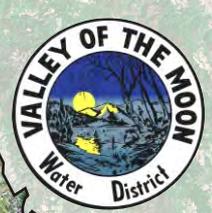
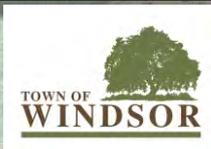
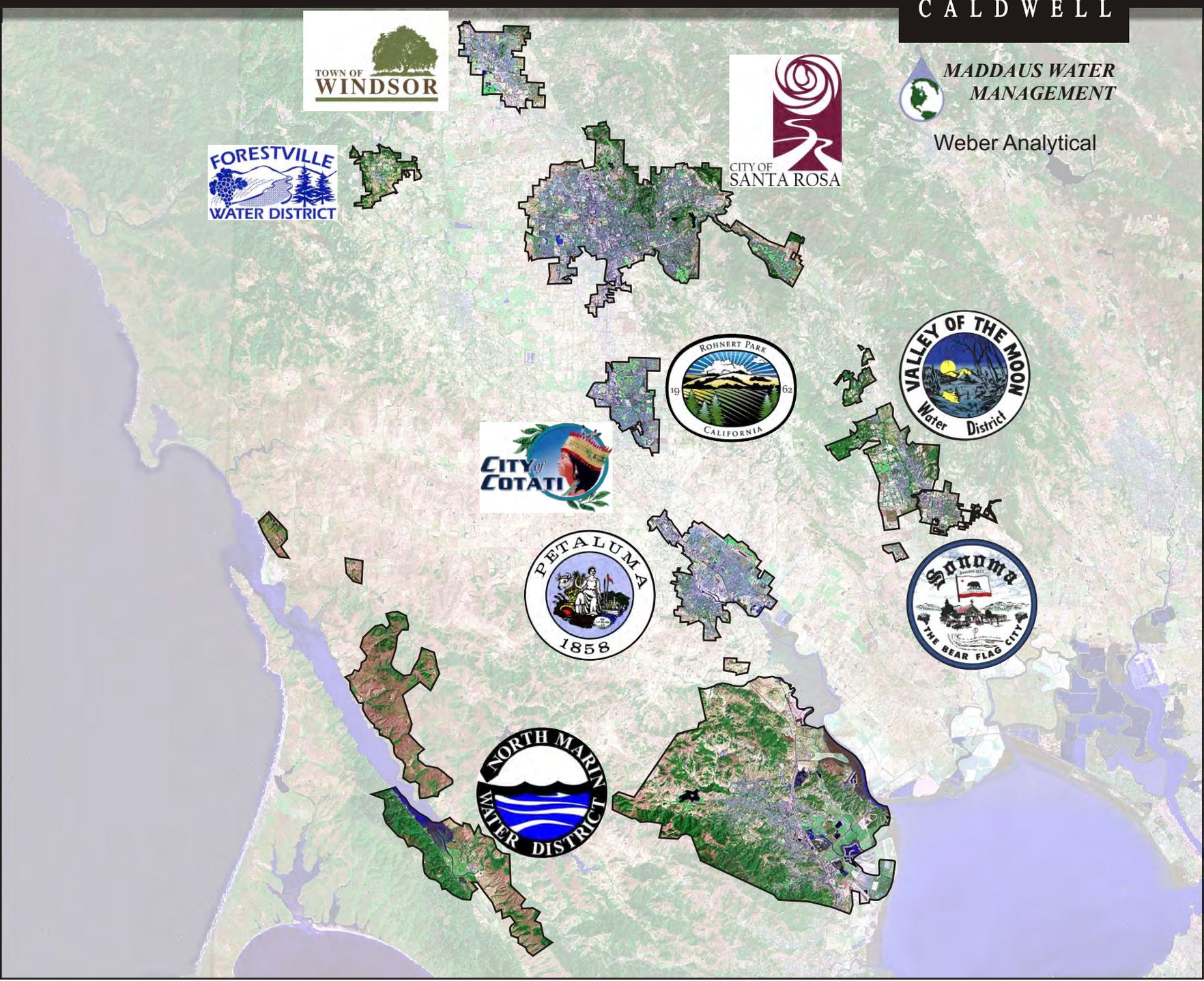


2005 Urban Water Management Plan

December 2006

Sonoma County Water Agency

BROWN AND CALDWELL



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December 18, 2006

BROWN AND
CALDWELL

Mr. Matthew Damos, P.E.
Sonoma County Water Agency
404 Aviation Boulevard
Santa Rosa, California 95403

1017/127280.005

Subject: Sonoma County Water Agency,
Urban Water Management Plan

Dear Mr. Damos:

Brown and Caldwell is pleased to submit this Urban Water Management Plan, which was adopted on December 12, 2006. Please do not hesitate to contact me if you have any questions or comments at (916) 853-5306.

Sincerely,

BROWN AND CALDWELL



Paul Selsky, P.E.
Vice President

PS:DM:ds

Enclosure

SONOMA COUNTY WATER AGENCY

2005 URBAN WATER MANAGEMENT PLAN

December 2006

Prepared by

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LIST OF ACRONYMS AND ABBREVIATIONS

ABAG	Association of Bay Area Governments
Act	Urban Water Management Act
ac-ft	acre-feet
ac-ft/yr	acre-feet per year
Agency	Sonoma County Water Agency
bgs	below ground surface
BMP	best management practices
CEQA	California Environmental Quality Act
cfs	cubic feet per second
County	County of Sonoma
DEIR	Draft Environmental Impact Report
DHS	California Department of Health Services
DWR	California Department of Water Resources
DSS	Decision Support System
EIR	Environmental Impact Report
ESA	Endangered Species Act
ET _o	evapotranspiration
FERC	Federal Energy Regulatory Commission
GP	General Plan
gpd	gallons per day
MCL	maximum contaminant level
MG	million gallons
mgd	million gallons per day
MOU	Memorandum of Understanding
MSL	mean sea level
NMFS	National Marine Fisheries Service
PES	PES Environmental, Inc.
PG&E	Pacific Gas and Electric
Plan	Urban Water Management Plan
PVP	Potter Valley Project

LIST OF ACRONYMS AND ABBREVIATIONS (continued)

Restructured Agreement RRSyM	Restructured Agreement for Water Supply Russian River System Model
SWRCB	State Water Resources Control Board
USACE USGS	United States Army Corps of Engineers United States Geological Survey
Water Project WSA	Water Supply, Transmission, and Reliability Project Rohnert Park City-Wide Water Supply Assessment

SECTION 1

INTRODUCTION

This Urban Water Management Plan (Plan) addresses the Sonoma County Water Agency (Agency) 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 Agency provides water principally from the Russian River to retail water customers in Sonoma and Marin Counties, California.

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

1.1 Urban Water Management Planning Act

The Agency Plan has been prepared in accordance with the Urban Water Management Act (Act), as amended, California Water Code, Sections 10610 through 10656. 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). This plan serves as a long-range planning document for the Agency's water supply. Individual water contractor plans should be consulted for details on their supplies.

1.2 Resource Maximization and Import Minimization

Water management tools have been used by the Agency to maximize water resources. The Agency does not import water. The Agency has been working with its water contractors and other Agency customers to implement water conservation measures. Additionally, the Agency is working with the United States Geological Survey (USGS) to conduct groundwater basin studies in Sonoma County. The Agency is participating in the preparation of two integrated regional water management plans, one for the North Coast Hydrologic Region (Region 1) and one for the San Francisco Bay Hydrologic Region (Region 2), because the Agency provides water supply within both hydrologic regions. By working to integrate water resources planning across jurisdictional boundaries, the Agency can maximize water resources.

1.3 Coordination

The Act requires the Agency to coordinate the preparation of its Plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies. The Agency coordinated the preparation of its Plan with its water contractors and other Agency customers, as well as the wastewater agencies within the service area. In addition, the Agency coordinated the preparation of the water demand projections in this Plan with the Association of Bay Area Government’s (ABAG) demographic projections, the draft Sonoma County General Plan, and the draft Marin County-wide Plan. Table 1-1 provides a summary of the Agency’s coordination with the appropriate agencies.

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

	Contractors and Other Agency Customers										Wastewater Agencies					Other		
	City of Cotati	North Marin Water District	City of Petaluma	City of Rohnert Park	City of Santa Rosa	City of Sonoma	Valley of the Moon Water District	Town of Windsor	Forestville Water District	Marin Municipal Water District	Novato Sanitary District	Petaluma Wastewater Treatment Facility	Santa Rosa Subregional Reclamation System	Sonoma Valley County Sanitation District	Town of Windsor Water Reclamation Division	County of Marin	County of Sonoma	Public Involvement
Participated in developing the Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓
Commented on the draft	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓								
Attended Agency public meetings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓								
Held public meeting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓								
Was contacted for assistance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Was sent a copy of the draft Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	✓
Was sent a notice of intention to adopt	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Not involved / No information																		

1.4 Public Participation and Plan Adoption

The Agency encouraged community and public interest involvement in the Plan update through public hearings and inspection of the draft document. Public hearing notifications and advertisements were published in the Santa Rosa Press Democrat. A copy of the published Notice of Public Hearing is included in Appendix A. The Public hearing on December 5, 2006 provided an opportunity for all residents and employees in the service area to learn and ask questions about their water supply and the Agency's plans for providing a reliable, safe, high-quality water supply. Copies of the draft Plan were made available for public inspection at the Agency's Administration building, the Clerk of the Board of Directors, and the Agency's web site. Copies of the notices advertisements and outreach lists are provided in Appendix A.

This Plan was adopted by the Agency's Board of Directors on December 12, 2006. A copy of the adopted resolution is also provided in Appendix A.

1.5 Plan Organization

This section provides a summary of the sections in the Plan. Section 2 provides a description of the service area, climate, water supply facilities, and transmission system. Section 3 presents historical and projected water use. Surface and groundwater supplies are described in Section 4. 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 C provide relevant supporting documents.

1.6 Assumptions

The evaluation and conclusions in this Plan are based in part upon assumptions (identified below and discussed in subsequent chapters) about the most likely outcome of decisions of regulatory agencies over the 20-year planning period. The Agency recognizes that regulatory agencies may make different decisions or take different actions than those assumed by the Agency, which may affect the availability of water and the adequacy of the Agency's transmission system. The Agency concludes, given the facts currently available, that the assumptions in this Plan are reasonable, but will monitor the assumptions and update subsequent Plans as necessary.

Local planning agencies choosing to consider this document as a reference for analysis of water availability are encouraged to check with the Agency or their appropriate water contractor for updated information regarding the assumptions on which this Plan is based.

With respect to the Agency's ability to deliver water, the Agency assumes that it will construct and operate facilities described in its Notice of Preparation of the environmental impact report (EIR) for the Water Supply, Transmission, and Reliability Project (Water Project). State and federal agencies, including the National Marine Fisheries Service (under the ESA) and the State Water Resources Control Board (SWRCB) (which issues water rights permits) could impose requirements that would change the Water Project.

In its analysis of the availability of water for diversion from the Russian River by its transmission system, the Agency assumes that the listing of three salmonid species as threatened or endangered under the federal Endangered Species Act (ESA) will not reduce the amount of water it can supply, principally from the water stored in Lake Sonoma (Warm Springs Dam), using its Russian River diversion facilities. The Agency also assumes that PG&E's existing Federal Energy Regulatory Commission (FERC) license for the Potter Valley Project (PVP) will not be interpreted or modified, or a new license changed to reduce the amount of water available for diversion by the Agency through its Russian River Diversion Facilities.

With respect to the PG&E FERC license for the PVP, the Agency acknowledges that the diversion of water by PG&E from the Eel River watershed into the Russian River watershed has been a source of controversy. However, because the diversion has been ongoing for almost 100 years, and because extensive agricultural, municipal, and commercial economies have developed during those 100 years in Mendocino and Sonoma Counties in reliance upon the diversions, it is reasonable to assume that the PVP diversions into the Russian River watershed will continue.

For example, in the recent license amendment proceeding at FERC involving PVP flows, FERC noted that “[b]oth [the National Environmental Policy Act] and section 10(a)(1) [of the Federal Power Act] require consideration of the effects of proposed [PVP flow] actions on, respectively, the environment and other public interest uses of the waterways.” FERC explicitly recognized the

importance of the PVP diversions to Mendocino and Sonoma Counties, both in its Environmental Impact Statement in the recent proceeding, and in its orders concluding the proceeding.¹

In addition, having a sufficient supply of water in Lake Mendocino in the fall is of critical importance to the salmonid species in the Russian River that are listed as threatened under the federal Endangered Species Act. For example, the State Water Resources Control Board approved a request by the Agency to temporarily reduce flows in the Russian River above Healdsburg to conserve water in Lake Mendocino for benefit of the listed Russian River salmonid species. In approving the Agency's request, the State Board noted that "[t]he proposed change will help conserve cold water in Lake Mendocino so that it can be released for listed Russian River salmonid fisheries present in the Russian River during the late summer and fall months. It is in the public interest to preserve water supplies for these beneficial uses when hydrologic circumstances intervene to cause dangerous reductions in these water supplies." (State Water Resources Control Board Water Right Order 2004-0035 at 8.)

Given the importance of the PVP diversions to the agricultural, commercial, and industrial economy in Mendocino and Sonoma Counties, as well as the importance of a sufficient water supply in Lake Mendocino to the threatened Chinook salmon in the Russian River watershed, it is reasonable to assume that decisions about the extent of PVP diversions into the Russian River watershed made in any future proceedings at FERC (or by any other regulatory agencies potentially having jurisdiction over PVP flows) will recognize the importance of those diversions to Mendocino and Sonoma Counties and the Russian River fishery.

Moreover, even in the unlikely event of a significant reduction of PVP flows into the Russian River watershed (or even a complete cessation, in the unlikely event of a collapse of the diversion tunnel), it is reasonable to assume that the Agency could take actions that would mitigate the impact of the reduction. The Agency's water rights permits, for example, state that the State Water Resources Control Board "reserves jurisdiction" over the permits to "modify, delete, or add minimum flow requirements" in the event of any FERC action modifying PVP flows. Depending upon the extent of the reduction, a reduction in minimum instream flow requirements in the Russian River

¹ See Order on Rehearing (June 2, 2004) at 16 ("The Tribes and the Eel River Groups object to the fact that the EIS includes a detailed analysis of the potential economic impacts of the various alternatives on Russian River interests, but does not include a comparable analysis of economic impacts on Eel River Basin interests. As the January 28 Order explained, this is because the alternatives have direct and substantial effects on the Russian River Basin economy, which has strong agricultural and consumptive urban components.")

(particularly downstream of the Agency's diversion facilities) could mitigate the water supply impacts of reduction in PVP flows. Other projects (discussed in Section 4.7 below) also have the potential for mitigating the impacts.

Operating under the assumption that PVP flows into the East Fork Russian River will continue to be governed by the existing FERC PVP license is an assumption that is supported by the evidence, given the history of proceedings regarding the PVP at FERC and the historical reliance of Mendocino and Sonoma counties on the diversions. In order to base the water supply analysis in this Plan on an alternate assumption, the Agency would have to select a specific alternate assumption out of a universe of potentially available assumptions. The Agency's reliance on existing conditions instead of some speculative future alternative is reasonable and appropriate.

The assumption that the listing of three salmonid species will not reduce the amount of water the Agency can supply is also reasonable and supported by substantial evidence. For almost nine years, the Agency has been engaged in a consultation with the U.S. Army Corps of Engineers (Corps) and the National Marine Fisheries Service (NMFS) under Section 7 of the federal Endangered Species Act. Under this consultation, Agency and NMFS fisheries biologists and consultants have engaged in a detailed examination of the impact of the Agency's water supply operations on the listed species. This resulted in the submission by the Agency and the Corps to NMFS of a Biological Assessment in September 2004.

The Biological Assessment noted, among other things, that flows in the Russian River and Dry Creek may be higher than optimal for the listed species. The Biological Assessment contains a proposal to change the current instream flow requirements for the Russian River and Dry Creek to reduce those flows to benefit the listed species. It is anticipated that NMFS will issue a Biological Opinion on the Agency's current water supply operations shortly. At the present time, it is uncertain what flow reductions NMFS may recommend in its Biological Opinion, the extent to which any flow reductions will have an impact on the Agency's water supply, or the extent to which any flow reductions will be approved by the State Water Resources Control Board.

Again, there is substantial evidence supporting the Agency's assumption that the listing of the three salmonid species will not reduce the amount of water the Agency can supply. In evaluating the cumulative effect of the Agency's various operations (including water supply operations) on the

listed salmonid species, NMFS will consider the positive impact of the many habitat conservation and restoration projects the Agency has initiated and will initiate in the future. Given the Agency's longstanding work and cooperative relationship with NMFS through the Section 7 consultation, it is reasonable to assume that the Biological Opinion issued by NMFS will contain reasonable and prudent alternatives that will permit the Agency to meet the water supply demands of its contractors and customers.

The assumption that the Agency will construct and operate the facilities described in the Water Project is also reasonable. The Agency's water contractors and other customers have the financial ability to finance construction of the facilities through increased water rates, the facilities at issue (pipelines, water storage tanks, booster pumps, collector wells, etc.) are standard types of facilities that the Agency has successfully constructed and operated in the past.

Finally, the assumption that the Agency will obtain water rights from the State Water Resources Control Board to increase its Russian River diversions to 101,000 acre-feet per year by 2016 is also reasonable. This date represents the professional opinion of Agency staff as to the date the Agency will receive permits to increase diversions, given the various regulatory processes (including CEQA review and completion of the Section 7 consultation process). There is substantial evidence supporting this assumption. The physical water supply supporting the additional requested diversion already exists -- the Agency already has the right to divert and store the necessary water in Lake Sonoma and Lake Mendocino. The need for the additional diversions is evident, and as noted later in this Plan, the Agency and its contractors are maximizing conservation in order to reduce diversions to the extent practicable. Finally, the timing of the application for additional diversions to the State Board will allow the Agency to complete the Section 7 consultation with NMFS, thus making it reasonably likely that NMFS will not object to the application. Again, while nothing in the future is certain, there is substantial evidence to support the Agency's assumption that it will receive approval to increase its Russian River diversions up to 101,000 acre-feet per year.

If one or more of these assumptions do not come to pass, there are other potential alternative projects that could be evaluated and potentially implemented to mitigate the effect of any reduction in water supply caused thereby. These are discussed in Section 4.7. As noted above, however, although the assumptions set forth above are reasonable and supported by substantial evidence at

the present, some risk exists that if the assumptions discussed above will not come to pass. Under different assumptions, the water supply available to the Agency as set forth in the analysis in Section 7 may be reduced. Customers of the Agency, local planning agencies, and other persons relying on this Plan as a reference for analysis of water supply availability are encouraged to check with the Agency for updated information regarding these assumptions.

SECTION 2

DESCRIPTION OF EXISTING WATER SYSTEM

This section describes the Agency's service area, the climate in that service area, and the Agency's water supply facilities. Section 4 of the plan describes the quantities of water available to the Agency.

2.1 Description of Service Area

The Agency's water service area covers a large part of Sonoma County, as well as the northern portion of Marin County. The Agency supplies water diverted from the Russian River to several categories of customers, including "contractors," "other Agency customers," and the Marin Municipal Water District. The "contractors" consist of the North Marin Water District, City of Petaluma, City of Rohnert Park, City of Santa Rosa, City of Sonoma, Valley of the Moon Water District, Town of Windsor, and City of Cotati. Each of the contractors have prepared their own urban water management plans. The "other Agency customers" consist of the Forestville Water District, the California-American Water Company, and several water companies and public agencies. The Agency also supplies water through its transmission system to the Marin Municipal Water District. The relationship between the Agency, its contractors, other Agency customers, and Marin Municipal Water District is detailed in the Restructured Agreement for Water Supply dated June 2006.

2.2 Climate

The source of the Agency's water supply, the Russian River watershed, is influenced by its proximity to the Pacific Ocean. In common with much of the California coastal area, the year 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 seldom occur. Summers are warm and the frost-free season is fairly long. Average annual precipitation over the Russian River watershed is 41 inches, ranging from about 22 inches over the southern portion of the region to over 80 inches in the northern area. The quantity of rainfall over the watershed increases with elevation, with the center of greatest precipitation occurring over the highest ridges. A significant part of the region is subject to marine influence and fog intrusion. Average annual rainfall ranges from 21 to 30 inches within the Sonoma County service area. Temperatures range from 16° to 110°F. Prevailing winds are from the west and southwest. Table 2-1 summarizes the

monthly average evapotranspiration rates (ET_o) at the Santa Rosa station, and monthly average rainfall and temperatures at the Sonoma Station.

Table 2-1. (DWR Table 3) Climate

	Standard average ET _o ^a , in.	Average rainfall ^b , in.	Average temperature ^b , °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

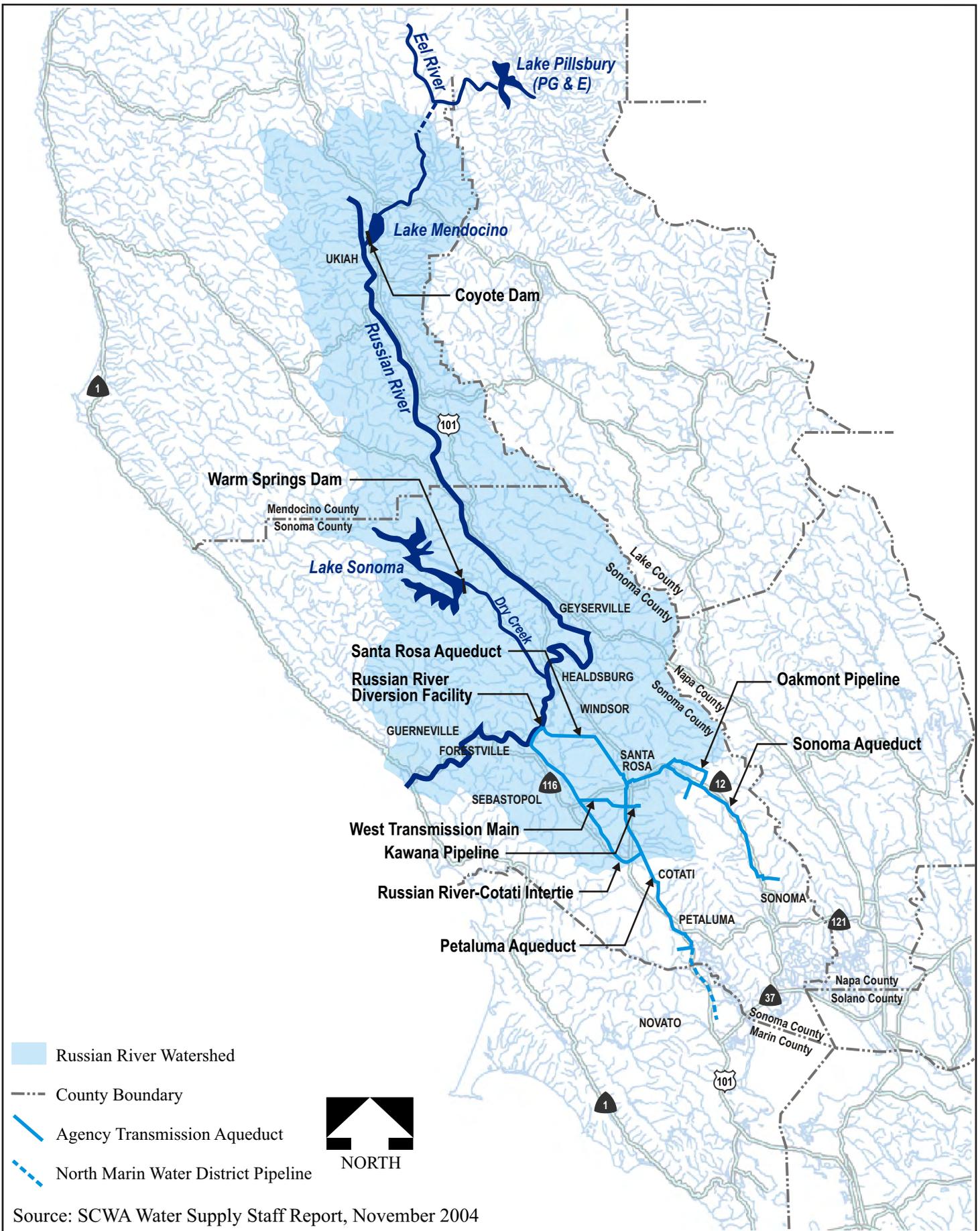
^a Data represents the monthly average from January 1990 to October 2005 and was recorded from Santa Rosa CIMIS Station 83.

ET_o, or evapotranspiration, is the loss of water from evaporation and transpiration from plants.

^b 1952-2005 data recorded at Sonoma Station from NOAA website www.wrcc.dri.edu

2.3 Surface Water Supply Facilities

The Russian River provides most of the Agency’s water supply. Groundwater supply is also provided, as described in Section 2.4. Some of the Agency’s contractors, other Agency customers, and the Marin Municipal Water District utilize other water supplies including local surface water, local groundwater, and recycled water. These local supplies are summarily accounted for in Section 4 of this Plan. Individual water management strategies are more particularly described in the urban water management plans prepared by the Agency contractors, other Agency customers, and Marin Municipal Water District. All of the water supplied by the Agency is sold wholesale to water retail agencies. The Agency does not maintain its own retail distribution system. Figure 2-1 depicts the Russian River watershed and the Agency’s water supply system. This section describes the facilities that comprise the surface water supply system. The surface water supply quantities, supply constraints, and reliability are described in Section 4.



Source: SCWA Water Supply Staff Report, November 2004

	PROJECT	127280-005	SITE	UWMP 2005, Sonoma County Water Agency	Figure 2-1
	DATE	10-27-06	TITLE	Russian River Watershed	

The Russian River watershed drains an area of 1,485 square miles that includes much of Sonoma and Mendocino counties. The headwaters of the Russian River are located in central Mendocino County, approximately 15 miles north of Ukiah. The Russian River is approximately 110 miles in length and flows generally southward to Mirabel Park, where it changes course and flows westward to the discharge point at the Pacific Ocean near Jenner, approximately 20 miles west of Santa Rosa.

Two federal projects impound the water supply diverted and delivered by the Agency through its transmission system: the Coyote Valley Dam on the Russian River east of the city of Ukiah in Mendocino County (forming Lake Mendocino), and the Warm Springs Dam on Dry Creek (a tributary of the Russian River) northwest of the City of Healdsburg in Sonoma County (forming Lake Sonoma). Because the Agency was the local sponsor for the dams and partially financed their construction, the Agency has the right to control releases from the water supply pools of both reservoirs. PG&E's PVP, discussed below, imports water from the Eel River into the Russian River watershed. Lake Sonoma and Lake Mendocino and their associated facilities, collectively referred to as the Russian River Project, are operated in accordance with criteria established by the SWRCB's Decision 1610, which established minimum instream flow requirements for Dry Creek and the Russian River. The Agency makes no diversions from the Russian River between Lake Mendocino and the Russian River's confluence with Dry Creek, but does authorize diversions by others (see Section 4.1.2, page 4-3) under its water rights permits. Flood management releases from both reservoirs are controlled by the United States Army Corps of Engineers (USACE). The Agency diverts water from the Russian River near Forestville and conveys the water via its transmission system (including diversion facilities, treatment facilities, pipelines, water storage tanks, and booster pump stations) to its wholesale customers.

2.3.1 Lake Pillsbury and the Potter Valley Project

The Pacific Gas & Electric Company (PG&E) PVP, originally constructed in 1908, includes a diversion tunnel to transfer Eel River water to the Russian River watershed. Water for the PVP is stored in Lake Pillsbury on the Eel River. Water from Lake Pillsbury (constructed for the PVP in 1922) is released to the Eel River. Some of this water is re-diverted 12 miles downstream at Cape Horn Dam to the Potter Valley Power Plant in the Russian River watershed through PG&E's diversion tunnel. The water then flows through the East Fork of the Russian River to Lake Mendocino. PVP diversions are regulated by a license issued to PG&E by FERC and serve multiple purposes, including power generation, Potter Valley agricultural irrigation, and summer flow augmentation in the middle and upper Russian River. Early fall releases of water stored in Lake

Mendocino resulting from PVP diversions are also important to the fall migration of threatened Chinook salmon in the Russian River watershed.²

2.3.2 Lake Mendocino and Coyote Valley Dam

The Coyote Valley Dam impounds water, forming Lake Mendocino on the East Fork of the Russian River. Lake Mendocino has been an operating reservoir since 1959 and captures water from two sources: (1) runoff from a drainage area of approximately 105 square miles and (2) diverted Eel River water downstream of the PG&E generating station and not consumed by agricultural irrigation. Natural drainage and stream flow (as opposed to reservoir releases) contribute the majority of the Russian River flow downstream of Coyote Valley Dam and above Dry Creek during the rainy season (November through April). In contrast, during the drier months of May through October, water released from Lake Mendocino accounts for most of the water in the Russian River upstream of Dry Creek.

The Agency and the Mendocino County Russian River Flood Control and Water Conservation Improvement District have water right permits authorizing storage up to the design capacity of 122,500 acre-feet per year (ac-ft/yr) in the reservoir. The design water supply pool capacity of Lake Mendocino is 72,000 ac-ft. The Agency controls releases from the water supply pool in Lake Mendocino. However, the USACE manages flood control releases when the water level exceeds the top of the water supply pool elevation. The USACE allows the Agency to encroach into the flood pool in the spring so that the summer water supply pool can be increased to 86,000 ac-ft.

2.3.3 Lake Sonoma and Warm Springs Dam

Water stored by Warm Springs Dam, completed in 1983, forms Lake Sonoma, which lies approximately 10 miles northwest of the City of Healdsburg on Dry Creek. Runoff from a drainage area of approximately 130 square miles contributes water to Lake Sonoma. Lake Sonoma has a design capacity of 381,000 ac-ft at the spillway crest and a design water supply pool capacity of 245,000 ac-ft. The Agency controls water supply releases from Lake Sonoma and the USACE manages flood control releases.

² See State Water Resources Control Board Water Right Order 2004-0035 at 8 (approving request by Agency to temporarily reduce flow in Russian River above Healdsburg to conserve water in Lake Mendocino for benefit of salmonid species in Russian River): “The proposed change will help conserve cold water in Lake Mendocino so that it can be released for listed Russian River salmonid fisheries present in the Russian River during the late summer and fall months. It is in the public interest to preserve water supplies for these beneficial uses when hydrologic circumstances intervene to cause dangerous reductions in these water supplies.”

Natural drainage and stream flow (as opposed to reservoir releases) contribute the majority of the Dry Creek flow downstream of Warm Springs Dam during the rainy season (November through April). During the dry season (May through October), reservoir releases contribute the majority of the flow in Dry Creek. Such reservoir discharges supply flow to meet minimum instream flow requirements and municipal, domestic, and industrial demands in the lower Russian River area. Water from Lake Sonoma via reservoir releases and runoff from other tributaries contribute to meeting these demands (Sonoma County Water Agency, 2004a).

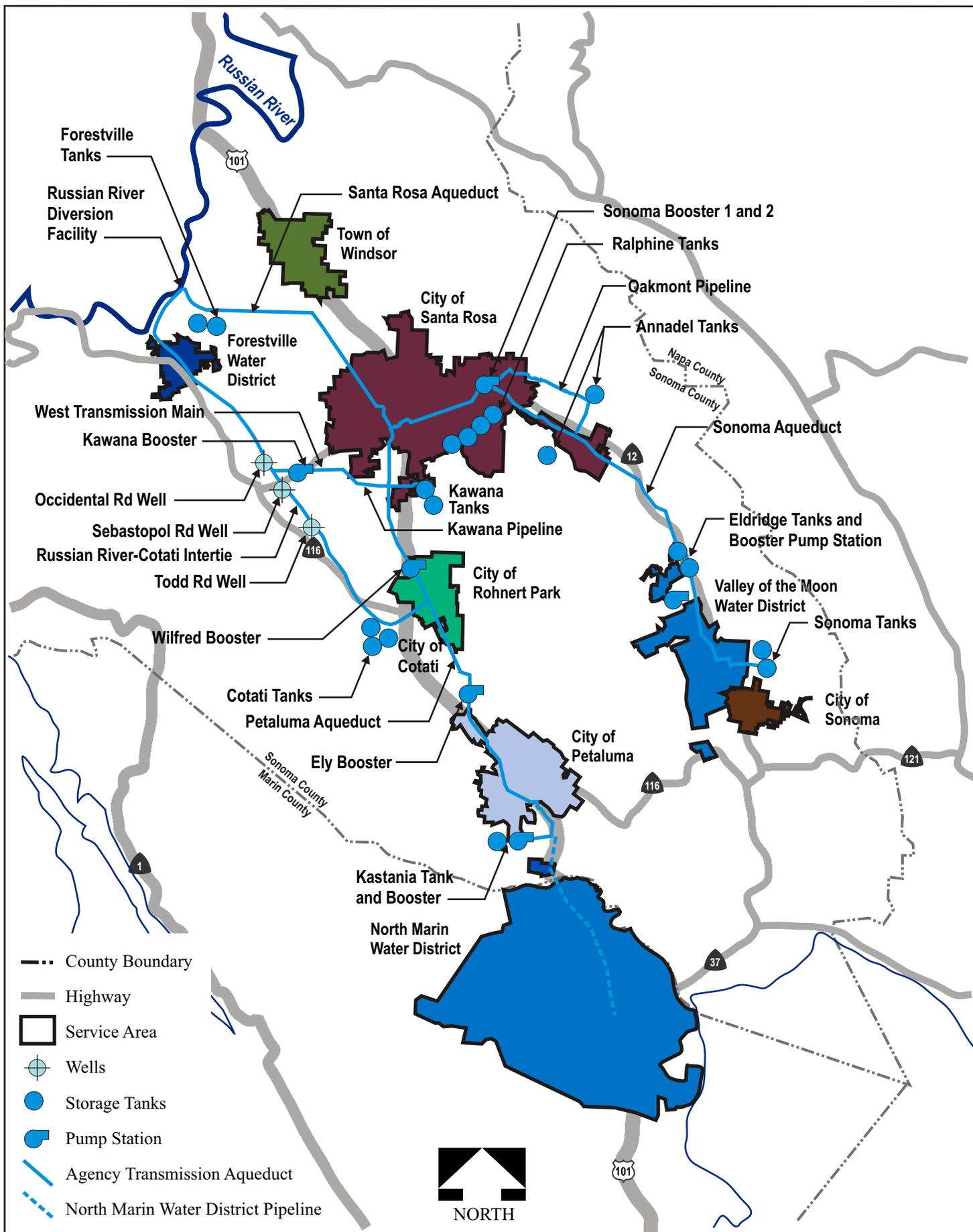
2.4 Groundwater Facilities

In addition to surface water, groundwater is an important source of water in Sonoma County (County) because it provides the domestic water supply for most of the unincorporated portion of the County, and is a primary source of water for agricultural uses. Groundwater, extracted from three wells located along the Russian River-Cotati Intertie Pipeline in the Santa Rosa plain, also provides a portion of the Agency's water supply. The locations of the wells are depicted on Figure 2-2. Some of the contractors and other Agency customers have their own local groundwater supplies. The groundwater supply characteristics, quantities, and constraints are described in Section 4.

2.5 Water Transmission System

Water is diverted from the Russian River and delivered to the Agency's contractors and other Agency customers through a transmission system. Figure 2-2 depicts the Agency's service areas and the transmission system. The Agency's diversion facilities extract Russian River underflow, which is reported under the Agency's surface water rights. The Agency operates six collector wells in the Wohler and Mirabel areas adjacent to the Russian River. The first two collector wells (Collectors 1 and 2) were constructed in the late 1950s in the Wohler area. Between 1975 and 1983, Collectors 3, 4, and 5 were constructed in the Mirabel area. Collector 6, located in the Wohler area, was completed in 2006. Each collector well consists of a 13 to 18 foot diameter concrete caisson extending approximately 60 to 110 feet into the alluvial aquifer. Horizontal perforated intake laterals extend radially from the bottom of each caisson into the aquifer. Each collector well houses two vertical turbine pumps that are driven by the electrical motors. The Agency also operated the Russian River Well Field (RRWF) consisting of seven conventional wells located in the Mirabel area. In order to increase production capacity during peak demand months, the Agency raises an inflatable dam at Mirabel that allows for operation of five infiltration ponds at Mirabel that increase the area of infiltration along the Russian River. Water pools behind the inflatable dam and is diverted into the infiltration ponds to recharge the aquifer below the collector wells.

The Agency's transmission system extends from the Agency's Russian River diversion facilities located near Forestville to the Santa Rosa, Petaluma, and Sonoma valleys. The transmission system consists of over 85 miles of pipelines that range in diameter from 12 to 54 inches, 7 booster pump stations, and 17 storage tanks with a combined storage capacity of 129 million gallons (Sonoma County Water Agency, 2004a). The major pipelines that comprise the system are known as the Santa Rosa Aqueduct (built in 1959), the Sonoma Aqueduct (built in 1963), the Petaluma Aqueduct (built in 1961), and the Russian River to Cotati Intertie (built in 1977). A pipeline owned and operated by the North Marin Water District receives water from the transmission system near the Kastania Tanks located near the border of Marin County with Sonoma County. The Agency's major storage systems are known as the Raphine, Sonoma, Cotati, and Kastania tanks.



	PROJECT	127280-005	SITE	UWMP 2005, Sonoma County Water Agency	Figure 2-2
	DATE	11-30-06	TITLE	Agency Service Areas and Water Transmission System Facilities	

SECTION 3

PROJECTED WATER USE

This section presents information regarding regional demographics, and projections of future Agency water demands.

3.1 Employment, Land Use, and Population

This section describes employment and land use characteristics and current and future population estimates for the Agency's service area.

3.1.1 Employment Characteristics

Within the Agency's service area, employment is primarily in the public sector and in the service and manufacturing industries. Regionally, employment in the agricultural industry is associated with vineyards, livestock, orchards, silage crops, and timber. The primary industrial activities in the region include: telecommunications, wine production, timber and other agricultural product processing, gravel mining and processing, energy production, and miscellaneous manufacturing. 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 Agency's service area is characterized as mostly suburban. Residential development is more densely concentrated in the cities of Santa Rosa, Rohnert Park, Petaluma, and Cotati, with Forestville, Sonoma, and Valley of the Moon having less concentrated development. In the north Marin County area, residential development is concentrated along Highway 101 and adjacent to San Pablo Bay.

Sonoma County, by policy, concentrates urban growth within incorporated cities, not in the unincorporated area. Sonoma County has a voter-approved County-wide urban growth boundary and each city has an urban growth boundary. There are voter-approved taxes supporting open space acquisition in all of Sonoma County and in northern Marin County. Most of the Agency's contractors have locally approved growth management ordinances.

3.1.3 Population Projections

Population and employment projections were developed for each of the Agency’s contractors and the Agency’s other customers, in consultation with those contractors and customers. The population and employment forecasts were generally based on the most recently applicable adopted or draft General Plan. In some instances, the forecasts are based on the projections developed in 2005 by the ABAG. Table 3-1 summarizes the basis of the population projections. The population projections are described in the analysis performed by Maddaus Water Management (Maddaus Water Management and Weber) and will be described in each water utility’s individual urban water management plan. Table 3-2 provides current and projected populations through the year 2030 for the Agency’s service area.

Table 3-1. Basis of Population Projections

Water Contractor or Other Agency Customer	Basis of Population Projection
Water Contractors	
City of Cotati	ABAG 2005
North Marin Water District	Draft Marin County-wide Plan, 2005 ^a
City of Petaluma	City of Petaluma General Plan, 2005
City of Rohnert Park	City of Rohnert Park General Plan, 2002
City of Santa Rosa	Santa Rosa General Plan, 2002 and ABAG, 2005, 2000 Census
City of Sonoma	City of Sonoma Draft General Plan
Valley of the Moon Water District	Draft Sonoma County General Plan
Town of Windsor	ABAG 2005
Other Customers	
California American Water Company	Draft Sonoma County General Plan
Forestville Water District	Draft Sonoma County General Plan
Kenwood	Draft Sonoma County General Plan
Lawndale	Draft Sonoma County General Plan
Penngrove	Draft Sonoma County General Plan

^a Uses ABAG 2005 projections data.

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

Water Contractors	2005	2010	2015	2020	2025	2030
City of Cotati	7,105	7,453	7,800	8,100	8,400	8,500
North Marin Water District	58,816	60,674	64,072	66,271	67,569	68,669
City of Petaluma	57,277	64,000	69,000	70,390	74,000	74,000
City of Rohnert Park	41,640	43,764	45,997	48,343	49,740	49,740
City of Santa Rosa	153,790	165,535	176,627	187,067	197,507	206,294
City of Sonoma	10,733	12,348	12,642	12,740	12,838	12,984
Valley of the Moon Water District	22,665	23,359	24,055	24,753	25,109	25,466
Town of Windsor	22,909	25,409	26,409	27,809	28,809	31,339
Other Customers						
California American Water Company	8,295	8,562	8,829	9,096	9,228	9,370
Forestville Water District	2,166	2,266	2,367	2,467	2,558	2,649
Kenwood	999	1,031	1,062	1,094	1,115	1,132
Lawndale	312	331	350	369	415	432
Penngrove	1,655	2,238	2,559	2,977	3,185	3,385
Total	388,362	416,970	441,769	461,476	480,473	493,960

3.2 Water Use

The Agency provides water to eight water contractors, other Agency customers, and the Marin Municipal Water District. The Agency also has water supply agreements with several entities that directly divert from the Russian River under the Agency’s water rights. The Agency distributes wholesale water to its contractors and other Agency customers, which then retail water directly to different water user categories, including single-family, multi-family, commercial, irrigation/agricultural, industrial, institutional/governmental, and landscape. Because the Agency does not deliver water to these end user categories, DWR Table 12 (which provides information about such deliveries) is not provided in this plan.

The Agency and contractors worked together to develop a water demand analysis and water demand projections. The detailed water demand analysis and demand projections are presented in the analysis performed by Maddaus Water Management (Maddaus Water Management and Weber) and will be described in the urban water management plans of each of the contractors and one other Agency customer (Forestville Water District). The water demand projection process consisted of projecting future demographics, evaluating historical water use characteristics, defining alternative levels of water conservation efforts, and developing resulting water demand projections. The projections include consideration of the impacts of the plumbing code and current and future water conservation efforts.

The historical water use analysis generally consisted of evaluating the monthly water use per account for each customer category over a 5 to 10 year period. The analysis resulted in a weather normalized annual water use per account type, expressed as gallons per day per account. The demographic projections, water use characteristics, and alternative conservation efforts were integrated using the Decision Support System (DSS) model to develop resulting demand projections. The DSS model and the water conservation assumptions are described in Section 6.

Table 3-3 summarizes the projected total water use by the Agency’s contractors and other customers. The projected water use incorporates the water savings from water conservation efforts and contractor and customer system losses. Table 3-4 summarizes projected wholesale water sales to Agency water contractors and other customers from 2010 to 2030. This Agency supply consists of Agency Russian River and groundwater supplies. Table 3-4 does not include contractor and customer local supplies consisting of recycled water and groundwater.

Table 3-3. (DWR Table 13 and 19) Total Water Use by Agency Contractors and Customers – ac-ft/yr^a

Water Contractors	Volume (ac-ft/yr)				
	2010	2015	2020	2025	2030
City of Cotati	1,323	1,380	1,511	1,552	1,612
North Marin Water District	12,648	13,484	13,930	14,244	14,473
City of Petaluma	12,848	13,803	14,114	14,732	14,660
City of Rohnert Park ^b	7,116	7,380	7,662	7,767	7,831
City of Santa Rosa	27,884	29,456	30,957	32,633	33,820
City of Sonoma	2,783	2,817	2,806	2,813	3,071
Valley of the Moon Water District	3,748	3,751	3,787	3,798	3,817
Town of Windsor	5,075	5,550	6,120	6,354	6,523
Other Customers					
California American Water Company	1,326	1,368	1,409	1,429	1,451
Forestville Water District	552	563	575	588	602
Kenwood	175	181	186	190	193
Lawndale	66	70	74	83	86
Penngrove	400	457	532	569	604
Marin Municipal Water District ^c	6,915	6,790	11,300	12,800	14,300
Direct Diverters^c	0	0	2,448	3,671	4,895
Total	82,859	87,050	97,411	103,223	107,939

^a The 2030 water use is equal to the 2030 gross demand, less savings for conservation activities (plumbing code, CUWCC “Tier 1” BMPs, “Tier 2” BMPs, and new housing standards) as described in Section 6.2. The 2030 water use reflects demand in an average weather year; actual demand may vary from these estimates based on the weather year. Water conservation savings includes both additional water conservation to be achieved after June 2004, and reductions in demand resulting from the continuation of water conservation measures implemented by the Contractors as of June 2004. But for the embedded results of those existing conservation efforts, which are summarized in Appendix B, the 2010 to 2030 gross demand grand total figure would be higher. Pursuant to the Restructured Agreement for Water Supply (see Section 4.1.2), the water contractors must implement the CUWCC BMPs for water conservation or alternative water conservation measures that secure at least the same level of water savings. The water contractors have also agreed to use their best efforts to secure the implementation of any water conservation measures required by the Agency’s appropriate water rights permits or licenses or applicable law. Because the water conservation savings are projections, actual demand reduction and the manner in which the demand reduction is achieved may vary.

^b Existing recycled water use, offsetting potable supply, was previously accounted for in Rohnert Park’s net demand analysis.

^c Value does not represent total water use, but only the volume supplied by the Agency.

Table 3-4. (DWR Table 13 and 19) Agency Sales to Agency Contractors and Customers – ac-ft/yr^a

Water Contractors	Volume (ac-ft/yr)				
	2010	2015	2020	2025	2030
City of Cotati	1,168	1,171	1,339	1,425	1,489
North Marin Water District	11,189	11,482	12,385	13,107	13,000
City of Petaluma	11,368	11,753	12,556	13,561	13,400
City of Rohnert Park	6,301	6,292	6,817	7,152	7,491
City of Santa Rosa	24,706	25,127	27,543	30,032	30,930
City of Sonoma	2,459	2,393	2,491	2,586	3,000
Valley of the Moon Water District	3,312	3,185	3,360	3,488	3,729
Town of Windsor	4,480	4,701	5,417	5,827	5,750

Table 3-4. (DWR Table 13 and 19) Agency Sales to Agency Contractors and Customers – ac-ft/yr^a (continued)

Other Customers	Volume (ac-ft/yr)				
	2010	2015	2020	2025	2030
California American Water Company	1,326	1,368	1,409	1,429	1,451
Forestville Water District	542	542	544	546	550
Kenwood	175	181	186	190	193
Lawndale	66	70	74	83	86
Penngrove	400	457	532	569	604
Marin Municipal Water District	6,915	6,790	11,300	12,800	14,300
Direct Diverters	0	0	2,448	3,671	4,895
Total	74,407	75,512	88,401	96,467	100,869

^a Sales figures in this table represent the water use figures from Table 3-3 less savings due to an individual contractor's local water supply development (Local Supply and Recycled Water). Pursuant to the Restructured Agreement for Water Supply, the water contractors have also agreed to use their best efforts to secure the implementation of recycled water or local supply projects to reduce the water contractors' collective deliveries from the Transmission System. Because the figures in this table are projections, actual local water supply development amounts may vary over time from those estimated for purposes of the figures set forth in the table, as may the manner in which contractors achieve those local water supply amounts (i.e., projected savings and local supply/recycled water may vary).

Table 3-5 identifies and quantifies additional water uses.

Table 3-5. (DWR Table 14) Additional Water Uses and Losses, ac-ft/yr

Water Use	2010	2015	2020	2025	2030
Saline barriers	0	0	0	0	0
Groundwater recharge	0	0	0	0	0
Conjunctive use	0	0	0	0	0
Raw water	0	0	0	0	0
Recycled water	0	0	0	0	0
Unaccounted-for system losses ^a	3,104	3,341	3,635	3,845	4,000
Total	3,104	3,341	3,635	3,845	4,000

^a Consists of unmetered uses, leaks, and meter inaccuracies for the Agency's transmission system.

The total amount of water projected to be distributed by the Agency is presented in Table 3-6 and is the sum of Tables 3-4 and 3-5. The Agency does not purchase water from other agencies.

Table 3-6. (DWR Table 15) Total Water Use, ac-ft/yr

Water Use	2010	2015	2020	2025	2030
Sum of Tables 3-4 and 3-5	77,511	78,853	92,036	100,312	104,869

SECTION 4

WATER SUPPLY

The Agency distributes Russian River water and groundwater to its water contractors and other Agency customers. Water from the Agency is distributed via its transmission system (as described in Section 2) and is used by Agency water contractors and other Agency customers to meet, in part, their water demands. This section describes the surface water and groundwater sources, quantities, supply constraints, and the reliability and water quality of the Agency's water supply sources. Recycled water is described in Section 5. The plans of the Agency's water contractors should be consulted for details on their individual water supplies.

4.1 Surface Water

This section describes the physical constraints to the Agency's surface water supply and the legal background and constraints to this supply. As described in Section 2, the Agency receives its surface water from the Russian River.

4.1.1 Physical Constraints

The capacity of the Agency's transmission system is a physical constraint on the delivery of water to some of the Agency's contractors and other customers, particularly during high demand periods in the summer months. This physical constraint is addressed by the Memorandum of Understanding described in Section 4.1.2. Future water supply projections are dependent upon planned infrastructure improvements being approved and constructed, as discussed in Section 4.5.

4.1.2 Legal Constraints

The Agency's Russian River water supply is controlled and influenced by a variety of agreements and decisions. This section of the plan describes the water rights held by the Agency and the various agreements and issues that may influence the surface water supply.

Water Rights. Four SWRCB permits³ currently authorize the Agency to store up to 122,500 ac-ft/yr of water in Lake Mendocino and up to 245,000 ac-ft/yr of water in Lake Sonoma, and to divert and redivert 180 cubic feet per second (cfs) of water from the Russian River at the Agency's Wohler and

³ SWRCB Permits Numbers 12947A, 12949, 12950, and 16596.

Mirabel facilities, up to 75,000 ac-ft/yr. The permits also establish minimum instream flow requirements for fish and wildlife protection and recreation. These minimum instream flow requirements vary in normal, dry, and critically dry years as defined by SWRCB 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 diversion limit 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. A challenge to the EIR for the water project was partially successful, and the Agency is in the process of preparing an EIR for a new water project. The new water 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 in 2007. Final EIR certification and project approval could be considered by the Board of Directors by June 2008.

Restructured Agreement for Water Supply. The *Restructured Agreement for Water Supply* (Restructured Agreement), which was executed in 2006, generally provides for the finance, construction, and operation of existing and new diversion facilities, transmission lines, storage tanks, booster pumps, conventional wells, and appurtenant facilities. The Restructured Agreement provides the contractual relationship between the Agency and its eight contractors, and includes specific maximum amounts of water that the Agency is obligated to supply to its water contractors. Maximum water allocations for each of the Agency's water contractors set forth within the Restructured Agreement were premised on the Agency's diversion/rediversion water rights being increased to 101,000 ac-ft/yr and on the construction of the new facilities authorized by the Restructured Agreement. Water allocations under the Restructured Agreement for each contractor, other Agency customers, and Marin Municipal Water District are presented in Table 4-1. Section 3.5 of the Restructured Agreement provides a method for allocating water among these parties during periods of shortage. The Agency has adopted a water shortage methodology, consistent with Section 3.5, which is presented in Appendix C.

Table 4-1 shows the maximum amount of water the Agency is obligated to deliver to its contractors, other Agency customers, and Marin Municipal Water District.

Table 4-1. Current Maximum Water Delivery Limitations for Agency Water Contractors and Customers

City/District	Restructured Agreement		Temporary Impairment MOU, Peak Month ^a , mgd
	Annual, ac-ft/yr	Maximum Monthly, mgd	
City of Cotati	1,520	3.8	1.9
North Marin Water District	14,100	19.9	15.7
City of Petaluma	13,400	21.8	17.1
City of Rohnert Park	7,500	15.0	5.4
City of Santa Rosa	29,100	56.6	39.1
City of Sonoma	3,000	6.3	3.8
Valley of the Moon Water District	3,200	8.5	4.9
Town of Windsor	4,725/900 ^b	7.2/1.5 ^b	1.5
Other Agency Customers		2.7	1.7
Forestville Water District			0.9
Marin Municipal Water District ^c	14,300	12.8	

^a During “summer months” of June through September.

^b Windsor obtains a portion of its water supply from the Agency’s transmission system and a portion through direct diversions from the Russian River (in part under the Agency’s water rights) through Windsor’s own diversion facilities.

The figures in Table 4-1 for Windsor represent the maximum allocations for Windsor’s direct diversions and Windsor’s transmission system deliveries, respectively.

^c The Agency’s deliveries to Marin Municipal Water District are authorized by the Restructured Agreement and are subject to the terms of a Supplemental Water Supply Agreement, dated January 25th, 1996, between the Agency and the Marin Municipal Water District, which amended two existing agreements (the “Offpeak Water Supply Agreement” and the “Agreement for the Sale of Water”). Deliveries to Marin Municipal Water District under the Supplemental Water Supply Agreement are subject to a number of limitations, including sufficient transmission system capacity. The maximum monthly delivery limit for Marin Municipal Water District is 12.8 mgd during the months of May through October, which is a combination of the limits under the Agreement for the Sale of Water (9 mgd) and the Offpeak Water Supply Agreement (360 ac-ft/month). Marin Municipal Water District is not a party to the Temporary Impairment Memorandum of Understanding.

The Restructured Agreement also includes a maximum allocation for “other Agency customers,” including the Forestville Water District, the County of Sonoma, California-American Water Company (Larkfield/Wikiup), Lawndale Mutual Water Company, Kenwood Village Water Company, Penngrove Water Company, the State of California, and Santa Rosa Junior College. The maximum allocation for the collective group of “other Agency customers” is 2.7 million gallons per day (mgd) in any month. While the entities considered “other Agency customers” are not individually limited at the present time, the Agency anticipates a renegotiation of “other Agency customer” agreements that will provide for individual maximum allocations (Sonoma County Water Agency, 2004a).

“Russian River Customer” agreements currently exist between the Agency and public entities that wish to divert water directly from the Russian River under Agency water rights. Such customers

include the City of Healdsburg, the Town of Windsor, the Russian River County Water District, Camp Meeker Recreation and Park District, and the Occidental Community Services District. These customers use their own diversion facilities to obtain Russian River water, and the Agency's agreements with these customers require them to use any water right they may have before using the Agency's water rights.

Memorandum of Understanding Regarding Water Transmission System Capacity Allocation during Temporary Impairment. The maximum delivery allocations in the Restructured Agreement assume the construction of certain additional facilities and approval by the SWRCB of increased Agency diversion from the Russian River up to 101,000 ac-ft/yr. Existing transmission system constraints have necessitated the development of an additional agreement to govern maximum water allocations during the summer months. The *Memorandum of Understanding Regarding Water Transmission System Capacity Allocation during Temporary Impairment* (Temporary Impairment MOU) is in effect between the Agency and its primary customers until September 30, 2008. The Temporary Impairment MOU allocates the existing 92 mgd of transmission system capacity among the parties during the "summer months" of June through September, as shown in Table 4-1. The Temporary Impairment MOU also contains mechanisms for enhancing operational coordination among the Agency's customers to balance demands on the Agency's transmission system during times of high water use.

Potter Valley Project License Proceedings. As noted in Section 2.3.1, PG&E's PVP diverts water from the Eel River into a powerhouse in Potter Valley to generate electricity, after which the water flows into the East Fork of the Russian River. Operation of the PVP is licensed by the FERC. PG&E's license to operate the PVP expires in 2022. PG&E's diversions from the Eel River watershed are subject to the terms of the FERC license.

On June 2, 2004, FERC issued its final order on an application filed by PG&E in 1998 to amend the FERC license to include an Eel River flow proposal that reduces the amount of water diverted into the Russian River watershed for the benefit of Eel River fisheries. The FERC order implemented a modified PVP flow regime based upon a Biological Opinion issued by the National Marine Fisheries Service as part of a consultation initiated by FERC under Section 7 of the federal ESA.

Endangered Species Act Consultation. Two salmonid species inhabiting the Russian River watershed (Chinook salmon and steelhead) have been listed as "threatened" under the federal ESA, and one species – Coho salmon – has been listed as "endangered" under the ESA and under the California ESA. Protective regulations promulgated under the ESA prohibit the "take" of these

species. “Take” is broadly defined in the ESA and its implementing regulations; it includes not only intentionally killing a protected species, but also actions that unintentionally result in actual harm to a member of a protected species, including adverse modification of habitat. Civil and criminal penalties may be imposed under the ESA for the “take” of protected species.

Because the Agency’s water supply facilities and operations have the potential to adversely affect the three listed species, the Agency entered into a Memorandum of Understanding in December 1997 to participate in a consultation under Section 7 of the ESA. The other signatories to the MOU include the USACE (the federal agency) and the National Marine Fisheries Services (NMFS). Under Section 7 and the MOU, NMFS will issue a Biological Opinion that will evaluate the effects of Agency activities on the listed species. In connection with the Biological Opinion, NMFS may issue an incidental take statement that will immunize the Agency from liability under the ESA for authorized incidental takes. To obtain this immunity, NMFS may require the Agency to modify its water supply facilities or operations.

In connection with the Section 7 consultation, the Agency has prepared and transmitted to NMFS the Russian River Biological Assessment, dated September 29, 2004, which evaluated the impact of the Agency’s operations on the listed species and proposed certain operational changes to reduce those impacts.⁴ NMFS has informed the Agency that it is working toward issuing a Biological Opinion covering the Agency’s existing operations in 2007. It is uncertain what modifications NMFS may ultimately require the Agency to implement in order to obtain an incidental take statement for future operations, including an increase in the Agency’s Russian River diversions. However, given the analysis set forth in the Biological Assessment and the Agency’s ongoing communications with NMFS’ staff, it is reasonable to assume that with the implementation of mitigation measures, ESA constraints will not affect or impair the water supply available to the Agency for delivery to its transmission system customers.

4.2 Groundwater

This section presents a description of the Agency’s groundwater supply, as well as the physical and legal constraints of this supply. The groundwater supply facilities are described in Section 2.

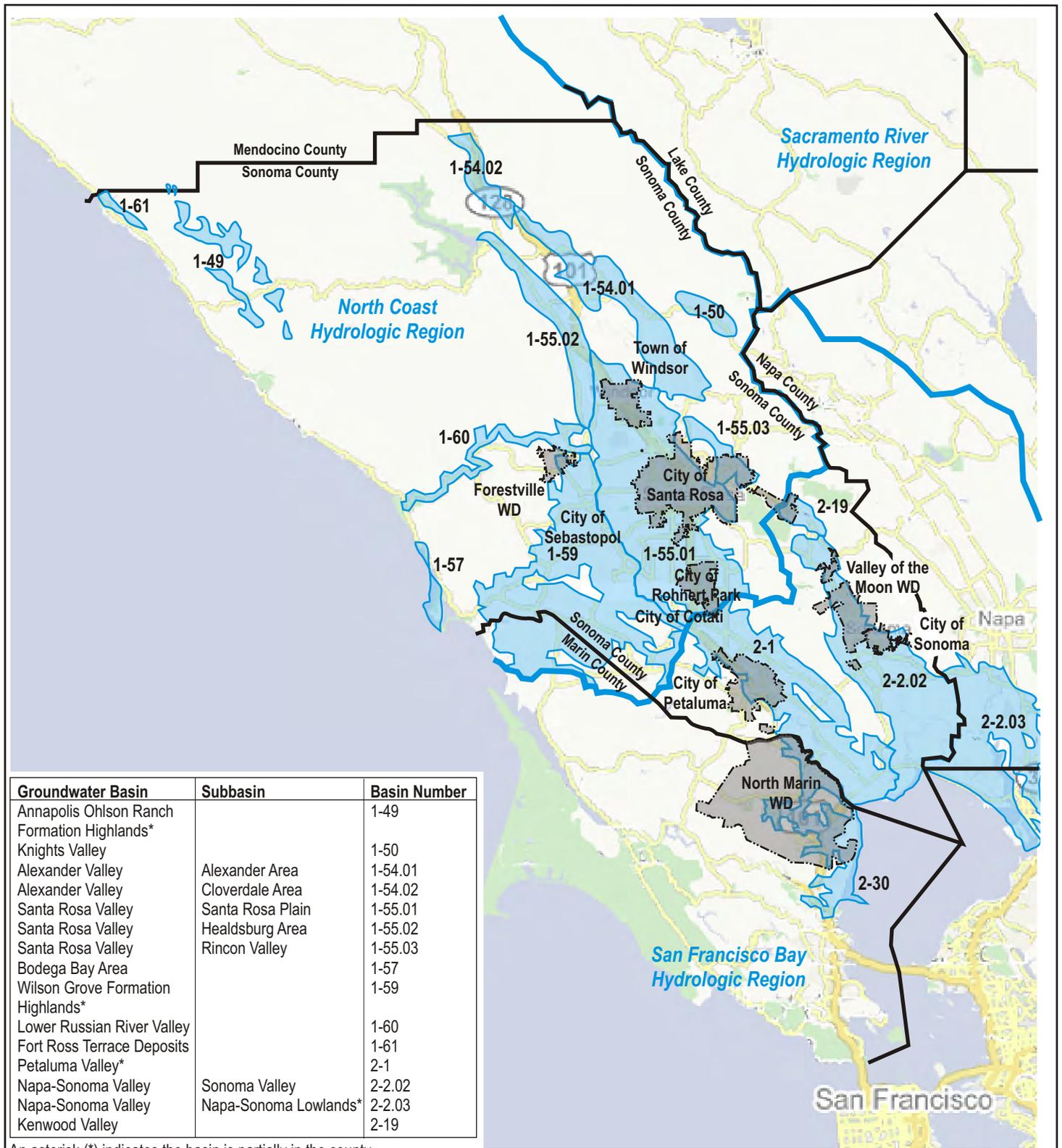
⁴ The Biological Assessment is available at <http://www.spn.usace.army.mil/ets/rrsection7/>.

4.2.1 Description

There are four main groundwater basins in Sonoma County: Sonoma Valley (a subbasin of the Napa-Sonoma Valley Basin (DWR number 2-2), Alexander Valley (DWR number 1-54), Santa Rosa Valley (DWR number 1-55), and Petaluma Valley (DWR number 2-1). These basins and the other less significant basins in the County are shown in Figure 4-1. The basin descriptions are summarized from Bulletin 118 – Update 2003 and on-line more detailed Bulletin 118 basin descriptions (DWR, 2003). The Agency has groundwater wells only in the Santa Rosa Plain Subbasin of the Santa Rosa Valley Basin (3 supply wells as shown on Figure 2-3). Several of the Agency’s contractors have their own local groundwater supplies in the Santa Rosa Plain, Sonoma Valley and Petaluma Valley groundwater basins. DWR did not identify “critical conditions of overdraft” in any of these groundwater basins in Bulletin 118 – 80 (DWR, 1980), and has not evaluated overdraft conditions since that date (DWR, 2003).

DWR defines groundwater overdraft as the condition of a groundwater basin or subbasin in which the amount withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions (DWR, 2003). Overdraft can be characterized by groundwater levels that decline over a number of years and never fully recover, even in wet years. If overdraft continues for a number of years, significant adverse impacts may occur, including increased extraction costs, costs of well deepening or replacement, land subsidence, water quality degradation, and environmental impacts (DWR, 2003).

California’s Water Code Section 10631(b) only requires that urban water management plans state DWR’s characterization of the basin with respect to overdraft. While this plan also summarizes other available information (including previous groundwater studies and investigations) and evaluates limited data, it is beyond this plan’s scope to make an independent assessment of basin conditions with respect to overdraft.

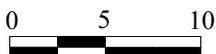


Groundwater Basin	Subbasin	Basin Number
Annapolis Ohlson Ranch Formation Highlands*		1-49
Knights Valley		1-50
Alexander Valley	Alexander Area	1-54.01
Alexander Valley	Cloverdale Area	1-54.02
Santa Rosa Valley	Santa Rosa Plain	1-55.01
Santa Rosa Valley	Healdsburg Area	1-55.02
Santa Rosa Valley	Rincon Valley	1-55.03
Bodega Bay Area		1-57
Wilson Grove Formation Highlands*		1-59
Lower Russian River Valley		1-60
Fort Ross Terrace Deposits		1-61
Petaluma Valley*		2-1
Napa-Sonoma Valley	Sonoma Valley	2-2.02
Napa-Sonoma Valley	Napa-Sonoma Lowlands*	2-2.03
Kenwood Valley		2-19

An asterisk (*) indicates the basin is partially in the county.



NORTH



Scale in Miles

— County Line and Name

▤ System Boundary and Name

— Hydrologic Region Boundary

□ Groundwater Basin and Number

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

BROWN AND CALDWELL	PROJECT	127280-005	SITE	UWMP 2005, Sonoma County Water Agency	Figure 4-1
	DATE	11-30-06	TITLE	Groundwater Basins	

4.2.2 Alexander and Sonoma Valley Basin Studies and Groundwater Management Activities

Groundwater basin studies are being conducted within Sonoma County by the Agency and the USGS and other stakeholders in the Alexander Valley Basin, Sonoma Valley Basin, and the Santa Rosa Plain Subbasin. In 2001, the Agency's Board of Directors authorized the Agency to enter into an agreement with the USGS to develop a cooperative study to characterize the Sonoma and Alexander Valley basins. Within the Sonoma Valley, both the Valley of the Moon Water District and the City of Sonoma served as cooperating agencies for the study, providing data and input throughout the study period. The first basin studies, including the Sonoma Valley and Alexander Valley, have recently been completed (USGS, 2006a and b). The cooperative studies, summarized below, are designed to improve understanding of the groundwater resources and facilitate improved groundwater management strategies. As part of these studies, the USGS evaluated geology, water levels, water quality, surface water and groundwater interactions, and recharge areas. In addition, a groundwater model was developed for the Sonoma Valley to assist in identifying problem areas within the basin and to simulate future groundwater conditions under various potential scenarios.

