the future of southern california

Murrieta

General Plan Update

Appendix N3:

Water Facilities Master Plan Update_2005

Rancho California Water District

2005 Water Facilities Master Plan Update

July 2005

RBF CONSULTING

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Chapter 1

EXECUTIVE SUMMARY AND RECOMMENDATIONS

1.1 Introduction

The Rancho California Water District is located in southwestern Riverside County about 40 miles south of Riverside and 60 miles north of San Diego. The District encompasses approximately 100,000 acres and provides retail water supply for a variety of agricultural, residential and commercial uses.

The Rancho California Water District (RCWD) was formed in 1965 over the easterly 41,000 acres and the Santa Rosa Ranches Water District (SRRWD) was formed in 1968 over the westerly 46,000 acres. Each District was organized as a California Water District, which entitles property owners one vote per each $100 of assessed land valuation in electing a Board of Directors.

In 1977, the two Districts were consolidated as a single District known as the Rancho California Water District. The original RCWD and SRRWD had approved general obligation bond authorization of 55 million dollars and 63 million dollars respectively. Since these bond authorization's are still applicable over the original lands within each District, separate divisions known as the Rancho division and the Santa Rosa Division have been maintained for accounting purposes. Subsequent annexations have brought the RCWD from it's original 87,000 acres to the current 99,600 acres.

In 1997, RCWD completed a comprehensive update of the Water Master Plan covering water supply and water distribution. The plans were designed to determine a reasonable estimate of the facilities required and probable costs associated with projected development through ultimate buildout (estimated at year 2025).

The RCWD recognizes that master planning is an ongoing process. Numerous changes have occurred over the last five years both regionally and locally, which can impact facility planning. Major items include the following:

- RCIP Southwest Area Plan (2003)
- City of Temecula General Plan (2005)
- City of Murrieta General Plan (2002)
- Agricultural Demand Trends
- Land Preserves set Aide
- Contemplated Contract Service Areas
- Conservation

This Water Facilities Master Plan Update was authorized to investigate and reflect the revised land use, water demands, and corresponding facilities required to meet development currently anticipated within the District. The 1997 master plans also focused attention on the immediate (within a five year period) improvements, which were required to properly upgrade the systems. The RCWD has now completed the majority of the priority projects as a result of a comprehensive capital improvement program. The facilities identified in this update have also been phased and prioritized. This has been done in a manner which will support the District's sound fiscal policies of maintaining a balanced approach to facility financing and implementation

1.2 Land Use

The current population living within the RCWD is estimated at over 95,000 people. The population of Temecula alone is 77,460 (as of January, 2004) representing only the central portion of the District's service area. Development within the Rancho Division includes commercial and industrial, high-density residential, and low-density residential. In addition, the Rancho Division contains approximately 6,800 acres of citrus, avocado, and vineyard agricultural use.

Existing developments within the Santa Rosa Division are primarily avocado plantings. Recent developments within the Santa Rosa Division reflects a trend toward a diversification from a large agricultural base to a mix of estates, horse farms, specific plan developments (such as Bear Creek, California Oaks and the Cross Creek Golf Course) and open spaces of the nature conservancy property.

Proposed land use within RCWD is guided by the City of Temecula General Plan, City of Murrieta General Plan, and the Riverside County General Plan -- more specifically defined by the Southwest Area Plan (SWAP). These documents form the basis for RCWD's current planning updates.

Although the SWAP and general plans provides for a range of development densities, a mid-level of development was assumed for development projections. In addition, it is assumed that agricultural uses would not expand past their current levels. Based on these land use projections, it is anticipated that, at ultimate buildout, RCWD will include approximately 83,000 dwelling units, 5,900 acres of business park/commercial area, and approximately 12,737 acres of agricultural land.

1.3 Projected Ultimate Water Demands

The estimated ultimate water demands are based on land uses projected by the SWAP, City General Plans and specific plans, where applicable. Ongoing analysis of existing water duty factors, as well as comparisons to similar districts, have formed the basic water demand criteria utilized in the WFMP. The overall water consumption from 1997 to 2005 has increased from over 58,000 acre feet (AF) to 129,545 AF. In FY

1996-'97, approximately 44 percent of water sold by RCWD was to agricultural customers, which reflects a slight trend towards increased residential usage.

The projected ultimate water demand is estimated to be approximately 129,500 AF. This figure includes approximately 11,200 AF of potential non-domestic water use, which may be utilized on golf courses, parks, and major common areas. An ultimate average annual domestic water demand of 129,500 AF or 179 cubic feet per second (cfs) is projected, with a maximum day domestic demand of 393 cfs.

Should additional non-domestic water be made available to meet agricultural irrigation demands, an additional 4,700 AF/year could be reduced from domestic demands.

1.4 Water Supply

The RCWD is a constituent agency of Eastern Municipal Water District (EMWD) and Western Municipal Water District (WMWD). These agencies are member agencies of the Metropolitan Water District of Southern California (MWD); therefore, RCWD is entitled to receive water from available sources of MWD. EMWD provides wholesale water to the RCWD Rancho Division, while WMWD provides wholesale water to the RCWD Santa Rosa Division.

RCWD also relies on local groundwater sources to provide for a significant portion of the District's annual water demands. During wet years, the District has been able to utilize as much as 85 percent to 15 percent ratio of groundwater to imported water. During dry years, a 60 percent to 40 percent or 50 percent to 50 percent ratio has been used. The District has historically sought to minimize reliance on MWD imported water by optimizing the use of its groundwater.

Vail Lake, located within the southeastern portion of RCWD, provides the District with the opportunity to capture storm runoff for subsequent controlled releases for groundwater recharge. Vail Lake has the capacity of storing up to 49,000 AF.

Imported water is currently supplied via four aqueduct turnouts (WR-26, WR-28, EM-13, and EM-20).

Based on currently-available groundwater and imported water facilities, the District has an average annual supply capability of 100,000 AF to 150,000 AF, depending on duty time for each of the MWDSC turnouts. The District can currently meet maximum day flows in excess of 355 cfs.

A variety of supply projects are being implemented to meet projected long-term increases in demand. The major elements of water supply augmentation include artificial recharge of imported raw water into the groundwater basin to supplement naturally-occurring groundwater, the VDC Pump Station, water reclamation to meet potential non-domestic water demands, and additional MWD treated water turnouts.

It is anticipated that a combination of these supply alternatives will be implemented to meet future demands. If demands increase based on projected development rates, existing supply capabilities may be exceeded in approximately the year 2025. It should be noted that additional imported water supply connections will be required in any case to meet projected ultimate water demands and are currently being pursued jointly with MWD (EM-21 addition of over 100 cfs). Expansion of recycled water opportunities to minimize agricultural demands is also being pursued. The extent of agricultural conversions could vary significantly. Obviously, the large agricultural demands represent tremendous potential. Some of the factors that will require additional consideration and will influence these opportunities include the following:

- RWQCB Requirements
- Capital / O+M cost implications
- Phasing and Availability of recycled water
- Customer / Market Place variables
- Environmental process

1.5 Domestic Water Distribution System

The domestic distribution system is composed of two divisions: the Santa Rosa Division in the westerly half, and the Rancho Division in the easterly half. Each division provides water through a number of pressure zones ranging from 1,305 feet (above sea level) to 2,850. The 1,305 zone provides service to the I-15 corridor area and serves as the "forebay zone" for several pump stations which supply higher zones. Treated water from MWD turnouts and the majority of groundwater production enters the RCWD system in this zone. Some additional groundwater enters the system in the 1380, 1610, and the 1790 Zones of the Rancho Division, in the 1500 Zone of the Santa Rosa Division.

