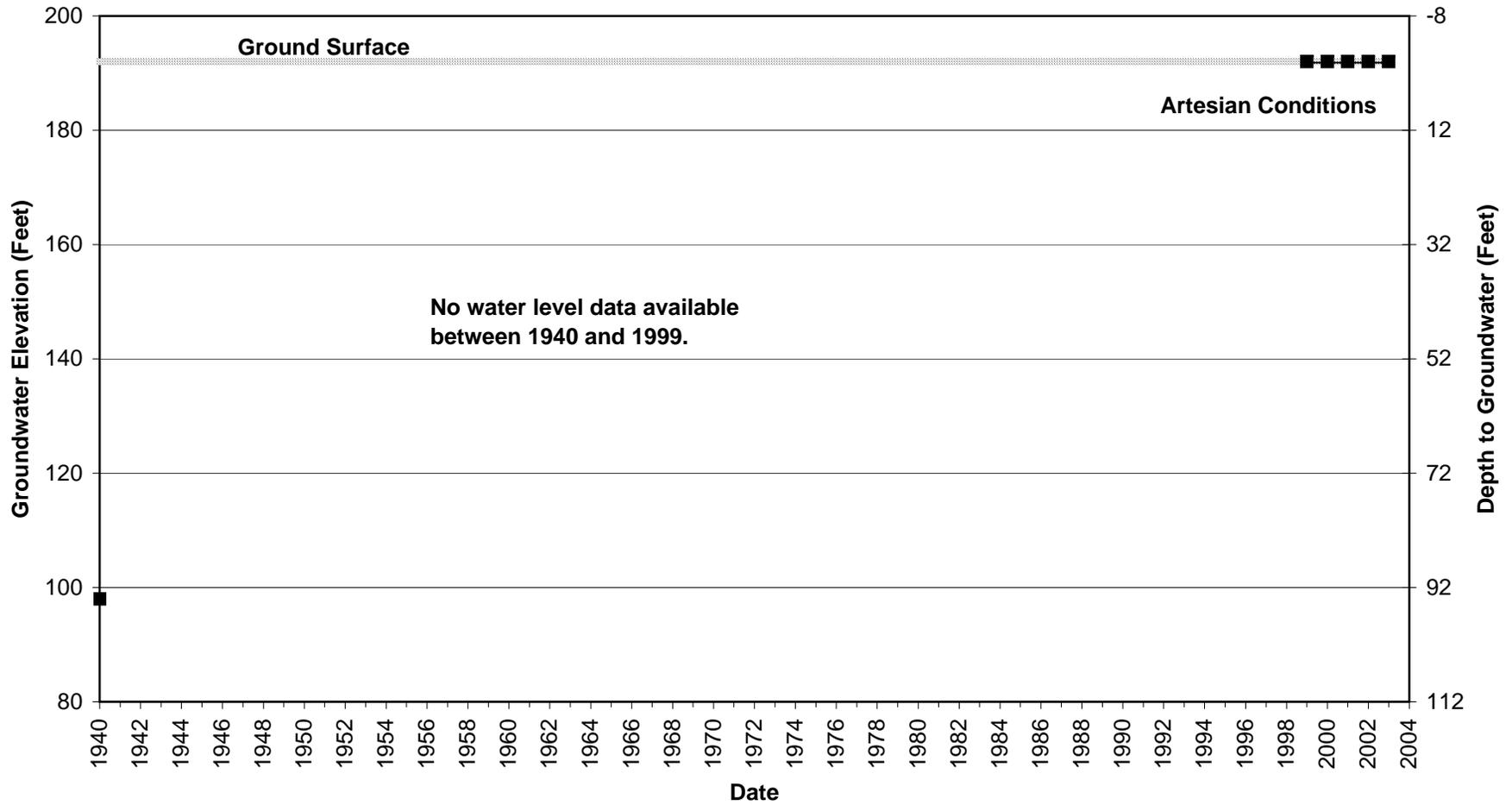
### City of Santa Rosa Farmer Lane Wells Water Quality Variation - Sampling Date 7-9/51



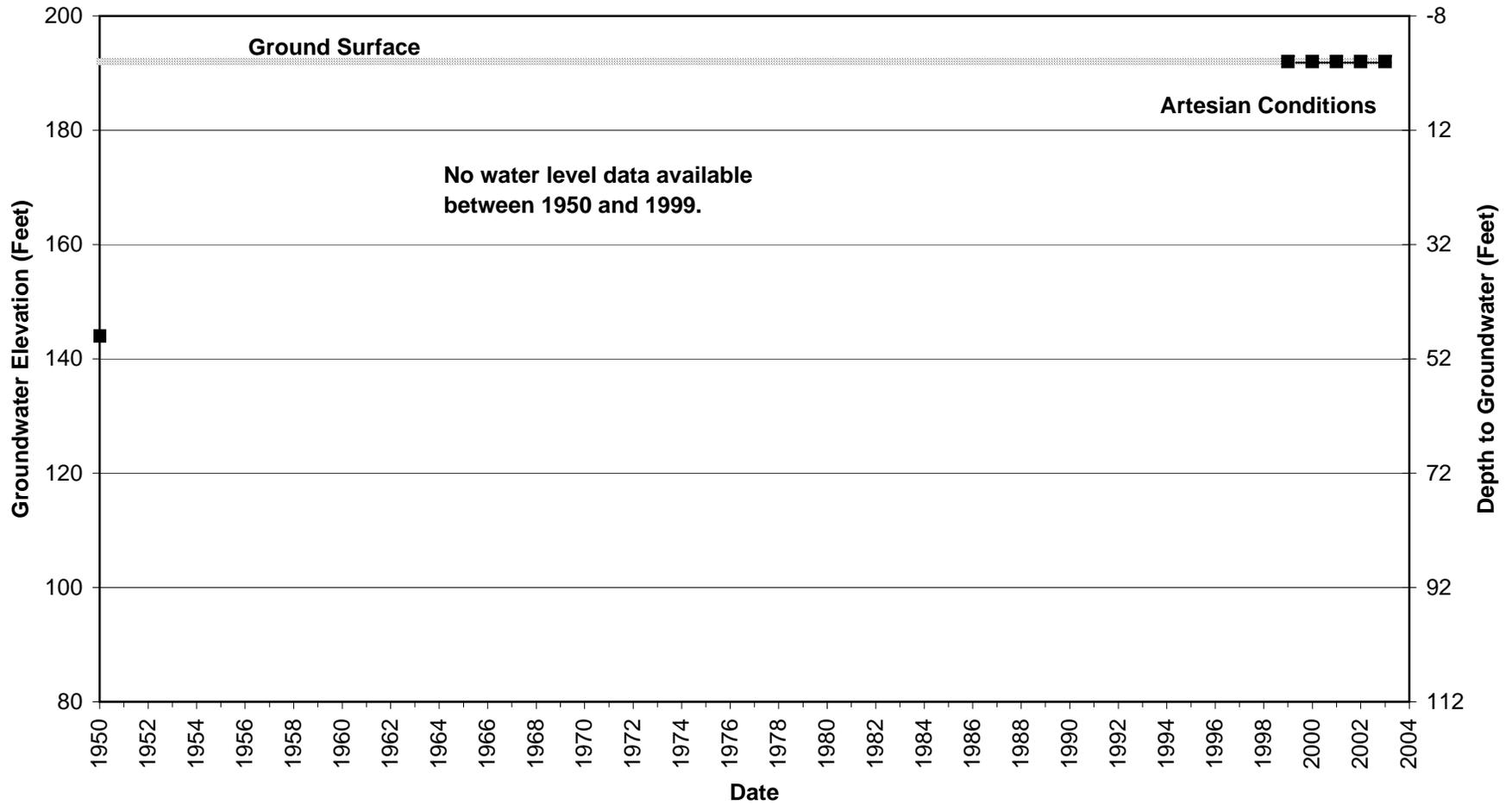
## **APPENDIX D**

### **Farmers Lane Wells Hydrographs**

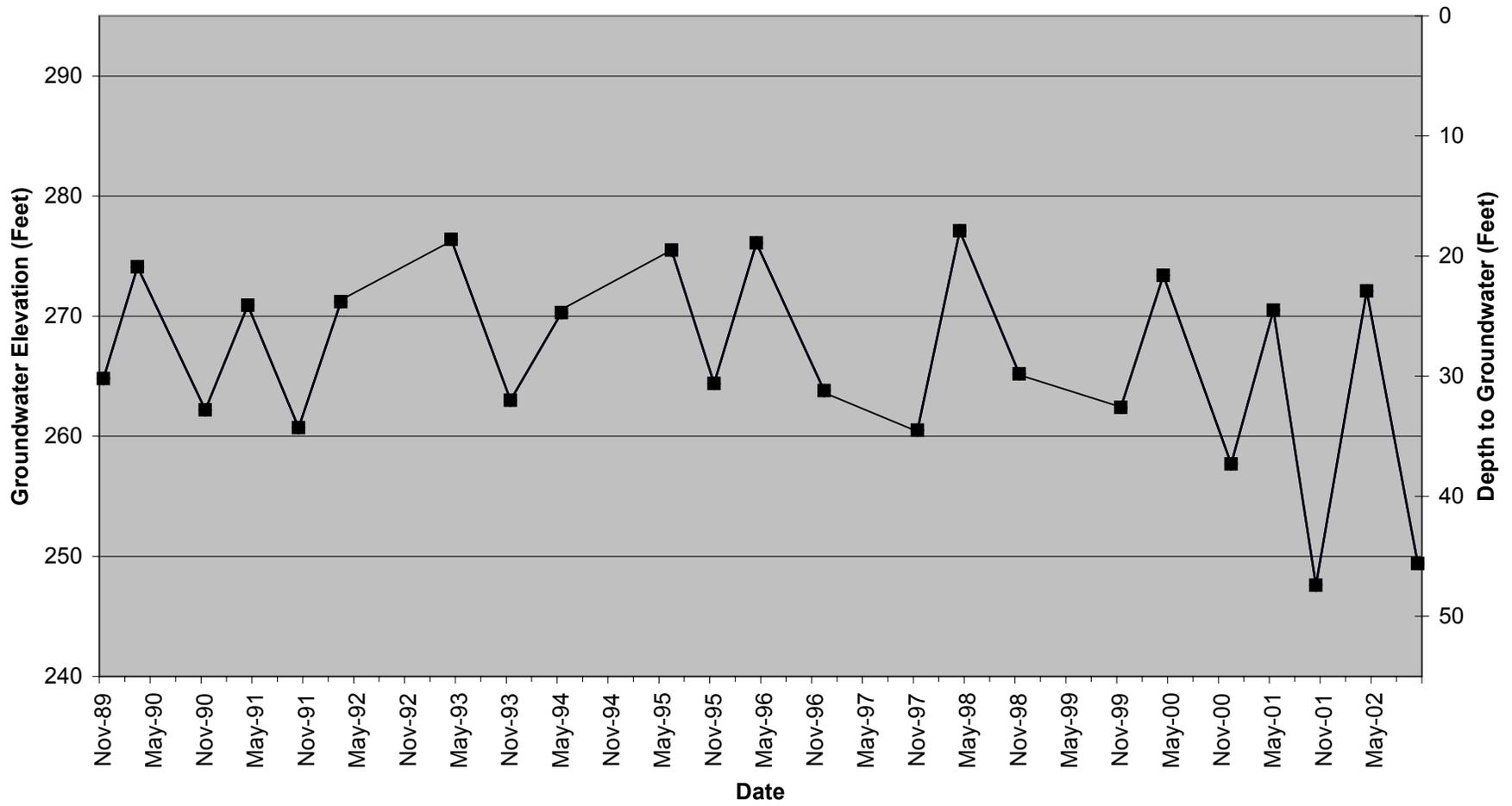
**Hydrograph of W4-1  
Santa Rosa Area  
Land Surface Elevation: 193 feet**



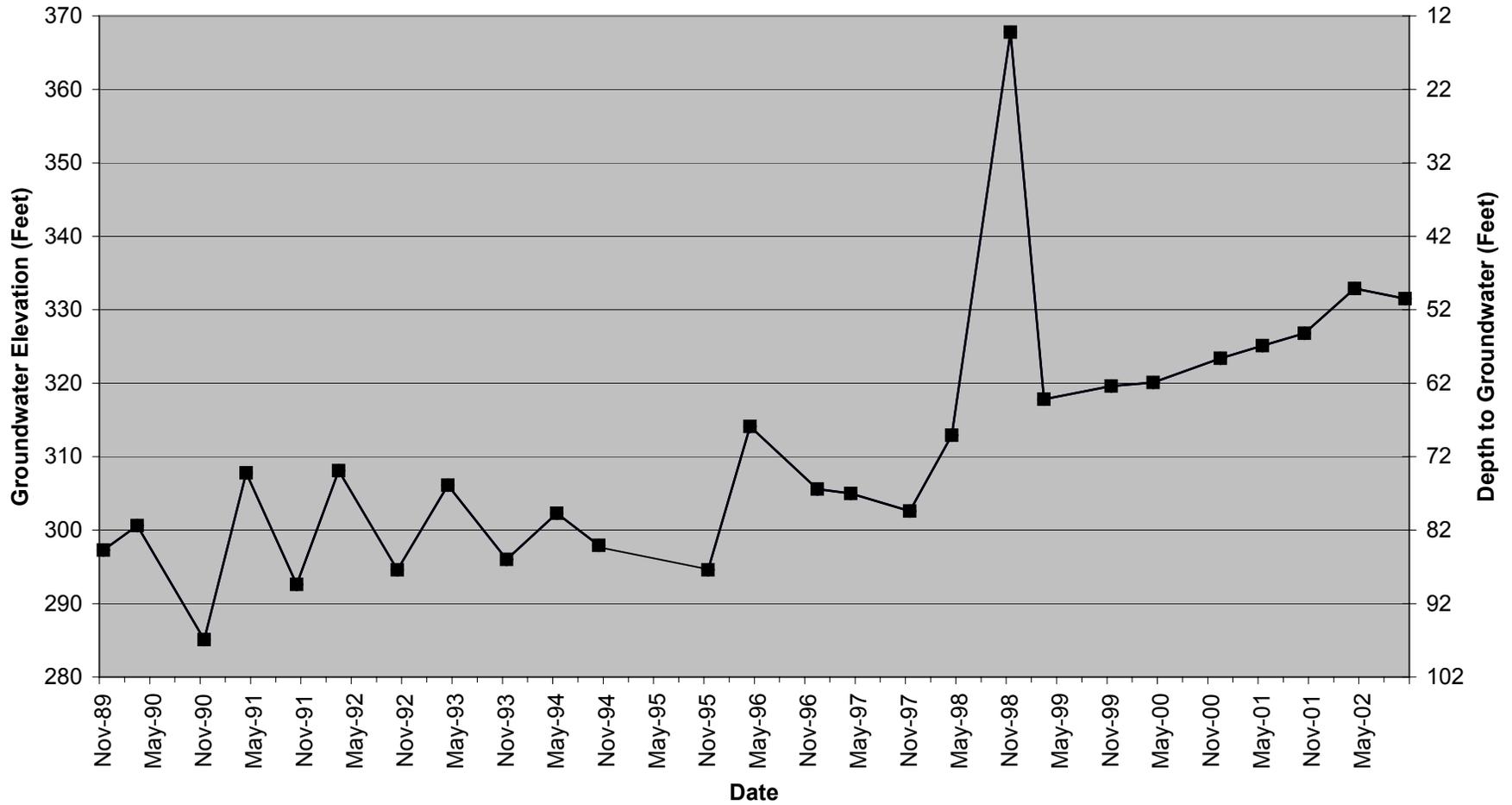
**Hydrograph of W4-2  
Santa Rosa Area  
Land Surface Elevation: 192 feet**