Alexander Valley Groundwater Basin. The Alexander Valley Subbasin includes the Alexander Area Subbasin (1-54.01) and the Cloverdale Area Subbasin (1-54.02). The previously mentioned USGS study of the geohydrology and water chemistry of the Alexander Valley was recently completed to provide an improved scientific basis for addressing emerging water-management issues, including potential increases in water demand and potential changes in flows in the Russian River to improve conditions for listed fish species under the State and Federal ESA. The USGS study tasks included (1) evaluation of existing geohydrological, geophysical, and geochemical data; (2) collection and analysis of new geohydrologic data, including subsurface lithologic data, ground-water levels, and streamflow records; and (3) collection and analysis of new water-chemistry data. The estimated total groundwater use for the Alexander Valley for 1999 was approximately 15,800 acre-feet. About 13,500 ac-ft of this amount was for agricultural use, primarily vineyards, and about 2,300 ac-ft was for municipal/industrial use. Groundwater is the main source of water supply for this area (USGS, 2006b). The Agency has no water supply wells in the Alexander Valley.

Sonoma Valley Groundwater Subbasin. The Sonoma Valley Groundwater Subbasin (2-2.02) is a subbasin of the Napa-Sonoma Valley Groundwater Basin. The basin drains southeast and is thus part of the San Francisco Bay Hydrologic Region (DWR, 2003). The USGS recently completed its evaluation of the geology, water levels, water quality, surface water and groundwater interactions,

and recharge areas of the Sonoma Valley Subbasin. In addition, a groundwater model was developed for the Sonoma Valley to assist in identifying problem areas within the basin (USGS, 2006a). In general, the Sonoma Valley Groundwater Subbasin appears to be limited in the amount of water it can store, given the predominately fine-grained materials that comprise the basin. In Sonoma Valley, the USGS estimated that pumping in the basin has generally increased from approximately 6,200 ac-ft/yr, since the basin was last studied in 1974, to 8,400 ac-ft/yr in 2000 (approximate 25 percent increase in pumping). The USGS study did not indicate whether overdraft was occurring, but noted that a relatively small decrease in storage explains the localized nature of water level declines. The USGS noted significant increase in pumping since 2000 that should be further evaluated. Although the USGS concluded that groundwater quality is generally acceptable within the basin, there were some localized problems identified in the basin. In particular the USGS identified the migration of high-saline water along the southern end of the basin and localized areas of thermal waters (USGS, 2006a). The Agency has no water supply wells in the Sonoma Valley.

Based on the Agency/USGS groundwater study results, the Agency funded a stakeholder assessment conducted by the Center of Collaborative Policy, a non-profit organization associated with the McGeorge Law School and Sacramento State University to evaluate interest in developing a groundwater management plan. The Agency also developed a work plan for a groundwater management plan that would comply with AB3030 and SB1938 guidelines. In June 2006, the Agency's Board of Directors authorized the Agency to initiate a groundwater management planning process in the Sonoma Valley to help ensure the long-term sustainability of the basin's groundwater resources. In addition, the Board of Directors approved concurrent actions authorizing execution of a Cooperative Agreement to Provide Funding and Support Information for Sonoma Valley Groundwater Management Planning Process between the Agency, County of Sonoma, Sonoma Valley County Sanitation District, Valley of the Moon Water District, and City of Sonoma. Also, the Board authorized a Memorandum of Understanding to Work Cooperatively to Improve Surface and Groundwater Management and to Promote Conjunctive Use Projects and Programs in Sonoma County between Sonoma County Water Agency, County of Sonoma, and DWR. A Basin Advisory Panel comprised of local stakeholders has been formed to work with the Center of Collaborative Policy to develop a groundwater management plan for consideration by the Agency's Board of Directors.

4.2.3 Santa Rosa Plain Subbasin Studies and Groundwater Management Activities

Santa Rosa Plain Subbasin of the Santa Rosa Groundwater Basin. The Santa Rosa Plain is a subbasin (DWR number 1-55.01) of the Santa Rosa Valley Basin, which also includes the Healdsburg Area Subbasin (1-55.02) and Rincon Valley Subbasin (1-55.03) (DWR, 2003). The Santa Rosa Plain drains northwest toward the Russian River, and is thus part of the North Coast Hydrologic Region. South of Rohnert Park is a drainage divide marked by several small hills that separate the Santa Rosa Valley Basin from the Petaluma Valley Groundwater Basin (2-1), which drains to the southeast toward the San Francisco Bay and is thus part of the San Francisco Bay Hydrologic Region (DWR, 2003).

The Santa Rosa Plain Subbasin is the largest basin in the County and underlies the most populated areas of the County. In December 2005, the USGS and the Agency began a five-year comprehensive basin study similar to the studies that have been completed for the Alexander and Sonoma Valleys. This \$1.975 million study is being funded by the Agency, City of Santa Rosa, City of Cotati, City of Rohnert Park, City of Sebastopol, Town of Windsor, County of Sonoma, the California American Water Company, and the USGS.

The objectives of the study are to: 1) develop an updated assessment of the geohydrology and geochemistry of the Santa Rosa Plain; 2) develop a multi-aquifer ground-water flow model for the Santa Rosa Plain; and 3) evaluate the hydrologic impacts of alternative ground-water management strategies for the basin. The study will provide hydrologic information that will assist the Agency, municipalities in the Santa Rosa Plain, and other management and regulatory agencies in better understanding the potential impacts of any increasing ground-water use on ground-water levels, stream-aquifer interaction, subsidence, and water quality. The study will consider several priority USGS water-resource issues including surface- and ground-water interactions, effects of urbanization on water resources, and hydrologic-system management. The approach of the study will include: (1) data compilation, utilizing a Geographic Information System (GIS); (2) new data collection, focusing on water-quality sampling; (3) data interpretation and geohydrologic characterization, including refining hydrologic budgets and updating conceptual models of the ground-water flow system based on the new data and the results of ongoing USGS geologic studies in the basin; and (4) simulation of ground-water flow in Santa Rosa Plain.

The geology of the Santa Rosa Plain Subbasin is complex and the stratigraphic relationships are the subject of recent and continuing studies, including mapping by the USGS and others (USGS, 2002). The subbasin is cut by many northwest-trending faults that influence groundwater flow. Most of the groundwater is unconfined, but in some locations can be confined where folding and faulting exists (DWR, 2003). The water-bearing deposits underlying the basin include the Wilson Grove Formation, the Glen Ellen Formation, and a younger and older alluvium (DWR, 2003). The Wilson Grove Formation is the major water-bearing unit in the western part of the basin and ranges in thickness from 300 feet to 1,500 feet (Winzler and Kelly, 2005; DWR, 2003). Deposited during the Pliocene, it is a marine deposit of fine sand and sandstone with thin interbeds of clay, silty-clay and some lenses of gravel. Interbedded and interfingering with the Wilson Grove Formation are Sonoma Volcanic sediments in the eastern basin separating the water-bearing units. Aquifer continuity and water quality are generally good according to Cardwell, 1958, which is still the most detailed reference on the hydrogeology.

The Glen Ellen Formation overlies the Wilson Grove Formation in most places and is Pliocene to Pleistocene in age (DWR, 2003). At some locations, the two formations are continuous and form the principal water-bearing deposits in the basin (Cardwell, 1958). The Glen Ellen consists of partially cemented beds and lenses of poorly sorted gravel, sand, silt, and clay that vary widely in thickness and extent (Cardwell, 1958; DWR, 1982). The formation is used for domestic supply and some irrigation (DWR, 2003).

The Pliocene Petaluma Formation is exposed at various localities in Sonoma County, from Sears Point northward nearly to Santa Rosa. The formation consists of folded continental and brackish water deposits of clay, shale, sandstone, with lesser amounts of conglomerate and nodular limestone and occasional thick beds of diatomite are present. The Petaluma Formation has been defined as being contemporaneous in part and interfingering with the Merced Formation. The Petaluma Formation is noted for its low well yields.

Quaternary deposits include stream-deposited alluvium, alluvial fan deposits, and basin deposits (Todd Engineering, 2004). The younger alluvium (Late Pleistocene to Holocene age) overlies the older alluvium (Late Pleistocene age). The alluvium deposits consist of poorly sorted sand and gravel and moderately sorted silt, fine sand, and clay. The upper and mid-portion of the alluvial fan deposits are on the eastern side of the Santa Rosa Plain and are permeable and provide recharge to

the basin. The basin deposits overlie the alluvial fan materials and have a lower permeability (Todd Engineering, 2004; Cardwell, 1958).

A 1982 DWR study concluded that groundwater levels in the northeast part of the Santa Rosa Plain Subbasin had increased, while groundwater levels in the south had decreased (DWR, 1982).

Groundwater storage capacity in the Santa Rosa Plain is estimated by the USGS to be 948,000 ac-ft (Cardwell, 1958).

Natural recharge occurs east of Santa Rosa, primarily along stream beds, at the heads of alluvial fan areas, and in some parts of the Sonoma Volcanics. For the Santa Rosa Plain Subbasin, average annual natural recharge from 1960 to 1975 was estimated to be 29,300 ac-ft and average annual pumping during the same time was estimated at 29,700 ac-ft. Well yields range from 100 to 1,500 gpm (DWR, 2003).

In development of the Plan, Brown and Caldwell reviewed the Rohnert Park General Plan (GP) and Revised Draft Environmental Impact Report (DEIR) (Dyett and Bhatia, 2000), both of which cite a City of Rohnert Park Groundwater Study prepared by PES Environmental, Inc. (PES) in May 2000. The groundwater modeling study reportedly found the potential for short-term water level impacts during the period 2000 to 2009, depending on recharge rates. The GP states that policies have been developed to ensure that groundwater levels are not substantially lowered.

Brown and Caldwell also reviewed the Rohnert Park City-Wide Water Supply Assessment (WSA) (Winzler and Kelly Consulting Engineers and Luhdorff and Scalmanini Consulting Engineers, 2005), which includes an analysis of the numerical groundwater flow modeling performed by PES for the GP and DEIR. The WSA found that as a result of limitations in the PES model it did not accurately simulate groundwater levels during the 1990s, and showed continued groundwater level declines rather than the stable water levels that were actually observed in wells. Recharge analyses for the WSA and by Todd (2004) indicated significantly higher recharge rates and a positive change in groundwater storage in the 1990s that is more consistent with the actual stable to slightly increasing groundwater level trends (Winzler and Kelly Consulting Engineers and Luhdorff and Scalmanini Consulting Engineers, 2005).

According to the WSA (Luhdorff and Scalmanini Consulting Engineers and Winzler and Kelly Consulting Engineers, 2005), wells in the shallow aquifer (0 to 200 feet) in the Santa Rosa Plain Subbasin in the WSA study area near Rohnert Park have generally exhibited stable long-term groundwater level trends from 1975 to the present. In the depth zone where the City of Rohnert Park has production wells (200 to 600 feet), groundwater elevations have responded more to pumping than to hydrologic changes. Groundwater levels were generally stable from 1977 to 1981, declined from 1982 to 1990 when pumping increased, and gradually rose from 1990 to 1997 when total pumping in the area (including Rohnert Park, Cotati, Sonoma State University, and private, commercial, and agricultural users) decreased to an average of 8,700 ac-ft/yr for the WSA study area because of an increased use of Agency water (Winzler and Kelly Consulting Engineers and Luhdorff and Scalmanini Consulting Engineers, 2005). From 1997 to 2003, water levels were stable and, by 2003, when total pumping in the WSA study area decreased to 7,100 ac-ft/yr, groundwater levels recovered significantly. The WSA concludes that although groundwater levels decreased from 1982 to 1990 in the southern Santa Rosa Plain, water levels have subsequently recovered in recent years (Winzler and Kelly Consulting Engineers and Luhdorff and Scalmanini Consulting Engineers, 2005). In 2003, the City of Rohnert Park made a shift to obtain water primarily from the Agency. This shift resulted in an increase in groundwater levels in the vicinity of the City of Rohnert Park's wells (Winzler and Kelly Consulting Engineers and Luhdorff and Scalmanini Consulting Engineers, 2005).

A groundwater study for the Canon Manor West Subdivision Assessment District (a residential neighborhood immediately southeast of Rohnert Park) was prepared for the County of Sonoma in 2004 (Todd Engineers, 2004). The County study generally found water level trends similar to those described in the WSA. The County study found that groundwater levels had declined over an extensive portion of the southern Santa Rosa Plain between 1950 and the late 1980s, and that declines in the 1970s and 1980s correlated with ramping up of municipal groundwater pumpage. Since 1987, groundwater levels generally stabilized and even increased in some wells, indicating a new equilibrium between recharge and pumpage. The study further found that although the Canon Manor potential impact is small relative to existing uses, future development of groundwater in the Rohnert Park area has a reasonable potential of increasing and thus could induce future groundwater declines (Todd Engineers, 2004).

The Rohnert Park WSA has been challenged in court and the trial court found it to be invalid. Rohnert Park has appealed the trial court decision and the matter is pending in the Court of Appeal. However, the analysis of the groundwater supply presented in this plan does not rely on the WSA's conclusions. Rather, Brown and Caldwell and the Agency's staff have reviewed, considered, and summarized the available information for this plan, and have concluded groundwater levels in the basin have had variable trends since 1990, but most wells have been relatively stable. A comprehensive independent assessment of basin-wide groundwater conditions with respect to potential overdraft is not required by the Urban Water Management Planning Act and is beyond the scope of this Plan.

The use of recycled water in the Santa Rosa subbasin offsets demand for potential potable use by agricultural operations. Recycled water use in the Santa Rosa subbasin has decreased somewhat over the years due to increased emphasis on irrigation efficiency and crop conversion to vineyards which have lower water requirements. The Santa Rosa Subregional Reclamation System provides recycled water for agricultural users and will continue to meet the needs of the current agricultural customers.⁵

The Agency's three groundwater supply wells are located in the Santa Rosa Plain north, east, and southeast of Sebastopol. The Agency conducts a groundwater monitoring program of water levels in seventeen dedicated monitoring wells in the vicinity of its three water supply wells to assess the effects of these wells on local groundwater conditions. According to Agency records, continuous operations of the Todd, Sebastopol, and Occidental Road water supply wells began in April 1999, June 2001, and July 2003, respectively. Brown and Caldwell reviewed the available monitoring data through early 2006 for the 17 wells for the purposes of this Plan. In general, the data document normal seasonal fluctuations and initial declines in water levels in response to commencement of pumping for monitoring wells in close proximity to the three water supply wells. A pump test of the Agency's three wells in 1979 found that "deep wells near the three emergency wells and some of the shallow wells near the Occidental and Sebastopol wells were influenced" by pumping of the Agency wells (SCWA, 1979).

⁵ Personal communication with Jennifer Burke, City of Santa Rosa, Oct. 27, 2006.

As expected, monitoring wells located in close proximity and screened at similar depths to the Todd, Occidental, and Sebastopol Road water supply wells reflect water levels of the water supply wells and are stable over time. Shallow monitoring wells in close proximity to these water supply wells generally exhibit seasonal variations and have stabilized since pumping began.

Water levels in monitoring wells within a few hundred feet of the Occidental Road supply well (perforated zones from 313 to 753 feet below ground surface [bgs]) indicate: (1) declines in 2003 when pumping began on the order of 30 to 40 feet in deep monitoring wells (830 feet bgs) that have since stabilized, and (2) decline in water levels of 15 to 20 feet in shallow monitoring wells (less than 100 feet deep) that have also generally stabilized. Water levels in monitoring wells within a few hundred feet of the Sebastopol Road supply well (perforated zones from 410 to 1,020 feet bgs) indicate: (1) initial water level declines since pumping began in 2001 in deeper monitoring wells that have since stabilized with drawdowns on the order of 50 to 60 feet, (2) water level declines since 2001 of 15 to 20 feet in intermediate (between 170 and 194 feet bgs) monitoring wells which have since stabilized, and (3) no apparent water level declines in shallow (less than 100 feet bgs) monitoring wells. In general, water levels in the Sebastopol Road well area had stabilized by early 2006 in response to Agency pumping, which began in 2001 and increased in mid-2003. Water levels in three monitoring wells located approximately 300 feet from the Todd Road supply well (which has perforated zones from 650 to 800 feet bgs) indicate that water levels in the deep 570-foot and intermediate 257-foot wells declined from 1997 to 2002 but have since been relatively stable, and that the shallow 80-foot well has been largely unaffected since 1997.

The DWR groundwater website (<http://wdl.water.ca.gov/gw>) has water level data for several wells in the Santa Rosa Plain near Highway 116 north of Sebastopol and near Highway 12 between Sebastopol and Santa Rosa. These monitoring data show no clear trend since 1990. In its entirety, water level monitoring data indicate that the Agency's wells are reliable and there are no physical constraints on the groundwater supply other than the limited capacity of the Agency's pumping facilities. The current USGS/Agency study will provide updated data and new tools that may affect groundwater management strategies for the Santa Rosa Plain Subbasin.

4.2.4 Physical Constraints

The current groundwater supply is constrained by the pumping capacity of the existing Agency wells, which is 7.6 mgd (Sonoma County Water Agency, 2000a). The quantity of local supplies including groundwater projected to be pumped by the Agency’s contractors is presented in Table 4-16.

The groundwater quantities pumped by the Agency in the last five years are shown on Table 4-2, while the Agency’s projected future production through 2030 is shown in Table 4-3. Although the Agency pumped 4,613 ac-ft in 2004, the Agency has used a figure of 3,870 ac-ft for future pumping. Even though the wells can be reliability operated at higher pumping rates, this is conservative and allows periodic servicing of the wells.

Table 4-2. (DWR Table 6) Amount of Groundwater Pumped by the Agency – ac-ft/yr

Basin Name (s)	2000	2001	2002	2003	2004	2005
Santa Rosa Plain	2,363	2,961	3,592	4,701	4,585	5,906
% of Total Water Supply	3	4	5	7	7	9

Source: Sonoma County Water Agency, 2004b

Table 4-3. (DWR Table 7) Amount of Groundwater Projected to be Pumped by the Agency - ac-ft/yr

Basin Name(s)	2010	2015	2020	2025	2030
Santa Rosa Plain	3,870	3,870	3,870	3,870	3,870
% of Total Water Supply	5	5	4	4	4

Source: Sonoma County Water Agency, 2000a

4.2.5 Legal Constraints

There are no existing legal constraints on the Agency’s ability to use its groundwater supply. The Agency’s pumping rights are shown in Table 4-4.

Table 4-4. (DWR Table 5) Agency Groundwater Pumping Rights – ac-ft/yr

Basin Name	Pumping Right – ac-ft/yr
Santa Rosa Plain (1-55.01)	Not limited
Total	Not limited

Source: DWR, 2003.

4.3 Desalination

Desalinated water is not currently a viable option for Agency water supply, as the ocean is not immediately adjacent to the Agency's facilities and the Agency's wells produce neither brackish nor impaired groundwater.

Though the Agency is not pursuing desalination as a potential water supply, some of its water contractors or customers may explore the option in the future. The Marin Municipal Water District has constructed a pilot-scale desalination plant (the Seawater Desalination Pilot Plant). If a full-scale desalination plant were constructed, it is possible that the neighboring North Marin Water District could supplement its water supply with desalinated water. However, because the potential of a full-scale desalination plant is unknown, no desalinated water supply is projected for this Plan.

The City of Sonoma, Valley of the Moon Water District, and the City of Petaluma could potentially desalinate brackish groundwater. These possibilities are speculative at this time.

4.4 Transfer and Exchange Opportunities

Currently, the Agency does not transfer and/or exchange water with other entities, and it is not anticipated that transfers or exchanges will occur in the future. Water transfers between the Agency's water contractors and other Agency customers have been necessary in the past and may be necessary in the future to improve water reliability. The Restructured Agreement authorizes water transfers between water contractors in certain limited circumstances (Sonoma County Water Agency, 2000a).

4.5 Russian River System Model

The projections of the future water supply quantities available to the Agency, which are presented in Section 4.6, are based on the results of operations modeling of the Russian River. This section describes the modeling effort. The Russian River System Model (RRSyM) is an operations modeling system for the Russian River developed and periodically updated by the Agency. The model, which performs a water balance routing through the Russian River system, is used as a planning tool to simulate the effects of various levels of demand and operational criteria. RRSyM consists of three models which are run sequentially, each model providing input for the next, to simulate the inflows

into Lake Mendocino, the releases from and storage levels in Lakes Mendocino and Sonoma, and the streamflows at specific nodes throughout the length of Dry Creek and the Russian River mainstem.⁶ The models are programmed with 95 years of hydrologic data (1909 - 2004), represented as daily unimpaired tributary flows into the Russian River and Dry Creek. The hydrologic data was obtained from the USGS, USACE, and other sources. Unimpaired flows are the “natural” flows, unaffected by man-made influences, such as water demands, or reservoir operations. These tributary flows are aggregated by reach and do not correspond to any specific tributary. These unimpaired flows form the basis of the hydrology in the models. Also programmed into the models are minimum instream flow requirements, and distributed demands. Represented by these demands are not only the Agency’s diversions, but all the diversions and depletions in the watershed, whether or not the diversions and depletions are legally permitted. Thus, the model assumes that all demands in the watershed are satisfied with its simulated flow releases, not just demands of the Agency.

RRSyM is normally used to simulate the effects of various demand levels and operational criteria using the same set of urban and agricultural demands for the entire simulation period. This method offers a rational basis for comparing the effects of one set of demands with another, and aids in understanding the range of impacts that might be expected. Thus, comparisons of streamflow and storage levels between corresponding time periods from two simulations can be very useful in understanding the expected effects of changes in demands or operational criteria.

To determine the water available at the Agency’s water transmission system intakes, RRSyM was used to simulate different hydrologic periods as specified in California Water Code Section 10631(c). These periods were selected from the historical hydrologic record to best represent an average year, a single dry year, and multiple dry years. To represent an average year, 1962 was selected. 1962 was slightly drier than average and was preceded by two similar years. To represent a single dry year, year 1977 was selected. 1977 is the single driest year of record. To represent multiple dry years, 1990 through 1993 were selected. While this is not the driest four-year period of record (1929-1932 and 1930-1933 were slightly drier), it is the driest four-year period of record under which the current minimum instream flow requirements were in effect.

⁶ The RRSyM was first developed in 1988 and has been continuously updated and improved. The model was recently peer reviewed and improved as a result of its use in the Potter Valley Project license amendment proceedings at the Federal Energy Regulatory Commission.

Previous modeling studies carried out by the California Department of Water Resources divided the Russian River watershed into eight hydrologic subunits. The Santa Rosa subunit is the southernmost subunit within the watershed and its boundaries circle around the Town of Windsor to the north, Sebastopol to the west Cotati to the south, and east to the Sonoma/Napa County line. The annual water demands within the Santa Rosa sub-unit include 9,620 ac-ft/year of urban demand diverted directly by urban water purveyors, 910 ac-ft by other direct diverters, and 7,560 ac-ft/year for agricultural demand. Diversions by urban water purveyors are made pursuant to water rights held by the purveyors or under contracts with the Agency that allow such diversions under the Agency's appropriative water rights permits. The purveyors include the Town of Windsor, City of Healdsburg, Russian River County Water District, Occidental Community Service District, and Camp Meeker Recreation and Park District. Other direct diverters are small water companies and individual direct diverters, which divert from the Russian River under their own water rights. The total annual diversion limit under the contracts between the Agency and these four public agencies is 9,620 ac-ft⁷. The agricultural demands include 2,210 ac-ft of main stem demands that occur during the summer irrigation season and 5,350 ac-ft of tributary demands that consist of diversions to storage that occur principally during the winter. Irrigation demand during the summer increases to 3,310 ac-ft during dry years. Consistent with the assumptions stated above regarding water rights and appropriation, the balance of the water demand within the Santa Rosa sub-unit is water delivered by the Agency's water transmission system.

The Agency's appropriative water rights permits include a provision that requires the Agency to impose a thirty percent deficiency in deliveries from the Russian River to its service area under certain prescribed hydrologic conditions. This deficiency must remain in effect unless "hydrologic conditions result in sufficient flow to satisfy permittee's demands at Wohler and Mirabel Park and minimum flow requirements in the Russian River at Guerneville." This provision is intended to ensure the maintenance of minimum stream flows required by Decision 1610. This provision is accounted for in the modeling, and affects the Santa Rosa subunit urban demand during such periods.

⁷ Because these demands are not supplied by the Agency's transmission system and the purveyors are not water contractors, except for Town of Windsor, (as defined in this document), they are not included in this Plan 2005. It is assumed that the purveyors will complete their own Plan, as necessary. The 9,620 ac-ft represents the maximum future diversions under these contracts; current diversions are well below this amount.

Ongoing sedimentation of Lake Pillsbury, Lake Mendocino and Lake Sonoma will result in a gradual small reduction in the water supply available to the Agency’s water transmission system. These sedimentation rates have been estimated and modeled and are accounted for in the RRSyM. Thus, the total storage available under the future scenarios is slightly less than under the current scenarios.

4.5.1 Model Study Results

The quantification of the Russian River water supply available to the Agency’s water transmission system consists of using the estimated annual urban water demand within the Santa Rosa hydrologic sub-unit for 2010 to 2030 and simulating the hydrologic periods of interest to determine the water remaining in storage in Lake Sonoma. The minimum pool of Lake Sonoma is 13,000 ac-ft plus an allocated share of the sediment reserve, estimated to be an additional 7,000 ac-ft, for a total of 20,000 ac-ft. The total Santa Rosa sub-unit demand that can be satisfied includes the portion of the annual demand representing agriculture (7,560 ac-ft), the other urban public water purveyors (10,530 ac-ft), and other direct diverters. Thus, all demands in the watershed are assumed to be accounted for under the scenarios simulated. The modeled future Agency demands are presented in Table 4-5.

Table 4-5. Future Agency Demands Modeled

Scenario Year	Demand ac-ft
2010	73,642
2015	74,983
2020	85,717
2025	96,574
2030	101,000

Average Year. For the average year (1962) the hydrologic model simulations are presented in Table 4-6. In Table 4-6 through 4-8, the “Lake Storage” figure is the minimum storage in Lake Sonoma produced by the model under the given hydrological year(s), and the “Date” is the hypothetical date upon which the minimum storage occurs.

Table 4-6. Average Year Minimum Lake Storage (1962)

Scenario Year	Lake Storage ac-ft	Date of Minimum Lake Elv.
2010	206,028	10/10/1962
2015	205,741	10/10/1962
2020	202,559	10/10/1962
2025	197,958	10/10/1962
2030	196,560	10/10/1962

Note: Minimum lake storage remaining after demands are met.

Single Dry Year. For the single dry year (1977) the hydrologic model simulations are presented in Table 4-7.

Table 4-7. Single Dry Year Minimum Lake Storage (1977)

Scenario Year	Lake Storage ac-ft	Date of Minimum Lake Elv.
2010	75,083	11/20/1977
2015	70,587	11/20/1977
2020 ^a	58,773	11/20/1977
2025 ^a	48,933	11/20/1977
2030 ^a	50,483	11/20/1977

Note: Minimum lake storage remaining after demands are met.

^a Reduction of demands will be required during a portion of the year.

Multiple Dry Years. For the multiple dry years (1990-1993) the hydrologic model simulations are presented in Table 4-8.

Table 4-8. Multiple Dry Years Minimum Lake Storage (1990 – 93)

Scenario Year	Lake Storage ac-ft	Date of Minimum Lake Elv.
2010	132,893	2/25/1991
2015	131,596	2/25/1991
2020	121,510	2/25/1991
2025	100,236	2/25/1991
2030	94,038	2/25/1991

Note: Minimum lake storage remaining after demands are met.

4.6 Current and Projected Water Supplies

This section provides projections of the future water supply quantities available to the Agency. Future water supply projections are dependent upon planned infrastructure improvements being approved and constructed as under the new planned Water Project. The start and completion dates and the anticipated water supply from the Water Project are summarized in Table 4-9. The key elements and milestones of future water supply projects are presented in Table 4-10.

Table 4-9. (DWR Table 17) Future Water Supply Projects

Project Name	Projected Start Date	Projected Completion Date	Normal year ac-ft to agency	Single-dry year yield ac-ft	Multiple Dry Year		
					Year 1 ac-ft	Year 2 ac-ft	Year 3 ac-ft
Water Supply, Transmission, and Reliability Project ¹ and other projects	2008	2020	26,000	10,520	26,000	26,000	26,000

Note:

¹In compliance with CEQA, the Notice of Preparation to prepare an Environmental Impact Report for this project was released in February 2005.

Table 4-10. Water Project Elements and Milestones

Element	Completion Date ^a
Water Project EIR	
Draft EIR	June 2007
Final EIR	May 2008
EIR Certification/Project Approval	June 2008
Transmission System Facilities	
Kawana Tank No. 2	2006
Kawana-Ralphine Pipeline	2010
Cotati-Kastania Pipeline	2012
Annadel-Sonoma Pipeline	2015
Mirabel-Cotati Pipeline	2017
South Transmission System Tanks	2036
Diversion Facilities	2020
Water Conservation	ongoing
Water Project Water Right Permits	
State Water Resource Control Board Approval	2016

^a Completion dates are times to meet demand

Table 4-11 summarizes the current and projected water supplies available to the Agency, excluding local groundwater, recycled water, and surface water supplies used by some of the Agency’s contractors and other customers. The Agency does not produce recycled water, except as described in Section 5-2. Some of the Agency’s water contractors and other Agency customers produce or are supplied recycled water by other entities. Recycled water is described in further detail in Section 5.

Table 4-11. (DWR Table 4) Current and Planned Water Supplies for the Agency – ac-ft/yr

Water Supply Sources	2010	2015	2020	2025	2030
Wholesale provider	0	0	0	0	0
Agency produced groundwater	3,870	3,870	3,870	3,870	3,870
Agency surface diversions	75,000	75,000	101,000	101,000	101,000
Transfers in or out	0	0	0	0	0
Exchanges in or out	0	0	0	0	0
Recycled water (projected use)	0	0	0	0	0
Desalination	0	0	0	0	0
Other	0	0	0	0	0
Total	78,870	78,870	104,870	104,870	104,870

Table 3-4 summarizes the projected amounts of Agency’s groundwater and Russian River water anticipated to be delivered to the Agency’s water contractors, other Agency customers, and Marin Municipal Water District.

Tables 4-12 and 4-13 summarize the projected amount of local groundwater and local recycled water (respectively) that the Agency’s water contractors and other Agency customers advise the Agency they anticipate having from 2005 through 2030. As presented in Table 4-12, the projected volume of groundwater and other local supply usage decreases once the Agency’s water project is implemented.

Table 4-12. Projected Groundwater or Other Local Supply Usage by Sonoma County Water Agency Contractors and Other Agency Customers - ac-ft/yr^a

	Volume (ac-ft/yr)				
	2010	2015	2020	2025	2030
Water Contractors^b	7,633	9,865	6,503	3,414	2,887
Other Customers^c	0	0	0	0	0
Total	7,633	9,865	6,503	3,414	2,887

- ^a The 2030 water use is equal to the 2030 gross demand, less savings for conservation activities (plumbing code, CUWCC “Tier 1” BMPs, “Tier 2” BMPs, and new housing standards) as described in Section 6.2. The 2030 water use reflects demand in an average weather year; actual demand may vary from these estimates based on the weather year. Water conservation savings includes both additional water conservation to be achieved after June 2004, and reductions in demand resulting from the continuation of water conservation measures implemented by the Contractors as of June 2004. But for the embedded results of those existing conservation efforts, which are summarized in Appendix B, the 2030 gross demand grand total figure would be somewhat higher. Pursuant to the Restructured Agreement for Water Supply (see Section 4.1.2), the water contractors must implement the CUWCC BMPs for water conservation or alternative water conservation measures that secure at least the same level of water savings. The water contractors have also agreed to use their best efforts to secure the implementation of any water conservation measures required by the Agency’s appropriate water rights permits or licenses or applicable law. Because the figures in this Table are projections, actual water use may vary over time from the estimates set forth in the table.
- ^b North Marin Water District’s local supply includes local surface water. Groundwater is the only local supply for the other customers, other than recycled water as presented in Table 4-13
- ^c Assumed to be zero for this Plan and because these small municipals may have to rely predominately on Agency water.

Table 4-13. Projected Recycled Water Usage by the Sonoma County Water Agency Contractors and Other Agency Customers - ac-ft/yr^a

	Volume (ac-ft/yr)				
	2010	2015	2020	2025	2030
Water Contractors	808	1,652	2,476	3,301	4,131
Other Customers	10	21	31	42	52
Total	818	1,673	2,507	3,343	4,183

- Note: Existing recycled water use, offsetting potable supply, was previously accounted for in Rohnert Park’s net demand analysis.
- ^a The 2030 water use is equal to the 2030 gross demand, less savings for conservation activities (plumbing code, CUWCC “Tier 1” BMPs, “Tier 2” BMPs, and new housing standards) as described in Section 6.2. The 2030 water use reflects demand in an average weather year; actual demand may vary from these estimates based on the weather year. Water conservation savings includes both additional water conservation to be achieved after June 2004, and reductions in demand resulting from the continuation of water conservation measures implemented by the Contractors as of June 2004. But for the embedded results of those existing conservation efforts, which are summarized in Appendix B, the 2030 gross demand grand total figure would be somewhat higher. Pursuant to the Restructured Agreement for Water Supply (see Section 4.1.2), the water contractors must implement the CUWCC BMPs for water conservation or alternative water conservation measures that secure at least the same level of water savings. The water contractors have also agreed to use their best efforts to secure the implementation of any water conservation measures required by the Agency’s appropriate water rights permits or licenses or applicable law. Because the figures in this Table are projections, actual water use may vary over time from the estimates set forth in the table.

4.7 Water Supply Reliability

This section describes the projected supplies available during single- and multiple-dry water years. During short-term periods of water supply reductions, the Agency would implement its water shortage contingency plan, which is presented in Appendix C.

The Agency’s surface water supply is subject to reductions during dry years. When the Lake Sonoma water volume is less than 100,000 ac-ft during single-dry years, a 30 percent reduction of diversions is required, as dictated by the SWRCB water-rights Decision 1610. The Agency’s groundwater supply capacity is assumed to not be impacted by single-dry years given the short duration and low frequency of occurrence.

The reliability of the Agency’s two water supply sources (Russian River surface water and groundwater) for single- and multiple-dry water years is summarized in Table 4-14.

Table 4-14. (DWR Table 8) Year 2030 Supply Reliability for the Agency - Percent of Normal ac-ft/yr

Sources	Normal Water Year	Single-Dry Year	Multiple-Dry Water Years			
			Year 1	Year 2	Year 3	Year 4
Agency-diverted Russian River	101,000	85,520	101,000	101,000	101,000	101,000
Agency produced groundwater	3,870	3,870	3,870	3,870	3,870	3,870
Transfers in or out	0	0	0	0	0	0
Agency recycled water	0	0	0	0	0	0
Total	104,870	89,390	104,870	104,870	104,870	104,870
Percent of Normal	100%	85%	100%	100%	100%	100%

Table 4-15 lists the years upon which the data in Table 4-14 are based.

Table 4-15. (DWR Table 9) Basis of Water Year Data for Agency Supply Reliability

Water Year Type	Base Year(s)
Normal Water Year	1962
Single-Dry Water Year	1977
Multiple-Dry Water Years	1990 - 1993

Table 4-16 includes the anticipated water supplies for the Agency and its water contractors, other Agency customers, and Marin Municipal Water District during single- and multiple-dry water years. The basis for the information in Table 4-16 is provided in Table 4-15.

Table 4-16. (Modified DWR Table 8) Year 2030 Supply Reliability for the Agency and its Water Contractors and Other Agency Customers - Percent of Normal ac-ft/yr

Sources	Normal Water Year	Single-Dry Year	Multiple-Dry Water Years			
			Year 1	Year 2	Year 3	Year 4
Agency-diverted Russian River	101,000	85,520	101,000	101,000	101,000	101,000
Agency produced groundwater	3,870	3,870	3,870	3,870	3,870	3,870
Contractors and other customers local supply, including groundwater	2,887	2,887	2,887	2,887	2,887	2,887
Contractors and other customers recycled water	4,183	4,183	4,183	4,183	4,183	4,183
Transfers in or out	0	0	0	0	0	0
Agency recycled water	0	0	0	0	0	0
Total	111,940	96,460	111,940	111,940	111,940	111,940
Percent of Normal	100%	86%	100%	100%	100%	100%

Note: Existing recycled use, offsetting potable supply, was previously accounted for in Rohnert Park's net demand analysis.

Factors resulting in inconsistency of the Agency's supply are summarized in Table 4-17. Water quality issues are not anticipated to have significant impact on water supply reliability. If applicable in the future, chemical contamination and the lowering of maximum contaminant levels (MCLs) for constituents can be mitigated by constructing new treatment facilities. These treatment facilities could have a significant cost.

As noted in Section 1.6, the Plan is based upon reasonable assumptions about the Agency's sources of water supply. There are a number of actions and projects the Agency could undertake to mitigate any adverse water supply impacts resulting from future changes in those assumptions. Because the Agency has no current plans to undertake such projects or actions, because such plans or actions may never be necessary, and because, if necessary, the nature and extent of such plans or actions will depend upon the exact way that each assumption has changed, it is not possible at the present to provide more than a brief identification of such plans or actions. Such plans or actions could include one or more of the following: (1) petitioning for a change in the instream flow requirements in the Agency's water rights permits, for example, to implement a "low flow" proposal or change Russian River estuary management practices; (2) constructing a pipeline between Warm Springs Dam and the Agency's water diversion facilities; (3) constructing a water treatment facility; (4) implementing an aquifer storage and recovery (ASR) project; (5) participating as a member of a regional consortium in a project to increase the water supply storage capacity of Lake Mendocino; (6) acquiring, either individually or as a member of a regional consortium, the Potter Valley Project; (7) establishment of "conservation" hatcheries for listed salmonid species; or (8) implementing other

actions or projects proposed as alternatives in the Biological Assessment in the Section 7 consultation. Such projects and actions have the potential to mitigate adverse water supply impacts that may arise if assumptions made in this Plan change in the future.

Table 4-17. (DWR Table 10) Description of the Factors Resulting in Inconsistency of Supply

Name of supply	Legal	Environmental	Water Quality	Climatic
Russian River	Current supply is available at a consistent level of use with regard to these factors. Future supply increase may not be consistent due to delays in construction, in approval of water rights application, or in environmental documentation ^a		None	Drought could result in a reduction of surface water supply
Groundwater	None	None	None	None
Recycled water	None	None	None	None

^a Section 1.6 describes the assumptions regarding the consistency of the supply. Local groundwater and recycled water supplies and water conservation are important additional sources for the Agency's customers.

The Agency's water supply is not currently supplemented by another wholesaler. The Agency has provided necessary wholesaler information for use in the contractors' and other Agency customers' urban water management plans.

4.8 Water Quality Impacts on Future Water Supply

The quality of the Agency's water deliveries is regulated by the California Department of Health Services (DHS), which requires regular collection and testing of water samples to ensure that the quality meets Federal and state regulatory standards and does not exceed MCLs. The Agency performs water quality testing, which has consistently yielded results within the acceptable regulatory limits.

The Agency treats its water supplies by chlorination for residual disinfection. The Agency also adds sodium hydroxide for pH adjustment to prevent copper plumbing corrosion. The Agency's water is of high quality, which is due to the natural filtration process utilized by the Agency's diversion facilities.

The quality of the Agency's surface water and groundwater supply sources over the next 25 years is expected to be adequate. Surface and groundwater will continue to be treated to meet drinking water standards and no impacts to water supplies due to water quality deficiencies are foreseen to

occur in the next 25 years. Table 4-18 summarizes the current and projected water supply changes due to water quality.

Table 4-18. (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

Water recycling is the treatment and management of municipal, industrial, or agricultural wastewater to produce water that can be reused for beneficial uses and offset demands for potable water supplies. Water recycling provides an additional source of water that can be used for purposes such as irrigation, groundwater recharge, industrial uses, and environmental restoration. “Recycled water” is defined in the California Water Code as “water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur.” DHS sets the water quality criteria for specific uses of recycled water in Title 22 of the California Code of Regulations.

This section provides information on the amount of generated wastewater, existing disposal of wastewater, the quantity of recycled water potentially available, and existing and future potential uses for recycled water. The Agency does not supply recycled water to its contractors or other Agency customers, but is involved with coordinating recycled water programs including funding for projects that offset Agency water deliveries. This section describes the recycled water amounts and uses by these entities.

5.1 Coordination

The use of recycled water reduces peak demands on the Agency’s water supply system and the need to construct additional water storage facilities. Some of the Agency’s contractors and other customers have developed recycled water plans in coordination with the wastewater treatment facilities within their local service areas. The Agency works with a number of local authorities responsible for water supply and wastewater collection and distribution. Table 5-1 identifies the authorities with whom the Agency coordinates to continually optimize the use of recycled water to offset demands on the potable water supply system.

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

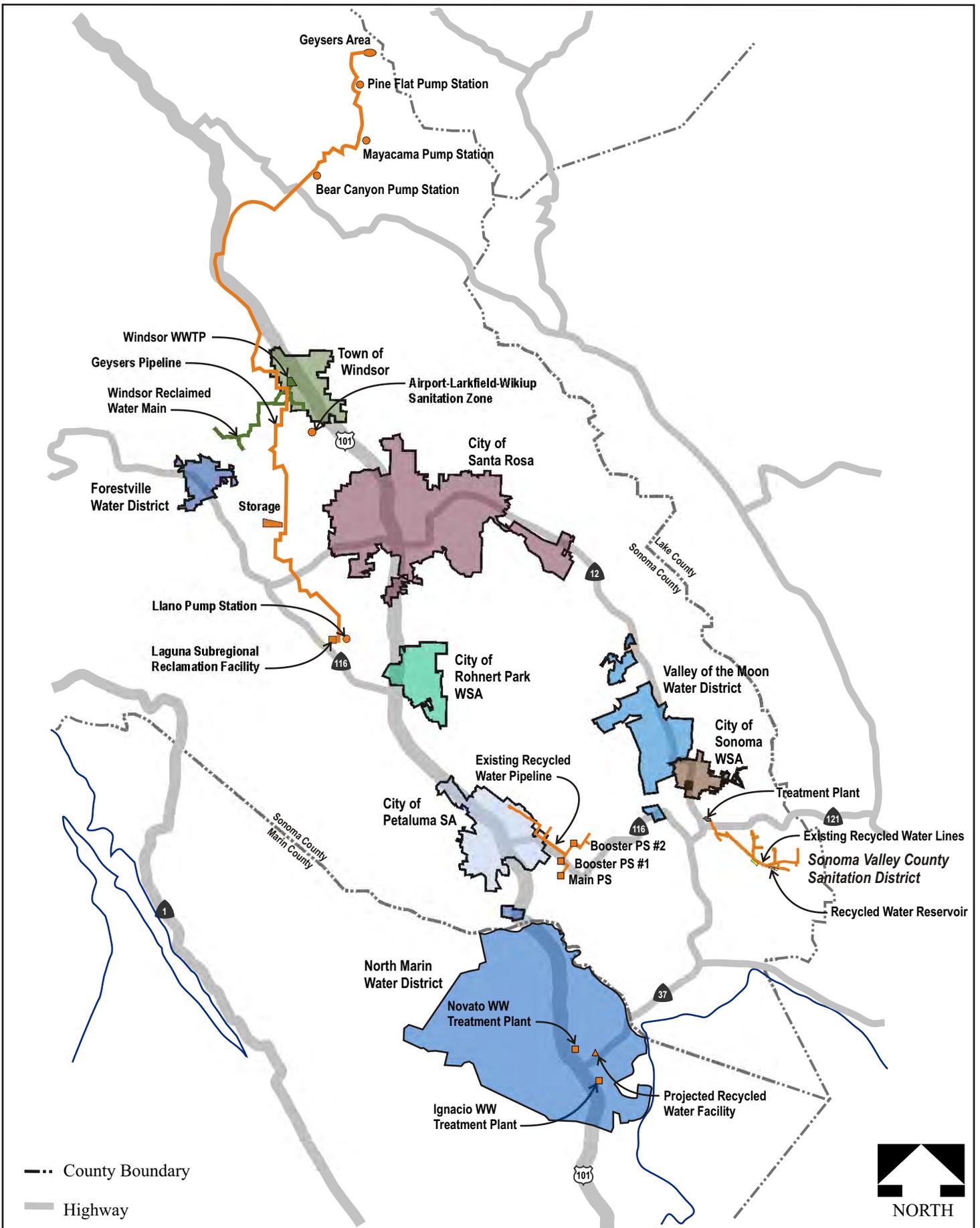
Agency Type	Agency Name	Plan Development Role
Local Water Supplier	City of Cotati	Provided recycled water supply and demand information
Local Water Supplier	City of Rohnert Park	Provided recycled water supply and demand information
Local Water Supplier	City of Santa Rosa	Provided recycled water supply and demand information
Local Water Supplier	City of Petaluma	Provided recycled water supply and demand information
Local Water Supplier	City of Sonoma	Provided recycled water supply and demand information
Local Water Supplier	Town of Windsor	Provided recycled water supply and demand information
Local Water Supplier	Forestville Water District	Provided recycled water supply and demand information
Local Water Supplier	North Marin Water District	Provided recycled water supply and demand information
Local Water Supplier	Valley of the Moon Water District	Provided recycled water supply and demand information
Wastewater Agency	Forestville Water District	Provided recycled water supply and demand information
Wastewater Agency	Novato Sanitary District	Provided recycled water supply and demand information
Wastewater Agency	City of Petaluma (Wastewater Treatment Facility)	Provided recycled water supply and demand information
Wastewater Agency	Santa Rosa Subregional Reclamation Facility	Provided recycled water supply and demand information
Wastewater Agency	Sonoma Valley County Sanitation District	Provided recycled water supply and demand information
Wastewater Agency	Town of Windsor Water Reclamation Division	Provided recycled water supply and demand information

5.2 Wastewater Quantity and Disposal

This section provides information on the amount of wastewater collected and treated within the Agency's service area.

5.2.1 Wastewater Collection and Treatment

Wastewater collection, treatment, and disposal within the Agency service area is the responsibility of six main wastewater treatment plants owned by: Forestville Water District, Novato Sanitary District, City of Petaluma (Petaluma Wastewater Treatment Facility), Santa Rosa Subregional Reclamation System (Subregional System), Sonoma Valley County Sanitation District, and the Town of Windsor Water Reclamation Division. The Subregional System exports some of its treated wastewater to the Geysers Recharge Project. The wastewater facilities owned by the Sonoma Valley County Sanitation District are operated and maintained under contract by the Agency. The Agency also operates other wastewater treatment facilities in the region. Figure 5-1 illustrates the location of the wastewater treatment facilities and reclamation facilities in the Agency's service area. Table 5-2 presents a summary of the wastewater treatment agencies within the area.



BROWN AND CALDWELL	PROJECT	127280-005	SITE	UWMP 2005, Sonoma County Water Agency	Figure 5-1
	DATE	11-30-06	TITLE	Wastewater and Recycled Water Facilities	

Table 5-2. Wastewater Treatment within the Agency’s Service Area

Wastewater System or Treatment Plant	Operator	Wastewater Source (water supply)
Airport-Larkfield-Wikiup Sanitation Zone	Sonoma County Water Agency	Agency water and local groundwater.
Forestville Water District	Forestville Water District	Agency water.
Novato Sanitary District Wastewater Treatment Plant	Novato Sanitary District	Serves portion of North Marin Water District. Blend of Agency water and local surface water.
Petaluma Wastewater Treatment Facility ^a	City of Petaluma	Agency water and local groundwater.
Santa Rosa Subregional Reclamation System ^b	City of Santa Rosa	Serves Cities of Santa Rosa, Cotati, Sebastopol, and Rohnert Park. Blend of Agency water and local groundwater.
Sonoma Valley County Sanitation District	Sonoma County Water Agency	Serves Valley of the Moon Water District and City of Sonoma. Blend of Agency water and local groundwater.
Windsor Water Reclamation Plant	Town of Windsor	Blend of Agency water, local surface water, and local groundwater.

^a Penngrove wastewater is conveyed to Petaluma.

^b Receives wastewater from South Park County Sanitation District.

The approximate amounts of wastewater collected and treated and the amount that meets recycled water standards for the five primary wastewater treatment facilities are described in Tables 5-3 and 5-4, respectively.

Table 5-3. (DWR Table 33) Amount of Wastewater Collected and Treated by each Agency – ac-ft/yr

Wastewater System	2000	2005	2010	2015	2020	2025	2030
Airport-Larkfield-Wikiup Sanitation Zone	900	1,250	1,330	1,410	1,490	1,560	1,650
Forestville Water District	140	144	148	152	156	160	164
Novato Sanitary District	7,270	7,570	7,860	8,150	8,440	8,730	8,730
Petaluma Wastewater Treatment Facility ^a	5,200	6,000	6,300	6,600	6,900	7,200	7,500
Santa Rosa Subregional Reclamation System ^b	19,600	22,393	26,074	28,988	31,902	--	--
Sonoma Valley County Sanitation District ^c	4,500	4,500	4,750	5,000	5,250	5,500	5,550
Town of Windsor Reclamation Division ^d	2,090	2,418	2,218	2,588	2,834	3,081	3,327

^a Penngrove wastewater is conveyed to Petaluma.

^b Provided by City of Santa Rosa. 2025 and 2030 projections not available. Includes wastewater from the subregional partners which include the Cities of Santa Rosa, Sebastopol, Cotati, Rohnert Park, Sonoma State University, and the South Park County Sanitation District.

^c Includes wastewater from both Valley of the Moon Water District and City of Sonoma.

^d Values for 2000 and 2005 are actual wastewater flow totals for those years. Values for years 2010 through 2030 equal the water estimated ADWF plus I/I as a percent of ADWF. Source: December 2001. Water Reclamation MP, Figure 2-2 and from Storage Curve Master, I/I Percent of ADWF for a dry year.

**Table 5-4. (DWR Table 33) Amount of Wastewater that Meets
Recycled Water Standards – ac-ft/yr**

Wastewater System	2000	2005	2010	2015	2020	2025	2030
Airport-Larkfield-Wikiup Sanitation Zone	900	1,250	1,330	1,410	1,490	1,560	1,650
Forestville Water District	0	144	148	152	156	160	164
Novato Sanitary District	2,360	2,400	2,710	3,080	3,450	3,850	4,170
Petaluma Wastewater Treatment Facility ^a	2,400	2,400	2,600	2,800	2,900	3,000	3,100
Santa Rosa Subregional Reclamation System ^b	19,600	22,393	26,074	28,988	31,902	--	--
Sonoma Valley County Sanitation District ^c	4,500	4,500	4,750	5,000	5,250	5,500	5,550
Town of Windsor Reclamation Division ^d	2,090	2,418	2,218	2,588	2,834	3,081	3,327

^a Penngrove wastewater is conveyed to Petaluma.

^b Provided by the City of Santa Rosa. 2025 and 2030 projections not available.

^c Includes wastewater from both Valley of the Moon Water District and City of Sonoma.

^d Values for 2000 and 2005 are actual wastewater flow totals for those years. Values for years 2010 through 2030 equal the water estimated ADWF plus I/I as a percent of ADWF. Source: December 2001. Water Reclamation MP, Figure 2-2 and from Storage Curve Master, I/I Percent of ADWF for a dry year.

5.2.2 Wastewater Disposal

Within the Agency’s service area, discharge of treated wastewater is regulated by the North Coast Regional Water Quality Control Board and the San Francisco Bay Regional Water Quality Control Board depending on the point of discharge. For each of the wastewater treatment facilities, Table 5-5 outlines the point of discharge, the level of treatment, and the amount of current and projected wastewater disposal (non-recycled). In general, the majority of the wastewater generated and treated during the summer months that is not delivered to Geysers Recharge Project by the Subregional System is used for alternative beneficial uses such as wetland habitat and restoration and irrigation for agriculture, pastures, vineyards, and golf courses. The use of the recycled water helps offset part of the potable water demand during the peak summer months.

Table 5-5. (DWR Table 34) Disposal of Wastewater (Non-Recycled) ac-ft/yr

Wastewater System	Location of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030
Airport-Larkfield-Wikiup Sanitation Zone	Not applicable. ALWSZ is a zero discharge facility.	Tertiary	0	0	0	0	0	0
Forestville Water District ^b	Jones Creek	Tertiary	74	4	12	16	20	24
Novato Sanitary District ^e	San Pablo Bay	Secondary	4,910	5,150	5,340	5,530	5,720	5,655
Petaluma Wastewater Treatment Facility ^d	Petaluma River	Secondary	3,600	1,700	1,200	0	0	0
		Tertiary	0	2,000	2,600	4,000	4,200	4,400
Santa Rosa Subregional Reclamation System ^a	Russian River	Tertiary	3,681	7,362	7,362	7,362	--	--
Sonoma Valley County Sanitation District ^c	Schell Slough	Secondary	3,330	0	0	0	0	0
		Tertiary	0	3,250	1,250	950	600	150
Windsor Water Reclamation Plant ^f	Mark West Creek	Tertiary	563	563	563	563	563	563

Notes: Wastewater disposal volumes are weather dependent; dry years will produce less volume while wet years will produce higher volumes. An average year is shown in this table.

^a Provided by the City of Santa Rosa.

^b Forestville Water District is permitted to discharge into Jones Creek only from November to May; June through October water is used for agricultural irrigation.

^c Sonoma Valley County Sanitation District only discharges to Schell Slough from mid-fall to mid-spring and during the remaining months the water is used for wetland enhancement and irrigation of pastures and vineyards.

^d Petaluma does not discharge into the Petaluma River from May to October; therefore, the water is used for irrigation of golf courses and agricultural land. Penngrove wastewater conveyed to Petaluma.

^e Novato Sanitary District is permitted to discharge into San Pablo Bay only during the winter months; during other months the District maintains the water in storage ponds for wildlife and irrigation.

^f The Town of Windsor Reclamation Division is permitted to discharge into Mark West Creek only from October 1 through May 15, and cannot exceed one percent of the creek's flow.

5.3 Recycled Water Use

Projections for the recycled water use for 2005 were not made in the 2000 Urban Water Management Plan. Therefore, a comparison to projections for 2005 and actual use cannot be made. Table 5-6 shows actual recycled water use in 2005 for urban purpose that offsets potable water use. Since the Agency does not supply recycled water to offset potable water uses, the focus of this section is to summarize the recycled water use by the contractors and other customers. The projected uses by type of use are not presented in this Plan since the Agency does not supply recycled water (DWR Table 35a, 35b, 36, and 37). This specific information is presented in each contractor's own urban water management plan.

Table 5-6. (DWR Table 37) Recycled Water Uses - ac-ft/yr

Water Contractor/Customer	2005 Actual Use
Airport-Larkfield-Wikiup Sanitation Zone	0
Forestville Water District	20
North Marin Water District	0
City of Petaluma	190
City of Rohnert Park	1,135
City of Santa Rosa	344
City of Sonoma	0
Valley of the Moon Water District	0
Town of Windsor	372
Other Agency Customers ^a	0

Notes:

Only urban use that offsets potable water use is presented.

No projections were made in the 2000 Urban Water Management Plan.

^aExcluding the Forestville Water District.

Some of the Agency's contractors and other customers have developed recycled water system master plans and programs. Current programs include using reclaimed water for irrigation of agricultural areas, parks, commercial properties, golf courses and vineyards to offset potable and nonpotable water demands.

Table 4-13 presents the projected recycled water use by the Agency's water contractors and other customers that would offset potable water use.

5.4 Promotion of Recycled Water Use

The Agency and its contractors encourage recycled water use by collecting, as part of Agency water rates, funds to be held in a special reserve for recycled water projects carried out by its water contractors and other Agency 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. DWR Table 38 is not included since the Agency does not directly supply recycled water.

SECTION 6

WATER CONSERVATION

This section provides a description of the Agency's water conservation program and its best management practices (BMPs) or water demand management measures. The Agency utilizes water conservation BMPs as a method to reduce water demands, thereby reducing the water supply needed to supply its customers. This section also describes the water conservation assumptions used to develop the water demand projections that are presented in Section 3.

6.1 BMP Implementation

The Agency is a member of the California Urban Water Conservation Council (CUWCC). The CUWCC was created to assist in increasing water conservation statewide, under a Memorandum of Understanding (MOU). As signatory to the MOU, the Agency has pledged its good faith effort towards implementing BMPs identified in the CUWCC MOU Regarding Urban Water Conservation. The two primary purposes of the MOU are as follows:

- a. to expedite implementation of reasonable water conservation measures in urban areas, and
- b. to establish assumptions for use in calculating estimates of reliable future water conservation savings resulting from proven and reasonable conservation measures. Estimates of reliable savings are the water conservation savings that can be achieved with a high degree of confidence in a given service area.

The Agency is the first wholesale water agency in the state to have all its water contractors sign the CUWCC MOU. The Agency signed the CUWCC MOU on June 1, 1998, and submits annual BMP reports to the CUWCC in accordance with the MOU. The MOU requires that a water utility implement only the BMPs that are economically feasible. If a BMP is not economically feasible, the utility may request an economic exemption for that BMP. The Agency has not requested an economic exemption from any BMP at this time.

The Agency implements all of the wholesale BMPs and some retail BMPs on behalf of some of the customers. Table 6-1 lists the CUWCC's 14 BMPs and identifies which retail and wholesale BMPs are being implemented by the Agency.

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

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

Notes:

^a These programs are being run in part by Sonoma County Water Agency.

^b Sonoma Valley County Sanitation District operates a program in the Valley of the Moon Water District and City of Sonoma service areas.

NA = Not applicable

Urban water suppliers that are members of the CUWCC may submit their most recent BMP Annual Report for reporting years 2003-04 to meet the requirements of DWR Water Code Section 10631 (f). DWR also recommends that urban water suppliers include the Coverage Reports identifying the water supplier’s progress on meeting the coverage requirement for quantifiable BMPs. The Agency’s annual BMP Reports, Coverage Reports, Base Year Data, and Water Supply and Reuse data can be found in Appendix B. The Water Shortage Contingency Plan can be found in Appendix C.

6.2 Water Conservation Assumptions and Modeling

The water demand projections presented in Section 3 were developed based on certain assumptions regarding the future implementation of water conservation measures or BMPs. The Agency’s contractors and other customers have previously committed to implementing all of the CUWCC BMPs. The CUWCC BMPs are currently in various stages of completion. Several of the contractors have conducted conservation activities that exceed the CUWCC BMP requirements. Water conservation measures that are not part of the CUWCC BMPs are also assumed to be implemented for this analysis. The Agency identified these measures as Tier 2 BMPs. New development standards that focus on low water using requirements for new single family housing

are also assumed. These assumed future water conservation activities were integrated with the current water use characteristics and the population growth projections using the Decision Support System (DSS) model. The analysis projects the future water demands based on four levels of increasing conservation effort: (1) current unit water use and the projected water savings from future plumbing retrofits as required by the plumbing code, (2) Tier 1 BMP efforts to date and remaining Tier 1 BMP efforts, (3) future Tier 2 BMP efforts, and (4) adoption of new development standards. The water demand projections presented in Section 3 assume that approximately half of the water savings from Tier 2 BMPs and 100 percent of savings from the new development standards would occur. The water contractors will use their best effort to implement these additional water conservation measures. Existing water conservation savings due to past implementation efforts are included in the baseline projection. Because the water conservation savings are projections, actual demand reduction and the manner in which the demand reduction is achieved may vary. Table 6-2 presents the Tier 2 BMPs.

The BMP modeling analysis and demand projections were performed using the CUWCC approved DSS model, a Microsoft® Office spreadsheet based program run from Windows XP. The DSS model has been used elsewhere in northern California, including a recent project for the San Francisco Public Utilities Commission. The DSS model has been designed to provide a detailed planning evaluation framework for water demand management programs. The DSS model performs a cost-effectiveness evaluation of each BMP using the data on market potential for each conservation measure and the assumptions for each conservation measure variable. The DSS analysis projects on an annual basis the water savings and the dollar values of the benefits and costs that would result from implementing the BMPs. The DSS model components consist of the following steps:

1. Establish customer base-year water use conditions by customer-billing category and then by end use.
2. Establish service area conditions for evaluation of conservation measures by creating a database of service area data relevant to the conservation measures to be evaluated.
3. Conduct model calibration to current water use conditions by end use fixture models.
4. Use the service area data to perform a benefit and cost evaluation of each BMP.
5. Develop water demand projections assuming the implementation of the selected BMPs.

Table 6-2. Tier 2 BMPs

No. #	Measure Title
1	Rain-sensor (shut off device) retrofit on irrigation controllers
2	Cash for Grass (turf removal program)
3	Financial Incentives for Being Below Water Budget
4	Financial Rebates for Irrigation Meters
5	Smart Irrigation Controller Rebates
6	Financial Incentives/ Rebates for Irrigation Upgrades
7	Hotel retrofit (w/financial assistance) - CII Existing
8	Offer new accounts reduced connection fees for installing efficient process equipment for selected businesses (restaurants, laundry mat, food/groceries and hospital)
9	Synthetic Turf Rebate
10	High Efficiency Toilet (HET)
11	Dishwasher New Efficient
12	CII Rebates - replace inefficient water using equipment
13	0.5 gal/flush urinals in new buildings
ND1	Rain-sensor shut off device on irrigation controllers
ND2	Smart Irrigation Controller
ND3	High Efficiency Toilet (HET)
ND4	Dishwasher New Efficient
ND5	Clothes washing machines requirement for new residential
ND6	Hot Water on Demand
ND7	High efficiency faucets and showerheads
ND8	Landscape and irrigation requirements

ND = new development

SECTION 7
WATER SUPPLY VERSUS DEMAND COMPARISON

This section provides a comparison of the projected water supply and demand for the Agency from 2005 through 2030. The demand for the Agency represents the demand for Agency wholesale water by the Agency’s customers. 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 Section 3. The overall conclusion is that the Agency has adequate water supply through the 2030 planning horizon of this Plan, except for single-dry years, starting in 2020. In single-dry years starting in 2020, the Agency will work with its contractors to reduce water demands as described in the Water Contingency Analysis contained in Appendix C, utilize emergency local sources, or both. The magnitude of these single-dry year potential shortfalls is estimated to be 15 percent of normal demand by 2030.

7.1 Normal Water Supply vs. Demand Comparison

The analysis compares the projected normal water supply and 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	78,870	78,870	104,870	104,870	104,870
% of year 2005	100%	100%	133%	133%	133%

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

(from DWR table 15)	2010	2015	2020	2025	2030
Demand	77,511	78,853	92,036	100,312	104,869
% of year 2005 ^a	113	115	134	146	153

^a Based on 2005 demand of 68,756 ac-ft/yr.

The comparison of projected water supply and demand is presented in Table 7-3. As Table 7-3 shows, there is adequate water supply in normal years to meet demands through 2030.

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

	2010	2015	2020	2025	2030
Supply totals	78,870	78,870	104,870	104,870	104,870
Demand totals	77,511	78,853	92,036	100,312	104,869
Difference	1,359	17	12,834	4,558	1
Difference as % of Supply	2%	0%	12%	4%	0%
Difference as % of Demand	2%	0%	14%	5%	0%

7.2 Dry Year Water Supply vs. Demand Comparison

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. As shown in Table 7-6, in single dry years starting in 2020, water demands will exceed water supplies. During these single dry years, the Agency would work with its contractors to reduce water demands as described in Appendix C.

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

	2010	2015	2020	2025	2030
Supply	78,870	78,870	89,390	89,390	89,390
% of projected normal	100%	100%	85%	85%	85%

^a The allocation of the difference in supply versus demand will be governed by Section 3.5 of the Restructured Agreement as outlined in the Water Shortage Contingency Analysis contained in Appendix C.

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

	2010	2015	2020	2025	2030
Demand	77,511	78,853	92,036	100,312	104,869
% 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^a

	2010	2015	2020	2025	2030
Supply totals	78,870	78,870	89,390	89,390	89,390
Demand totals	77,511	78,853	92,036	100,312	104,869
Difference	1,359	17	-2,646	-10,922	-15,479
Difference as % of Supply	2%	0%	-3%	-12%	-17%
Difference as % of Demand	2%	0%	-3%	-11%	-15%

^a The allocation of the difference in supply versus demand will be governed by Section 3.5 of the Restructured Agreement as outlined in the Water Shortage Contingency Analysis contained in Appendix C.

Tables 7-7 through 7-21 compare the total water supply available in multiple dry water years with projected total water use over the next 25 years, in one-year increments. As these tables show, there is adequate water supply in during multiple dry years to meet demands through 2030.