Current reservoir tank storage is 54.7 million gallons in the Santa Rosa Division and 83.4 million gallons in the Rancho Division. Based on a storage criterion of 16 hours to meet operational fire flow and emergency needs, an estimated 14.8 million gallons of new storage in the Santa Rosa Division and 37.8 million gallons in the Rancho division has been proposed to meet existing and future demands. It should be noted that the reservoir facilities can be phased to provide adequate storage capacity as development occurs. Should development not occur at the levels projected, a corresponding reduction in ultimate storage requirements would result.

Pumping requirements for each pressure zone were evaluated based on a combination of maximum day demand within a specific zone as well as any "pass through" demand required for higher zones. Recommended pump station capacities provide for the required capacity plus a "stand by" pump capacity equal to the largest pump for that station. Major pump station capacity expansion is anticipated for the majority of the District's service zones to meet future demands. As with storage facilities, pump stations can be phased to provide for construction to coincide with development on an "as need" basis. Energy officencies were also evaluated to support decision relative to pumping vs. storage and recovery opportunities at pressure reducing facilities.

Proposed domestic transmission mains were identified via computer hydraulic modeling. Backbone transmission mains are proposed to be located within known development areas to provide adequate distribution and fire flow delivery. In some cases, parallels of existing mains are required to meet transmission capacities under ultimate conditions or to rectify current system deficiencies. Sizing of proposed piping is based on the optimal combination of maximizing system efficiency, in the form of reduced energy costs, and minimizing capital costs. Unlike reservoirs and pump stations, transmission pipelines are difficult to phase. Therefore, constructing pipelines of a size and capacity to meet ultimate demands is considered to be prudent.

Facilities required to produce and convey source of supply water are identified as "common facilities." These facilities include the wells, aqueduct connections, groundwater recharge basins and corresponding conveyance pipelines. Expansion of all these facilities will be required to meet projected demands.

1.6 Non-Domestic Distribution System

The District is committed to maximizing the use of local water resources to meet ever-growing demands. The proposed non-domestic distribution system has been sized to provide conveyance of tertiary treated wastewater from each of the existing wastewater treatment plants (Rancho California, SBR and Joaquin Ranch) to the exiting and proposed golf courses and major park areas. RCWD is in the process of centering all wastewater treatment and reclaimed water source to its SRWTF. Water demands for these use areas are projected to be approximately 11,200 AF/Year. This system represents an initial implementation of permanent non-domestic use.

Significant additional potential non-domestic use areas exist within RCWD. These include the large agricultural demands and more remote central irrigation. These demands could represent an additional 4,700 AF/Year (or greater) reduction of domestic water demands at ultimate development.

The RCWD has implemented a comprehensive reclaimed storage pond system including the ability to reconvey water back to the treatment facility for supplemental treatment or pumping direct to the distribution system. Current storage capacity is in excess of 737 AF. Ultimate capacity requirements are approximately 2700 AF allowing for up to 10 mgd of system capacity.

1.7 Cost Estimates and Phasing

Cost estimates have been prepared for all of the facilities outlined in this WFMP. The estimated construction costs are based on recent experience with similar construction contracts awarded by RCWD and other local agencies. The required timing for each project has been determined, based on anticipated growth within the District. An allowance for escalation between 2005 and the anticipated phased construction period has been added based on 5 percent per year. The construction costs have been

increased 15 percent for engineering, legal, and administrative services, and 20 percent for contingency.

The total estimated capital costs for source of supply and domestic water distribution system are $172.3 million. With inflationary cost increases applied to future construction phases, the total estimated escalated capital cost is $229.6 million. The non-domestic system including, expanded pond storage is estimated to be $25.5 million.

1.8 Recommendation

It is recommended that the Water Facilities Master Plan be received by the Board of Directors of the Rancho California Water District and that upon completion of review and fulfillment of applicable CEQA requirements the plan be approved in final form.

Chapter 2

INTRODUCTION

2.1 Rancho California Water District

The Rancho California Water District is located in southwestern Riverside County, about 40 miles south of Riverside and 60 miles north of San Diego, as shown in Figure 2-1. The District encompasses almost 100,000 acres and provides retail water supply for a variety of agricultural, residential and commercial uses. Typical agricultural uses include avocados, citrus, and grapes. Most of the new commercial and residential land uses recently developed are within the incorporated areas of the Cities of Temecula and Murrieta.

The Temecula area was developed in the 1880's along the California Southern Railroad. Temecula served as an important shipping center for cut granite from nearby quarries. In the early 1900's 87,000 acres of land within the District were acquired by the Vail Company. These lands were developed by the Vail Company into a very successful cattle ranch. The Vail Ranch used the higher mesa lands for grazing and growing dry farm crops, while in the Pauba Valley irrigated crops such as alfalfa, melons and potatoes were grown. Initially, irrigation was achieved through direct diversion of water from Temecula Creek. Later, artesian and other wells were drilled in the valley. In 1948, Vail Dam was constructed on Temecula Creek in Butterfield Canyon. Vail Lake's storage capacity of 49,000 acre-feet and surface area of 1,000 acres provided additional irrigation water for the Pauba Valley.

In 1964, Rancho California was created when the Vail Ranch was purchased by the land development partnership of Kaiser Corporations and Macco Realty Company. The partnership implemented a master development plan with a goal to create a balanced residential, commercial and industrial community while maintaining its rural qualities of open spaces and agricultural production lands. The developers were instrumental in forming two water districts to provide a continued and reliable water supply. The Rancho California Water District (RCWD) was formed in 1965 over the easterly 41,000 acres, and the Santa Rosa Ranches Water District (SRRWD) was formed in 1968 over the westerly 46,000 acres. Each district was organized as a California Water District, which entitles property owners one vote for each $100 of assessed land valuation in electing a Board of Directors.

To provide a supplemental imported water supply, the Rancho California Water District was concurrently annexed to the Eastern Municipal Water District (EMWD) and the Metropolitan Water District of Southern California (MWD) in 1966. EMWD was also granted powers to collect, treat and dispose of wastewater within RCWD. Similarly, the Santa Rosa Ranches Water District was concurrently annexed into the Western Municipal Water District (WMWD) of Riverside County and MWD. SRRWD, however, reserved its wastewater service powers.

MWD serves as a regional wholesaler of imported water over a wide area of Southern California from Los Angeles to San Diego. EMWD and WMWD are member agencies of MWD and purchase imported water from MWD to retail to smaller local jurisdictions. Historically, RCWD has relied on local groundwater supplemented with MWD imported water to meet domestic and agricultural demands.

In 1977, the two districts, Rancho California Water District and Santa Rosa Ranches Water District were consolidated as a single district known as the Rancho California Water District. The original RCWD had approved a general obligation bond issue of 55 million dollars in 1966, and SRRWD had similarly approved 63 million dollars in bonds in 1968. Since these bond issues are still applicable over the original lands within each district, separate divisions known as the Rancho Division and the Santa Rosa Division have been maintained for accounting purposes.

Over the past decade, a number of areas have been annexed into RCWD within either division, bringing the total gross area of the District to approximately 99,600 acres. In addition, the 2005 Master Plan Update includes consideration of service to eight separate areas adjacent to District boundaries. These "contemplated contract service areas" (CCSA) total approximately 6,800 acres, all of which have been determined feasible service areas based on RCWD's current system configuration, and the lack of nearby facilities operated by neighboring agencies. Figure 2-2 illustrates the current RCWD service boundaries, the Rancho and Santa Rosa Divisions, and the CCSAs.

2.2 Authorization, Scope and Purpose

In 1996, RCWD authorized RBF Consulting (formerly Robert Bein, William Frost and Associates) to prepare the September 1997 *Water Facilities Master Plan Update*. The County of Riverside's Southwest Area Plan (SWAP) of the time was the basis for the projected ultimate land uses.

The 1997 Master Plan Update identified water facilities necessary to serve the ultimate buildout of development within RCWD. It also updated and reconfigured the District's capital improvement program (CIP) with a phasing component to assist the District project prioritization. The District continues to coordinate the efforts of the master plan updates to coincide with the preparation of their wastewater and reclaimed water master plans, which provides for a comprehensive approach to facility planning. In addition to these studies, RCWD commissioned a parallel study – the Integrated Water Resources Plan - to provide the District with a plan to utilize the various sources of water now at their disposal for optimized economy throughout the year.