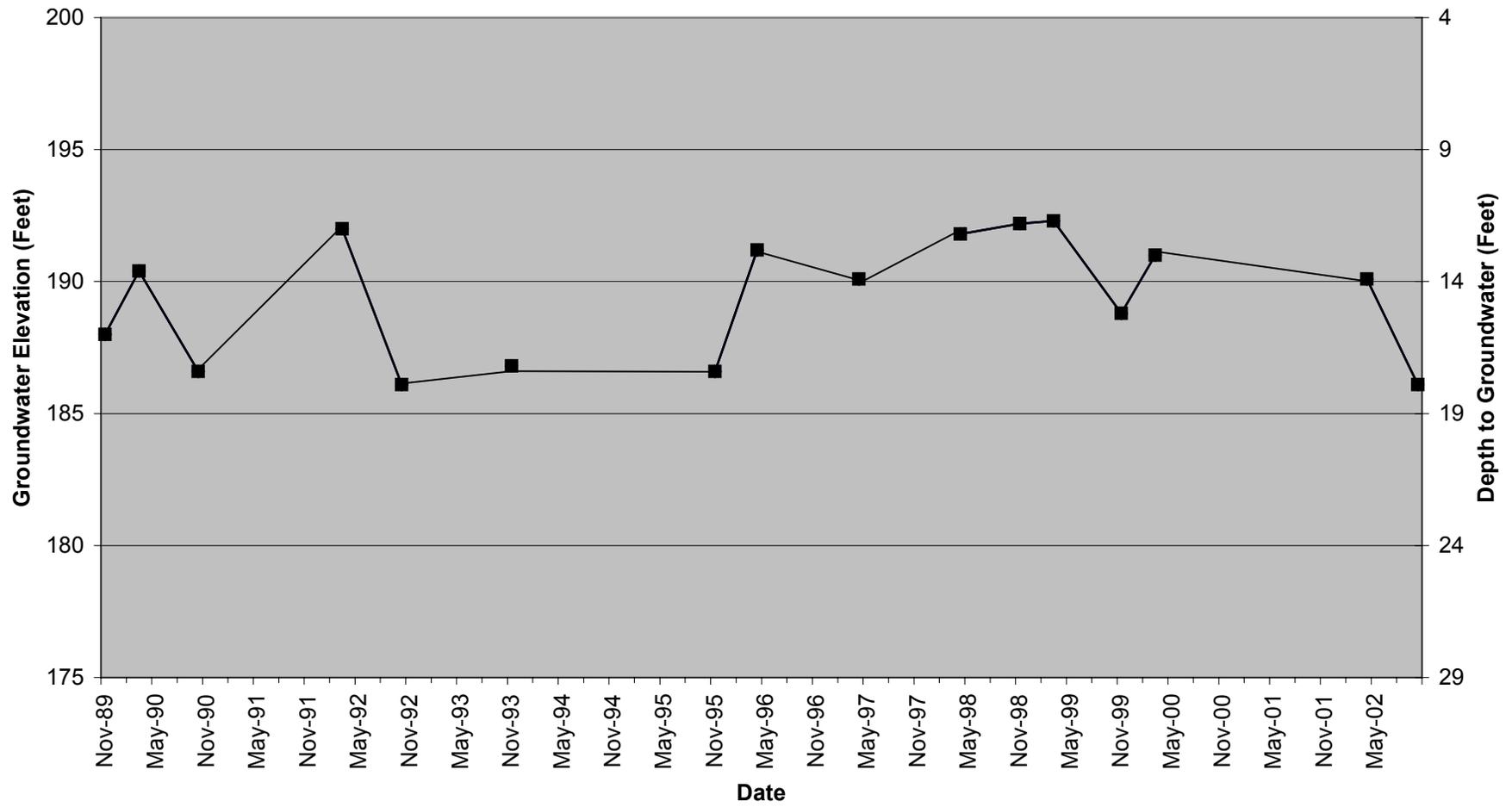
**Hydrograph of 07N07W06H002M**  
**Santa Rosa Area**  
**Land Surface Elevation: 295 feet**



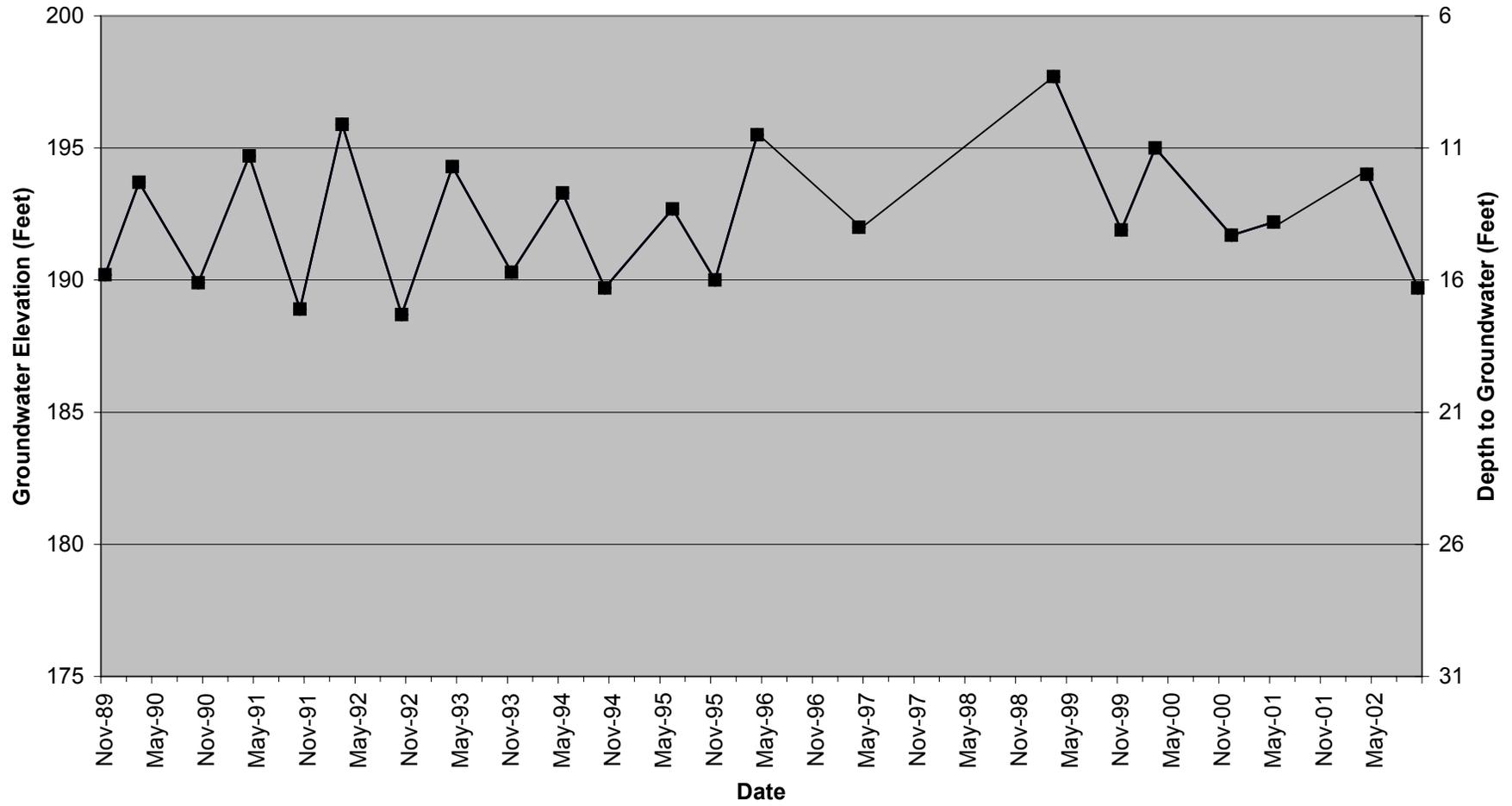
**Hydrograph of 07N07W09P001M**  
**Santa Rosa Area**  
**Land Surface Elevation: 382 feet**



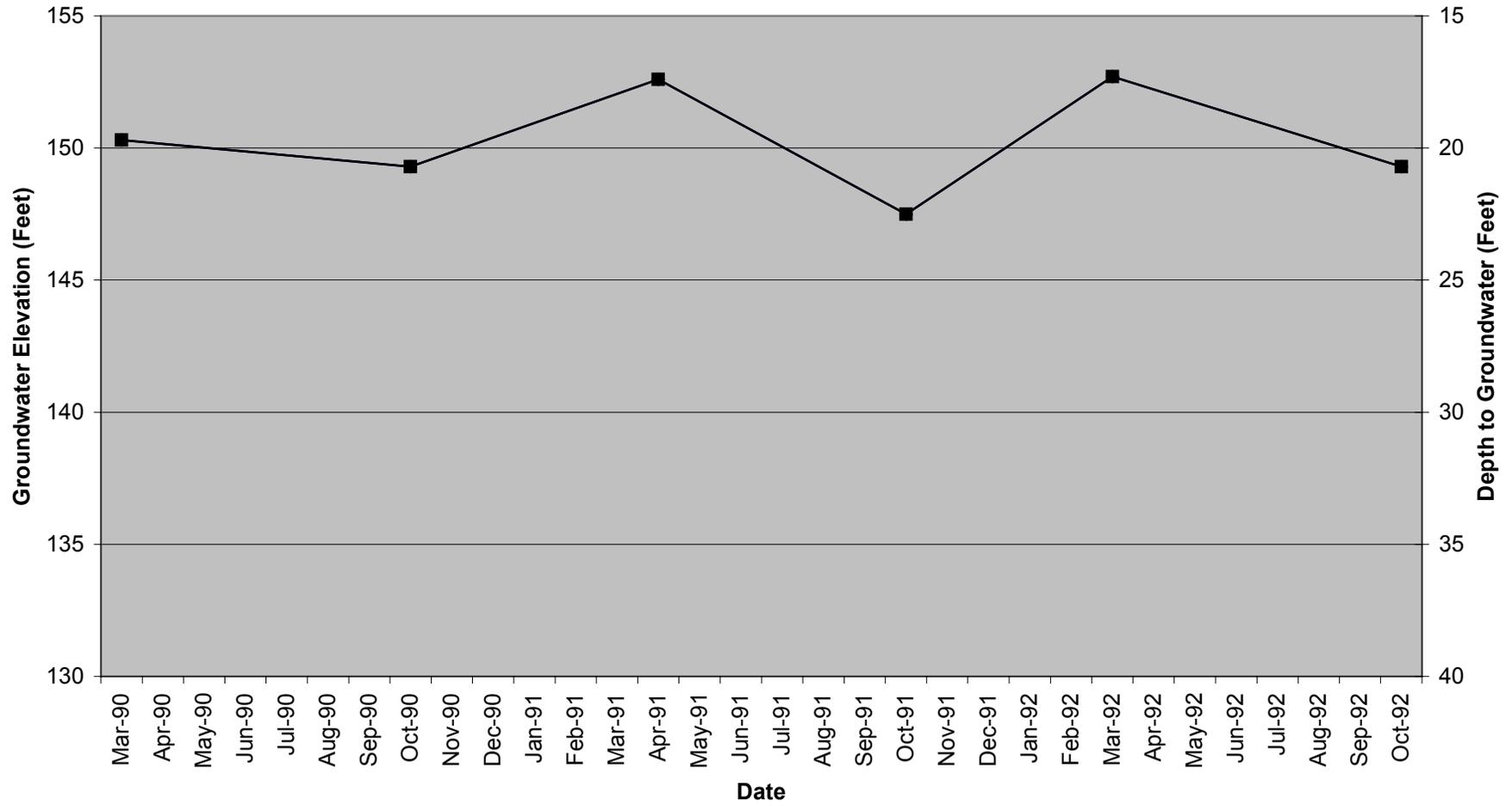
**Hydrograph of 07N07W19B001M**  
**Santa Rosa Area**  
**Land Surface Elevation: 204 feet**



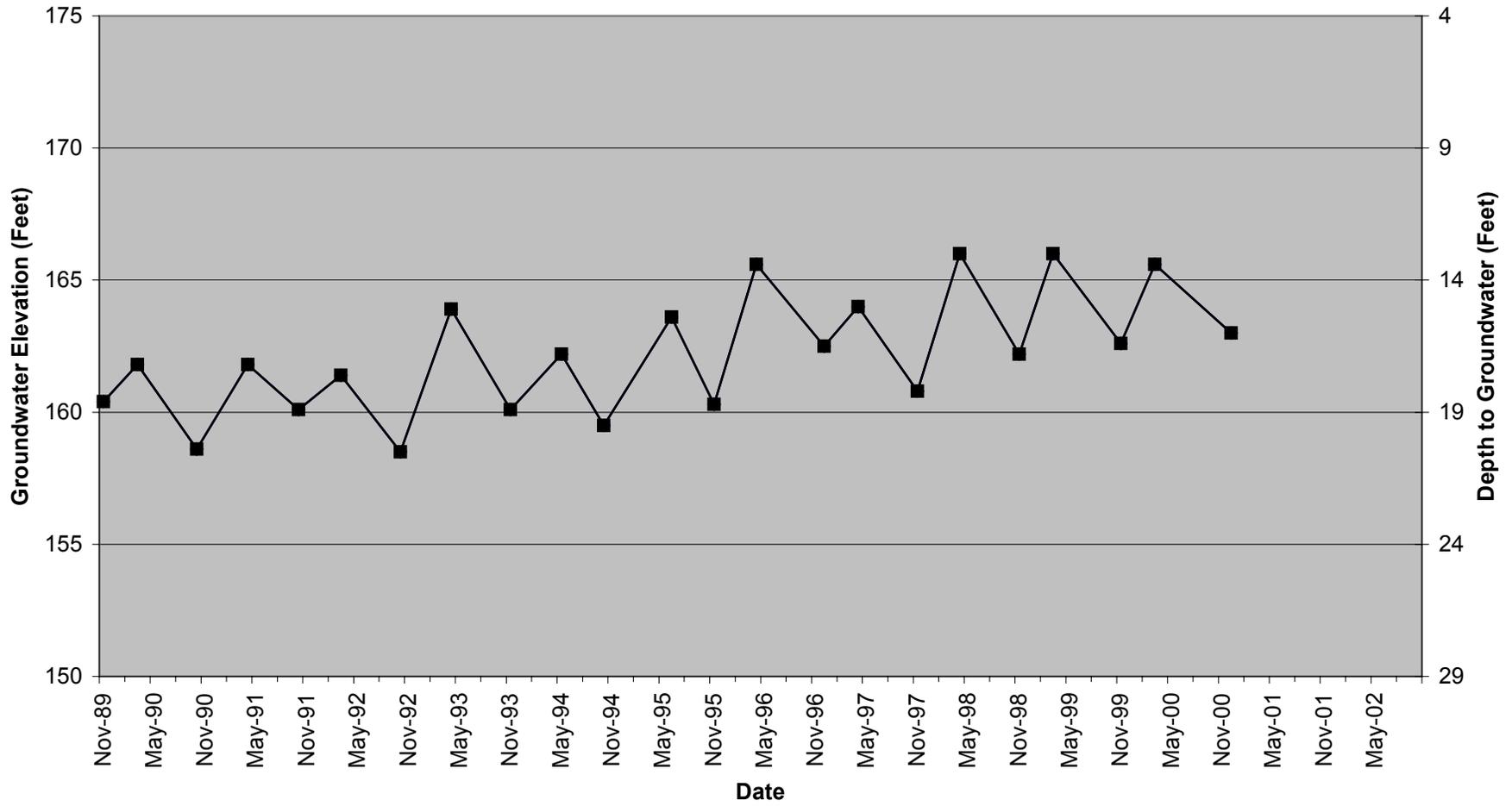
**Hydrograph of 07N07W19F002M  
Santa Rosa Area  
Land Surface Elevation: 206 feet**



**Hydrograph of 07N08W23H001M  
Santa Rosa Area  
Land Surface Elevation: 170 feet**



**Hydrograph of 07N08W24L001M  
Santa Rosa Area  
Land Surface Elevation: 179 feet**



**APPENDIX E**

**Water Shortage Contingency Plan**

**City of Santa Rosa**  
**Urban Water Shortage**  
**Contingency Plan**

**2006**



**CITY OF SANTA ROSA  
URBAN WATER SHORTAGE CONTINGENCY PLAN 2006  
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# **CITY OF SANTA ROSA URBAN WATER SHORTAGE CONTINGENCY PLAN - 2006 UPDATE**

## **Section 1: Introduction**

The City of Santa Rosa Water Shortage Contingency Plan (Plan) was first adopted on February 11, 1992 and is updated every five years. The Plan is a component of the regional Urban Water Management Plan, which is prepared by the Sonoma County Water Agency (SCWA). The Plan was first adopted in response to emergency legislation, California Assembly Bill 11X. Legislation has changed the requirements of water shortage contingency planning several times since the initial bill. Current requirements are in Section 10632 of the California Water Code, the Urban Water Management Planning Act, which is provided as Appendix 3 to this document.

Santa Rosa's initial Plan was first revised in 1996 with updated demand and financial figures. In 2002, a more comprehensive revision was completed, which included updated demand projections, financial analysis, and rate structure design for each rationing stage; a change in the per capita allocations in Stages 2-4; and a change in the methodology for determining landscape allocations in Stages 2-4. In 2005, the revision updated the demand and financial figures. This 2006 revision adds two sections to the document addressing minimum water supply and drought/emergency planning actions.

Santa Rosa's Urban Water Shortage Contingency Plan addresses demand reduction strategies for the Santa Rosa system. Trigger points on the Russian River system, which in turn trigger Santa Rosa's program, are determined by SCWA.

## **Section 2: City of Santa Rosa Water Supply**

The City of Santa Rosa provides water to 48,700 connections, with an annual total demand in 2004 of 23,584 acre-feet (AF). The City's source of water supply is the Sonoma County Water Agency. Santa Rosa's demand constituted approximately 36% of SCWA's total production in 2004.

Santa Rosa has historically received all of its potable water supply from the SCWA aqueduct system, which delivers water from the Russian River, and from groundwater wells in the Santa Rosa Plain. Under a master agreement entered into in October 1974 and amended most recently in 2001, Santa Rosa holds an entitlement to 56.6 million gallons per day, peak month average, with an annual volume limit of 29,100 AF. In 2005, Santa Rosa converted one emergency groundwater source to production status, with an annual yield of approximately 1,700 AF.