**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	78,870	78,870	78,870	78,870	78,870
% 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	78,543	78,284	78,026	77,768	77,511
% 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	78,870	78,870	78,870	78,870	78,870
Demand totals	78,543	78,284	78,026	77,768	77,511
Difference	327	586	844	1,102	1,359
Difference as % of Supply	0%	1%	1%	1%	2%
Difference as % of Demand	0%	1%	1%	1%	2%

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

	2011	2012	2013	2014	2015
Supply	78,870	78,870	78,870	78,870	78,870
% 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	77,778	78,045	78,314	78,583	78,853
% 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	78,870	78,870	78,870	78,870	78,870
Demand totals	77,778	78,045	78,314	78,583	78,853
Difference	1,092	825	556	287	17
Difference as % of Supply	1%	1%	1%	0%	0%
Difference as % of Demand	1%	1%	1%	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	81,329	83,883	86,517	89,234	104,870
% 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	81,329	83,883	86,517	89,234	92,036
% 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	81,329	83,883	86,517	89,234	104,870
Demand totals	81,329	83,883	86,517	89,234	92,036
Difference	0	0	0	0	12,834
Difference as % of Supply	0%	0%	0%	0%	12%
Difference as % of Demand	0%	0%	0%	0%	14%

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	104,870	104,870	104,870	104,870	104,870
% of projected normal	100	100	100	100	100

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

	2021	2022	2023	2024	2025
Demand	93,635	95,261	96,916	98,599	100,312
% 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	104,870	104,870	104,870	104,870	104,870
Demand totals	93,635	95,261	96,916	98,599	100,312
Difference	11,235	9,609	7,954	6,271	4,558
Difference as % of Supply	11%	9%	8%	6%	4%
Difference as % of Demand	12%	10%	8%	6%	5%

Table 7-19. Projected Supply During Multiple Dry Year Period Ending in 2030 – ac-ft/yr

	2026	2027	2028	2029	2030
Supply	104,870	104,870	104,870	104,870	104,870
% of projected normal	100	100	100	100	100

Table 7-20. Projected Multiple Dry Year Period Ending in 2030 – ac-ft/yr

	2026	2027	2028	2029	2030
Total Demand	101,207	102,111	103,022	103,941	104,869
% of projected normal	100	100	100	100	100

Table 7-21. Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2030 – ac-ft/yr

	2026	2027	2028	2029	2030
Supply totals	104,870	104,870	104,870	104,870	104,870
Demand totals	101,207	102,111	103,022	103,941	104,869
Difference	3,663	2,759	1,848	929	1
Difference as % of Supply	3%	3%	2%	1%	0%
Difference as % of Demand	4%	3%	2%	1%	0%

SECTION 8 REFERENCES

- Burke, Jennifer, City of Santa Rosa. Personal Communication. October 27, 2006.
- California Department of Water Resources. 2004. California's Groundwater Bulletin 118-Update, North Coast Hydrologic Region, Lower Russian River Valley Groundwater Basin. February.
- California Department of Water Resources. 2003. California's Groundwater Bulletin 118-Update. October.
- California Department of Water Resources. 1982. Evaluation of Ground Water Resources in Sonoma County Volume 2: Santa Rosa Plain. DWR Bulletin 118-4.
- California Department of Water Resources. 1980. Groundwater Basins in California – A Report to the Legislature in Response to Water Code Section 12924. Bulletin 118 – 80. 73 p. January.
- California Irrigation Management Information System (CIMIS), 2004. www.cimis.com
- Cardwell, G.T. 1958. Geology and Ground Water in the Santa Rosa and Petaluma Valley Areas, Sonoma County, California, USGS Water Supply Paper 1427.
- Cardwell, G.T. 1965. Geology and Ground Water in Russian River Valley Areas and in Round, Laytonville and Little Lake Valleys, Sonoma and Mendocino Counties, California. USGS Water Supply Paper 1548.
- Dyett and Bhatia. 2000. City of Rohnert Park General Plan. July
- Ford, Robert. 1975. Evaluation of Ground Water Resources: Sonoma County, Volume 1: Geologic and Hydrologic Data. Department of Water Resources. State of California Resources Agency.
- Kunkel, Fred and Upson, J.E. 1960. Geology and Ground Water in Napa and Sonoma Valleys Napa and Sonoma Counties, California, USGS Water Supply Paper 1495.
- Maddaus Water Management. 2006. Memorandum, Draft Customer Water Demand Projections City of Cotati Summary of Data Inputs, Assumptions and Results. May 5.

Maddaus Water Management. 2005. Memorandum, Revised Customer Water Demand Projections
North Marin Water District Summary of Data Inputs, Assumptions and Results.
December 1.

Maddaus Water Management. 2005. Memorandum, Revised Customer Water Demand Projections
City of Petaluma Summary of Data Inputs, Assumptions and Results. November 23.

Maddaus Water Management. 2005. Memorandum, Revised Customer Water Demand Projections
Valley of the Moon Water Summary of Data Inputs, Assumptions and Results.
November 22.

Maddaus Water Management. 2005. Memorandum, Revised Customer Water Demand Projections
City of Rohnert Park Summary of Data Inputs, Assumptions and Results. November 7.

Maddaus Water Management. 2005. Memorandum, Revised Customer Water Demand Projections
Town of Windsor Summary of Data Inputs, Assumptions and Results. November 7.

Maddaus Water Management. 2005. Memorandum, Revised Customer Water Demand Projections
City of Sonoma Summary of Data Inputs, Assumptions and Results. November 6.

Maddaus Water Management. 2005. Memorandum, Revised Customer Water Demand Projections
City of Santa Rosa Summary of Data Inputs, Assumptions and Results. November 3.

Maddaus Water Management. 2005. Memorandum, Revised Customer Water Demand Projections
Forestville Water District Summary of Data Inputs, Assumptions and Results. November 3.

Murray, Chris. Personal Communication. 2006.

Sonoma County Water Agency. 2006. Restructured Agreement for Water Supply.

Sonoma County Water Agency. 2005a. Draft Sonoma Valley Recycled Water Feasibility Study.
Prepared on behalf of Sonoma County Sanitation District, Valley of the Moon Water
District, and City of Sonoma. January.

Sonoma County Water Agency. 2005b. Final MOU dated 06-21-05 Compared to Existing MOU dated 3-2-01. Memorandum of Understanding Regarding Water Transmission System Capacity Allocation During Temporary Impairment.

Sonoma County Water Agency. 2004a. Water Supply Workshop, Sonoma County Water Agency Staff Report. November.

Sonoma County Water Agency. 2004b. Groundwater Well Meter Readings. Document Received on August 4, 2005.

Sonoma County Water Agency. 2000a. Urban Water Management Plan 2000.

Sonoma County Water Agency. 1979. October 1979 Pump Test of Agency's Three Emergency Wells. Memorandum to Richard W. Norton from John Kunselman. File 60-1-6, dated December 16.

Todd Engineers. 2004. Groundwater Study for the Canon Manor West Subdivision Assessment District. June.

United States Geological Survey. 2006a. Geohydrological Characterization, Water-Chemistry, and Ground-Water Flow Simulation Model of the Sonoma Valley Area, Sonoma County, California. By Christopher D. Farrar, Loren F. Metzger, Tracy Nishikawa, Kathryn M. Koczot, and Eric G. Reichard. Scientific Investigations Report 2006-5092. In cooperation with the Sonoma County Water Agency

United States Geological Survey. 2006b. Geohydrology and Water Chemistry of the Alexander Valley, Sonoma County, California. By Loren F. Metzger, Christopher D. Farrar, Kathryn M. Koczot, and Eric G. Reichard (Scientific Investigations Report -2006-5115). In Cooperation with the Sonoma County Water Agency. July.

United States Geological Survey. 2002. Geologic Map and Map Database of Western Sonoma, Northernmost Marin, and Southernmost Mendocino Counties, California. By Blake, M.C., Jr., R.W. Groyer, and R.E. Stramski. Pamphlet to Accompany Miscellaneous Field Studies Map MF-2402, v.1.0.

Weber, Jack. 2006. Memorandum, Analysis of Historical Lawndale Water Use and Forecast to 2030. February 7.

Weber, Jack. 2006. Memorandum, Analysis of Historical Penngrove and Kenwood Water Use and Forecast to 2030. February 3.

Winzler and Kelly Consulting Engineers and Luhdorff and Scalmanini Consulting Engineers. 2005. City of Rohnert Park Water Supply Assessment. January.

APPENDIX A

**Urban Water Management Plan Outreach List, Announcements, Public Hearing Notice,
and Board of Directors' Resolution**

SONOMA COUNTY WATER AGENCY

MEMORANDUM

October 17, 2006

TO: Vikkie Borelli
Clerk of the Board

FROM: Jane Gutierrez
Executive Secretary

RE: PUBLISHING OF HEARING NOTICE - URBAN WATER MANAGEMENT PLAN

Please have the attached notice published on October 30, 2006 and November 6, 2006, in the appropriate newspaper.

Should you have any questions, please give me a call.

Attachment

NOTICE OF PUBLIC HEARING

URBAN WATER MANAGEMENT PLAN 2005 SONOMA COUNTY WATER AGENCY

The Board of Directors of the Sonoma County Water Agency will hold a public hearing at 10:00 a.m. on Tuesday, November 14, 2006, in the Board of Supervisors Chambers at the County Administration Building, 575 Administration Drive, Santa Rosa, California, for the purpose of receiving comments on the 2005 Urban Water Management Plan.

The plan is required by the Urban Water Management Planning Act, sections 10610 through 10653 of the California Water Code. Only those water suppliers who provide water to more than 3,000 customers or supply more than 3,000 acre-feet of water annually are required under the Act to prepare such a plan. The Sonoma County Water Agency (Agency) has prepared an Urban Water Management Plan (UWMP) every five years since 1985. The purpose of the UWMP is to consolidate regional information regarding water supply and demand, provide public information, and improve statewide water planning. The plan may be reviewed at the following locations:

Sonoma County Administration Building, Room 100A
575 Administration Drive, Santa Rosa, California

Sonoma County Water Agency
404 Aviation Blvd., Santa Rosa, California

On the Sonoma County Water Agency Web Page at
<http://www.sonomacountywater.org/>

Oral and written testimony will be taken at the meeting. Written comments may be submitted to the General Manager/Chief Engineer of the Sonoma County Water Agency, P.O. Box 11628, Santa Rosa, California, 95406, for receipt prior to the hearing.

SONOMA COUNTY WATER AGENCY

MEMORANDUM

November 14, 2006

TO: Vikkie Borelli
Clerk of the Board

FROM: Jane Gutierrez
Executive Secretary

RE: PUBLISHING OF HEARING NOTICE - URBAN WATER MANAGEMENT PLAN

Please have the attached notice published on November 20, 2006 and November 27, 2006, in the appropriate newspaper.

Should you have any questions, please give me a call.

Attachment

NOTICE OF PUBLIC HEARING

URBAN WATER MANAGEMENT PLAN 2005 SONOMA COUNTY WATER AGENCY

The Board of Directors of the Sonoma County Water Agency will hold a public hearing at ##:## a.m. on Tuesday, December 5, 2006, in the Board of Supervisors Chambers at the County Administration Building, 575 Administration Drive, Santa Rosa, California, for the purpose of receiving comments on the 2005 Urban Water Management Plan.

The plan is required by the Urban Water Management Planning Act, sections 10610 through 10653 of the California Water Code. Only those water suppliers who provide water to more than 3,000 customers or supply more than 3,000 acre-feet of water annually are required under the Act to prepare such a plan. The Sonoma County Water Agency (Agency) has prepared an Urban Water Management Plan (UWMP) every five years since 1985. The purpose of the UWMP is to consolidate regional information regarding water supply and demand, provide public information, and improve statewide water planning. The plan has been available since October 30, 2006 for review at the following locations:

Sonoma County Administration Building, Room 100A
575 Administration Drive, Santa Rosa, California

Sonoma County Water Agency
404 Aviation Blvd., Santa Rosa, California

On the Soma County Water Agency Web Page at
<http://www.sonomacountywater.org/>

Oral and written testimony will be taken at the meeting. Written comments may be submitted to the General Manager/Chief Engineer of the Sonoma County Water Agency, P.O. Box 11628, Santa Rosa, California, 95406, for receipt prior to the hearing.

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Sonoma County Administration Building, Room 100A
575 Administration Drive, Santa Rosa, California

Sonoma County Water Agency
404 Aviation Blvd., Santa Rosa, California

On the Sonoma County Water Agency Web Page at
<http://www.sonomacountywater.org/>

Oral and written testimony will be taken at the meeting. Written comments may be submitted to the General Manager/Chief Engineer of the Sonoma County Water Agency, P.O. Box 11628, Santa Rosa, California, 95406, for receipt prior to the hearing.

Notice of Public Hearing

Sonoma County Water Agency

Hearing Topic: 2005 Urban Water Management Plan

Date: December 5, 2006, 10 a.m.

Location: Board of Supervisors Chambers
Sonoma County Administration Building
575 Administration Dr., Room 102A
Santa Rosa, CA 95403-2887

The Sonoma County Water Agency Board of Directors will hold a hearing on December 5, 2006 at 10:00 a.m. to receive comments on the 2005 Draft Urban Water Management Plan (Plan). The purpose of the Plan is to consolidate regional information regarding water supply and demand, provide public information, and improve statewide water planning. The plan may be reviewed at the following locations:

Sonoma County Administration Building, Room 100A, 575
Administration Drive, Santa Rosa, CA

Sonoma County Water Agency, 404 Aviation Blvd.,
Santa Rosa, CA

On the Sonoma County Water Agency web page at
<http://www.sonomacountywater.org/>

Oral and written testimony will be taken at the hearing. Written comments may also be submitted to the General Manager/Chief Engineer of the Sonoma County Water Agency, PO Box 11628, Santa Rosa, CA 95406, for receipt prior to the hearing.



THE WITHIN INSTRUMENT IS A
CORRECT COPY OF THE ORIGINAL
ON FILE IN THIS OFFICE.

#58

Resolution No. 06-1092
County Administration Bldg.
Santa Rosa, CA

ATTEST: DEC 13 2006

EVEE T. LEWIS, County Clerk & ex-officio
Clerk of the Board of Directors of the
SONOMA COUNTY WATER AGENCY
BY [Signature]
DEPUTY CLERK

Date: December 12, 2006

RESOLUTION OF THE BOARD OF DIRECTORS OF THE SONOMA COUNTY
WATER AGENCY ADOPTING THE URBAN WATER MANAGEMENT PLAN 2005.

WHEREAS, the Urban Water Management Planning Act, California Water Code Section 10610 *et seq.*, requires that every urban water supplier directly or indirectly supplying water for municipal purposes to more than 3,000 customers prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the Sonoma County Water Agency staff, with the assistance of Agency consultants Brown and Caldwell, Maddaus Water Management, and Weber Analytical, has prepared an Urban Water Management Plan (UWMP 2005) for the Agency to meet the requirements of Urban Water Management Planning Act, in accordance with guidelines developed by the California Department of Water Resources; and

WHEREAS, Agency staff and consultants who prepared the UWMP 2005 have the training, experience, and expertise necessary to prepare a plan meeting the requirements of the Urban Water Management Planning Act; and

WHEREAS, the UWMP 2005 must be adopted after public review and a public hearing by the Agency's Board of Directors and must be filed with the Department of Water Resources; and

WHEREAS, the Agency has prepared a draft UWMP 2005, and commencing on October 30, 2006, made that draft UWMP 2005 available for public review, in compliance with the requirements of the Act; and

WHEREAS, the Agency has received written comments on the draft UWMP 2005 and, on December 5, 2006, held a duly noticed public hearing before this Board and received further oral and written comments; and

WHEREAS, Agency staff, Agency consultants, and the Board have reviewed and considered the oral and written comments made on the draft UWMP 2005, and the Board has reviewed and considered the final UWMP 2005, the Agency's staff reports, and the presentations by Agency staff and consultants; and

WHEREAS, by order of the Superior Court of the County of Sonoma, in *Westside Association to Save Agriculture v. Sonoma County Water Agency*, the Water Agency must adopt an updated Urban Water Management Plan no later than December 20, 2006; and

WHEREAS, the UWMP 2005 was prepared in accordance with, and meets the requirements of, the Urban Water Management Planning Act, and the facts, assumptions, and analyses in the UWMP 2005 are reasonable and supported by substantial evidence;

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Sonoma County Water Agency hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct.
2. The Urban Water Management Plan 2005 is hereby approved and adopted.
3. The General Manager/Chief Engineer is authorized and directed to provide a copy of UWMP 2005 to the Department of Water Resources and otherwise as required by Water Code section 10644(a).

DIRECTORS:

SMITH _____ REILLY _____ BROWN _____ KERNS _____ KELLEY _____

Ayes 5 Noes _____ Absent _____ Abstain _____

SO ORDERED.

KEY	FIRST NAME	LAST NAME	TITLE	ORGANIZATION	ADDRESS	CITY	STATE	ZIP
Water Districts	Miles	Ferris	Utilities Director	City of Santa Rosa	69 Stony Circle	Santa Rosa	CA	95401
Water Districts	Chris	DeGabriele	General Manager	North Marin Water District	PO Box 146	Novato	CA	94943
Water Districts	Krishna	Kumar	General Manager	Valley of the Moon Water District	PO Box 280	El Verano	CA	95433
Water Districts	Paul	Helliker	General Manager	Marin Municipal Water District	220 Nellen Avenue	Corte Madera	CA	94925
Water Districts	George	Roberts	General Manager	Forestville Water District	PO Box 261	Forestville	CA	95436
Water Districts	Darin	McCosker	General Manager	Redwood Valley County Water District	PO Box 399	Redwood Valley	CA	95470
Water Districts	Barbara	Spazek	General Manager	Mendocino County Russian River Flood Cor	151 Laws Avenue	Ukiah	CA	95482
Water Districts	Roland	Sanford	General Manager	Mendocino County Water Agency	501 Low Gap Road, Room 108	Ukiah	CA	95482
CITIES - SONOMA	Vincent	Long	City Manager	City of Cloverdale	PO Box 217	Cloverdale	CA	95425
CITIES - SONOMA	Terry	Stubbings	City Manager	City of Cotati	201 West Sierra Avenue	Cotati	CA	94931
CITIES - SONOMA	Chet	Wystepek	City Manager	City of Healdsburg	401 Grove Street	Healdsburg	CA	95448
CITIES - SONOMA	Michael	Bierman	City Manager	City of Petaluma	PO Box 61	Petaluma	CA	94953
CITIES - SONOMA	Stephen	Donley	City Manager	City of Rohnert Park	6750 Commerce Blvd.	Rohnert Park	CA	94928
CITIES - SONOMA	Jeffrey	Kolin	City Manager	City of Santa Rosa	PO Box 1678	Santa Rosa	CA	95402
CITIES - SONOMA	David	Brennan	City Manager	City of Sebastopol	PO Box 1776	Sebastopol	CA	95473
CITIES - SONOMA	Michael	Fuson	City Manager	City of Sonoma	City Hall No. 1 The Plaza	Sonoma	CA	95476
CITIES - SONOMA	J. Matthew	Mullan	Town Manager	Town of Windsor	PO Box 100	Windsor	CA	95492
OTHER	Herb	Niederberger	Manager	Cal-American Water Company	640 Larkfield Center	Santa Rosa	CA	95403
OTHER	Jim	Geib	President	Lawndale Mutual Water Company	PO Box 221	Kenwood	CA	95452
OTHER	Karen	Ball	Manager	Penngrove/Kenwood Water Company	4984 Sonoma Hwy	Santa Rosa	CA	95409
COUNTIES	Bob	Deis	County Administrator	County of Sonoma	575 Administration Drive	Santa Rosa	CA	95403
COUNTIES	Matthew	Hymel	County Administrator	County of Marin	3501 Civic Center Drive	San Rafael	CA	94903
COUNTIES	John	Ball	Chief Executive Officer	County of Mendocino	501 Low Gap Road, Room 101	Ukiah	CA	95482
CITIES - MARIN	George	Roderick	City Manager	City of Belvedere	450 San Rafael Avenue	Belvedere	CA	94920-2336
CITIES - MARIN	Jay	Tashiro	Town Manager	Town of Corte Madera	300 Tamalpais Drive	Corte Madera	CA	94925
CITIES - MARIN	--	--	Town Manager	Town of Fairfax	142 Bolinas Road	Fairfax	CA	94930
CITIES - MARIN	Jean	Bonander	City Manager	City of Larkspur	400 Magnolia Avenue	Larkspur	CA	94939
CITIES - MARIN	Anne	Montgomery	City Manager	City of Mill Valley	26 Corte Madera Avenue	Mill Valley	CA	94941
CITIES - MARIN	Daniel	Keen	City Manager	City of Novato	75 Rowland Way, #200	Novato	CA	94945
CITIES - MARIN	Gary	Broad	Town Manager	Town of Ross	Box 320	Ross	CA	94957
CITIES - MARIN	Debra	Stutsman	Town Manager	Town of San Anselmo	525 San Anselmo Avenue	San Anselmo	CA	94960-2682
CITIES - MARIN	Ken	Nordhoff	City Manager	City of San Rafael	1400 5th Avenue, Box CA 151	San Rafael	CA	94915-3070
CITIES - MARIN	Dana	Whitson	City Manager	City of Sausalito	420 Litho Street	Sausalito	CA	94965
CITIES - MARIN	Heidi	Bigall	Town Manager	Town of Tiburon	1505 Tiburon Boulevard	Tiburon	CA	94920
CITIES - MENDOCINO	Candace	Horsley	City Manager	City of Ukiah	300 Seminary Avenue	Ukiah	CA	95482

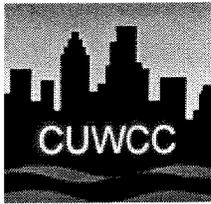
ADDRESS CORRECTIONS ENTERED 11/14/06

FIRST NAME	LAST NAME	ORGANIZATION	ADDRESS	CITY	STATE	ZIP		
CHAMBERS OF COMMERCE								
Larry	Wasem	Airport Business Center	414 Aviation Blvd	Santa Rosa	CA	95403		707-578-3140
Judy	Boyce	Cloverdale Chamber of Commerce	PO Box 356	Cloverdale	CA	95425-0356		707-894-9568
John C.	Moore	Cotati Chamber of Commerce	PO Box 592	Cotati	CA	94931	707-795-5508	707-795-5868
Karen	Bucholtz	Fairfax Chamber of Commerce	PO Box 1111	Fairfax	CA	94978	415-485-5304	415-485-5278
President		Forestville Chamber of Commerce	PO Box 546	Forestville	CA	95436-0546		
Jean	Dix	Geyserville Chamber of Commerce	PO Box 276	Geyserville	CA	95441-0276		
Herb	Liberman	Healdsburg Chamber of Commerce	217 Healdsburg Ave	Healdsburg	CA	95448		707-433-8244
Nellie	Gamez	Hispanic Chamber of Commerce	PO Box 11392	Santa Rosa	CA	95406-1392		
Cecilia	Zamora	Hispanic Chamber of Commerce Marin	PO Box 4423	San Rafael	CA	94913	707-492-4420	707-479-4587
Donna	Craft	Larkspur Chamber of Commerce	PO Box 315	Larkspur	CA	94977	415-925-0759	415-925-0759
Patricia	Morelli	Mark West Area Chamber of Comm.	642 Larkfield Center	Santa Rosa	CA	95403-1458		707-578-0397
Kathy	Severson	Mill Valley Chamber of Commerce	PO Box 5123	Mill Valley	CA	94942	707-388-9700	707-388-9770
President		Monte Rio Chamber of Commerce	PO Box 220	Monte Rio	CA	95462-0220	707-865-1533	707-865-2188
Coy	Smith	Novato Chamber of Commerce	807 DeLong Ave	Novato	CA	94945		415-898-9097
Mike	Maddalena	Petaluma Area Chamber of Commerce	1050 Petaluma Blvd N	Petaluma	CA	94952	707-763-4188	
Marketing Director		Redwood Coast Chamber of Comm.	PO Box 199	Gualala	CA	95445-0199	707-884-4386	
Carla	Howell	Rohnert Park Chamber of Commerce	6050 Commerce Blvd Suite 211	Rohnert Park	CA	94928	707-584-1415	707-584-2945
Connie	Rodgers	San Anselmo Chamber of Commerce	PO Box 2844	San Anselmo	CA	94979	707-454-2510	707-258-9458
Rob	Franco	Sausalito Chamber of Commerce	29 Caledonia St	Sausalito	CA	94965	415-331-7262	415-332-0323
Teresa	Ramondo	Sebastopol Chamber of Commerce	PO Box 178	Sebastopol	CA	95473-0178	707-823-3032	707-823-8439
Jennifer	Yankovich	Sonoma Valley Chamber of Commerce	651-A Broadway	Sonoma	CA	95476		707-996-9402
Janice	Marzlin	SR Chamber of Commerce	2264 Knolls Hills Circle	Santa Rosa	CA	95405	575-4656	
Georgia	Kirchmaier	Tiburon Peninsula Chamber of Commerce	96-B Main St	Tiburon	CA	94920	415-435-5633	415-435-1132
Gary	Howell	Windsor Chamber of Commerce	PO Box 367	Windsor	CA	95492-0367	707-838-7285	707-838-2778
TRADE ORGANIZATIONS								
Amanda S.	Danchi	AIA Redwood Empire Chapter	PO Box 4178	Santa Rosa	CA	95402-4178		707-838-2672
Kay M.	Marquet	Community Foundation Sonoma County	250 D Street Suite 205	Santa Rosa	CA	95404-4773	707-579-4073	707-579-4801
Josie	Gay	Heart of Sonoma Valley Association	PO Box 1891	Glen Ellen	CA	95442-1891		
Charles	Carson	Home Builders Association/No California	PO Box 7100	Santa Rosa	CA	95407-0100	707-544-7100	707-544-7180
Craig A.	Suiteele	International Facility Management Association	1285 Wikiup Drive	Santa Rosa	CA	95403-1302	707-953-1100	707-577-6765
Fran	Miller	Nat'l Association of Women in Construction	9411 Mill Station Road	Sebastopol	CA	95472	707-526-4500	
Lorena	Fisher	No California Engineering Control Association	PO Box 8249	Santa Rosa	CA	95407-1249	707-546-5500	707-546-5507
Kathy	Hayes	North Bay Association of Realtors	131A Stony Circle Suite 850	Santa Rosa	CA	95401-3515	707-522-8169	707-542-1008
Cynthia	Murray	North Bay Council	330 Ignacio Blvd Suite 101	Novato	CA	95949		
Keith	Woods	North Coast Builders Exchange	PO Box 8070	Santa Rosa	CA	95407-1070	707-542-9502	707-542-2027
Nanci	Burton	Sierra West Prop Management	PO Box 12172	Santa Rosa	CA	95406-2172	707-576-0700	707-569-9855
Lisa F.	Schaffner	Sonoma County Alliance	PO Box 1842	Santa Rosa	CA	95402-1842	707-525-8377	707-545-7014
Lex	McCorvey	Sonoma County Farm Bureau	970 Piner Road	Santa Rosa	CA	95403	707-544-5575	707-544-7452
President		Sonoma County Forum	PO Box 6142	Santa Rosa	CA	95406-0142	707-525-1939	
Judy	Goverman-Walker	Sonoma County Lodging Association	PO Box 6181	Santa Rosa	CA	95406-0181	707-523-3728	
President		Sonoma County MLS	153 Stony Circle	Santa Rosa	CA	95401	707-575-8000	707-577-0140
Kenneth J.	Fischang	Sonoma County Tourism Bureau	Via Courier				707-522-5804	707-539-7252
Nicholas	Frey	Sonoma County Winegrape Comm.	420 Aviation Blvd Suite 106	Santa Rosa	CA	95403-1039	707-522-5861	707-522-5866
Bob	Anderson	United Winegrowers	PO Box 382	Santa Rosa	CA	95402-0382		

FIRST NAME	LAST NAME	ORGANIZATION	ADDRESS	CITY	STATE	ZIP		
CBO'S AND NON-PROFITS								
John	Lowry	Burbank Housing Dev Corp	790 Sonoma Avenue	Santa Rosa	CA	95404		707-526-9811
Christine	Yaeger	Circuit Rider Productions	9619 Old Redwood Hwy	Windsor	CA	95492	838-6641	
Executive Director		Committee on the Shelterless	210 Fourth Street	Petaluma	CA	94952	765-6530	
Kevin	McEnnes	Community Alliance w/Family Farmers	PO Box 2575	Sebastopol	CA	95473-2575		
Melissa	KeSuiter	Community Foundation Sonoma County	250 D Street Suite 205	Santa Rosa	CA	95404-4774		707-579-4801
Carolyn	Wall	Community Support Network (CSN)	1430 Guerneville Road Suite 1	Santa Rosa	CA	95403		707-577-8347
Kit	Hanley	Friends Outside in Sonoma County	PO Box 3905	Santa Rosa	CA	95402-3905	291-5683	
Diane R.	Estrin	Habitat for Humanity of Sonoma County	1301 Farmers Lane Suite 303	Santa Rosa	CA	95405		707-578-7706
Executive Director		Jewish Family & Children's Services	1360 North Dutton Avenue Suite	Santa Rosa	CA	95401		
Executive Director		La Luz Bilingual Center	17790 Greger Street	Sonoma	CA	95476		
Yvonne	Cornelius	North Bay Association of Realtors	131A Stony Circle Suite 850	Santa Rosa	CA	95401-3515	707-522-8171	707-542-1008
Executive Director		Sonoma Valley Community Health Center	430 W Napa Street Suite F	Sonoma	CA	95476	707-939-6070	
Eunice	Valentine	Volunteer Center of Sonoma	153 Stony Circle Suite 100	Santa Rosa	CA	95401	707-573-3399	707-573-3380
ENVIRONMENTAL ORGANIZATIONS								
Executive Director		Sonoma County Conservation Action	540 Pacific Avenue	Santa Rosa	CA	95404		
Veronica	Bowers	Madrone Audubon Society	Post Office Box 1911	Santa Rosa	CA	95402		
Richard	Dale	Sonoma Ecology Center	20 E. Spain Street	Sonoma	CA	95476		707-996-2452
Dan	Schurman	Laguna de Santa Rosa Foundation	2150 W. College Avenue	Santa Rosa	CA	95401		
H. R.	Downs	O.W.L. Foundation	1390 N. McDowell Blvd., Suite C	Petaluma	CA	94954		
Jane	Nielson	Sebastopol Water Information Group	3727 Burnside Road	Sebastopol	CA	95472		
Grant	Davis	The Bay Institute	500 Palm Drive	Novato	CA	94949		
Director		Friends of the Eel River	PO Box 2305	Redway	CA	95560		
Brenda	Edelman	Russian River Watershed Protection Committee	PO Box 501	Guerneville	CA	95446		
President		Sierra Club/Sonoma County	684 Benicia Drive #52	Santa Rosa	CA	95409		
Alisha	Deen	Environmental Justice Coalition for Water	1010 11th Street, Suite 305	Sacramento	CA	95814		
Jennifer	Martin	The Nature Conservancy	201 Mission Street, 4th Floor	San Francisco	CA	94105		
Stephan	Volker	Westside Association to Save Agriculture	436 14th Street, Suite 1300	Oakland	CA	94612		
STATEWIDE ORGANIZATIONS								
Zeke	Grader	Pacific Coast Federation of Fishermen's Association	PO Box 29370	San Francisco	CA	94129-0370		
Brian	Stranko	Cal Trout	870 Market Street, Suite 528	San Francisco	CA	94102		

APPENDIX B

Best Management Practices Report Filing



Best Management Practices Report Filing

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

Reporting Unit:
Sonoma County Water Agency

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

You are viewing coverage for:

BMP 03
03-04

◀ **YRs** ▶
DN - UP

◀ **BMPs** ▶
DN - UP

Memorandum of Understanding

Back to Coverage Reports List

An agency must meet one of two conditions to be in compliance with BMP 3:

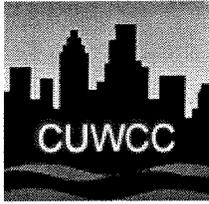
Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

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	100.0%	No	YES
2000	99-00	YES	100.0%	No	YES
2001	01-02	YES	98.2%	No	NO
2002	01-02	YES	98.2%	No	NO
2003	03-04	YES	96.5%	No	NO
2004	03-04	YES	103.2%	No	NO

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Best Management Practices Report Filing

BMP 07 Coverage: Public Information Programs

Reporting Unit:

Sonoma County Water Agency

You are viewing coverage for:

BMP 07
03-04

◀ **YRs** ▶
DN - UP

◀ **BMPs** ▶
DN - UP

Memorandum of Understanding

Back to Coverage Reports List

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

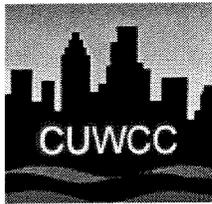
An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 7 Implementation Year</u>	<u>RU Has Public Information Program?</u>
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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BMP 08
03-04



**Memorandum of
Understanding**

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Coverage
Reports List**

Best Management Practices Report Filing

BMP 08 Coverage: School Education Programs

Reporting Unit:

Sonoma County Water Agency

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

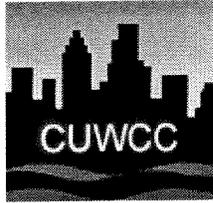
An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

Test for Condition 1

<u>Year</u>	<u>Report Period</u>	<u>BMP 8 Implementation Year</u>	<u>RU Has School Education Program?</u>
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

BMP 11 Coverage: Conservation Pricing
Reporting Unit: Sonoma County Water Agency

You are viewing coverage for:

BMP 11
03-04

◀ **YRs** ▶
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Memorandum of Understanding

Back to Coverage Reports List

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.

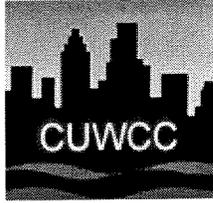
a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates); rates that involve charging customers a fixed amount per 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	<u>RU Meets BMP 11 Coverage Requirement</u>
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: Sonoma County Water Agency

You are viewing coverage for:

BMP 12
03-04

◀ **YRs** ▶
DN - UP

◀ **BMPs** ▶
DN - UP

Memorandum of Understanding

Back to Coverage Reports List

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

Report Year	Report Period	Conservation Coordinator Position Staffed?	Total Staff on Team (incl. CC)
1999	99-00	NO	2
2000	99-00	YES	6
2001	01-02	YES	7
2002	01-02	YES	7
2003	03-04	YES	12
2004	03-04	YES	12

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Webmaster

Water Supply & Reuse

Reporting Unit:

Sonoma County Water Agency

Year:

2003

Water Supply Source Information

Supply Source Name	Quantity (AF) Supplied	Supply Type
Russian River	59440	Local Watershed
3 Wells	3358	Groundwater

Total AF: 62798

Purchaser Information

Name of Agency	Quantity (AF) Supplied	Retailer or Wholesaler
City of Santa Rosa	22307	retail
North Marin Water District	7910	retail
City of Petaluma	10772	retail
City of Rohnert Park	2601	retail
Valley of the Moon Water District	2879	retail
City of Sonoma	2533	retail
City of Cotati	918	retail
Forestville Water District	517	retail
Marin Municipal Water District	8311	retail
Other	1859	retail

Total AF: 60607

Reported as of 11/1

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit:	BMP Form Status:	Year:
Sonoma County Water Agency	100% Complete	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) | 60606.5 |
| b. Determine other system verifiable uses (AF) | 0 |
| c. Determine total supply into the system (AF) | 62798.04 |
| d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. | 0.97 |
| 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? | no |
| a. If yes, describe the leak detection program: | |

B. Survey Data

- | | |
|--|------|
| 1. Total number of miles of distribution system line. | 89.4 |
| 2. Number of miles of distribution system line surveyed. | 89.4 |

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
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 07: Public Information Programs

Reporting Unit: **Sonoma County Water Agency** 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.

see 2002 program description

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	15
b. Public Service Announcement	yes	10
c. Bill Inserts / Newsletters / Brochures	yes	1
d. Bill showing water usage in comparison to previous year's usage	no	
e. Demonstration Gardens	no	
f. Special Events, Media Events	yes	2
g. Speaker's Bureau	yes	2
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	85550	95500
2. Actual Expenditures	94049	

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

2a. is the number of invoices 2f. ch 50 live remote at yardbids, and at fair

Reported as of 11/1

BMP 08: School Education Programs

Reporting Unit: **Sonoma County Water Agency** 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	0	0	0
Grades 4th-6th	yes	0	0	0
Grades 7th-8th	yes	0	0	0
High School	yes	0	0	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 9/1/1988

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	350500	355000
2. Actual Expenditures	345515	

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

Beginning with the 2003 reporting period, retail water agencies are reporting SCWA school education program information except budget.

Reported as of 11/1

BMP 10: Wholesale Agency Assistance Programs

Reporting Unit: **Sonoma County Water Agency** BMP Form Status: **100% Complete** Year: **2003**

A. Implementation

1. Financial Support by BMP

BMP	Financial Incentives Offered?	Budgeted Amount	Amount Awarded	BMP	Financial Incentives Offered?	Budgeted Amount	Amount Awarded
1	yes	186400	43213	8	No		
2	yes	3000	5328	9	yes	72500	48266
3	yes	60000	83070	10	No		
4	yes	24000	51487	11	yes	4500	58213
5	yes	69500	72826	12	yes	101101	158332
6	yes	149390	159625	13	yes	12200	4086
7	yes	102000	86537	14	yes	731134	368690

2. Technical Support

- a. Has your agency conducted or funded workshops addressing CUWCC procedures for calculating program savings, costs and cost-effectiveness? No
- b. Has your agency conducted or funded workshops addressing retail agencies' BMP implementation reporting requirements? No
- c. Has your agency conducted or funded workshops addressing:
- 1) ULFT replacement yes
 - 2) Residential retrofits No
 - 3) Commercial, industrial, and institutional surveys yes
 - 4) Residential and large turf irrigation yes
 - 5) Conservation-related rates and pricing No

3. Staff Resources by BMP

Qualified Staff	No. FTE Staff	Qualified Staff	No. FTE Staff
-----------------	---------------	-----------------	---------------

BMP	Available for BMP?	Assigned to BMP	BMP	Available for BMP?	Assigned to BMP
1	yes	.5	8	yes	2.5
2	No	0	9	yes	2
3	No	0	10	yes	2
4	No	0	11	No	0
5	yes	1	12	yes	1
6	yes	.5	13	No	0
7	yes	1	14	yes	1

4. Regional Programs by BMP

BMP	Implementation/ Management Program?	BMP	Implementation/ Management Program?
1	No	8	yes
2	No	9	yes
3	No	10	yes
4	No	11	No
5	yes	12	yes
6	yes	13	No
7	yes	14	No

B. Wholesale Agency Assistance Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	5000000	5000000
2. Actual Expenditures	5010000	

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

budget includes 7247 and LRT2

Reported as of 11/1

BMP 11: Conservation Pricing

Reporting Unit:
Sonoma County Water Agency

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
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

2. Commercial

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

3. Industrial

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

4. Institutional / Government

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

5. Irrigation

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

6. Other

- a. Water Rate Structure Uniform
- b. Sewer Rate Structure Service Not Provided
- c. Total Revenue from Volumetric Rates \$23563584

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

Reported as of 11/1

BMP 12: Conservation Coordinator

Reporting Unit: **Sonoma County Water Agency** 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 Lynn Hulme
 - c. Coordinator's Title Water Conservation Coordinator
 - d. Coordinator's Experience and Number of Years 19 years of water conservation experience
 - e. Date Coordinator's position was created (mm/dd/yyyy) 6/7/1999
6. Number of conservation staff, including Conservation Coordinator. 12

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	182000	182000
2. Actual Expenditures	178485	

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

staff = 1 cord, 4 wc, 2-1/2 ed, 1 pi, 3 intern budget = cord salary + oh

Reported as of 11/1

Water Supply & Reuse

Reporting Unit:

Sonoma County Water Agency

Year:

2004

Water Supply Source Information

Supply Source Name	Quantity (AF) Supplied	Supply Type
Russian River	63681	Local Watershed
3 Production Wells	5140	Groundwater

Total AF: 68821

Purchaser Information

Name of Agency	Quantity (AF) Supplied	Retailer or Wholesaler
City of Santa Rosa	24421	retail
North Marin Water District	9498	retail
City of Petaluma	11294	retail
City of Rohnert Park	4710	retail
Valley of the Moon Water District	3157	retail
City of Sonoma	2611	retail
City of Cotati	1071	retail
Forestville Water District	537	retail
Marin Municipal Water District	7792	retail
Other	1466	retail

Total AF: 66557

Reported as of 11/1

BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit: **Sonoma County Water Agency** 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) 66349
 - b. Determine other system verifiable uses (AF) 0
 - c. Determine total supply into the system (AF) 68821
 - d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. 0.96
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:

Every year we walk the entire length of pipeline to look for evidence of water losses.

B. Survey Data

1. Total number of miles of distribution system line. 89.4
2. Number of miles of distribution system line surveyed. 89.4

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
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 07: Public Information Programs

Reporting Unit: **Sonoma County Water Agency** 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.

see 2002 program description

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	14
b. Public Service Announcement	yes	10
c. Bill Inserts / Newsletters / Brochures	no	
d. Bill showing water usage in comparison to previous year's usage	no	
e. Demonstration Gardens	no	
f. Special Events, Media Events	yes	2
g. Speaker's Bureau	yes	3
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	95500	97500
2. Actual Expenditures	94630	

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 SCWA 2004 BMP file for program and expenditure details.

Reported as of 11/1

BMP 08: School Education Programs

Reporting Unit:
Sonoma County Water Agency

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	0	0	0
Grades 4th-6th	yes	0	0	0
Grades 7th-8th	yes	0	0	0
High School	yes	0	0	0

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 9/1/1988

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	355000	375000
2. Actual Expenditures	373987	

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

These numbers are from the 2003 - 2004 school year. Number of students reached includes both direct instruction and education materials requested and distributed to classrooms.

Reported as of 11/1

BMP 10: Wholesale Agency Assistance Programs

Reporting Unit: **Sonoma County Water Agency** BMP Form Status: **100% Complete** Year: **2004**

A. Implementation

1. Financial Support by BMP

BMP	Financial Incentives Offered?	Budgeted Amount	Amount Awarded	BMP	Financial Incentives Offered?	Budgeted Amount	Amount Awarded
1	yes	75473	59458	8	No		
2	yes	13960	9608	9	yes	82893	49669
3	yes	82962	250353	10	No		
4	yes	51487	80705	11	yes	0	4399.49
5	yes	86541	76028	12	yes	182403	325972
6	yes	152475	226650	13	yes	411	2930
7	yes	76291	144171	14	yes	365678	206890

2. Technical Support

- a. Has your agency conducted or funded workshops addressing CUWCC procedures for calculating program savings, costs and cost-effectiveness? No
- b. Has your agency conducted or funded workshops addressing retail agencies' BMP implementation reporting requirements? yes
- c. Has your agency conducted or funded workshops addressing:
 - 1) ULFT replacement yes
 - 2) Residential retrofits No
 - 3) Commercial, industrial, and institutional surveys yes
 - 4) Residential and large turf irrigation yes
 - 5) Conservation-related rates and pricing No

3. Staff Resources by BMP

Qualified Staff	No. FTE Staff	Qualified Staff	No. FTE Staff
-----------------	---------------	-----------------	---------------

BMP	Available for BMP?	Assigned to BMP	BMP	Available for BMP?	Assigned to BMP
1	yes	.5	8	yes	2.5
2	yes	.5	9	yes	1.5
3	No	0	10	yes	1.5
4	No	0	11	No	0
5	yes	2	12	yes	1
6	yes	.5	13	No	0
7	yes	1.5	14	yes	.5

4. Regional Programs by BMP

BMP	Implementation/ Management Program?	BMP	Implementation/ Management Program?
1	No	8	yes
2	No	9	yes
3	No	10	yes
4	No	11	No
5	yes	12	yes
6	yes	13	No
7	yes	14	No

B. Wholesale Agency Assistance Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	5000000	2894697
2. Actual Expenditures	4417641	

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

budget includes 7247 and LRT2 (see my file)

Reported as of 11/1

BMP 11: Conservation Pricing

Reporting Unit:
Sonoma County Water Agency

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
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

2. Commercial

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

3. Industrial

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

4. Institutional / Government

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

5. Irrigation

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

6. Other

- a. Water Rate Structure Uniform
- b. Sewer Rate Structure Service Not Provided
- c. Total Revenue from Volumetric Rates \$26482855

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

Reported as of 11/1

BMP 12: Conservation Coordinator

Reporting Unit: **Sonoma County Water Agency** 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 ?
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 Lynn Hulme
 - c. Coordinator's Title Water Conservation Coordinator
 - d. Coordinator's Experience and Number of Years 20 years of water conservation experience
 - e. Date Coordinator's position was created (mm/dd/yyyy) 6/7/1999
6. Number of conservation staff, including Conservation Coordinator. 12

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	182000	220284
2. Actual Expenditures	193827	

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

staff = 1 cord, 4 spec, 2-1/2 ed, 3 intens budget = cord salary +oh

Reported as of 11/1

APPENDIX C

Water Shortage Contingency Analysis

WATER SHORTAGE CONTINGENCY ANALYSIS

This water shortage contingency analysis contains the elements required by Water Code section 10632, including actions in the event of a water shortage, information on the estimated three-year minimum water supply, information on emergency preparedness and plans for catastrophic events, prohibitions, penalties, and consumption reduction methods, revenue impacts caused by reduced water sales during shortages, and a shortage contingency resolution and mechanisms for determining actual reductions in use during a shortage.

As a water wholesaler, the Agency does not have the ability to impose use restrictions or other requirements directly on end users of water in the event of a shortage; such actions must be taken by the Agency's wholesale customers. Accordingly, this water shortage contingency analysis is limited to those actions that the Agency can take vis-à-vis its wholesale customers in the event of a water shortage.

The minimum water supply available during the next few years during a multiple year drought is presented in Table 7-7 of the Agency's 2005 urban water management plan. No supply reduction is projected under this scenario. Therefore, DWR Table 24 is not included.

Stages of Action to be Taken in Response to Water Supply Shortages (Water Code §10632(a))

Section 3.5(a) of the Restructured Agreement for Water Supply describes the manner in which the Agency is to allocate water to its customers in the event of a water supply shortage, and section 3.5(b) of the Restructured Agreement describes the manner in which the Agency is to allocate water to its customers in the event of a temporary impairment of the capacity of some or all of the Agency's transmission system. Section 3.5(d) of the Restructured Agreement requires the Agency to "have an adopted water shortage allocation methodology sufficient to inform each Customer of the water that would be available to it pursuant to Section 3.5(a) in the event of reasonably anticipated shortages, which methodology shall be consistent with this Section 3.5 and shall be included in the Urban Water Management Plan prepared pursuant to Section 2.7."

"This is a draft report and is not intended to be a final representation of the work done or recommendations made by Brown and Caldwell. It should not be relied upon; consult the final report."

On April 18, 2006, the Agency's Board of Directors adopted Resolution No. 06-0342, which approved a water allocation methodology developed by the Agency and its water contractors. Resolution No. 06-0342 recognized that the methodology could be modified in the future as additional data regarding customer demands, local supply, and recycled water became available.

In addition, the Agency's water rights permits contain a term requiring the Agency to impose "a mandatory thirty percent deficiency in deliveries from the Russian River ... whenever the quantity water in storage at Lake Sonoma drops below 100,000 acre-feet before July 15 of any year." The deficiency remains in effect until (1) storage in Lake Sonoma is greater than 70,000 AF by December 31 of the same year (2) the Agency has demonstrated to the Chief, Division of Water Rights, that storage in Lake Sonoma will not fall below 70,000 ac-ft or (3) hydrologic conditions result in sufficient flow to satisfy the Agency's demands at Wohler and Mirabel Park and minimum flow requirements in the Russian River at Guerneville.

One of the most important functions provided by the Agency is to monitor water supply conditions to gauge the likelihood of water shortages so that the Agency's wholesale customers will be prepared to respond to the shortages. The Agency constantly monitors the reservoir levels at Lake Pillsbury, Lake Mendocino, and Lake Sonoma, and estimates flows in and out of those reservoirs, as well as natural flows into and diversions from the Russian River and Dry Creek. By using this data as well as historical data regarding water use in different climactic conditions, the Agency can obtain an idea of when a water shortage may be imminent. As noted in Section 7 of the Agency's urban water management plan, however, except in a critically dry year, the Agency's water supplies are sufficient to meet its transmission system demands.

If it appeared that a water supply shortage might occur, the Agency's first stage of action would be to notify its contractors and customers, and the general public, of that possibility. Depending on the severity of the shortage, the Agency would work with its contractors and customers to encourage voluntary demand reduction measures. The Agency would also encourage its contractors and other customers to maximize use of local water supplies. Finally, the Agency would take steps to publicize the potential shortage, and to encourage agricultural and non-Agency-related diverters from the Russian River and Dry Creek to reduce diversions to the extent possible.

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If these voluntary measures were insufficient, or if climactic conditions (or the 30% cutback provision in the Agency’s water rights permits) were likely to lead to a situation in which transmission system demands would exceed the Agency’s available water supply, the Agency would then calculate the amount of water available to its contractors, other Agency customers, Russian River Diverters, and MMWD under existing contractual provisions, including Section 3.5 of the Restructured Agreement, by using the then-existing allocation methodology adopted pursuant to Section 3.5(d) of the Restructured Agreement. In the event of a severe water supply shortage, the Agency could also petition the State Water Resources Control Board for temporary relief from the minimum instream flow requirements in the Russian River and Dry Creek, in order to conserve the remaining water supply in Lake Sonoma and Lake Mendocino. Table 1 presents the stages of action.

Table 1. (DWR Table 23) Water Supply Shortage Stages and Conditions

Stages of Action		
Stage No.	Water Supply Conditions	% Shortage
1	Total system storage and rate of decline and Agency customer demands	0-10
2	Total system storage and rate of decline and Agency customer demands	10 to 65

Under the allocation methodology currently adopted by the Agency, in the event of a 50% cutback in the Agency’s water supply, the amounts allocated to contractors and others would be as presented in Table 2 (assumes available supply is 39,435 ac-ft, which is 50% of the sum of 75,000 ac-ft of Russian River diversions plus 3,870 ac-ft of groundwater production):

Table 2. Allocations

Regular Customers	Allocation, ac-ft/yr
Cotati	681
Petaluma	6,080
Rohnert Park	2,872
Sonoma	1,239
Windsor (From Transmission System)	312
North Marin Water District (MMWD)	4,707
Santa Rosa	16,661
Valley of the Moon Water District	2,128
Other Agency Customers	940
Sub-Total	35,619
Marin Municipal Water District	666
Russian River Customers (includes Windsor direct diversions)	3,150
Total	39,435

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Catastrophic Supply Interruption Plan - Water Code Section 10632 (c)

In accordance with the Emergency Services Act has developed an Emergency Operation Plan (EOP). The EOP guides response to unpredicted catastrophic events that might impact water delivery. The EOP outlines standard operating procedures for all levels of emergency, from minor accidents to major disasters and are coordinated with the water contractors EOPs. Table 3 summarizes the some of the actions in the event of specific catastrophic events.

Table 3. (DWR Table 25) Preparation Actions for a Catastrophe

Possible Catastrophe	Summary of Actions
Earthquake	Shut-off isolation valves and above ground use of flexible piping for ruptured mains
Toxic Spills	Use of groundwater wells
Fire	Storage supplies for fire flows
Power outage or grid failure	Portable and emergency generators available for most Agency facilities
Severe Winter Storms	Portable and emergency generators available for most Agency facilities
Hot Weather	Portable and emergency generators available for most Agency facilities

Prohibitions, Penalties, and Consumption Reduction (Water Code §10632(d)-(f))

As noted earlier, as a wholesale supplier, the Agency has no ability to directly restrict the use of water by end users, or to impose financial penalties on end users for excessive use. However, under the Restructured Agreement, the Agency has a number of methods available to it to ensure that its contractors do not use more than the amount of water allocated by the Agency during a time of shortage.

Under Section 3.5(e) of the Restructured Agreement, a contractor taking more than its allocated amount of water during a shortage is subject to a liquidated damages surcharge equal to 50% of the then-current operations and maintenance charge for each acre-foot of water taken by the contractor in excess of its allocation. Section 3.5(e) also reserves to the Agency all other rights it may have to limit contractors and other customers to their allocated amounts, including physically limiting the quantity of water taken to the amounts allocated, and pursuing all other available legal and equitable remedies applicable to such violations. Finally, Section 3.5(e) allows the Water Advisory Committee to request that the Agency physically limit the quantity of water taken by a Regular Customer to the

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amounts authorized by Section 3.5, or pursue all other available legal and equitable remedies applicable to such violations.

In addition to these methods of reducing consumption, Agency contractors have ordinances placing limitations on the uses of water by end customers in the event of a water shortage. These ordinances were developed in consultation with the Agency and are described in detail in the contractor’s individual Urban Water Management Plans. Tables 4, 5, and 6 present the mandatory provisions, consumption reduction methods, and penalties and charges, respectively.

Table 4. (DWR Table 26) Mandatory Prohibitions

Prohibitions	Stage When Prohibition Becomes Mandatory
Use of Water in Excess of Allocation under Section 3.5 of Restructured Agreement or other contractual provision	2

Table 5. (DWR Table 27) Consumption Reduction Methods

Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)
Notification of Potential Water Shortage	Stage 1	
Encourage Reduction in Use by Customers, RR Diverters, and Agricultural Diverters through Public Outreach	Stage 1	Varies
Imposition of Section 3.5 Allocations	Stage 2	Varies

Table 6. (DWR Table 28) Penalties and Charges

Penalties or Charges	Stage When Penalty Takes Effect
Liquidated Damage Surcharge for Taking in Excess of Allocation	Stage 2
Physical Limitation on Deliveries to Customers Taking in Excess of Allocation	Stage 2
Legal Remedies against Customers Taking in Excess of Allocation	Stage 2

Analysis of Revenue Impacts of Reduced Sales During Shortages (Water Code §10632(g))

Although a water shortage would result in reduced water deliveries by the Agency, a water shortage would not have any material impacts on the Agency’s financial condition.

“This is a draft report and is not intended to be a final representation of the work done or recommendations made by Brown and Caldwell. It should not be relied upon; consult the final report.”

Under the Restructured Agreement, the Agency imposes charges on the contractors and other customers on an acre-foot basis. The charges are set in an amount necessary to produce revenues to meet the Agency's revenue bond obligations and expected operations and maintenance, and to produce a prudent reserve in an amount determined by the Water Advisory Committee. Charges are set annually each spring, to be effective for the following fiscal year (July 1 to June 30). In computing the charges, the Restructured Agreement requires the Agency to assume that the amount of water to be delivered from each aqueduct of the transmission system will be the same as the amount of water delivered from said aqueduct during the twelve months preceding such establishment, or the average annual amount of water delivered during the preceding 36 months, whichever is less. In addition, however, the Restructured Agreement provides that "[i]f because of drought or other water-supply reduction, state or federal order, or other similar condition, the Agency anticipates that any such quantities will not be predictive of future usage, the Agency may use a different amount with the prior approval of the Water Advisory Committee." Thus the Agency has the ability to increase water rates, with Water Advisory Committee approval, in order to address a pending water supply shortage.

In addition, in order to protect the interest of the holders of revenue bonds issued to finance transmission system facilities, the Restructured Agreement provides that "it is the intention of the parties that the charges set forth herein will be sufficient to pay the Revenue Bonds and to meet the Revenue Bond Obligations not met from other sources of funds," and that the contractors "agree to pay promptly such charges notwithstanding any deficiency in the quantity or quality of water to which they or any of them would be entitled pursuant to this Agreement." The term "Revenue Bond Obligations" includes the Agency's operations and maintenance costs. The Restructured Agreement thus requires the contractors to ensure that the Agency has sufficient funds to operate and maintain the transmission system, and to pay off the holders of revenue bonds, notwithstanding a water supply shortage leading to a reduction in deliveries.

A water shortage would reduce the Agency's transmission system expenses. The biggest component of the Agency's transmission system expenses is the cost of electrical power to pump water from the Russian River and deliver it through the various aqueducts to its customers. The less water the Agency pumps, the less the Agency pays for power; thus a water shortage would reduce, not

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increase, the Agency’s transmission system expenses. Tables 7 and 8 summarize the measures to overcome revenue and expenditure impacts.

Table 7. (DWR Table 29) Proposed Measures to Overcome Revenue Impacts

Names of measures	Summary of Effects
Rate adjustments	Offset loss in revenue
Use of financial reserves	Offset loss in revenue

Table 8. (DWR Table 30) Proposed Measures to Overcome Expenditure Impacts

Names of measures	Summary of Effects
Reconnection fees	Support water conservation programs
Excessive use charges	Support water conservation programs
Construction offset programs	Support water conservation programs

Water Shortage Contingency Resolution and Use Monitoring Procedure (Water Code §10632(h) and (i))

As noted above, the Agency’s Board has approved an allocation methodology for use by the Agency in the event of a water supply shortage. The allocation methodology is presented in Attachment 1. Each of the Agency's contractors would adopt a water shortage contingency resolution in the event of a water shortage

If the Agency allocates water supplies to its contractors and customers pursuant to Section 3.5 of the Restructured Agreement, other contractual provisions, and the allocation methodology, the Agency will monitor compliance with the allocation by increasing the frequency of its readings of meters showing the amount of water being taken by its contractors and customers. Table 9 presents the monitoring mechanisms.

Table 9. (DWR Table 31) Water Use Monitoring Mechanisms

Mechanisms for determining actual reductions	Data Expected
Meter Reading	Water Used by Each Contractor/Customer

“This is a draft report and is not intended to be a final representation of the work done or recommendations made by Brown and Caldwell. It should not be relied upon; consult the final report.”

ATTACHMENT 1

Allocation Model

**Description of Model that Calculates the
Allocation of Water Available to Sonoma County Water Agency for its Customers*
During a Water Supply Deficiency Taking Demand Hardening into Account**

April 4, 2006 Version

This EXCEL workbook (040406 Allocation Model.xls) presents two models that calculate allocations to Sonoma County Water Agency (SCWA) Customers during a shortage of water supply in the Russian River. The calculations meet all of the requirements of the Restructured Agreement for Water Supply (Agreement). See **Contents** sheet for layout of sheets in the workbook. Another EXCEL workbook (040406 Customer Water Use.xls) supports this workbook and contains data compiled for the 2005 Urban Water Management Plan.

* "SCWA Customers" or "Customer" is defined as any of the following:

Regular Customers

Water Contractors (sometimes referred to as "Primes"): Cotati, Petaluma, Rohnert Park, Santa Rosa, Sonoma, Windsor (Airport Service Area), North Marin Water District, Valley of the Moon Water District

Other Agency Customers: SCWA, County of Sonoma, Larkfield Water District, Forestville Water District, Lawndale Mutual Water Co., Kenwood Village Water Co., Penngrove Water Co., City of Sebastopol, State of California, and Santa Rosa Jr. College)

Marin Municipal Water District (MMWD)

Russian River Customers (Customers of SCWA that divert water directly from the Russian River or via wells adjacent to the River).

Where to Find Results:

Results for allocating water during a shortage given varying assumed amounts of water available to SCWA in the Russian River are modeled for two cases.

- The **Current Model** is to be employed during a real drought. Inputs to this model must be updated to then current conditions. For current conditions, results are shown on the **Current Recap** sheet.
- The **Future Model** is a "planning" model whose purpose is to predict allocations for various levels of deficiency in the future when all Customers are assumed to have reached their entitlement limits – generally about 20 years from now for most Customers. (Note: This was the type of model prepared by West, Yost & Associates for the City of Santa Rosa and is also the type prepared by Petaluma.) Results are shown on the **Future Recap** sheet.

Required Allocation Methodology:

Section 3.5(a)(3) of the Agreement provides for allocation of water in the event of a water supply deficiency as follows:

- **"First"**, Allocation of quantities of water required by each Customer* for human consumption, sanitation and fire protection (HC, S & FP) after taking into consideration all other sources of potable water then available to said customer. (Section 3.5(a)(3)(i)) (Often referred to as Tier 1.)
- **"Second"**, Allocation of any additional water available to the SCWA proportionately to its Customers* as follows (Section 3.5(a)(3)(ii)) (Often referred to as Tier 2 allocation.):

Regular Customers (Water Contractors and Other Agency Customers): Deliveries from aqueduct based on respective average daily rate of flow during any month entitlements. These entitlements are set forth as million gallon per day (mgd) rates in Sections 3.1(a) and 3.2 of the Agreement.

Russian River Customers: Authorized diversions or rediversions of water based on delivery limits set forth in agreements with the SCWA.

Marin Municipal Water District (MMWD): Deliveries based on Third Amended Offpeak Agreement and Agreement for Sale of Water (as amended on Jan 25, 1996), and amendments or subsequent agreements between the SCWA and MMWD that have been approved by the Water Advisory Committee.

- **Sum of Two:** The Agreement further requires that the sum of the "First" plus "Second" allocation for a given SCWA Customer not exceed the Reasonable Requirement or entitlement limit/contracted amount, whichever is less (Section 3.5(a)(3)(iii)).

"Human Consumption, Sanitation and Fire Protection" Definition:

In determining HC, S & FP amounts, the Agreement provides that SCWA shall take into account the level of water conservation achieved by the Customer and the resulting decrease in end user ability to reduce water use (the hardening of demand) resulting from such conservation. The allocation shall be determined using a methodology which rewards and encourages water conservation; avoids cutbacks based upon a percentage of historic consumption, and, among other things, bases the amounts necessary for HC, S & FP upon no greater than average indoor per capita water use determined from recent retail billing records for winter water use by all of the Water Contractors; and, if necessary or appropriate for equitable purposes, considers commercial, industrial and institutional water uses separately and determines that element of the allocation based on winter water use from recent retail billing records for commercial, industrial and institutional uses. (Section 3.5(c)(1))

"Reasonable Requirements" Definition:

The Agreement states that the fundamental purpose of the Reasonable Requirements limitation is to ensure that no Customer receives more water during a shortage than that Customer reasonably needs. In determining reasonable requirements, the SCWA may take into account the hardening of demand resulting from the level of conservation achieved by the Customer; the extent to which the Customer has developed recycled water projects and local supply projects, and the extent to which the Customer has implemented water conservation programs. The Agreement further states that it is the intention of the

parties that the SCWA make its Reasonable Requirements determinations so as to encourage Customers to implement water conservation, recycled water, and local supply projects. (Section 3.5(c)(2))

Description of Models:

Two models are presented.

- **Current Model:** The Current Allocation Model determines annual allocations based on the assumption the water supply deficiency occurs now and impacts current conditions and levels of use. This is the model that would be used in the event of an actual deficiency in water supply available from the Russian River. It employs estimates of HC, S & FP needs, Reasonable Requirements, and Local supply. In the event of a real perceived water supply deficiency, inputs to the model must be updated to then currently available data. If the shortage persists longer than one year the inputs must again be updated – particularly local supply estimates which should be updated every year of the drought. Customers relying on surface water for local supply, such as North Main Water District, and MMWD, can be expected to have reduced local supply available.
- **Future Model:** The second model is hypothetical and predicts future allocations at a point in time that assumes that all customers of the SCWA have reached their annual entitlement limits. It sets the Reasonable Requirement for each SCWA Customer to that customer’s annual entitlement limit (cap). The Future Allocation Model is useful for planning purposes to predict allocations from the SCWA for various assumed water supply deficiencies.

Model Assumptions and Inputs:

1. **Entitlements:** Entitlements (Regular Customers) and contracted amounts (MMWD and Russian River Customers) for both models are as set forth in the Agreement and existing agreements between the SCWA and MMWD and its Russian River Customers. (See **Entitlements** and **RR Cust** sheets.)
2. **Local Supplies:** The estimates of safe yield of local supplies are the same for both models and are based on estimates reported by Water Contractors to West, Yost & Associates in a September 23, 2004 Tech. Memo to the City of Santa Rosa and are generally average local supply that was available for the period 2000 through 2003. A contingency factor is applied by John Olaf Nelson Water Resources Management (JONWRM) to each local supply to account for equipment/maintenance issues or other potential problems. This factor was assumed to be 10% for each Water Contractor for lack of better data. The safe yield value for MMWD was supplied by MMWD. Local supply estimates for Other Agency Customers were not available and was assumed to be “0”. Information on Local supplies needs to be accurately determined and updated by the SCWA. (See **Local** and **TM Data** sheets.)
3. **Water for Human Consumption, Sanitation and Fire Protection:** Water needed to meet HC, S & FP needs for both models is assumed to be equal to total winter level demand of customers served by Customers of the SCWA and is based on metered water sales (billings) for calendar 2004, the base year analyzed in the 2005 Urban Water Management Plan. Winter level demands are then extrapolated to a full year to determine the annual HC, S & FP need. Water available

from local supplies is then determined and net HC, S & FP needs determined in order to calculate the “First” allocation. In determining the “First” allocation, demand hardening is accounted for using winter level per capita demand. (See **GPCD** and **Human** sheets and the footnotes on the Current Model for details.)

4. Reasonable Requirements:

- For the Current Model, Reasonable Requirements were assumed to equal average annual aqueduct deliveries to SCWA’s Regular Customers and MMWD for FY 2003-04 and FY 2004-05. For Russian River Customers, the average for Water Years 2004 and 2005 was used, as that was the format the data was available in. (Use of a three or four year average would normally be a better choice for calculating Reasonable Requirements, however, this was not done as at least one SCWA customer made a significant policy change in aqueduct usage which would not have been fairly reflected if years prior to FY 2003-04 were used. Also in subsequent analyses, the data should be normalized to common annual periods.) (See **Reasonable** sheet.) Pursuant to Section 3.5(c)(2), Reasonable Requirements were adjusted with a demand hardening factor to account for differing levels of conservation achieved by Customers. The demand hardening factor is derived from total per capita demand (residential, non-residential and unaccounted for water) as determined for the base year (cal. 2004) of the 2005 Urban Water Management Plan. (See **DH Factor** sheet.)
- In the Future Model, Reasonable Requirements are set equal to annual entitlement limits (caps) or contract limits as applicable, it being assumed that each Customer has reached its annual entitlement limit (the same approach taken in the Santa Rosa and Petaluma models). **THIS IS THE ONLY INPUT DIFFERENCE BETWEEN THE “CURRENT” AND “FUTURE” MODEL.**

Model Design and Workbook Layout:

The two model sheets are totally independent and are designed to automatically calculate water shortage allocations for any SCWA available supply bounded by a low value equal to the sum of water required for HC, S & FP and an upper value equal to the sum of Reasonable Requirements or sum of annual entitlement limits, whichever is less. Cells in both models are linked to the various supporting data sheets.