Several factors can influence facility planning. For RCWD, the primary issues, which have lead to the preparation of an updated master plan, include the following:

- RCIP Southwest Area Plan (2003)
- City of Temecula General Plan (2005)
- City of Murrieta General Plan (2002)
- Agricultural Demand Trends
- Land Preserves Set Aside
- Contemplated Contract Service Areas
- Conservation

Due to several factors since the adoption of the 1997 Master Plan Update affecting the regional water supply for the area – namely, the completion of the EM-20 Turnout, the planned conversion of a major MWD aqueduct (Pipeline No. 3) from Lake Skinner to a treated water pipeline, the recently started construction of a major raw water aqueduct by MWD (Pipeline No. 6) for more feasible groundwater recharge and conjunctive use – this 2005 Master Plan Update also includes concept planning for development of alternative water source augmentation. The RCWD water source augmentation consists of three factors:

- Vail Lake Water Supply Integration
- Class II Recycled Water Conversion
- Conservation

Vail Lake water supply integration is a source that would maximize the benefits of the new MWDSC Pipeline No. 6 and relocation of RCWD's EM-21 (formerly EM-19) raw water turnout in proximity to the District's Valle de los Caballos spreading grounds. Currently used to spread planned release of Vail Lake water via the Butterfield Canyon, the VDC spreading grounds are envisioned as the central component of a seasonal storage system and expanded spreading operations; including EM-21 and additional raw water transmission piping, groundwater wells, a treatment facility, and additional pumping capacity.

The District authorized RBF Consulting to prepare an updated Water Facilities Master Plan with the following scope:

Task 1 **Review Existing Information**
(Land Use, Population, Water Use, Peaking Factors, development of Water Usage Factors)

Task 2 **Contemplated Contract Service Areas**
(Land Use, Water Use of surrounding areas)

Task 3 **Evaluate Water Supply Sources**
(MWD, Groundwater and Recycled Water, Vail Lake Integration and Recharge)

Task 4	**Domestic Water System Analysis** (Computer Model using H2OMap software by MWH Soft, Inc.)
Task 5	**Recycled Water System Analysis** (Computer Model using H2OMap software by MWH Soft, Inc.)
Task 6	**Recommended Improvements** (Domestic, Reclaimed Water Facilities, Phasing)
Task 7	**Capital Improvement, Replacement Cost Analysis** (Ultimate Buildout, Phasing, Capital Improvement and Capital Replacement Programs)
Task 8	**Final Report Preparation**

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4/12/05 JN 65-100064-11325

Vicinity Map

WATER FACILITIES MASTER PLAN UPDATE

Figure 2-1

Water District Divisions

District Boundary

Contemplated Contract Service Areas (CCSA)

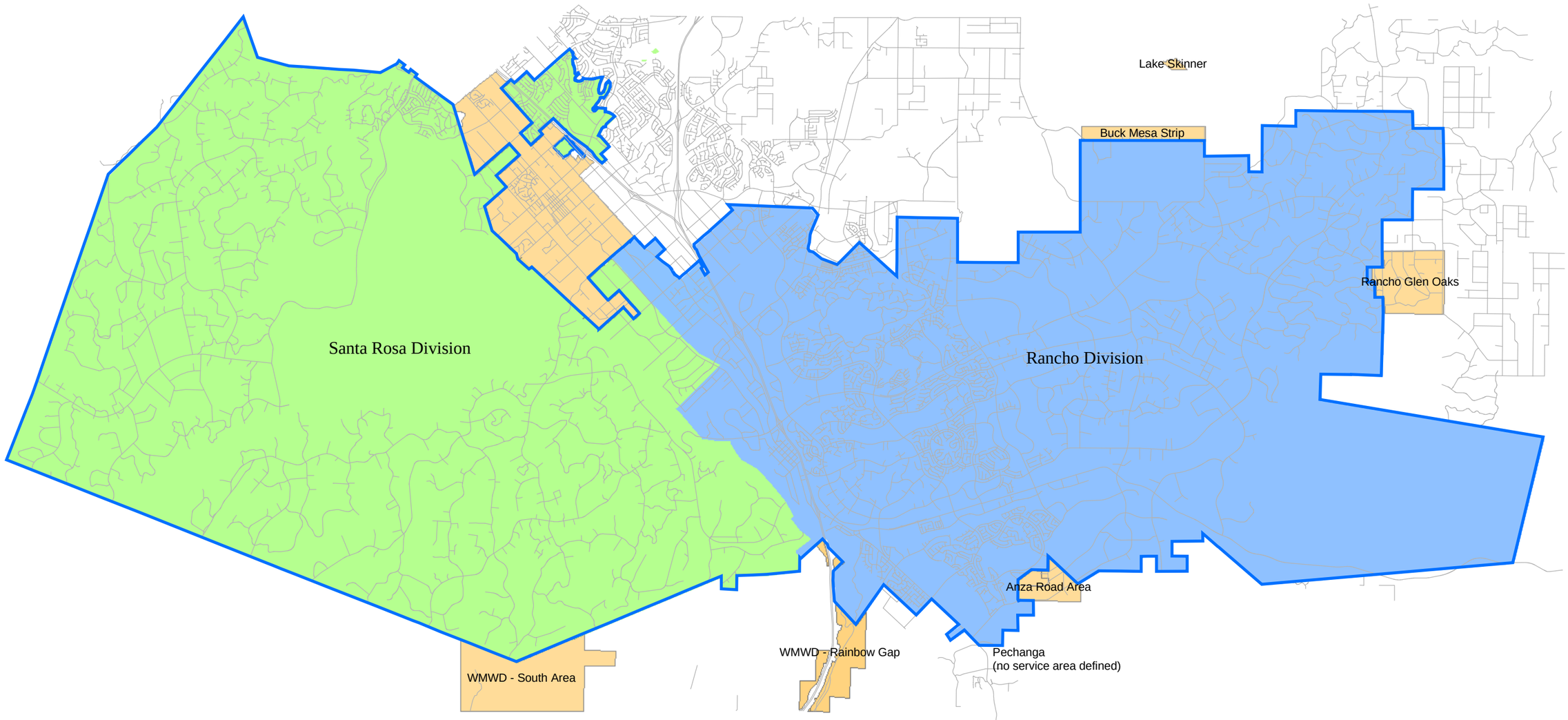

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Figure 2-2

Chapter 3

LAND USE

The Rancho California Water District service area overlies a very diverse geographic area. The terrain ranges from gentle rolling hills and valleys to very rugged mountainous areas. The valley floor is approximately 1,000 feet above sea level and the mountaintops reach a height of 2,800 feet. This diversity of terrain has a significant impact on the type and trends of development within the District.

3.1 Existing Land Use

Development within the Rancho Division of the District includes commercial, industrial, high density residential (including single family detached, condominiums and apartments) and low density residential as typified by the large estate type developments of Los Ranchitos and Meadowview. In addition, acres of citrus and vineyards comprise a well-established agricultural base as of 1984.

The Rancho Division also contains a very active horse community. Also, fishing and boating recreation continue to be popular activities at Vail Lake. The existing commercial development within the Rancho Division provides the shopping, entertainment, medical and dining facilities necessary to support the growing City of Temecula.

Existing development within the Santa Rosa Division is primarily the avocado plantings in the southern portion of the Division. Recent development within the Santa Rosa Division reflects a trend toward diversification from the agricultural base to a mix of estates, horse farms, specific plan development such as Bear Creek and California Oaks, the Cross Creek Golf Course, and the vast open spaces of the nature conservancy.