In December 1999, SCWA declared a state of impairment on their delivery system caused by delayed completion of critical pumping and conveyance facilities. The delay has been brought on by Endangered Species Act requirements and litigation. SCWA asked all water contractors and other customers to sign a Memorandum of Understanding (MOU) that defines certain operating agreements during this impairment condition. This MOU was executed in February 2001. Among other things, it requires parties to activate certain measures of Stage 1 of their Water Shortage Contingency Plans from June through

September until 2005 when additional pumping capacity on the Russian River System can be secured. During the impairment condition, parties to the MOU are also operating under modified peak entitlements.

Santa Rosa has never formally activated the Plan. There has not been a drought-based reduction in delivery from SCWA to the City of Santa Rosa since 1976-77. However, due to dry conditions on both the Russian River system and throughout the State, Santa Rosa adopted voluntary demand reduction Resolutions in 1988 and 1991; because of the SCWA impairment condition, the City again adopted a voluntary demand reduction Resolution in 2000.

### **Section 3: Past, Current and Projected Demand**

Santa Rosa is a community of 154,000. Of the approximately 48,700 water connections, 91% service residential demand while 9% service commercial. Utility customers are segregated into the following large customer classes: single-family residential, multi-family residential, and commercial. The multi-family residential class can be further divided by number of living units. In the commercial customer class, all utility customers have been classified according to the Standard Industrial Classification (SIC) system, which allows the commercial category to be sorted into sub-categories including: irrigation only, governmental institution, health care facility, and public safety. This latter classification system is represented in the demand reduction schedule of this plan (Table IV).

Analysis of historic dry year conditions in the “Sonoma County Water Agency Urban Water Management Plan 2000” indicates that no supply curtailment would result to Santa Rosa if the hydrologic conditions of the driest three-year historic sequence (1990-1992) occurred today (Page 6-3 UWMP 2000).

The following table summarizes highest historical water use and projected demand by customer class for the next three years. Actual purchase of water would be approximately 6% higher than demand due to normal unaccounted for water losses.

**Table I - Customer Class, Highest Year Demand, and Estimated Demand**

<b>Customer Class</b>	<b>Number of Connections 2004</b>	<b>Highest Demand (AF) 2004</b>	<b>Estimated Demand (AF) 2005</b>	<b>Estimated Demand (AF) 2006</b>	<b>Estimated Demand (AF) 2007</b>
Single Family Residential	41,310	13,638	13,911	14,249	14,473
Multiple Family Residential	3,046	3,505	3,575	3,662	3,719
*Commercial	2,737	3,569	3,640	3,729	3,788
Irrigation (est.)	1,673	2,872	2,930	3,001	3,048
<b>Total</b>	<b>48,766</b>	<b>**23,584</b>	<b>**24,056</b>	<b>**24,641</b>	<b>**25,029</b>

\*Includes Commercial, Industrial, Institutional, Health Care and Public Safety

\*\*Demand totals do not include unaccounted for water loss, which is approximately 6%.

### 3.1 – ESTIMATED MINIMUM WATER SUPPLY FOR NEXT THREE YEARS

The City has one primary source of supply, the Sonoma County Water Agency (SCWA), with City groundwater as an emergency backup supply. The estimated minimum water supply for the next three years assumes a multiple dry year condition based on the driest three-year historic sequence (1990 to 1992). As indicated in the SCWA UWMP 2000, no supply curtailment would result to Santa Rosa if the hydrologic conditions of the driest three-year historic sequence occurred today. Table II presents the estimated minimum water supply for the next three years.

**Table II – Estimated Minimum Water Supply for the Next Three Years**

Supply Source	Projected Minimum Water Supply, acre-feet		
	2006	2007	2008
SCWA*	29,100	29,100	29,100
City Groundwater	1,550	1,550	1,550
Total Supply	30, 650	30, 650	30, 650
Projected Water Demand	<b>**24,641</b>	<b>**25,029</b>	<b>**25,403</b>
Projected Supply Shortfall	<b>No Shortfall Projected</b>		

\* Assumes no supply curtailment based on information provided in the SCWA 2000 UWMP.

\*\*Demand totals do not include unaccounted for water loss, which is approximately 6%.

Also shown in Table II are the projected demands for the next three years. As shown, the estimated minimum water supply is sufficient to meet the projected water demands and no supply shortfall is projected.

## **Section 4: Drought/Emergency Planning Actions**

In addition to responding to drought conditions, the City’s Water Shortage Contingency Plan can be used to respond to emergency conditions that interrupt water supplies to the City. Water supplies may be interrupted in the future due to water supply contamination, major transmission pipeline break, regional power outage, or a natural disaster such as an earthquake. In the event of an emergency, the Utilities Department would respond as outlined in the City’s current City of Santa Rosa Utilities Department Water System Emergency Response Plan. Actions that the City would take if these emergencies occurred today are outlined below.

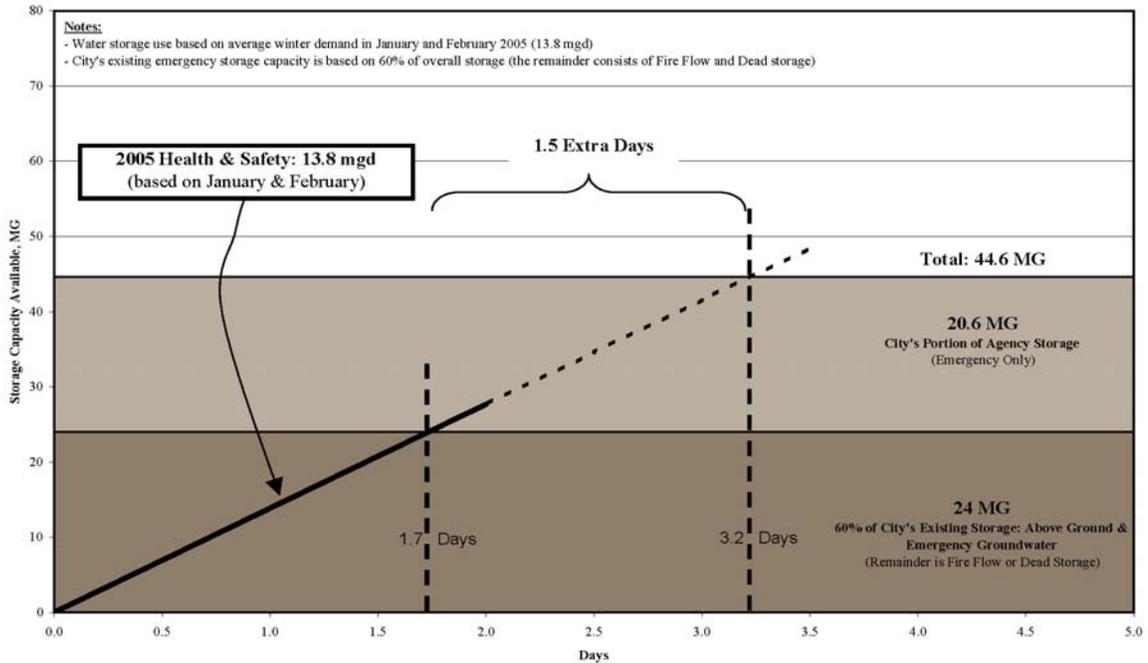
### **4.1 NO WATER AVAILABLE FROM SCWA**

In the event that SCWA’s Russian River supply becomes contaminated (i.e. due to a chemical spill or other environmental incident), it may be possible that no water would be available from SCWA for a period of time. In such a case, the City would need to rely on water from its distribution system storage facilities or emergency wells.

Figure 1 shows a water supply outage scenario along with minimum amounts of water required for health and safety purposes. As shown, based on the City’s assumed available storage capacity at the time of the emergency and minimum health and safety water needs, the City’s stored water supplies would last 3.2 days. If such an event were to occur, the City would need to implement one or more stages of the Water Shortage Contingency Plan to

notify customers of the need to reduce water use until the SCWA water supply could be restored.

Figure 1. Existing Emergency Storage Available to Meet Health & Safety Water Demands



Last Revised: 05/23/06

Location: O:\Clients\405 City of Santa Rosa\02-04-16 UWMP Update\ENGR\Presentation\Pres\_Table 5-9.xls

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## 4.2 AREA-WIDE ELECTRICAL POWER FAILURE

If an area-wide electrical power failure were to occur within the City's water service area, many of the City's pumping facilities could potentially be impacted. The City has stationary generators at some of its booster pump stations, while others only have receptacles for use with portable generators. The City has acknowledged this potential vulnerability and has included the provision of back-up power facilities at each of the City's booster pump stations in the City's current Capital Improvement Program.

SCWA's facilities may also be vulnerable to power outages; however, most of the SCWA facilities which serve the City have backup power provisions.

## 4.3 EARTHQUAKE

Water system infrastructure, including pump stations, storage tanks, and pipelines, can be damaged during a strong earthquake. The City's facilities have been constructed in accordance with the applicable building codes to minimize potential damage during an earthquake. However, it is expected that some facilities may be damaged as the result of a strong earthquake. The City has planned for this potential outage scenario by constructing

system redundancy into its water system. The City has multiple storage facilities and looped distribution pipelines, to allow potentially damaged portions of the City's system to be quickly isolated and repaired.

## **Section 5: Stages of Action for Demand Reduction up to 50%**

Demand reduction strategies will be employed at all stages of a water shortage emergency. This Section includes details of *Rationing Stages*, *Reduction Goals*, *Consumption Limits*, *Prohibitions on Water Use*, and *Water Shortage Rate Structure*. The entire strategy for demand reduction is summarized in Appendix 1, the Water Shortage Action Plan table.

**5.1 RATIONING STAGES:** The City has determined the following rationing stages for response to reduced supply in a water shortage emergency:

**Table III - Rationing Stages and Reduction Goals**

Supply Shortage	Rationing Stage	Overall Demand Reduction Goal	Program Type
Up to 15%	Stage 1 - Minimal	15%	Voluntary
15% - 25%	Stage 2 - Moderate	25%	Mandatory
25% - 35%	Stage 3 - Severe	35%	Mandatory
35% - 50%+	Stage 4 - Critical	50%+	Mandatory

**5.2 DEMAND REDUCTION GOALS:** Overall demand reduction will be achieved with different reduction goals in each user class. The following priorities have been established for use in developing demand reduction programs and allocations during a water shortage emergency. Priorities for use of available water, from highest to lowest priority, are:

- Health and Safety
- Commercial, Industrial and Governmental
- Existing Landscaping - especially trees and shrubs
- New Demand - projects without permits when shortage is declared

With these guidelines in mind, the following table details overall reduction goals by customer class for Stages 2-4 of the water shortage emergency. Reduction goals for single-family customers are based on per capita water allocation, plus an irrigation allocation (as further described below). For irrigation water services, the allocation is based on plant type and evapotranspiration data. For the commercial customers, prior year demand is the basis for calculating demand reduction.

**Table IV - Customer Class, Highest Year Demand and Reduction Goals**

	<b>Highest Year 2004</b>	<b>Stage 2</b>	<b>Stage 3</b>	<b>Stage 4</b>
Customer Class		% Reduction	% Reduction	% Reduction
	Annual Demand	Annual Allocation	Annual Allocation	Annual Allocation
Single Family		29%	40%	57%
	13,638 AF	9,682 AF	8,251 AF	5,905 AF
Multiple Family		2%	14%	23%
	3,505 AF	3,418 AF	3,014 AF	2,699 AF
Commercial/ Industrial/ Governmental		15%	20%	30%
	2,962 AF	2,518 AF	2,370 AF	2,073 AF
Irrigation		48%	60%	79%
	2,872 AF	1,493 AF	1,149 AF	599 AF
Health Care Facilities/ Public Safety		5%	10%	15%
	607 AF	577 AF	546 AF	516 AF
Total		25%	35%	50%
	23,584 AF	17,688 AF	15,330 AF	11,792 AF

**5.3 CONSUMPTION LIMITS:** To achieve the overall reduction goals, a community-wide goal is assigned in Stage 1, and allocations are determined for each customer within a customer class for Stages 2-4. Details of reduction strategies for each customer class at each reduction stage are as follows:

**Stage 1** is a voluntary program with 15% overall reduction:

- Community-wide reduction is the goal; elimination of all waste; minimization of non-essential use; "water-on-request" restaurant program

**Stage 2** is a mandatory program with 25% overall reduction. Allocations are developed for each water service:

- Single-family customers receive 65 gallons per capita day (gpcd) plus a moderate landscape allotment of 2,500 gallons per month from May through October
- Multi-family customers receive 65 gpcd plus a moderate landscape allotment if irrigation usage is not on a separate dedicated service
- Commercial/Industrial/ Governmental receives 85% of previous 12 months' usage or of the most recent 12-month period with no water shortage restrictions in place
- Irrigation receives a water budget based on the 80% of historical net evapotranspiration-based demand for the square footage of the irrigated area
- Health care and public safety receives 95% of previous 12 months' usage or of the most recent 12-month period with no water shortage restrictions in place

**Stage 3** is a mandatory program with 35% overall reduction. Allocations are developed for each water service:

- Single-family customers receive 57 gpcd plus a minimal landscape allotment of 2,000 gallons per month from May through October
- Multi-family customers receive 57 gpcd plus a minimal landscape allotment if irrigation usage is not on a separate dedicated service
- Commercial/Industrial/Governmental receives 80% of previous 12 months' usage or of the most recent 12-month period with no water shortage restrictions in place
- Irrigation receives a water budget based on the 50% of historical net evapotranspiration-based demand for the square footage of the irrigated area
- Health care and public safety receives 90% of previous 12 months' usage or of the most recent 12-month period with no water shortage restrictions in place

**Stage 4** is a mandatory program with 50% overall reduction. Allocations are developed for each water service:

- Single and multi-family customers receive 50 gpcd with no landscape allotment
- Commercial/Industrial/Governmental receives 70% of previous 12 months' usage or of the most recent 12-month period with no water shortage restrictions in place
- Irrigation receives allotment only for mature trees and shrubs
- Health care and public safety receives 85% of previous 12 months' usage or of the most recent 12-month period with no water shortage restrictions in place

**5.4 PROHIBITIONS ON WATER USE:** Santa Rosa adopted a Water Waste Ordinance in 1999 which prohibits the following:

- Irrigation in such a manner that it runs off or over-sprays the irrigated area
- Leaks that are detected yet un-repaired

The Ordinance states that water service will be discontinued for continued violation once notification has been made.

In addition to the prohibitions outlined in the Water Waste Ordinance, the following program of prohibited use is established for the Water Shortage Emergency condition:

**Stage 1**

- Hose-end shut-off nozzles required on all garden and utility hoses
- Water served in restaurants on request only
- Washing sidewalks, patios, and other hard surfaces prohibited

**Stage 2 - All prohibitions established in previous stage plus:**

- Irrigation limited to the hours of 8:00 pm to 6:00 am
- Operating ornamental fountains prohibited
- Filling new swimming pools prohibited
- Reclaimed water must be used for construction dust control

**Stage 3 - All prohibitions established in previous stage plus:**

- No water using landscape installation in new construction
- New construction must offset new demand by conserving two times the new demand within the community
- Filling or topping-off of existing swimming pools prohibited

**Stage 4 - All prohibitions established in previous stage plus:**

- No water using landscape installation
- New construction must offset new demand by conserving three times the new demand within the community

A customer will be found in violation of a prohibited use if the use continues after two official City written notifications. Remedies for violation of these prohibited actions are included in Section 5.6.

**5.5 WATER SHORTAGE RATE STRUCTURE**

Santa Rosa's water commodity rate structure as of January 1, 2005 is \$2.89 per 1,000 gallons. Water rates during a shortage condition as defined in the following sections will be based on modifications to the commodity rate in place at the time of the declared emergency.

Santa Rosa's water rate structure is designed to encourage efficient water use, even during normal water supply conditions. This is achieved through a low fixed service charge and a

relatively high commodity rate applicable to each unit of water use. This conservation-oriented rate structure introduces some financial risk in that some fixed costs are recovered through the commodity rate, based on total water usage. A reduction in water usage results in revenues not covering all fixed costs.

Changes to the water rate structure during each stage of rationing are designed to encourage customers to reduce water use commensurate with water allocations and reduction goals. In addition, the rate structure changes are also necessary to help protect the financial condition of the water system as water demands are reduced.

Three lines of defense are incorporated into the City's water shortage financial strategy and rate structure.

1. The catastrophic reserve will be drawn down to absorb part of the financial deficit caused by a reduction in water rate revenues (due to lower water sales) that exceeds the reduction in operating costs.
2. All customers will be subject to an increased commodity rate (Water Shortage Charge) to encourage water conservation by all customers and help protect the financial condition of the water utility. The Water Shortage Charge (described below) is designed such that customers meeting reduction goals will have lower water bills than they do with normal usage.
3. Water service customers that exceed water allocations and do not meet reduction goals will be subject to additional Excess Use Charges during severe (Stage 3) and critical (Stage 4) periods. Revenues from Excess Use Charges will be used only for specified purposes.

In Stage 1, there are no changes to the water rate structure. To compensate for loss of revenue from reduced water sales and increased staffing for the water shortage response effort, the Catastrophic Reserve will be employed. In the event of a water shortage, adoption of the Water Shortage Resolution (See Section 7: Implementation of the Plan) by Santa Rosa City Council will allow the appropriation of funds from the Catastrophic Reserve.