To operate a model, simply input the assumed available supply in Cell H:4 of the model you are working with. The results – the sum of the “First” (Tier 1) plus “Second” (Tier 2) allocation appear to the far right (Column 42 of the Current Model and Column 39 of the Future Model).

The Current Model sheet is followed by a sheet entitled “Current Recap” that shows the resulting allocations (both in tabular and graph form) for each Customer for various assumed levels of available supply. This recap and the graphs are automatically populated by running the Macro entitled “CurRecap”.

Likewise, following the Future Model sheet is a sheet entitled “Future Recap” which shows the tabular and graph results for the Future Model. This recap and the graphs are automatically populated by running the Macro entitled “FutRecap”.

Caution Concerning Data Collection and Maintenance:

With the allocation methodology introduced in the Agreement, it is essential that the SCWA develop and maintain a data base containing information collected from all of its Customers based on application of uniform standards, and containing data on water service area population, portion of population served by private wells (none of the models correct for private well water use by service area population), winter level water consumption, annual consumption, local supplies, unaccounted for water, conservation, recycled water use, etc. Good regional data on evapotranspiration differences may also be needed to modify the Reasonable Requirement demand hardening adjustment factor. A fair and uniform way to determine the safe yield of local supply capacity is especially important. It may be useful to categorize local supply into: (1) normally available and used capacity, and (2) strictly standby capacity that is more expensive to use than aqueduct water or has some non-threatening quality issues, i.e. taste and odor that make it undesirable to use under normal water supply conditions.

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Contents of this EXCEL Workbook
Water Shortage Allocation Model w. Demand Hardening Factor (a)
April 4, 2006 Version

Models (Current and Future)

Page	
1	Contents
2, 3	Current Model (To be used in case of imminent drought.)
3, 4	Current Recap (Recap of <u>Current</u> Allocation Model)
5, 6	Future Model (To be used for long range planning purposes.)
7, 8	Future Recap (Recap of <u>Future</u> Allocation Model)

Input Data for Models

9	Entitlements *
10	RR Cust (Russian River Customer demand) *
11	Human (Human Consumption, Sanitation and Fire Protection demand) *
12	Reasonable ("Reasonable Requirements" are recent (non-drought) aqueduct deliveries and Russian River diversions of SCWA Customers) **
13	Local (Local Supply expected to be available in a drought) *
14	Pop (Service Area population data) *
15	GPCD (Winter level per capita demand (b))
16	DH Factor Demand Hardening Factor - used for adjusting "Reasonable Requirements" in <u>Current</u> Model
17	TM Date Data compiled by West, Yost & Associates for Santa Rosa Planning Allocation Model

* Same data used in both Current and Future Model.

** Based on aqueduct sales and Russian River diversions in recent non-drought years. In the Future Model, reasonable requirements are set equal to annual entitlement limits (caps) or contract delivery limits as applicable in order to estimate allocations at that time in the future when demand has grown to equal the annual entitlement limits.

For questions, contact:

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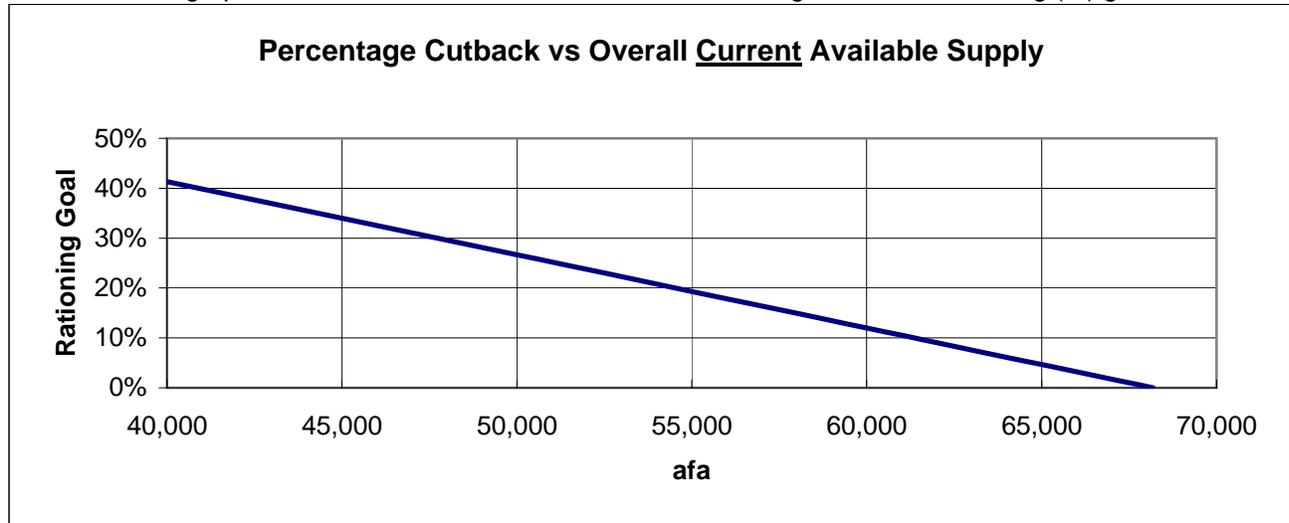
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Results for Current Allocation Model vs. Assumed Available Supply

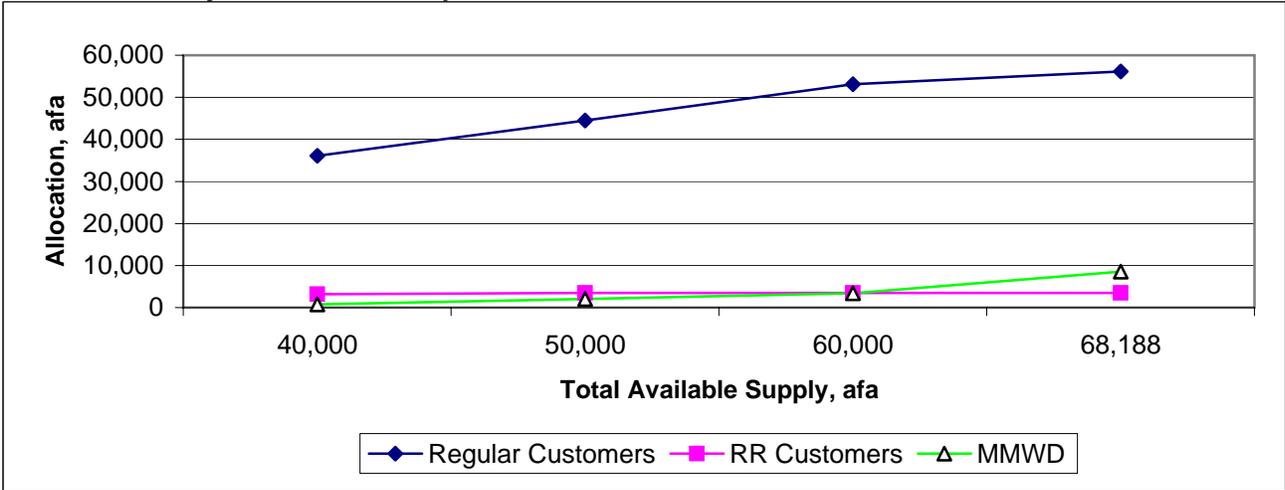
Available RR SCWA Supply, afa >	40,000	50,000	60,000	68,188 *
Equivalent Cutback in Deliveries >	41.3%	26.7%	12.0%	0.0%
Regular Customers				
Cotati	694	928	1,095	1,095
Petaluma	6,155	7,501	8,952	9,735
Rohnert Park	2,924	3,850	4,849	5,246
Sonoma	1,261	1,650	2,069	2,200
Windsor	317	409	410	410
NMWD	4,775	6,004	7,328	8,459
Santa Rosa	16,856	20,351	24,118	24,737
VOM	2,157	2,682	3,086	3,086
Other Agency	949	1,116	1,207	1,207
Sub-Total	36,088	44,491	53,114	56,173
MMWD	737	2,014	3,391	8,520
Russian River Cust's	3,175	3,495	3,495	3,495
Total	40,000	50,000	60,000	68,188

* Note: Max. Value is capped at 68,188 afa as this satisfies sum of Reasonable Requirements.

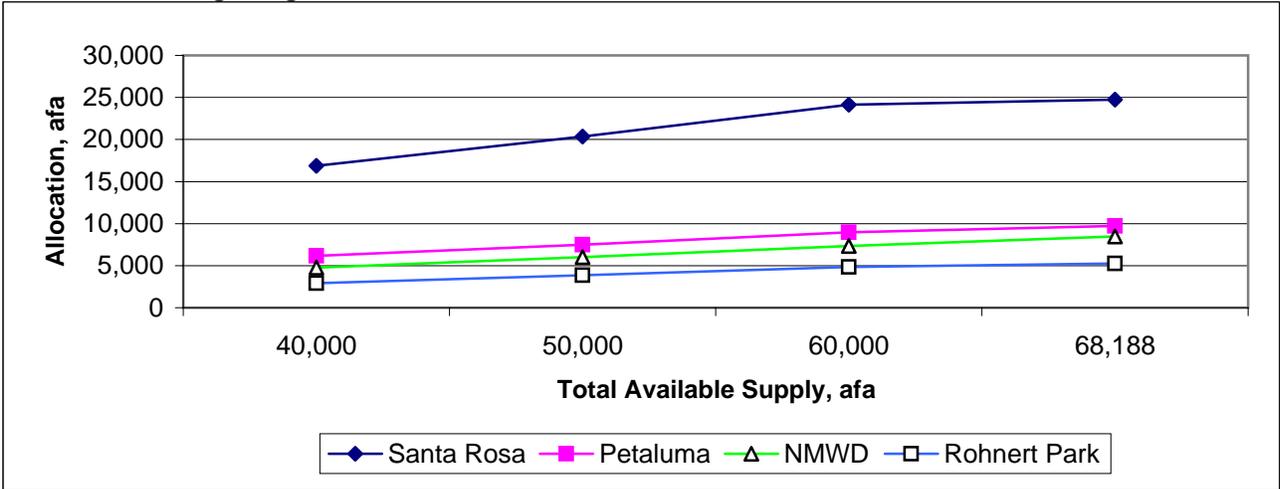
Tool: Use this graph to determine overall allocation available for a given overall rationing (%) goal.



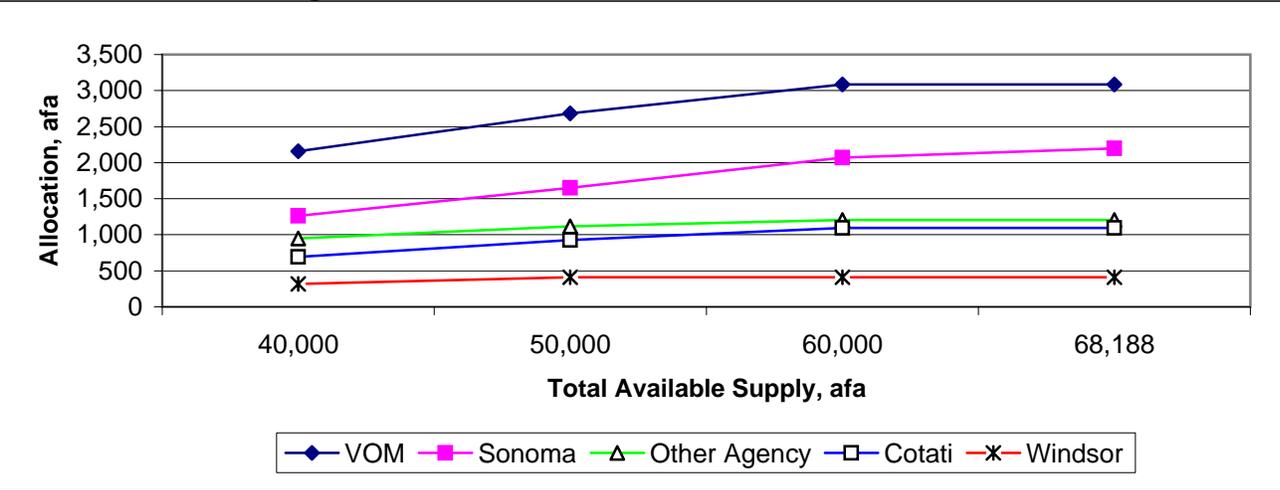
Allocation to Major Customer Groups:



Allocation to Large Regular Contractors:

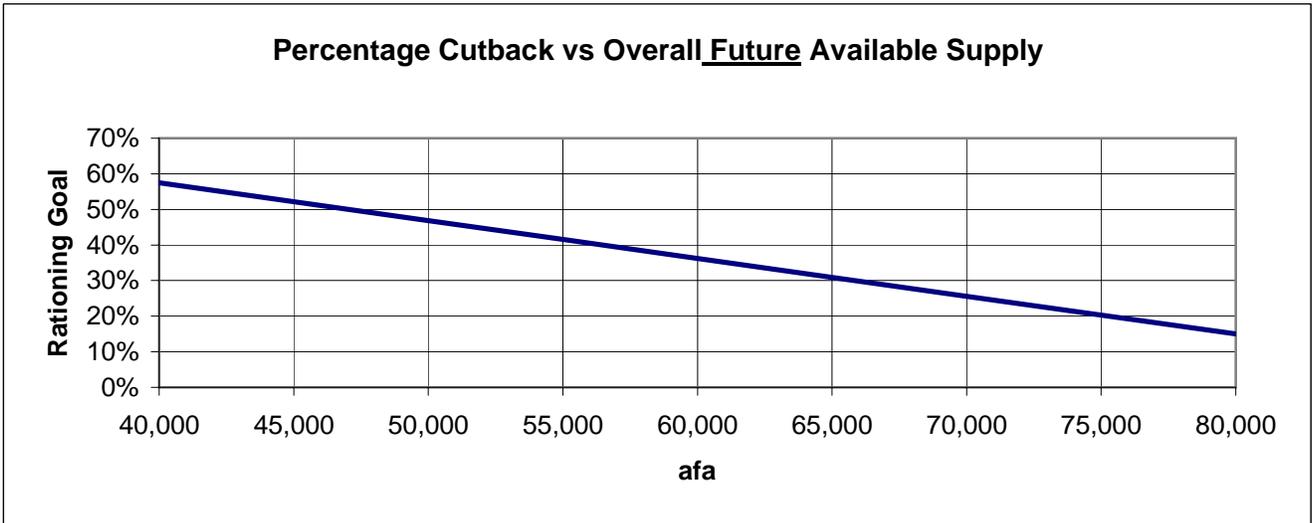


Allocation to Smaller Regular Customers:

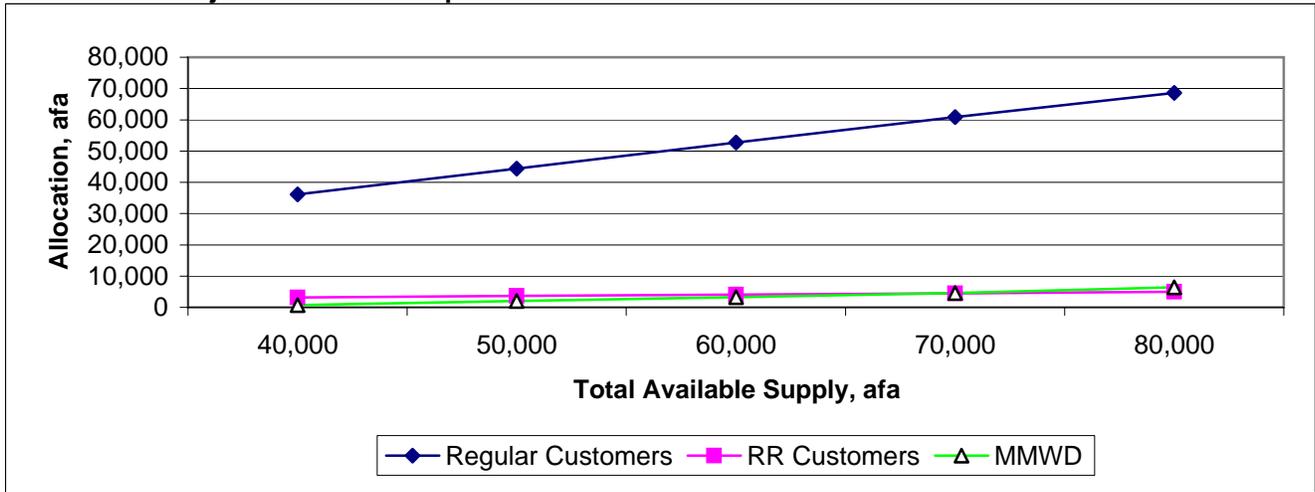


Results for Future Allocation Model vs. Assumed Available Supply

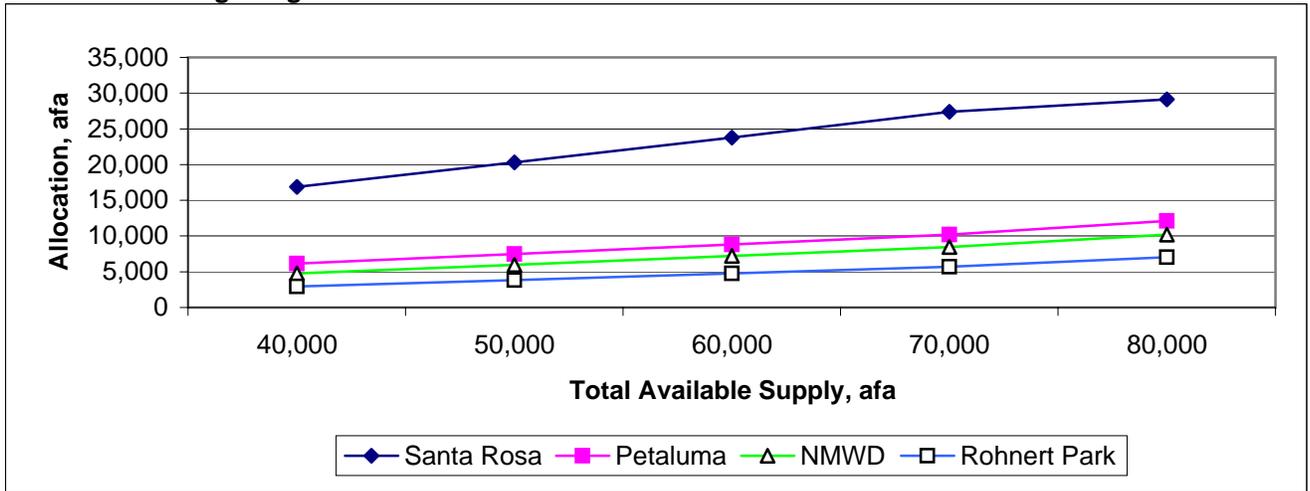
Available RR SCWA Supply, afa >	40,000	50,000	60,000	70,000	80,000
Equivalent Cutback in Deliveries >	57.5%	46.9%	36.2%	25.6%	15.0%
Regular Customers					
Cotati	694	925	1,157	1,401	1,520
Petaluma	6,155	7,484	8,813	10,214	12,118
Rohnert Park	2,924	3,838	4,753	5,716	7,027
Sonoma	1,261	1,645	2,029	2,433	2,984
Windsor	317	408	500	596	727
NMWD	4,775	5,988	7,201	8,480	10,218
Santa Rosa	16,856	20,306	23,756	27,393	29,100
VOM	2,157	2,675	3,193	3,200	3,200
Other Agency	949	1,113	1,278	1,451	1,687
Sub-Total	36,088	44,384	52,680	60,884	68,581
MMWD	737	1,998	3,259	4,587	6,394
Russian River Cust's	3,175	3,618	4,061	4,528	5,025
Total	40,000	50,000	60,000	70,000	80,000



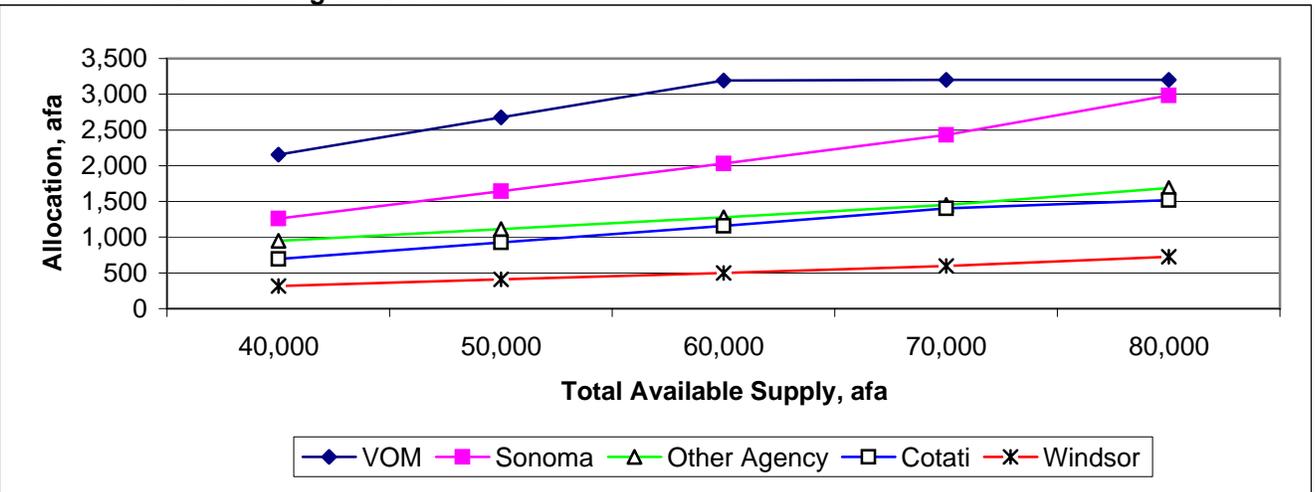
Allocation to Major Customer Groups:



Allocation to Large Regular Contractors:



Allocation to Smaller Regular Customers:



Entitlements of SCWA Customers

SCWA Customer:	Source	Entitlement mgd (any month)	Annual Limit afa
Regular Customers			
Cotati	a	3.8	1,520
Petaluma	a	21.8	13,400
Rohnert Park	a	15	7,500
Sonoma	a	6.3	3,000
Windsor (Airport Service Area)	b	1.5	900
North Marin WD	a	19.9	14,100
Santa Rosa	a	56.6	29,100
Valley of the Moon WD	a	8.5	3,200
Other Agency Cust (Includes FWD)	c	2.7	2,048
Sub-Total		136.1	74,768
Marin Muni. WD	d	0	14,300
Russian River Customers	e	0	5,025
Total		136.1	94,093

Notes:

- a Eleventh Amended WS Agree. (Proposed Restructured WS Agree is same)
- b Proposed Restructured WS Agree. Applies only to Airport Service Area served from SCWA Aqueduct. Windsor's direct diversions from the RR are covered by an Agreement with the SCWA and potentially via its pending application to the State for Water Rights
- c "mgd any month" limit is per Eleventh Amended WS Agree. (Proposed Restructured WS Agree is same). Annual limit is estimated based on avg. annual Other Agency Customer demand (as defined in Restructured Agree) for FY's 2003 and 2004 (1,356 af) projected through 2020 assuming a 2% per year increase for anticipated growth plus a 10% contingency.
- d Second Amended WS Agree and Agree for Sale of Water as Amended by The Supplemental WS Agree dated Jan 25, 1996. Note: Annual deliveries are subject to certain prior year minimum purchase provisions. Deliveries are subordinate to Regular Customer Entitlements.
- e Various Agreements between SCWA and each of its RR Customers (refer "RR Cust" sheet)

Russian River Customers of SCWA

Entitlements of RR Customers

Source: Chris Murray, SCWA, 3/3/05

Contractor	Date	Max Diversion Limit, afa	Comments
Currently Approved Points of Diversion *:			
Town of Windsor **	1/8/1991	4,725	Windsor has application pending for its own water rights
Russian River Co. WD	3/14/1991	300	
Sub-total		5,025	
No Points of Diversion Approved*			
City of Healdsburg	11/17/1992	4,440	Healdsburg holds own water rights for other points of diversion
Camp Meeker Parks & Rec. Dist.	7/9/1996	90	
Occidental CSD	4/23/2002	65	
Redwood Valley Co. WD	Pending	?	Agreement pending
Sub-total		4,595	
Potential Total		9,620	

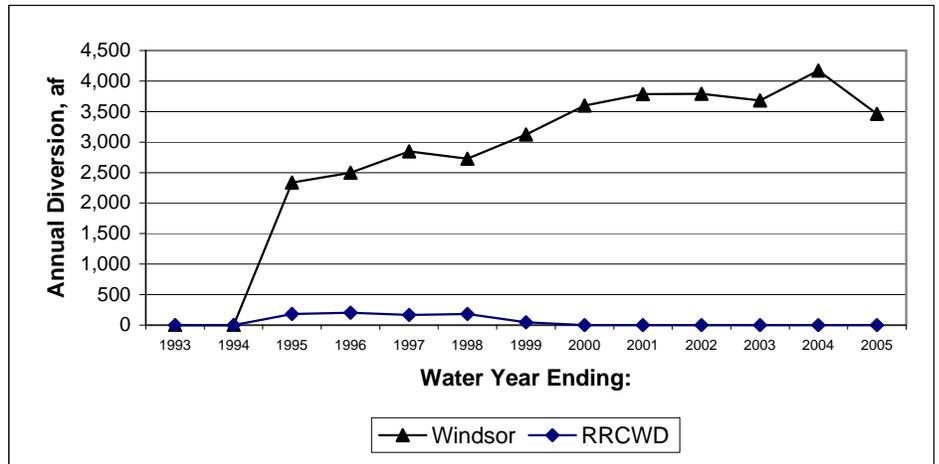
* As pertains to SCWA's water rights.

** Direct diversions via wells situated near the Russian River.

Historic Diversions from the RR, af

Source: Chris Murray, SCWA, 2/15/06 (SCWANTS.xls)

W Yr	RRCWD	Windsor	Total
1993	0	0	0
1994	0	0	0
1995	182	2,337	2,519
1996	203	2,496	2,699
1997	166	2,848	3,013
1998	183	2,728	2,911
1999	47	3,124	3,171
2000	0	3,596	3,596
2001	0	3,786	3,786
2002	0	3,789	3,789
2003	0	3,684	3,684
2004	0	4,173	4,173
2005	0	3,465	3,465



Avg of W Yr's 2004 & 05	3,819
Avg of last 3 W Yrs	3,882

Note: Water Yr extends from Oct 1 through Sept 30 of subsequent yr.

Water Needed for Human Consumption, Sanitation and Fire Protection (a)

	TM Data (b)	6/15/05 Model	2005 UWMP (c)	4/4/06 Model
SCWA Customer:				
Regular Customers				
Cotati	0.62	0.62		0.64 f
Petaluma	5.83	5.83	6.15	6.15
Rohnert Park	4.23	4.23	3.74	3.74
Sonoma	1.45	1.45	0.92	0.92
Windsor (Airport Service Area)		0.13 d		0.24 g
North Marin WD	5.80	5.80	6.04	6.04
Santa Rosa	13.74	13.74	13.48	13.48
Valley of the Moon WD	2.01	2.01	2.14	2.14
Other Agency Cust (Includes FWD)		0.45 d		0.48 g
Sub-Total				
Marin Muni. WD		17.1 e		18.4 h
Russian River Customers		unknown		unknown
Total				

Notes:

- a Water needed for HC, S & FP is assumed to be equal to "inside" use for all retail customers. Inside use in turn is estimated by examining retail sales in the Winter months (generally Jan. and Feb).
- b Estimate by West/Yost contained in Allocation Table prepared for City of Santa Rosa (Sept 23 Tech Memo).
- c Total demand including UFW as determined by Maddaus for base year (Cal. 2004) of the 2005 UWMP. 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. Winter level use for Cotati supplied by Toni Bertolero (see Note f).
- d Avg Jan and Feb Aqueduct Sales* as

	Windsor	Other Ag Cust
Avg af/mo (2000->03, SCWA, Kiergan Pegg)	11.5	40.6
Avg mgd	0.13	0.45
- * In the case of Windsor (ASA only) and Other Agency Customers, winter level demand is unknown and is therefore estimated from Aqueduct sales, it being assumed that all Winter demand is met from the Aqueduct.
- e MMWD customer Avg per capita use in Jan and Feb for (2000 - 03), mgd, Dana Roxon,
- f Avg. Jan and Feb Aq plus Local use FY 2003 -> FY 2005, Tony Bertolero via Matthew Damos
- g Avg. Jan and Feb Aq Sales w. Billing Days for FY 2003 -> FY 2005 from Kiergan Pegg,
- h From MMWD Water Watch Reports, avg demand for period noted, mgd

Week Ending:	For same	
	For period noted to left	week one yr earlier
2/26/2006	17.6	17.6
2/19/2006	18.4	18.3
2/12/2006	18.8	19.1
2/5/2006	18.2	18.6
1/29/2006	18.4	18.5
1/22/2006	18.5	18.7
1/15/2006	17.9	18.6
1/8/2006	18.5	18.8
1/1/2006	18.1	18.5
Avg Winter	18.3	18.5
Avg for both yrs	18.4	

Reasonable Annual Need, afa (a)
(Avg. Aq. Sales or RR Diversions for FY's Indicated)

	6/15/05 Model	4/4/06 Model
		Avg for FY 03-04 and FY 04-05
Regular Customers	FY 03-04	
Cotati	1,071	1,045
Petaluma	11,294	10,636
Rohnert Park	4,710	4,835
Sonoma	2,611	2,403
Windsor (Airport Service Area)	474	448
North Marin WD	9,498	9,242
Santa Rosa	24,421	23,584
Valley of the Moon WD	3,157	3,036
Other Agency Cust (Includes FWD) (b)	1,326	1,318
Sub-Total	58,561	56,547
Marin Muni. WD	7,792	7,823
Russian River Customers (c)	3,928	3,819
Total	70,281	68,188

Notes:

- a SCWA Aqueduct Sales Records, Kiernan Pegg, SCWA. Note that Surplus sales are not included.
- b SCWA Aq. Sales Records. Excludes Windsor and includes FWD as proposed in Restructured WS Agree.
- c Average of Water Yr Diversions for 2003 and 2004 was used for 6/15/05 Model and avg. of 2004 and 2005 was used for 4/4/06 Model. (see RR Cust sheet).

Local Potable Water Supply Available to SCWA Customers, afa

	Local Supply (a)	Contingency Factor (b)	Est'd Safe Yield (c)
Regular Customers			
Cotati	240	10%	216
Petaluma	831	10%	748
Rohnert Park	2308	10%	2,077
Sonoma	80	10%	72
Windsor (Airport Service Area)	0	10%	0
North Marin WD	2000	10%	1,800
Santa Rosa	1700	10%	1,530
Valley of the Moon WD	595	10%	536
Other Agency Cust (Includes FWD) (d)	0		0
Sub-Total	7754		6,979
Marin Muni. WD Local Sys. Safe Yield (e)			20,500
Russian River Customers (d)	0		0
Total			27,479

Notes:

- a Based on 4-yr avg: 2000-2003 as reported in Sept 33, 2004 Tech. Memo to Santa Rosa
- b To account for well equipment problems/maintenance down-time, etc. Estimated by JONWRM
- c It is recognized that the quality of Local Supply varies. Presented here is the yield (safe yield) that is expected to be available in the first year of a water supply deficiency based on Local Water Supply capacities..
- d Unknown and therefore assumed to be "0" for the purposes of this model. Needs to be determined by SCWA.
- e Safe Yield of Local Supply System provided by MMWD. Source: Dana Roxon, 5/31/05.

Most Recent Service Area Population

SCWA Customer:	TM Data for Yr 2003	6/15/05 Model	2005 UWMP	4/4/06 Model
Regular Customers				
Cotati	6,825	6,825		7,337 e
Petaluma	57,050	57,050	58,057	58,057
Rohnert Park	42,300	42,300	42,329	42,329
Sonoma	10,252	10,252	10,502	10,502
Windsor (Airport Service Area)		1,338 d		2,495 f
North Marin WD	56,000	56,000	55,587	55,587
Santa Rosa	153,400	153,400	155,121	155,121
Valley of the Moon WD	23,000	23,000	22,646	22,646
Other Agency Cust (Includes FWD)	8,000 a	8,000		8,080 g
Sub-Total		358,165		362,154
Marin Muni. WD	184,999 b	184,999		189,945 h
Russian River Customers	27,360 c	27,360		27,634 g
Total		570,524		579,733

Notes:

- a Estimate by West/Yost contained in Allocation Table prepared for City of Santa Rosa (Sept 23 Tech Memo).
- b Estimate provided by MMWD to West/Yost and contained in Allocation Table prepared for City of Santa Rosa (Sept 23 Tech Memo).
- c Estimate by West/Yost contained in Allocation Table prepared for City of Santa Rosa (Sept 23 Tech Memo). Includes 24,350 (2003 Department of Finance estimate for the Town of Windsor) and an estimate of 3,000 for the RRCWD service area.
- d Windsor Airport Service Area is primarily Commercial and Institutional use. An equivalent population is estimated by dividing avg Winter use by 95 gpcd, the wt'd avg. per capita use determined by West/Yost.
- e Cotati pop. per Dept of Finance data as of 1/1/2005, Cristina Goulart, Winzler & Kelly
- f Windsor Airport Service Area is primarily Commercial and Institutional use. An equivalent population is estimated by dividing avg Winter use by 94 gpcd, the wt'd avg. per capita use determined in the 2005 UWMP.
- g Population estimated for 6/15/05 Model increased by an assumed growth rate of 1%.
- h MMWD 2004 Pop., provided by Dana Roxon, MMWD, Mar. 2006.

Other Data:

From 2005 UWMP, population for 2004:	
FWD population	2,201
Windsor RR Service Area	24,899

Winter Level Per Capita Demand, gpcd

	TM Data (a)	6/15/05 Model	2005 UWMP (b)	4/4/06 Model
Regular Customers				
Cotati	89	89		88 c
Petaluma	101	101	106	106
Rohnert Park	96	96	88	88
Sonoma	136	136	88	88
Windsor (Airport Service Area)		95		94
North Marin Water Dist.	99	99	109	109
Santa Rosa	87	87	87	87
Valley of the Moon Water Dist.	87	87	94	94
Other Agency Cust (Includes FWD)		unknown		94
Sub-Total				
Marin Muni. Water Dist.		92		97 c
Russian River Customers				
Wt'd Avg	95			94 d

Notes:

- a Source: TM Data sheet by West Yost and Assoc. Winter level use is based on avg. use in Jan, and Feb. of 2000 through and including 2003.
- b Source: Bill Maddaus Tech. Memos - Includes Unaccounted For Water (UFW). Inside use is calculated from calendar 2004 retail sales records and is based on average of 2 lowest consecutive months in the winter if meters are read bimonthly, or single lowest month if meters read monthly.
- c Calc'd from Winter level demand (See Human sheet) and est'd pop. (See Pop Sheet)
- d Data for 11th Amend. Agree. Primes:

	gpcd	pop
Cotati	88	7,337
Petaluma	106	58,057
Rohnert Park	88	42,329
Sonoma	88	10,502
NMWD	109	55,587
Santa Rosa	87	155,121
VOM	94	22,646
FWD	99	2,201
Wt'd Avg. (using pop. as weighting factor)	94	

Other Data:

From 2005 UWMP, Winter Level Use, gpcd:
 FWD 99

Demand Hardening Factor - Used for Adjusting Reasonable Need in Current Allocation

	Total Demand mgd 1	Total gpcd 2	Use in 3/27/06 Model 3	Lesser of Col. 3 or Average 4	Demand Hardening Adj Factor (Avg / Col. 4) 5
Regular Customers					
Cotati	1.07 b	146 d	146	146	1.14
Petaluma	10.19 c	176 d	176	167	1.00
Rohnert Park	5.95 c	141 d	141	141	1.19
Sonoma	2.25 c	214 d	214	167	1.00
Windsor (Airport Service Area)		172 e	172	167	1.00
North Marin Water Dist.	10.58 c	190 d	190	167	1.00
Santa Rosa	22.57 c	146 d	146	146	1.15
Valley of the Moon Water Dist.	3.40 c	150 d	150	150	1.11
Other Agency Cust (Includes FWD)			167 f	167	1.00
Sub-Total					
Marin Muni. Water Dist.			140 g	140	1.19
Russian River Customers			167 f	167	1.00
Average for Water Contractors (h)		167			

Notes:

- a Sec 3.5(c)(2) provides that in determining "reasonable requirements" the SCWA may take into account hardening of demand resulting from the level of conservation achieved by a given customer of the SCWA.
- b From Toni Bertolero. Avg of RR Purchases and Ground Water Production for FY 2003->05, mgc
- c Total demand including UFW as determined by Maddaus for base year (2004) 2005 UWMP.
- d Col 1 divided by population. See Pop sheet.
- e There are no residents in Windsor ASA therefore per capita demand set equal to Windsor RR Service Area average value as determined for base year (2004) of 2005 UWMP.
- f No data available so assumed equal to average value for Water Contractors.
- g From MMWD 2005 Fact Sheet - avg demand for 10 yrs ending 2005, n 26.6 divided by population (See Pop sheet).

Other Data from 2005 UWMP for Base Yr 2004:

	mgd	gpcd
Forestville Water Dist.	0.48	219
Windsor RR Service Area	4.29	172

**SUPPORT TABLES
For Tech Memo**

Table A-1. Average Monthly Retail Sales (acre-feet) for SCWA Water Contractors in January & February^(a)

Contractor	2000	2001	2002	2003	4-Year Average ^(b)
Santa Rosa	1,263	1,316	1,265	1,154	1,249
Petaluma	553	538	515	514	530
North Marin	563	554	525	468	528
City of Rohnert Park	406	406	356	373	385
Cotati	45	73	58	50	57
Forestville ^(c)	22	23	24	21	22
City of Sonoma	136	135	133	122	131
Valley of the Moon	182	189	187	174	183

Table A-2. Historical Population^(d)

Contractor	2000	2001	2002	2003
Santa Rosa	147,595	149,300	151,700	153,400
Petaluma	53,710	54,510	55,850	57,050
North Marin	55,000	56,000	56,000	56,000
Rohnert Park	42,236	42,200	42,150	42,300
Cotati	6,471	6,600	6,861	6,825
Forestville ^(e)	1,973	Not Available	Not Available	Not Available
Sonoma	10,091	10,131	10,172	10,252
Valley of the Moon	20,512	21,996	22,923	23,000

Table A-3. Per Capita Demand (gpcd) for SCWA Water Prime Contractor in Winter (January & February)^(a,f)

Contractor	2000	2001	2002	2003	4-Year Average ^(b)
Santa Rosa	90	93	88	79	87
Petaluma	108	104	97	95	101
North Marin	108	104	99	88	99
Rohnert Park	101	101	89	93	96
Cotati ^(g)	72	116	89	78	89
Forestville	115	123	126	113	119
Sonoma	142	140	138	125	136
Valley of the Moon	93	90	86	80	87
Simple Average ^(h)	104	109	101	94	102
Weighted Average ⁽ⁱ⁾	99	100	93	87	95

^(a) Data obtained from water sales data from the Prime Contractor

^(b) Simple average of the last 4 years. Using Santa Rosa in Table A-1: $(1,263+...+1,154)/4 = 1,249$ acre-feet

^(c) Data for Forestville obtained from the SCWA

^(d) Data obtained from the Prime Contractor, California Department of Finance Website, or the 2000 UWMP for Sonoma County unless specified otherwise

^(e) Population for Forestville obtained from the 2000 SCWA UWMP

^(f) Based on populations from Table A-2, if population for particular year was not available, then population for year 2000 was used

^(g) For 2001 & 2002, based on Dec/Jan instead of Jan/Feb because Cotati did not provide Feb; 2003 is based on Jan/Feb

^(h) Simple average of the eight individual gpcds. Using 2000 of Table A-3: $(90+...+93)/8 = 102$ gpcd

⁽ⁱ⁾ Weighted average for population. Using 2000 of Table A-3: $(90*147,595+...+93*20,512)/(147,595+...+20,512) = 98$ gpcd

Current Allocation Model

Allocation of Water During a Period of Deficiency Pursuant to Sec. 3.5 (a) of the Restructured Agreement for Water Supply

Based on **CURRENT** Level Demands and Water Available from the SCWA of **60,000** afa

This equates to an overall cutback in Russian River water supply of: **12.0%**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	23	41	42	43
	Entitlement Limits		Minimum Needs		Reasonable Requirement					Local Supply		HC, S & FP Per Capita Demand				First Allocation & Test		Second Allocation		Results			
	Assumed Available Supply afa	Entitlement Daily Rate	Annual Entitlement Limit (Cap) afa	Water Needed for Human Consumption, Sanitation and Fire Protection **** afa	Apparent Reasonable Requirement afa	Demand Hardening (DH) Adjust. Factor	Adjust'd Reason. Req't	Final Reason. Req't	Lesser of Reason. Req't vs Cap afa	Safe Yield of Local Supply afa	Pop. persons	Avg. Winter Level Per Capita Demand gpcd	Weighted Avg Per Capita Demand of Water Contractors gpcd	Portion of Per Capita Demand that can be served by Local Supply gpcd	Per Capita Demand that is not met by ("First" Allocation Parameter) gpcd	TEST Less Than Annual Entitlement (Water req'd for HC, S & FP) afa	Normalized Entitlements ("Second" Allocation Parameter) %	"Second" Allocation afa	"First" plus "Second" Allocations afa	TEST Less Than Reasonable Req't ?			
SCWA Customers																							
Regular Customers																							
Cotati*			3.8	1,520	0.64	720	1,045	1.14	1,196	1,095	216	7,337	88	94	26	68	558	Yes	2%	536	1,095	Yes	
Petaluma*			21.8	13,400	6.15	6,893	10,636	1.00	10,636	9,735	748	58,057	106	94	11	83	5,379	Yes	13%	3,574	8,952	Yes	
Rohnert Park*			15	7,500	3.74	4,186	4,835	1.19	5,731	5,246	2,077	42,329	88	94	44	50	2,390	Yes	9%	2,459	4,849	Yes	
Sonoma*			6.3	3,000	0.92	1,029	2,403	1.00	2,403	2,200	72	10,502	88	94	6	88	1,036	Yes	4%	1,033	2,069	Yes	
Windsor (Airport Service Area) (ASA)*			1.5	900	0.24	263	448	1.00	448	410	0	2,495	94	94	-	94	263	Yes	1%	146	410	Yes	
North Marin Water Dist. (NMWD)*			19.9	14,100	6.04	6,767	9,242	1.00	9,242	8,459	1,800	55,587	109	94	29	65	4,066	Yes	12%	3,262	7,328	Yes	
Santa Rosa*			56.6	29,100	13.48	15,094	23,584	1.15	27,027	24,737	1,530	155,121	87	94	9	85	14,840	Yes	35%	9,279	24,118	Yes	
Valley of the Moon Water Dist.*			8.5	3,200	2.14	2,397	3,036	1.11	3,372	3,086	536	22,646	94	94	21	73	1,854	Yes	5%	1,232	3,086	Yes	
Other Agency Cust (Includes FWD)			2.7	2,048	0.48	534	1,318	1.00	1,318	1,207	-	8,080	94	94	-	94	853	Yes	2%	354	1,207	Yes	
Sub-Total			136.1	74,768	33.82	37,884	56,547		61,374	56,173	6,979	362,154					31,239				53,114		
Marin Muni. Water Dist.			0	14,300	18.39	20,605	7,823	1.19	9,309	8,520	8,520	20,500	189,945	97	94	96	0	0	Yes	13%	3,391	3,391	Yes
Russian River Customers***			0	5,025	unknown	2,916	3,819	1.00	3,819	3,495	-	27,634	unknown	94	-	94	2,916	Yes	4%	579	3,495	Yes	
Total			136.1	94,093		61,404	68,188		74,501	68,188	68,188	27,479	579,733				34,155		100%	25,845	60,000		
Reasonable Need Remaining Unmet Water Available for Allocation			60,000														25,845						

Definitions:

* Defined in Restructured Water Supply Agreement as "Water Contractors"

** FWD = Forestville Water Dist.

*** SCWA Russian River Contractors whose direct diversions and points of diversion have been approved and come under the auspices of the SCWA's Water Rights (Town of Windsor and Russian River County Water Dist.)

**** HC, S & FP = Human Consumption, Sanitation and Fire Protection

TM Data = information set forth in Tech Memo prepared by West, Yost & Associates (West/Yost) dated Sept 23, 2004, "Methodology for Implementation of Water Shortage Provisions in Eleventh Amended Agreement for Water Supply"

UWMP = Urban Water Management Plan

UFW = unaccounted for water (ie water due to losses, leakage, theft and unmetered deliveries, meter inaccuracies, fire hydrant flows, pipeline flushing, etc.)

af = ac-ft mgd = millions of gallons per day

afa = ac-ft per annum (year) gpcd = gallons per capita per day

Column Explanations:

1 All Customers of the SCWA except customers served Surplus Water. Surplus Water users are not allowed an allocation during periods of water deficiency.

2 Water supply assumed to be available to SCWA for delivery to or diversion by its Customers. In the event of a real drought, this value is predicted by SCWA using its Russian River models and including estimated yield from the SCWA's wells and deducting losses from the Aqueduct

3 & 4 Entitlement limits pursuant to Restructured Agreement. Note that agreement does not specify an Annual Entitlement Limit (cap) for Other Agency Customers so this have been estimated by escalating the avg of FY 2003 and FY 2004 demand by 2% per year growth and then adding a 10% contingency. MMWD "annual entitlements" are set forth in agreements between SCWA and MMWD. Russian River Customers entitlements are based on agreements the SCWA has with these respective customers taking into account points of diversion authorized to be covered under SCWA's water rights. See Entitlement sheet and RR Cust sheet for details.

5 Water for HC, S & FP is assumed to be fairly represented by "inside demand" for all metered uses and including an adjustment factor for UFW. Inside demand is in turn estimated by examining winter level demand, a requirement of the Restructured Agreement. Values used in this model are from the base year (cal. yr 2004) compiled for the 2005 UWMP. See "Human" sheet for details.

6 Prior column extended over the entire year and converted to afa.

7 Reasonable Requirement is assumed to be equal to annual deliveries made to Customers in a recent non-drought year. For the purposes of this analysis, The avg. for FY 2003-04 and 2004-05 deliveries were used. In future analyses, an average of the immediate past 3 years is recommended. In the case of this analysis, going back further in time was not done due to significant changes in aqueduct demand by the City of Rohnert Park.

- 8 Sec 3.5(c)(2) provides that in determining "reasonable requirements" the SCWA may take into account hardening of demand resulting from the level of conservation achieved by a given customer of the SCWA. This column contains a Demand Hardening adjustment factor derived from annual per capita demand taking into account all uses and including UFW. Information compiled for the base year (2004) for the 2005 UWMP was used. See DH Factor sheet for details.
- 9 Col 8 x Col 7.
- 10 Col 10 "normalizes" Col 9 such that sum of all adjusted reasonable requirements is equal to original sum of Reasonable Requirements. $Col\ 9 \times (sum\ of\ Col\ 7 / sum\ of\ Col\ 9)$. This column is then used to define the "Reasonable Requirement" that is referred to in Sec. 3.5(a)(3)(iii) of the Restructured Agreement.
- 11 Lesser value comparing Reasonable Requirement to Annual Entitlement Limit as stipulated in Section 3.5 (2) (3) (iii). This is the value used for testing to see that the total of the "First" and "Second" allocation of water to a given customer is reasonable.
- 12 Local supplies are based on an estimate by JONWRM of "safe yield" of same. For Water Contractors, the data reported to West/Yost is the basis for the estimate. See Local sheet for details. The "safe yield" used for MMWD was provided by MMWD. It is noted that data is missing for Other Agency Customers and Russian River Customers. It is important that SCWA develop an on-going data collection system to at all times know potential local supply yield in order to achieve accuracy necessary for the allocation calculation.
- 13 Detailed population estimates from Census tract data compiled by Maddaus for the base year (cal. 2004) used in the 2005 UWMP. See Pop sheet for details and explanation of exceptions.
- 14 Winter level per capita demand determined by Maddaus for the base year (cal. 2004) used in the 2005 UWMP. See GPCD sheet for detailed explanation.
- 15 Weighted avg. of per capita winter level demand for existing Prime contractors. See GPCD sheet.
- 16 Safe yield of Local Supply expressed as a per capita value using population data shown i.e. $Col\ 12 * 7.48 * 43,560 / (365 * Col\ 13)$.
- 17 HC, S & FP demand not met by Local Supplies and calculated as follows: If Wt'd average per capita demand (Col 15) is greater than the portion of per capita demand met by Local Supply (Col 16), the difference of the two is entered in this column, if not, "0" is entered.
- 18 "First" allocation calculated as follows: If Local Supply safe yield (Col 12) is greater than Winter level demand extrapolated for the full year (Col 6), then "0" is allotted, if not the portion of per capita demand not met by Local Supply (Col 17) is calculated for the year for the entire population, expressed in ac-ft and entered here. In the case of consecutive drought years, it is important that Col 12 values (safe yield of local supplies) be updated in order for this calculation to be accurate. This is especially true for contractors relying on surface water supplies such as NMWD and MMWD whose surface supplies drop sharply when faced with consecutive drought years.
- 19 Test to see that "First" allocation does not exceed respective Entitlement Limits as required by Section 3.5 (a)(3)(i).
- 20-22 These three columns combine the entitlements of the Regular Customers (which pursuant to Sec. 3.5(a)(3)(ii) must be derived from the avg. daily rate during any month - mgd values contained in Sec. 3.1) and the contractual entitlements of MMWD and RR Customers which are expressed in ac-ft per year values contained in their contracts. These relative entitlements are first converted to %'s, then added together.
- 24 This column "normalizes" the combined entitlement shares such that the sum of all entitlement shares adds to 100%. The resulting %'s are then used to distribute the "Second" allocation of water called for by Sec. 3.5(a)(3)(ii).
- 25-40 These cells contain the iterative trials necessary to arrive at the "Second" allocation of water. The process is iterative as the Test of whether the "Second" allocation is valid or not is set forth in Section 3.5 (b) (3) (iii) and requires that (in addition to not exceeding the Entitlement Limit) the sum of the "First" allocation (Col 18) and the "Second" allocation not exceed the "Reasonable Requirement" (Col 10)

Future Allocation Model

Allocation of Water During a Period of Deficiency Pursuant to Sec. 3.5 (a) of the Restructured Agreement for Water Supply

Based on **FUTURE** Level Demands and Water Available from the SCWA of **60,000** afa

This equates to an overall cutback in Russian River water supply of:

36.2%

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	38	39	40	41
	Entitlement Limits		Minimum Needs		Reasonable Requirement		Local Supply		HC, S & FP Per Capita Demand				First Allocation & Test		Second Allocation		Results				
SCWA Customers	Assumed Available Supply afa	Entitlement Daily Rate of Flow mgd	Annual Entitlement Limit (Cap) afa	Water Needed for Human Consumption, Sanitation and Fire Protection **** mgd	Reasonable Requirement afa	Lesser of Reasonable Requirement vs Annual Cap afa	Safe Yield of Local Supply afa	Pop. persons	Avg. Winter Level Per Capita Demand gpcd	Weighted Avg Per Capita Demand of Contractors gpcd	Portion of Per Capita Demand that can be served by Local Supply gpcd	Per Capita Demand that is not met by Local Supply ("First" Allocation Parameter) gpcd	"First" Allocation (Water req'd for HC, S & FP) afa	TEST Less Than Annual Entitlement Limit?	Normalized Entitlements ("Second" Allocation Parameter) %	"Second" Allocation afa	"First" plus "Second" Allocations afa	TEST Less Than Reasonable Req't ?	Amount Falling Short (-) of Reasonable Req't afa		
Regular Customers																					
Cotati*		3.8	1,520	0.64	720	1,520	1,520	216	7,337	88	94	26	68	558	Yes	2%	599	1,157	Yes	-363	
Petaluma*		21.8	13,400	6.15	6,893	13,400	13,400	748	58,057	106	94	11	83	5,379	Yes	13%	3,434	8,813	Yes	-4,587	
Rohnert Park*		15	7,500	3.74	4,186	7,500	7,500	2,077	42,329	88	94	44	50	2,390	Yes	9%	2,363	4,753	Yes	-2,747	
Sonoma*		6.3	3,000	0.92	1,029	3,000	3,000	72	10,502	88	94	6	88	1,036	Yes	4%	992	2,029	Yes	-971	
Windsor (Airport Service Area) (ASA)*		1.5	900	0.24	263	900	900	0	2,495	94	94	-	94	263	Yes	1%	236	500	Yes	-400	
North Marin Water Dist. (MMWD)*		19.9	14,100	6.04	6,767	14,100	14,100	1,800	55,587	109	94	29	65	4,066	Yes	12%	3,135	7,201	Yes	-6,899	
Santa Rosa*		56.6	29,100	13.48	15,094	29,100	29,100	1,530	155,121	87	94	9	85	14,840	Yes	35%	8,917	23,756	Yes	-5,344	
Valley of the Moon Water Dist.*		8.5	3,200	2.14	2,397	3,200	3,200	536	22,646	94	94	21	73	1,854	Yes	5%	1,339	3,193	Yes	-7	
Other Agency Cust (Includes FWD)**		2.7	2,048	0.48	534	2,048	2,048	-	8,080	94	94	-	94	853	Yes	2%	425	1,278	Yes	-770	
Sub-Total		136.1	74,768	33.82	37,884	74,768	74,768	6,979	362,154					31,239				52,680		-22,087	
Marin Muni. Water Dist.		0	14,300	18.39	20,605	14,300	14,300	20,500	189,945	97	94	96	0	0	Yes	13%	3,259	3,259	Yes	-11,041	
Russian River Customers***		0	5,025	unknown	2,916	5,025	5,025	-	27,634	unknown	94	-	94	2,916	Yes	4%	1,145	4,061	Yes	-964	
Total		136.1	94,093		61,404	94,093	94,093	27,479	579,733					34,155		100%	25,845	60,000		-34,093	
Reasonable Need Remaining Unmet Water Available for Allocation		60,000																			

Definitions:

* Defined in Restructured Water Supply Agreement as "Water Contractors" and often referred to as "Primes"

** FWD = Forestville Water Dist.

*** SCWA Russian River Contractors whose direct diversions and points of diversion have been approved and come under the auspices of the SCWA's Water Rights (Town of Windsor and Russian River County Water Dist.)

**** HC, S & FP = Human Consumption, Sanitation and Fire Protection

TM Data = information set forth in Tech Memo prepared by West, Yost & Associates (West/Yost) dated Sept 23, 2004, "Methodology for Implementation of Water Shortage Provisions in Eleventh Amended Agreement for Water Supply"

UWMP = Urban Water Management Plan

UFW = unaccounted for water (ie water due to losses, leakage, theft and unmetered deliveries, meter inaccuracies, fire hydrant flows, pipeline flushing, etc.)

af = ac-ft mgd = millions of gallons per day

afa = ac-ft per annum (year) gpcd = gallons per capita per day

Column Explanations:

All are same as shown on Current Model sheet except for below:

7 Reasonable Requirement is set equal to the Annual Entitlement limit (cap) in order to estimate the allocation in the future when SCWA Customers reach (or exceed) their Annual Entitlement (or contract) Limits.

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Weber Analytical



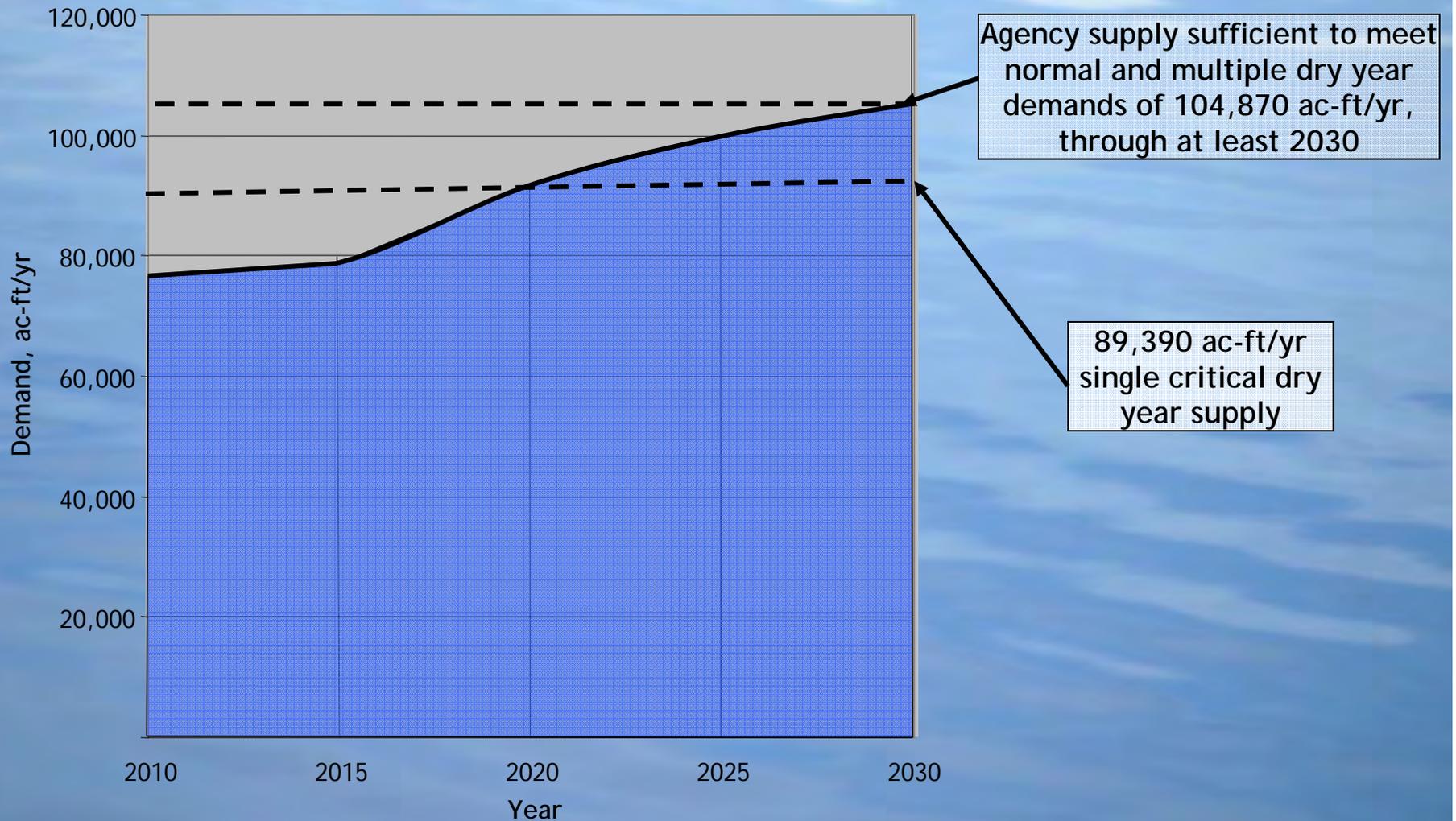
**MADDAUS WATER
MANAGEMENT**

**BROWN AND
CALDWELL**





Comparison of Agency Water Supply to Net Demand





Summary of Results

- Agency's Projected Supply for 2030:
 - 101,000 ac-ft/yr-Russian River
 - 3,870 ac-ft/yr-Groundwater
- Normal Year & Four Consecutive Dry Years
 - Reliable Supply Through 2030
 - Meets 100% of Agency's Water Demands
- Critical Dry Year
 - 100% of Demand Met Through 2015
 - Shortfall Estimated Beginning in 2020



Summary of Results

- In the Event of a Shortfall, Water Shortage Contingency Plan Implemented Pursuant to Methodology Described in the Restructured Agreement
- Increased Use of Local Supplies Until Agency Obtains Additional Water Rights and Completes Transmission System Projects

**COUNTY OF SONOMA
AGENDA ITEM
SUMMARY REPORT**

Clerk of the Board Use Only
Meeting Date **Held Until**
 ___/___/___ ___/___/___
Agenda Item No: **Agenda Item No:**

Department:
 Sonoma County Water Agency

() 4/5 Vote Required

Contact:
 Matt Damos

Phone:
 547-1983

Board Date:
 12-12-06

Deadline for Board Action:
 12-12-06

AGENDA SHORT TITLE:
 Urban Water Management Plan - 2005

REQUESTED BOARD ACTION(S):
 Resolution Adopting the Urban Water Management Plan 2005

CURRENT FISCAL YEAR FINANCIAL IMPACT

<u>EXPENDITURES</u>		<u>ADD'L FUNDS REQUIRING BOARD APPROVAL</u>	
Estimated Cost	\$ -0-	Contingencies	\$
		(Fund Name:)	
Amount Budgeted	\$ -0-	Unanticipated Revenue	\$
		(Source:)	
Other Avail Approp	\$	Other Transfer(s)	\$
(Explain below)		(Source:)	
Additional Requested:	\$ _____	Add'l Funds Requested:	\$ _____

Explanation (if required):

Prior Board Action(s):
 12/05/06 Public Hearing - 2005 Urban Water Management Plan – Public Review and Comment.
 04/18/06 Update on Water Project EIR, Urban Water Management Plan & Restructured Water Supply Agreement.
 02/28/06 Board Action 1 Authorize Chairman to execute the Third Amended 2005 Urban Water Management Plan – Consultant Services.
 10/05/04 Board Action 2 - 2005 Urban Water Management Plan - Consulting Services execute agreement with Brown and Caldwell.

Alternatives - Results of Non-Approval:
 No reasonable alternative exists, as adoption is mandated by the Urban Water Management Planning Act.

Background: Urban Water Management Plan 2005 and Letter on file with the Clerk.

1. Background Regarding the Agency's Urban Water Management Plan

The Urban Water Management Planning Act (UWMP Act) requires that an Urban Water Management Plan (UWMP) be prepared every 5 years by wholesale and retail water suppliers in California that provide service to over 3,000 customers or supply more than 3,000 acre-feet per year (afy). This Sonoma County Water Agency (Agency) agenda item recommends that the Board of Directors adopt the Agency's 2005 UWMP. This plan, prepared in consultation with the Agency's Water Contractors, land use planning agencies, and other entities, provides a projection of future water demand and Agency supplies through the year 2030. This UWMP must be adopted by December 20, 2006 to meet the requirements of a writ of mandate issued pursuant to a stipulated judgment in a lawsuit against the Agency for failure to adopt its UWMP by the end of 2005.

The UWMP compares the Agency's water supply to the projected net water demand (i.e., total water demand less savings from conservation in addition to offsets via the use of recycled water and local non-Agency supplies) by the Agency's Water Contractors, other transmission system customers, and water suppliers that directly divert water from the Russian River under the Agency's water rights. The UWMP Act requires specific analyses based on the following prescribed hydrologic scenarios: 1) a normal year; 2) four consecutive dry years; and 3) a critical dry year. The comparison of projected water supply to demand presented in the UWMP indicates that the Agency will be able to reliably provide the net water demand for normal and consecutive four dry year scenarios through 2030. For a critical dry year scenario, the analysis indicates that the Agency will be able to meet 100 percent of the net demand until 2020. After 2020, shortfalls are projected in critical dry years through 2030. During any such shortfall, the UWMP contains a water shortage contingency plan that describes the mechanism that the Agency would use to allocate water supplies to its retail water suppliers. This method was adopted by the Agency as required by the Restructured Agreement for Water Supply.

The UWMP was due to the California Department of Water Resources (DWR) at the end of 2005. Last winter the Agency notified DWR that its plan would be delayed because the Agency and its Water Contractors were conducting a comprehensive assessment of long-term water demand, conservation savings, and water supply through the year 2030. This process required extensive coordination between nine parties and involved a comprehensive technical analysis including computer modeling to evaluate projected water demand, conservation, and water supply. The Agency's approach during this analysis was to maximize water conservation and recycled water use to reduce total water demand and to balance Russian River water and local supplies (including groundwater) to meet the remaining demand.

B-1
Continued...

Attachments: Resolution (R1); Agency Staff Response to Comments (A1);
Brown & Caldwell Response to Comments (A2.)

On File With Clerk: Urban Water Management Plan 2005; Letter from Brown and Caldwell

CLERK OF THE BOARD USE ONLY

Board Action (If other than "Requested")

Vote:

Background (continued):

2. Public Hearing and Outreach

The Agency released the draft UWMP beginning October 31, 2006 for public review and comment. The draft UWMP was made available on the Agency's website and paper copies of the plan were available at the Agency's administrative office and at the Clerk of the Agency's Board of Directors. In addition, newspaper notices and advertisements were published and letters were sent to interested parties including cities, water districts, counties, environmental organizations, chambers of commerce, trade organizations, and non-profit organizations.

A public hearing was held by the Agency's Board of Directors as required by the UWMP Act on December 5, 2006. Public comment was received at the hearing and through written correspondence during the review process.

3. Summary of Public Comments and Response to Comments

Comment letters received by the Agency are on file with the Clerk of the Board of Directors. Agency staff and its consultants have reviewed comments received prior to and during the hearing. Based on this review, changes to the draft UWMP have been made and are incorporated in the final UWMP on file to this report. These changes include both editorial changes in addition to more substantial modifications. The more substantive modifications to the UWMP are:

Section 1 – Introduction

- Updated Table 1-1 and Section 1.4 Public Participation and Plan Adoption.
- Provided additional explanation regarding assumptions in Section 1.6.