3.2 Current Land Planning

The land use information used to project ultimate land use consists of the County of Riverside's Southwest Area Plan (SWAP), the City of Temecula General Plan and the City of Murrieta General Plan (GP). The County has adopted the 2003 SWAP. The Cities of Temecula (2005) and Murrieta (2002) have also recently adopted revisions to their General Plans. These three planning documents combined provide the base land use data used in projecting ultimate buildout and corresponding water demands for the District. Figure 3-1 identifies the portion of the District covered by each Plan.

It's important to note that some unincorporated Riverside County areas within the District is identified as "policy area". Specific definitions of these policy areas reveal a range of alternative land use densities for given areas. In addition, it was further reasoned that current concept land use plans, or lack thereof, provides justification for 'reality' adjustments to the land use plan. Although regional general plans are

typically based on a 20-year planning horizon, planning studies such as water system master plans are necessarily updated much more frequently – every seven to ten years. Therefore, the land use plan dictated by general planning documents within the GP planning horizon cannot fully develop within the life of a water master planning document. These policy areas are discussed in more detail in the following subsection.

3.3 Projected Ultimate Land Use

The ultimate land use projections for Rancho California Water District are based on the SWAP, City of Temecula GP and the City of Murrieta GP. In order to establish a "common denominator" set of land use categories, each of the three planning documents, and their respective land use categories, were evaluated side by side to arrive at a master list of categories. This master list had to encompass all land uses proposed within each Plan without generating a lengthy cumbersome list that would not be feasible for a water facilities master plan.

As described above, land use planning adjustments were necessary to consider the specific definitions of the GP policy areas as well as foreseeable development trends within a shorter time frame than the 20-year planning horizon. The County policy areas that necessitated land use adjustments within the District service area are as follows:

- Santa Rosa Plateau Policy Area (SRPPA)
- Citrus Vineyard Rural Policy Area (CVRPA)
- Vail Lake Policy Area (VLPA)

The SRPPA includes the current agricultural and Ag/domestic land uses within the Santa Rosa Division. Although the SWAP provides for '5-acre minimum lot size', historically, this has not been demonstrated to be likely or even possible for the entire region. Therefore, the a delineation of areas that could be developed with this density remains consistent with those adopted agriculture-to-residential regions within the 1997 Master Plan Update.

The CVRPA includes the current vineyard and agricultural land uses within the Rancho Division. Although the SWAP provides for '5-acre minimum lot size', historically, this area has demonstrated that conversion of this policy area to residential should not be expected within the planning horizon, much less the seven-to-ten year useful life of the Water Facilities Master Plan Update. Therefore, it is more prudent from a master planning perspective to plan for the continued use of these areas as agricultural.

The VLPA is currently only used for recreational purposes within a small portion surrounding Vail Lake. However, recent concept land use provided by a master developer includes a proposal to construct a master planned community with medium- and high-density residential land use on approximately 500 acres making it more dense than the 20-acre minimum lot size stated in the SWAP.

Most notable of the adjustments regards the vineyard and agricultural uses. This master plan allows for much of these current uses to remain, thus it was deemed appropriate to include these traditional uses under the category of "Ag/Vineyard Planning Area". Table 3.1 includes the specific land use categories of each General Plan and those categories adopted for the 2005 RCWD Water Facilities Master Plan Update. District service area buildout within the 20-year planning horizon (ultimate) is projected to include approximately 83,000 dwelling units, 5,900 acres of business park/commercial area and 12,737 acres of agricultural land. The projected ultimate land uses for Rancho California Water District are shown on Figure 3-2 and summarized on Tables 3.2, 3.3 and 3.4.

3.3.1 Santa Rosa Division

The Santa Rosa Division comprises the western half of RCWD and includes approximately 49,000 acres. Projected land uses in the Santa Rosa Division consist of very low and medium density residential and agricultural uses. Approximately 9,000 acres are dedicated to open space to remain in their present natural condition. The only recent development that occurred within the Santa Rosa Plateau Policy Area is the Cross Creek Golf Course. Table 3.3 is a summary of the projected ultimate land use in the Santa Rosa Division. The land use is illustrated using individual pressure zone exhibits created from the District's GIS. (A tabulation summary by pressure zone is included in the water demand tables of Appendix C.)

3.3.2 Rancho Division

The Rancho Division of RCWD comprises the eastern 51,000 acres of the District and has considerably different projected land uses than the Santa Rosa Division. More urbanized commercial developments and the residential density has been, and will continue to be, constructed with much higher density within the urban core area. The Rancho Division will also include approximately 5,700 acres of business park/industrial and commercial development. The outlying areas have, and are proposed to remain, very low density estate residential development and agricultural/vineyard land uses. Ultimately, these low density uses will cover approximately 25,000 acres of the central and eastern portions of the Rancho Division. Other uses include approximately 10,000 acres of low-, medium-, and high-density residential tending toward the western portion of the division. Table 3.4 is a summary of the projected land uses within the Rancho Division. The land use is illustrated using individual pressure zone exhibits created from the District's GIS. (A tabulation summary by pressure zone is included in the water demand tables of Appendix C.)

Table 3.5 illustrates a comparison of the projected land use for Rancho California Water District as a whole as planned in the 1997 Master Plan Update and this 2005 update.

Table 3.1
Rancho California Water District
2005 Water Facilities Master Plan Update

SUMMARY OF LAND USE CATEGORIES

2005 RCWD Master Plan Update	Riverside County Southwest Area Plan (SWAP)	City of Temecula General Plan	City of Murrieta General Plan
RESIDENTIAL			
Ag/Vineyard Planning Area	Agricultural		
Estate 20 Residential (20 Ac min.)	Open Space - Rural		
Estate 10 Residential (10 Ac min.)	Rural Residential (10 Ac min.)	Hillside Residential (10 Ac min.)	
Estate 5 Residential (5 Ac min.)	Rural Residential (5 Ac min.)		
Estate 2 Residential (2 - 5 Ac lots)	Estate Residential (2 Ac min.)	Residential - Very Low density (0.2 - 0.4 DU/Ac)	Rural Residential (2.5 Ac min.)
Residential - Very Low density (1 - 2 acres)	Residential - Very Low density (1 - 2 acres)	Residential - Low density (0.5 - 2.0 DU/Ac)	Estate 1 Residential (0.5 - 1.0 DU/Ac)
Residential - Low density (1 - 2 DU/acre)	Residential - Low density (1 - 2 DU/Ac)		Estate 2 Residential (1.1 - 2.0 DU/Ac)
Residential - Medium density (2 - 5 DU/Ac)	Residential - Medium density (2 - 5 DU/Ac)	Residential - Low-Medium density (3 - 6 DU/Ac)	Estate 3 Residential (2.1 - 3.0 DU/Ac)
Residential - Medium-High density (5 - 8 DU/Ac)	Residential - Medium-High density (5 - 8 DU/Ac)		Single-Family 1 Res (2.1 - 5.0 DU/Ac)
Residential - High density (8 - 14 DUs/Acre)	Residential - High density (8 - 14 DU/Ac)	Residential - Medium density (7 - 12 DU/Ac)	Single-Family 2 Res (5.1 - 10.0 DU/Ac)
Multi-Family Residential (>14 DUs/Acre)	Residential - Very High density (14 - 20 DU/Ac) Residential - Highest density (20+ DU/Ac)	Residential - High density (13 - 20 DU/Ac)	Multi-Family 1 Res (10.1 - 15.0 DU/Ac) Multi-Family 2 Res (15.1 - 18.0 DU/Ac)
NON-RESIDENTIAL			
Commercial - Retail, Neighborhood Comm, Tourist, Schools	Commercial - Retail, Tourist, Office	Community Commercial Neighborhood Commercial Highway/Tourist Commercial	Neighborhood Commercial Community Commercial - Retail, Office Business Park
BP/Industrial - Office, Regional Comm, Industrial, Business Park, Institutional	Light Industrial Heavy Industrial	Business Park Professional Office Service Commercial Public/Institutional	Regional Commercial - Anchors, Restaurant, Hotel General Industrial Special Industrial Civic/Institutional
Public/Freeway		Public/Institutional	
Open Space - Recreational	Open Space	Open Space Recreational	Parks and Recreation
Open Space - Native	Open Space - Water		Open Space
	Cities		