In Stages 2-4, reduction in net revenue brought on by reduced water sales and increased costs for the water shortage response effort will be mitigated by both the Catastrophic Reserve and the introduction of a Water Shortage Charge (WSC) on each unit of water sold. The WSC is designed to recover a portion of the cost of the revenue from the shortfall from the entire community, and is designed such that a typical customer's bill will not change significantly even though the rate has increased (this assumes the typical customer will reduce use at least at the level of the WSC). The WSC will increase with each stage according to Table V.

**Table V - Water Shortage Charge (WSC) for All Water Sold: Stages 2-4**

<b>Stage</b>	<b>Charge for water</b>	<b>Example with current rate (charge per 1000 gallons)</b>
Stage 2	Commodity rate + 10% WSC	$\$2.89 + 0.29 = \$3.18$
Stage 3	Commodity rate + 20% WSC	$\$2.89 + 0.58 = \$3.47$
Stage 4	Commodity rate + 30% WSC	$\$2.89 + 0.87 = \$3.76$

In addition to the WSC, an inclining block rate designed to reward customers for staying within their allotment and to assess Excess Use Charges (EUC) for water use over the allotment will be adopted at Stages 3 and 4. The blocks will be designed to reflect the structure illustrated in Table VI.

**Table VI – Excess Use Charge (EUC) in an Inclining Block Rate for Water Used in Excess of Allotment - Stages 3-4**

<b>Water Use Compared to Allotment</b>	<b>Block/Rate</b>
Water use up to 100% of allotment	Block 1: Commodity rate with WSC per table V
Water use 101% to 150% of allotment	Block 2: Block 1 rate + 50% EUC (Stage 3) or 100% EUC (Stage 4)
Water use over 150% of allotment	Block 3: Block 1 rate + 100% EUC (Stage 3) or 200% EUC (Stage 4)

EUC revenues are not intended to be used as general operating revenues during the emergency, but may be used to: (1) offset the extraordinary costs of the water shortage emergency such as additional conservation support; (2) rebuild the Catastrophic Reserve; (3) establish a rate stabilization fund for the post-emergency recovery.

Table VII summarizes the water shortage rate structure for each stage of rationing based on the current (2005) water rates.

**Table VII - Water Shortage Rate Structures (2005)**

	Normal	Stage 1	Stage 2	Stage 3	Stage 4
<b>Monthly Service Charge (\$/Month)</b>					
5/8" Meter	\$ 5.07	\$ 5.07	\$ 5.07	\$ 5.07	\$ 5.07
1" Meter	\$ 9.23	\$ 9.23	\$ 9.23	\$ 9.23	\$ 9.23
1 1/2" Meter	\$ 17.66	\$ 17.66	\$ 17.66	\$ 17.66	\$ 17.66
2" Meter	\$ 29.68	\$ 29.68	\$ 29.68	\$ 29.68	\$ 29.68
3" Meter	\$ 69.40	\$ 69.40	\$ 69.40	\$ 69.40	\$ 69.40
4" Meter	\$ 118.07	\$ 118.07	\$ 118.07	\$ 118.07	\$ 118.07
6" Meter	\$ 258.48	\$ 258.48	\$ 258.48	\$ 258.48	\$ 258.48
<b>Commodity Rates (\$/1,000 Gal.)</b>					
Uniform (Tier 1) Rate (1)	\$ 2.89	\$ 2.89	\$ 3.18	\$ 3.47	\$ 3.76
Tier 2 Rate (2)	n/a	n/a	n/a	\$ 5.21	\$ 7.52
Tier 3 Rate (3)	n/a	n/a	n/a	\$ 6.94	\$ 11.28
<b>Commodity Rate Components (\$/1,000 Gal.)</b>					
Standard Commodity Rate	\$ 2.89	\$ 2.89	\$ 2.89	\$ 2.89	\$ 2.89
Water Shortage Charge (4)	\$ -	\$ -	\$ 0.29	\$ 0.58	\$ 0.87
Tier 2 Excess Use Charge (5)	\$ -	\$ -	\$ -	\$ 1.74	\$ 3.76
Tier 3 Excess Use Charge (6)	\$ -	\$ -	\$ -	\$ 3.47	\$ 7.52

**Notes:**

- (1) Includes the Standard Commodity Rate plus the Water Shortage Charge.
- (2) Includes the Tier 1 rate plus the Tier 2 Excess Use Charge. Applies to water use 101% to 150% of allocation.
- (3) Includes the Tier 1 rate plus the Tier 3 Excess Use Charge. Applies to water use in excess of 150% of allocation.
- (4) Equals 10%, 20%, or 30% of Standard Commodity Rate during Stage 2, Stage 3, or Stage 4, respectively.
- (5) Equals 50% of Tier 1 Rate during Stage 3 and 100% of Tier 1 Rate during Stage 4.
- (6) Equals 100% of Tier 1 Rate during Stage 3 and 200% of Tier 1 Rate during Stage 4.

**5.6 VIOLATIONS OF WATER USE RESTRICTIONS AND REPEATED EXCESS USE**

Any customer who exceeds the established allotment three consecutive months, or exceeds the established allotment six months within a twelve month period, or violates one or more prohibited uses, may, at the discretion of the Director of Utilities, be subject to any of the following actions:

- At the customer's expense, undergo a complete site water audit and install certain water efficient fixtures
- Installation of a flow reducing device at the water meter
- Disconnection of water service and payment of a designated fee for reconnection of the water service

**5.7 VARIANCE PROCEDURES**

This Plan is designed to place the responsibility for managing our water resource during a water shortage emergency on the entire community. Care has been taken in the design of the Plan not to penalize any customer who has undertaken conservation measures in the past for having saved water on an ongoing basis. Furthermore, any customer meeting water use reduction goals by limiting water use to defined allocations will be able to avoid paying Excess Use Charges.

Any customer who feels their established allotment is unfair may apply to the City for a reassessment. Variances will be granted, on a case-by-case basis, at the discretion of the Director of Utilities. The following conditions are among those that may be given

consideration in the variance process:

- Water uses that support public health and safety,
- Non-residential water customers (whose allotment is based on previous consumption) who can demonstrate that water efficient hardware and conservation practices were in place prior to the water shortage emergency, and
- Water used for mature trees for which an inadequate allocation has been made.

## **Section 6: Analysis of Revenue and Expenditure Impacts**

Table VIII details the Santa Rosa Water Utility's projected annual revenue and expenditure status (based on 2005) in non-shortage conditions and at each stage in the water shortage program.

**Table VIII - Impact of Water Shortage on Revenues and Expenditures (2005)**

	<b>Normal Supply</b>	<b>Stage 1: 15% Shortage</b>	<b>Stage 2: 25% Shortage</b>	<b>Stage 3: 35% Shortage</b>	<b>Stage 4: 50% Shortage</b>
<b>Sources of Funds</b>					
Service Charge Revenues	\$ 3,560,000	\$ 3,560,000	\$ 3,560,000	\$ 3,560,000	\$ 3,560,000
Commodity Rate Revenues (1)	\$ 20,860,000	\$ 17,731,000	\$ 15,645,000	\$ 13,559,000	\$ 10,430,000
Water Shortage Charge Revs. (2)	\$ -	\$ -	\$ 1,564,000	\$ 2,712,000	\$ 3,129,000
Other Operating Revenues	\$ 2,881,000	\$ 2,881,000	\$ 2,881,000	\$ 2,881,000	\$ 2,881,000
<b>Total Sources of Funds</b>	<b>\$ 27,301,000</b>	<b>\$ 24,172,000</b>	<b>\$ 23,650,000</b>	<b>\$ 22,712,000</b>	<b>\$ 20,000,000</b>
(% of normal)		89%	87%	83%	73%
<b>Uses of Funds</b>					
Purchase of Water (3)	\$ 10,570,000	\$ 8,985,000	\$ 7,928,000	\$ 6,871,000	\$ 5,285,000
Water Quality	\$ 624,000	\$ 624,000	\$ 624,000	\$ 624,000	\$ 624,000
Water Maintenance	\$ 8,506,000	\$ 8,506,000	\$ 8,506,000	\$ 8,506,000	\$ 8,506,000
Demand Management	\$ 1,704,000	\$ 1,704,000	\$ 1,704,000	\$ 1,704,000	\$ 1,704,000
Water Shortage Prog. Expend. (4)	\$ -	\$ 250,000	\$ 600,000	\$ 800,000	\$ 1,000,000
Operation & Maintenance Projects	\$ 657,000	\$ 657,000	\$ 657,000	\$ 657,000	\$ 657,000
Water Operations Turnback	\$ (500,000)	\$ (500,000)	\$ (500,000)	\$ (500,000)	\$ (500,000)
Net Transfers and Use of Reserves	\$ 5,740,000	\$ 5,740,000	\$ 5,740,000	\$ 5,740,000	\$ 5,740,000
<b>Total Uses of Funds</b>	<b>\$ 27,301,000</b>	<b>\$ 25,966,000</b>	<b>\$ 25,259,000</b>	<b>\$ 24,402,000</b>	<b>\$ 23,016,000</b>
(% of normal)		95%	93%	89%	84%
<b>Surplus/(Deficit) in Operations</b>	<b>\$ -</b>	<b>\$ (1,794,000)</b>	<b>\$ (1,609,000)</b>	<b>\$ (1,690,000)</b>	<b>\$ (3,016,000)</b>
<b>Catastrophic Reserve</b>					
Available Balance (5)	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000	\$ 5,000,000
Excess Use Chrg. Revs. (6)	\$ -	\$ -	\$ -	\$ -	\$ -
Used to Cover Oper. Deficit	\$ -	\$ (1,794,000)	\$ (1,609,000)	\$ (1,690,000)	\$ (3,016,000)
Ending Balance	\$ 5,000,000	\$ 3,206,000	\$ 3,391,000	\$ 3,310,000	\$ 1,984,000

**Notes:**

- (1) Commodity rate revenues would decline in proportion with water
- (2) Water shortage charge would be imposed in Stages 2, 3, and 4 to limit the operating
- (3) Water supply costs would be reduced in proportion with water
- (4) Additional expenditures associated with water shortage
- (5) Assumed catastrophic reserve balance at start of
- (6) Excess Use Charge would be imposed in Stages 3 and 4. Revenues are difficult to predict due to relationship customer rationing response at the margin. If customers achieve rationing goals Excess Use Charges would be

Table IX summarizes the water bill for a typical single-family customer during each stage of water rationing. One example shows the customer’s bill when water usage is limited to the specified water allocation, and the other example shows the customer’s bill if no reduction is made in water use.

**Table IX - Single Family Water Bills During Stages of Rationing (1)**

<b>Rationing Stage</b>	<b>Single Family Reduction Goal</b>	<b>Monthly Water Use (1000 gal)</b>	<b>Service Charge</b>	<b>Standard Commodity Charge</b>	<b>Water Shortage Charge</b>	<b>Excess Use Charge</b>	<b>Total Water Bill</b>
<i>Average Single Family Customer Meeting Allocation Limits</i>							
<b>Normal</b>	0%	12	\$ 5.07	\$ 34.68	\$ -	\$ -	\$ 39.75
<b>Stage 1</b>	15%	10	\$ 5.07	\$ 28.90	\$ -	\$ -	\$ 33.97
<b>Stage 2</b>	29%	9	\$ 5.07	\$ 26.01	\$ 2.60	\$ -	\$ 33.68
<b>Stage 3</b>	40%	7	\$ 5.07	\$ 20.23	\$ 4.05	\$ -	\$ 29.35
<b>Stage 4</b>	57%	5	\$ 5.07	\$ 14.45	\$ 4.34	\$ -	\$ 23.86
<i>Average Single Family with No Water Use Reduction</i>							
<b>Normal</b>	0%	12	\$ 5.07	\$ 34.68	\$ -	\$ -	\$39.75
<b>Stage 1</b>	15%	12	\$ 5.07	\$ 34.68	\$ -	\$ -	\$39.75
<b>Stage 2</b>	29%	12	\$ 5.07	\$ 34.68	\$ 3.47	\$ -	\$43.22
<b>Stage 3</b>	40%	12	\$ 5.07	\$ 34.68	\$ 6.94	\$ 8.66	\$55.35
<b>Stage 4</b>	57%	12	\$ 5.07	\$ 34.68	\$ 10.40	\$ 45.07	\$95.22

**Notes:**

(1) Assumes 3 person household and summertime irrigation

**Section 7: Implementation of the Plan**

At the time of a water shortage emergency, the Santa Rosa City Council will adopt a Water Shortage Resolution. A draft Water Shortage Declaration Resolution is found in Appendix 2. With Stages 2-4, a Water Shortage Emergency Ordinance will also be adopted.

In the event that a Water Shortage Emergency occurs and the City Council cannot assemble to adopt the Water Shortage Resolution, the Director of Utilities is authorized to implement the appropriate stage, based on the reduction in water supply, of the Urban Water Shortage Contingency Plan. The Director of Utilities determination to implement the Urban Water Shortage Contingency Plan shall remain effective until the City Council meeting immediately following such determination, at which time the Santa Rosa City Council will adopt the Water Shortage Resolution.

## **Section 8: Monitoring Procedures**

**Stage 1** - Monthly delivery records from SCWA meters and from local groundwater sources, if in use, will be reported to the Director of Utilities or the Director's designee. If overall reduction goals are not met, the Director may notify the Board of Public Utilities and more aggressive measures can be implemented.

**Stage 2 - 4** - Weekly delivery figures from SCWA meters and local groundwater sources, if in use, and monthly consumption data from Santa Rosa Utility Billing will be reported to the Director of Utilities or the Director's designee. If reduction goals are not met, the Director will notify the Board of Public Utilities and more aggressive action will be taken.

## **Section 9: Public Noticing and Adoption**

The City of Santa Rosa prepared the first Water Shortage Contingency Plan during December 1991 and January 1992. The Board of Public Utilities adopted the Plan on February 6, 1992. The Santa Rosa City Council adopted the Plan on February 11, 1992. The Plan was updated in data areas only in 1996 and reviewed by the Board of Public Utilities Water Conservation Subcommittee. The 2002 revision was reviewed in a public hearing before the Santa Rosa Board of Public Utilities. The City Council adopted the plan on May 21, 2002.

The 2005 revision was updated in data areas only and reviewed in public hearing before the Santa Rosa Board of Public Utilities on May 19, 2005, and was recommended for adoption by the Santa Rosa City Council on that date. The City Council adopted the plan on June 7, 2005.

This 2006 revision was updated as part of the adoption of the City's 2005 Urban Water Management Plan. This revision was updated by adding Section 4 to the document and was reviewed by the Board of Public Utilities Water Conservation Subcommittee in May 2006. The 2006 plan was reviewed in public hearing before the Santa Rosa Board of Public Utilities on June 15, 2006, and was recommended for adoption by the Santa Rosa City Council on that date. The City Council adopted the plan on June 27, 2006 as part of the adoption of the City's 2005 Urban Water Management Plan.