Section 2 – Description of Existing Water System

- A reference to each of the Contractor plans has been added to Section 2.1.

Section 3 – Projected Water Use

- No significant changes

Section 4 – Introduction

- Modified Section 4.2.1 Groundwater Description to provide definition of overdraft and clarify that the Plan makes no independent evaluation of the basin conditions with respect to overdraft.
- Modified Section 4.2.2 Alexander and Sonoma Valley Basin and Groundwater Management Activities to more accurately describe the USGS study conclusions.
- Modified Section 4.2.3 Santa Rosa Plain Subbasin Studies and Groundwater Management Activities to include more recent geologic studies; eliminated detailed discussion of Rohnert Park WSA limitations, clarified its findings, and added reference to WSA legal challenge; added statement that a basin-wide assessment of overdraft is not required by the UWMP Act and is beyond the scope of this Plan; added reference to 1979 Agency memo on pump testing of Agency groundwater wells and updated and clarified interpretations of water level data; and added explicit statement that the Agency's groundwater supply is reliable.
- Added paragraph to Section 4.7 Water Supply Reliability that discusses assumptions and briefly describes possible future plans or actions in the event the assumptions change.

Section 5 – Recycled Water

- Modified Table 5-4 for Sonoma Valley County Sanitation District. No other significant changes.

Background (continued):

Section 6 – Water Conservation

- No significant changes

Section 7 – Water Supply and Demand Comparison

- Some text has been added to this section to summarize the data in the tables and identify the extent of shortfalls and how they would be addressed. Tables 7-13 and Table 7-15 have been modified to show a ramped up increase in water supply over a five year period.

Section 8 – References

- Updated to include additional references cited above

In addition to the above-described changes to the UWMP, the Agency and its consultant Brown and Caldwell have prepared responses to other comments that were received but which did not result in a modification to the UWMP. Many of the comments requested that the Agency evaluate broader scenarios and analyses than required by the UWMP Act. For example, some comments requested that various weather/hydrology scenarios be evaluated other than the normal year, four consecutive dry year, and critical dry year scenarios required by the UWMP Act. The Agency responses to comments are presented in Attachment A1 and Brown and Caldwell's responses are contained in Attachment A2.

Finally, the Agency has very recently learned that there may be a question as to whether the model used by the Federal Energy Regulatory Commission to evaluate flows into the Eel River and East Fork Russian River from the Potter Valley Project in connection with the recent license amendment proceeding is complete. Agency staff are investigating this issue and intend to meet with representatives of Federal Energy Regulatory Commission, National Marine Fisheries Service, Pacific Gas & Electric Co., and interested tribes to obtain more information on this issue. There is no evidence at the present time to substantiate an impact on the UWMP analysis as a result of this issue.

REQUESTED BOARD ACTION(S):

Adoption of the Urban Water Management Plan 2005

Resolution No. _____
County Administration Bldg.
Santa Rosa, CA

Date: _____

RESOLUTION OF THE BOARD OF DIRECTORS OF THE SONOMA COUNTY
WATER AGENCY ADOPTING THE URBAN WATER MANAGEMENT PLAN 2005.

WHEREAS, the Urban Water Management Planning Act (UWMP Act), which is codified at California Water Code Section 10610 *et seq.*, requires that every urban water supplier which provides 3,000 acre feet or more of water annually, or which directly or indirectly supplies water for municipal purposes to more than 3,000 customers, shall prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the Sonoma County Water Agency (Agency) has prepared a regional Urban Water Management Plan (UWMP 2005) covering the Agency to meet the requirements of the UWMP Act; and

WHEREAS, the UWMP 2005 must be adopted after public review and a public hearing by the Agency's Board of Directors and must be filed with the California Department of Water Resources; and

WHEREAS, the Agency has heretofore prepared the plan, and commencing on October 30, 2006, circulated for public review UWMP 2005, in compliance with the requirements of the UWMP Act, and a duly noticed public hearing was held on December 5, 2006, by the Board of Directors in accordance with said notice.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Sonoma County Water Agency hereby finds, determines, and declares as follows:

1. All of the above recitals are true and correct; and
2. This Agency has prepared said UWMP 2005; and
3. A copy of the UWMP 2005 has been made available for public inspection at both offices of the Agency continuously since October 30, 2006 and on the Agency's website; and on December 5, 2006, this Board of Directors held a public hearing on the UWMP 2005. Notice of the time and place of said hearing was published in the Press Democrat, a newspaper of general circulation on November 20, 2006 and November 27, 2006; and
4. The Urban Water Management Plan 2005 is hereby approved and adopted.

DIRECTORS:

BROWN _____ KERNS _____ SMITH _____ REILLY _____ KELLEY _____

Ayes _____ Noes _____ Absent _____ Abstain _____

SO ORDERED.

R1

Sonoma County Water Agency Staff Response to Comments

A. Public Notice and Opportunity to Comment

Several comments expressed concern about public involvement and inadequate notice. However, the public notice provided by the Agency goes beyond statutory requirements and the extensive comments received reflect the level of public involvement.

Notice of the availability of the draft plan was first published on October 30 and November 6, 2006 in the Press Democrat, a newspaper published in Sonoma, Marin and Mendocino Counties. The notice stated that the plan was available for review at Agency offices and online at the Agency's website. This notice was sent to 35 public entities and 71 organizations and environmental groups on November 20, 2006

When the hearing on the draft Urban Water Management Plan (UWMP) was rescheduled from November 14, 2006 to December 5, 2006 a new notice was published on November 20, 2006 and November 27, 2006 in the Press Democrat. The Agency sent this Notice to 86 entities and individuals representing diverse social, cultural and economic interests, including local and statewide environmental organizations, municipalities, chambers of commerce and trade organizations. The Agency also published display advertisements containing the Notice on November 22, 2006 in the Press Democrat, the Petaluma Argus Courier, and the Sonoma Index Tribune.

B. Consistency of the County of Sonoma draft General Plan 2020 with the UWMP

Several comments also expressed concern that the draft Sonoma County General Plan 2020 and related environmental documents be consistent with the UWMP. The Agency and the County are separate legal entities, and the UWMP process and the General Plan development process have different purposes and must comply with entirely separate and different regulatory requirements. Draft General Plan 2020 documents prepared to date discuss many of the water supply issues as those described in the UWMP. These issues and the assumptions used in preparing the UWMP are described in more detail in Section 1.6 of the UWMP. Agency staff will continue to work with the staff of Sonoma County Permit and Resource Management Department through the draft General Plan 2020 process to ensure that the draft General Plan 2020 documents include appropriate information about the Agency's water supply.

C. Assumptions used in the UWMP

Several comments took issue with the assumptions used by the Agency in the UWMP, particularly the assumptions relating to Potter Valley Project diversions, the impact of the listing of salmonid species under the Endangered Species Act, and the timing of construction of the Water Project. The UWMP text has been amended to address these comments and to explain in more detail the basis for the assumptions made by the Agency in the UWMP, and why the assumptions are reasonable and supported by substantial evidence.

Other comments suggested that the Agency should undertake alternative analyses of available future supply based upon assumptions that differ from those used by the Agency. The Agency has not done so, for several reasons. First, such alternative analyses are not required by the UWMP Act. Second, given the wide range of alternate assumptions suggested by the comments, the number of permutations of potential analyses is enormous. Third, any alternative assumptions made by the Agency to produce such alternative analyses would be arbitrary, and thus would not necessarily reflect any particularly likely set of future conditions. This could result in an analysis that would be misleading to those relying upon the UWMP. Finally, any such alternative analyses based upon different assumptions arbitrarily selected by the Agency would be subject to exactly the same criticism these commentators have made against the existing assumptions (i.e., why were certain assumptions used, and not others).

D. "Paper Water"

Comments repeatedly state that the UWMP is based upon "paper water." However, unlike a true "paper water" scenario, in which a supplier is relying on a contract ("paper") entitlement to water that is, in fact, unsupported by actual physical water supplies, the opposite situation exists with respect to the 101,000 acre-feet per year that the UWMP contemplates the Agency will have available from the Russian River. Reservoirs to divert and store the water have been constructed and filled. The Agency has control of the reservoirs, the Agency has the legal right to divert and store the water, and modeling shows that the local climate will produce sufficient precipitation to produce sufficient water in all scenarios (except in a single critical dry year after 2020). Because the underlying physical supply of water upon which the UWMP analysis is based exists in storage, available for the Agency to use, the Agency's water supply is not based upon "paper water."

E. Reservoir Sedimentation Rates

Comments were received which questioned whether sedimentation rates of the reservoirs were included in the Agency's analysis of future water supply. The sedimentation rate for Lake Pillsbury was estimated by the modeling consultant for the Department of the Interior during the process of modifying the in-stream flow requirements of the Potter Valley Project during the late 1990s. The Agency has no reason to believe that the methodology for estimating sedimentation rates used in the Department of the Interior's Potter Valley Model is incorrect.

The sedimentation rate for Lake Mendocino is based upon historical bathymetric surveys of the reservoir. Lake Mendocino capacities were calculated at the time the reservoir was constructed in 1959 and again in 1985. The annual sedimentation rate from this reservoir was calculated as the change in storage between 1959 and 1985 divided by the number of years over which the storage reduction occurred. The resulting annual sedimentation rate is applied to future storage reductions by multiplying that annual sedimentation rate by the number of years into the future that the model run applies.

The modeling for Lake Sonoma storage does not include specific storage reductions as a result of sedimentation because the design of the reservoir includes sediment storage below the minimum pool. The minimum pool for Lake Sonoma is 20,000 acre-feet and until that amount of sediment has settled into the lake, there will be no reduction in the *usable* storage volume in the lake. Recent bathymetric surveys conducted by the Corps of Engineers indicate that the current level of sedimentation is still below 20,000 acre-feet.

F. Use of Weather Normalization Methodology to Project Future Water Demand

One commentator questioned if weather normalizing future water demand is appropriate. Weather normalization of water demand is a standard practice within the water industry. Water demand will vary with a number of factors including the weather and the use of local sources by agencies. Weather induced variations in demands have been estimated to be +/-3 percent of the weather normalized demand based on historical records. As the demand grows to the maximum that the Agency will provide in the year 2030 (104,870 acre-feet per year [afy]) retail water providers will provide local supplies to address weather induced increases in demand. The 104,870 afy to be supplied by the Agency is based on the Agency's current and anticipated future water rights to divert/redirect water from the Russian River (101,000 afy) in addition to 3,780 afy from the Agency's groundwater wells. The 101,000 afy diversion/redirect limit would be based on water rights restrictions not limits to the actual water supply in Lake Sonoma. There is water remaining in storage available for water supply beyond the 101,000 afy that the Agency estimates will be required from the Russian River in 2030. Tables 4-6 through Table 4-8 show the remaining water storage in Lake Sonoma through 2030 after the annual net demands are met for an average year, single dry year, and four multiple dry years, respectively.

G. Use of Historical Hydrologic Records as a Basis for Projecting Future Water Supply

One commentator suggested that the use of historical hydrologic data is not a sufficient basis for evaluating future water supply. It is standard practice for water supply planners to use actual hydrologic data from the

past in order to simulate future water supply scenarios. This scientific approach is widespread and represents the standard method for interpreting possible future scenarios without speculation. The Agency could speculate about the future being drier than the past or wetter than the past, but there is no information upon which to base such a contention, nor is it required by the Urban Water Management Planning Act (UWMP Act).

H. Groundwater

A number of comments were received regarding groundwater overdraft, particularly in the Santa Rosa Plain Subbasin. The UWMP Act requires an UMWP to state whether the DWR has identified that a groundwater basin that will be used as a source of water supply is in overdraft conditions and whether any anticipated groundwater supply is reliable. The Agency's UWMP states that the Agency's projected groundwater supply is reliable based on operational records and water level monitoring, and that the DWR has not identified the Santa Rosa Subbasin as being in overdraft. This is discussed in more detail in the attached letter from Brown and Caldwell. The Agency is currently leading a comprehensive basin study with the U.S. Geological Survey and other local participating entities to evaluate groundwater conditions throughout the basin. The results of this study will enhance the understanding of basinwide conditions and will provide modeling tools that can be utilized to simulate future groundwater use scenarios for planning purposes.

I. Global Warming

Several comments were received that questioned why the impacts of global warming were not evaluated in the UWMP. There is no requirement within the UWMP Act to include the potential impacts of global warming in the UWMP. Agency staff has been involved in discussions regarding climate change with top scientists in the field at the Lawrence Livermore National Laboratory regarding the application of climate forecast models to the Russian River and Eel River watersheds. The conclusion of these researchers is that while there is a good deal of agreement suggesting that global warming may diminish snowpack in the Sierras, the climate models are unsuitable for use in predicting future climate impacts along the non-snowpack watersheds of coastal regions of Northern California, including the Russian and Eel River watersheds. The results from the several models used for climate forecast prediction indicate variable results of more rainfall, less rainfall, or the same rainfall under global warming scenarios. The Agency specifically asked scientists from Lawrence Livermore National Laboratory (LLNL) if modeling the effects of global warming would provide meaningful results. The response from LLNL was that the climate forecast models at this time would not provide meaningful results.

The Agency has used the past 95 years of hydrology as a modeling assumption for the range of conditions we are likely to see in the future. Since the analyzed scenarios required by the UWMP Act are defined in terms of the period of record, this is the most appropriate approach. The Agency will continue to monitor the state of the science regarding global warming and will consider including analysis of global warming if meaningful predictions can be made in the future.

J. Miscellaneous Comments

One commentator stated that the UWMP should explain how the shortfall in supply in single dry years after 2020 will be addressed. The UWMP Act does not require a water supplier to show how all water demands will be met at all times. To the contrary, the UWMP Act says that if a source is not consistently available, the supplier should "describe plans to supplement or replace that source with alternative sources *or water demand measures*, to the extent practicable." The UWMP contains a Water Shortage Contingency Plan that describes how the Agency would allocate limited supplies among its contractors and customers pursuant to the Restructured Agreement for Water Supply during the a single-dry-year shortage. The specific water demand measures that the Agency's customers (retail suppliers) will use with respect to their customers (end users) will be specified in the individual UWMPs of the customers and contractors.

One commentator stated that the Agency failed to coordinate preparation of the UWMP with Federal Energy Regulatory Commission (FERC) and NOAA Fisheries/National Marine Fisheries Service (NMFS). As the and routine contact with NMFS staff, and the Biological Assessment submitted to NMFS in September 2004

UWMP notes, the Agency has been engaged for nine years in a Section 7 consultation with NMFS regarding the impact of the Agency's activities on listed salmonid species. Agency staff and consultants have frequently describes the additional Agency "Water Project" facilities proposed by the Agency and their impact on the species. Given this ongoing formal and informal contact between the Agency and NMFS, engaging in a formal "coordination" with NMFS over the UWMP was unnecessary and would not have resulted in any change to the UWMP. With respect to FERC, the Agency fully participated at FERC in the recent Potter Valley Project license amendment proceeding. The FERC decision on the license amendment, which was upheld by the Ninth Circuit Court of Appeals, is now final. Formal consultation with FERC was neither appropriate nor required given the finality of FERC's decision.

One comment requested that detailed information regarding Pacific Gas & Electric's Lake Pillsbury be included in the UWMP. There is no requirement in the California Water Code that requires any of the information. Including this data in the UWMP would only add weight to the false impression that the Agency operates the Potter Valley Project.

Attachment A2

Brown and Caldwell Response to Comments

Please see attached.

BROWN AND
CALDWELL

December 7, 2006

Mr. Jay Jasperse
Deputy Chief Engineer
Sonoma County Water Agency
P.O. Box 11628
404 Aviation Boulevard
Santa Rosa, California 95406

1011/127280-006

Subject: Responses to Comments on the Sonoma County Water Agency
Draft 2005 Urban Water Management Plan

Dear Mr. Jasperse:

The purpose of this letter is to address the public comments on the Sonoma County Water Agency (Agency) Draft 2005 Urban Water Management Plan (UWMP). The written comments received and addressed in these responses include the following:

- O.W.L. Foundation (H.R. Downs), November 13, 2006
- Dr. Steven F. Carle, November 13, 2006
- Sonoma County Water Coalition (Stephen Fuller-Rowell), December 4, 2006
- O.W.L. Foundation (H.R. Downs), December 4, 2006
- Stephen C. Volker Law Offices, December 5, 2006
- Friends of the Eel River, December 5, 2006

Brown and Caldwell (BC) has reviewed the comment letters, considered the issues raised, and discussed them with you and other Agency staff. We are of the opinion that the conclusions of the UWMP are valid, but acknowledge that some of the comments are useful and have revised the Plan to address them as noted in the enclosed responses to comments. We understand that other comments are being addressed by Agency staff in a report for the December 12 Board Agenda Item.

Mr. Jay Jasperse
December 7, 2006
Page 2

Please contact us at your convenience if you have any questions.

Very truly yours,

BROWN AND CALDWELL



Martin G. Steinpress, PG, C.Hg.
Chief Hydrogeologist

BROWN AND CALDWELL



Paul Selsky, P.E.
Vice President

MS:dt

Enclosure: Responses to Comments

cc: Jill Golis, Sonoma County Water Agency
Matt Damos, Sonoma County Water Agency
Bill Maddaus, Maddaus Water Management

Enclosure A

Responses to Comments On the Sonoma County Water Agency (Agency) Draft 2005 Urban Water Management Plan (UWMP)

O.W.L. Foundation (H.L. Downs), 11/13/06

Comment: p.1, paragraph 1; Reliance on Rohnert Park Water Supply Assessment (WSA)

Response: The UWMP does not “rely” on the WSA, but summarizes its findings based on our review, as has been done for all significant Sonoma County groundwater-related reports and studies.

Comment: p.1, paragraph 2; Legal issues in O.W.L. Foundation, et. al. versus City of Rohnert Park, et. al.).

Response: The UWMP has been revised to acknowledge that the conclusions of the WSA have been contested by some parties that the case is being appealed, and that contrary opinions exist. It is beyond the scope of the UWMP to review the copious administrative record of the case, but a reference to the case has been added to the UWMP.

Comment: p.1, paragraph 3; Agency adoption of UWMP.

Response: None necessary, except to note that the UWMP makes no conclusion with respect to basin-wide overdraft, and primarily reviewed, considered and summarized previous findings and data. A limited interpretation of specific hydrographs in local areas does not constitute an assessment of basin-wide overdraft.

Comment: p.1, paragraph 4; California Water Code Section 100631 (b) requirements.

Response: The code only requires that the California Department of Water Resources (DWR) characterization of groundwater conditions with respect to overdraft be described. The UWMP has in fact gone beyond the requirement by summarizing not just DWR’s findings, but also other available studies and reports.

Comment: p.2, paragraph 1; WSA and unreliable “paper water” projections.

Response: See response to comment p. 1, paragraph 1; above

Dr. Steven F. Carle, 11/13/06

Comment: p.1; Interpretations of overdraft and reliance on Rohnert Park WSA

Response: Agency and BC staff have carefully considered the comments received and we have revised the UWMP as deemed appropriate. As noted above the UWMP does not “rely” on the WSA. In addition, our definition of groundwater overdraft (which is the same as DWR’s) has been clearly defined below and in the revised UWMP, and the UWMP’s limited interpretations clarified.

Comment: p.2, paragraph 1; UWMP Scope

Response: References to the contractor’s individual UWMPs have been added to the Agency plan, which is not intended to serve as the UWMP for the individual contractors. The contractor UWMPs should be consulted for the cited requirements.

Comment: p.2, Demand Variation.

Response: This comment is addressed in the Agency December 12 staff report.

Comment: p. 3, Location of Agency groundwater wells in relation to the City of Santa Rosa.

Response: None of the three Agency wells are within the City of Santa Rosa city limits, and are hence not included in the City’s pumping totals but rather in the Agency totals.

Comment: p.3, Fate of Agency groundwater.

Response: Agency does not and cannot distinguish which contractors get Agency groundwater (or from which well). The UWMP is not a WSA, so no such requirement applies. The Santa Rosa Southwest Project EIR has not been reviewed.

Comment: p. 3, Definition of Overdraft.

Response: The comment is useful, and the following verbatim definition of overdraft from DWR Bulletin 118 – Update 2003 has been added to Section 4.2.1 of the UWMP:

DWR defines groundwater overdraft “as the condition of a groundwater basin or subbasin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions (DWR 1998). Overdraft can be characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years. If overdraft continues for a number of years, significant adverse impacts may occur, including increased extraction costs, costs of well deepening or replacement, land subsidence, water quality degradation, and environmental impacts” (DWR, 2003).

The UWMPs above definition of overdraft is identical to DWR Bulletin 118-Update 2003 (p. 96). Mr. Carle's later assertion that water levels must recover to "pre-development conditions" is neither a reasonable nor attainable criteria in a basin with significant pumping for either agricultural or urban uses, and we disagree with that criteria. Instead, we believe DWR'S definition only requires that water level declines in dry years recovering in wet years to pre-drought levels for long-term water levels to be considered stable and the basin to not be in overdraft.

The cited Bulletin 118 hydrograph (Figure 18) is actually presented by DWR as an example of water level declines thru the mid-1980's that indicate "historical overdraft", that "then leveled off in the mid-1980s, indicating less groundwater extraction or more recharge." If such a hydrograph were representative of a basin, a new steady state of equilibrium would have been reached where discharge (including pumping) approximates recharge. However, a single well or even several wells in a localized part of a basin (or subbasin) are insufficient to assess basin-wide conditions, which must consider the entire basin's change in groundwater storage. It is beyond the scope of this UWMP to make an independent comprehensive assessment of the condition of the basin and it is not required in the UWMP Act.

Comment: p. 3, Definition of Overdraft, paragraph 2, Rohnert Park WSA definition.

Response: The UWMP definition has been presented in the previous response and the revised UWMP.

Comment: p.4, Definition of Overdraft (continued)

Response: Long-term is typically defined as a period of years that approximate long-term average conditions, which generally includes at least one cycle of drought and intervening wet or normal years. In California, such a cycle may be on the order of several years to a decade or more. This statement is consistent with the above quoted DWR definition and has been added to the revised UWMP.

Comment: p.5, DWR Position on Overdraft

Response: The statement of DWR's identification (or lack of) is required by California Water Code Section 10631 (b) (2). The UWMP has been revised to make clear DWR's position and that the Department has not revisited this position since the late 1970s.

Comment: p.5, Indications of Overdraft in the Sonoma Valley.

Response: The USGS-cited observations are not in themselves sufficient to demonstrate basin overdraft, and the USGS study did not indicate that the basin was in overdraft.

Comment: p. 5, Indication of Overdraft in the South Santa Rosa Plain Subbasin, paragraph 1.

Response: See previous response regarding definition of overdraft.

Comment: p. 5, Indication of Overdraft in the South Santa Rosa Plain Subbasin, paragraph 2.

Response: We recognize that the Rohnert Park Water Supply Assessment has been contested by some parties and was invalidated and that the trial court's decision has been appealed to the Court of Appeal. However, the analysis of the groundwater supply presented in this UWMP does not rely on the conclusions contained in the WSA. Rather, Brown and Caldwell and the Agency's hydrogeologists reviewed, considered and summarized the WSA, together with the other available information discussed in this section. It is beyond the scope of the UWMP to review the voluminous documents associated with the case. However, we have modified the UWMP to acknowledge that there is a legal dispute regarding the validity of the WSA and that there are differing opinions on the condition of the Santa Rosa Plain Groundwater Basin with respect to overdraft.

Comment: p.5, Indication of Overdraft in the South Santa Rosa Plain Subbasin, paragraph 3

Response: We reviewed the DWR document as suggested, and revised the UWMP evaluations as appropriate.

Comments: p.5, Indication of Overdraft in the South Santa Rosa Plain Subbasin, paragraph 4

Response: The UWMP merely summarizes the findings of the Canon Manor EIR and does not rely upon its conclusions.

Comments: p.6, Rohnert Park Well Depth Zones.

Response: No response deemed necessary.

Comment: p.6, Groundwater Level Trends.

Response: See previous responses; the expectation that groundwater levels in an actively exercised basin would ever fully recover to "pre-development conditions" is neither reasonable nor attainable.

Comment: P.6, 7,350 Acre Feet City Pumpage.

Response: The WSA prediction has been removed from the Revised UWMP was simply reporting the WSA statement. In our judgment, the hydrograph actually shows stable water level conditions since 1990, and more recent data indicates recovery in response to reduced pumping in the area.

Comments: p.7, DWR Well 06N08W15J003M, paragraph 1.

Response: It is important to distinguish between groundwater basin overdraft (a long-term decline in basin storage that is recognizable by widespread water level declines) versus the local impacts on neighboring wells (such as well 06N08W15J003M) from pumping of a supply well or well field (such as Rohnert Park's). Given the proximity of Well 06N08W15J003M to Rohnert Park and the rapid response to reduced

pumping, it is Brown and Caldwell's and Agency staff's opinion that the well's water levels are likely primarily the result of local Rohnert Park pumping (rather than basin-wide overdraft).

Comment: p. 7, DWR Well 06N08W15J003M, paragraph 2

Response: It is not required under the UWMP Act and is beyond the scope of the UWMP to predict future overdraft conditions.

Comment: p. 8, Agency Well Groundwater Levels

Response: The UWMP definition of overdraft has been stated above and in the revised UWMP. Evidence of full recovery of groundwater levels is not necessary.

Comment: p. 8, Prior Studies on Agency wells.

Response: Brown and Caldwell obtained a copy of the 1979 memo, and the revised UWMP includes a reference to this study.

Comment: p. 9, DWR Monitoring Wells near Agency Groundwater Wells.

Response: The additional monitoring data has been reviewed and summarized in the revised UWMP.

Comments: p.11, Todd Road Monitoring Well

Response: The revised UWMP includes a discussion of the cited water levels since 1997.

Comments: p. 12, Groundwater Pumped by Agency Contractors

Response: The reference for groundwater projections have been corrected to Table 4-12, and Contractor UWMPs have been referenced for their individual pumping.

Comment: p. 12, Dry Year Analysis

Response: The Agency UWMP only addresses the Agency component of the supply as required by the UWMP Act in Water Code 10631(b)(3). The remaining pumping is made up by the Contractors.

Comment: p. 12, SB610 Requirements

Response: The Agency UWMP meets all substantive requirements of SB610. The individual contractor's UWMPs should be consulted for the cited information.

Comment: p. 12, Amount and Location of Groundwater Pumped

Response: The individual contractor's UWMPs should be consulted for the cited information.

Comment: p.13, Groundwater Sufficiency

Response: The analysis of the groundwater supply presented in this UWMP does not rely on the conclusions contained in the WSA, but simply summarizes them as it does other studies of the groundwater supply. The Agency UWMP includes the groundwater pumped by the Contractors as required in Water Code 10631(b)(3). The individual contractor plans should be consulted for estimates of their future pumping.

Comments: p. 13, Water Use Sectors

Response: The UWMP does provide a breakdown so far as the data from individual water retailers permits. Some of the sectors do not apply or are combined in the billing systems.

Comments: p. 14, Single-Family and Multi Family Use

Response: The requested use projections are included in the above sectors, and further data is not available in the billing systems. Furthermore, the cited requirement does not apply to a water wholesaler, and the individual Contractor plans should be consulted for the requested information.

Comment: p. 14, Public Involvement

Response: The public involvement satisfied and exceeded all requirements of the code. Please see the response to the comment on p. 16, Public Notification below and Appendix A of the Revised Plan for more information.

Comment: P. 14, Newspaper Publication

Response: The notices satisfied and exceeded all requirements of the code. Please see the response to the comment on p. 16, Public Notification below and Appendix A of the Plan for more information.

Comment: p. 15, Delay

Response: The Agency complied with all notice provisions of the UWMP Act.

Comment: p. 15, Abuse of Discretion and Substantial Evidence.

Response: The definition of overdraft has been provided above and in the revised UWMP.

Comment: p. 15, Minimize the Need to Import Water from Other Regions.

Response: Please refer to the individual Water Contractor UWMPs for a description of the tools and options (conservation, recycling, local groundwater and surface water supplies, etc.) used by the San Francisco Bay Hydrologic Region Water Contractors to minimize their need for imports from the North Coast Hydrologic Region.

Comment: p. 16, Public Notification.

Response: Notification of the release and availability of the draft plan for review and comment was provided through newspaper notifications and advertisements, letters to cities, water districts, counties, environmental organizations, chambers of commerce, trade organizations, and non-profit organizations. The draft plan was made available at Sonoma County Water Agency's Office, the office of the Clerk of the Agency's Board of Directors, and on the Sonoma County Water Agency Website.

A public meeting for the UWMP was originally scheduled for November 14, 2006 with newspaper notifications posted in the Press Democrat on October 30, 2006 and November 6, 2006. The November public meeting was canceled and rescheduled for December 5, 2006 with re notifications posted in the Press Democrat on November 20, 2006 and November 27, 2006.

Comment: p. 16, Notification of MMWD

Response: Coordination with Marin Municipal Water District was performed during the initial collection and preparation of data for the Agency's UWMP. Draft plans were provided to the Cities and Districts which were part of the comprehensive demand and conservation analysis performed by Maddaus Water Management. Marin Municipal Water District was notified by letter of the release and availability of the draft plan for review and comment. North Marin Water District did not send a draft copy of the Agency's UWMP to Marin Municipal Water District.

Comment: p. 16, Agency Well/Well Field not Discussed.

Response: A description of the Agency's Russian River water supply facilities, including the Russian River wellfield, has been added to Section 2 of the revised plan. The Russian River wellfield (which includes six collector wells) divert underflow from the Russian River under the Agency's water rights.

Sonoma County Water Coalition (SCWC), 12/4/2006

Comments: p.1 thru 4; Application and Relation of UWMP, Overview Comments, and Discussion (Sections 1 and 2).

Response: Many of the comments on the UWMP's scope suggest broader and additional scenarios and analyses that are beyond that required by the UWMP Act. Please see the Agency staff report for the Agenda Item for the Board's December 12, 2006 meeting for additional responses.

Comment: Sect. 3.1.3, Pg 3-3, Population figures (Table 3-2)

Response: Future water use is not linear with growth in population. Water use is based on both population and job growth. Projections shown in Table 3-5 included reductions in use due to planned conservation programs.

Comment: Sect. 3.2, Pg. 3-5, Increases in demand.

Response: MMWD's projections are contracted amounts and do not expressly incorporate planned conservation. Other water agency contractors future water use were forecasted based on population and job growth and then reduced due to planned conservation.

Regarding the SWRCB's February 5 letter and Russian River withdrawals, the Water Agency responded to the letter by preparing a report called: *Report to the State Water Resources Control Board on Water Conservation*, dated April 15, 2005. The Water Agency provided the report and made a presentation to the State Board on April 21, 2005. The Agency believes that State Board Members responded favorably to the Agency's presentation.

Comment: Sect. 3.2, Pg. 3-6, Regarding Unaccounted for Water.

Response: The percentage of 3.7 percent is assumed to remain constant in time. This applies to the agency's transmission system. This value is low by AWWA national standards.

Comment: Section 4.1, Page 4-5, NMFS Biological Opinion

Response: Please see the Agency staff report for the Agenda Item for the Board's December 12, 2006 meeting for a response to this comment.

Comment: Section 4.2.1, Page 4-6, DWR identification of overdraft

Response: California Water Code Section 10631(b) requires that DWR's characterization of basin groundwater conditions with respect to overdraft be described in all UWMPs. The revised UWMP has been revised to make clear that DWR's characterization is dated. The current USGS study is already described in the UWMP.

Comment: Section 4.2.2, Page 4-8 SCWC Paragraph 1), Santa Rosa Plain Subbasin groundwater pumping.

Response: We are not aware of any studies of the effect of groundwater pumping in the Santa Rosa Plain on Russian River flows. Such a technical or legal analysis is beyond the scope of the UWMP and not required by the Act.

Comment: Section 4.2.2, p. 4-8 (SCWC Paragraph 2), USGS estimates of groundwater budget for Sonoma Valley.

Response: The revised UWMP will include a statement concerning the uncertainties associated with the USGS Sonoma Valley groundwater study.

Comment: Section 4.2.2, Page 4-8 (SCWC Paragraph 3). Sonoma Valley groundwater depressions and salinity.

Response: The UWMP authors agree that localized drawdown cones and the salinity front should be carefully monitored to evaluate their significance.

Comment: Section 4.2.3, Pages 4-10 to 4-11. More current geologic information on Santa Rosa Plain.

Response: The complex stratigraphic relationships between the partly contemporaneous late Miocene to Pliocene units (Wilson Grove Formation, Sonoma Volcanics, Petaluma Formation, Cotati Sand and Gravel, and part of the Glen Ellen Formation) are indeed the subject of continuing studies, as indicated by the comment. The UWMP has been revised to incorporate more recent studies of the extent and stratigraphic relationships of the Wilson Grove Formation.

Comment: Section 4.2.3, Page 4-14, Impacts of Agency and contractor wells

Response: The UWMP has been revised to more clearly state historical water level changes in the vicinity of the three Agency supply wells. Please refer to the individual contractor UWMPs for their specific future pumping plans.

Comment: Section 4.2.3, Page 4-18, DWR hydrographs and potential overdraft conditions

Response: The UWMP has been revised to avoid any conclusion with respect to potential overdraft in the Santa Rosa Plain.

Comment: Section 4.5, Page 4-19, and Section 4.7, p. 4-24, Russian River System Model

Response: Please see the Agency staff report for the Agenda Item for the Board's December 12, 2006 meeting for a response to these comments.

Comment: Section 5.2.1, p. 5-4, Table 5-3 estimates of SVCSD wastewater volumes.

Response: Table 5-3 presents the approximate amounts of wastewater collected and treated by each wastewater agency, as required for the UWMP. These estimates are adequate for the purposes of the UWMP.

Comment: Section 5.2.1, p. 5-5, Table 5-4, SVCSD and recycled water standards.

Response: The amounts of wastewater that meet recycled water standards for SVCSD have been modified in Table 5-4.

Comment: Section 5.2.2, p. 5-6, Table 5-3 and 5-5 and SVCSD wastewater volumes.

Response: Footnote c for Table 5-5 describes the use of the non-discharged wastewater.

Comment: Section 5.3, p. 5-6, Volumes of recycled water.

Response: The UWMP presents the required information regarding wastewater volumes. Providing more information on wastewater deliveries is beyond the scope of the UWMP.

O.W.L. Foundation (H.L. Downs), 12/4/2006

Comment: The Santa Rosa Plain Groundwater Basin is in Overdraft.

Response: These comments have been addressed above in the responses to O.W.L.'s 11/13/06 and Carle's 11/13/06 comments. The UWMP has been revised as noted above, including eliminating any conclusion by the plan with respect to overdraft.

Comment: Water Quality.

Response: The comments on treated wastewater concerns are acknowledged. It should be noted that the UWMP does not state or assume that treated wastewater will be used for groundwater recharge.

Stephan C. Volker, 12/5/2006

Comment: 1 thru 7; 10: UWMP scope, assumptions alternatives, and review period.

Response: These comments have been addressed by Agency staff as appropriate, and the revised UWMP includes additional text regarding its assumptions and alternatives. The comments on the UWMP's scope suggest broader and additional scenarios and analysis than that required by the Urban Water Management Planning Act (Water Code 10631(b)(3)).

Comment 8: The comparison of water supply and demand is inadequately analyzed.

Response: Additional text has been added to the UWMP comparing the water supplies to demands. The extent of shortfalls is identified. As stated in the UWMP, the projected single dry year shortfalls would be addressed by implementing water shortage contingency measures.

Comment 9: The plan's climate section fails to account for impacts of global warming.

Response: Information on the potential impacts of global warming on the Agency's water demand or supply is currently insufficient to permit such an analysis, but this issue will be addressed in future plans when more data is available. Available climate change studies indicate probable increase in temperatures, but are inconclusive regarding precipitation impacts. Please also refer to the Agency staff's agenda item report.

Friends of the Eel River, 12/5/2006

Comment: Assumptions and consistency/ conflicts with County General Plan/DEIR and the Agency WSTRP DEIR.

Response: Please refer to the Agency Staff's Agenda Item report.

Comment: p. 4, last paragraph regarding conservation measures.

Response: The Agency and its contractors are currently embarked on implementing all water conservation Best Management Practices recommended by the California Urban Water Conservation Council (CUWCC). Their progress has been reported to the public on the CUWCC web site (www.cuwcc.org). As a part of the Urban Water Management Plan preparation additional water conservation measures were investigated. Twenty-one new and innovative measures are now slated for implementation by the agency and its contractors. These include eight measures designed to reduce the water used by new single family homes and 13 other measures targeted at existing homes and businesses. This suite of measures is beyond what nearly every other water agency in California is currently doing or planning to do.

Comment: Water Quality (p. 5)

Response: Please refer to the Agency staff's Agenda Item report.

Comment: Infrastructure Limits (p.6)

Response: Tables 7-13 and 7-15 have been revised to reflect the increase in supply occurring over a several year period to be consistent with the completion of the diversion facilities being phased in between 2015 and 2020.

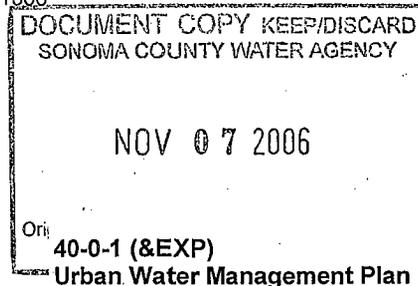
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December 5, 2006

VIA FACSIMILE AND U.S. MAIL
 (707) 544-6123 and (707) 524-3762

Randy Poole, General Manager/Chief Engineer
 Sonoma County Water Agency
 P.O. Box 11628
 Santa Rosa, CA 95406



Re: Comments on Sonoma County Water Agency's Draft 2005 Urban Water Management Plan, October 2006

Dear General Manager:

On behalf of the Westside Association to Save Agriculture, North Coast Rivers Alliance, L. Martin Griffin, Jr., M.D., Sean Swift, Bishop's Ranch, John R. Soracco, Dennis Hill, Melinda Hill, Scott Adams, Lynn Adams, James T. Love, Peggy Love, Judith Olney and other concerned citizens, we submit the following comments on the Sonoma County Water Agency ("SCWA") Draft 2005 Urban Water Management Plan ("UWMP" or "Plan"). The Plan contains major deficiencies, detailed below, that should be corrected prior to its approval.

BACKGROUND

The Urban Water Management Planning Act, Water Code section 10610 et seq., ("UWMPA" or "Act") requires urban water agencies serving more than 3,000 customers or supplying more than 3,000 acre feet annually to adopt water management plans to assure that they (1) investigate constraints on water supply and accurately report water demands and supplies for their service areas, (2) make efficient use of available water supplies, (3) develop plans to provide long-term, reliable supplies of water to serve customers during normal, dry, and multiple dry water years, and (4) develop demand management programs to keep water demands in line with supplies. SCWA's UWMP fails to comply with the UWMPA's requirements, particularly those set forth in Water Code section 10631, as summarized below.

Water Code section 10631 establishes detailed requirements for water management plans, directing, *inter alia*, that they

(a) “[d]escribe the service area of the [water] supplier, including current and projected population, climate, and other demographic factors affecting the supplier’s water management planning;”

(b) “[i]dentify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier,” including detailed information respecting existing and planned use of groundwater;

(c) “[d]escribe the reliability of the water supply and vulnerability to seasonal or climatic shortage” of supplies in average, dry, and multiple dry water years, and “[f]or any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures;”

(d) “[d]escribe the opportunities for exchanges or transfers of water on a short-term or long-term basis;”

(e) quantify past, current, and projected water use, broken down by specific water use sectors;

(f) “[p]rovide a description of the supplier’s water demand management measures,” including detailed information respecting their implementation with respect to a wide array of existing or potential management practices;

(g) provide “[a]n evaluation of each water demand management measure identified;”

(h) “[i]nclude a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use,” including “a detailed description of expected future projects and programs” that may be employed to increase future water supplies;

(i) “[d]escribe the opportunities for development of desalinated water;” and

(j)-(k) provide additional information regarding water supply and demand management measures.

Here, the UWMP prepared by SCWA fails to fulfill many of these requirements, as described in greater detail below. Because it fails to satisfy the UWMPA, it should not be approved in its current form.

1. The UWMP Identifies Potential Future Water Supply Shortfalls, but Fails to Adequately Describe Solutions

The UWMPA requires that water agencies identify realistic alternatives to sources of water that may become unreliable or that may not meet identified future demands during normal, dry, and multiple dry water years. According to the Act,

Randy Poole, General Manager/Chief Engineer
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For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, [the UWMP shall] describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

Water Code § 10631(c). The Act also requires the water agency to disclose “all water supply projects . . . that may be undertaken . . . to meet the *total projected water use . . .*” *Id.* at section 10631(h), emphasis added. In short, the Act requires planners to come up with an exhaustive plan, complete with contingencies, to meet all projected future water demands.

Contrary to this directive, SCWA states in Section 7 of the Plan that it plans to have adequate water supplies throughout the planning period “except for single-dry years, starting in 2020.” UWMP at 7-1. On the following page, Table 7-6 identifies shortfalls ranging from 2,646 afy to 15,479 afy by 2030. The Plan fails to identify the specific measures by which it will close the gap, stating only that “the Agency will have to work with its contractors to reduce water demands, utilize emergency local sources, or both.” Plan at 7-1. The “emergency local sources” are never identified and no methods of reducing water demands are described.

“When any water source may not be available at a consistent level of use, the UWMP must describe plans to replace that source with alternative sources.” *Friends of the Santa Clara River v. Castaic Lake Water Agency* (2004) 123 Cal.App.4th 1, 14, citing Water Code § 10631, subd. (c). Because SCWA concedes that it may be unable to meet the total projected need of single-dry years in the future, the UWMPA requires SCWA to identify alternative water sources needed to bridge the gap. The Plan fails to do so. Instead, it merely discloses this substantial potential water supply shortfall and then moves on without comment.

The purpose of the UWMPA is “to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.” Water Code § 10610.2(b). By ignoring its duty to solve the potential for a large-scale water shortage in the future, SCWA fails to fulfill its obligations under the UWMPA. *Friends of the Santa Clara River v. Castaic Lake Water Agency, supra*, 123 Cal.App.4th at 14-15. This Plan should not be approved.

2. SCWA Failed to Coordinate with FERC and NOAA Fisheries Service

SCWA has failed to comply with Water Code section 10620(d)(2), which requires that “[e]ach urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including . . . relevant public agencies, to the extent practicable.”

SCWA lists the agencies with which it has consulted on Plan page 1-2. Missing from its list are the agencies with the most control over future water supplies in the SCWA's service area, the Federal Energy Regulatory Commission (FERC), NOAA Fisheries Service, and the State Water Resources Control Board. As SCWA concedes on page 1-4 of the UWMP, FERC retains authority over the Potter Valley Project (PVP), and NOAA Fisheries Service (along with the State Water Resources Control Board) controls water releases from Warm Springs Dam.

Water from the PVP and the Warm Springs Dam make up a critical component of SCWA's overall water supply. UWMP at 2-4. Failure to consult with the agencies that ultimately control this water violates Water Code section 10620(d)(2).

3. The Plan Assumes That Water Diversions from Warm Springs Dam Will Not Be Reduced in Order to Protect Threatened and Endangered Species in the Russian River

In the plan's "Assumptions" section, SCWA assumes that "the listing of three salmonid species as threatened or endangered under the Endangered Species Act (ESA) will not reduce the amount of water [the Russian River] can supply, principally from the water stored in Lake Sonoma (Warm Springs Dam), using its Russian River diversion facilities." UWMP, p. 1-4. No basis for SCWA's assumption is provided.

The Agency's assumption is not supported by any facts or analysis, and appears to be untenable. The Russian River's fisheries, including its three endangered and threatened salmon species, are suffering potentially devastating decline. SCWA's presupposition that federal agencies will do nothing to counteract this decline and save the dwindling fish populations from extinction is contrary to historical precedent and ignores the strong likelihood that water diversions will be curtailed in the future to protect fish – especially in dry years when SCWA has not made alternative arrangements.

4. The Plan Assumes That Water Diversions from the PVP Will Not Be Reduced to Protect Threatened and Endangered Species in the Russian River

The plan similarly assumes, without further analysis, that the FERC license for the PVP "will not be modified, or that any license modifications (and the terms of any new license) will not reduce the amount of water available for diversion by the Agency."

SCWA's assumption, however, failed to take into account the fact that the PVP license is subject to Endangered Species Act ("ESA") restrictions and therefore may be subject to flow adjustments at any point in the future when necessary to protect wildlife, including critically dry and multiple dry years. A likely scenario, and one that should have been examined in the

UWMP, would involve FERC decreasing the amount of water pumped into the Russian River from the Eel River when FERC reconsiders the PVP license in the year 2022 (or even earlier if warranted by ongoing studies). A downward adjustment to the water supply derived from the PVP would adversely affect SCWA's total water supply. The UWMP does not address this easily foreseeable possibility, and should have.

For similar reasons, the California Court of Appeal struck down SCWA's abortive EIR on its recent proposal to increase Russian River diversions from 75,000 to 101,000 acre feet annually. *Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal.App.4th 859, 869-870. In that case, the court pointed out, as here, that "[t]he record tells a far different story from the one the Agency relates in its EIR . . . the Agency was well aware at the time the EIR was drafted that the proposals pending before FERC, if approved, would limit its ability to supply water to its customers . . ." *Id.* at 869. So too here, SCWA is aware that FERC might reduce SCWA's Potter Valley Project diversions when that project comes up for licensing renewal in 2022, or sooner. Its failure to address this scenario in the Plan violates the UWMPA.

5. SCWA Failed to Explore Alternative Sources of Water to Compensate for Potential Losses of Russian River Water

To address the uncertainties surrounding the future availability of Russian River water for diversion, the Agency should have examined potential alternative water supplies to compensate for the shortfalls that curtailed Russian River pumping might create. As explained above, the Act requires the agency to identify alternatives "[f]or any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors." Water Code § 10631(c).

Where, as here, a major source of future water supply may be curtailed in the future, the Agency must "describe plans to supplement or replace" the curtailed water source with "alternative sources or water demand management measures" in order to ensure that future water supplies are as reliable as practicable. Yet SCWA admits that it "has no plans to replace [decreases in Russian River water availability] with alternative sources." UWMP, p. 4-25, Table 4-17, fn. a.

Furthermore, SCWA has not considered the possibility of global warming-induced water shortages in the UWMP, despite the likelihood (as documented in expert testimony by Professor Robert R. Curry and others to the SCWA) that Russian River flows and other SCWA water sources will decrease or become erratic. SCWA has made no plans to compensate for this potential loss.

6. SCWA Failed to Examine Alternatives to the Water Project

The UWMP also takes for granted a group of planned future projects, collectively called the Water Supply, Transmission, and Reliability Project ("Water Project"). This Water Project would substantially increase SCWA's Russian River diversions. SCWA cavalierly "assumes that it will construct and operate" all of the facilities now planned for the project. UWMP, p. 1-4. Yet, on the same page, the Agency readily admits that

State and federal agencies, including the National Marine Fisheries Service (under the ESA) and the State Water Resources Control Board (SWRCB) (which issues water rights permits) could impose requirements that would change the Water Project.

UWMP, p. 1-4. Further, the SCWA concedes that "[i]f construction and operation of the Water Project . . . is delayed, deliveries by the Agency to its water contractors will be limited by any then-existing constraints on the capacity of its transmission system and its existing water rights." The Plan also concedes that development of the Water Project has been enjoined by the courts – in the *Friends of the Eel River* litigation referenced above – for failure to conduct an adequate CEQA review. This Water Project is therefore far from a certainty. Rather, its construction and operation pose a major question for the reliability of SCWA's planned water supplies.

The Agency does not explain how it will supply sufficient water to meet projected demand if the Water Project is not completed as scheduled. But the UWMPA requires that the agency "describe plans to supplement or replace" potentially unreliable sources of water "with alternative sources" to meet the future demands. Water Code § 10631(c). The Plan violates this mandate.

7. SCWA Failed to Examine Alternative Sources of Water Needed if SCWA's Application to the SWRCB for an Increase in Russian River Diversions Is Denied

The Plan counts on an increase in Russian River diversions from 75,000 to 101,000 afy, as part of the Water Project discussed above. The Plan also admits that SCWA has only applied for such an increase, but does not yet possess the rights to the additional 26,000 afy of Russian River flows. UWMP at 4-2. Ignoring this potential shortfall, the Plan bases all of its future water supply plans on the assumption that the application will be granted in full. As discussed above, the UWMPA demands more analysis and a critical look at future supplies along with potential alternatives to those planned supplies.

8. The Comparison of Water Supply and Demand is Inadequately Analyzed

The most important section of the UWMP, wherein the agency should analyze its future water plans, is devoid of analysis. Section 7 consists of approximately five pages of tables with virtually no analysis of their contents. No effort is made to coordinate projected demand in the County's draft General Plan, particularly its Land Use and Water Elements, and the EIR thereon, with the Plan's different and conflicting water demand assumptions. The section comparing future supplies to future demands is the most critical component of an urban water management plan, but this Plan fails to analyze the meaning of the water shortfall identified in Section 7. SCWA must analyze the results of its comparison, so as to develop a full understanding of, and to help educate the public about, the future water supply and demand conflicts in the region. Such an analysis would, for example, reveal the troubling prospect of substantial water shortages in single dry years (as discussed above) and spur discussion of ways to resolve such a shortfall.

9. The Plan's Climate Section Fails to Account for Impacts of Global Warming

The Plan's description of the local climate fails to take into account the likely impacts of global warming on future average rainfall levels, average ambient temperatures, evaporation rates of storage facilities, and increased water demands due to higher temperatures. According to a preponderance of scientific material addressing the subject, including the testimony of noted Russian River hydrologist Professor Robert R. Curry, rainfall will decrease, temperatures will increase (causing an increase in evaporation rates of all above-ground storage facilities), and water usage, especially by agricultural users, will increase dramatically with each incremental increase in overall temperature.

In not looking at these impacts, the UWMP fails to thoroughly analyze future climate conditions and cannot present an adequate plan for future potential water supply shortfalls.

10. SCWA's Delay in Releasing its 2005 UWMP Has Deprived the Public of a Fair Opportunity to Review and Comment on the Plan

The Act requires that agencies "shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan." Water Code § 10642. Contrary to this requirement, SCWA delayed the release of its 2005 UWMP for nearly a year and then asked the public to comment on the Draft Plan within two weeks. No preliminary reports were issued. No general public involvement was solicited. Rather, the Plan was developed by consultants without the "active involvement" of the population within the service area. The SCWA's truncated public process

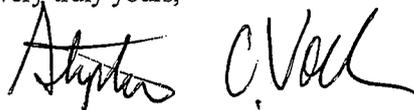
Randy Poole, General Manager/Chief Engineer
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Page 8

– two weeks for review and comment – is completely disproportionate to the long-term impact of the Plan, and subverts the intent of the UWMPA.

CONCLUSION

For the above stated reasons, the Westside Association to Save Agriculture, North Coast Rivers Alliance, L. Martin Griffin, Jr., M.D., Sean Swift, Bishop's Ranch, John R. Soracco, Dennis Hill, Melinda Hill, Scott Adams, Lynn Adams, James T. Love, Peggy Love, Judith Olney and other concerned citizens, respectfully request that the Plan not be approved without major revisions and further public review and comment.

Very truly yours,



Stephan C. Volker
Attorney for Westside Association to Save
Agriculture, North Coast Rivers Alliance, L. Martin
Griffin, Jr., M.D., Sean Swift, Bishop's Ranch,
John R. Soracco, Dennis Hill, Melinda Hill, Scott
Adams, Lynn Adams, James T. Love, Peggy Love,
Judith Olney and other concerned citizens



O.W.L. Foundation

President, H.R. Downs
Secretary, Deborah Hunt
Treasurer, Heidi Dieffenbach-Carle R.G.
Bonnie Kneibler, M.D.
Jane Nielson, Ph.D.
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11/13/06

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PO Box 11628
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40-0-1 (&EXP)
Urban Water Management Plan

RE: Comments on the Urban Water Management Plan 2005

Dear Mr. Poole;

In reviewing the proposed 2005 Urban Water Management Plan ("UWMP"), the O.W.L. Foundation ("O.W.L.") has discovered a reliance on the Rohnert Park Water Supply Assessment ("WSA") that caused the UWMP to arrive at imprecise conclusions regarding groundwater supplies in the Santa Rosa Plain Groundwater Basin. The UWMP cites the WSA as evidence of no groundwater overdraft in the Santa Rosa Plain Groundwater Basin. O.W.L. disagrees with this conclusion based on considerable evidence to the contrary.

The Rohnert Park WSA has been ruled legally invalid in Sonoma County Superior Court (*O.W.L. Foundation, et. al. v. City of Rohnert Park, et al.*). Copious evidence supporting exactly the opposite conclusion of the UWMP, that the Santa Rosa Plain Groundwater Basin is indeed in groundwater overdraft, became part of the administrative record in that lawsuit. The legal issues germane to the declaration of groundwater overdraft were briefed in the WSA lawsuit. O.W.L. hereby submits into the UWMP record the administrative record in *O.W.L. Foundation, et. al. v. City of Rohnert Park, et al.* Documents, exhibits and relevant pleadings are to be found on the DVD that is attached to this letter. The DVD contains 15 root-level folders containing 622 items for a total of 1.44GB of data.

The compelling evidence presented in this administrative record dramatically bolsters O.W.L.'s position that the Santa Rosa Plain Groundwater Basin is indeed in groundwater overdraft. Based on this evidence, O.W.L. strongly urges SCWA to not adopt a UWMP that concludes that the Santa Rosa Plain Groundwater Basin is not in overdraft.

It is useful to bear in mind that the portion of the UWMP Act dealing with the requirements for a groundwater analysis in an UWMP (California Water Code Section 10631(b)) are similar to SB 610 (California Water Code 10910(f)) with the notable exception that (f)(5) is not repeated in the UWMP Act. This section containing these requirements was the key section relied on by the judge in the WSA suit and in fact formed the rationale used to invalidate Rohnert Park's WSA.

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owl@owlfoundation.net
California Non-Profit, 501(c)(3) organization

The intent of SB 610 is to eliminate "paper water", i.e. projected but unproven water supplies. The purpose of the WSA, produced to satisfy SB 610, was to demonstrate actual future supplies of water. But the WSA failed to do exactly this. To rely on a legally invalid WSA automatically reduces the water supply assessments made in the UWMP to wholly unreliable "paper water" projections.

Sincerely,

A handwritten signature in black ink, appearing to be "H.R. Downs", written in a cursive style.

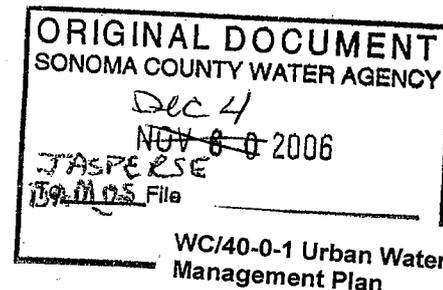
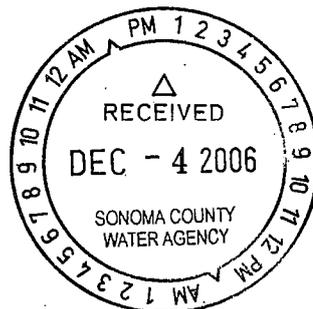
H.R. Downs
President



O.W.L. Foundation

President, H.R. Downs
Secretary, Deborah Hunt
Treasurer, Heidi Dieffenbach-Carle R.G.
Bonnie Kneibler, M.D.
Jane Neilson, Ph.D.
Susan Panttaja, R.G.
Ray Peterson
Eric Johnson
www.owlfoundation.net

12/04/06
Mr. Randy Poole
General Manager/Chief Engineer, SCWA
Sonoma County Water Agency
404 Aviation Blvd.
Santa Rosa CA 95403



Dear Mr. Poole;

We are in receipt of Mr. Jay Jasperse's letter of November 21st "RE: Response to letter dated November 13, 2006 regarding UWMP". I am personally sorry that my cover letter and the names of the attached documents themselves, those on the DVD, were not immediately recognizable to you regarding their pertinence to the creation of the Urban Water Management Plan 2005.

We had expected the 2005 UWMP in the latter days of December 2005. When it finally did make its appearance late this year the public was provided with a two-week period in which to respond. I apologize for the brevity of my last communication to you; I assure you it was occasioned only by the haste with which I undertook the task. I hope that this more detailed attempt to establish the relevance of the documents we submitted with the creation of the UWMP 2005 will meet with your complete satisfaction.

The Santa Rosa Plain Groundwater Basin is in Overdraft

The UWMP 2005 relies on the Water Supply Assessment ("WSA") produced by Rohnert Park to satisfy the requirements of SB 610. This WSA was ruled legally invalid by a trial court. Please see the folder labeled OWL v RP Dox. You will find the final decision in this court case and learn the reasons behind the court's action to invalidate the WSA.

The WSA has numerous errors and shortcomings, one of the more notable being the conclusion that the Santa Rosa Plain Groundwater Basin is not in overdraft. This is patently not true; evidence demonstrating that the Santa Rosa Plain Groundwater Basin is indeed in overdraft may be found in several of the folders on the DVD. Please consult the folders labeled Canon Manor West; SCRPC v.. RP; and under SCWA materials, the subfolders labeled Data from 1-13-05 and Data from 11-18-04; Rohnert Park's General Plan 1999, found under the folder Rohnert Park dox; in the same folder please find DWR's Meeting Water demands in Rohnert Park; Rohnert Park EIR 2000 parts 1 and 2. Also please consult the folder DWR and find Bulletin 118 documents for a complete definition of overdraft as defined by the California Department of Water Resources.

The UWMP 2005 erroneously contends that Rohnert Park's original PES study that proved groundwater overdraft "Did not include the eastern portion of the WSA study area where a significant portion of the recharge occurs." In fact, the WSA "study area" mistakenly followed the surface water watershed, not the groundwater basin, as the PES study correctly did. These are two completely different and distinct

hydrologic units. SB 610 requires a study of the groundwater basin, not the surface water watershed. Indeed, the City of Rohnert Park and interested parties who joined the suit were unable to explain this glaring discrepancy to the judge's satisfaction even when provided with an extra hearing and extra briefs limited exclusively to this one topic.

The UWMP 2005 claims that the PES study "Did not include groundwater inflow from the hills east of Rohnert Park." The Rodgers Creek Fault lies at the foot of these particular hills—in between the hills and Rohnert Park. Geologic faults are known barriers to groundwater flow. The WSA introduced no new science to explain how water from one side of this major fault zone migrates to the other side. Similarly, other critiques of the PES study that appear in the UWMP 2005 are equally incorrect, imprecise or simply untrue.

You will find numerous other documents within the above-mentioned folders that provide valuable perspective and background to the specific documents already mentioned that demonstrate overdraft. It seems logically inconsistent for the UWMP 2005 to conclude that no overdraft exists in the Santa Rosa Groundwater Basin based solely on a legally invalid study when evidence from DWR, the USGS, the Sonoma County Department of Transportation and Public works and numerous independent consultants have arrived at exactly the opposite conclusion. To underscore the severity of the overdraft conditions in this particular area of the County, permit me to include two graphs that clearly illustrate and support this observation.

Climatology Data
Contacts

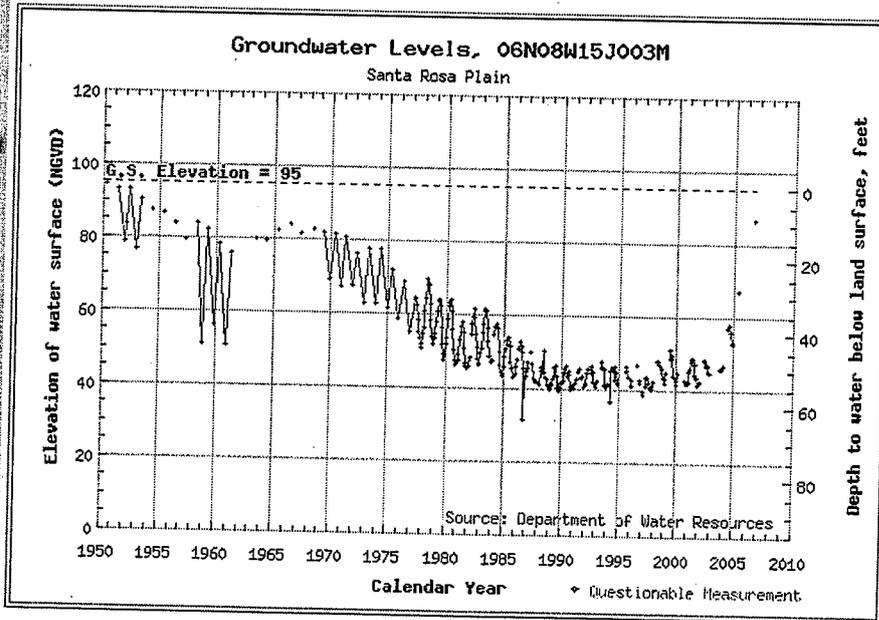


**Division of
 Planning and
 Local Assistance
 Department of
 Water Resources**

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 Sacramento, CA
 95814

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 Post Office Box
 942836
 Sacramento, CA
 94236-0001

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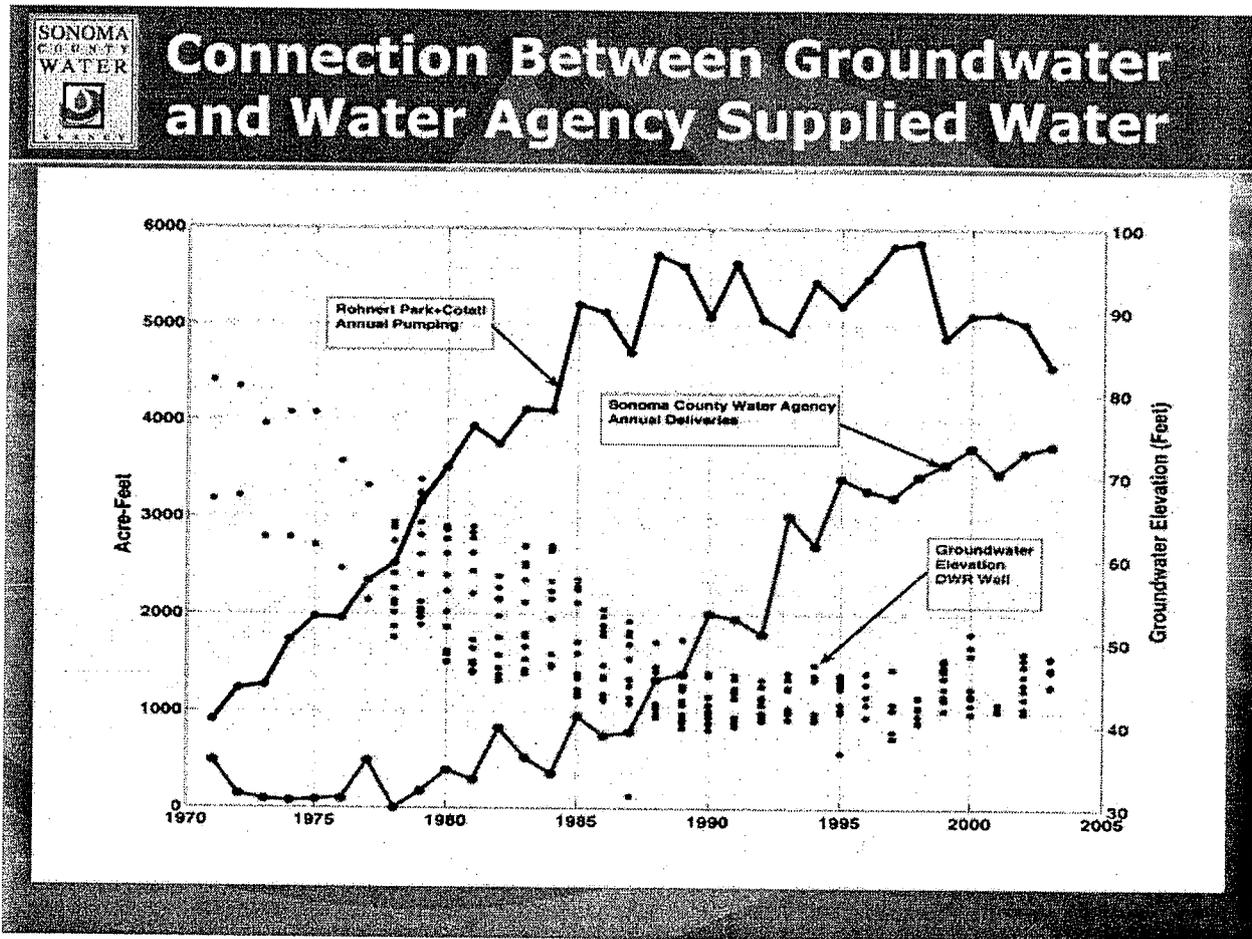


Groundwater Level Readings									
Meas. Date	R.P. Elev.	G.S. Elev.	RPWS	WSE	GSWS	QM Code	NM Code	Agency	

This hydrograph is from DWR's Website located at:
http://wdl.water.ca.gov/gw/hyd/rpt_hydrograph_data_CF.cfm?wellNumber=06N08W15J003M

The hydrograph is of DWR monitoring well 06N08W15J003M located northeast of Rohnert Park. The rise in data points at the right side of the graph reflect Rohnert Park's cessation of groundwater pumping during the creation of their WSA and demonstrate the direct link between Rohnert Park municipal pumping and overdraft conditions within and beyond the city limits of Rohnert Park. This hydrograph is a particularly important diagnostic of overdraft conditions in the south Santa Rosa plain because it links current groundwater levels to historical levels of the 1950s. Clearly, since development of Rohnert Park beginning the mid 1950s, groundwater levels have not fully recovered to historical levels, even during wet years (e.g. 1997-98).