TABLE 3.2
RANCHO CALIFORNIA WATER DISTRICT
WATER FACILITIES MASTER PLAN UPDATE

Projected Ultimate Land Use Summary

DISTRICT-WIDE SUMMARY				
Land Use	**Density Range (du/Ac)**	**Assumed Density (du/Ac)**	**Area (acre)**	**Estimated Dwelling Units**
Residential				
Ag/Vineyard Planning Area	0 - 0.05	0.05	12,737	637
Estate 20	0 - 0.05	0.05	243	12
Estate 10	0.05 - 0.10	0.075	3,749	281
Estate 5	0.10 - 0.20	0.15	40,957	6,144
Estate 2	0.20 - 0.50	0.35	3,483	1,219
Very Low Density	0.50 - 1	0.75	577	433
Low Density	1 - 2	1.5	153	230
Medium Density	2 - 5	3.5	4,438	15,830
Medium High Density	2 - 8	6.5	6,716	43,657
High Density	8 - 16	11	147	1,620
Multi-Family	-	20	667	13,331
Commercial	N/A	N/A	3,083	
Business Park / Industrial	N/A	N/A	2,842	
Public/Freeway			99	
Open Space - Native	N/A	N/A	16,370 [2]	
Open Space - Recreational	N/A	N/A	3,344	
CCSA [1]	N/A	N/A	6,782	492
TOTAL (excluding CCSA)			**99,606**	**83,393**
TOTAL (including CCSA)			**106,388**	**83,885**

[1] CCSA = Contemplated Contract Service Area, not within RCWD defined service area.

[2] Includes 6,854 acres of Vail Lake Policy Area assumed to remain native after the proposed development of medium density residential.

TABLE 3.3
RANCHO CALIFORNIA WATER DISTRICT
WATER FACILITIES MASTER PLAN UPDATE

Projected Ultimate Land Use Summary

SANTA ROSA DIVISION
SUMMARY

Land Use	Density Range (du/Ac)	Assumed Density (du/Ac)	Area (acre)	Estimated Dwelling Units
Residential				
Ag/Vineyard Planning Area	0 - 0.05	0.05	4,882	244
Estate 20	0 - 0.05	0.05	0	0
Estate 10	0.05 - 0.10	0.075	29	2
Estate 5	0.10 - 0.20	0.15	31,848	4,777
Estate 2	0.20 - 0.50	0.35	0	0
Very Low Density	0.50 - 1	0.75	169	127
Low Density	1 - 2	1.5	5	7
Medium Density	2 - 5	3.5	1,609	5,633
Medium High Density	2 - 8	6.5	268	1,744
High Density	8 - 16	11	0	0
Multi-Family	-	20	93	1,857
Commercial	N/A	N/A	221	
Business Park / Industrial	N/A	N/A	3	
Public/Freeway			35	
Open Space - Native	N/A	N/A	8,989	
Open Space - Recreational	N/A	N/A	576	
CCSA [1]	N/A	N/A	1,391	69
TOTAL (excluding CCSA)			**48,728**	**14,392**
TOTAL (including CCSA)			**50,119**	**14,461**

[1] CCSA = Contemplated Contract Service Area, not within RCWD defined service area.

TABLE 3.4
RANCHO CALIFORNIA WATER DISTRICT
WATER FACILITIES MASTER PLAN UPDATE

Projected Ultimate Land Use Summary

RANCHO DIVISION
SUMMARY

Land Use	Density Range (du/Ac)	Assumed Density (du/Ac)	Area (acre)	Estimated Dwelling Units
Residential				
Ag/Vineyard Planning Area	0 - 0.05	0.05	7,855	393
Estate 20	0 - 0.05	0.05	243	12
Estate 10	0.05 - 0.10	0.075	3,720	279
Estate 5	0.10 - 0.20	0.15	9,109	1,366
Estate 2	0.20 - 0.50	0.35	3,483	1,219
Very Low Density	0.50 - 1	0.75	408	306
Low Density	1 - 2	1.5	148	222
Medium Density	2 - 5	3.5	2,828	10,197
Medium High Density	2 - 8	6.5	6,448	41,912
High Density	8 - 16	11	147	1,620
Multi-Family	-	20	574	11,474
Commercial	N/A	N/A	2,862	
Business Park / Industrial	N/A	N/A	2,839	
Public/Freeway			64	
Open Space - Native	N/A	N/A	7,381 [2]	
Open Space - Recreational	N/A	N/A	2,768	
CCSA [1]	N/A	N/A	5,391	423
TOTAL (excluding CCSA)			**50,878**	**69,001**
TOTAL (including CCSA)			**56,269**	**69,424**

[1] CCSA = Contemplated Contract Service Area, not within RCWD defined service area.

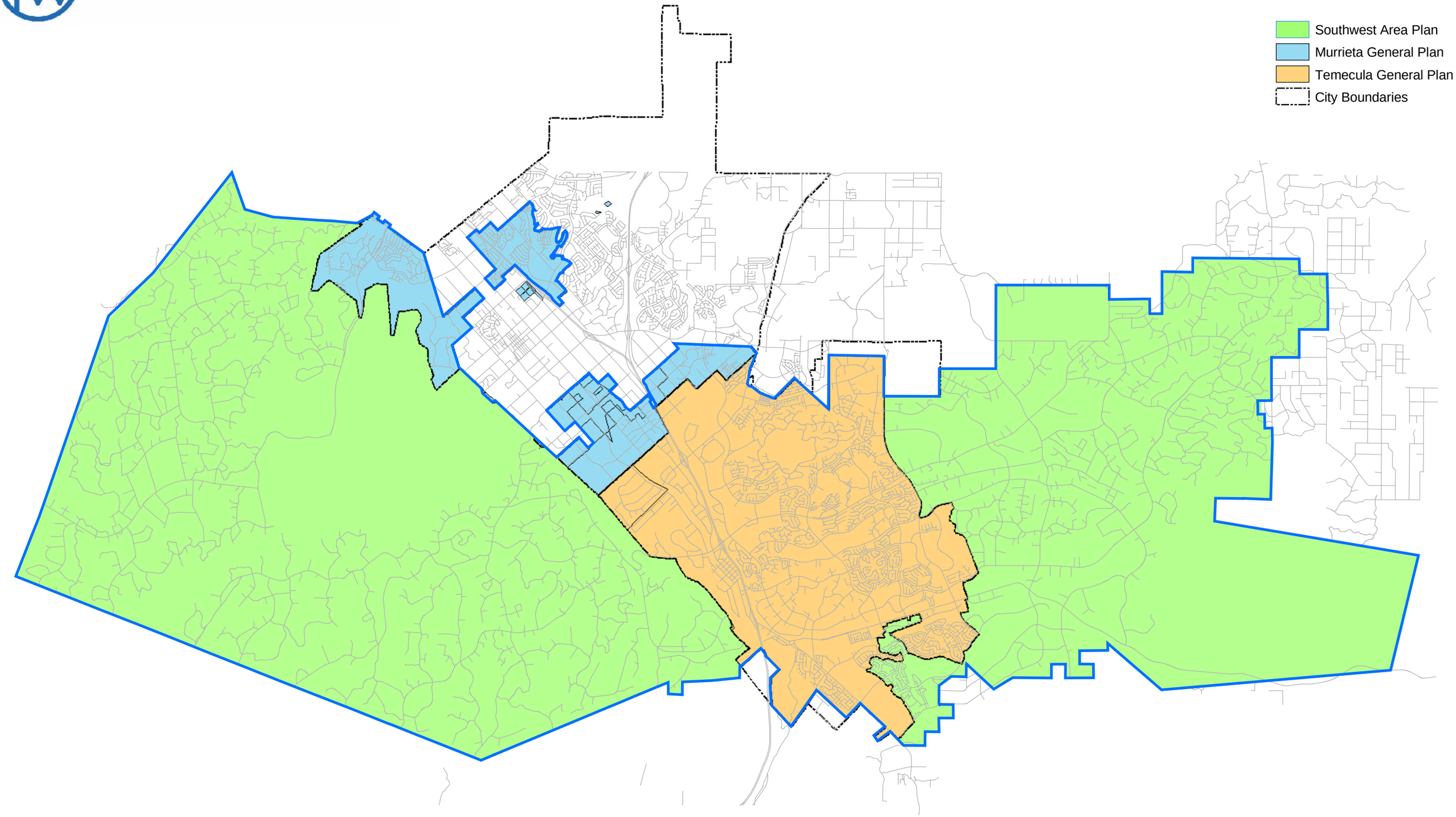
[2] Includes 6,854 acres of Vail Lake Policy Area assumed to remain native after the proposed development of medium density residential.