# **Appendices**

## City of Santa Rosa - Water Shortage Action Plan 2005

Stage	Utility Department Actions	Customer Actions	Comments
<b>Stage I - Minimal: 15 percent overall reduction.</b>	<p><b>1) Adopt resolution:</b>            *Requesting voluntary water conservation with non-allotment based cut-back goals for all user classes.            *Prohibiting water waste and reducing all non-essential uses.</p> <p><b>2) Initiate public information campaign:</b>            *Prepare and disseminate educational brochures, bill inserts, etc.            *Disseminate technical information to specific customer types.            *Set up public information booths urging water conservation and showing ways the public can save water.            *Coordinate media outreach program; issue news releases to the media.            *Explain other stages and forecast future actions.</p> <p><b>3) Increase agency support:</b>            *Add temporary position to staff phone lines.            *Initiate patrol for water waste violations and customer audits.</p> <p><b>4) Prepare for future stages:</b>            *Develop computer capability to initiate rationing stages.            *Gather census information from residential sector for per capita allotments</p>	<p><b>1) Implement voluntary water use reductions.</b></p> <p><b>2) Adhere to water shortage resolution.</b></p> <p><b>3) Become aware of possible further restriction.</b></p>	<p><b>*Voluntary program, community-wide reduction goals.</b></p> <p><b>*Strong public information campaign.</b></p> <p><b>*Emphasis on elimination of waste and increased awareness.</b></p> <p><b>* Hose-end shut-off nozzles and required on all garden and utility hoses.</b></p> <p><b>* Hosing off hard surfaces prohibited.</b></p> <p><b>* A “Water-on-request” restaurant program.</b></p>

## City of Santa Rosa - Water Shortage Action Plan 2005

Stage	Utility Department Actions	Customer Actions	Comments
<p><b>Stage II - Moderate: 25 percent overall reduction.</b></p>	<p><b>In addition to stage I:</b></p> <p><b>1) Adopt rationing ordinance:</b>                      *Assigning allotment to each water service: residential based on per capita allotment plus landscape; irrigation only based on ET to water budget; non-residential based on reduction from previous consumption.                      *Implement Water Shortage Charge (WSC)                      *Expanding prohibited uses and developing penalty structure for waste violations.                      *Defining criteria and administrative procedures for variances.</p> <p><b>2) Intensify public info campaign:</b>                      *Notify each service of allotment goals.                      *Make site surveys available to all customers</p> <p><b>3) Increase agency support:</b>                      *Establish Shortage Response Center                      *Appoint variance officer and administer variance program for all user classes.                      *Increase patrol/audit support.</p>	<p><b>1) Adhere to allotment for 25 percent overall reduction:</b></p> <p>*Single Family - 65 gpcd, plus landscape allotment of 2,500 gallons per month May-Oct.                      *Multiple Family - 65 gpcd, plus moderate landscape allotment.                      *Commercial/Industrial/Governmental - 85 % of previous 12 months usage (15% reduction).                      *Irrigation - 80% of ET based water budget.                      *Health Care Facilities - 95% of previous 12 months usage (5% reduction).</p> <p><b>2) Request variance where required.</b></p> <p><b>3) Eliminate all prohibited uses.</b></p>	<p>*Mandatory program with allotments for each service; residential with moderate landscape allotments.</p> <p>*Close tracking and feedback to community.</p> <p>*Restricted uses include:                      - irrigation limited to the hours between 8pm to 6am.                      - operation of ornamental fountains prohibited.                      - filling new swimming pools prohibited.                      - reclaimed water must be used for construction dust control.</p>

## City of Santa Rosa - Water Shortage Action Plan 2005

Stage	Utility Department Actions	Customer Actions	Comments
<p><b>Stage III - Severe:</b> 35 percent overall reduction.</p>	<p><b>In addition to Stage II:</b></p> <p><b>1) Intensify ordinance requirements:</b>                      *Prohibit installation of landscapes in new construction.                      *Require new construction to offset two times the new demand through upgrades to existing homes and businesses (toilet replacements, etc.).                      *Implement excess use charge (EUC) in addition to WSC.</p> <p><b>2) Intensify public information campaign:</b>                      *Promote participation in new construction offset program.</p> <p><b>3) Staffing:</b>                      *Expand Shortage Response Center and patrol/audit effort.</p>	<p><b>In addition to Stage II:</b></p> <p><b>1) Adhere to allotment for 35 percent overall reduction:</b>                      *Single Family - 57 gpcd, plus landscape allotment of 2,000 gallons per month May-Oct.                      *Multiple Family - 57 gpcd, plus minimal landscape allotment.                      *Commercial/Industrial/Governmental - 80 % of previous 12 months usage (20% reduction).                      *Irrigation - 50% of ET based budget.                      *Health Care Facilities - 90% of previous 12 months usage (10% reduction).</p> <p><b>2) Request variance when required.</b></p> <p><b>3) Eliminate all prohibited uses.</b></p>	<p><b>*Mandatory program with minimal landscape allotments.</b></p> <p><b>*Prohibit uses from Stage II plus:</b>                      - new construction program - offset twice the new demand.                      - no water using landscape installation in new construction.                      - filling or topping off of existing swimming pool is prohibited.</p>

## City of Santa Rosa - Water Shortage Action Plan 2005

Stage	Utility Department Actions	Customer Actions	Comments
<p><b>Stage IV - Critical: 50 percent overall reduction.</b></p>	<p><b>In addition to Stage III:</b></p> <p><b>1) Intensify ordinance requirements:</b>                      *Prohibit installation or replanting of any landscaping.                      *Allowing residential use of grey water if State allows.                      *Requiring new construction to offset three times the new demand through upgrades to existing homes and businesses; toilet replacement, etc.                      *Continue WSC and EUC.</p> <p><b>2) Intensify public information campaign:</b>                      *Develop demonstrations of grey water use.</p> <p><b>3) Expand Drought Response Center and patrol/audit effort.</b></p>	<p><b>1) Adhere to allotment for 50 percent overall reduction:</b></p> <p>*Single Family - 50 gpcd, no landscape allotment.                      *Multiple Family - 50 gpcd, no landscape allotment.                      *Commercial/Industrial/Governmental - 70% of previous 12 months usage (30% reduction).                      *Irrigation - minimal allotment - for mature trees and shrubs only.                      *Health Care Facilities - 85% of previous 12 months usage (15% reduction).</p> <p><b>2) Request variance where required.</b></p> <p><b>3) Eliminate all prohibited uses.</b></p>	<p>*Severe penalties for excess usage.</p> <p>*Prohibited uses from Stage III plus:                      - new construction offset program - offset three times new demand.                      - no new water using landscaping.</p>

**DRAFT WATER SHORTAGE EMERGENCY RESOLUTION**

**RESOLUTION OF THE SANTA ROSA CITY COUNCIL DECLARING A WATER SHORTAGE EMERGENCY.**

WHEREAS, the City of Santa Rosa is a City empowered to provide water service within certain boundaries; and

WHEREAS, due to (current condition – drought, contamination, etc.), water supply conditions indicate that a \_\_\_\_% reduction in demand is required to ensure adequate supply in 20\_\_; and

WHEREAS, the Sonoma County Water Agency has reduced delivery to the City and all prime contractors by \_\_\_\_%; and

WHEREAS, the City of Santa Rosa has the authority and responsibility to adopt water demand reduction measures within its area of service; and

WHEREAS, the City of Santa Rosa has the authority to employ the Catastrophic Reserve during a Water Shortage Emergency.

NOW, THEREFORE, IT IS RESOLVED that the City Council declares that under the current water shortage conditions a Water Shortage Emergency exists within the area served by the City water system.

BE IT FURTHER RESOLVED, that the City Council directs staff to implement a program of demand management as defined in the Santa Rosa Urban Water Shortage Contingency Plan to realize district-wide reduction of \_\_\_\_%.

BE IT FURTHER RESOLVED, that the City Council directs staff to utilize the Catastrophic Reserve to compensate for loss of revenue due to reduced water sales.

DULY AND REGULARLY ADOPTED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_

AYES:

NOES:

ABSENT:

ABSTAIN:

\_\_\_\_\_  
Chairman

\_\_\_\_\_  
Recording Secretary

**California Water Code Section 10632**  
**Urban Water Management Planning**  
**Water Shortage Contingency Analysis**

**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:

- (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.
- (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.
- (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.
- (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 or charges for excessive use, where applicable.
- (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 measures to overcome those impacts, such as the development of reserves and rate adjustments.
- (h) A draft water shortage contingency resolution or ordinance.
- (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

## **APPENDIX F**

### **Best Management Practices Report Filing**

**Water Supply & Reuse**

Reporting Unit:  
**City of Santa Rosa**

Year:  
**2003**

**Water Supply Source Information**

Supply Source Name	Quantity (AF) Supplied	Supply Type
Sonoma County Water Agency	22314	Local Watershed
City of Santa Rosa	223	Recycled

**Total AF: 22537**

Reported as of 11/1

**Accounts & Water Use**

Reporting Unit Name:  
City of Santa Rosa

Submitted to  
CUWCC  
07/30/2004

Year:  
2003

**A. Service Area Population Information:**

1. Total service area population 154453

**B. Number of Accounts and Water Deliveries (AF)**

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	40641	12865	0	0
2. Multi-Family	2950	3449	0	0
3. Commercial	2697	3210	0	0
4. Industrial	0	0	0	0
5. Institutional	0	0	0	0
6. Dedicated Irrigation	1623	2999	0	0
7. Recycled Water	13	259	0	0
8. Other	0	0	0	0
9. Unaccounted	NA	0	NA	0
<b>Total</b>	<b>47924</b>	<b>22782</b>	<b>0</b>	<b>0</b>

**Metered**

**Unmetered**

Reported as of 11/1

### BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2003**

#### A. Implementation

- 1. Based on your signed MOU date, 05/05/1998, your Agency STRATEGY DUE DATE is: 05/04/2000
- 2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys? yes
  - a. If YES, when was it implemented? 05/01/1995
- 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? yes
  - a. If YES, when was it implemented? 05/01/1995

#### B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	10372	8475
2. Number of surveys completed:	839	146

#### Indoor Survey:

- 3. Check for leaks, including toilets, faucets and meter checks yes      yes
- 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary yes      yes
- 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as necessary; replace leaking toilet flapper, as necessary yes      yes

#### Outdoor Survey:

- 6. Check irrigation system and timers yes      no
- 7. Review or develop customer irrigation schedule yes      no
- 8. Measure landscaped area (Recommended but not required for surveys) yes      no
- 9. Measure total irrigable area (Recommended but not required for surveys) yes      no
- 10. Which measurement method is typically used (Recommended but not required for surveys) Odometer Wheel
- 11. Were customers provided with information packets that included evaluation results and water savings recommendations? yes      yes
- 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? yes      yes
  - a. If yes, in what form are surveys tracked? database
  - b. Describe how your agency tracks this information.

See 1999 entry.

**C. Water Survey Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	90000	25000
2. Actual Expenditures	12465.28	

**D. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

See 1999 entry. A full series of classes are offered every summer on irrigation scheduling, irrigation system maintenance, fundamentals of garden water use, plant choices, developing a water budget based on ET area and plant type.

**E. Comments**

Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency. For SFR Surveys, outdoor portion was only performed on 78 of the total number of surveys.

Reported as of 11/1

### BMP 02: Residential Plumbing Retrofit

Reporting Unit:  
City of Santa Rosa

BMP Form Status:  
100% Complete

Year:  
2003

#### A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? yes

3. Estimated percent of single-family households with low-flow showerheads: 87%

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes

5. Estimated percent of multi-family households with low-flow showerheads: 76%

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

We worked with MCubed to determine the statistical sample size, then did on-site inspections to verify installation. Inspections completed on SFR and MFR sites between 01MAR2001 and 01MAR2002. Regarding MFR sites: completed 40 of 50 inspections with 76% compliance. For purposes of compliance, assuming worst case scenario of final 10 sites (all fails), would still achieve 76% compliance.

#### B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

a. If YES, when did your agency begin implementing this strategy? 01/01/1993

b. Describe your targeting/ marketing strategy.

We have three distribution centers in our service area, distribute hardware at public events, send out bill inserts and require replacement of showerheads and aerators under our toilet replacement programs.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	733	465
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	1693	843
6. Does your agency track the distribution and cost of low-flow devices?		yes

a. If YES, in what format are low-flow devices tracked? Database

b. If yes, describe your tracking and distribution system :

All toilet replacement participants are entered into the database system,

complete with the number of showerheads and aerators that were changed at the site. We also have a purchasing system which tracks the orders and cost of the hardware.

**C. Low-Flow Device Distribution Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	10000	10000
2. Actual Expenditures	7532.89	

**D. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**E. Comments**

The City completed implementation of this BMP as of December 31, 2001. The City continues to distribute low flow showerheads and aerators at events, distribution centers and per customer request. Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency.

Reported as of 11/1

**BMP 03: System Water Audits, Leak Detection and Repair**

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2003**

**A. Implementation**

- 1. Has your agency completed a pre-screening system audit for this reporting year? yes
- 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:
  - a. Determine metered sales (AF) 22782
  - b. Determine other system verifiable uses (AF) 0
  - c. Determine total supply into the system (AF) 22574
  - d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. 1.01
- 3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? yes
- 4. Did your agency complete a full-scale audit during this report year? no
- 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? yes
- 6. Does your agency operate a system leak detection program? yes
  - a. If yes, describe the leak detection program:

See 1999 entry.

**B. Survey Data**

- 1. Total number of miles of distribution system line. 580
- 2. Number of miles of distribution system line surveyed. 580

**C. System Audit / Leak Detection Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	241000	166000
2. Actual Expenditures	157813.76	

**D. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
  - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**E. Comments**

Please note: There are discrepancies between our metered purchased water and our meter water sold. The wholesaler, Sonoma County Water Agency, is aware of these discrepancies and are working with the City to determine the cause. Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency.

Reported as of 11/1



**BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing**

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2003**

**A. Implementation**

- 1. Does your agency require meters for all new connections and bill by volume-of-use? yes
- 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? no
  - a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?
  - b. Describe the program:
- 3. Number of previously unmetered accounts fitted with meters during report year. 0

**B. Feasibility Study**

- 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? yes
  - a. If YES, when was the feasibility study conducted? 12/01/1999 (mm/dd/yy)
  - b. Describe the feasibility study:

See 1999 report. Also, note that beginning in 2000 we have implemented a program to provide cash incentives to retrofit mixed use meters to dedicated irrigation and indoor meters.

- 2. Number of CII accounts with mixed-use meters. 435
- 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. 0

**C. Meter Retrofit Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	145000	110000
2. Actual Expenditures	0	

**D. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
  - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**E. Comments**

Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency.

Reported as of 11/1

**BMP 05: Large Landscape Conservation Programs and Incentives**

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2003**

**A. Water Use Budgets**

- 1. Number of Dedicated Irrigation Meter Accounts: 1623
- 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: 979
- 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): 1078
- 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): 1408
- 5. Does your agency provide water use notices to accounts with budgets each billing cycle? yes

**B. Landscape Surveys**

- 1. Has your agency developed a marketing / targeting strategy for landscape surveys? yes
  - a. If YES, when did your agency begin implementing this strategy? 4/18/2000
  - b. Description of marketing / targeting strategy:

We publish information about the landscape surveys we offer on our website, in brochures and in letters to new commercial accounts. We also let customers know about these services at meetings, in our landscape workshops, and during phone conversations with customers. In 2002/2003, we offered additional surveys to the commercial accounts through our ET Timer pilot study.

- 2. Number of Surveys Offered. 385
- 3. Number of Surveys Completed. 14
- 4. Indicate which of the following Landscape Elements are part of your survey:
  - a. Irrigation System Check yes
  - b. Distribution Uniformity Analysis yes
  - c. Review / Develop Irrigation Schedules yes
  - d. Measure Landscape Area yes
  - e. Measure Total Irrigable Area yes
  - f. Provide Customer Report / Information yes
- 5. Do you track survey offers and results? yes
- 6. Does your agency provide follow-up surveys for previously completed surveys? yes
  - a. If YES, describe below:

Upon customer request.

**C. Other BMP 5 Actions**

- 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets? no
- 2. Number of CII mixed-use accounts with landscape budgets.

- 3. Do you offer landscape irrigation training? yes
- 4. Does your agency offer financial incentives to improve landscape water use efficiency? yes

Type of Financial Incentive:	Budget (Dollars/Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	50000	0	0
b. Loans	0	0	0
c. Grants	0	0	0

- 5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

When new commercial water accounts are opened, we send a packet of information announcing all of landscape water conservation programs and services and our contact information.

- 6. Do you have irrigated landscaping at your facilities? yes
  - a. If yes, is it water-efficient? yes
  - b. If yes, does it have dedicated irrigation metering? yes
- 7. Do you provide customer notices at the start of the irrigation season? yes
- 8. Do you provide customer notices at the end of the irrigation season? yes

**D. Landscape Conservation Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	580000	580000
2. Actual Expenditures	40834.45	

**E. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**F. Comments**

Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency. We have an incentive program for using less water than the "irrigation goal" which is a water budget. Customers receive cash rebates for any amount less than the goal.

Reported as of 11/1

**BMP 06: High-Efficiency Washing Machine Rebate Programs**

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2003**

**A. Implementation**

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? yes

a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

Pacific Gas & Electric has a rebate of \$75 for residential H-axis machines in effect. Our rebate is also \$75 for a total of up to &150 per residential machine replaced

2. Does your agency offer rebates for high-efficiency washers? yes

3. What is the level of the rebate? 75

4. Number of rebates awarded. 883

**B. Rebate Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	75000	10000
2. Actual Expenditures	7028.51	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

The data for this BMP is for replacement of top loading washing machines with H-axis washing machines by single family residential only. The City also offers a \$450 rebate for multi-family and commercial that replace coin-operated top-loading washing machines with coin-operated H-axis washing machines. The data for the \$450 H-axis program is reported in BMP 9. Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency.

Reported as of 11/1

**BMP 07: Public Information Programs**

Reporting Unit:  
**City of Santa Rosa**

BMP Form Status:  
**100% Complete**

Year:  
**2003**

**A. Implementation**

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes
- a. If YES, describe the program and how it's organized.

We maintain three distribution sites for literature, hardware, and promotional items; participate in the Downtown Market; provide speakers to special interest groups; support the statewide Water Awareness Month campaign; host annual Water Fair in May; and provide free classes on indoor and outdoor conservation measures and low water-use plant selection.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	yes	5
b. Public Service Announcement	yes	0
c. Bill Inserts / Newsletters / Brochures	yes	12
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	2
f. Special Events, Media Events	yes	11
g. Speaker's Bureau	yes	0
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

**B. Conservation Information Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	180000	80000
2. Actual Expenditures	70937.08	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
- a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency.