SCWA recently released a graph containing the same data from DWR monitoring well 06N08W15J003M with comparison to Rohnert Park and Cotati groundwater pumping and SCWA annual deliveries.



This graph shows the connection between rising groundwater pumping and declining groundwater levels. Once again, please consult the DVD/DWR/Bulletin 118 for the definition of overdraft provided by the California Department of Water Resources.

There is sufficient evidence to throw into doubt the UWMP 2005's conclusion that the Santa Rosa Plain Groundwater Basin is not in overdraft. Once again, we ask that SCWA not adopt a UWMP that concludes that the Santa Rosa Plain Groundwater Basin is not in overdraft.

Water Quality

The O.W.L. Foundation is very concerned about water quality and the dangerous accumulation of tertiary-treated sewage and the plans being discussed to dispose of this material. As you know, the cities of Santa Rosa, Rohnert Park, Cotati and Sebastopol have accumulated enormous amounts of sewage and have experienced difficulty in disposing of it. Some of the disposal plans currently under debate include discharge of tertiary-treated sewage into the Russian River. Three of the four proposed dumpsites in this scheme are above SCWA collectors for drinking water. This expediency, now known as the "Toilet-to-Tap" solution, is dangerous and completely unnecessary.

Tertiary-treated sewage is not clean water; it contains a large inventory of objectionable chemicals many of which are known health hazards. I am submitting an additional DVD¹ labeled Waste Water that contains materials that explain some of these dangers. For example, the so-called tertiary-treated sewage in Sonoma County (N.B. after processing) contains pharmaceuticals. O.W.L. is also concerned about a family of chemicals called phthalates; phthalates are known endocrine disruptors and can have profound affects on life. Phthalates are ubiquitous in wastewater and should be removed but are not.

Drugs and phthalates are not removed from wastewater because Sonoma County does not operate any modern treatment plants. Modern treatment plants remove everything in the waste stream that is not the molecule H₂O. These modern treatment plants, ones that employ reverse osmosis and other techniques, are in use around the world. Newer designs use less energy and are therefore less expensive to operate than older models; nevertheless they do not come cheap.

One of the most innovative ways to ensure pure clean water without suffering the capital outlay of a modern treatment plant is to manage watersheds so as to produce clean water. The most famous example of this is in New York City, as I'm sure you already know. We have provided SCWA with documents describing this project on the DVD already submitted; please see /NYC Watershed/NY_Watershed_blurb and NY_Watershed_Plan.

A comprehensive water resource plan like the one operating in New York City would also automatically generate sufficient data to satisfy the California Urban Water Management Plan Act requirements and guarantee the timely arrival of future Urban Water Management Plans. New York's innovative plan is an important alternative to consider which is why we included material describing it on the DVD.

The UWMP 2005 specifically states that treated sewage water will be used for "groundwater recharge."² There is a genuine risk of eventual, ultimate groundwater contamination with phthalates, pharmaceuticals and other contaminants if treated wastewater is allowed to come into contact with groundwater. Worse, in addition to these known contaminants, we must now grapple with a whole new category of contaminants called emerging contaminants. Emerging contaminants are literally created inside treated sewage as a result of uncontrolled chemical reactions.

For example, Acetaminophen, one of the most commonly ingested drugs in the world, can spawn two entirely new toxicants when exposed to chlorine, a not uncommon chemical in wastewater. Mary Bedner and William A. MacCrehan, from the Analytical Chemistry Division, National Institute of Standards and Technology in Gaithersburg, Maryland, discovered that the toxicants 1,4-Benzoquinone and *N*-Acetyl-*p*benzoquinone Imine can be produced inside the waste stream when Acetaminophen is exposed to chlorine³ Please note that 1,4-Benzoquinone and *N*-Acetyl-*p*benzoquinone Imine were not added to the

¹ Again I apologize for the additional data but the time constraints under which we have been required to submit a response and generate comments necessarily led to omissions.

² Section 5

³ cf. DVD #2 /Waste water/

waste stream; they were created in it. What other chemical reactions are taking place in wastewater? The UWMP 2005 does not address the dangers of emerging contaminants.

The choice is clear: either remove contaminants from wastewater with a modern treatment plant, or a comprehensive watershed program, or test for chemicals that we have reasonable evidence to suggest are present in wastewater.

Dealing with the reality of a finite supply of water

As water professional you can appreciate the impossibility of an ever-increasing demand on a finite resource. In the next few years, perhaps during the life of the UWMP 2005, we may see innovations in efficiency and conservation that will permit future increases in water demands on this finite resource⁴. But it is physically impossible to increase demand on a finite resource indefinitely. There is a limit, a carrying capacity, beyond which we will not be able to pass.

The courts are beginning to recognize such limitations and the UWMP 2005 should also consider the limits of our water resources and the effects these limits will exert on future expansion and demand. We have provided SCWA with the appellate decision in the Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings⁵ so that the architects of the UWMP 2005 can include language that specifically reflects these limitations. Clean water is not unlimited; it's finite, and population growth is not "...an immutable fact of life."

Perhaps one of the most salient sections of the Bay-Delta decision to consult appears on page 160:

As stated previously, it is projected that the state's population will grow from 30 to 49 million by the year 2020, and that half of this growth will be in Southern California. Such population growth requires water. However, if there is no water to support the growth, will it occur as projected? Population growth is not an immutable fact of life. Stable populations have been established in such states as New York, Pennsylvania, Connecticut, and Rhode Island. (Carle, *supra*, at p. 196.) Inflow of new residents to California continues to exceed outflow because conditions in the State are conducive to population growth. One aspect of these conditions is the availability of water. However, as the State reaches the limit of available water and must seek other sources such as desalination, water will become more expensive to obtain and California's appeal will lessen.

The court's observations in other parts of this decision are also rich in content, but, the observation that water demand does not have to rise, nor could it rise indefinitely provides water planners with precisely the tool they need to manage increasing demand on a finite resource. The court has clearly pointed out a horizon beyond which we need not, and cannot, expand.

The UWMP 2005 needs to reflect this language so that the ultimate limit horizon of future supplies is realistically balanced with future water demands. Indeed, the Water Agency has already begun to set

⁴ cf. DVD #1 /Pacific Institute

⁵ cf. DVD #1 /Bay_Delta_CA_decision

limits, as witnessed in the August 11, 2003 letter to contractors explaining that the Agency's water rights are capped at 75,000 af/y.

Drought and global warming

Climatologists assure us that California will experience another protracted drought equivalent to that of 1977 sometime in the future. By some estimates, we are already overdue for such a drought. Added to this virtually guaranteed constriction of water supplies is the growing evidence of global warming. The UWMP 2005 discusses the possibility of drought and various scenarios of catastrophic cutoffs of water supplies. However, these predictions could be far worse than stated if some of the estimates of global warming prove to be true. We have supplied several documents that explain what the future under global warming could be to assist the authors of the UWMP 2005⁶ in creating margins of safety within which Sonoma County might avoid the worst effects of global warming.

Once again, we would like to thank SCWA for the opportunity to submit comments on the UWMP 2005 and apologize for not supplying a more detailed letter initially. The UWMP 2005 has been five years in the making and one year late. It was difficult for us to produce comments for it within the two-week window that appeared without any prior notice. As a result, some things were left out of the first DVD we submitted, and one thing, the General Plan for Monterey County was included by mistake. Although this general plan happens to be a paragon of how good planning should proceed, there really is no particular reason to consult it in preparation of the UWMP 2005.

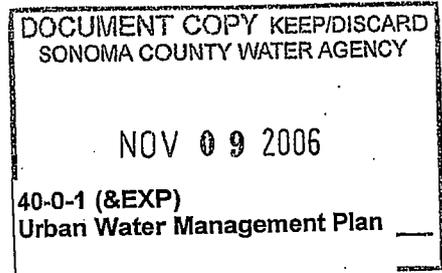
Please contact me at my home office number, 707-792-1407, if you have any other questions or requests.

Sincerely,

A handwritten signature in black ink, appearing to read 'H.R. Downs', with a long horizontal line extending to the left and a large, sweeping flourish to the right.

H.R. Downs
President

⁶ cf. DVD #1 /Global Warming/etc.



Dr. Steven F. Carle
11001 Minnesota Ave.
Penngrove, CA 94951
penngrove@comcast.net

November 13, 2006

General Manager/Chief Engineer
Sonoma County Water Agency
P.O. Box 11628
Santa Rosa, California 95406

Re: Comments to SCWA Urban Water Management Plan 2005

Dear SCWA General Manager/Chief Engineer,

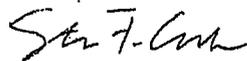
Attached is a list of comments to the SCWA Urban Water Management Plan 2005 (UWMP). Unfortunately, the public review period is so short that I not been able to provide the depth of review that is seriously in need for this document.

Obviously you know that water is the most precious component to Sonoma County's economy and future quality of life. The UWMP is an extremely important document to the public, whether dwelling in cities or rural areas. The UWMP is the central document used for preparation of a Water Supply Assessment required for large development projects. People living in rural areas rely almost exclusively on groundwater and, thus, have a keen interest in protecting the sustainability of groundwater supplies. Flaws in UWMP will hamper future projects by providing grounds for protest to water supply expansion.

Unfortunately, the draft UWMP needs major revision as a result numerous technical and legal flaws. I have listed some of these flaws by subject in the attached pages. Most serious of these flaws is repeated reliance on the legally and technically flawed 2005 Rohnert Park Water Supply Assessment. Unfortunately, the UWMP extends the flawed interpretations of groundwater overdraft to pumping by SCWA wells. I provide basic information to correct these flaws. More details can be found in the public record.

I encourage SCWA and its consultant, Brown and Caldwell, to carefully revise the UWMP and show respect to public participation and input.

Sincerely,



Steven F. Carle

UWMP Scope

The SCWA Draft Urban Water Management Plan (UWMP) does not specify the scope of application of the UWMP in relation to its contractors. The UWMP provides no reference to other Urban Water Management plans prepared specifically by and for individual contractors. Thus, it cannot be determined from the UWMP whether the UWMP is intended to serve as the Urban Water Management Plan for each of the SCWA contractors. There are no contractor-specific Urban Water Management Plans listed in the references. If the UWMP is to serve as an Urban Water Management Plan for each of the contractors, the UWMP is deficient detailing contractors' past and projected groundwater use and many other requirements of the Water Code as detailed below.

Demand Variation

P. 3-5. How much will water demand vary? (e.g. by what percent?)

The SCWA-generated figure below indicates that demand varies from year to year to range of +/-5%. However, none of the demand projections in the UWMP factor in demand variation.

Projected 2030 demand is 1 AFY below the total supply. Could demand variation lead to demand exceeding supply?

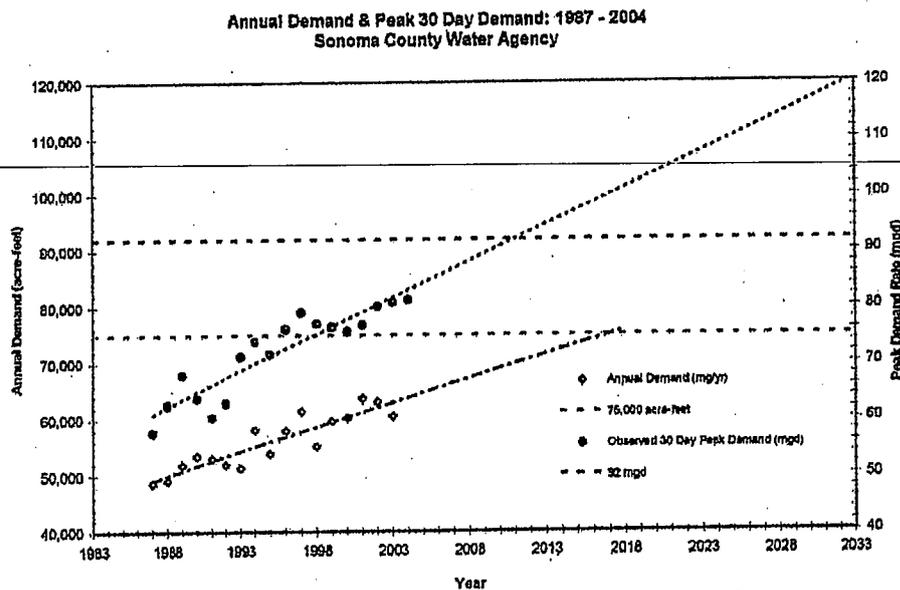


Figure 5: Annual and Peak 30-day Demand

Location of SCWA groundwater wells in relation to the City of Santa Rosa

Is the Occidental Road Well located within the City of Santa Rosa?

Is the Sebastopol Road Well located within the City of Santa Rosa?

Is the Todd Road Well located within the City of Santa Rosa?

Figure 2-2 and the UWMP cover indicate that that Occidental Road Well, Sebastopol Road Well, and Todd Road well are located within the City of Santa Rosa's city limits. If SCWA wells are located with Santa Rosa city limits, then why isn't pumping from SCWA wells included in past and future groundwater pumping totals for the City of Santa Rosa?

Fate of SCWA groundwater

To what cities, water districts, or SCWA contractors and customers does the Occidental Road Well supply water to?

To what cities, water districts, or SCWA contractors and customers does the Sebastopol Road Well supply water to?

To what cities, water districts, or SCWA contractors and customers does the Todd Road Well supply water to?

The UWMP should specify what contractors receive groundwater from the SCWA groundwater wells. A water supply assessment must specify the location and amount of groundwater that a water supplier (e.g. SCWA contractor) receives.

The water supply assessment for Santa Rosa's Southwest Project EIR claimed that SR does not receive groundwater from SCWA. Is this true?

Definition of Overdraft

The UWMP contains no definition of overdraft, yet the UWMP concludes "there is ...no indication of long-term overdraft in the Santa Rosa Plain subbasin." Apparently the UWMP believes that "stable" water levels indicate no overdraft, which contradicts DWR's definition of overdraft. The hydrograph below from DWR Bulletin 118 indicates overdraft even though groundwater levels are "stable" after 1990.

Notably the 2005 Rohnert Park Final Water Supply Assessment (WSA) creates its own definition of overdraft that differs from the DWR definition. The Rohnert Park WSA equates overdraft to "safe yield" and "critical overdraft" yet DWR defines these terms

separately. Apparently the UWMP agrees with the Rohnert Park WSA definition of overdraft, which is incorrect.

According to the Brown and Caldwell web-page

<http://www.bcwaternews.com/waterresources/index.htm>

the following is stated about overdraft, apparently by Martin Steinpress who is listed as in charge of the "groundwater" portion of the UWMP:

However, most groundwater basins are heavily used now and many are already in overdraft, a situation in which groundwater pumping exceeds natural recharge and long-term water levels decline. Most groundwater basins therefore can only be relied upon to provide greater drought insurance if measures are taken to artificially increase groundwater recharge.

Martin Steinpress is Brown and Caldwell's national Groundwater Resources Service Leader and chief hydrogeologist. A California Registered Geologist and Certified Hydrogeologist, Steinpress has provided technical leadership on numerous groundwater resources projects across California and the Western United States. He specializes in groundwater management...

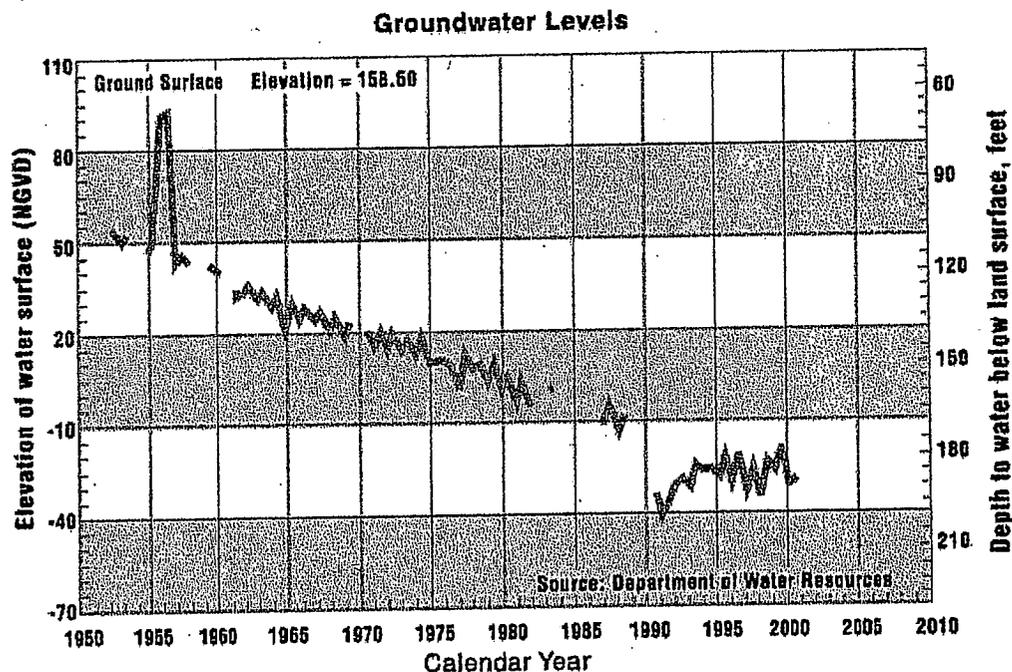


Figure 18 Hydrograph Indicating Overdraft

(From DWR Bulletin 118 Update 2003)

If the UWMP is going to refer to "long-term" declines of groundwater levels, then it needs to define what "long-term" is. If the UWMP or Mr. Steinpress does not agree with

the DWR definition of overdraft, then the differences in opinions on the definitions of overdraft needs to be clearly stated.

DWR Position on Overdraft

DWR has not conducted a groundwater basin study in Sonoma County in over 24 years. DWR water balances were based on 1960-1975 data. What is the point of the statement at the end of Section 4.2.1 indicating the DWR has not identified any overdraft? DWR did warn back in the late 1970s that overdraft may occur if pumping is increased – and pumping has increased dramatically in the South Santa Rosa Plain since 1975.

Indications of Overdraft in the Sonoma Valley

In the Sonoma Valley, the USGS identified “lowered groundwater well levels in some areas of the basin” and “migration of high-saline water along the southern end of the basin”. Lowered water levels and saline intrusion are two common effects or adverse impacts of groundwater overdraft.

Indications of Overdraft in the South Santa Rosa Plain Subbasin

According to DWR (Bulletin 118 Update 2003), “overdraft can be characterized by water levels that decline over a period of years and never fully recover, even during wet years.”

None of the recent reports cited (2005 Rohnert Park Final Water Supply Assessment, 2003 Canon Manor EIR) show that groundwater levels in the vicinity of Rohnert Park have ever fully recovered to pre-development levels (e.g. as shown in Cardwell 1958) during wet years. As previously stated, the Rohnert Park WSA incorrectly defined “overdraft” as affirmed by a May 2006 Superior Court decision. Therefore, any citation of the Rohnert Park WSA for interpretation of overdraft conditions is technically and legally invalid. The Rohnert Park WSA further erred by using a surface watershed to evaluate the groundwater basin as ruled in a May 2006 Superior Court decision. Technically, the Rohnert Park “watershed” approach was deeply flawed by including portions of another basin and ignoring geological factors such as low-permeability non-basin geologic formations and faults including the well-known Rodgers Creek fault zone.

It would be prudent for the UWMP consultant to review the DWR Bulletin 118 Update 2003 chapter on “Basic Groundwater Concepts” (see attached) for definitions of a groundwater basin, overdraft, safe yield, etc. The UWMP should attempt to perform its evaluations of groundwater overdraft within the basic groundwater concepts described by DWR, and those concepts should be clearly presented in the UWMP.

For its “water balance” study, the 2003 Canon Manor EIR invoked capturing of recharge from outside its study area, including the Lichau Creek watershed. Thus, the Canon

Manor EIR indicates that groundwater pumping in the Santa Rosa Plain subbasin is pulling water out of the Petaluma Valley basin – an obvious imbalance to the groundwater budget. As of 2003, the Penngrove Water Company well – the main well evaluated by the Canon Manor study - had a static water level of 200 feet below ground surface in an area where groundwater levels were historically on the order of 20 feet below ground surface. Todd Engineers erroneously used a neighbor's dry well, 180 feet deep, for monitoring. Todd Engineers evaluated drawdown assuming confined conditions when the aquifer was interpreted as unconfined, leading to overestimation of transmissivity. These fundamental errors were pointed out in the EIR review process but, of course, Todd Engineers would not admit to their mistakes. By using conclusions from the Canon Manor EIR, the UWMP is further propagating conclusions from mistake-prone groundwater interpretations. Lowered groundwater level elevations (as much as 180 feet!) in Canon Manor are indicative of overdraft and pumping beyond safe yield.

RP Well Depth Zones

23 of 43 wells in the Rohnert Park well field are screened across the so-called "shallow zone". The Rohnert Park well field effectively interconnects extraction from multiple depth zones in the aquifer system. The Rohnert Park WSA provides no geological evidence of aquitards providing hydraulic isolation between its depth-based zones.

Groundwater Level Trends

"Stable long-term groundwater level trends" do not define a non-overdraft condition – the question remains as to whether groundwater levels ever fully recover.

7,350 Acre Feet City Pumpage

The UWMP states "The WSA found that a projected 2025 City pumpage of 7,350 afy would be within the range of historically sustainable pumpage". Is this statement correct. If yes, than how can 7,350 afy of City pumpage not lead to overdraft?

The City has never pumped over 7,350 afy. SCWA's own figure below shows that combined Rohnert Park and Cotati pumping has never exceeded 6,000 afy. This figure also shows declines of "typical groundwater levels in the Southern Santa Rosa Plain Area" in a well northwest of Rohnert Park. The hydrograph is characteristic of overdraft according to the DWR definition.

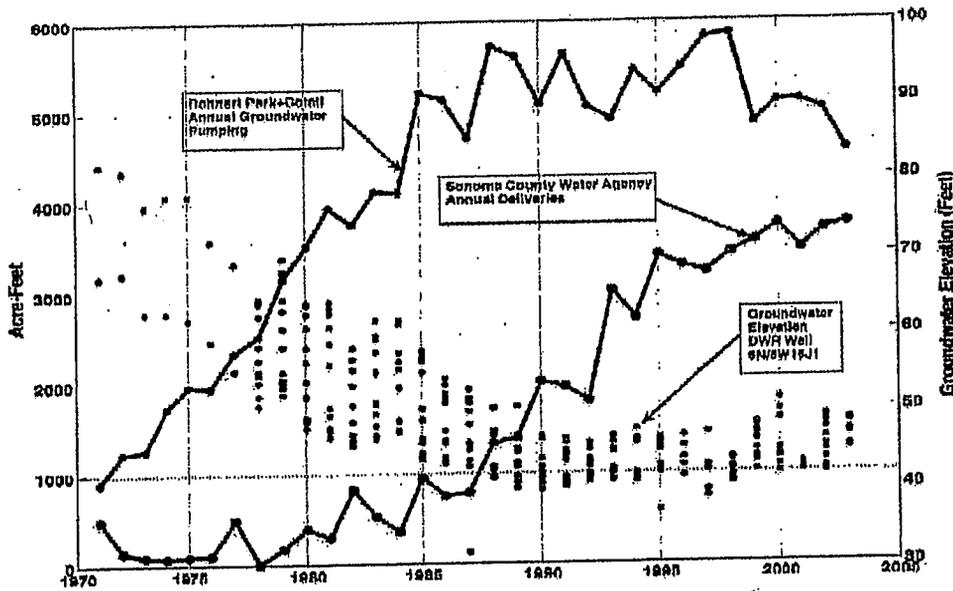
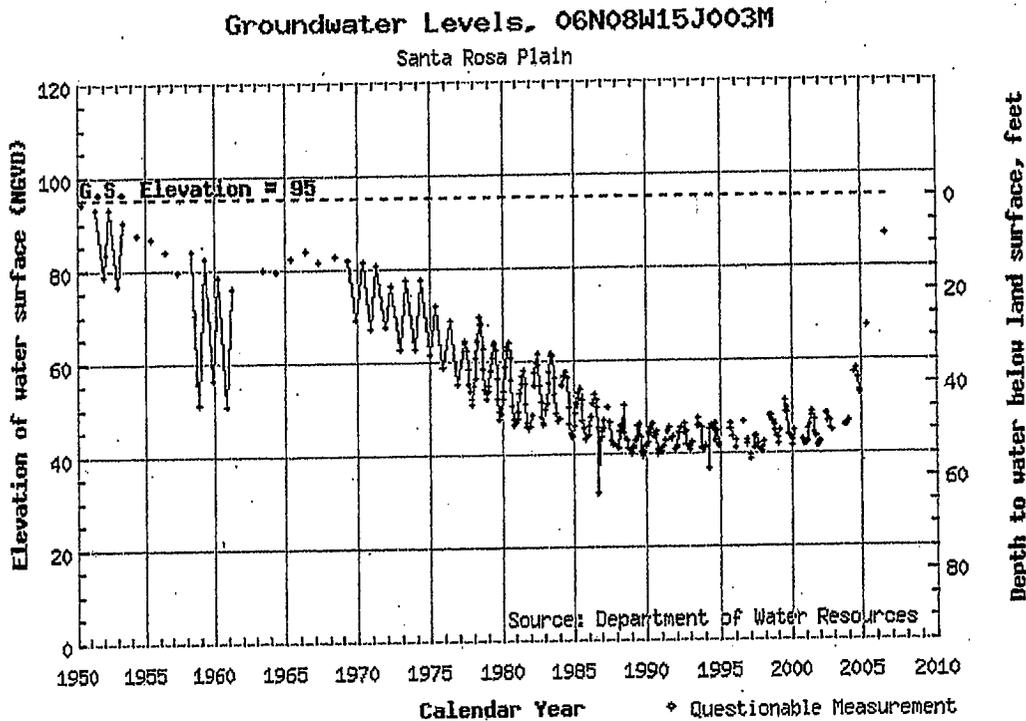


Figure 3: Correlation of Groundwater Pumping, Agency Transmission System Deliveries, & Typical Groundwater Levels in the Southern Santa Rosa Plains Area
Figure from Water Supply Workshop, November 1, 2004, Sonoma County Water Agency Staff Report.

DWR Well 06N08W15J003M

DWR well 06N08W15J003M is located northwest of Rohnert Park, beyond city limits. This well provides the longest and best record of groundwater levels in the South Santa Rosa Plain. This well is less than 200 feet deep. Groundwater levels were near the ground surface in the early 1950s. Water levels declined coincidentally with increased pumping by the City of Rohnert Park and City of Cotati (see SCWA figure above). In late 2003, the City of Rohnert Park shut its well field off completely and has minimized groundwater pumping. Since then, water levels have substantially recovered in DWR well 06N08W15J003M. This recovery further indicates that water level declines outside the City of Rohnert Park were directly related to pumping by the City of Rohnert Park. "Stabilized" water levels between 1990 and 2003 still indicate overdraft because water levels never fully recovered in this period, even during wet years (e.g. 1998 one of the wettest in the century). This hydrograph provides a classic example of historical overdraft.

The City of Rohnert Park WSA projects to increase groundwater pumping relative to 2004-2005 pumping rates. This could lead to future groundwater level declines and "projected overdraft" as defined by DWR. The UWMP should use past data on historical overdraft to make predictions on future overdraft conditions.



SCWA Well Groundwater Levels

What are "temporary declines in groundwater levels"? Do "stabilized" groundwater levels indicate no overdraft? What does "generally stabilized" mean? Do groundwater levels in all monitoring wells ever fully recover? As discussed previously, the key issue in defining overdraft from a hydrograph is whether or not groundwater levels ever fully recover from groundwater level declines. The UWMP provides no evidence of full groundwater level recovery in association with pumping from the SCWA wells.

Prior Studies on SCWA Wells

The UWMP either ignores or is unaware of previous studies on the impact of pumping by the SCWA wells. Even short term pumping affects water levels in neighboring wells. After conducting 7 to 11 day pumping tests in 1978, SCWA concluded:

"...use of the emergency wells does have an impact on some of the nearby private wells and some not so nearby... The most significant effect occurred during pumping of the Occidental Road well. Most of the monitored shallow wells within a mile radius and varying in depth from 70 feet to 250 feet experienced a drop in water levels ranging from 1.0 to 13.0 feet." (SCWA, 1978)

In 1979, analysis of a pump test where all three "emergency wells" were pumped simultaneously, SCWA concluded:

"Impacts on water levels of the local wells followed the patterns experienced during earlier development and pump tests" (SCWA, 1979).

Obviously, SCWA has known for over 25 years that pumping from the "emergency wells" would impact neighboring private wells.

References:

SCWA 1978, Memorandum from Gordon W. Miller, Chief Engineer, to SCWA Board of Directors, February 15, 1978, Subject: Impacts observed on groundwater levels by pumping Agency's emergency wells.

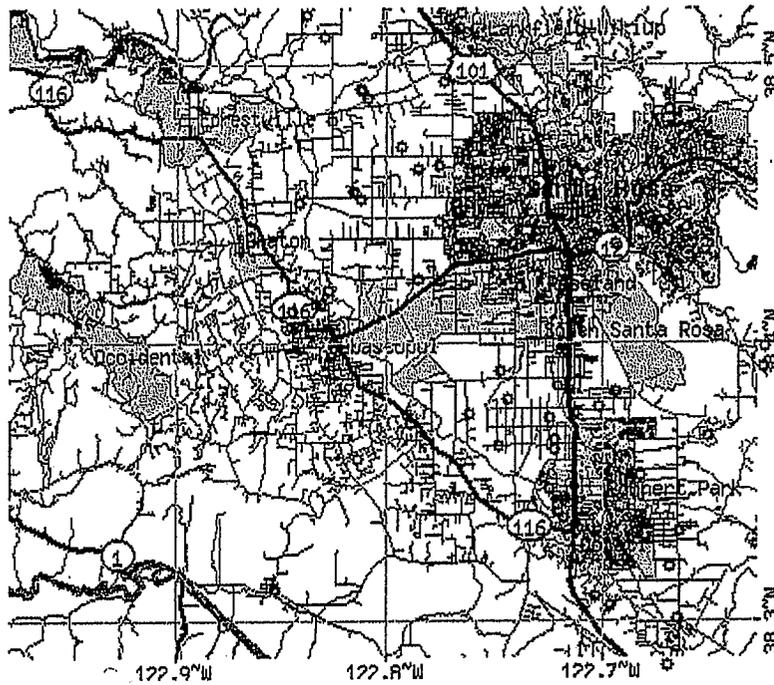
SCWA 1979, Memorandum from John Kunselman to Richard W. Norton, December 16, 1979, Subject: October 1979 pump test of Agency's three emergency wells.

DWR Monitoring Wells near SCWA Groundwater Wells

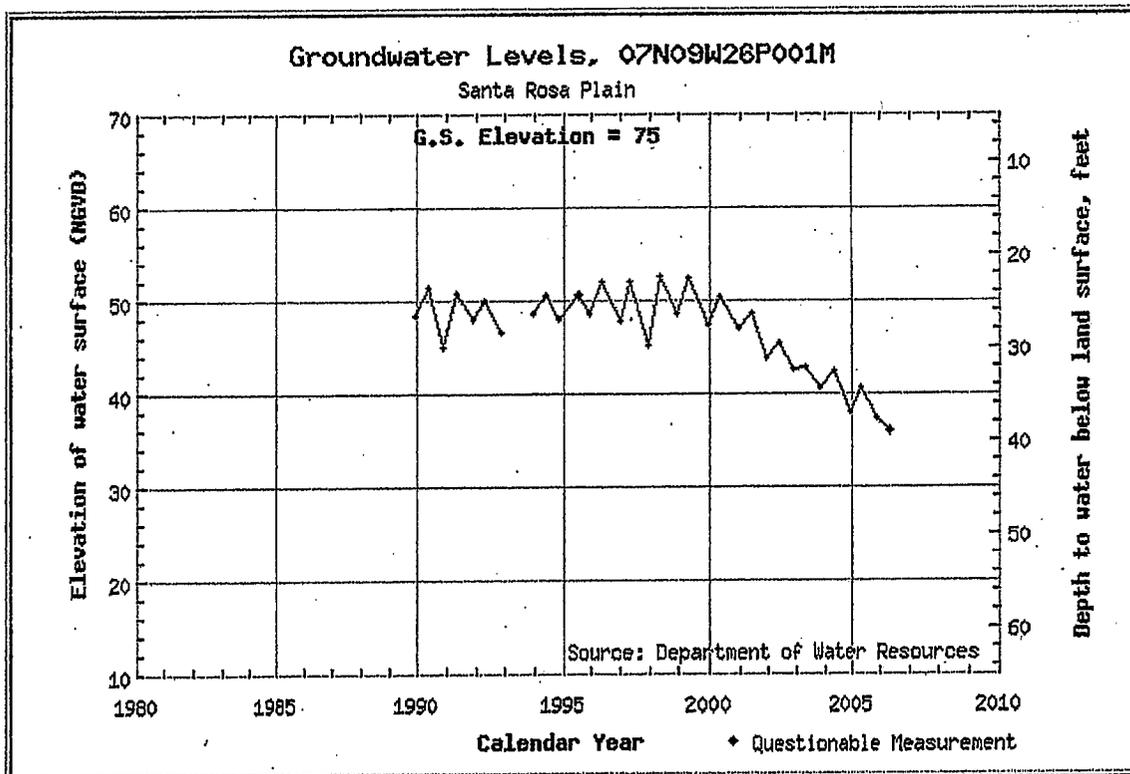
According to the UWMP, p. 4-15:

"The DWR website (<http://wdl.water.ca.gov/gw>) has water level data for several wells in the Santa Rosa Plain near highway 116 north of Sebastopol and near highway 12 between Sebastopol and Santa Rosa. All of these wells show stable water levels from 1990 to 2006, and thus there is no indication of long-term overdraft in the Santa Rosa Plain Subbasin."

Below are the DWR location map and hydrograph for 07N09W26P001M. This well is the northernmost of the three DWR wells north of Sebastopol. This is the closest DWR well to SCWA's Occidental Road Well. This hydrograph shows declining water levels beginning in 2000 and coinciding with the advent of pumping by the SCWA wells. The UWMP statement "All of these wells show stable water levels from 1990 to 2006" is absolutely false and, therefore, the subsequent UWMP statement "and thus there is no indication of long-term overdraft in the Santa Rosa Plain Subbasin" is also absolutely false.



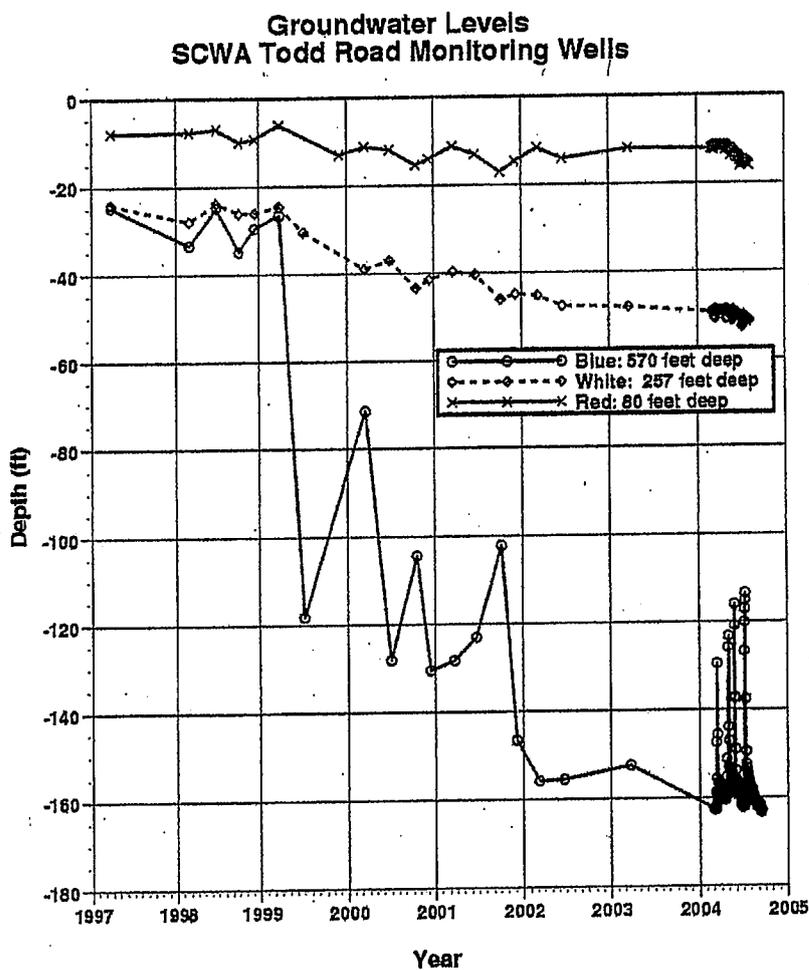
Location map from DWR website



Hydrograph from DWR well closest to SCWA's Occidental Road Well.

Todd Road Well Monitoring

The UWMP states on p. 4-14 that monitoring began on the Todd Road Well in 2004. Actually, monitoring data for the Todd Road Well date back to 1997. The data shown below indicate a significant groundwater level declines at three depth zones. Therefore, the UWMP is incorrect about its statements regarding groundwater level trends associated with the Todd Road well.



Water level elevations at Todd Road Well measured by SCWA since 1997.

Groundwater pumped by Agency Contractors

The UWMP states on P. 4-15:

"The quantity of groundwater projected to be pumped by the Agency's contractors is presented in Section 4.5"

No information on groundwater projected to be pumped by the Agency's contractors is provided in Section 4.5.

- Section 4.6 provides total "projected groundwater or other local supply usage", but does not specify amounts of groundwater. Furthermore, Section 4.6 does not provide information on the amount and location of groundwater pumped by each contractor in the last five years and projected in five year intervals.
- The UWMP does not detail groundwater use by Santa Rosa, Petaluma, Rohnert Park, Windsor, Sonoma in last 5 years.
- The UWMP does not give detailed description of projected groundwater pumping/
- There are no references to any contractor-specific UWMP's that would provide pumping information. If contractor-specific UWMP's existed, pumping information should be readily available, especially since the SCWA UWMP 2005 is a year behind schedule.

Dry Year Analysis

The 2005 Rohnert Park WSA shows sufficient dry year supply at "build out" (2025), whereas the UWMP shows insufficient supplies in a 2025 dry year. How is this possible?

SB 610 Requirements

The water code states:

This bill would require additional information to be included as part of an urban water management plan if groundwater is identified as a source of water available to the supplier.

There is a general lack of information in the UWMP pm meeting the requirements of SB 610 regarding groundwater pumping by the City of Santa Rosa, City of Petaluma, Town of Windsor, City of Cotati, and City of Rohnert Park.

Amount and Location of Groundwater Pumped

The water code states:

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

This information is not provided in the UWMP for any SCWA contractor, as previously pointed out.

Groundwater Sufficiency

The Water Code states:

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

Much of the UWMP relies on the legally flawed 2005 Rohnert Park WSA. Furthermore, the UWMP analysis of SCWA pumping impacts is flawed in the same manner. In particular, the UWMP does not address or reference projected groundwater pumping increases by the City of Santa Rosa.

Water Use Sectors

The Water Code states:

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

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

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

Why does the UWMP not provide a detailed breakdown of uses among the water use sectors?

Single-Family and Multifamily Use

The Water Code states:

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

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

The UWMP provides no information on single-family and multifamily residential housing water uses for lower income households.

Public Involvement

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

The public has not been actively involved in the Draft UWMP preparation. Public input has been entirely ignored in regard to groundwater sufficiency analysis. Public input on the draft UWMP has been limited by very short notice and scheduling of a 10:00 am hearing that prevents working people from providing input.

Newspaper Publication

Government Code

6066. Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

Was a hearing notice published in a newspaper serving the public living in the North Marin Water District (e.g. the Marin Independent Journal)?

Delay

10644.

(b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the outstanding elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

The current rush in public review appears to be related to a December 31, 2006 deadline for DWR to submit a report to the legislature. Considering that the UWMP has been in preparation for over two years, why must public review of the draft UWMP be rushed to within a period of one or two weeks?

Abuse of Discretion and Substantial Evidence

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

The public has submitted substantial evidence indicating overdraft conditions exist in the Santa Rosa Plain subbasin. The UWMP's adherence to incorrect definitions of overdraft despite clear definition given by DWR and a May 2006 Superior Court ruling indicate an abuse of discretion in the preparation of the UWMP.

Minimize the Need to Import Water from Other Regions

The Water Code states:

10620.

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

SCWA currently imports water from North Coast Hydrologic Region to the San Francisco Bay Hydrologic Region. The UWMP contains no description of the tools and



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December 4, 2006

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DOCUMENT COPY KEEP/DISCARD
SONOMA COUNTY WATER AGENCY

NOV 07 2006

Orig. Filed **40-0-1 (&EXP)**
Urban Water Management Plan

RE: 2005 DRAFT URBAN WATER MANAGEMENT PLAN

Dear Mr. Poole,

The City of Petaluma is pleased to submit the following comments on the above-referenced document:

1. Page 3-2, Table 3-1. Please include "Draft" when referring to Petaluma's General Plan.
2. Page 3-5, Table 3-5. Footnote "a" indicates that the results of the existing conservation efforts are summarized in Appendix B. This information does not appear to be in Appendix B.
3. Section 4 – Water Supply. This section briefly describes the Agency's various water supply agreements. I would suggest that reference to the "Temporary Operating Procedure for the South Petaluma Aqueduct" would be appropriate in this section.
4. Section 6 – Water Conservation. As you know, the water conservation efforts of the water contractors have resulted in substantial water conservation savings. A review of these efforts and the corresponding savings would help to illustrate the extraordinary efforts of the contractors and the Agency.

Please contact me if you have any questions regarding these comments.

Sincerely,

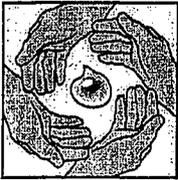
Michael Ban, P.E., Director
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xc: Michael Bierman – City Manager

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SONOMA COUNTY WATER AGENCY

DEC 06 2006

Orig. Filed 40-0-1 UWMP

December 4, 2006

The Sonoma County Water Coalition (SCWC), comprising 33 organizations, representing more than 27,000 concerned citizens, submits the following comments on the Sonoma County Water Agency's draft Urban Water Management Plan 2005 (UWMP), issued November, 2006. This letter includes comments on the UWMP, Sonoma County General Plan 2020 (GP 2020) and GP 2020 DEIR (in process). The intent of these comments is to work in a proactive and cooperative way to better serve the environment and the greater community. We ask that they be copied to the Comments files of both the UWMP, and GP 2020 and DEIR.

SCWC is very concerned about the changing project description, data, policy, and findings related to water quality and water supply issues in GP 2020 and DEIR, which plague the current GP process. The UWMP is a very large and controversial document, replete with details crucial to the future management of Sonoma County water resources and related policy, which are not yet included in the GP 2020 or the DEIR. The California Environmental Quality Act and recent court rulings support re-noticing for projects with substantial changes, where the public and responsible agency would need time for additional environmental review.

Contrary to assertions about public involvement (UWMP Sect. 1.4), the SCWA did not ask for public input, involvement or hearings during development of the draft UWMP, thus depriving the interested public and ratepayers of chances to read, understand and provide timely informed comments. The subject UWMP was made public on October 31, 2006, with a comments deadline of November 14. Appendix A of the UWMP, supposedly the evidence of public notification, is missing (p. 1-2). SCWC submits that the public was afforded too little time, only 14 days, to review such a crucial document, and even the additional 2 weeks afforded by a change of administrative schedule does not allow sufficient time for agency and public review.

Thank you for considering these comments carefully, and in the spirit of proactive community engagement, with which they are offered.

Stephen Fuller-Rowell
Sonoma County Water Coalition

cc: Randy Poole, SCWA General Manager/Chief Engineer
Jay Jasperse, SCWA Deputy Chief Engineer
Greg Carr, PRMD (for GP2020 and GP2020 DEIR files)

SCWC has noted the following inconsistencies and inaccuracies in the draft 2005 UWMP:

Application of Urban Water Management Plan to GP 2020 and DEIR

As stated above, the GP 2020 and related DEIR files presented assumptions and findings about water supply and water quality, prior to UWMP release. Since the UWMP provides the basic assumptions about water supply and demand, which underlie the findings, policy, and environmental review process for County general plans, it must be incorporated into the GP 2020, even at this late date. As of now, responsible agencies and the public have not had sufficient time to review and comment on new UWMP information in relation to the General Plan goals, policy, analysis, or findings related to the UWMP document. Therefore, the County of Sonoma must re-notice the GP project and allow for an extended public comment period.

In addition, the assumptions, findings, and policy written into the GP 2020 and related DEIR, prior to delivery of the UWMP, must be internally and mutually consistent. Consistency may require resolution and justification of any and all new information and related issues raised by the UWMP, which are not already present in the GP 2020 and DEIR record. For example, the Draft General Plan (and DEIR) estimate that 70 to 80 percent of total withdrawals from the Russian River are used for agriculture. In contrast, the UWMP does not consider these withdrawals as part of the total use picture, so it conflicts with the GP 2020 and DEIR. In addition, the GP 2020 water use findings must reflect UWMP water-use scenarios. If there are inconsistencies, they must be resolved. Creating consistency among these interactive documents will require significant new work before finalizing the GP 2020 and related DEIR process, in which the public and responsible agency have a significant stake. All this work must be transparent to the public and responsible agencies.

Relation of new UWMP information to GP 2020 and DEIR:

Any inaccuracies, inconsistencies, and differences between UWMP data and findings, and the GP 2020 language and environmental review must be resolved, including previous issues raised by SCWC, other interested parties and responsible agencies. Since the UWMP will be used to formulate water supply assessments for the General Plans of Sonoma County's cities, the draft UWMP must not contain erroneous and misleading assumptions, data and conclusion, which could eventually pit real water demands against rosy growth scenarios planned with 'paper water.'

Overview Comments

The UWMP relies on the assumption that SCWA will be permitted to divert 101,000 acre feet per year (AFY) from the Russian River by 2030, by obtaining permission for diversion of an additional 26,000 AFY from the Russian River and/or Lake Sonoma. Even the draft GP 2020 and its DEIR do not make this assumption, and in fact explicitly assume that this amount of additional water may not be available during the lifespan of the updated General Plan. There is enough uncertainty around this assumption that the UWMP should describe alternative projections of supply and demand that will be true under a number of other assumptions, including no additional Lake Sonoma discharges, Russian River diversions, or supplemental Eel River diversions. The UWMP must explicitly state the foundation for these assumptions, which are in conflict with, and currently absent from, the draft GP 2020 and its DEIR.

To be useful in the real world, the UWMP needs to account for increases in demand and variability in supply that can be expected due to well-documented warming, which is changing global climatic patterns. This topic merits a serious, thoughtful discussion, currently absent from the draft.

The UWMP restricts future water supply projections to rosy scenarios, including projections of the length and severity of future drought conditions. Extreme drought conditions are not even considered, based on the unfounded assumption that droughts will not last longer than 4 years between now and 2030. The UWMP also assumes that no dry year will be drier than any on record or will not be drier than 1977, currently the driest year known. Since rainfall records have been kept for this region less than a century, these are tenuous assumptions.

UWMP water supply estimates have no evidentiary support, and many are demonstrably based on paper water. This applies to the lack of evaluation of groundwater resources and the impacts of present and recommended use of groundwater to supplement SCWA deliveries to its contractors through the Memorandum of Understanding Regarding Water Transmission System Capacity Allocation During Temporary Impairment, and in the Restructured Agreement for Water Supply; the lack of current approvals and permits to take additional water from the Russian River, or the Eel River or (and) Lake Sonoma; and the lack of evidentiary bases for estimating reservoir water supply pools. The overly rosy predictions of the duration and severity of future droughts can also be interpreted as a reliance on paper water.

The per-capita water consumption estimates, which are one of the most critical data sets for creating reasonable water consumption models for the UWMP, do not set conservation targets or enforceable goals. They seem to be based on the water withdrawal and consumption targets, rather than vice versa.

The present performance of the SCWA's water conveyance infrastructure leakage also is highly overestimated throughout the UWMP, as in the Water Supply and Transmission Reliability Project (WSTRP).

Many parts of the UWMP rely on very old data, especially on long superseded geologic and hydrologic data for the County. The document writers also show an overall lack of geological expertise.

Discussion

In the following discussion, SCWC fills in details related to problems enumerated in the overview (above), as well as other issues.

Sect. 1.2, p. 1-1. The statement "The Agency does not import water," is correct only in the most limited sense. According to the League of Women Voters publication *Water Watch in Sonoma County* (p. 2), "Four major water resource development projects have altered the natural flows of the Russian River. They are (1) the Potter Valley Diversion, a tunnel linking the Eel River watershed with the Russian River watershed and creating a hydroelectric plant; (2) Scott Dam, on the Eel River, creating Lake Pillsbury; (3) Coyote Valley Dam on the Russian River, creating Lake Mendocino; and (4) Warm Springs Dam on Dry Creek, creating Lake Sonoma". Thus, the SCWA uses water imported from the Eel River, even if the agency does not actually accomplish the importation, and this should be clearly acknowledged.

Since the Russian River is "over-allocated" according to the State Water Resources Control Board, and the Eel River flows are essentially used to replenish or 'subsidize' those over-allocated withdrawals, continued reliance on the Russian River to deliver the SCWA's currently permitted 76,000 AFY withdrawals implies dependence on the Eel River water transfers and

imports into the Russian River basin, whether directly or through releases from diverting and re-diverting water from Lake Mendocino. The UWMP must address this larger question clearly: does, or does not, SCWA depend on any transfers from the Eel River to supply its customers, directly or indirectly? If so, what is the SCWA's plan to address reduced transfers?

The GP 2020 DEIR assumes that water transfers may not continue at the present level, and that the WSTRP may not be built, in conflict with assumptions in the UWMP. The UWMP assumes that the WSTRP will be constructed "as described in the Scoping documents" for the WSTRP DEIR, yet there is no clear description of just what that Project will consist of in those Scoping documents and public notice. Instead the documents contain a generic list of options. What project of the WSTRP is the UWMP assuming will be built, and with what justification or surety? Pipeline down Dry Creek? Water filtration plant? Additional storage facilities? New diversion points? Since to date the SWRCB has refused to allow additional water permits for the SCWA on the Russian River, the UWMP must provide stronger support for the assumption of an additional 26,000 AFY.

Sect. 1-6, p. 1-4. The Agency assumes that:

- "listing of three salmonid species as threatened or endangered under the federal Endangered Species Act (ESA) will not reduce the amount of water it can supply from ... Lake Sonoma, using its Russian River diversion facilities ... "
- "PG&E's existing Federal Energy Regulatory Commission (FERC) license for the Potter Valley Project (PVP) will not be modified ... "
- "... any license modifications (and the terms of any new license) will not reduce the amount of water available for diversion by the Agency."

Also, allowing local agencies to use the UWMP assumptions for their own water availability analyses includes the assumptions that the Eel River ESA, PVP acquisition, and WSTRP all will be approved.

These assumptions are less an assessment of water resources than an Agency wish list. In fact, the SWRCB has already told SCWA that Decision 1610 (which sets and regulates minimum flows in the Russian River and releases from Lake Mendocino for fisheries needs) will be reopened, and the diversions may be further reduced. This is required by law when the diversions through the PVP are altered, as PG&E has done in the last 2 years, in response to FERC and NMFS requirements. The UWMP ignores this fact entirely, leaving its assumptions about flows released from Lake Mendocino overstated and incorrect.

Even if the outcomes are as assured as this section implies, they are all future objectives, which means that this UWMP relies very heavily, if not entirely, on paper water.

The Agency also has proposed to acquire the Potter Valley Project, which directly receives the diverted water, and has listed the acquisition as an objective in many documents, including the final signed Restructured Agreement for Water Supply. Interestingly, this long-standing objective and its purposes are not mentioned, explained or accounted for in the draft UWMP's discussions and data about water supply or reliability.

S 2.3, p. 2.2. A table to quantify the volume of water supplied in an average year from each and every source, whether surface water or groundwater, including the Potter Valley diversions, is needed in this section.

S 2.3.1, p. 2.5. This section on Lake Pillsbury and the Potter Valley Project must specify the amount of water going into the Russian River from the Eel River, and also specify the actual volume of Lake Pillsbury's water supply pool, including data on the reservoir sedimentation rates, or reference to the sources of such data. The data for calculating the sedimentation rates should be tabulated in the UWMP.

Sect. 2.3.2, p. 2.5-2.6. This section on Lake Mendocino and the Coyote Valley Dam gives the design capacity of Lake Mendocino's water supply pool. To represent actual conditions, the UWMP also must specify the actual volume of Lake Mendocino's water supply pool, including reference to data on the reservoir's sedimentation rates. The data for calculating the sedimentation rates should be tabulated in the UWMP.

Sect. 3.1.3, p. 3-3. Population figures (Table 3-2) show an overall 27% increase (approx. 1% per yr) of the number of people served or to be served by SCWA, from 388,326 in 2005 to 493,960 in 2030. A commensurate growth in water supply, assuming no change in the level of conservation, would rise from 75,000 AFY in 2005 (this is the maximum allowed, apparently more than is actually supplied) to 95,000 AFY in 2030.

Sect. 3.2, p. 3-5. In contrast, the projections of total use by Agency contractors (Table 3-3) show a 30% increase from 2010 to 2030--82,900 AFY in 2010, to 107,939 AFY in 2030. Excluding the amounts provided under a special agreement to Marin Municipal Water District (Table 3-3--6,915 in 2010, to 14,300 in 2030), the growth in Sonoma County water consumption is only a 23% increase (from 75,900 AFY in 2010 to 93,600 AFY in 2030).

The UWMP should identify and explain the discrepancies between these rates of population and water supply growth. The figures seem to assume that Sonoma County residents are not expected to conserve fresh water or recycle wastewater at a higher rate than the present, and that MMWD customers will not conserve water at all. The UWMP must explain explicitly how these figures and projections are reconciled with growth and use projections, as well as with projected use from groundwater, reuse of recycled water in lieu of potable water, conservation and efficiency programs, the adopted best management practices (BMPs) and any other programs and projects that will affect the water balance. In addition, the UWMP must explain how SCWA is planning to meet SWRCB's instructions to reduce demands on Russian River withdrawals, so as to reach a zero-increment in water withdrawals status as county growth continues. The BMPs are not used in conjunction with any mandated reduction in demand, but are guidance for reductions only. SCWA and the contractors have no overall enforceable mandates for reduction in system demands during 'normal conditions.' The only exception is during the stress conditions laid out in the MOU.

- Sect. 3.2, p. 3-6. Unaccounted system losses seem underestimated. Tables 3-5 and 3-6 show 3.7% system losses, which do not change from 2010 to 2030. There is no mention of the possibility of conserving water by sealing or preventing system leakage, although leaks from the Sonoma Valley conveyance system lose almost as much water annually as is delivered to the Valley of the Moon Water District. A similar leakage rate probably applies to other parts of the SCWA water distribution system.

Sect. 4.1, p. 4-5. The anticipated NMFS Biological Opinion may or may not immunize the Agency with an incidental take statement, allowing higher than present releases from Lake Sonoma and larger diversions from the Eel River. The UWMP relies on paper water in projecting future approval of the EIR and wide latitude in the NMFS Biological Opinion.

Sect. 4.2.1, p. 4-6 The assertion that "DWR has not identified overdraft conditions in any" of the county's groundwater basins has no relevance to the UWMP. DWR has not published a Bulletin 118 basin study for Sonoma County since 1982. In the Santa Rosa Plain (SRP) subbasin, groundwater pumping by the City of Rohnert Park, Cotati, SSU, and SCWA has increased dramatically since 1982, and Santa Rosa is resuming groundwater pumping. The USGS studies in Sonoma County are being performed, in large part, because prior DWR studies are considered "outdated."

Sect. 4.2.2, p. 4-8. The need to examine the effect of groundwater pumping on the Russian River shows that the WSTRP's requirement that contractors develop "other" water resources--which the UWMP makes clear means predominantly groundwater resources--is based on paper water. The future groundwater supplies projected in Tables 4-11 and 4-12 (pp 4-22, 4-23) have no validity if they lower the Russian River's water supply (SCWA's main water source), or if the water withdrawals from present and future SCWA wells, plus withdrawals from the future wells of SCWA contractors, conflict with each other, and (or) deplete the wells of rural homeowners and farmers.

The UWMP should acknowledge that the estimated figure for groundwater pumping in the basin is poorly constrained. The U.S. Geological Survey's groundwater study of Sonoma Valley groundwater is a good start, but not yet reliable because it did not include recharge studies, and had too few data on groundwater withdrawals from the preponderance of rural wells in this dominantly rural area.

Also, the "localized problem" for Sonoma Valley groundwater includes 2 issues: (1) marked drawdown cones around the main municipal wells, which supply the Town of Sonoma and Valley of the Moon, and (2) northward migration of saline waters from deltaic bay mud into groundwater wells, as far north as the town of Sonoma. The presence and fluctuation of the drawdown cones must be monitored over a number of years before their significance can be fully evaluated. They may signal incipient or growing overdraft conditions in the lower Sonoma Valley--a likelihood enhanced by the evidence for northward-migrating saline waters.

Sect. 4.2.3, p. 4-10 - 4-11. The geological and much of the hydrological information for the SRP presented in this section is extremely old, and is superseded by numerous theses, maps, and published reports, and also by consultant studies done under contracts for public agencies, including SCWA. In particular, the description of SRP geological relations is not strictly correct. One example is the exaggerated description of relations between the Wilson Grove Formation (WGF) and Sonoma Volcanics. Understanding these relations is important to locating potential aquifer distributions and groundwater problem areas in the SRP.

WGF crops out in western Sonoma County south of the Russian River, and in the area south of Sebastopol WGF interfingers eastward with the generally same-age Petaluma Formation (PF) (Allen, 2003). WGF is exposed mostly in hills west of the Laguna de Santa Rosa and SRP, but undoubtedly continues eastward beneath the Laguna de Santa Rosa a short distance. WGF also

undoubtedly grades eastward into contemporary PF units (Blake and others, 2002; Stevens and Cooper, 2005). Both WGF and PF contain Sonoma Volcanics interbeds, but the water-bearing WGF mostly contains airfall tuff units. The tuffs commonly are converted to clay layers that segment WGF aquifer into semi-confined to confined subsurface aquifer zones. At Stony Point Quarry, and only a very few other locations, WGF is interbedded with lava of the Sonoma Volcanics. In contrast, PF grades eastward and interfingers with all phases of Sonoma Volcanics eruptive rock units beneath the SRP.

Sect. 4.2.3, p. 4-14. The UWMP contains no evidentiary demonstration that the three SCWA wells in the Laguna de Santa Rosa tap a groundwater supply adequate for withdrawing the expected 3,870 AFY without adversely affecting private well owners by lowering groundwater levels below pump intakes and increasing pump lift energy costs. The WSTRP requires that SCWA contractors develop "other" water sources to supplement their SCWA deliveries, but the UWMP does not examine the impact of future groundwater withdrawals on other wells that the contractor's withdrawals could impact, particularly in the SRP. On this basis alone, the UWMP is based on paper water. Geo-hydrologic studies of the SRP are not expected to be completed until 2009 at the earliest.

Sect. 4.2.3, p. 4-15. SCWA's consultant presents an interpretation of monitoring data around the deep SCWA Laguna de Santa Rosa wells that avoids looking at the deep and shallow level groundwater drawdowns at each well, and never correlates pumping at one SCWA well with drawdown effect at the other SCWA wells. The data show, in fact, that each well's pumping affects the other two, and that the deep well pumping causes water level declines in the shallow monitoring wells. SCWA documents (obtained under California Public Record Act requests) state that 1978 and 1979 tests also showed that pumping at the wells had negative impacts on nearby householder wells (Miller, 1978; Kunselman, 1979).

Sect. 4.2.3, p. 4-18 SCWA apparently believes that it can predict future climate conditions in a time of unusual warming, with the potential for persistent droughts that could dry soils, lower stream flows, and lead to critical levels of groundwater overdraft in the SRP, with the potential to drain water from the Russian River. This SCWA prediction cannot be verified and constitutes one example of the agency's reliance on "paper water" in this UWMP.

It is not true that DWR hydrographs in the area do not show groundwater declines in recent years, especially when compared with cumulative rainfall plots for the same intervals. Our Table 1 (below) describes the trends of DWR hydrographs near Sebastopol in wet dry intervals since 1990. The plotted hydrographs can be examined on DWR's website.

Regarding "stabilized" (meaning non-changing groundwater levels)--hydrographs that do not show raising water level during intervals of increasing rainfall may indicate developing overdraft conditions. Groundwater level declines, followed by stabilization during years in which rainfall amounts increase, as from 1995 to 2006, indicate overdraft because groundwater levels do not fully recover. Lack of prompt recharge effects in shallow aquifers, which tend to recharge close to the monitoring well sites, indicates either local overdraft or regional overdraft from deeper pumping.

Many hydrographs in the southern Santa Rosa plain subbasin show water level declines that do not fully recover in wet years, indicative of groundwater overdraft. Some wells close to Rohnert

Table 1. Water Level Changes in DWR Hydrographs Wet/Dry Intervals

Well No.	Location	Years	Water Variations vs Recent Wet/Dry Intervals	
			Dry 1984-1995	Wet 1995-2006
7N/9W-14H5	Olivet Road N of Piner	90 to 03	Drop 1990-93; Rise 93-95	Rise 95-98; drop 98-06
7N/9W-13M1	E of Olivet Rd, S of Piner	91 to 94	Drop 90-92†	No data
7N/9W-15K1	E of Frei Rd, S of Guerneville Rd	90 to 06	Rise 90-95	95-00; drop 00-06
7N/9W-16M1	116 N of Guerneville Rd	90 to 06	Drop 90-94; rise 94-95	Level 95-98; lower level 01-06
7N/8W-30K1	Occidental Rd at Irwin (OR)	74 to 06	Drop 84-90; level 90-95	Gradual drop 95-06††
7N/8W-29M2	Hwy 12 at Merced (SR)	90 to 02	Slight drop 90-95	Level 95-98; drop 98-06
7N/9W-26P1	High Sch. Rd, end Nelson Rd? (OR)	90 to 06	Level 90-95	Level 95-98; drop 98-06
7N/9W-35D4	N of Hurlbut, W of Pine Tree Ln(?)	90 to 01	Slight drop 90-93; sl rise 93-95	Slight rise 95-99; drop 99-01
7N/9W-35D2	N of Hurlbut, E of Pine Tree Ln(?)	90 to 06	Drop 90-93††; level 93-95	Rise 95-00; drop 00-06
7N/9W-F1	W of 116, N Mill Stn. Rd	90 to 06	Drop 90-92; rise 92-95	Rise 95-97; drop 97-03; level 03-06
6N/8W-7P2	116 S int w Old Grav. Hwy (TR)	90 to 06	Level 90-95	Marked rise 95-96; drop 96-06
6N/8W-18C1	W side 116S opp Todd Rd (TR)	90 to 06	Slight drop 90-95	Slight rise 95-99; drop 99-01(?)
6N/9W-24D2	S. Schaefer Rd. (S of Seb.)	80 to 06	Marked drop 84-91	No data

OR - near Occidental Road SCWA Well
 SR - near Sebastopol Road SCWA Well
 TR - near Todd Road SCWA Well

† Highest point probably spurious
 †† Some spurious low points

Park show “stabilized” water levels over the last decade of generally increasing rainfall. Historic water level declines and lack of full recovery in the southern SRP subbasin since the late 1990’s suggest a potential for developing overdraft conditions in the central and western SRP, as projected pumping rates by the City of Santa Rosa and SCWA increase.

Sect.4.5, p. 4-19. The Russian River System model (RRSyM) is said to be based on a number of different data types, including estimated sedimentation rates for Lake Pillsbury, Lake Mendocino and Lake Sonoma. The UWMP should include the estimated sedimentation rates used in the RRSyM model, and a table showing the kinds of information used to make the sedimentation rate estimates.

Sect. 4.7, p. 4-24. Regarding the water supply reliability model, at least two other scenarios should have been included in the UWMP. The first scenario should assume a normal water year with minimal conservation and over-drafted conditions in the Santa Rosa Plain groundwater subbasin (SRP). These conditions pertain today in the southern SRP. Failure to consider this scenario shows that the UWMP is not grounded in reality. The second is a worst case scenario of low rainfall levels, and severely over-drafted groundwater conditions everywhere, which must be considered for prudent planning.

These scenarios are not considered, apparently because SCWA rejects a number of studies, including an evaluation of groundwater supply in the SRP (Parsons Engineering Science, 1995), for which the agency itself contracted. The Parsons Engineering Science report notes severe water level declines in southern SRP associated with pumping by the City of Rohnert Park and

predicts substantial water level declines associated with increased pumping of SCWA wells in the central and southern SRP.

Sect. 5.2.1, p. 5-4. Table 5-3 contains amazingly crude estimates of SVCSD treated wastewater volumes. The lack of detail indicates only a rudimentary idea of the amounts being treated and produced.

Sect. 5.2.1, p. 5-5. Table 5.4 shows that SVCSD produces no water that meets recycled water standards. But SVCSD currently is delivering recycled water, so this leads us to question whether the Agency currently delivers water that does not meet standards.

Sect. 5.2.2, p. 5-6. Although Table 5.3 says SVCSD is treating 4,500 AFY in 2005 and also will be treating that much in 2010, Table 5.5 says SVCSD is disposing of (but not recycling?) about 3,300 AFY in the same years. The UWMP should describe what is happening to the rest of the treated water.