TABLE 3.5
RANCHO CALIFORNIA WATER DISTRICT
WATER FACILITIES MASTER PLAN UPDATE

Comparison of Ultimate Projected Land Use

Land Use	1997 MASTER PLAN UPDATE	2005 WFMP UPDATE
Residential		
Ag/Vineyard Planning Area	17,586 Ac	637 DU
Estate 20	-- DU	12 DU
Estate 10	-- DU	281 DU
Estate 5	-- DU	6,144 DU
Estate 2	-- DU	1,219 DU
Very Low Density	9,094 DU	433 DU
Low Density	207 DU	230 DU
Medium Density	32,228 DU	15,830 DU
Medium High Density	1,215 DU	43,657 DU
High Density	21,048 DU	1,620 DU
Multi-Family	-- DU	13,331 DU
Commercial	1,392 Ac	3,083 Ac
Business Park / Industrial	3,692 Ac	2,842 Ac
Public/Freeway	-- Ac	99 Ac
Open Space - Native	10,527 Ac	16,370 Ac
Open Space - Recreational	1,329 Ac	3,344 Ac

Land Use Reference Map



RBF CONSULTING

0 5,000 10,000 Feet

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Figure 3-1

Projected Land Use Map

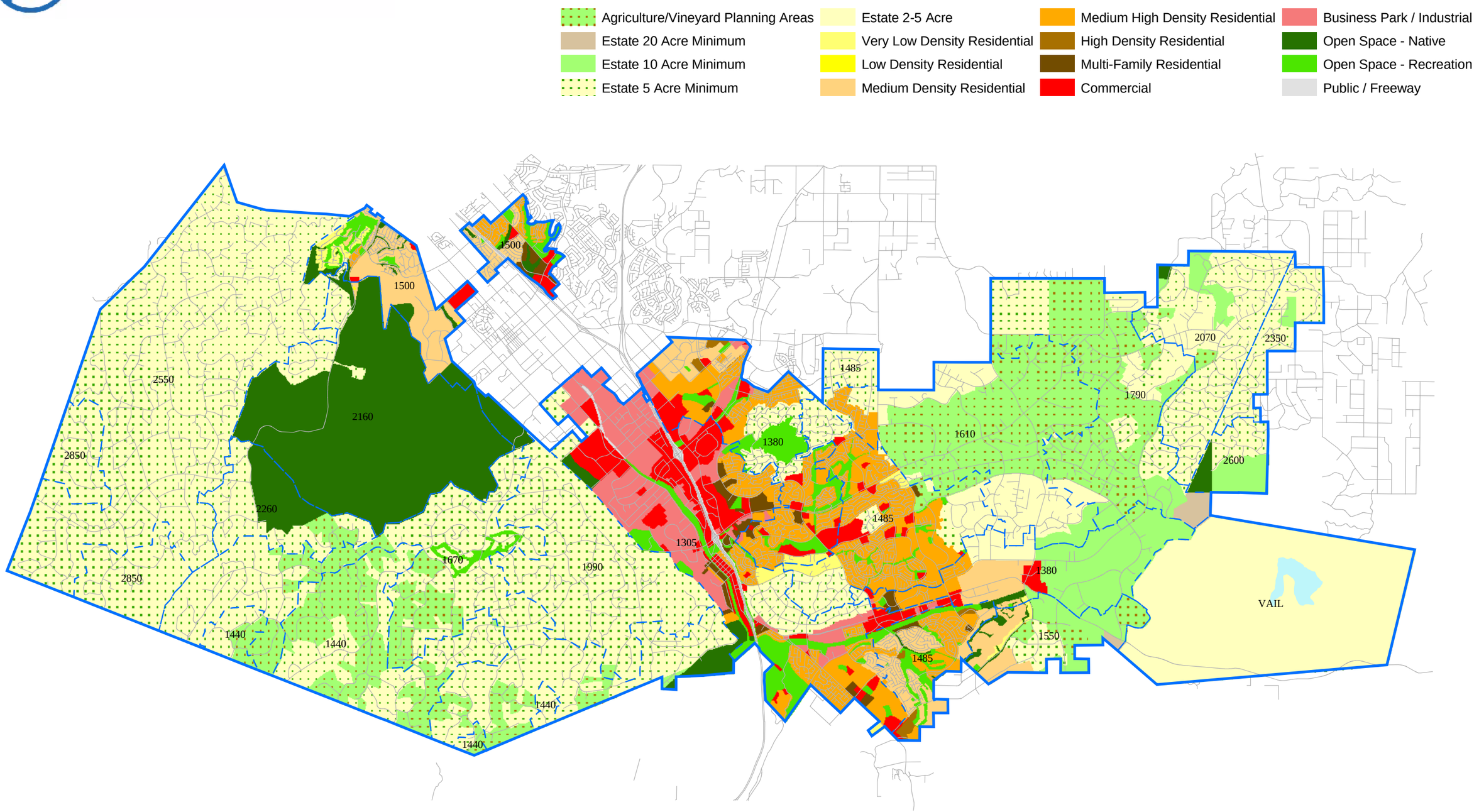

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Figure 3-2

Chapter 4

WATER DEMANDS

4.1 Historic Water Use

Figure 4-1 graphically illustrates the historic annual water production from FY 1993-'94 through FY 2003-'04 for the Rancho Division, Santa Rosa Division and RCWD as a whole. This time period reveals an increase in total District water production from 47,100 acre-feet (AF) to 83,400 AF, including recycled water production, for the eleven year span.

Water production in the Santa Rosa Division underwent rapid increase during the period from 1977 to 1985 as thousands of acres of avocado groves were cultivated. Water production increased from about 4,000 AF in 1977 to 22,000 AF in 1985. Since 1986 the demand within the Santa Rosa Division has leveled off considerably due to increased water rates and a decrease in agricultural use, and is currently at a total of 38,200 AF for FY 2003-'04. In the Rancho Division, water production increased steadily from about 9,000 AF in 1977 to 45,200 AF in FY 2003-'04.

Traditionally, water consumption within the District has been predominantly from agricultural uses. However, this trend has been declining in recent years. As an example, the 1997 WFMP Update projected the ultimate land use make-up of the District would include almost 17,500 acres of agriculture and vineyard uses, and this Update projects that figure at 12,700 acres. To further illustrate, the percent breakdown has been calculated for existing Agricultural (Ag), Ag/Domestic, Residential and Other water uses for the District as a whole and each division, as follows:

Land Use Category	RCWD		Santa Rosa		Rancho	
	1996	2003	1996	2003	1996	2003
Agricultural	44%	38%	73%	70%	19%	6%
Ag/Domestic	7%	8%	7%	10%	6%	6%
Residential	28%	47%	11%	17%	43%	78%
Other	21%	7%	9%	3%	32%	10%

Figure 4-2 is an illustration of the four land use categories for calendar year 2003 water consumption. As described in the following subsections, the trend towards residential development is indicated with an ultimate projected demand of approximately 66 percent of the total domestic water demand. This represents an increase from 54 percent projection in the 1997 WFMP Update.