Reported as of 11/1

**BMP 08: School Education Programs**

Reporting Unit:  
**City of Santa Rosa**

BMP Form Status: **100% Complete**  
 Year: **2003**

**A. Implementation**

1. Has your agency implemented a school information program to promote water conservation? Yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	Yes	44	2047	4
Grades 4th-6th	Yes	52	2225	4
Grades 7th-8th	Yes	0	810	3
High School	Yes	1	305	2

3. Did your Agency's materials meet state education framework requirements? Yes

4. When did your Agency begin implementing this program? 09/01/1988

**B. School Education Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

Reported as of 11/1

**BMP 09: Conservation Programs for CII Accounts**

Reporting Unit:  
City of Santa Rosa

BMP Form Status:  
100% Complete

Year:  
2003

**A. Implementation**

- 1. Has your agency identified and ranked COMMERCIAL customers according to use? yes
- 2. Has your agency identified and ranked INDUSTRIAL customers according to use? yes
- 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? yes

**Option A: CII Water Use Survey and Customer Incentives Program**

- 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? yes

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	150	0	0
b. Number of New Surveys Completed	137	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	0	0	0
CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	yes	yes	yes
f. Evaluation of all water-using apparatus and processes	yes	yes	yes
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	yes	yes	yes
Agency CII Customer Incentives	Budget (\$/Year)	No. Awarded to Customers	Total \$ Amount Awarded
h. Rebates	50000	0	0
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	200000	0	0

**Option B: CII Conservation Program Targets**

- 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? yes
- 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? yes
- 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. 318.74
- 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. 0

**B. Conservation Program Expenditures for CII Accounts**

	This Year	Next Year
1. Budgeted Expenditures	200000	200000
2. Actual Expenditures	11447.37	

**C. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
  - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

The City also offered a rebate program for commercial and multi-family residential to replace coin-operated commercial washing machines with coin operated H-axis commercial washing machines. The program offered \$450 rebate through the Lightwash program. Fifty-four machines were replaced through this rebate program and the City spent \$40,961.40 to implement this program. Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency.

Reported as of 11/1

**BMP 09a: CII ULFT Water Savings**

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2003**

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes  
 If No, please explain why on Line B.  
 10.

**A. Targeting and Marketing**

1. What basis does your agency use to target customers for participation in this program? Check all that apply. CII Sector or subsector

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

We sent direct mail letters, and made use of bill inserts and bill face messages. The direct mail was most effective, but also most expensive. Most effective per dollar expended would have been the bill insert.

2. How does your agency advertise this program? Direct letter  
 Check all that apply. Bill insert  
Bill message  
Web page  
Trade shows and events

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

Direct mail pieces were the most effective overall and per dollar expended.

**B. Implementation**

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) Yes

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? Yes

3. What is the total number of customer accounts participating in the program during the last year? 128

CII Subsector	Number of Toilets Replaced					
	Standard Gravity Tank	Air Assisted	Valve Mount	Floor Mount	Valve Wall Mount	Type Not Specified
a. Offices	44	0		0	0	0
b. Retail / Wholesale	60	0		0	0	0

c. Hotels	8	0	0	0	0
d. Health	19	0	0	0	0
e. Industrial	4	0	0	0	0
f. Schools: K to 12	18	0	0	0	0
g. Eating	25	0	0	0	0
h. Govern- ment	4	0	0	0	0
i. Churches	28	0	0	0	0
j. Other	198	0	0	0	0

5. Program design. Rebate or voucher  
Direct installation

6. Does your agency use outside services to implement this program? Yes

a. If yes, check all that apply. Plumbing contractors/subcontracts

7. Participant tracking and follow-up. Letter  
Telephone  
Site Visit

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

- a. Disruption to business 4
- b. Inadequate payback 3
- c. Inadequate ULFT performance 5
- d. Lack of funding 2
- e. American's with Disabilities Act 1
- f. Permitting 1
- g. Other. Please describe in B. 9.

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness.

The most difficult issue is to get to the decision maker. Even when offering no cost programs or programs with less than 6 months of payback, customers do not want to participate.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

As with previous years, we would have liked to have higher participation in our programs. We are looking for ways to improve program participation. Our marketing approaches are somewhat effective, but the information may not be getting to the decision makers through the bill inserts and bill face messages.

Program costs were in-line with expectations.

### C. Conservation Program Expenditures for CII ULFT

#### 1. CII ULFT Program: Annual Budget & Expenditure Data

	Budgeted	Actual Expenditure
a. Labor	54000	48800
b. Materials	67500	61200
c. Marketing & Advertising	7500	881.51
d. Administration & Overhead	12500	4050.67
e. Outside Services	5000	286.4
f. Total	146500	115218.58

#### 2. CII ULFT Program: Annual Cost Sharing

a. Wholesale agency contribution	- 39699.87
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	39699.87

### D. Comments

Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency.

Reported as of 11/1

**BMP 11: Conservation Pricing**

Reporting Unit:  
City of Santa Rosa

BMP Form  
Status:  
100% Complete

Year:  
2003

**A. Implementation****Rate Structure Data Volumetric Rates for Water Service by Customer Class****1. Residential**

a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$12868109
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$2388546

**2. Commercial**

a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$4910340
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$626318

**3. Industrial**

a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

**4. Institutional / Government**

a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

**5. Irrigation**

a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

**6. Other**

a. Water Rate Structure	Service Not Provided
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$0

d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$0

**B. Conservation Pricing Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

See 1999 entry.

Reported as of 11/1

**BMP 12: Conservation Coordinator**

Reporting Unit:  
**City of Santa Rosa**

BMP Form Status:  
**100% Complete**

Year:  
**2003**

**A. Implementation**

- 1. Does your Agency have a conservation coordinator? yes
- 2. Is this a full-time position? yes
- 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ?
- 4. Partner agency's name:
- 5. If your agency supplies the conservation coordinator:
  - a. What percent is this conservation coordinator's position? 100%
  - b. Coordinator's Name Virginia Porter
  - c. Coordinator's Title Deputy Director Water Resources
  - d. Coordinator's Experience and Number of Years 4 years
  - e. Date Coordinator's position was created (mm/dd/yyyy) 01/06/1991
- 6. Number of conservation staff, including Conservation Coordinator. 4

**B. Conservation Staff Program Expenditures**

	<b>This Year</b>	<b>Next Year</b>
1. Budgeted Expenditures	119900	145000
2. Actual Expenditures	79918.75	

**C. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
  - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency.

Reported as of 11/1

**BMP 13: Water Waste Prohibition**

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2003**

**A. Requirements for Documenting BMP Implementation**

1. Is a water waste prohibition ordinance in effect in your service area? yes

a. If YES, describe the ordinance:

Prohibits intentional or unintentional water waste due to outdoor water use resulting in runoff or due to breaks or leaks in the water delivery system. Also requires new water service to be equipped with recycling or reuse systems for evaporative cooling systems, decorative water fountains, conveyer car washes, and industrial clothes washers.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

City of Santa Rosa      Ordinance No. 3426

**B. Implementation**

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

- a. Gutter flooding yes
- b. Single-pass cooling systems for new connections yes
- c. Non-recirculating systems in all new conveyor or car wash systems yes
- d. Non-recirculating systems in all new commercial laundry systems yes
- e. Non-recirculating systems in all new decorative fountains yes
- f. Other, please name yes  
Breaks or leaks in delivery system

2. Describe measures that prohibit water uses listed above:

When water waste is noticed by staff, it is reported to Water Conservation staff. Water Conservation directs Utilities field staff to visit site, confirm waste and leave a door tag informing customer of violation. A follow up letter is sent to customer informing them of violation. If customer requests assistance, Water conservation staff follow up with information, site visits, etc. We can implement Water Watch (our water waste patrol) using Utilities staff as needed.

**Water Softeners:**

3. Indicate which of the following measures your agency has supported in developing state law:

- a. Allow the sale of more efficient, demand-initiated regenerating DIR models. yes
- b. Develop minimum appliance efficiency standards that:
  - i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. yes
  - ii.) Implement an identified maximum number of

gallons discharged per gallon of soft water produced. yes

c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. yes

4. Does your agency include water softener checks in home water audit programs? no

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? yes

**C. Water Waste Prohibition Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	60000	60000
2. Actual Expenditures	781.96	

**D. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**E. Comments**

Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency.

Reported as of 11/1

**BMP 14: Residential ULFT Replacement Programs**

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2003**

**A. Implementation**

	Single-Family Accounts	Multi- Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	yes	yes

**Number of Toilets Replaced by Agency Program During Report Year**

Replacement Method	SF Accounts	MF Units
2. Rebate	693	43
3. Direct Install	1717	910
4. CBO Distribution	0	0
5. Other	0	0
<b>Total</b>	<b>2410</b>	<b>953</b>

6. Describe your agency's ULFT program for single-family residences.

We have a Rebate program, where the customers gets a rebate of \$100 per toilet replaced. They can use one of our participating plumbing contractors to do the work, or they can install it themselves. Along with the toilet, they are required to change any high-flow showerheads and faucet aerators. We also have a Direct Install program, where the City pays the labor and materials, but the customer does not have a choice of toilet. They receive a standard, white round-bowl toilet. All other low-flow hardware requirements remain the same. All toilets are recycled and used for road base.

7. Describe your agency's ULFT program for multi-family residences.

Same as single-family residence program.

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

**B. Residential ULFT Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	350000	0
2. Actual Expenditures	455962.36	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

As of Dec 31, 2002, Santa Rosa has successfully completed our "Go

Low FLOW" program. This program included ULFT replacement for Single Family and Multi Family Residential. Based on new direction from the CUWCC, the expenditures - both actual for 02/03 and projected for 03/04 - do not include monies received from our Wholesale Agency, the Sonoma County Water Agency.

Reported as of 11/1

**Water Supply & Reuse**

Reporting Unit:  
**City of Santa Rosa**

Year:  
**2004**

**Water Supply Source Information**

Supply Source Name	Quantity (AF) Supplied	Supply Type
Sonoma County Water Agency	24420	Local Watershed
City of Santa Rosa	143	Recycled

**Total AF: 24563**

Reported as of 11/1

**Accounts & Water Use**Reporting Unit Name:  
City of Santa RosaSubmitted to  
CUWCC  
08/02/2004Year:  
2004**A. Service Area Population Information:**

1. Total service area population 154379

**B. Number of Accounts and Water Deliveries (AF)**

Type	Metered		Unmetered	
	No. of Accounts	Water Deliveries (AF)	No. of Accounts	Water Deliveries (AF)
1. Single-Family	41067	13884	0	0
2. Multi-Family	3011	3526	0	0
3. Commercial	2719	3627	0	0
4. Industrial	0	0	0	0
5. Institutional	0	0	0	0
6. Dedicated Irrigation	1653	2958	0	0
7. Recycled Water	13	143	0	0
8. Other	0	0	0	0
9. Unaccounted	NA	0	NA	0
<b>Total</b>	<b>48463</b>	<b>24138</b>	<b>0</b>	<b>0</b>

**Metered****Unmetered**

Reported as of 11/1

### BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2004**

#### A. Implementation

- 1. Based on your signed MOU date, 05/05/1998, your Agency STRATEGY DUE DATE is: 05/04/2000
- 2. Has your agency developed and implemented a targeting/marketing strategy for SINGLE-FAMILY residential water use surveys? yes
  - a. If YES, when was it implemented? 05/01/1995
- 3. Has your agency developed and implemented a targeting/marketing strategy for MULTI-FAMILY residential water use surveys? yes
  - a. If YES, when was it implemented? 05/01/1995

#### B. Water Survey Data

Survey Counts:	Single Family Accounts	Multi-Family Units
1. Number of surveys offered:	361	0
2. Number of surveys completed:	334	0

#### Indoor Survey:

- 3. Check for leaks, including toilets, faucets and meter checks yes      yes
- 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary yes      yes
- 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as necessary; replace leaking toilet flapper, as necessary yes      yes

#### Outdoor Survey:

- 6. Check irrigation system and timers yes      yes
- 7. Review or develop customer irrigation schedule yes      yes
- 8. Measure landscaped area (Recommended but not required for surveys) yes      yes
- 9. Measure total irrigable area (Recommended but not required for surveys) yes      yes
- 10. Which measurement method is typically used (Recommended but not required for surveys) Odometer Wheel
- 11. Were customers provided with information packets that included evaluation results and water savings recommendations? yes      yes
- 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? yes      yes
  - a. If yes, in what form are surveys tracked? database
  - b. Describe how your agency tracks this information.

See 1999 entry

### C. Water Survey Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	25000	25000
2. Actual Expenditures	13793.01	

### D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

The indoor portion of this BMP was being implemented by our "Go Low Flow" incentive program through this year. We began developing a residential audit program this past year that will incorporate both indoor and outdoor surveys. Currently, we are addressing the outdoor portion of the survey through workshops for all residents, community event presentations and outreach and bill inserts. In addition, classes are offered every summer on irrigation scheduling, irrigation system maintenance, fundamentals of garden water use, plant choices, developing a water budget based on ET area and plant type.

### E. Comments

Reported as of 11/1

## BMP 02: Residential Plumbing Retrofit

Reporting Unit:  
City of Santa Rosa

BMP Form Status:  
100% Complete

Year:  
2004

### A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? yes

3. Estimated percent of single-family households with low-flow showerheads: 87%

4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes

5. Estimated percent of multi-family households with low-flow showerheads: 76%

6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

We worked with MCubed to determine the statistical sample size, then did on-site inspections to verify installation. Inspections completed on SFR and MFR sites between 01MAR2001 and 01MAR2002. Regarding MFR sites: completed 40 of 50 inspections with 76% compliance. For purposes of compliance, assuming worst case scenario of final 10 sites (all fails), would still achieve 76% compliance

### B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

a. If YES, when did your agency begin implementing this strategy? 01/01/1993

b. Describe your targeting/ marketing strategy.

We have three distribution centers in our service area, distribute hardware at public events, send out bill inserts and required replacement of showerheads and aerators under our Go Low Flow toilet replacement program.

Low-Flow Devices Distributed/ Installed	SF Accounts	MF Units
2. Number of low-flow showerheads distributed:	1116	84
3. Number of toilet-displacement devices distributed:	0	0
4. Number of toilet flappers distributed:	0	0
5. Number of faucet aerators distributed:	2976	224

6. Does your agency track the distribution and cost of low-flow devices? yes

a. If YES, in what format are low-flow devices tracked? Database

b. If yes, describe your tracking and distribution system :

We have a purchasing system which tracks the orders and cost of the hardware.

### C. Low-Flow Device Distribution Expenditures

	This Year	Next Year
1. Budgeted Expenditures	10000	5000
2. Actual Expenditures	1413.65	

### D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

### E. Comments

The City completed implementation of this BMP as of December 31, 2001. The City continues to distribute low flow showerheads and aerators at events, distribution centers and per customer request.

Reported as of 11/1

**BMP 03: System Water Audits, Leak Detection and Repair**

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2004**

**A. Implementation**

- 1. Has your agency completed a pre-screening system audit for this reporting year? yes
- 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:
  - a. Determine metered sales (AF) 24138
  - b. Determine other system verifiable uses (AF) 0
  - c. Determine total supply into the system (AF) 24563
  - d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. 0.98
- 3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? yes
- 4. Did your agency complete a full-scale audit during this report year? no
- 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? yes
- 6. Does your agency operate a system leak detection program? yes
  - a. If yes, describe the leak detection program:

Our field staff, using traditional sounding equipment, completes a full survey of our distribution system annually; leaks that are detected are repaired immediately; plastic services are replaced preventatively because they are known to leak at a very high rate.

**B. Survey Data**

- 1. Total number of miles of distribution system line. 585
- 2. Number of miles of distribution system line surveyed. 585

**C. System Audit / Leak Detection Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	166000	141500
2. Actual Expenditures	134671	

**D. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
  - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**E. Comments**

Reported as of 11/1

**BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing**

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2004**

**A. Implementation**

- 1. Does your agency require meters for all new connections and bill by volume-of-use? yes
- 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? no
  - a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed?
  - b. Describe the program:
- 3. Number of previously unmetered accounts fitted with meters during report year. 0

**B. Feasibility Study**

- 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? yes
  - a. If YES, when was the feasibility study conducted? 12/01/1999  
(mm/dd/yy)
  - b. Describe the feasibility study:

See 1999 report. Also, note that beginning in 2000 we have implemented a program to provide cash incentives to retrofit mixed use meters to dedicated irrigation and indoor meters.

- 2. Number of CII accounts with mixed-use meters. 433
- 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. 2

**C. Meter Retrofit Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	110000	57500
2. Actual Expenditures	0	

**D. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
  - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**E. Comments**

Reported as of 11/1

## BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2004**

### A. Water Use Budgets

- |  |      |
|--|------|
| 1. Number of Dedicated Irrigation Meter Accounts:  | 1548 |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets:                       | 978  |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF):                     | 1310 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF):                       | 1539 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | yes  |

### B. Landscape Surveys

- |  |           |
|--|-----------|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | yes       |
| a. If YES, when did your agency begin implementing this strategy?                    | 4/18/2000 |
| b. Description of marketing / targeting strategy:                                    |           |

We publish information about the landscape surveys we offer on our website, in brochures and in letters to new commercial accounts. We also let customers know about these services at meetings, in our landscape workshops, and during phone conversations with customers.

- |   |     |
|---|-----|
| 2. Number of Surveys Offered.   | 5   |
| 3. Number of Surveys Completed.   | 5   |
| 4. Indicate which of the following Landscape Elements are part of your survey:  |     |
| a. Irrigation System Check  | yes |
| b. Distribution Uniformity Analysis   | yes |
| c. Review / Develop Irrigation Schedules  | yes |
| d. Measure Landscape Area   | yes |
| e. Measure Total Irrigable Area   | yes |
| f. Provide Customer Report / Information  | yes |
| 5. Do you track survey offers and results?                                      | yes |
| 6. Does your agency provide follow-up surveys for previously completed surveys? | yes |
| a. If YES, describe below:  |     |

Upon customer request.