Sect. 5.3, p. 5-6. The UWMP needs a table showing total volumes of recycled water delivered to any end user, even if the water doesn't offset potable use. The table would include deliveries from SVCSD to agriculture and wetlands. Without this table, the public cannot compare reuse amounts with supplied amounts, or track this comparison over time.

Sect. 7.1, p. 7-1. Table 7.2: The table footnote says "Demands assume compliance with local plumbing codes." How big an assumption is this?

Appendix C, Attachment 1 – Model Water Shortage Emergency Ordinances, and Attachment 2 – Allocation Model. We have constructed the following Projected Per Capita Water Use table

Table 2. Projected Per Capita Water Use, from SCWA UWMP 2005 (October 2006), in gallons per capita per day (gpcd)†‡

	2005*	2010‡	2030‡	Best Use§	Winter Use†
Cotati	191	158	168	138	88
North Marin	214	186	188	131	109
Petaluma	209	178	177	128	106
Rohnert Park	161	145	140	136	88
Santa Rosa	169	150	150	114	87
Sonoma	249	201	211	149	88
Valley of the Moon	126	143	134	137	94
Windsor	184	178	186	130	94
Cal American		138	138		
Marin Municipal**					97
Other SCWA Customers				139	94
Average				134	94
Median				136	

‡ Calculated from UWMP data:

Populations in UWMP Table 3-2 (p. 3-3);

2010 and 2030 Projected Water Use in UWMP Table 3-3 (p. 3-5). Data converted to average million gallons per day (mgd), by multiplying acre-feet per year by 0.000892

* Water use for 2005 from Restructured Agreement Use, in UWMP Table 4-1 (p.4-3)

§ Best Use Column from Attachment 1 (Model Water Shortage Emergency Ordinance) in Table 4, "Per Capita Use (Best Data Available)";

† Winter Use from Attachment 2 (Allocation Model), in table on page 15, "Winter Level Per Capita Demand."

** Marin Municipal figures are not tabulated because Table 3-2 does not list population

based on UWMP data (our Table 2, above). The per capita water use for 2005 is calculated from population figures in Table 3-2 (p. 3-3), water delivery limitations from Table 4-1 (p. 4-3), and projections for 2010 and 2030 are from projected populations in Table 3-2 (p. 3-3) and projected use in Table 3-3 (p. 3-5). These figures greatly exceed the proposed Per Capita Use numbers (Best Available Data) in Attachment 1, Table 4, and Winter Use numbers in Attachment 2, p. 15. From this we must conclude that the SCWA contractors are not implementing aggressive water conservation and recycled water programs.

We can demonstrate that consumers could utilize water more efficiently through promoting or requiring intelligent conservation efficiency programs. Better use of summer water supplies includes planting less water intensive landscaping, using more intelligent irrigation practices, and eliminating wasteful practices such as pavement washing and overwatering all plantings; along with greater use of recycled water. Implementing all of these approaches can eliminate a large proportion of the current water consumption.

References

- Allen, James Rollin, Stratigraphy and Tectonics of Neogene Strata, Northern San Francisco Bay Area: A Thesis Presented to the Faculty of the Department of Geology, San Jose State University, May, 2003
- Blake, M.C., Graymer, R.W., and Stamski, R., Geologic Map and Map Database of Western Sonoma, Northernmost Marin, and Southernmost Mendocino Counties, California, U.S. Geological Survey, Miscellaneous Field Studies Map MF 2402, 2002
- Kunselman, John, Memorandum to Richard W. Norton, Subject: October 1979 pump test of Agency's three emergency wells, December 16, 1979.

Miller, Gordon W., Memorandum from SCWA Chief Engineer to SCWA Board of Directors, Subject: Impacts observed on groundwater levels by pumping Agency's emergency wells, February 15, 1978.

Stevens, Calvin, and Cooper, John, Late Neogene transition from transform to subduction margin east of the San Andreas Fault in the wine country of the northern San Francisco Bay Area, California, Field Trip Guidebook of the Cordilleran Section Geological Society of America-Pacific Section American Association of Petroleum Geologists, April 29-May 1, 2005, San Jose, California

League of Women Voters of Sonoma County, Water Watch in Sonoma County, League of Women Voters Publication, September, 2004 (36 p).

Parsons Engineering Science, Inc., Evaluation of Groundwater Supply Alternatives: Water Supply and Transmission System Project, prepared for Sonoma County Water Agency, August, 1995 (25 pp plus 18 pp diagrams).

Friends of the Eel River
P.O. Box 2305
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December 5, 2006

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General Manager/Chief Engineer
Sonoma County Water Agency
PO Box 11628
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Members, Board of Supervisors
Sonoma County
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Sonoma County Permit and Resource Management Department
Attn: Bob Gaiser and Members of the Planning Commission
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Santa Rosa, CA 95403

Comments on:

- Draft 2005 Urban Water Management Plan, October 2006 ("UWMP")
- Draft EIR for the proposed Draft Sonoma County General Plan 2020 Update (SCH No. 2003012020), January 2006 ("DEIR")
- Draft Sonoma County General Plan 2020 ("GP")

Dear Members, Board of Directors, SCWA; Members, Board of Supervisors; Members, Planning Commission, and Mr. Gaiser:

This letter and comments are submitted on behalf of Friends of the Eel River ("FOER"). We are pleased to provide comments and additional information in consideration of the Draft 2005 Urban Water Management Plan, and for the Draft Environmental Impact Report for the Draft Sonoma County General Plan 2020, and for the Draft General Plan 2020.

Friends of the Eel River is dedicated to its mission to restore the Eel River and all of her tributaries to a natural state of health and abundance, wild and free. Plans made and actions taken by Sonoma County and local jurisdictions subject to, or depending upon this UWMP, DEIR and GP have both direct and indirect influence on the health and restoration of the Eel River, and as such, we appreciate the opportunity to provide these comments.

Comments provided here are in addition to comments submitted on the UWMP by the Sonoma County Water Coalition ("SCWC"), of which FOER is a member.

In particular, we must stress the following from the SCWC letter:

Any inaccuracies, inconsistencies, and differences between UWMP data and findings, and the GP 2020 language and environmental review must be resolved, including previous issues raised by SCWC, FOER, other interested parties and responsible agencies. Since the UWMP will be used to formulate water supply assessments for the General Plans of all Sonoma County's cities, the draft UWMP must not contain erroneous and misleading assumptions, data and conclusion, which could eventually pit real water demands against rosy growth scenarios planned with 'paper water.'

Unfortunately, we find a number of critical errors and omissions in the UWMP.

1.6 Assumptions.

This section is in direct conflict with the assumptions used in the GP and DEIR, namely, that the UWMP states:

- "...the Agency assumes that the listing of three salmonid species as threatened or endangered under the federal ESA will not reduce the amount of water it can supply..." principally from storage in Lake Sonoma, with releases to the Russian River through Dry Creek.
- This is conclusory, and is not supported by any cited documentation. In fact, National Marine Fisheries Service/NOAA Fisheries ("NMFS") must consider the flow regimes necessary to support and restore protected species, and is currently preparing a Biological Opinion to address, in part, these issues. This will also include an evaluation of limits to releases of water via Dry Creek, in channel, as well as in pipelines.
- Also not included in this assumption is the impact of any claims by the Dry Creek Band of Pomo Indians, which recently filed claims for 17,000 acres surrounding Lake Sonoma and Warm Springs Dam, for tribal housing and commerce. They assert that this land was wrongfully taken from them more than 100 years ago. The impacts and unpredictability of these claims and potential outcomes must be evaluated in the UWMP's assumptions of future water supplies.
- "The Agency also assumes that PG&E's existing Federal Energy Regulatory Commission ("FERC") license for the Potter Valley Project ("PVP") will not be modified, or that any license modifications (and the terms of any new license) will not reduce the amount of water available for diversion by the Agency."
- Again, this is conclusory, and not supported by any cited documentation. In fact, the most recent FERC decision on requirements for diverted Eel River flows through the PVP is currently under appeal in Federal Appeals Court. In addition, due to changes in FERC mandated flows, SWRCB will soon be reopening considerations for reduced discharges from Lake Mendocino under Decision 1610, along with potentially reduced flow regimes for the Russian River.
- "...the Agency assumes that it will construct and operate facilities described in its Notice of Preparation of the EIR for the Water Supply, Transmission, and Reliability Project ["WSTRP"]."

This assumption is again conclusory, and the inherent risks for water supply are even acknowledged in the same paragraph: "State and federal agencies... could impose requirements that would change the Water Project."

The WSTRP DEIR has not even been released, no less reviewed and certified at a FEIR. Unless SCWA responds fully and faithfully to the California Appeals Court ruling (FOER v SCWA) and addresses impacts of diversions to the Eel River, SCWA cannot be assured of quick passage of these documents. See, Friends of the Eel River. Comments on the NOP for WSTRP EIR, Shute, Mihaly & Weinberger, to SCWA, April 7, 2005, attached.

- At Table 4-17 (page 4-25), "Description of the Factors Resulting in Inconsistency of Supply" the UWMP states, "Future supply increase may not be consistent due to delays in construction, in approval of water rights application, or in environmental documentation."
- The UWMP assumes that SCWA will secure an additional 26,000 ac.ft. water rights permits by 2016 (Table 4-10). Again, this is conclusory, and not supported by any documentation or correspondence with SWRCB. To date, SWRCB has declined to issue any permits to SCWA for additional water rights.
- In fact, SWRCB has requested that SCWA provide "a detailed plan of water conservation efforts that will offset future increases in demand, which in turn will result in no increase in Russian River diversions." (Steven Herrera, Chief, Water Rights Permitting Section, SWRCB, to Randy Poole, SCWA, Feb. 2, 2005; Attached).
- In response, SCWA asserted that it didn't need to provide such a plan, citing four reasons: "The additional water conservation measures that would be required probably are not sustainable or cost-effective; The Agency has adequate supplies to meet project increases in demands; Effects of additional water conservation on Russian River hydrology; Eliminating any increases in the Agency's Wohler-Mirable diversions may result in other adverse impacts." (Report to the State Water Resources Control Board on Water Conservation, SCWA, April 15, 2005)
- In short, SCWA claims it will draft more water from the Russian River because they think they can without any impediments.

The UWMP fails to adequately or accurately describe impacts of continued diversions of water from the Eel River through the PVP. Please see the attached, "Comments on Draft EIR for the proposed Draft Sonoma County General Plan 2020 Update", FOER, April 17, 2006, Section 7, for a more thorough discussion of these important facts, as well as other critical and relevant alternatives and comments on water supplies. Please see, particularly, the "Restoration, Reliability and Resource Stewardship Alternative" presented at page 27+ for another approach towards reliable, safe and abundant water supplies for Sonoma County water users.

The UWMP seems to say it all: "If construction and operation of the Water Project or an alternative project to meet the demands of the water contractors is delayed, deliveries by the Agency to its water contractors will be limited by any then-existing constraints on the capacity of its transmission system and its existing water rights."

Where is the real water for the next 20 years, not just "paper water"? The UWMP consistently fails to use reasonably conservative assumptions in its calculations and analysis of future water supplies.

Further, if these risks to having a reliable water supply for the next 20 years were not yet sufficient to require a redrafting of the UWMP, the following factors must also be included in the UWMP evaluations:

Conflicts with General Plan and DEIR

Remarkably, the UWMP's assertion of adequate water supplies for the next 20 years directly contradicts the data and conclusions used in the GP and DEIR, which clearly state that:

Significant Unavoidable Impact 4.9-1:

"Insufficient water supplies to meet the future water demand of the urban service areas."

"Land use and development consistent with the Draft GP2020 would increase the demand for water. As a result, insufficient water supplies would be available to serve some of the unincorporated USA's from existing entitlements. New or expanded entitlements would be required." (p. 6.0-22)

Significant Unavoidable Impact 4.9-2:

"Insufficient Water Supplies to meet the future water demand of rural private domestic, small municipal and agricultural wells."

"Land uses and development consistent with the Draft GP2020 would result in an increased demand on groundwater supplies for rural uses. Due to the lack of comprehensive information regarding the county's groundwater resources, it is uncertain if groundwater supplies would be sufficient to meet the future demand of rural private domestic, small municipal, and agricultural wells. This uncertainty combined with the current regulatory approach could result in insufficient groundwater supplies in rural areas of the county."

Significant Unavoidable Impact 4.9-3:

"New or expanded water supply facilities"

"Land Uses and development consistent with the Draft GP2020 could result in the need for increased water supply facilities, either through the construction of new facilities or through the expansion or retrofitting of existing facilities. Construction of new or expanded water supply facilities could result in site-specific impacts, especially on aquatic organisms and fisheries."

The validity of the UWMP is questionable, unless these contradictions are reconciled with valid, current data to back it up.

The UWMP must also address additional water supplies made available through water efficiency practices, which can achieve far more than the conservation measures and BMPs listed. It should be noted that SCWA's and Contractors' adoption of the BMPs do not guarantee or mandate any particular savings in systemwide water use; there are no required targets for avoidance of water use, rather only a historic trend of some 10% per year. This is minimal, and can be greatly improved, but the UWMP ignores such successful programs as "Hold the Flow", currently being adopted in Petaluma. Petaluma is anticipating needing no

additional water supplies beyond the current deliveries through the lifespan of its new General Plan 2025.

Water Quality

At page 4-24 and 4-25, the UWMP notes, "Water quality issues are not anticipated to have 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 could have a significant cost."

The SCWA has proposed and studied several configurations, sizes and locations for a Water Treatment Plant, and in May, 2001 estimated costs at \$500-700 Million (presentation to MMWD). A treatment plant is mentioned as an option in the Scoping for the WSTRP DEIR.

Not only the costs of such a project immense (perhaps \$1 – 1.5 Billion in 2006 dollars), and the time period necessary for project design, approvals, and construction very long, but the removal of any such contaminants in the Russian River supply system would take a number of years, thus likely impairing the delivery of future anticipated water supplies. In addition, conventional water treatment plants do not remove a number of other contaminants, including such emerging toxics as pesticides, herbicides, fungicides, MTBE (present in Lake Sonoma waters now), chlorination byproducts, endocrine disruptors, pharmaceuticals and personal care products, as well as their combination chemicals.

SCWA has recently requested that the Santa Rosa Subregional Wastewater Treatment system address the options for cessation of their treated wastewater into the Russian River upstream of the intakes for the Water Supply. (October 20, 2006, letter from Randy Poole to City Manager's Office, City of Santa Rosa; Attached)

In part, the letter states:

"The Agency is concerned that the City's Discharge Compliance Project could have detrimental impacts on the planned infrastructure necessary for the Agency's water supply project and may cause significant delays in the Agency's environmental review process.

"The only treatment necessary beyond the natural filtering provided by the sand and gravel materials along the Russian River is: 1) the addition of chlorine to provide a residual amount of disinfectant throughout the transmission system; and 2) the addition of sodium hydroxide to adjust the pH of the water. The Agency and its customers have not had to share in the expense of constructing and operating a surface water treatment plant. The potential impact of a new wastewater discharge location on the Russian River, which could jeopardize the way the Agency's existing water supply facilities are operated, needs to be considered.

“The Agency recommends that instead of looking at disposal into the Russian River that the City view this wastewater as a valuable resource that can be utilized to offset potable water use through urban reuse to directly offset Russian River water and for agricultural reuse (such as that being studied for the proposed North Sonoma County Agricultural Reuse Project) which can help reduce the reliance on groundwater and help reduce the need for surface water diversions.”

To date, Santa Rosa has not responded. Safety concerns about the released municipal toxics and emerging toxics have not been addressed by the UWMP, and the Plan does not reflect the potential for system shutdown or limited operations if and when such contaminations occur.

The UWMP must address these safety and reliability risks, and provide alternate plans and water supply balances as responsibly as possible for the sake of human and environmental health.

Infrastructure limits

In addition, the UWMP ignores the impacts on current and future supplies of the impacts of continued mining of gravel and sand aggregates from the Russian River gravel-bed aquifer. These aggregates both provide free filtration of our surface water supply (as noted above, and as part of the core assumptions of the Dept. of Health Services' water supply permits to SCWA), as well as provide for a huge supply of stored water in the aquifer. The stored water of the aquifer is not only a requirement for pumped water withdrawals, but is also filled for free every winter, in far larger quantities than in both Lake Mendocino and Lake Sonoma, and also provide the critical base flows in the Russian River necessary for salmonid survival during the dry season. This aquifer is also a significant component of groundwater storage and recharge in the interconnected groundwater basins. (For a more detailed discussion, see Friends of the Eel River. "Comments on Draft EIR for the proposed Draft Sonoma County General Plan 2020 Update", April 17, 2006, attached)

The SCWA Raney collectors are also significantly impaired by fine sediments stirred up during aggregate mining, resulting in significant periods of time each day when pumping into the system ceases during backflushing operations. (documents on file with NCRWQB and SCWA). This is again another compromise to future water supplies not accounted for in the UWMP.

There is also an unreconciled timeline conflict between predictions of Diversion Facilities completions and dependence on water made available through them.

At Table 4-10. Water Project Elements and Milestones, the Completion Date ("Completion dates are times to meet demand") for the Diversion Facilities (necessary to pump additional water from the Russian River aquifer) is the year 2020.

Sure enough, in Table 4-11. (DWR Table 4) Current and Planned Water Supplies for the Agency – ac-ft/yr. there is a jump in reported supplies at year 2020, going from the current permitted 75,000 ac-ft/yr, to 101,000 ac-ft/yr, based on securing additional water rights.

Yet at Table 7-15. (DWR Table 54) Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2020 – ac-ft/yr, the “Supply totals” column shows a jump to 104,870 ac-ft/yr in year 2016, from 78,870 ac-ft/yr in year 2015 (Table 7-12).

How is this accomplished, if the infrastructure necessary to do this (“Diversion Facilities”) is not scheduled for completion until the year 2020? What happens to the water supply balance projected between 2015 and 2020?

The conclusory statements of the UWMP at its Water Shortage Contingency Analysis (Appendix C) that “except in a critically dry year, the Agency’s water supplies are sufficient to meet its transmission system demands” (pg 2) are not supported by documentation provided.

In short, the UWMP is an incomplete, internally and externally inconsistent, and an invalid Plan for Sonoma County’s water supplies. We support SCWA to rewrite this plan to achieve far better documentation of Sonoma County’s water future.

Thank you for the opportunity to address these comments to the UWMP.

Sincerely,



David Keller
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Attachments:

Friends of the Eel River. “Comments on Draft EIR for the proposed Draft Sonoma County General Plan 2020 Update”, April 17, 2006.

Friends of the Eel River. Comments on the NOP for WSTRP EIR, Shute, Mihaly & Weinberger, to SCWA, April 7, 2005.

SCWA. October 20, 2006, letter from Randy Poole to City Manager’s Office, City of Santa Rosa

SWRCB. Steven Herrera, Chief, Water Rights Permitting Section, to Randy Poole, SCWA, Feb. 2, 2005.

12/5/06 # 11

Friends of the Eel River

P.O. Box 2305

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April 17, 2006

Sonoma County Permit and Resource Management Department
Attn: Bob Gaiser and Members of the Planning Commission
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Comments on Draft EIR for the proposed Draft Sonoma County General Plan 2020 Update
(SCH No. 2003012020), January 2006 ("DEIR")
Based on the Draft Sonoma County General Plan 2020 Public Hearing Draft ("GP2020")

Dear Mr. Gaiser and Members of the Planning Commission:

This letter and comments are submitted on behalf of Friends of the Eel River. We are pleased to provide comments and additional information in consideration of the Draft Environmental Impact Report for the Draft Sonoma County General Plan 2020.

Friends of the Eel River is dedicated to its mission to restore the Eel River and all of her tributaries to a natural state of health and abundance, wild and free. Plans made and actions taken by Sonoma County jurisdictions subject to this DEIR and GP2020 have both direct and indirect influence on the health and restoration of the Eel River, and as such, we appreciate the opportunity to provide these comments.

We find that the DEIR and GP2020, including the new Water Resources Element, offer a series of improved directions for management of natural and public trust resources during the next 20 years. However, there a number of critical areas that are inadequately addressed or omitted entirely. These areas of concern would help foster the achievement of GP2020 goals as well as to minimize the significant negative impacts predicted in the DEIR.

In addition, we recognize that while the planning period intended for the GP2020 is until the year 2020, this is a very short planning window when it comes to successful management of many of our natural resources. We are really building the long-term future of Sonoma County. Wood-framed housing is good for at least 100 years if reasonably maintained. Modern concrete and steel commercial buildings can last 200-300 years. Streets and highway roadbeds have lasted thousands of years. Pipelines and electrical transmission towers and cables can last 30-75 years or more. Power plants and water treatment facilities can last 50 years or more. Restoring a polluted or overdrafted groundwater basin may take 10, 20 or 50 years or more. Recovering a lost salmon population is likely never.

The infrastructure and development we build today will last far beyond the lifespan of the GP2020, no less many of us living here now. The impacts on our natural resources - water, earth, air, and all that depend upon them - must be considered for a long term view; a short time perspective, such as until 2020, is not enough to get it right. It is imperative that we get this as right as we possible can, and build in a system to learn and to correct errors when they occur. We are making commitments

for the future generations of citizens of Sonoma County and our region, and to our long-term stewardship of the abundant and precious natural resources we are blessed with.

Please ask yourselves, "Where will we be in 2020?"
And, "Is that good enough for the long term future?"

1. The project definition is unclear and not stable.

CEQA requires a clear and stable project definition, so that the public can understand what is being proposed, and provide suitable commentary, alternatives and analysis. However, in this case, the DEIR has been released based on the Public Hearing Draft of the GP2020 (dated "xx,xxxx"). Public comments on the DEIR have been called for, and comment period on the DEIR closes April 17, 2006. Yet the Draft GP2020 is itself not a stable document and project description: it is now subject to a large series of public hearings at the Sonoma County Planning Commission over the months running at least into Fall 2006, with the intent that the Planning Commission will recommend changes to the GP2020 to the Board of Supervisors along with the Final EIR.

Either the DEIR must be re-released and re-circulated for additional comments at that time so that the public can comment on the changed GP2020 prior to adoption of a final GP2020 or release of the FEIR, or else there will be a strong impetus for the Planning Commission not to make any meaningful changes during that public comment and consideration period, essentially keeping the GP2020 static, so as to avoid the complications of re-releasing and re-circulating a revised DEIR for comments on the revised GP2020.

Another option would be for the Planning Commission to temporarily suspend the public comment period on the DEIR, and re-open it for a period of time after the GP2020 public hearings and recommended changes are completed.

Failure to allow the public to comment on any revised Draft GP2020 undercuts the CEQA mandates for full and accurate disclosure of the project, and requirements to provide for an informed public and decision makers.

2. DEIR demonstrates a failure to achieve core GP2020 Project Goals

Failure to achieve core GP2020 Project Goals is represented by the failure to successfully address 38 Significant Unavoidable Impacts in the DEIR.

Remarkably, the DEIR asks the public to accept at least 38 identified Significant Unavoidable Impacts ("SU") (6.3, p6.0-19/24). This staggering number are identified as "project impacts that could not be eliminated or reduced to a less-than-significant level by mitigation measures that are part of the Draft P2020 or other mitigation measures recommended in this EIR." This does not even include other impacts, individual or cumulative, that are not adequately addressed in the DEIR.

We believe that this represents a substantial lost opportunity to address key impacts that will substantially affect the quality of our environment and quality of life in Sonoma County and its

surrounds. There is an opportunity here, as well as a mandate under CEQA, to find other routes to resolve these critical failures.

Further, one can wonder how this DEIR would pass critical examination, no less potential certification of a FEIR based on it, when many of the project goals are not met even after all the mitigations proposed are evaluated.

Almost all of the SU's represent contradictions to, and failure to achieve, the stated "major goals of the Draft GP 2020"
(DEIR, p3.0-13/14)

For example, these goals are followed with some relevant contradictory SU's:

- *"Accommodate Sonoma County's fair share of future regional growth, consistent with environmental constraints, maintenance of quality of life, and the capacities of public facilities and services. Achieve a better balance between job opportunities and population growth"*
- 4.1-2; 4.1-3; 4.2-1; 4.2-2; 4.3-1; 4.4-1; 4.4-3; 4.5-3; 4.5-5; 4.5-7; 4.5-8; 4.5-11; 4.6-1; 4.6-2; 4.6-4; 4.7-1; 4.7-2; 4.7-3; 4.7-4; 4.7-6; 4.9-1; 4.9-2; 4.9-3; 4.9-4; 4.9-5; 4.9-6; 4.9-7; 4.9-9; 4.9-10; 4.9-11; 4.9-12; 4.9-13; 4.10-2; 4.11-3; 4.12-3
- *"Accommodate most future growth within the incorporated cities and their Urban Growth Boundaries, and within unincorporated communities that have adequate water and sewer capacities in their Urban Service Areas"*
- 4.1-2; 4.1-3; 4.5-3; 4.5-5; 4.5-7; 4.5-8; 4.5-11; 4.7-4; 4.9-1; 4.9-2; 4.9-3; 4.9-4; 4.9-5;
- *"Maintain adequate public services to accommodate projected growth that will be able to provide any needed services"*
- 4.5-3; 4.5-5; 4.5-7; 4.5-8; 4.5-11; 4.9-1; 4.9-2; 4.9-3; 4.9-4; 4.9-5; 4.9-6; 4.9-7; 4.9-9; 4.9-10; 4.9-11; 4.9-12; 4.9-13; 4.11-3; 4.12-3
- *"Protect people and property from environmental risks and hazards and limit development of sensitive environmental lands"*
- 4.1-3; 4.3-1; 4.5-3; 4.5-5; 4.5-7; 4.5-8; 4.5-11; 4.6-1; 4.6-2; 4.6-4; 4.7-4; 4.7-6; 4.11-3; 4.12-3
- *"Ensure that the County's water resources are protected on a sustainable yield basis which avoids long-term declines in available surface and groundwater resources or water quality"*
- 4.5-3; 4.5-5; 4.5-7; 4.5-8; 4.5-11; 4.6-1; 4.6-2; 4.6-4; 4.7-6; 4.9-1; 4.9-2; 4.9-3; 4.9-4; 4.9-5; 4.12-3
- *"Limit the uses and intensity of land development to be consistent with the preservation of important biotic resource areas and scenic features"*
- 4.1-3; 4.3-1; 4.5-3; 4.5-5; 4.5-7; 4.5-8; 4.5-11; 4.6-1; 4.6-2; 4.6-4; 4.7-6; 4.11-3; 4.12-3

- "Promote a long-term sustainable future that balances environmental preservation with jobs, housing, infrastructure, and services."
- 4.1-2; 4.1-3; 4.2-2; 4.3-1; 4.5-3; 4.5-5; 4.5-7; 4.5-8; 4.5-11; 4.6-1; 4.6-2; 4.6-4; 4.7-1; 4.7-2; 4.7-3; 4.7-4; 4.9-1; 4.9-2; 4.9-3; 4.9-4; 4.9-5; 4.9-6; 4.9-6; 4.9-7; 4.9-9; 4.9-10; 4.9-11; 4.9-12; 4.9-13; 4.11-3; 4.12-3

It is critical that the DEIR, and the GP2020, find alternative ways and means to fulfill its core goals, which are all laudable, with greater certainty. What is presented in the DEIR is significantly incomplete, and needs to be revised and recirculated.

Throughout the balance of our comments, we will propose some additional routes to success.

3. DEIR fails to propose and analyze adequate mitigation measures.

Given the 38 identified Significant Unavoidable Impacts noted above, it is clear that the DEIR has failed to propose and analyze adequate mitigation measures, and/or a reasonable range of alternatives to the project that would lessen the project's significant effects on the environment, as required by CEQA and the CEQA Guidelines. CEQA requires an EIR to evaluate a reasonable range of alternatives, including alternatives that will avoid or substantially reduce the adverse impacts of a proposed project. Sonoma County must also examine feasible mitigations measures to address these 38 SU's, as well as other items which will be noted in these comments.

"The CEQA reporting process is not designed to freeze the ultimate proposal in the precise mold of the initial project; indeed, new and unforeseen insights may emerge during investigation, evoking revision of the original proposal.... The lead agency may determine an environmentally superior alternative is more desirable or [that] mitigation measures must be adopted. Environmentally superior alternatives must be examined whether or not they would impede to some degree the attainment of project objectives."

(Kings County Farm Bureau v. city of Hanford, (1990) Cal.App.3d 692, 735-737.)

4. Mitigations proposed in the DEIR are consistently weak and likely inadequate.

Throughout the DEIR, policies and programs of GP2020 are proposed as mitigations for impacts of the proposed and predicted growth and development anticipated and accommodated in GP2020.

However, in many places the language used contains uniform weaknesses, which will contribute to failure to timely implement policies and programs, and a failure to know if the results are headed in the right direction.

Even though the implementing text frequently reads something to the effect of, "The following policies *shall* be used to accomplish the above objectives:" (implying mandatory implementation and success in mitigations), the policies and programs most commonly use the following directive language:

"encourage"; "help"; "support"; "consider"; "work with"; "involve"; "cooperate with"; "assist"; "request"; "prepare a plan"; "seek opportunities to participate"; and similar language.

However:

None of this reflects a firm commitment to implementation.

There are no timelines for implementation.

There is no guarantee that the work will be done and mitigations accomplished.

Measurable objectives, or performance metrics, to provide adequate assessment of success are rarely stated.

There is no assurance that the results intended will be achieved.

Language in the policies and mitigations could instead reflect a strong and robust commitment to getting the policies, programs and mitigations implemented:

- "shall"; "require"; "apply"; "must"; "prohibit"; "designate"; "design, construct and maintain"; "fund"; "direct staff to..";
- "commit the county to achieving x by year y"
- "before x occurs, y shall be implemented and operational"
- "policy z shall be adopted or implemented by date b"
- "if condition x occurs, then y shall be adopted", etc.

(For comparison, most of the language in OSRC-8c provides a much better example.)

For examples of much stronger, enforceable and very well defined language addressing many of the Water and Natural Resource and other issues of the DEIR, please see the proposals for revised language in the draft Humboldt County General Plan, "Draft Adaptation of Existing Policy Worksheet - Natural Resources and Hazards, Appendix D/NR", 4/17/06; "Draft Adaptation of New Policy Options Worksheet - Natural Resources and Hazards, Appendix E", 4/17/06; attached. Sonoma County would be helped immeasurably by using similar language to address impacts and mitigations in GP2020 and the DEIR.

See details of these policies at: http://epochdesign.com/humboldtplan/App_D_NR_rev02-01-04.doc and at http://epochdesign.com/humboldtplan/App_E_rev02-05-04.doc

While the DEIR for GP2020 is supposed to chart a course for what Sonoma County will become by 2020, very little of that roadmap is emplaced to ensure a reasonably successful outcome. We are given many goals, but as noted above, even the DEIR does not expect many of them to be successfully achieved by 2020.

Instead, to achieve a successful DEIR and GP2020 that will pass both the requirements of CEQA and the test of time, it is necessary to use clear, implementable and enforceable policies and mitigations as elements of a road map that is strategically directed to help Sonoma County actually get to its stated goals. That would make the GP2020 as much a strategic plan as it is a visionary plan and policy documentation.

- What do we want Sonoma County to look like by 2020?
- What are the measurable or tangible goals and intermediary objectives?
- What are the strategic steps necessary over time to get there?
- What enforcement provisions or inducements are necessary to make that happen?
- What are the feedback loops to ensure course corrections?

Unfortunately, much of the lofty goals of the DEIR and GP2020 are divergent from real implementation strategies - as evident from the conflicting Significant Unavoidable Impacts lists -

weakening the likelihood of success. The DEIR and GP2020 must be consistently more than 'a 1000 platitudes.'

If the DEIR itself cannot or will not find compliance in eliminating large numbers of negative environmental impacts under its own CEQA mandates, then how should the public expect the County to comply with weaker directives and policies in implementing the GP2020?

If the authors of the DEIR and GP2020 really want to implement the policies and mitigations presented, then the language used must reflect that intent, and assure that that happens within the time span of GP2020 to be effective.

We recommend strongly that the language used in most all GP2020 policies and mitigations of the DEIR be reviewed to strengthen their likelihood of successful implementation, and to find and include the 'missing links' that will assure a complete and achievable strategic plan. Use of language and content similar to that used in the attached Draft Policy Options for Humboldt County's General Plan would be a significant improvement, and is highly recommended. Further, the interactive public dialogue used to develop these draft goals and policies, at www.helpumboldtplan.org, would be highly desirable for the DEIR and GP2020.

We believe that in many cases this kind of improved language for policies, goals and mitigations can reduce the number of SU's in the DEIR substantially.

5. Sonoma County has a key role and responsibility to manage overall water supplies, and both surface watersheds and groundwater basins.

While the Sonoma County Board of Supervisors also sit as the same five Directors of the Sonoma County Water Agency ("SCWA") (as well as other smaller water or sanitary districts), "wearing different hats, but sitting at the same dais" and sharing staff and other resources and budgets, the County has jurisdictions over a much larger territory, over growth in the unincorporated county, and significantly influences and cooperates with growth in the incorporated cities. The Board of Supervisors also have control over land use, development, water and mineral and natural resource protections and policies, budgets and staff, which will have significant impacts on water demands, water deliveries, future projects, and water quality and quantities available. These competing demands are frequently in conflict. It is Sonoma County's responsibility to sort this out, through the use of the GP2020 and this DEIR, to minimize conflicts and maximize a sustainable, livable and productive county's future.

In short, the Sonoma County Board of Supervisors is responsible for the 'big picture.' Water resources for SCWA are not separate from water resources for all other uses.

"The Draft GP2020 is a plan to accommodate future projected growth and development in the unincorporated area of Sonoma County." "The County's objective is to provide an adequate but not excessive supply of residential, commercial and industrial lands to accommodate the projected growth.." (DEIR, p6.0-1)

Sonoma County acts through the DEIR and GP2020 to supply water to accommodate growth. The County's actions, in concert with the nine incorporated cities, SCWA, local water and sanitary

districts and other controlled public agencies, bodies and departments, thereby have direct and indirect impacts on the physical environment. The DEIR is a critical place to address the impacts of individual and cumulative demands and policies on water supply, distribution, wastewater treatment, and disposal.

The County has an obligation to oversee all watershed and groundwater protection and restoration, as well as to ensure that no development or projects will adversely impact those supplies, which benefit human users as well as public trust resources including fisheries.

The DEIR acknowledges that there will be Significant Irreversible Environmental Changes (p. 6.0-24) to non-renewable resources, i.e., "land, air and waterways" as a result of the predicted growth and development incorporated in GP2020.

This overarching responsibility cannot be left to policies and decision making by SCWA and their contractors and other related agencies.

Suggested policy and mitigations:

- Sonoma County acknowledges and declares its responsibility for good stewardship of its water, land, air and public trust resources in perpetuity, beyond the lifespan of any General Plan or other discrete public work or policy.

- Sonoma County shall work diligently with all stakeholders, public and private, throughout Sonoma County, the North Bay, and the North Coast to assure the good stewardship of its water, land, air and public trust resources, in open, public and engaging processes through time.

6. DEIR fails to address emerging and predicted conflicts over water supplies.

The DEIR fails to address the emerging and predicted conflicts between finite or diminishing resources, including clean air, water, open space and wildlife habitat, on the one hand, and resource uses that would be increased or exacerbated by this project. The DEIR and GP2020 fail to address the looming gap between the water resources needed for projected future growth and the declining availability of surface and groundwater resources.

These declines are in part be due to curtailments of diversions of Eel River flows to the Russian River through the Potter Valley Project ("PVP"), heightened aquatic and riparian habitat protections under the state and federal Endangered Species Act ("ESA"), Clean Water Act, Wild and Scenic Rivers Act, the Public Trust Doctrine and other state and federal laws. In addition, other factors involve the growing discrepancy between the accelerating rates of ground water extraction and declining groundwater resources due to impaired recharge, over-pumping, declining streambed elevations and aquifer porosity due to continued gravel mining in the Russian River and its tributaries, as well as existing and proposed discharges of partially-treated sewage into its tributaries and main stem.

Significant Unavoidable Impact 4.9-1:

"Insufficient water supplies to meet the future water demand of the urban service areas."

"Land use and development consistent with the Draft GP2020 would increase the demand for water. As a result, insufficient water supplies would be available to serve some of the

unincorporated USA's from existing entitlements. New or expanded entitlements would be required." (p. 6.0-22)

Significant Unavoidable Impact 4.9-2:

"Insufficient Water Supplies to meet the future water demand of rural private domestic, small municipal, and agricultural wells."

"Land uses and development consistent with the Draft GP2020 would result in an increased demand on groundwater supplies for rural uses. Due to the lack of comprehensive information regarding the county's groundwater resources, it is uncertain if groundwater supplies would be sufficient to meet the future demand of rural private domestic, small municipal, and agricultural wells. This uncertainty combined with the current regulatory approach could result in insufficient groundwater supplies in rural areas of the county."

Significant Unavoidable Impact 4.9-3:

"New or expanded water supply facilities"

"Land Uses and development consistent with the Draft GP2020 could result in the need for increased water supply facilities, either through the construction of new facilities or through the expansion or retrofitting of existing facilities. Construction of new or expanded water supply facilities could result in site-specific impacts, especially on aquatic organisms and fisheries."

Yet, the DEIR does not indicate with any certainty where these new or expanded entitlements would come from, where the new or expanded facilities might be located, what the impacts might be, while at the same time it acknowledges that there are substantial impediments to acquiring additional water supplies.

The DEIR proposes no alternatives if the uncertainties noted above hold true during the life of the DEIR and project.

This is in conflict with a basic goal, to *"Ensure that the County's water resources are protected on a sustainable yield basis which avoids long-term declines in available surface and groundwater resources or water quality."*

Suggested policy and mitigations:

- Sonoma County shall exercise due diligence to ensure that the County's water resources are protected on a sustainable yield basis which avoids long-term declines in available surface and groundwater resources or water quality in perpetuity.
- Sonoma County shall exercise all efforts under its authority to ensure the restoration and repair of its surface and groundwater resources and their watersheds and basins for the benefit of public trust and human resources in perpetuity.

7. The DEIR understates and omits an accurate and adequate description at 4.5 Water Resources, environmental setting.

CEQA does not require technical perfection in an EIR, but rather adequacy, completeness, and a good-faith effort at full disclosure. A court does not pass upon the correctness of an EIR's environmental conclusions, but only determines if the EIR is sufficient as an informational document.

CEQA Guidelines (15003 i)

The lead agency must consider the whole of an action, not simply its constituent parts, when determining whether it will have a significant environmental effect.

CEQA Guidelines (15003 h)

The environmental setting described in the DEIR for Water Resources omits important and critical information, and does not meet the CEQA requirements.

Omission of critical information about impacts to the Eel River:

The DEIR, 4.5 Hydrology and Water Resources, Environmental Setting, describes the Russian River watershed (p 4.5-8+), but omits an adequate and accurate description of the imports and inflows to the East Fork of the Russian River that originate in the Eel River, and which are diverted through PG&E's Potter Valley Project ("PVP"). Flows from the Eel River are used to supplement depleted and overappropriated Russian River base flows in the dry season, and SCWA has alternatively stated over the years that the Eel River water 'is not' - or 'is' - necessary to serve its Sonoma and Marin County water contractor customers. Most recently, SCWA states that it is definitively not needed to serve any of its customers ("Report to the State Water Resources Control Board on Water Conservation", April 15, 2005, p.22-23), yet SCWA and Sonoma County continue to seek control, ownership and/or use of the diverted Eel River waters.

The DEIR consequently completely ignores the impacts of those diversions to the Eel River watershed, and does not indicate any of the problems inherent in the PVP, including significant and continuing damage to the Eel River fisheries and damages to Humboldt, Lake and Mendocino County economies.

This contradicts the decision in *Friends of the Eel River et al v. SCWA and PG&E*, Cal. App. 1st Dist., May 16, 2003 (attached), vacating the certification of SCWA's WSTSP EIR, and requiring a new EIR to address cumulative impacts of the diversion on the Eel River salmonid species, to consider project alternatives to address them, and provide an adequate description of the project's environmental setting.

See *Friends of the Eel River* documentation for economic and environmental impacts, as well as decommissioning studies:

- *"Economic Benefits to Mendocino and Lake Counties from Removing the Dams on the Eel River"* The Center for Environmental Economic Development, Arcata, CA, 2004
This report focuses on the benefits to Mendocino and Lake Counties from removal of dams on the Eel River.
Available at: http://www.eelriver.org/cgi-bin/Publications.pl?function=issue&page_id=4
 - *"A River in the Balance: Benefits and Costs of Restoring Natural Water Flows to the Eel River"* The Center for Environmental Economic Development, Arcata, CA, 2002
This study examines the downriver impacts on salmon and other market and non-market values related to restoration of natural water flows to the Eel River.
Available at: http://www.eelriver.org/cgi-bin/Publications.pl?function=issue&page_id=5
- "Declaration of Robert Curry, PhD, in support of Friends of the Eel River's comment on DEIS on Proposed Reoperation of FERC Project 77-110, the Potter Valley Project,"* April 26, 1999 (attached)

The annual dewatering of the Eel River below the PVP's Scott and Cape Horn Dams has been instrumental in the declines of ESA listed threatened species of Coho and Chinook salmon and Steelhead, as well as the proliferation of predatory pikeminnow and flourishing of blue-green algae in the remaining warmer flows below the diversion, as the dry season discharges downstream are temperature impaired after languishing in Lake Pillsbury and Van Arsdale Reservoir. Further, inadequate fish screens at the PVP intake kill the majority of juvenile salmonids. The fish ladder at Cape Horn Dam is still too high and antiquated to be very effective, and pikeminnow await migrating salmonids in the pools below the ladder and in Lake Pillsbury. Scott Dam is too high for an functional fish ladder, preventing return access of salmonids (and their nutrients) from the main stem Eel River to the cold and abundant headwaters above Scott Dam, with some 1000 miles of productive anadromous fish spawning and rearing streams (NMFS, personal communication). Both Van Arsdale Reservoir and Lake Pillsbury are clogged with gravels and sediments, reducing their storage capacities substantially, and preventing the flow of critical coarse-grained gravels to the main stem Eel River spawning and rearing habitat downstream. Early season "attraction flows" to trigger upstream migration from the Eel River's mouth and sufficient water for fall and early winter migrations are diverted through the PVP, further damaging Eel River salmonids, as do low oxygen conditions in Lake Pillsbury during the summer. (see, Curry, *ibid*)

In addition, the Eel River is now on the 303(d) list of impaired waterways. Section 7 biological opinions issued by the US Fish and Wildlife Service have found that continued diversions from the Eel and Russian Rivers will cause jeopardy to listed species of salmon.

SCWA has proposed and negotiated transfers of water from Lake Mendocino to the Redwood Valley County Water District and perhaps other Russian River watershed water districts or entities.

SCWA and Sonoma County have proposed a pipeline to extend water deliveries (for fresh or recycled water) and export of perhaps 7-8000 acre-feet to the Napa River Salt Marsh Restoration Project or other San Pablo Bay front restoration projects. The DEIR must address the potential impacts of this water export program, including not just the positive restoration values for Napa River Salt Marsh, but also the consequences of that water not being available for reuse within Sonoma County, and its lost potential for displacing additional water demand for sweetwater (new water from surface or ground water sources).

SCWA and Sonoma County in 1998 have also authorized and funded planning and preliminary engineering (by Boyle Engineering) for a water filtration and treatment plant along the lower Russian River (in the vicinity of Dry Creek), to treat water intake from Lake Sonoma or the Russian River. This proposed facility has undergone extensive preliminary engineering and cost estimates, and was presented (by Jay Jasperse, SCWA; 2/5/01 presentation attached) to the Water Advisory Committee and (by R. Poole, SCWA General Manager and Supervisor Mike Kerns, 5/16/01) to Marin Municipal Water District public meetings in 2001 as a \$500-700M project, with 6 possible configurations.

This is an existing proposal, and the environmental impacts of this proposal must be included in the CEQA analysis of the GP2020.

SCWA and Sonoma County have proposed a cooperative purchase and/or operation of the PVP, most recently as part of the negotiated Restructured Agreement for Water Supply as well as in the prior 11th Amended Agreement for Water Supply.

2.4 Potter Valley Project

(a) All or part of the Potter Valley Project may be acquired upon a determination by the Board of Directors of the Agency that such acquisition is necessary to insure the Agency's continued ability to make the water deliveries authorized by this Agreement and maintain fisheries and other incidental benefits to the Russian River basin, provided, however, that no part nor all of the Potter Valley Project shall be acquired without the affirmative vote of at least six (6) representatives of the Water Contractors on the Water Advisory Committee representing at least two thirds of the total weighted votes as calculated pursuant to Section 5.3(a). The Agency shall not be liable to any of its Customers for any damage resulting from any Agency decision regarding the acquisition or non-acquisition of any part or all of the Potter Valley Project.

(b) The Agency shall commence a process upon the effective date of this Agreement to evaluate the water supply and fisheries benefits provided by the Potter Valley Project within the Russian River watershed, the economic and operational feasibility of acquiring the Potter Valley Project, and whether alternative actions could reduce the need for the Agency to acquire the Potter Valley Project. Alternative actions to be evaluated may include the increased use of recycled water to reduce agricultural and other diversions from the Russian River and its tributaries; the modification of instream flow requirements in the Russian River; and the completion of state and/or federal recovery plans for salmonid species listed as threatened or endangered in the Russian River watershed. The cost of such evaluations shall be paid from Watershed Planning and Restoration Sub-Charge funds available pursuant to subsection 4.14; however, the Agency shall use its best efforts to obtain the agreement of other interested parties who divert water from the Russian River or its tributaries (including municipal and agricultural diverters) to pay for a portion of such costs and to participate in the implementation of such alternative actions. Before acquiring the Potter Valley Project, the Agency shall conduct an environmental analysis of the acquisition pursuant to CEQA, which analysis may include an evaluation of alternative flow regimes from the Potter Valley Project into the Russian River and the Eel River.

(c) Upon determination by Agency that other actions could reduce the need for the Agency to acquire the Potter Valley Project, the Agency and the Water Contractors shall engage in a cooperative process to implement said other actions.

- Restructured Agreement for Water Supply, Execution Draft, April 3, 2006

The purchase and/or operation of the PVP has also been proposed as part of a proposed program "Management and recovery of California coastal Chinook salmon" for the Russian River, approved

by the Sonoma Co. Board of Supervisors on Oct. 4, 2005, as a potential source of water for restoration efforts for Chinook in the Russian River. This proposal completely ignores the impacts of continued diversions on ESA listed fisheries in the Eel River watershed, and has focused only on the purported benefits for the Russian River.

This, again, is an existing proposal as part of the environmental setting for GP2020 and its DEIR, and the environmental impacts of these proposals must be included in the CEQA analysis of the GP2020.

The DEIR must address the above issues as well as the following implications for continued use of the PVP and the Eel River's diverted waters into the Russian River, which the DEIR postulates as a part of provision of adequate water supplies for projected growth and development.

- impacts to the Eel River associated with the continued diversion of water to the Russian River, including the devastation of the salmonid fishery, and other adverse impacts to that riparian system including the proliferation of blue-green algae;
- impacts to the Russian river associated with the continued diversion of water from the Eel River, including the growth of non-native species;
- negative economic impacts in the Eel River Basin associated with continued diversion of almost all of the Eel Rivers summer flows which also have adverse physical impacts, including changes in development patterns, blight, increased growth and development in Sonoma, Marin and southern Mendocino Counties, and increased pressure for development of other extractive industries, such as timber harvesting and gravel mining;
- The likelihood that Decision 1610 will be revisited and revised by SWRCB within the next several years as a result of Federal Energy Regulatory Commission's ("FERC") changes in flow regimes through the Potter Valley Project and new increased minimum instream flow requirements in the Eel River downstream of Cape Horn Dam. Further, the FERC-regulated flow decisions and the possible decommissioning of the PVP are currently being appealed in the US Court of Appeals, with decisions expected this year.
- Declaration by the State Water Resources Control Board that the Russian River is currently 'over-appropriated', with a large number of unprocessed water rights permit applications, as well as a very large number of unpermitted and illegal appropriations from the Russian River and its tributary streams, the total of which exceed the dry-season flows of the river, and which are substantially contributing to the loss of fisheries habitat and populations. The Eel River transfers through the PVP then become the 'subsidy' to allow the Russian River to maintain dry season surface flows.

Additional critical information omitted from the DEIR:

The Russian River is already over-appropriated, and the county's groundwater is showing clear evidence of overdrafting in several key groundwater basins. Yet the DEIR and GP2020 assume there is sufficient water for future development. *This is "paper water", not real water.*

The DEIR must also consider and disclose other information about current and reasonably foreseeable future conditions which will have significant impacts on the environment as a result of the GP2020.

- comparative energy use and greenhouse gas emissions from all alternatives, including construction, operations and maintenance of the systems and components over their lifespan.
- The SCWA's proposed new Water Supply and Transmission Reliability Project
- The SCWA's MOU Regarding Water Transmission System Capacity Allocation During Temporary Impairment
- SCWA's "Low Flow" proposals to SWRCB (July 2004 and subsequent dates), introduced as emergency provisions for changes in water releases from Lake Mendocino and minimum flow requirements in the Russian River
- Santa Rosa BPU's efforts to foster the use of 'mixing zones' at its wastewater discharge points in the Laguna de Santa Rosa and the Russian River, upstream of the intake facilities for SCWA's water supply, and implications for TMDLs, NPDES requirements, and future water contamination and availability
- Santa Rosa BPU's funded efforts, in concert with SCWA, to create a pipeline to provide treated wastewater through extensions of the "Geysers Pipeline" for agricultural uses in the Middle Reach and Alexander Valley. This effort includes some uses of 'water exchanges' with riparian landowners and operations, and would also involve construction of a number of wastewater reservoirs on private lands, mostly in side canyons and valleys of tributary streams. The impacts of this program must be analyzed and disclosed in the DEIR, including impacts on groundwater tables, cutoff of sediment flows to the Russian River trapped in local water storage reservoirs, water quality and habitat impacts on tributary streams, inducements to land conversions as a result of reliable and increased water supplies, and the impacts of not using this recycled water in place of urban uses of sweetwater drawn from the Russian River wells or groundwater to reduce overall system demands. This program is in ongoing development and funding, and must be disclosed and analyzed within the DEIR for GP2020.
- State Water Resources Control Board direction (Feb. 2, 2005) to SCWA and contractors to "provide the SWRCB with a detailed plan of water conservation efforts that will offset future increases in demand, which in turn will result in no increase in Russian River diversions." SCWA and the contractors have not yet successfully proposed such a program to address this directive. The response provided to SWRCB, "Report to the State Water Resources Control Board on Water Conservation", April 15, 2005, still fails to do so. In fact, SCWA response states that such reductions in demands necessary to achieve that objective are not necessary, as,
 - o "such high levels of conservation probably are not sustainable or cost-effective
 - o "the Agency has adequate water supplies to meet the projected increases in demand without its contractors needing to implement such high levels of additional conservation or needing to use alternate supplies
 - o "no substantial hydrological or environmental benefits would result from such a plan.

- “in fact, adverse impacts to other resources, like groundwater resources, could result if the Agency were not allowed to increase its Russian River diversions and re-diversions.” (ibid, p. 19)
- The soon-to-be released new Urban Water Management Plan. The existing 2000 UWMP is expired and obsolete, and, by law was to have been replaced with an approved and adopted new UWMP by December 2005. Due to data consistency problems, the water contractors and cities of Sonoma County have not yet produced this essential document, one that contains the premise for water supplies and demands for future growth. The DEIR cannot reliably and reasonably use the outdated information and projections from the 2000 UWMP for its declarations and predictions of impacts for this DEIR and GP2020. We urge recirculation of the DEIR when the new UWMP is released, its data is incorporated into DEIR projections, and impacts assessment and suitable policies and mitigations are proposed and disclosed to the public.
- Petition by Trout Unlimited and Peregrine Audubon Society to SWRCB to bring the over-allocated Russian River legal, permitted and unpermitted withdrawals under control.
- Proposals by the Sonoma County Board of Supervisors and industry to extend gravel mining in and adjacent to the Russian River under the ARM Plan beyond its current expiration date.
- Proposals for large residential and commercial development in the Ukiah Valley, including the former Masonite manufacturing site, which could have substantial impacts on water demands upstream of Sonoma County water supplies of the Russian River. (“Cumulative Impacts. Development map of Ukiah Valley”, Sept. 2005, attached.)

The Surface Water Quality description (p 4.5-16/17, Impact 4.5-1, and Exhibit 4.5-2) also omits data from the North Coast RWQCB which describes several additional important pollutant sources:

- MTBE contamination of the waters in Lake Sonoma, primarily from motor boats
- heavy metals contamination and runoff to the Russian River from the condensate ponds for the Geysers geothermal fields energy generation
- heavy metals, including mercury compounds, resulting from gravel mining operations in the Russian River.

DEIR at p. 4.5-42 indicates that SWPPPs and/or SWMPs are not required for rural activities in the Russian River watershed outside Santa Rosa (NPDES Phase I) and NPDES Phase II areas (Rohnert Park, Cotati, Sebastopol, Healdsburg, Windsor). This means that large areas of unincorporated Sonoma County are not effectively regulated under these regulations for stormwater pollutants. There are no longterm Best Management Practices for water quality in the DEIR or GP2020 that would address this significant problem effectively.

Other contaminations ignored in the DEIR at Impact 4.5-1 are increasing quantities of treated wastewater, from Ukiah, Cloverdale, Healdsburg, Windsor and the Santa Rosa Subregional System, as well as from septic tanks and leach fields and other residential, commercial, industrial, municipal, agricultural, silvicultural and mining sources in the Russian River watershed, which contain ‘emerging toxics’ such as chlorination byproducts, hormone disruptors and estrogens, pharmaceuticals, cosmetics, pesticides, herbicides, fungicides and other chemicals and heavy metals, which are not effectively removed through traditional wastewater treatment processing,

including tertiary treatment. Their interaction byproducts must be considered as well. While most of these are not yet regulated by state or federal law, there is more and more scientific evidence of their adverse impacts on humans, fish, animals, plants and invertebrates.

For examples of how other public agencies are handling watershed management for potable water supplies, with integrated management strategies and policies for these pollutants and related issues, see:

- Watershed Management for Potable Water Supply, Assessing the New York City Strategy; National Research Council, National Academy Press, 2000; www.hap.edu/books/0309067774/html/ [copy submitted with these comments]
- Massachusetts Dept. of Conservation and Recreation, Watershed Protection Act, <http://www.mass.gov/dcr/waterSupply/watershed/wspa.htm>
- State of the Watershed: Water Quality of Boulder Creek, Colorado; Sheila F. Murphy, USGS, 2006, Circular 1284, <http://pubs.usgs.gov/circ/circ1284/>
- The Quality of Our Nation's Waters: Nutrients and Pesticides, USGS Circular 1225, 1999 <http://pubs.usgs.gov/circ/circ1225/>
- Emerging Contaminants in the Environment, USGS publications, research and bulletins, <http://toxics.usgs.gov/regional/emc/index.html>
- Toxics Substances Hydrology Program, USGS publications, research and bulletins, <http://toxics.usgs.gov>
- Draft Humboldt County General Plan, "Draft Adaptation of Existing Policy Worksheet - Natural Resources and Hazards, Appendix D/NR", 4/17/06; "Draft Adaptation of New Policy Options Worksheet - Natural Resources and Hazards, Appendix E", 4/17/06; attached, and at, http://epochdesign.com/humboldtplan/App_D_NR_rev02-01-04.doc and at http://epochdesign.com/humboldtplan/App_E_rev02-05-04.doc

The DEIR must include an evaluation of these emerging toxics and other damages to our watersheds and groundwater, what impacts they may have on the environment, and what mitigations or policy alternatives can be employed in the GP2020 to avoid or minimize their impacts between now and 2020.

The DEIR should also present a series of maps, showing the jurisdictions of all special districts, sorted by type (i.e., water districts, sanitation, flood management, fire protection, schools, ambulance, hospital, etc), in order to visually and clearly understand the present and future demands, responsibilities, interplay and coverage of utilities and public services throughout the county.

(These omissions also apply to the 4.1 Land Use Element.)

The DEIR should also present a series of maps, showing clearly the legally maximum possible parcels and subdivisions of land, by all zoning categories and including certificates of compliance, throughout the county, to better understand where growth, service and infrastructure demands, and environmental impacts might be concentrated. What would the maximum population be for this complete parcelization by year 2020?

What would happen if the Urban Growth Boundaries ("UGB") are not renewed by voters in all or some of the cities and county jurisdictions? Please provide predictions and maps - best and worst cases - for each jurisdiction with current UGBs. How would Urban Service Boundaries, which are expandable through city council ordinances and LAFCO rather than the more restrictive voter controlled UGB's, affect future growth and impacts around cities if UGB's were not renewed for

the duration of GP2020? The DEIR is silent on these issues, a significant omission for a plan that is supposed to reasonably predict future growth and development impacts.

What would happen to open space preservation and growth impacts if the Sonoma County Agricultural Preservation and Open Space District is not renewed or funded when it expires in 2010? The DEIR is also silent on these important issues.
(These omissions also apply to the 4.1 Land Use Element.)

Suggested policy and mitigations:

- Sonoma County shall commit, at the adoption of GP2020, to the cessation of diversions of water from the Eel River to the Russian River through the Potter Valley Project by no later 2020.
- Sonoma County will abandon all efforts to acquire, use or control flows of diverted water from the Eel River to the Russian River through the Potter Valley Project with the adoption of GP2020.
- Sonoma County shall work diligently to end any real or perceived dependence of its agencies, departments, citizens, property owners, businesses and all other stakeholders on the use of Eel River water diverted to the Russian River.
- Sonoma County will work with engineering, hydrologic, fisheries, economics, educators, agricultural and other professionals and watershed stakeholders to create an educational and technical assistance program in support of the cessation of diversions of water from the Eel River to the Russian River through the Potter Valley Project, commencing with the adoption of GP2020.
- Sonoma County shall work diligently with stakeholders in the Eel River watershed, including Humboldt, Mendocino and Lake Counties, as well as with Marin County, to provide a program of assistance for the repair of damages to the Eel River watershed resources and its economic health caused by nearly a century of water diversions through the Potter Valley Project, which has been used to benefit growth in Sonoma County and Marin County.
- Sonoma County shall commit to the restoration of salmonid and other native fisheries in the Russian River and its tributaries without the use of any waters diverted from the Eel River.
- Sonoma County shall develop, fund and implement programs to eliminate inflows of emerging and other toxics to all drinking water source waters, including surface and groundwater, in perpetuity.
- Sonoma County shall work with Mendocino County, Ukiah, Cloverdale, Healdsburg, Windsor, Santa Rosa, SCWA and all other wastewater treatment and disposal entities in the Russian River watershed, to assure that by 2020 no treated wastewater will be discharged to the Russian River watershed without advanced treatment similar to, or better than, that used by New York City's Watershed Management for Potable Water Program.
- Sonoma County, in concert with other wastewater dischargers, shall engage the professional and technical services of the National Academy of Sciences/National Research Council or their equivalent to assist in developing, evaluating and implementing a complete and comprehensive plan to eliminate all such wastewater discharges.

8. Comments at DEIR 4.1 Land Use, 4.5 Hydrology and Water Resources, 4.7 Geology/Soils, and 4.9 Public Facilities: Gravel Mining, morphology and other impacts.

The following are additional comments on the DEIR, Section 4.5, Hydrology and Water Resources

At p. 4.5-9, the DEIR states:

“Gravel mining along the Russian river has also been an important part of the watershed economy, although a major long term goal of the county’s Aggregate Resources Management Plan (“ARM Plan”) has been to shift reliance from river and terrace mining to hillside quarries. Major watershed management challenges in this watershed include flooding, and significant bank erosion and streambed downcutting, especially in the upper reaches of the river. *River downcutting may be linked to the geomorphic consequences of removal of bedload from the river, although this is uncertain.* Lateral bank erosion along with agricultural activities has greatly reduced the width and extent of the historic riparian corridor along major parts of the river contributing to elevated river temperatures.” [ital. added]

Yet, Impact 4.5-2, WR-1g, WR-1h ignore impacts of gravel mining on water quality, storage and supplies. While Impact 4.5-3 notes that “resource development uses have historically impaired water quality and, on occasion, contributed to the violation of water quality standards ... including sand and gravel extraction”, such mining is given a ‘free pass’ at OSRC-8c, “allow mining operations conducted in accordance with the County ARM Plan and Surface Mining and Reclamation Ordinance,” rendering any intended controls ineffective, given the obsolescence of the ARM Plan, and other impacts of gravel mining noted here.

At p. 4.7-11, Geology/Soils: Mineral Resources, the DEIR states:

“Most of the Russian river and parts of other major streams in the county have been mined for sand and gravel to use in concrete and high-quality base and fill. Recent operations have been located along the middle and upper reaches of the Russian River, either within the channel or on adjacent alluvial terraces..”

Impact 4.7-9 Mineral Resources, states:

“Land uses and development consistent with the Draft GP 2020 could result in the loss of the availability of a known mineral resource. This would be a less-than-significant impact. (LTS)”
 “Policy OSRC-13b directs the County when approving mining permits to review the individual projects for environmental impacts and land use conflicts. Implementation of the Draft G2020 policies would avoid significant impacts from the loss of availability of potentially valuable mineral resources.”

Objective LU-13.4 Land Use Element, states:

“Continue to regulate aggregate and geothermal resource development to minimize adverse impacts.”

Policy LU-13j states:

“Use the Aggregate Resources Management Plan and Geothermal Resources Management Plan as the policy documents for development of aggregate and geothermal resources. Avoid terrace mining in the Alexander Valley.”

OSRC-13.2 “Minimize and mitigate the adverse environmental effects of mineral extraction and reclaim mined lands”

Policy OSRC-13b "Review projects for environmental impact and land use conflicts and consider the following minimum factors when approving mining permits:... fisheries and wildlife impacts..."

This omits any examination or consideration of water quality and water storage impacts, individually or cumulatively. It omits cumulative effects on river bed elevations

The assertions and conclusions regarding impacts in the DEIR are without merit, are misleading, incomplete and inaccurate. Impact 4.7-9 should be Significant and Unmitigated. The listed objective and policy are weak and insufficient to avoid damages or provide mitigations.

The negative results, however, are not Unavoidable, if gravel mining in the Russian River were to cease.

The DEIR conclusions are not backed up with any evidence, and pointedly avoid discussion of the cumulative impacts of gravel mining in the channel or adjacent alluvial terraces of the Russian River, even though damages are indicated in the text at page 4.5-9.

"In rivers where the total sediment budget is very large and aggregate extraction rates are low, the ideal notion of aggregate as a yearly renewable resource may be valid. However, in practice, this is rarely the case.... The inability of a river to replenish the bars and channels with coarse sediment initiates regional channel degradation. On the lower Russian River, where aggregate extraction has produced numerous local impacts, the cumulative effects are extreme. Some channel reaches that once contained large, actively migrating gravel bars are currently devoid of any significant bedforms and the river is flowing directly over bedrock. Because winter flows within the river have excess stream power and competence, bank erosion has become a serious problem in many portions of the Russian River drainage, threatening the destruction of several major bridges and claiming an ever-increasing share of the farmland. channel lowering, which has exceeded 20 feet in some areas, has exacerbated this problem."

"The impacts of in-stream aggregate mining are associated with the tendency of operators to mine sediment at a faster rate than it is replenished. Urbanization and the widespread damming of California's watersheds have reduced overall sediment budgets. Excessive aggregate mining leads to sediment-starved rivers. Excess stream power causes a number of on-site and off-site impacts. When rivers occupy aggregate pits during winter flows, they attempt to smooth their profiles by headward erosion at the upstream end of the pit, deposition of sediment within the pit, and scour of the downstream end of the pit. This smoothing of the profile leads to bridge and road failures upstream and downstream of the mining site. On a regional scale, the decline of sediment yields leads to widespread incision, bank erosion, and loss of gravel bars. The incision lowers local groundwater tables, and bank erosion reduces riparian cover."

- *California Rivers and Streams, The conflict between fluvial process and land use.* Jeffrey Mount, UC Press, 1995, Chapter 11, Mining and the Rivers of California, pgs 216-225.

This should put the recent loss of the Geyserville Hwy 128 bridge, and the prior loss of the 101 bridge at Healdsburg in a more accurate perspective of impacts of gravel mining.

For a number of reasons, the DEIR significantly omits and understates the cumulative and individual impacts of gravel mining the Russian River.

Further, the ARM Plan expired in 2005, and no longer has a valid EIR, given the changed conditions since its original certification, including the existence of ESA threatened fish species in the Russian River watershed, loss of topsoil, and undermining of publicly-owned bridges and roadways.

9. Comments at DEIR 4.5 Hydrology and Water Resources, 4.7 Geology/Soils, and 4.9 Public Facilities, re: Gravel Mining and Water Supply

The 1959 Permit - still in effect - for SCWA to operate a surface water municipal supply system from the California Department of Health Services requires no treatment other than chlorination at the intake works for water withdrawn from the aquifer of the Russian River because of the excellent "natural filtration provided by the sand and gravel below the river."

The Gravel and Sand Aquifer of the Russian River is a large and very important source of water quality and storage, and a vital component of our precious watershed system.

"Drinking water of high quality in a natural storage basin near the Bay Area urban centers is extraordinarily rare, and will increase in demand and value if preserved in Sonoma County.