Due to the high level of irrigation throughout the District, for both recreation and agriculture, rainfall has an affect on water demand and the corresponding

need for water production. Because of this, Figure 4-3 was developed to illustrate rainfall affects on required water production. As the figure shows, the side-by-side comparison of water production and rainfall for the Temecula area verifies a distinct inverse relationship, and also demonstrates the relatively low rainfall of recent years. Accordingly, Figure 4-4 illustrates the projected water production, which is largely influenced by the low rainfall totals for the last six years. Therefore, the possible range of future water production requirements should not be based on average rainfall. Since rainfall for the last six years has been *below* average, it can be reasoned that production has been *above* average with the projected production curve favoring the high end of the range. For the purposes of this master plan, production projection is taken as 25 percent above and 75 percent below.

It is anticipated that water production requirements in the year 2025 will be approximately 129,500 AF excluding CCSAs, and 140,100 AF including CCSAs.

4.2 Water Duty Factors

Water usage trends of the various land uses within the District were last studied for he 1990 WFMP. Several development projects have been completed and conservation habits encouraged since then. Therefore, a thorough water duty factor analysis was performed for the 2005 Master Plan Update. Billing data for the full 2002 and 2003 calendar year was provided by District customer service staff. The major land uses established for this Update were matched with the billing meter designations to calculate the current trend of water usage based on land use. The investigation determined the need to revise the District's water usage duty factors in order to more accurately estimate future water consumption.

With the adoption, for this master plan update, of the 'estate' residential land use densities to better define the imminent conversion of much of the agricultural land uses to large-lot residential (from 2-acre minimum up to 20-acre minimum, based on the 2003 Southwest Area Plan), a significantly reduced water demand can be expected. The water consumption habits of existing large-lot residential customers shows a much lower water usage can be expected when these historic agricultural uses are converted to estates. In addition, it is more appropriate in most areas to estimate these demands on a per-dwelling-unit basis rather than per acre. In addition, the analysis showed distinctly different usage trends among the higher density residential. These showed justification for modifying the duty factors from 400 gpd per dwelling unit 1,500 gpd per dwelling unit. Table 4.1 summarizes the resulting water duty factors for each land use category for the 2005 WFMP Update.

TABLE 4.1 WATER DUTY FACTORS	
Land Use	**Duty Factor**
Residential	
Ag/Vineyard Planning Areas	[1]
Estate 20	0.75 AF / ac / yr
Estate 10	0.75 AF / ac / yr
Estate 5	[2]
Estate 2	[2]
Very Low Density	3,000 gpd / du
Low Density	1,500 gpd / du
Medium Low Density	1,000 gpd / du
Medium Density	800 gpd / du
Medium High Density	400 gpd / du
High Density	400 gpd / du
Commercial	1,500 gpd / ac
Business Park / Industrial	1,500 gpd / ac
Public / Freeway	1.5 AF / ac / yr
Open Space - Native	0
Open Space – Recreational	4.0 AF / ac / yr
CCSA [3]	--

[1] Varied between the Santa Rosa Division (2.5 AF/Ac/Yr) and the Rancho Division (1.5 AF/Ac/Yr).
[2] Varied between District Divisions. Updated Duty Factor equals 3,000 gpd/du for all Santa Rosa zones except 1990, 1670, and 1440 where the factor equals 0.75 AF/Ac/Yr. All Rancho zones factor equal 2,000 gpd/du.
[3] CCSA = Contemplated Contract Service Areas, outside of District boundary and sphere.

4.3 System Peaking Factors

System peaking factors of the various pressure zones operated by the District were last studied for the 1990 WFMP. Several development projects have been completed and conservation habits encouraged since then, potentially affecting water demand peaking characteristics. The previous (1990) analysis concluded that the maximum day peaking factor tends to vary according to the proportion of agricultural and residential use within that zone as well as with the total demand within the zone, and that high agricultural water demands tended to show signs of higher peaking. This trend will be less significant with the conversion of more agricultural lands to residential. Therefore, a peaking analysis was performed for each pressure zone for the 2005 Master Plan Update.

Two types of maximum-day peaks should be considered – individual pressure zone peaks and overall District peaks. Individual pressure zone analysis should use the unique peaking factor determined for that particular pressure zone. This section provides a guideline for standard system analysis to determine the affects on a single pressure zone by independent peaking within each zone. As billing data for actual water consumption cannot record daily peaks to reveal maximum-day demands (meters typically read on a monthly basis), water production data was used to investigate maximum daily demands for each individual pressure zone.

Daily water production data for calendar years 2001, 2002 and 2003, are critical in determining pressure zone pumping requirements, pipeline sizes, and tank storage volume for each specific pressure zone. The data was presented by pressure zone and showed that maximum-day zone production typically occurred in August or September. These independent, or "cherry-picked", maximum water production values were deemed critical for establishing the maximum-day peaking factors for planning purposes for the distribution systems of the individual pressure zones. Extraordinarily high peaking factors were observed in a few of the pressure zones, and were reasoned to be due to high construction activity or a low-water demand zone (low water demand areas exhibit much higher demand fluctuations than high demand areas).

Since, for the purposes of hydraulic analysis for the 2005 Master Plan Update, the overall system was analyzed in a single model (as described in a later Section) and, thus, a single peaking value for the entire District was more appropriate. This inter-dependent, or "same-day", maximum water production value was determined by investigation of the overall system. The single maximum day for each calendar year was calculated as follows:

Year	District Maximum-day Peaking Factor
2001	2.27
2002	1.99
2003	2.33
Average	**2.2**

These years should be considered appropriate for calculation of a somewhat conservative maximum-day peaking factor, considering the high level of construction activity that could be expected to continue for several more years. Appendix B includes the tables detailing the calculations of the maximum-day ratios for individual pressure zone peak values ("cherry-picked") and overall District peak values ("same-day"). Table 4.2 is a summary of the recommended maximum day demand peaking factors to adopt for the 2005 WFMP Update.

Table 4.2
Peaking Factors

Pressure Zone	Maximum-day "Cherry-Picked"	Maximum-day "Same-Day"
Santa Rosa Division		
2850	3.0	2.2
2550	3.0	2.2
2260	2.75	2.2
2160	3.0	2.2
1990	2.75	2.2
1670	2.75	2.2
1500	2.0	2.2
1440	3.0	2.2
Rancho Division		
Vail Lake	3.0	2.2
2600	3.0	2.2
2350	3.0	2.2
2070	2.5	2.2
1790	2.5	2.2
1610	2.5	2.2
1550	3.0	2.2
1485	2.0	2.2
1380	2.0	2.2
1305	2.0	2.2

4.4 Projected Ultimate Water Demand

Based on the projected ultimate land use outlined in Chapter 3 and the duty factors discussed above, the projected ultimate water demands within Rancho California Water District are presented in Table 4.3. The estimated ultimate average annual and maximum-day District-wide domestic water demand is 129,500 acre-feet and 393 cfs. This is illustrated in the water production projection curve shown in Figure 4-4.

Table 4.4 summarizes the projected demands in the Santa Rosa Division. The estimated ultimate average annual and maximum-day Santa Rosa division domestic water demand is 42,300 acre-feet and 128 cfs. The detailed demand calculations for each pressure zone in the Santa Rosa Division are included in Appendix B. Figure 4-5 indicates the pressure zone locations.

Table 4.5 summarizes the projected demands in the Rancho Division. The estimated ultimate average annual and maximum-day Rancho division domestic water demand is 87,300 acre-feet and 265 cfs. The detailed demand calculations for each pressure zone in the Rancho Division are included in Appendix B. Figure 4-5 indicates the pressure zone locations.