### C. Other BMP 5 Actions

- |   |     |
|---|-----|
| 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets? | no  |
| 2. Number of CII mixed-use accounts with landscape budgets.   | 0   |
| 3. Do you offer landscape irrigation training?  | yes |

4. Does your agency offer financial incentives to improve landscape water use efficiency? yes

Type of Financial Incentive:	Budget (Dollars/Year)	Number Awarded to Customers	Total Amount Awarded
a. Rebates	50000	0	0
b. Loans	0	0	0
c. Grants	0	0	0

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

When new commercial water accounts are opened, we send a packet of information announcing all of landscape water conservation programs and services and our contact information.

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? yes

7. Do you provide customer notices at the start of the irrigation season? yes

8. Do you provide customer notices at the end of the irrigation season? yes

**D. Landscape Conservation Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	580000	65000
2. Actual Expenditures	25139.24	

**E. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**F. Comments**

Reported as of 11/1

**BMP 06: High-Efficiency Washing Machine Rebate Programs**

Reporting Unit:  
City of Santa Rosa

BMP Form Status:  
100% Complete

Year:  
2004

**A. Implementation**

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? yes  
 a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

Pacific Gas & Electric has a rebate of \$75 for residential H-axis machines in effect. Our rebate is also \$75 for a total of up to \$150 per residential machine replaced.

2. Does your agency offer rebates for high-efficiency washers? yes  
 3. What is the level of the rebate? 75  
 4. Number of rebates awarded. 1023

**B. Rebate Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	10000	10000
2. Actual Expenditures	2808.02	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no  
 a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

The data for this BMP is for replacement of top loading washing machines with H-axis washing machines by single family residential only. The City also offers a \$450 rebate for multi-family and commercial that replace coin-operated top-loading washing machines with coin-operated H-axis washing machines. The data for the \$450 H-axis program is reported in the comment section of BMP 9.

Reported as of 11/1

**BMP 07: Public Information Programs**

Reporting Unit:  
**City of Santa Rosa**

BMP Form Status:  
**100% Complete**

Year:  
**2004**

**A. Implementation**

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it's organized.

We maintain four distribution sites for literature, hardware, and promotional items; develop informational bill inserts; participate in the City of Santa Rosa's Downtown Market events; staff booths at various events; provide speakers to special interest groups; support the statewide Water Awareness Month campaign; host an annual Water Fair in May; and provide free classes on outdoor conservation measures and low water-use plant selection.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	yes	5
b. Public Service Announcement	yes	0
c. Bill Inserts / Newsletters / Brochures	yes	8
d. Bill showing water usage in comparison to previous year's usage	yes	
e. Demonstration Gardens	yes	2
f. Special Events, Media Events	yes	15
g. Speaker's Bureau	yes	4
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	

**B. Conservation Information Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	80000	80000
2. Actual Expenditures	42949.52	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

Reported as of 11/1

**BMP 08: School Education Programs**

Reporting Unit:  
City of Santa Rosa

BMP Form Status:  
100% Complete

Year:  
2004

**A. Implementation**

1. Has your agency implemented a school information program to promote water conservation? Yes

2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	Yes	48	2337	6
Grades 4th-6th	Yes	40	2275	6
Grades 7th-8th	Yes	0	195	4
High School	Yes	0	593	4

3. Did your Agency's materials meet state education framework requirements? Yes

4. When did your Agency begin implementing this program? 09/01/1988

**B. School Education Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

Reported as of 11/1

**BMP 09: Conservation Programs for CII Accounts**

Reporting Unit:  
City of Santa Rosa

BMP Form Status:  
100% Complete

Year:  
2004

**A. Implementation**

- 1. Has your agency identified and ranked COMMERCIAL customers according to use? yes
- 2. Has your agency identified and ranked INDUSTRIAL customers according to use? yes
- 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? yes

**Option A: CII Water Use Survey and Customer Incentives Program**

4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? yes

CII Surveys	Commercial Accounts	Industrial Accounts	Institutional Accounts
a. Number of New Surveys Offered	5	0	0
b. Number of New Surveys Completed	3	0	0
c. Number of Site Follow-ups of Previous Surveys (within 1 yr)	0	0	0
d. Number of Phone Follow-ups of Previous Surveys (within 1 yr)	1	0	0

CII Survey Components	Commercial Accounts	Industrial Accounts	Institutional Accounts
e. Site Visit	yes	yes	yes
f. Evaluation of all water-using apparatus and processes	yes	yes	yes
g. Customer report identifying recommended efficiency measures, paybacks and agency incentives	yes	yes	yes

Agency CII Customer Incentives	Budget (\$/Year)	No. Awarded to Customers	Total \$ Amount Awarded
h. Rebates	50000	1	1600
i. Loans	0	0	0
j. Grants	0	0	0
k. Others	200000	0	0

**Option B: CII Conservation Program Targets**

- 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? yes
- 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? yes
- 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. 326.49
- 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. 0

**B. Conservation Program Expenditures for CII Accounts**

	This Year	Next Year
1. Budgeted Expenditures	200000	200000
2. Actual Expenditures	3697.58	

**C. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
  - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

The City also offered a rebate program for commercial and multi-family residential to replace coin-operated commercial washing machines with coin operated H-axis commercial washing machines. The program offered \$450 rebate through the Lightwash program. Thirty-four machines were replaced through this rebate program and the City spent \$9,786.01 to implement this program. Please note, the estimated savings from site-verified actions taken by the agency since 1991 includes savings from our commercial washing machine rebate program, the Rinse & Save pre-rinse spray nozzle program and our commercial sustained reduction rebate program.

Reported as of 11/1

**BMP 09a: CII ULFT Water Savings**

Reporting Unit: **City of Santa Rosa**      BMP Form Status: **100% Complete**      Year: **2004**

1. Did your agency implement a CII ULFT replacement program in the reporting year? Yes  
 If No, please explain why on Line B.  
 10.

**A. Targeting and Marketing**

1. What basis does your agency use to target customers for participation in this program? Check all that apply. Consumption ranking  
CII Sector or subsector

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

We sent direct mail letters, and made use of bill inserts and bill face messages. The direct mail was most effective, but also most expensive. Most effective per dollar expended would have been the bill insert.

2. How does your agency advertise this program? Direct letter  
Web page  
Trade shows and events  
 Check all that apply.

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

Direct mail pieces were the most effective overall and per dollar expended. Also, participating plumbing contractor's word of mouth was very effective this past year.

**B. Implementation**

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) Yes

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? Yes

3. What is the total number of customer accounts participating in the program during the last year? 11

CII Subsector	Number of Toilets Replaced					Type Not Specified
	Standard Gravity Tank	Air Assisted	Valve Floor Mount	Valve Wall Mount		
4. a. Offices	14	0	0	0	0	0
b. Retail / Wholesale	0	0	0	0	0	0

c. Hotels	0	0	0	0	0
d. Health	0	0	0	0	0
e. Industrial	0	0	0	0	0
f. Schools: K to 12	21	0	0	0	0
g. Eating	0	0	0	0	0
h. Govern- ment	0	0	0	0	0
i. Churches	0	0	0	0	0
j. Other	0	0	0	0	0

5. Program design.

Direct installation

6. Does your agency use outside services to implement this program?

Yes

a. If yes, check all that apply.

Plumbing contractors/subcontracts

7. Participant tracking and follow-up.

Letter  
Telephone  
Site Visit

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

- a. Disruption to business 4
- b. Inadequate payback 3
- c. Inadequate ULFT performance 5
- d. Lack of funding 2
- e. American's with Disabilities Act 1
- f. Permitting 1
- g. Other. Please describe in B. 9. 0

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other issues affecting program implementation or effectiveness.

The most difficult issue is to get to the decision maker. Even when offering no cost programs or programs with less than 6 months of payback, customers do not want to participate.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

To date, we have replaced more than 4,000 CII ULFT's in approximately 1000 accounts (approximately 1/3 of our CII accounts), with actual measured saving in water use of 308 acre feet per year (comparing before and after meter readings and factoring in a control group's fluctuations). We are trying to add to these numbers.

**C. Conservation Program Expenditures for CII ULFT****1. CII ULFT Program: Annual Budget & Expenditure Data**

	<b>Budgeted</b>	<b>Actual Expenditure</b>
a. Labor	54000	8864.2
b. Materials	67500	3850
c. Marketing & Advertising	7500	0
d. Administration & Overhead	12500	2088.96
e. Outside Services	5000	0
f. Total	146500	14803.16

**2. CII ULFT Program: Annual Cost Sharing**

a. Wholesale agency contribution	8822.5
b. State agency contribution	0
c. Federal agency contribution	0
d. Other contribution	0
e. Total	8822.5

**D. Comments**

Reported as of 11/1

**BMP 11: Conservation Pricing**

Reporting Unit:  
City of Santa Rosa

BMP Form  
Status:  
100% Complete

Year:  
2004

**A. Implementation****Rate Structure Data Volumetric Rates for Water Service by Customer Class****1. Residential**

a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$14332666
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$2575810

**2. Commercial**

a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$5405664
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$671959

**3. Industrial**

a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

**4. Institutional / Government**

a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Uniform
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

**5. Irrigation**

a. Water Rate Structure	Uniform
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

**6. Other**

a. Water Rate Structure	Service Not Provided
b. Sewer Rate Structure	Service Not Provided
c. Total Revenue from Volumetric Rates	\$0
d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources	\$0

**B. Conservation Pricing Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

In February 2001, the City hired a consultant to evaluate it's water rate structure from a conservation perspective. The analysis found that the City's rate structure clearly meets conservation pricing as defined by this BMP. Note - Data for revenue from commodity vs fixed is available only in residential total and commercial total. Industrial, institutional and irrigation revenues are included in commercial totals.

Reported as of 11/1

**BMP 12: Conservation Coordinator**

Reporting Unit:  
City of Santa Rosa

BMP Form Status:  
100% Complete

Year:  
2004

**A. Implementation**

- 1. Does your Agency have a conservation coordinator? yes
- 2. Is this a full-time position? yes
- 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program? no
- 4. Partner agency's name:
- 5. If your agency supplies the conservation coordinator:
  - a. What percent is this conservation coordinator's position? 100%
  - b. Coordinator's Name Jennifer Durkin
  - c. Coordinator's Title Water Conservation Program Coordinator
  - d. Coordinator's Experience and Number of Years 4 years
  - e. Date Coordinator's position was created (mm/dd/yyyy) 01/06/1991
- 6. Number of conservation staff, including Conservation Coordinator. 4

**B. Conservation Staff Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	145000	145000
2. Actual Expenditures	66387	

**C. "At Least As Effective As"**

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
  - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

Reported as of 11/1

**BMP 13: Water Waste Prohibition**

Reporting Unit:  
City of Santa Rosa

BMP Form Status:  
100% Complete

Year:  
2004

**A. Requirements for Documenting BMP Implementation**

1. Is a water waste prohibition ordinance in effect in your service area? yes

a. If YES, describe the ordinance:

Prohibits intentional or unintentional water waste due to outdoor water use resulting in runoff or due to breaks or leaks in the water delivery system. Also requires new water service to be equipped with recycling or reuse systems for the following: evaporative cooling systems, decorative water fountains, conveyer car washes, and industrial clothes washers.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

City of Santa Rosa

Ordinance No. 3426

**B. Implementation**

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

- a. Gutter flooding yes
- b. Single-pass cooling systems for new connections yes
- c. Non-recirculating systems in all new conveyer or car wash systems yes
- d. Non-recirculating systems in all new commercial laundry systems yes
- e. Non-recirculating systems in all new decorative fountains yes
- f. Other, please name yes  
Breaks or leaks in delivery system

2. Describe measures that prohibit water uses listed above:

When water waste is noticed by staff, it is reported to Water Conservation staff. Water Conservation directs Utilities field staff to visit site, confirm waste and leave a door tag informing customer of violation. A follow up letter is sent to customer informing them of violation. If customer requests assistance, Water conservation staff follow up with information, site visits, etc. We can implement Water Watch (our water waste patrol) using Utilities staff as needed.

**Water Softeners:**

3. Indicate which of the following measures your agency has supported in developing state law:

- a. Allow the sale of more efficient, demand-initiated regenerating DIR models. yes
- b. Develop minimum appliance efficiency standards that:
  - i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. yes
  - ii.) Implement an identified maximum number of

gallons discharged per gallon of soft water produced. yes

c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. yes

4. Does your agency include water softener checks in home water audit programs? no

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? yes

**C. Water Waste Prohibition Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	60000	50000
2. Actual Expenditures	51.58	

**D. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**E. Comments**

Reported as of 11/1

**BMP 14: Residential ULFT Replacement Programs**

Reporting Unit:  
City of Santa Rosa

BMP Form Status:  
100% Complete

Year:  
2004

**A. Implementation**

	Single-Family Accounts	Multi- Family Units
1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets?	no	no

**Number of Toilets Replaced by Agency Program During Report Year**

Replacement Method	SF Accounts	MF Units
2. Rebate	0	0
3. Direct Install	0	0
4. CBO Distribution	0	0
5. Other	0	0
<b>Total</b>	<b>0</b>	<b>0</b>

6. Describe your agency's ULFT program for single-family residences.

7. Describe your agency's ULFT program for multi-family residences.

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

**B. Residential ULFT Program Expenditures**

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	6579.05	

**C. "At Least As Effective As"**

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

**D. Comments**

The City of Santa Rosa has successfully completed this BMP. We completed our "Go Low Flow" program for both single family and multi family residential customers on December 31, 2002. This program ran for ten years and included rebates for ULFT installation; ULFT distribution events, and direct installation of ULFTs. Santa Rosa replaced 29,491 SFR toilets and 12,490 MFR toilets for a water savings of 1.31 million gallons per day.

Reported as of 11/1

**Base Year Data**

Reporting Unit:  
City of Santa Rosa

Submitted to  
CUWCC  
02/01/2001

**1. Your BASE YEAR is 1998.**

NOTE: Many calculations in determining credit history and coverage requirements are contingent on your BASE YEAR, which is calculated based on the following criteria. If a Signatory signed the MOU in 1997 or earlier, then the Base Year is 1997. If a Signatory signed the MOU after 1997, then the Base Year is the year the MOU was signed. The same holds true for USBR Contractors, except the date their Base Year is calculated from is the date that their Plan was noticed in the Federal Register.

**BMP 1**

2. Number of single-family customers in 1998	36704
3. Number of multi-family units in 1998	19743

**BMPs 2 and 14**

4. Number of single-family housing units constructed prior to 1992	33155
5. Number of multi-family units prior to 1992	16107

**BMP 4**

6. Number of unmetered accounts in 1998	0
---	---

**BMPs 5 and 9**

7. Number of commercial accounts in 1998	3740
8. Number of industrial accounts in 1998	118
9. Number of institutional accounts in 1998	274
10. Total water use (AF) by commercial, industrial and institutional accounts in 1998	6478

**BMP 14**

11. Average number of toilets per single-family household	2.1
12. Average number of toilets per multi-family household	1.5
13. Five-year average resale rate of single-family households	4.81
14. Five-year average resale rate of multi-family households	7.57
15. Average persons per single-family household	2.5
16. Average persons per multi-family household	2.5

Reported as of 11/1



**Best Management Practices Report Filing**

**BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers**

You are viewing coverage for:

**BMP 01  
03-04**

◀ **YRs** ▶  
DN - UP

◀ **BMPs** ▶  
DN - UP

**Memorandum of Understanding**

**Back to Coverage Reports List**

Reporting Unit:  
**City of Santa Rosa**

**MOU Exhibit 1 Coverage Requirement**

Agency indicated "at least as effective as" implementation during report period? Yes

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

- Condition 1: Adopt survey targeting and marketing strategy on time
- Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period
- Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

**Test for Condition 1**

Latest City of Santa Rosa to Implement Targeting/Marketing Program:	2000		
		<u>Single-Family</u>	<u>Multi-Family</u>
Year City of Santa Rosa Reported Implementing Targeting/Marketing Program:	1402	1402	1402
City of Santa Rosa Met Targeting/Marketing Coverage Requirement:	YES	YES	YES

**Test for Condition 2**

Latest Year Survey Program to Start:	1999	Residential Survey Offers (%)	<u>Single-Family</u>	<u>Multi-Family</u>
			29.24%	42.93%
Reporting Period:	03-04	Survey Offers ≥ 20%	YES	YES

**Test for Condition 3**

Completed Residential Surveys  
Single Family    Multi-Family

Total Completed Surveys through 2004	8,888	1,164
Credit for Surveys Completed Prior to Implementation of Reporting Database	9,202	73
<b>Total + Credit</b>	<b>18,090</b>	<b>1,237</b>
Residential Accounts in Base Year	36,704	19,743
City of Santa Rosa Survey Coverage as % of Base Year Residential Accounts	49.29%	6.27%
Coverage Requirement by Year 6 of Implementation per Exhibit 1	6.30%	6.30%
City of Santa Rosa on Schedule to Meet 10-Year Coverage Requirement	YES	NO