"It does not make economic sense to excavate the Middle Reach aggregate for short term single-use gravel supplies. This extraordinarily favorably located and geologically disposed waters supply and storage system provides a public trust resource of almost incomprehensible value to present and future generations.

"The Middle Reach gravels supply filtered water presently to over 20 cities, 300,000 people and hundreds of industries in Sonoma and Marin counties. Riverbank terrace mining has potentially impeded bank recharge to over half this invaluable resource. Once the river bank has been mined and the 70 foot deep pit is sealed with silt, that area recharged through can no longer be used for municipal wells.

"The open surface alluvial gravel aquifer of the Middle Reach [of the Russian River] is an aggregate resource that can be managed for extractive gravel mining or sustained water supplies, but not for both.

"It is very possible that if mining of the Middle Reach gravel system continues, Healdsburg, Windsor and the SCWA will all be required to put in water treatment plants or seek new water sources. In the language of the State Department of Health Services, these cities and agency must now prove that their groundwater is not "under the direct influence of surface water." The more that gravels are excavated or allowed to degrade the river bed, the more likely that toxic spills such as the formaldehyde spill of 1982 or human and animal wastes carried in surface water will enter wells and collectors."

"Over a period of time that may be about 35 years, the net value of the gravel, even if it was all mined, would be exceeded by the value of the water and agriculture that could be sustained in perpetuity..."

(Robert Curry, PhD, "Value of Middle Reach Aquifer for Drinking Water Supply", from a statement presented for the ARM Plan update, 1993, attached)

An unconsolidated aquifer of sand, gravel and cobbles, like that of the Russian River, is 20-40% porous. (Water in Environmental Planning, Thomas Dunne and Luna Leopold, WH Freeman Co, 1978, Table 7-1). The 'storativity', or amount of water available for supply streamflow or well

discharge (ibid, p. 199), of the gravel bed aquifer is a critical component of dry season base flows, well productivity, and recreational uses of the Russian River. Gravel and sand mining of the Russian River has been cumulatively and systematically destroying this capacity for over 60 years.

This porosity and storage capacity is further compromised by sources of finer sediments, such as erosion and upstream gravel mining. The sedimentation with these fines produces an additional and cumulative loss of storage capacity, loss of recharge to adjacent groundwater basins, loss of spawning gravels for salmonids, higher peak discharges during storms, loss of summer base flows for recreational uses and fish habitat, and loss of water purification capacity of the sand and gravel aquifer.

Further, according to the state Department of Health Services, "Sonoma County Water Adequacy Evaluation" dated 11/2000, these fine sediments clog the Ranney Collectors, forcing more frequent backflushing and a significant loss of pumping capacity: "Wohler collectors were designed to produce 32 mgd. However, impaired aquifer infiltration allows only one pump in each collector to be operated for periods of more than a few hours, and limits the capacity to about 23 mgd on a sustained basis." (p. 5)

The DEIR must also evaluate the proposed SCWA and Sonoma County water filtration plant along the lower Russian River (in the vicinity of Dry Creek), to treat water intake from Lake Sonoma or the Russian River, and provide for transmission of this water to the Russian River intake facilities down Dry Creek including potential pipeline routes. This was authorized by the Board of Supervisors on 7/20/99, "Surface Water Treatment conceptual design and feasibility evaluation for Diversion Facilities Evaluation", initially at a cost of \$563,000 in a contract to Boyle Engineering. In public meetings in 2001, the preliminary engineering, rationale and cost projections described this as a \$500-700M project. The project is proposed as either 57 mgd or 120 mgd, with 3 configurations for each size. It was alternatively posited as a solution to Wohler Rubber Dam impediments to fish migration impacts and to problems associated with releases of additional water from Lake Sonoma and Dry Creek transmission. It includes several scenarios for transmission of water from Lake Sonoma down Dry Creek. (SCWA Diversion Alternatives Studies Status Update, 2/5/01 presentation to the Water Advisory Committee, attached)

This was described in a Jan. 1999 report to the Board, for facilities "in the event that the existing Mirabel infiltration ponds and rubber dam are decommissioned or rendered inoperable." (see also, Revised Draft of the SCWA Water Policy Statement, December, 2002). Ironically, the Mirabel rubber dam and infiltration ponds are needed to provide additional head to the Ranney Collectors in compensation for the loss of natural head as the river bed has degraded in large part due to decades of gravel mining. There is also the potential that the filtration plant is being proposed or would be used in part to eliminate problems in the future from inadequate or impaired aquifer filtration. This is a project in development, and must be addressed in this DEIR for potential impacts on the environment.

It is also ironic and likely environmentally very damaging that any concrete products needed to build such a filtration plant and diversion facilities would contain gravel and sand mined from the Russian River aquifer. Such a plant would have a useful lifespan of perhaps 50- 70 years, and then have to be replaced.

Dr. Robert Curry notes other cumulative impacts of continued gravel and sand mining in the Russian River aquifer that are not addressed in the DEIR:

- loss of water storage in the gravel bed aquifer of the Russian River

- loss of storage and recharge of the aquifer and associated groundwater as floodplains are inundated during storm events
 - loss of water storage due to lowered river bed elevations due to incision
 - loss of agriculturally important top soils that overlaid the mined aggregates
 - loss of agriculturally important top soils that are washed downstream, rather than being deposited on floodplain soils during inundations
 - increased winter storm water peak flows, producing greater damages
 - losses to undermined bridge and roadways
- "Declaration of Robert Curry, PhD, in support of Friends of the Eel River's comment on DEIS on Proposed Reoperation of FERC Project 77-110, the Potter Valley Project," April 26, 1999 (attached)*

In fact, the DEIR, at 4.5-48, remarkably and misleadingly, states,

"sediment and erosion control plans are an important element of the CEQA review and mine permit process. Many state and federal resource and regulatory agencies participate in the review of such mine reclamation and erosion control plans, in addition to the review of county staff and watershed stakeholders. Therefore, project specific and cumulative adverse changes to water quality resulting from mining activities are generally considered to be adequately addressed through the ARM Plan and the CEQA review process." [emphasis added]

When would the degradation of our natural, free aquifer filtration system stop? When will it be restored to its full capacity?

The conclusory statements of DEIR at p. 4.7-31, "Implementation of the Draft G2020 policies would avoid significant impacts from the loss of availability of potentially valuable mineral resources," are unwarranted.

Suggested policy and mitigations:

- Sonoma County shall commit to the restoration of the full functions of the gravel and sand aquifer of the Russian River for water quality and filtration, water supply storage and transmission, base flows and fisheries habitat by 2020.
- Sonoma County shall end all gravel mining within and adjacent to the Russian River and its tributaries by 2010.
- Sonoma County shall work closely with the aggregate mining and distribution industries, builders, the environmental community and the cities to identify and qualify other sources for aggregate needs for Sonoma County, including the Yuba Goldfields deposits in Yuba Co., California and British Columbia sources.
- Sonoma County will develop a new Aggregate Resources Management Plan for the county's aggregate needs, without any future use of Russian River aggregates, that includes policies and methods to minimize needs for new aggregate while maximizing recycled materials, and prohibits the export of Sonoma County mined aggregate outside Sonoma County, and includes transportation alternatives and facilities, including rail service, for imported materials.
- Sonoma County shall evaluate the true costs of aggregate mining that impacts sensitive resources, such as surface or groundwater, including the externalized costs of potential damages to those resources and energy costs.

10. Additional comments at DEIR 4.5 Hydrology and Water Resources

As previously noted, impacts to water resources in the DEIR are seriously understated or omitted or incorrect. As stated in (4) above, the language again used for mitigations and policies is extremely weak, not time delimited, and imprecise, leading to failure to mitigate many of the negative environmental impacts noted.

Further, it appears that much of the efforts to provide for improved and protected water quality is undercut by Policy WR-1r: "resist accepting administrative responsibility for regulatory programs required of state or federal agencies unless a state or federal subvention will compensate the County for costs associated with such shift in administrative responsibility."

The DEIR must describe exactly when and how this would play out in real life, under what circumstances, and what the environmental consequences could or would be.

11. 4.9 Public Facilities, Inadequacy of Water Supply Services Planning; failure to document conclusory and contradictory statements.

Again, as noted in earlier comments, the Environmental Setting is inadequately and incompletely described.

It should be noted that SCWA has no consumptive rights to any waters diverted through the Potter Valley Project from the Eel River, and SWRCB has consistently refused to allow any such rights to SCWA. At "Surface Water" (p. 4.9-3) the DEIR should note that "SCWA is required through SWRCB D.1610 and the soon to be released Biological Opinion and Sec. 7 Consultation with NMFS, to maintain the minimum stream flows at various points on the Russian River and Dry Creek in accordance with its water right permits, for the benefit of instream and fisheries uses. Further flows through the PVP to the East Fork of the Russian River are regulated by FERC. FERC's minimum flow requirements for PG&E were recently increased, and are under appeal by FOER and others, contesting the flows necessary to protect and restore endangered fisheries in the Eel River, and to consider decommissioning of the PVP."

At "Adequacy of SCWA's Water Supply" (p. 4.9-3/4), the DEIR states:

"The SCWA has estimated that by 2020 it will need to divert an additional 25,000 to 30,000 acre feet of water annually from the Russian River at its Wohler-Mirabel diversion facilities, and release additional water from Lake Sonoma to support this additional diversion to supply projected increases in its contractors demands." [emphasis added]

As noted above, this presumed "need" is in the opinion of SCWA, which has not undergone CEQA review. This DEIR for GP2020 is the requisite place to perform that analysis, data and information collection, as the impacts and consequences for the environment are far beyond any analysis and responsibility of SCWA, and because so much of the assumptions and environmental impacts of this opinion - or policy directive - or decision - will have consequences for the bulk of GP2020 and this DEIR. Any further presumption of this "need to divert an additional 25,000 to 30,000 acre feet

is conclusory, and must be subject to full CEQA (and likely NEPA) review, including the presentation of alternatives.

"California Code of Regulations s. 65302 (Land Use) requires a city or county General Plan to address water supply as a topical issue, using an UWMP as a primary source document." (p. 4.9-16)

Yet, this DEIR still uses the obsolete 2000 UWMP for its predictions of supply and demand. The new UWMP is currently close to completion (R. Poole, statement to WAC, 3/06). The DEIR is thus premature and fundamentally incomplete, and should be recirculated when the new UWMP is available for review and analysis.

The SCWA presumed "need" should likewise be subject to review and consideration of alternatives to water supply and demand reductions. As we will discuss shortly, this will include alternate increases water supplies, such as a restored and replenished Russian River gravel bed aquifer; transfer of water from Lake Sonoma to groundwater recharge in the Alexander Valley (already proposed by SCWA in 1999) for withdrawal and use during the dry season; mandatory and enforceable BMP targets and compliance over a given time period; adoption of water efficiency and avoidance programs and strategies; emphasis on demand reductions during critical hot weather peak periods; financial analysis of alternative strategies and both internalized and externalized costs and life-cycle costs; and other similar strategies and programs, most all of which have not been presented in this DEIR as alternatives to SCWA's alleged "need" for more pumping.

"The SCWA has adequate supplies to meet the project increases in demand" (p. 4.9-3) is a declarative statement as well, and conflicts with the statement of water supply adequacy above. Does SCWA (and other water suppliers) need more water for anticipated and predicted growth? Or are they adequately supplied now?

Where is the data to support water supply adequacy or inadequacy for all other public water suppliers? Exhibits 4.9-2, 4.9-5 and 4.9-6 do not reveal 'non-public' or 'private' water suppliers, including major agricultural or industrial uses on private wells or pumps

What are the impacts of non-public water suppliers future demands and predictions? So-called private water suppliers are not covered in the DEIR's disclosure and analysis, yet may have significant, interactive and cumulative impacts on the overall water budgets for the county. The DEIR is just silent on this issue, and should be revised to include them.

Exhibits 4.9-1 and 4.9-2 are likewise based on the obsolete 2000 UWMP, are functionally invalid for the DEIR.

The DEIR needs to address the water demand and supply balance, as the demand for water supplies is highest during the peak summer months, with approximately 50% of water use during that period for outdoor irrigation. It is during this period that the water sources, particularly the Russian and Eel Rivers are at their lowest flows and are the most vulnerable to diversions and pollutants.

Exhibit 4.9-6, BMPs for SCWA Water Contractors, does not reveal that the BMPs do not have mandatory water conservation targets or efficiency goals, are not time-delimited, and thus are a very inefficient way to reduce water demands. Since their inception, it has only targeted production of 6600 af of savings/year, and has not achieved even enough water savings to keep up with growing demands since its adoption by SCWA and its contractors.

The DEIR, in lieu of the poor performance of the BMPs, fails to consider such water efficiency and conservation programs adopted and used by Marin Municipal Water District ("MMWD"), East Bay Municipal Utilities District ("EBMUD") and the Los Angeles Metropolitan Water District ("MWD"), all of which have sustained growth of their populations over the last 15-20 years with *no increase in overall and aggregate water supply demands*.

"Digital computer hydrological models are used by SCWA to analyze the adequacy of its surface water supplies." The model includes presumed continued "maintenance of minimum instream flows required by the SWRCB, the diversions from the Eel River into the Russian River, and various levels of demands by SCWA customers or other water users.... Thus, the SCWA has adequate water supplies to meet its contractor's projected 2020 demands." (p. 4.9-4)

This conclusion is incongruent with the stated "need to divert additional water" from Lake Sonoma and the Russian River.

"Supply projections on Exhibit 4.9-2 assume that the Water Project [Water Supply and Transmission Reliability Project, or "WSTRP"] will be approved. Exhibits 4.9-1 and 4.9-2 indicate that the SCWA generally has sufficient supplies to serve its water contractors through the year 2020. If the Water Project is not approved, this determination may change." (p. 4.9-4) [emphasis added]

Is there enough water now, with existing conditions? or, do system conditions have to change to meet planned growth? The DEIR is not clear on this point. If there is a "need to divert additional water to accommodate growth", then the DEIR must fully disclose that, the rationale, the data, the analysis, the impacts, and a full range of alternatives.

If SCWA is claiming that there is enough water for future growth stored in Lake Sonoma, but it will need additional facilities, permits, water rights and other features to put that in place to serve anticipated GP2020 growth, then the DEIR must disclose all of that, and be recirculated. This as well would include the information noted earlier in our comments about the proposed Surface Water Treatment conceptual design and feasibility evaluation for Diversion Facilities Evaluation. Again, other water suppliers' future needs must also be disclosed and subject to a full CEQA review in this DEIR.

The conclusory statements noted above ("digital computer...") also assume the continuance of Eel River diversions, even though SCWA has no consumptive rights to any of that water, and has stated explicitly that Eel River diversions are not needed to supply SCWA's existing customers. ("Report to the State Water Resources Control Board on Water Conservation", April 15, 2005; and prior reports to SCWA on water supply issues from Robert Beach, former Gen. Mgr and Chief Engineer and consultant to SCWA) (Also, see "Declaration of Robert Curry, PhD, in support of Friends of the Eel River's comments on DEIS on proposed reoperation of FERC Project 77-110, the Potter Valley Project", 4/26/99)

Regarding "diversions from the Eel River into the Russian River via PGE's VVP, regulated by a number of agencies including FERC and NOAA-NMFS", the DEIR states that "Although there is some uncertainty surrounding this issue because the FERC decision is being appealed, there are no additional proposed reductions pending before FERC." (p. 4.9-5)

Since the DEIR, for the sake of supplying water to support future anticipated and planned growth, assumes the continuance of these diversions from the Eel River through the PVP, the full impacts of them on the Eel River and her fisheries and economies must be included in this DEIR, and it should then be recirculated for public review and comments.

If the DEIR is not assuming that the Eel River flows are necessary for water supply for GP2020's future growth, then it should state that unequivocally, and all references in the GP2020 and all other Sonoma County's goals, policies, programs and planning documents involving any acquisition or continued dependence on the Eel River waters must be deleted as a clearly stated and enforceable legislation, Board of Supervisors' actions, and mitigation measures in this DEIR. The same must also be held for SCWA and its contractors.

"Another uncertainty facing the SCWA's water supply is related to the recent listings of Coho salmon, Chinook salmon, and steelhead under the federal ESA... Changes to either the SCWA's water supply operations and maintenance activities or to required minimum stream flows resulting from the consultation process, may affect the ability of the SCWA to use or deliver its water supply." (p. 4.9-5)

At "Factors affecting water supply", (p. 4.9-11) several other factors are omitted: loss of gravel-bed aquifer storage volume due to aggregate mining; loss of tributary inflows to the Russian River as agricultural or rural development dams side streams; loss of gravel bed aquifer storage due to sedimentation and siltation (loss of porosity); loss of groundwater storage as inundations of floodplain recharge areas are removed from the effective floodplain overflow areas of the Russian River through development, berms, levees, roads and other barriers, as well as downcutting of the River bed, leaving former floodplains and recharge areas un-inundated during geomorphologically historic flood flows.

12. 4.9 Public Facilities, Inadequacy of Water Supply Services Planning; Failure to provide and consider alternatives; Eventual system collapse

Exhibits 4.9-1 "Current and projected SCWA water supplies, Multiple dry year hydrologic results" shows an expected increased supply of SCWA water of 39.7% by 2020.

Exhibit 4.9-2, "Current and projected water supplies for SCWA Water Contractors" show an increase in contractor purchases of 36.8% by 2020.

Mysteriously, though, the DEIR completely fails to have any discussion for alternatives if any or all of the supply certainty conditions noted above come to pass.

At 6.2 Cumulative Impacts, Public Services, Water Supply Services, the DEIR states "Surface water supplies for the SCWA system are considered adequate to accommodate demand for those jurisdictions that contract with SCWA... However, expansion of the delivery system, approval of the Water Projects, and obtaining additional water rights must be completed before the available supply can be achieved... However, in light of the current uncertainty regarding the availability of water supplies, this would a significant cumulative impact and the Draft GP2020's contribution is cumulatively considerable." (p. 6.0-11)

Despite these statements, the DEIR fails to define and disclose a valid, current water supply assessment and alternatives approach to provide certainty of and verify availability of water supplies that are assumed necessary for GP2020 growth predictions.

The DEIR merely posits the untenable Significant Unmitigable Impacts:

Significant Unavoidable Impact 4.9-1:

"Insufficient water supplies to meet the future water demand of the urban service areas."

"Land use and development consistent with the Draft GP2020 would increase the demand for water. As a result, insufficient water supplies would be available to serve some of the unincorporated USA's from existing entitlements. New or expanded entitlements would be required." (p. 6.0-22)

Significant Unavoidable Impact 4.9-2:

"Insufficient Water Supplies to meet the future water demand of rural private domestic, small municipal, and agricultural wells."

"Land uses and development consistent with the Draft GP2020 would result in an increased demand on groundwater supplies for rural uses. Due to the lack of comprehensive information regarding the county's groundwater resources, it is uncertain if groundwater supplies would be sufficient to meet the future demand of rural private domestic, small municipal, and agricultural wells. This uncertainty combined with the current regulatory approach could result in insufficient groundwater supplies in rural areas of the county."

Significant Unavoidable Impact 4.9-3:

"New or expanded water supply facilities"

"Land Uses and development consistent with the Draft GP2020 could result in the need for increased water supply facilities, either through the construction of new facilities or through the expansion or retrofitting of existing facilities. Construction of new or expanded water supply facilities could result in site-specific impacts, especially on aquatic organisms and fisheries."

The DEIR completely fails CEQA requirements, no less common sense, to consider or disclose any alternatives that would even point the way to "new or expanded entitlements" or "insufficient groundwater supplies" or "new or expanded water supply facilities". DEIR and GP2020 would fail the tests provided for in SB221 and SB610 if those were applied to it. There is simply no evidence that shows that a sufficient water supply is available to meet the predicted and expected growth.

If these conditions were to remain, then one obvious proposal should be a complete moratorium on growth and development where water cannot be reliably anticipated to be supplied. The DEIR would have to designate when and under what conditions this would occur, where it would occur, and which jurisdictions would be responsible for implementing them. But, the DEIR does not do this either.

Otherwise, the trajectory of the DEIR and GP2020 is towards a complete system collapse and all the immense environmental, economic, social and cultural damages that would ensue.

This is not so far-fetched: examples of these monumental failures are demonstrated today by the Lower Colorado River dewatering and pollution; the Ogallala Aquifer overdrafts throughout the Midwest US; Atlanta's regional water supply overdraft and pollution; and, historically, the end and disbursement of the Anasazi civilization after destruction of watersheds followed by a 40+ year drought period in the 1100's. Other examples around the world are legion.

There is no planning for restoration or replenishment of water resources. The DEIR and SCWA would presume that we can muddle our way through for another 15 years until 2020. Even if that were true, then what would happen?

Global warming puts yet more pressures on the need to get this right and allow for precious and vital margins of safety.

This DEIR and GP2020 are not just fundamentally unsustainable, but they fails the CEQA and any critical tests for long term planning.

13. A proposed environmentally superior Alternative for Watershed management for Potable Water Supply.

FOER here proposes an integrated, multi-objective, and comprehensive Alternative to address the series of very complex and critical questions and problems raised above, including the numerous Significant Unavoidable Impacts of the DEIR and GP2020. This is an incredible and timely opportunity to provide the resources necessary for Sonoma County's continued growth for a healthy, environmentally sustainable and economically productive future.

RESTORATION, RELIABILITY AND RESOURCE STEWARDSHIP ALTERNATIVE (THE "3Rs ALTERNATIVE")

A. Resource Stewardship and Efficiency Component

This aspect of the 3Rs Alternative would provide components and services sufficient to reduce the overall volume of water supplied by SCWA, water contractors and other water providers from either riverine or groundwater sources, so as to offset future increases in demand, and result in a decrease or no increase in river diversions. Particularly important are reductions to peak and total system-wide and local demands over the lifespan of GP2020 and beyond. It would also allow a decrease or no increase in total greenhouse gas emissions as a consequence of energy required and water delivered and wastewater treated and transmitted by the Agency and/or its customers. It includes the design and implementation of high performance, highly integrated resource efficiency programs.

The technical potential for large efficiency improvements is indicated by the Pacific Institute's "Waste Not, Want Not: the Potential for Urban Water Conservation in California." Methods include: green building ordinances designed to deliver net negative water impacts for new construction; long-term public financing for efficiency services; marginal costs analysis across water, wastewater, energy and climate protection services; and service delivery mechanisms that are designed to circumvent common barriers to participation (including first cost, education, and utility revenue erosion). Aggressive recycling can and should be used to displace new sweetwater demands of the system.

The locally proven example of this work provided here includes details of the program and its successes:

“Based upon water efficiency experience throughout the United States, it is possible for efficiency improvements to offset all new water required within Petaluma’s CII (commercial, industrial and institutional) sector for at least the next ten years... implementing a range of water saving strategies resulting in an overall reduction of water use of 23%.” (p. 1)

Hold the Flow! Commercial, industrial and institutional water efficiency program for the City of Petaluma, Edwin Orrett, P.E. and Pacific Technology Associates, Petaluma CA, 6/14/02 (attached)

B. Restoration of the Russian River and Eel River Component.

This component would reliably meet defined current and future needs for water supply quantity and quality while improving habitat and natural functions of both rivers. It would eliminate or substantially reduce the need to release additional stored water from Lake Sonoma. It will increase the amount of water that can be naturally stored, filtered and captured within the Russian River aquifer, with small capital and o&m costs, without materially altering the operation of Lake Sonoma and discharges to Dry Creek. Water could also be transferred from Lake Sonoma for discharge to the Russian River near Cloverdale and the Alexander Valley to help serve upstream needs, as has already been proposed by SCWA.

An important part of this solution is to change the aggregate mining management protocol of the Middle Reach aquifer of the Russian River to one that replaces and restores instead of removes gravel and sands. This will increase the natural water storage capacity (captured during winter runoff) and increase the natural filtration capacity of the aquifer. It will provide increased head for the Ranney collectors as the bed and water elevations are restored. The gradual aggradation of gravels and sands can be designed to avoid the need for a water treatment plant, increase drought protection, provide improved summer cold base flows and riparian cover, improve fish and wildlife habitat in the Russian River watershed, and avoid economic loss due to river bed scouring and bank erosion of public and private infrastructure and property. It can also supply enough water not just for future predicted growth of the DEIR and GP2020, but also reduce pressure on demands for additional groundwater withdrawals or continued diversions of the Eel River. Replacement aggregate to support local construction activities may be sourced from the Yuba River Goldfields hydraulic mining overburden, which would assist in restoration of the Yuba River. Aggregate from BLM and local private holdings can be crushed, sorted and transported by rail and/or truck to this region at costs comparable to or less than current aggregate sources, without the environmental damages associated with mining in the Russian River aquifer and recharge zones.

The details of this Water Supply Alternative are laid out in detail in:

- “Declaration of Robert Curry, PhD, in support of Friends of the Eel River’s comment on DEIS on Proposed Reoperation of FERC Project 77-110, the Potter Valley Project,” April 26, 1999. See particularly pages 9-12 (attached)

The long-term stewardship of the Russian River watershed and Sonoma County groundwater is essential for the future health of our population, businesses, economy and environment, and is also essential for the restoration of the Eel River fisheries. Development of 'new' renewable and essentially free water sources in our own Russian River aquifer will allow elimination of the perceived need and demands for continued transfers of water from the Eel River through the Potter Valley Project. Ending these diversions will allow for a long-term and complex program of restoration of the Eel River and her fisheries to begin after nearly a century of environmental and economic degradation to Humboldt, Lake and upper Mendocino Counties. Each watershed can be restored to health and vigor, but not as long as they remain joined by the PVP diversion.

A further component of the future management of the Russian and Eel River watersheds includes the long term protection and restoration of these surface water sources from current and future degradation and pollution as rural and urban development increase in the watersheds.

The New York City Watershed Management for Potable Water Supply program and policies have been instrumental in avoiding a \$5-8B filtration plant for NYC's surface water supply. Proactive and collaborative preservation and restoration of the five county watershed serving NYC has been undertaken at considerable ratepayer savings, with a capital outlay expected of some \$1.5B and a large savings of annual o&m costs by avoiding a filtration plant.

This is an extraordinarily successful and appropriate model for our use in protecting the long term health and viability of our Russian River watershed and water supply. The program involves development and adoption of strict water quality standards for all discharges to surface water in the city's five county watershed, repair and replacement of local and private failing or substandard wastewater treatment facilities, support for improvements to construction and agricultural activities with non-complying point or nonpoint discharges, voluntary purchases of critical waterway buffers by NYC, and economic assistance to watershed communities to offset potential development losses.

See full reference and background material at:

- Watershed Management for Potable Water Supply, Assessing the New York City Strategy; National Research Council, National Academy Press, 2000; www.hap.edu/books/0309067774/html/
 - "The City's Precious Watershed", New York Times, Editorial, July 15, 2002
- [copies attached]

C. Transmission and Reliability Component

This component would increase the SCWA's transmission system capacity and facilities to meet anticipated but reduced peak month deliveries to customers, reduce greenhouse gas emissions, and increase the reliability of the existing and future transmission system. Increased storage, for instance, will support improvements in reliability, and savings in both emissions and cost via use of cleaner and less expensive baseline power sources.

D. Multi-Stakeholder Performance Metrics Component

The 3Rs Alternative outlines a way for Sonoma County GP2020 and a large water utility to define and achieve its mission in a way that differs fundamentally relative to traditional practices. In essence, this alternative suggests shifting from a commodity to a service-based business model. Instead of selling natural resources and facing the increasingly intractable and expensive problems

that arise, this alternative focuses on selling services that allow nature's replenishment at very small capital and environmental costs. The success of this approach will depend upon Sonoma County, SCWA and other water providers acquiring new competencies to supplement traditional strengths in engineering and project management, through the addition, for example, of interdisciplinary collaboration, communications, social marketing, resource economics and social entrepreneurship.

It is essential to establish a set of performance metrics, both to provide equivalent analyses of all alternatives offered in the EIR, as well as to provide transparency and to attract useful support and feedback. These will include the leading and lagging indicators of performance relative to overall resource consumption, interdisciplinary collaboration, innovations, investment by categories and other relevant measures.

We believe that adoption of this alternative would allow meeting many more critically important GP2020 and DEIR project goals and objectives by 2020. We would be pleased to work with County staff, Planning Commission, and consultants to formulate details needed to put these proposals in place.

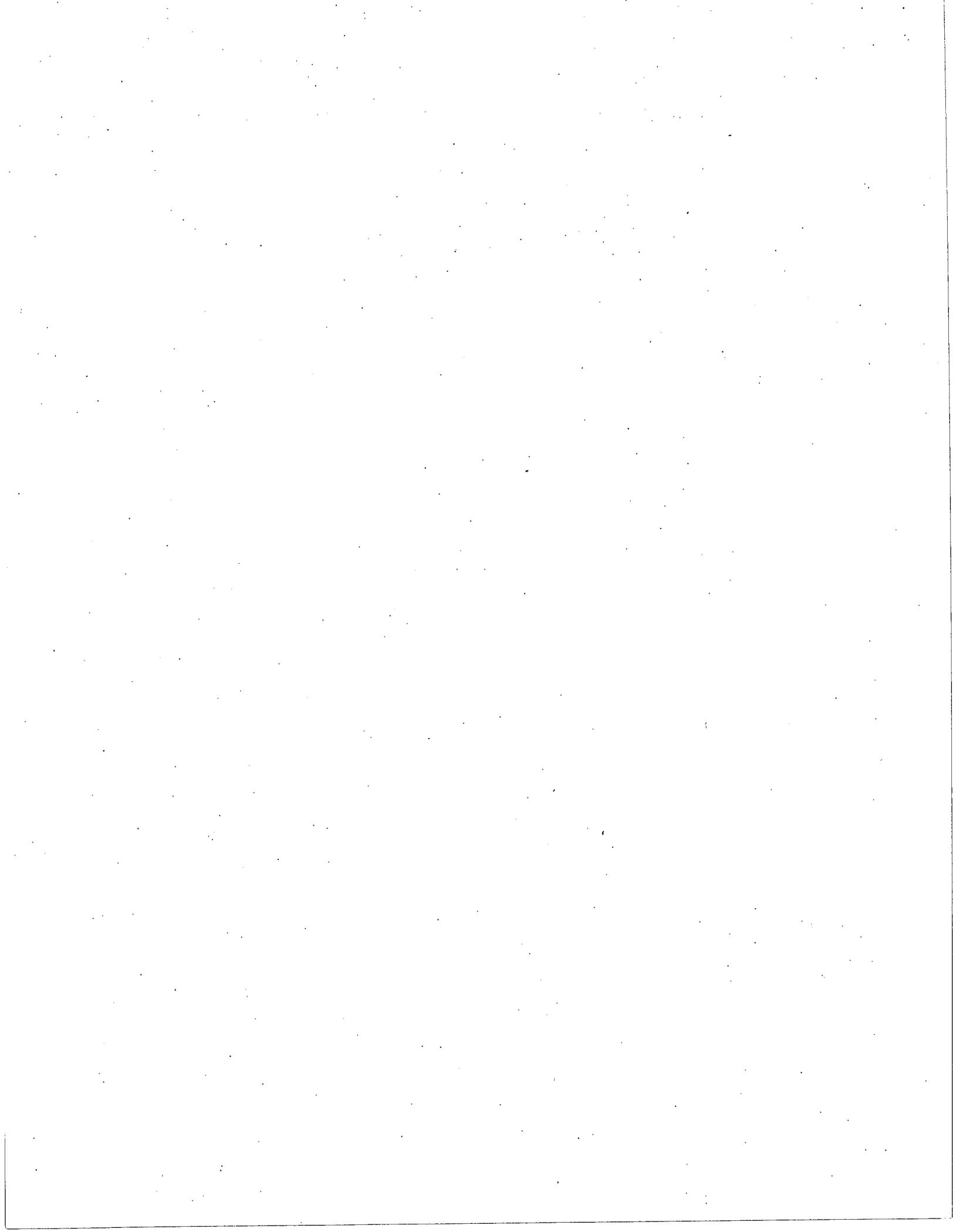
Thank you for the opportunity to provide these comments on the GP2020 DEIR.

David Keller
 Bay Area Director
 Friends of the Eel River
 1327 I St.
 Petaluma, CA 94952
 (707) 763-9336
 dkeller@eelriver.org

Attachments:

- "Declaration of Robert Curry, PhD, in support of Friends of the Eel River's comment on DEIS on Proposed Reoperation of FERC Project 77-110, the Potter Valley Project," April 26, 1999. See particularly pages 9-12
- "Value of Middle Reach Aquifer for Drinking Water Supply", from a statement presented by Robert Curry, PhD, for the ARM Plan update, 1993
- Hold the Flow! Commercial, industrial and institutional water efficiency program for the City of Petaluma, Edwin Orrett, P.E. and Pacific Technology Associates, Petaluma CA, 6/14/02
- Watershed Management for Potable Water Supply, Assessing the New York City Strategy; National Research Council, National Academy Press, 2000; www.nap.edu/books/0309067774/html/
- "The City's Precious Watershed", New York Times, Editorial, July 15, 2002
 [copies attached]
- "SCWA Diversion Alternatives Studies Status Update", Power Point presentation to the Water Advisory Committee, 2/5/01

- "Cumulative Impacts, Development map of Ukiah Valley," Sept. 2005, Ukiah Valley Smart Growth Coalition
- Friends of the Eel River et al v. SCWA and PG&E, Cal. App. 1st Dist., May 16, 2003, June 13, 2003
- "Draft Adaptation of Existing Policy Worksheet - Natural Resources and Hazards, Appendix D/NR", 4/17/06, www.helphumboldtplan.org
- "Draft Adaptation of New Policy Options Worksheet - Natural Resources and Hazards, Appendix E", 4/17/06, www.helphumboldtplan.org





Alan C. Lloyd, Ph.D.
Agency Secretary

State Water Resources Control Board

Division of Water Rights

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Arnold Schwarzenegger
Governor

In Reply Refer
to:333:LLE:266:0

FEB 02 2005

Mr. Randy D. Poole
General Manager/Chief Engineer
Sonoma County Water Agency
P. O. Box 11628
Santa Rosa, CA 95406

Dear Mr. Poole:

SONOMA COUNTY WATER AGENCY'S WATER CONSERVATION EFFORTS

On November 18, 2004, the Sonoma County Water Agency (SCWA) presented its Water Conservation Status Report to the State Water Resources Control Board (SWRCB). The presentation was a requirement of the SWRCB's July 26, 2004 order approving SCWA's request for a temporary urgency change in the minimum flow requirements for the Russian River. The written submittal of the Water Conservation Status Report outlines (1) the work SCWA has done over the previous four years to improve water conservation within the SCWA service area, (2) additional water savings during the term of the Temporary Urgency Change, and (3) future water conservation and estimated savings.

During the presentation, members of the SWRCB expressed concern over the one-to-two percent net yearly increase in diversions from the Russian River. In light of SCWA's request for a temporary urgency change to reduce required minimum flows in the Russian River, and the probability of similar requests in the future, members of the SWRCB asked SCWA to do more to stabilize Russian River diversions.

The SWRCB requested that SCWA return to a board workshop in the spring of 2005 to provide the SWRCB with a detailed plan of water conservation efforts that will offset future increases in demand, which in turn will result in no increase in Russian River diversions.

Using the 2003 level of demand as a baseline, the plan should include:

1. Increases in demand projected to the year 2020 and broken down by source.
2. Proposed conservation methods to offset projected demand during the same period.
3. Estimated water savings from proposed conservation methods.
4. Estimated monetary costs of water conservation activities.
5. Source of financing for the conservation activities.

California Environmental Protection Agency

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FEB 02 2005

Sonoma County Water Agency

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The SWRCB recognizes that SCWA obtains its water supply from Lake Sonoma and from Lake Mendocino, and that SCWA shares the yield of Lake Mendocino with Mendocino County Russian River Flood Control and Water Conservation Improvement District (District). The SWRCB is interested in receiving information that includes the entire reach of the Russian River and requests that you contact the District about making a joint presentation to the Board regarding a coordinated effort at the April 5, 2005 Board Workshop. If for some reason this is not workable, please let the Division know as soon as possible.

If you have any questions, please telephone Luann Erickson at (916) 341-5318 or me at (916) 341-5337.

Sincerely,

Steven Herrera, Chief
Water Rights Permitting Section

cc: Ms. Barbara Spazek, Executive Director
Mendocino County Russian River Flood Control and
Water Conservation Improvement District
151 Laws Avenue, Suite D
Ukiah, CA 95482

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April 7, 2005

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Sonoma County Water Agency
Attn: Yvette O'Keefe, Environmental Specialist
PO Box 11628
Santa Rosa, CA 95406-1628

Dear Ms. O'Keefe:

This letter is submitted on behalf of the Friends of the Eel River ("FOER") and comments on the Notice of Preparation ("NOP") of a environmental impact report ("EIR") on the Sonoma County Water Agency's Water Supply, Transmission and Reliability Project ("WSTRP"). FOER agrees that a new EIR, rather than a supplemental EIR, is required for this project. However, as detailed below, FOER is concerned that the current NOP does not call for a complete evaluation of the environmental impacts of or alternatives to this new project. In addition to the comments set forth below, many of FOER's June, 2004 comments on the NOP issued for the Water Supply and Transmission System Project ("WSTSP") remain applicable to the WSTRP and are reiterated below.

Project Description:

The need for the project and project description should be updated to account of over ten years of progress in water conservation technologies and strategies and changes in development plans throughout the County. Most importantly, the project description should not rely on increased diversions from the Russian River, but should evaluate methods to reduce, or at a minimum, maintain existing water supply diversions over the lifespan of the project.

Although the NOP is vague in its description of the Water Conservation Component of the WSTRP, it should examine new technologies and conservation strategies, make it possible to conserve far greater amounts of water than were originally

envisioned under the WSTSP. In addition, improvements in water conservation methods for new development could significantly reduce the demand for water. These improvements include the installation of water meters, the reuse of treated wastewater, and the success of water demand reduction programs such as the "Hold the Flow" program designed by Resource Performance Partners for the City of Petaluma. This program has demonstrated that overall water use can be reduced while still meeting the water needs of population growth projected by local general plans.

In addition, a number of cities in Sonoma County, including Healdsburg, Windsor, Sonoma, Petaluma, Sebastopol, Cotati, Rohnert Park, and Santa Rosa, have adopted urban growth boundaries that encourage in-fill development and discourages suburban sprawl. Denser urban development typically uses less water than lower density developments planned and may reduce the need for additional water. Finally, Sonoma County itself grew at less than one percent last year. Therefore, water demand may be substantially less than predicted by the Agency. Finally, new sources of water such as a proposed desalination plant in Marin County would reduce peak demands for water.

These water savings measures and potential reductions in demand could substantially reduce the need for increased diversion from the Russian River (much of which would be supplied by the Eel River), and would therefore reduce significant environmental impacts on both rivers. As such, the Agency should ensure that the project description includes a Water Conservation Component that attempts to reduce the potential diversions from the Russian River before the Agency proceeds with preparation of an EIR.

Project Alternatives:

CEQA requires an EIR to evaluate a reasonable range of alternatives, including alternatives that will avoid or substantially reduce the adverse impacts of a proposed project. Pub. Res. Code §§21001, 21002. The EIR here should consider an integrated alternative approach to satisfying the project objectives of "providing a safe, economical, and reliable water supply to meet the defined and future water supply needs in the Agency's service area." An outline of such an comprehensive alternative is attached hereto as Exhibit 1 and was developed by FOER staff in consultation with water efficiency experts.

The intent of this alternative is to satisfy the stated project objectives while also reducing demands for water diversions, energy consumption and greenhouse gas

Yvette O'Keefe
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Page 3

emissions, and providing long-term management of the watersheds involved, supporting the restoration of the Russian River, the Eel River and groundwater, all of which are in seriously degraded conditions. This alternative provides a significant opportunity to meet SCWA's goals for the project and to reduce its environmental impacts. A full evaluation of alternatives will further the goals of CEQA to ensure protection of the environment:

The CEQA reporting process is not designed to freeze the ultimate proposal in the precise mold of the initial project; indeed, new and unforeseen insights may emerge during investigation, evoking revision of the original proposal The lead agency may determine an environmentally superior alternative is more desirable or [that] mitigation measures must be adopted. Environmentally superior alternatives must be examined whether or not they would impede to some degree the attainment of project objectives.

(Kings County Farm Bureau v. City of Hanford, (1990) Cal.App.3d 692, 735-737.)

Environmental Impacts of the Project:

The NOP recites in general terms the areas of environmental impact that will be reviewed in the EIR. FOER requests that the EIR provide a detailed analysis of all of the potentially significant environmental impacts of the WSTRP and all feasible mitigation measures. In determining whether particular impacts are significant, the Agency must look to CEQA Guidelines section 15064. In order for the EIR to serve its purpose as an informational document, it is essential that the EIR not understate the severity or extent of the impacts associated with the proposed WSTRP.

To provide an accurate view of the impacts of this proposed project, the EIR should, at a minimum, evaluate:

- impacts to the Eel River associated with the continued diversion of water to the Russian River, including the devastation of the salmon fishery, and other adverse impacts to that riparian system;
- impacts to the Russian River associated with the continued diversion of water from the Eel River, including encouraging the growth of non-native species;

- negative economic impacts in the Eel River Basin associated with continued diversion of almost all of the Eel River's summer flows which also have adverse physical impacts, including changes in development patterns, blight, increased growth and development in Sonoma and Marin Counties, and increased pressure for development of other extractive industries, such as timber harvesting; and
- comparative energy use and greenhouse gas emissions from all alternatives, including construction, operations and maintenance of the system and components over its lifespan.

In addition, pursuant to CEQA Guidelines section 15130(a), the EIR must discuss all significant cumulative impacts, including impacts of mitigation efforts. Cumulative impacts are the changes in the environment from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. (CEQA Guidelines § 15355(b).) Future projects need not be certain to occur to be considered in the cumulative impacts analysis; the key is that they appear foreseeable at the time of EIR preparation. (City of Antioch v. City Council (1986) 187 Cal.App.3d 1325, 1337.)

The SCWA must use reasonable efforts to discover, disclose, and discuss past, present and future projects including those under review by other agencies. (Discussion following CEQA Guidelines § 15130.) As one court put it:

[T]he full environmental impacts of a . . . proposed action cannot be gauged in a vacuum . . . [or treated] as an isolated "single shot" venture . . . in the face of persuasive evidence that it is but one of several [environmental threats]. To ignore the prospective cumulative harm under such circumstances could be to risk ecological disaster.

(Whitman v. Board of Supervisors (1979) 88 Cal.App.3d 397, 408.)

Thus, the draft EIR should evaluate the cumulative impacts resulting from implementation of the WSTRP, including not just the impact of FERC's decision on diversions from the Eel and Russian Rivers, but any other reasonably foreseeable

Yvette O'Keefe

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increases in water use or diversions from the Russian mainstem and tributaries and Eel River that the Agency or other parties may be considering, including both permitted and unpermitted diversions. The Agency should also consider cumulative impacts on the Russian River system that may result from the continued or increased river, aquifer or other plans for disposal of sewage waste that can flow to the Russian River from the cities of Santa Rosa, Windsor, Healdsburg, Cloverdale, and Ukiah. The Agency should also evaluate the cumulative effects of the WSTRP in connection with urban water management plans proposed by Sonoma County and cities within the County and SCWA service areas.

The draft EIR should also evaluate the growth inducing impacts associated with increasing water supply. CEQA Guidelines §15126.2 (d). Such potential impacts include pressure for conversion of agricultural lands; increased development and its attendant impacts on traffic, infrastructure and natural resources.

Finally, the EIR should take into account new information relevant to the impacts of the WSTRP:

- The listing of the Russian and Eel Rivers on the 303(d) list of impaired waterways;
- The ruling (now subject to several petitions for rehearing) of the Federal Energy Regulatory Commission ("FERC") regarding the level of diversions permitted from the Eel River;
- The listing of several species of salmonid as threatened or endangered under the federal Endangered Species Act;
- Section 7 biological opinions issued by the Fish and Wildlife Service which have found that continued diversions from the Russian and Eel Rivers will cause jeopardy to listed species of salmon;
- Proposed transfers of water from the SCWA water basin to other basins, such as the proposed transfer of 7-8,000 acre-feet to the Napa River Salt Marsh Restoration Project;
- Evidence of overdraft of several groundwater basin within the SCWA service area as well as ongoing studies and proposals for

replenishment and sustainable management of groundwater supplies, including the findings and recommendations of the 2003-2004 Sonoma County Grand Jury Report, "Got Water?";

- Proposals in the Sonoma County Aggregate Resource Management Plan ("ARM Plan") to continue, reduce or eliminate the mining of the gravel and sand aquifer and terraces of the Russian River which would restore increased water storage capacity to the aquifer;
- Proposed transfers of water from Lake Mendocino to Redwood Valley County Water District or other Russian River watershed water districts or entities;
- Proposed purchase of the Potter Valley Project by SCWA;
- New General Plans for Sonoma County and Petaluma;
- Restructured Agreement for Water Supply, the 11th Amended Agreement for Water Supply, and the MOU Regarding Water Transmission System Capacity Allocation During Temporary Impairment;
- Direction to SCWA by the State Water Resources Control Board to detail a plan of water conservation efforts that will offset future increases in demand, which in turn will result in no increase in Russian River diversions. [Feb. 2, 2005]; and
- Watershed Management for Potable Water Supply program operated and financed by the City of New York to protect its watershed for long term health, rather than build a filtration plant

Preparation of a Joint Environmental Impact Report/Environmental Impact Statement:

If the WSTRP will receive federal funding, SCWA should prepare a joint EIR/EIS in cooperation with any federal agency that will be providing major support for the action.

Yvette O'Keefe
April 7, 2005
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We appreciate the opportunity to comment on the NOP. Inasmuch as the NOP contains only general information as to the Agency's approach to evaluating the project's potential environmental impacts, the issues identified in this letter are not intended to be exhaustive. FOER reserves its right to raise other issues during the environmental review process. Please send this firm a copy of the Draft EIR once it becomes available.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

ELLISON FOLK

cc: Friends of Eel River
David Keller
Nadananda

PA\FOER\SCWA\ef005 NOP2 comments.wpd

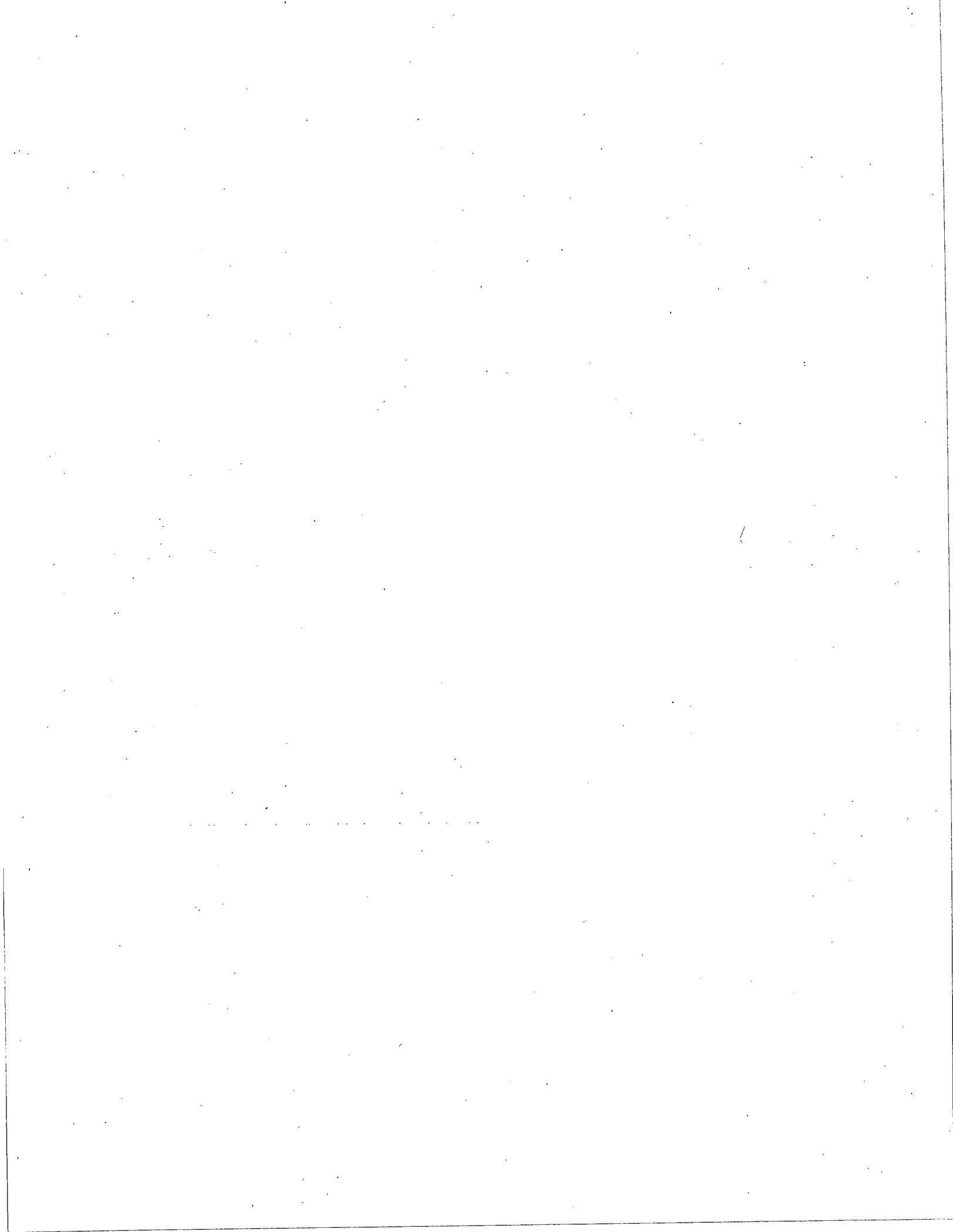


EXHIBIT 1

RESTORATION, RELIABILITY AND RESOURCE STEWARDSHIP ALTERNATIVE (THE "3RS ALTERNATIVE")

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An important part of this solution is to change the aggregate mining management protocol of the Middle Reach aquifer of the Russian River to one that replaces instead of removes gravel and sands. This will increase the natural water storage capacity (captured during winter runoff) and increase the natural filtration capacity of the aquifer. It will provide increased head for the Ranney collectors as the bed and water elevations are restored. The gradual aggradation of gravels and sands can be designed to avoid the need for a water treatment plant, increase drought protection, provide improved summer cold base flows and riparian cover, improve fish and wildlife habitat, and avoid economic loss due to river bed scouring and bank erosion of public and private infrastructure and property. Replacement aggregate to support local construction activities may be sourced from the Yuba River Goldfields hydraulic mining overburden, which would assist in

restoration of the Yuba River. Aggregate from BLM and Centex holdings can be crushed, sorted and transported by rail and/or truck to this region.

The long-term stewardship of the Russian and Eel Rivers and Sonoma County groundwaters is essential for the future health of our population, businesses, economy and environment. Our choices start today.

C. Transmission and Reliability Component

This component would increase the transmission system capacity and facilities to meet anticipated but reduced peak month deliveries to customers, reduce greenhouse gas emissions, and increase the reliability of the existing and future transmission system. Increased storage, for instance, will support improvements in reliability, and savings in both emissions and cost via use of cleaner and less expensive baseline power sources.

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Subject: SCWA - Santa Rosa re: discharges of wastewater to RR 10/20/06
From: David Keller <dkeller@eelriver.org>
Date: Thu, 16 Nov 2006 13:13:55 -0800

Draft letter:

Letter from SCWA (R.Poole) to Santa Rosa -- re: future discharges of treated wastewater to the Russian River.

October 20, 2006

September 25, 2006
Pat Fruht, City Manager's Office
City of Santa Rosa
P.O. Box 1678
Santa Rosa, CA 95402-1678
Re: Discharge Compliance Project

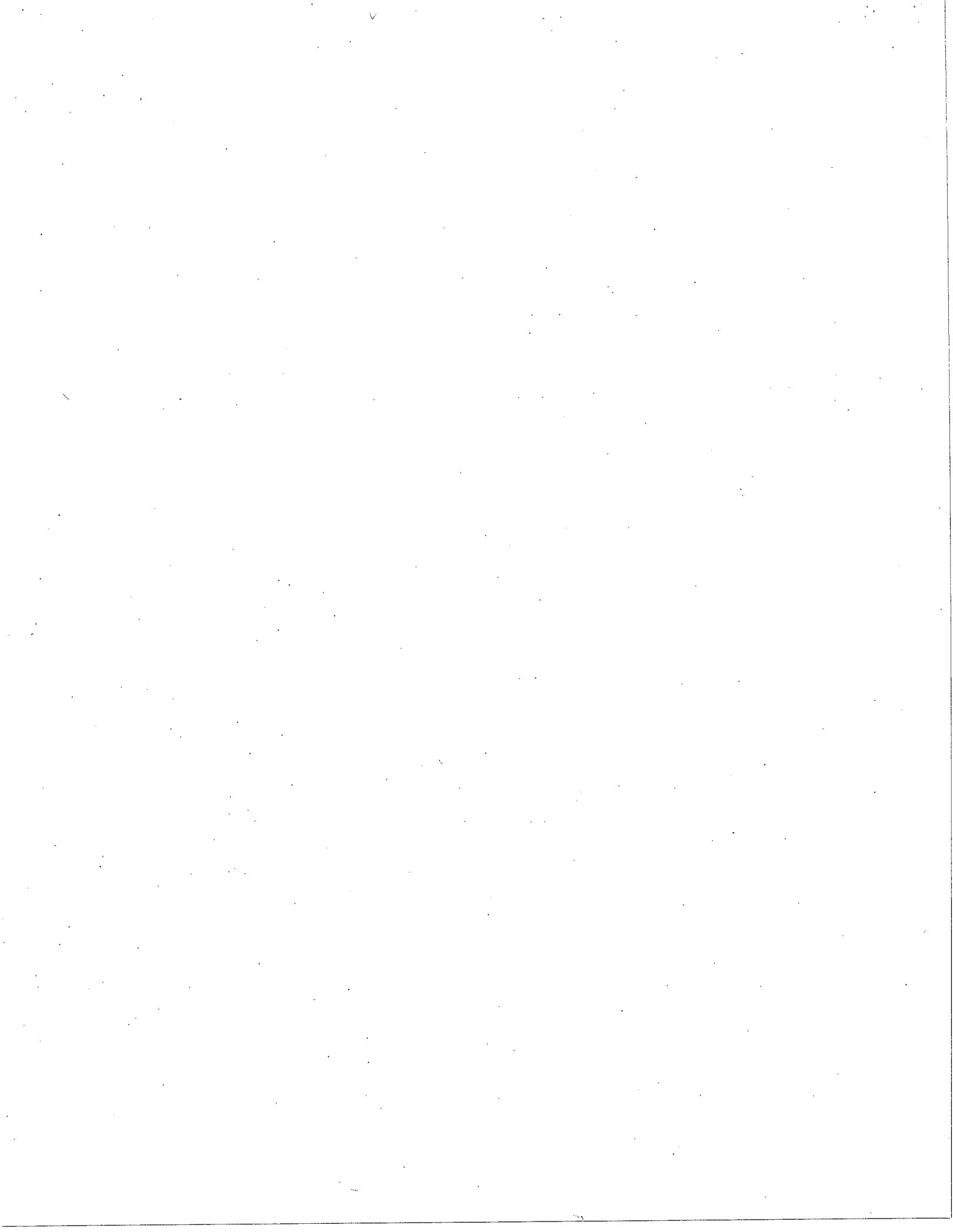
Dear Ms. Fruht,

The Sonoma County Water Agency (Agency) has reviewed the Initial Study, Notice of Preparation of an Environmental Impact Report (EIR), and Draft Engineering Report for the City of Santa Rosa's (City) Incremental Recycled Water Program - Discharge Compliance Project (Discharge Compliance Project). The Agency's comments are focused on concerns regarding 1) potential conflicts with the proposed expansion of the Agency's water supply facilities; 2) potential water quality concerns regarding how the City's project could impact the way the Agency's facilities are operated; 3) how the City's project could impact listed fish species and recovery planning efforts in the Russian River; and 4) that the City should focus on reuse of this resource instead of disposal into the Russian River.

The City's proposed Discharge Compliance Project proposes a new direct or indirect wastewater discharge location along the Russian River. The Agency operates six collector wells along the Russian River in the Mirabel and Wohler area which supply drinking water for approximately 600,000 people in Sonoma and Marin Counties, including residents of the City.

In addition, the Agency has been evaluating an expanded water supply system which could include new collectors upstream of the Agency's existing collectors. Similar to the results shown for river discharge locations in the City's Draft Engineering Report for the Discharge Compliance Project, there may be only a few locations along the Russian River that are suitable for the Agency to install water diversion structures and pipelines.

In addition, the features that make a site suitable for a river discharge location may also be the same



features that make a site suitable for water diversion facilities. The Agency is concerned that the City's Discharge Compliance Project could have detrimental impacts on the planned infrastructure necessary for the Agency's water supply project and may cause significant delays in the Agency's environmental review process.

Attached is a map from the Agency's Notice of Preparation of an Environmental Impact Report for the Agency's Water Supply, Transmission and Reliability Project which shows the area of interest for the Agency's future water supply facilities along the Russian River. The Agency recommends that the City coordinate with the Agency so that the City's Discharge Compliance Project doesn't impact the Agency's ability to construct future water supply facilities.

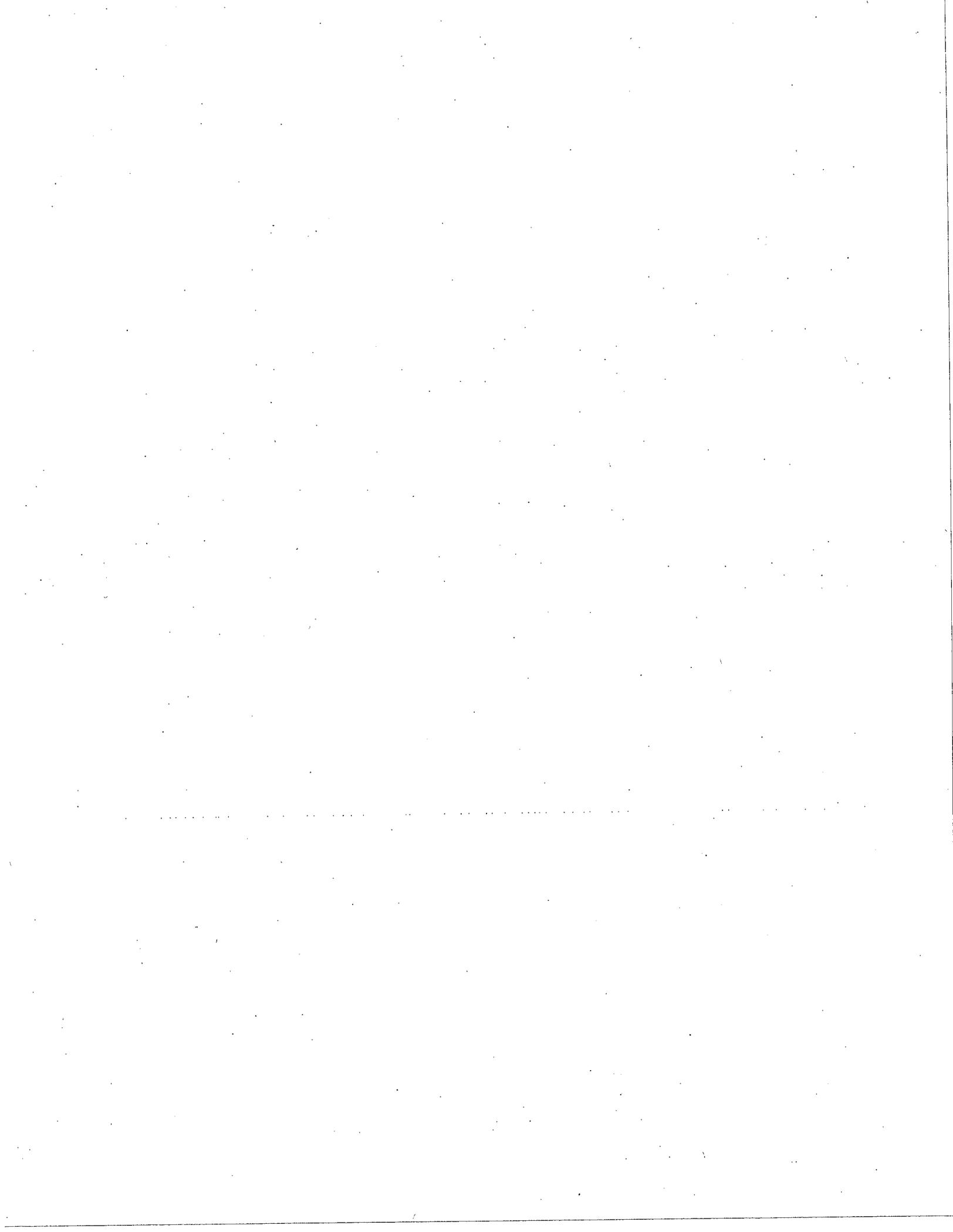
The Agency and its customers (including the City) have benefited from having water supply facilities that provide a high quality source of drinking water that is relatively inexpensive to operate. The only treatment necessary beyond the natural filtering provided by the sand and gravel materials along the Russian River is: 1) the addition of chlorine to provide a residual amount of disinfectant throughout the transmission system; and 2) the addition of sodium hydroxide to adjust the pH of the water. The Agency and its customers have not had to share in the expense of constructing and operating a surface water treatment plant. The potential impact of a new wastewater discharge location on the Russian River, which could jeopardize the way the Agency's existing water supply facilities are operated, needs to be considered. Accordingly, the Agency has brought this item before the Technical Advisory Committee of the Water Advisory Committee (TAC/WAC) in October (2006) to have the TAC/WAC provide direction on what position the Agency should take with regards to the City of Santa Rosa's Discharge Compliance Project.

Attached are copies of comments from the Agency submitted to the City January 12, 1987 and October 7, 1996 with regards to a proposed Russian River wastewater discharge associated with the City's Long-Range Wastewater Management Plan and Subregional Long-Term Wastewater Project. These comments from 1987 and 1996 express the Agency's concerns with how a direct wastewater discharge into the Russian River could impact the Agency's water supply facilities due to the presence of pathogens and inorganic and organic compounds that may be present in the wastewater.

The concerns brought up in these comment letters are still valid and currently there are additional concerns that need to be addressed associated with the emerging issue of pharmaceuticals and personal care products that may remain in treated wastewater. Pharmaceutically active compounds (e.g., caffeine, nicotine, and aspirin) and numerous personal care products (such as fragrances and sunscreens) and drugs from a wide spectrum of therapeutic classes can enter waterways through a variety of routes including treated wastewater.

The City should study what potential impacts to water supplies and the aquatic environment could occur as a result of discharging the City's wastewater into the Russian River.

Since 1991, the National Marine Fisheries Service (NMFS) has listed twenty-six Evolutionarily Significant Units (ESUs) of salmonids on the Pacific Coast as endangered or threatened species under the federal Endangered Species Act (ESA). The ESA requires that recovery plans be developed and implemented for the conservation and survival of these species.



For recovery planning, NMFS has divided the ESUs on the Pacific Coast into nine geographic domains and will develop recovery plans for each. The Russian River watershed is part of the North-Central California Coast Recovery Planning Domain (Planning Domain), which encompasses watersheds from Mendocino County to Santa Cruz County and supports populations of coho and Chinook salmon and steelhead. These populations of salmonids have been federally listed as Threatened or Endangered since the late 1990's.

Efforts to restore habitat and identify what is needed to recover these populations have been ongoing ever since. In the Russian River some of these efforts have included implementation of the coho salmon broodstock program at the Don Clausen Hatchery, many habitat restoration and fish passage projects funded through the Pacific Coastal Salmon Recovery Fund (and other state and local funding sources), as well as, completion of a state recovery strategy for California coho salmon.

While these efforts have fostered the development of federal-state-local partnerships in salmonid recovery and conservation, little real progress can be made without the commitment and involvement of the state and local entities affected by the listings. Recognizing this, beginning in February and again in June of 2006, the Board of Directors of the Sonoma County Water Agency approved funding assistance to NMFS to facilitate the development of federal recovery plans for coho and Chinook salmon and steelhead in our region.

Additionally, the Agency's Board approved funding to support the development of a local plan to begin implementing early recovery actions as specified in the state's coho recovery strategy and to support a position at NMFS to work with agencies and landowners toward development of a salmonid conservation plan for Alexander and Dry Creek valleys.

To these ends the Agency has provided over \$700,000 in funds and proposes to continue supporting development of recovery plans on two fronts. The first, by identifying local solutions that address salmonid fisheries and that are compatible with local responsibilities, and the second by acquiring, collecting, and developing the data needed to assess factors limiting salmonid recovery in all the watersheds that make up the ESU. On September 11, 2006, NMFS published their intent in the Federal Register to prepare recovery plans for all the listed ESUs of salmon and distinct population segments (DPS) of steelhead in California by January 2008. Given the considerable federal, state and local effort to support recovery plan development for the salmonid populations in our Planning Domain, the City should in the Discharge Compliance Project EIR evaluate how the City's project could impact these three listed fish species in the Russian River watershed and identify ways in which the City can help with recovery planning efforts. The Agency recommends that instead of looking at disposal into the Russian River that the City view this wastewater as a valuable resource that can be utilized to offset potable water use through urban reuse to directly offset Russian River water and for agricultural reuse (such as that being studied for the proposed North Sonoma County Agricultural Reuse Project) which can help reduce the reliance on groundwater and help reduce the need for surface water diversions.

We appreciate the opportunity to comment on this project.

Sincerely, Randy D. Poole
General Manager/Chief Engineer