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## Best Management Practices Report Filing

### BMP 02 Coverage: Residential Plumbing Retrofit

Reporting Unit:  
**City of Santa Rosa**

You are viewing coverage for:

**BMP 02**

**03-04**

**YRs**

DN - UP

**BMPs**

DN - UP

Memorandum of Understanding

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### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

#### Test for Condition 1

Report Year	Report Period	Single-Family		Multi-Family	
		Reported Saturation	Saturation ≥ 75%?	Reported Saturation	Saturation ≥ 75%?
1999	99-00	75.00%	NO	75.00%	NO
2000	99-00	75.00%	NO	75.00%	NO
2001	01-02	87.00%	YES	76.00%	YES
2002	01-02	87.00%	YES	76.00%	YES
2003	03-04	87.00%	YES	76.00%	YES
2004	03-04	87.00%	YES	76.00%	YES

#### Test for Condition 2

Report Year	Report Period	City of Santa Rosa has ordinance requiring showerhead retrofit?
1999	99-00	NO
2000	99-00	NO
2001	01-02	NO
2002	01-02	NO
2003	03-04	NO
2004	03-04	NO

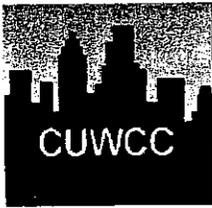
#### Test for Condition 3

Reporting Period: 03-04

<u>1992 SF Accounts</u>	<u>Num. Showerheads Distributed to SF Accounts</u>	<u>Single-Family Coverage Ratio</u>	<u>SF Coverage Ratio &gt; 10%</u>
33,155	1,849	5.6%	NO
<u>1992 MF Accounts</u>	<u>Num. Showerheads Distributed to MF Accounts</u>	<u>Multi-Family Coverage Ratio</u>	<u>MF Coverage Ratio &gt; 10%</u>
16,107	549	3.4%	NO

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## Best Management Practices Report Filing

### BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:  
City of Santa Rosa

You are viewing coverage for:

**BMP 03**  
**03-04**

◀ **YRs** ▶  
DN - UP

◀ **BMPs** ▶  
DN - UP

Memorandum of Understanding

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#### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one of two conditions to be in compliance with BMP 3:

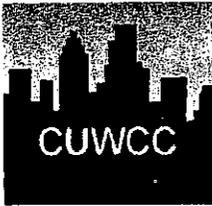
Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

#### Test for Conditions 1 and 2

<u>Report Year</u>	<u>Report Period</u>	<u>Pre-Screen Completed</u>	<u>Pre-Screen Result</u>	<u>Full Audit Indicated</u>	<u>Full Audit Completed</u>
1999	99-00	YES	94.6%	No	YES
2000	99-00	YES	96.8%	No	YES
2001	01-02	YES	96.1%	No	YES
2002	01-02	YES			YES
2003	03-04	YES	100.9%	No	NO
2004	03-04	YES	98.3%	No	NO

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## Best Management Practices Report Filing

### BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:  
**City of Santa Rosa**

You are viewing coverage for:

**BMP 04**  
**03-04**

◀ **YRs** ▶  
DN - UP

#### MOU Exhibit 1 Coverage Requirement

Agency indicated "at least as effective as" implementation during report period?

No

◀ **BMPs** ▶  
DN - UP

An agency must be on track to retrofit 100% of its unmetered accounts within 10 years to be in compliance with BMP 4.

Memorandum of Understanding

#### Test for Compliance

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Total Meter Retrofits Reported through 2004

No. of Unmetered Accounts in Base Year

Meter Retrofit Coverage as % of Base Year Unmetered Accounts

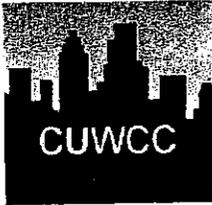
Coverage Requirement by Year 5 of Implementation per Exhibit 1

32.5%

RU on Schedule to meet 10 Year Coverage Requirement

YES

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**Best Management Practices Report Filing**

**BMP 05 Coverage: Large Landscape Conservation Programs and Incentives**

Reporting Unit:  
**City of Santa Rosa**

You are viewing coverage for:

**BMP 05**

**03-04**

**YRs**

DN - UP

**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No



An agency must meet three conditions to comply with BMP 5.

**Memorandum of Understanding**

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

**Back to Coverage Reports List**

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

**Test for Condition 1**

Year	Report Period	BMP 5 Implementation Year	No. of Irrigation Meter Accounts	No. of Irrigation Accounts with Budgets	Budget Coverage Ratio	90% Coverage Met by Year 4
1999	99-00		1,424			NA
2000	99-00	1	1,435			NA
2001	01-02	2	1,488	911	61.2%	NA
2002	01-02	3	1,587	911	57.4%	NA
2003	03-04	4	1,623	979	60.3%	No
2004	03-04	5	1,548	978	63.2%	No

**Test for Condition 2a (survey offers)**

Select Reporting Period:	03-04
Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts	9.4%
Survey Offers Equal or Exceed 20% Coverage Requirement	NO

**Test for Condition 2a (surveys completed)**

Total Completed Landscape Surveys Reported through Credit for Surveys Completed Prior to Implementation of Reporting Database	90
Total + Credit	90

CII Accounts in Base Year	4,132
RU Survey Coverage as a % of Base Year CII Accounts	2.2%
Coverage Requirement by Year of Implementation per Exhibit 1	4.9%
RU on Schedule to Meet 10 Year Coverage Requirement	NO

**Test for Condition 2b (mixed use budget or meter retrofit program)**

<u>Report Year</u>	<u>Report Period</u>	<u>BMP 5 Implementation Year</u>	<u>Agency has mix-use budget program</u>	<u>No. of mixed-use budgets</u>
1999	99-00		NO	
2000	99-00	1	NO	
2001	01-02	2	NO	
2002	01-02	3	NO	
2003	03-04	4	NO	
2004	03-04	5	NO	

<u>Report Year</u>	<u>Report Period</u>	<u>BMP 4 Implementation Year</u>	<u>No. of mixed use CII accounts</u>	<u>No. of mixed use CII accounts fitted with irrig. meters</u>
1999	99-00		450	3
2000	99-00	1	447	5
2001	01-02	2	442	7
2002	01-02	3	435	
2003	03-04	4	435	
2004	03-04	5	433	2

**Test for Condition 3**

<u>Report Year</u>	<u>Report Period</u>	<u>BMP 5 Implementation Year</u>	<u>RU offers financial incentives?</u>	<u>No. of Loans</u>	<u>Total Amt. Loans</u>
1999	99-00		YES		
2000	99-00	1	YES		
2001	01-02	2	YES		
2002	01-02	3	YES		
2003	03-04	4	YES		
2004	03-04	5	YES		

<u>Report Year</u>	<u>Report Period</u>	<u>No. of Grants</u>	<u>Total Amt. Grants</u>	<u>No. of rebates</u>	<u>Total Amt. Rebates</u>
1999	99-00			2	9,627
2000	99-00			4	41,976
2001	01-02			3	48,243
2002	01-02			3	40
2003	03-04				
2004	03-04				



## Best Management Practices Report Filing

### BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:  
City of Santa Rosa

You are viewing coverage for:

**BMP 06**  
**03-04**

◀ **YRs** ▶  
DN - UP

◀ **BMPs** ▶  
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#### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

#### Test for Condition 1

Year	Report Period	BMP 6 Implementation Year	Rebate Offered by ESP?	Rebate Offered by RU?	Rebate Amount
1999	99-00		YES	NO	
2000	99-00	1	YES	NO	
2001	01-02	2	YES	YES	75.00
2002	01-02	3	NO	YES	450.00
2003	03-04	4	YES	YES	75.00
2004	03-04	5	YES	YES	75.00

Year	Report Period	BMP 6 Implementation Year	No. Rebates Awarded	Coverage Met?
1999	99-00		646	NO
2000	99-00	1	452	NO
2001	01-02	2	129	YES
2002	01-02	3	105	YES
2003	03-04	4	883	YES
2004	03-04	5	1,023	YES

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## Best Management Practices Report Filing

### BMP 07 Coverage: Public Information Programs

Reporting Unit:  
City of Santa Rosa

You are viewing coverage for:

**BMP 07**

**03-04**

**YRs**

DN - UP

**BMPs**

DN - UP

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### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

### Test for Condition 1

Year	Report Period	BMP 7 Implementation Year	RU Has Public Information Program?
1999	99-00	1	YES
2000	99-00	2	YES
2001	01-02	3	YES
2002	01-02	4	YES
2003	03-04	5	YES
2004	03-04	6	YES

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## Best Management Practices Report Filing

<b>BMP 08 Coverage: School Education Programs</b>
Reporting Unit: <b>City of Santa Rosa</b>

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### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

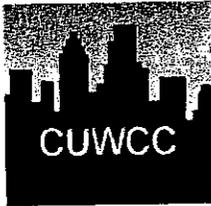
An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

#### Test for Condition 1

Year	Report Period	BMP 8 Implementation Year	RU Has School Education Program?
1999	99-00	1	NO
2000	99-00	2	NO
2001	01-02	3	NO
2002	01-02	4	NO
2003	03-04	5	YES
2004	03-04	6	YES

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## Best Management Practices Report Filing

### BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:  
**City of Santa Rosa**

#### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

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An agency must meet three conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.

OR  
Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.

OR  
Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

#### Test for Condition 1

Year	Report Period	BMP 9 Implementation Year	Ranked Com. Use	Ranked Ind. Use	Ranked Inst. Use
1999	99-00		YES	YES	YES
2000	99-00	1	YES	YES	YES
2001	01-02	2	YES	YES	YES
2002	01-02	3	YES	YES	YES
2003	03-04	4	YES	YES	YES
2004	03-04	5	YES	YES	YES

#### Test for Condition 2a

	Commercial	Industrial	Institutional
Total Completed Surveys Reported through 2004	281	5	7
Credit for Surveys Completed Prior to Implementation of Reporting Databases	42		
Total + Credit	323	5	7
CII Accounts in Base Year	3,740	118	274
RU Survey Coverage as % of Base Year CII Accounts	8.6%	4.2%	2.6%
Coverage Requirement by Year 5 of Implementation per Exhibit 1	3.3%	3.3%	3.3%

RU on Schedule to Meet 10 Year Coverage Requirement      YES      YES      NO

**Test for Condition 2a**

Year	Report Period	BMP 9 Implementation Year	Performance Target Savings (AF/yr)	Performance Target Savings Coverage	Performance Target Savings Coverage Requirement	Coverage Requirement Met
1999	99-00		246	3.8%		YES
2000	99-00	1	308	4.8%	0.5%	YES
2001	01-02	2	311	4.8%	1.0%	YES
2002	01-02	3	319	4.9%	1.7%	YES
2003	03-04	4	319	4.9%	2.4%	YES
2004	03-04	5	326	5.0%	3.3%	YES

**Test for Condition 2c**

Total BMP 9 Surveys + Credit	335
BMP 9 Survey Coverage	8.1%
BMP 9 Performance Target Coverage	5.0%
BMP 9 Survey + Performance Target Coverage	13.1%
Combined Coverage Equals or Exceeds Coverage Requirement?	YES

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# Best Management Practices Report Filing

## BMP 11 Coverage: Conservation Pricing

Reporting Unit:

City of Santa Rosa

You are viewing coverage for:

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### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period?

No

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

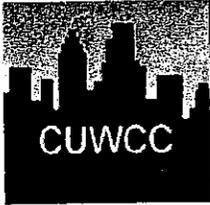
a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates); rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used; pricing in which the typical bill is determined by high fixed charges and low commodity charges.

b) Conservation pricing provides incentives to customers to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service; and billing for water and sewer service based on metered water use. Conservation pricing is also characterized by one or more of the following components: rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; rates based upon the longrun marginal cost or the cost of adding the next unit of capacity to the system.

### Test for Condition 1

Year	Report Period	RU Employed Non Conserving Rate Structure	RU Meets BMP 11 Coverage Requirement
1999	99-00	NO	YES
2000	99-00	NO	YES
2001	01-02	NO	YES
2002	01-02	NO	YES
2003	03-04	NO	YES
2004	03-04	NO	YES

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## Best Management Practices Report Filing

### BMP 12 Coverage: Conservation Coordinator

Reporting Unit:  
**City of Santa Rosa**

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### MOU Exhibit 1 Coverage Requirement

No exemption request filed

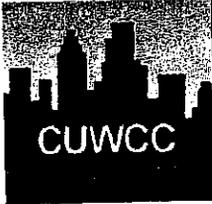
Agency indicated "at least as effective as" implementation during report period? No

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

### Test for Compliance

<u>Report Year</u>	<u>Report Period</u>	<u>Conservation Coordinator Position Staffed?</u>	<u>Total Staff on Team (incl. CC)</u>
1999	99-00	YES	4
2000	99-00	YES	4
2001	01-02	YES	4
2002	01-02	YES	4
2003	03-04	YES	4
2004	03-04	YES	4

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# Best Management Practices Report Filing

## BMP 13 Coverage: Water Waste Prohibition

Reporting Unit:  
**City of Santa Rosa**

### MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 13.

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

#### Test for Condition 1

#### Agency or service area prohibits:

Year	Gutter Flooding	Single-Pass Cooling Systems	Single-Pass Car Wash	Single-Pass Laundry	Single-Pass Fountains	Other	RU has ordinance that meets coverage requirement
1999	yes	yes	yes	yes	yes	yes	YES
2000	yes	yes	yes	yes	yes	yes	YES
2001	yes	yes	yes	yes	yes	yes	YES
2002	yes	yes	yes	yes	yes	yes	YES
2003	yes	yes	yes	yes	yes	yes	YES
2004	yes	yes	yes	yes	yes	yes	YES

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You are viewing coverage for:

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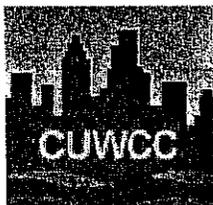
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**Best Management Practices Report Filing**

**BMP Activity History: Multiple-Year Overview**

Reporting Unit:  
City of Santa Rosa

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INSTRUCTIONS: Exhibit 1 allows Signatories to credit BMP activity completed prior to 1998 against BMP coverage requirements. To obtain credit for this past activity you must complete the information summarized below. Choose a year and click "Go" to ADD or EDIT BMP activity data for that specific year. If you do not enter previous BMP activity, the system will have no way to calculate credit toward coverage requirements for this activity.

A. Number of RESIDENTIAL Water Use Surveys by Year						
Year	No. Single-Family Surveys		No. Multi-Family Surveys			
1991	0		0			
1992	0		0			
1993	0		0			
1994	630		0			
1995	1556		9			
1996	1740		67			
1997	3355		6			
1998	2763		1			
Total	10044		83			

B. Number of LANDSCAPE Surveys Completed by Year		
Year	Surveys Receiving Follow-up	Surveys Not Receiving Follow-up
1991	0	0
1992	0	0
1993	0	0
1994	0	0
1995	0	0
1996	0	0
1997	0	0
1998	0	0
Total	0	0

C. Number of CII Surveys Completed by Year						
Year	Commercial		Industrial		Institutional	
	Follow-Up	No Follow-Up	Follow-Up	No Follow-Up	Follow-Up	No Follow-Up
1991	0	0	0	0	0	0
1992	0	0	0	0	0	0
1993	0	0	0	0	0	0
1994	0	0	0	0	0	0
1995	6	6	0	0	0	0
1996	18	18	0	0	0	0
1997	0	0	0	0	0	0
1998	6	0	0	0	0	0

Total	30	24	0	0	0	0
<b>D. Estimated WATER SAVINGS (AF/Yr) from CII Programs by Year</b>						
Year	Site Verified			Site Not Verified		
1991	0			0		
1992	0			0		
1993	0			0		
1994	37.37			0		
1995	9			0		
1996	25.56			0		
1997	106.57			0		
1998	67.91			0		
Total	244			0		

<b>E. (Part I) Historical CII Ultra-Low-Flush Toilet Installations by CII Sector by Year</b>							
Year	Auto	Food	Health	Hotel	Manuf'g	Membership	Multi-Use
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0
1994	9	3	45	0	7	0	11
1995	0	3	11	0	3	0	7
1996	9	3	19	58	14	0	5
1997	2	3	144	538	19	0	5
1998	5	1	22	245	3	0	2
Total	25	13	241	841	46	0	30

<b>E. (Part II) Historical CII Ultra-Low-Flush Toilet Installations by CII Sector by Year</b>							
Year	Office	Religious	Restaurant	Retail	School	Wholesale	Unknown
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0
1994	8	8	31	43	0	4	176
1995	3	2	7	5	0	1	45
1996	5	0	16	9	2	0	96
1997	7	30	7	45	18	6	160
1998	6	40	8	11	58	10	216
Total	29	80	69	113	78	21	693

<b>F. Number of Residential ULFT Rebates / Installations by Year:</b>		
Year	Single-Family	Multi-Family
1991	0	0
1992	0	0
1993	0	0
1994	976	386
1995	2075	1022
1996	2076	1899
1997	4701	3264
1998	3884	1346

Total	13712	7917
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