It should be noted that these projections assume one hundred percent buildout based on the Southwest Area Plan, the City of Temecula General Plan and the City of Murrieta General Plan. As such, they should provide a conservative guideline for planning of future distribution facilities so long as projected land uses do not change significantly. Table 4.6 compares these new demand estimates to those prepared for the 1997 WFMP Update.

Table 4.8 summarizes the projected demands of the contemplated contract service areas. The CCSA areas have been shown previously in Figure 2-2 but are further explained in Table 4.8. The estimated maximum-day CCSA domestic water demand is 32 cfs.

TABLE 4.3
RANCHO CALIFORNIA WATER DISTRICT
WATER FACILITIES MASTER PLAN UPDATE

Summary of Projected Ultimate Domestic Water Demands

	DISTRICT-WIDE SUMMARY					
Land Use	**Domestic Water Use Area (acre)**	**Estimated Dwelling Units**	**Updated Duty Factor**	**[1] Average Annual Water Demand (ac-ft/yr)**	**(cfs)**	**[1] Maximum Day Water Demand (cfs)**
Residential						
Ag/Vineyard Planning Area	12,737	637	-	23,987	33.13	72.89
Estate 20	243	12	0.75 af/ac/yr	183	0.25	0.55
Estate 10	3,749	281	0.75 af/ac/yr	2,812	3.88	8.54
Estate 5 [3]	40,957	6,144	-	22,780	31.46	69.22
Estate 2 [3]	3,483	1,219	-	2,732	3.77	8.30
Very Low Density	577	433	3,000 gpd/du	1,456	2.01	4.42
Low Density	153	230	1,500 gpd/du	386	0.53	1.17
Medium Density	4,438	15,830	1,000 gpd/du	17,734	24.49	53.89
Medium High Density	6,716	43,657	800 gpd/du	39,127	54.04	118.89
High Density	147	1,620	400 gpd/du	726	1.00	2.21
Multi-Family	667	13,331	400 gpd/du	5,974	8.25	18.15
Commercial	3,083		1,500 gpd/ac	5,180	7.16	15.74
Business Park / Industrial	2,842		1,500 gpd/ac	4,776	6.60	14.51
Public/Freeway	99		1.5 af/ac/yr	149	0.21	0.29
Open Space - Native	16,370		0	-	-	
Open Space - Recreational	386		4.0 af/ac/yr	1,545	2.13	4.69
CCSA [2]	6,782	492		10,534	14.55	32.01
TOTAL (excluding CCSA)	**96,648**	**83,393**		**129,545**	**178.93**	**393.48**
TOTAL (including CCSA)	**103,431**	**83,885**		**140,079**	**193.48**	**425.49**

[1] Excludes acres and estimated water demands for irrigation areas ultimately planned for recycled water service.

[2] CCSA = Contemplated Contract Service Area, outside of District boundary and sphere; demands calculated on separate table.

[3] Updated Duty Factor equals 3,000 gpd/du for all SR zones except 1990, 1670, and 1440 where the factor equals 0.75 af/ac/yr.

TABLE 4.4
RANCHO CALIFORNIA WATER DISTRICT
WATER FACILITIES MASTER PLAN UPDATE

Summary of Projected Ultimate Domestic Water Demands

SANTA ROSA DIVISION
SUMMARY

Land Use	Domestic Water Use Area (acre)	Estimated Dwelling Units	Updated Duty Factor	[1] Average Annual Water Demand (ac-ft/yr)	[1] Average Annual Water Demand (cfs)	[1] Maximum Day Water Demand (cfs)
Residential						
Ag/Vineyard Planning Area	4,882	244	2.5 af/ac/yr	12,206	16.86	37.09
Estate 20	0	0	0.75 af/ac/yr	0	0.00	0.00
Estate 10	29	2	0.75 af/ac/yr	22	0.03	0.07
Estate 5 [3]	31,848	4,777	-	19,719	27.24	59.92
Estate 2 [3]	0	0	-	0	0.00	0.00
Very Low Density	169	127	3,000 gpd/du	427	0.59	1.30
Low Density	5	7	1,500 gpd/du	12	0.02	0.04
Medium Density	1,609	5,633	1,000 gpd/du	6,310	8.72	19.18
Medium High Density	268	1,744	800 gpd/du	1,563	2.16	4.75
High Density	0	0	400 gpd/du	0	0.00	0.00
Multi-Family	93	1,857	400 gpd/du	832	1.15	2.53
Commercial	221		1,500 gpd/ac	371	0.51	1.13
Business Park / Industrial	3		1,500 gpd/ac	5	0.01	0.01
Public/Freeway	35		1.5 af/ac/yr	53	0.07	0.00
Open Space - Native	8,989		0	-	-	-
Open Space - Recreational	184		4.0 af/ac/yr	736	1.02	2.24
CCSA [2]	1,391	69		3,468	4.79	10.54
TOTAL (excluding CCSA)	**48,336**	**14,392**		**42,256**	**58.36**	**128.24**
TOTAL (including CCSA)	**49,727**	**14,461**		**45,724**	**63.15**	**138.78**

[1] Excludes acres and estimated water demands for irrigation areas ultimately planned for recycled water service.

[2] CCSA = Contemplated Contract Service Area, outside of District boundary and sphere; demands calculated on separate table.

[3] Updated Duty Factor equals 3,000 gpd/du for all SR zones except 1990, 1670, and 1440 where the factor equals 0.75 af/ac/yr.

TABLE 4.5
RANCHO CALIFORNIA WATER DISTRICT
WATER FACILITIES MASTER PLAN UPDATE

Summary of Projected Ultimate Domestic Water Demands

RANCHO DIVISION
SUMMARY

Land Use	Domestic Water Use Area (acre)	Estimated Dwelling Units	Updated Duty Factor	[1] Average Annual Water Demand (ac-ft/yr)	[1] Average Annual Water Demand (cfs)	[1] Maximum Day Water Demand (cfs)
Residential						
Ag/Vineyard Planning Area	7,855	393	1.5 af/ac/yr	11,782	16.27	35.80
Estate 20	243	12	0.75 af/ac/yr	183	0.25	0.55
Estate 10	3,720	279	0.75 af/ac/yr	2,790	3.85	8.48
Estate 5	9,109	1,366	2,000 gpd/du	3,061	4.23	9.30
Estate 2	3,483	1,219	2,000 gpd/du	2,732	3.77	8.30
Very Low Density	408	306	3,000 gpd/du	1,028	1.42	3.13
Low Density	148	222	1,500 gpd/du	374	0.52	1.14
Medium Density	2,828	10,197	1,000 gpd/du	11,423	15.78	34.71
Medium High Density	6,448	41,912	800 gpd/du	37,563	51.88	114.14
High Density	147	1,620	400 gpd/du	726	1.00	2.21
Multi-Family	574	11,474	400 gpd/du	5,142	7.10	15.62
Commercial	2,862		1,500 gpd/ac	4,809	6.64	14.61
Business Park / Industrial	2,839		1,500 gpd/ac	4,771	6.59	14.50
Public/Freeway	64		1.5 af/ac/yr	96	0.13	0.29
Open Space - Native	7,381		0	-	-	
Open Space - Recreational	202		4.0 af/ac/yr	809	1.12	2.46
CCSA [2]	5,391	423		7,066	9.76	21.47
TOTAL (excluding CCSA)	**48,312**	**69,001**		**87,289**	**120.56**	**265.24**
TOTAL (including CCSA)	**53,703**	**69,424**		**94,355**	**130.32**	**286.71**

[1] Excludes acres and estimated water demands for irrigation areas ultimately planned for recycled water service.

[2] CCSA = Contemplated Contract Service Area, outside of District boundary and sphere; demands calculated on separate table.

TABLE 4.6
RANCHO CALIFORNIA WATER DISTRICT
WATER FACILITIES MASTER PLAN UPDATE

Comparison of Ultimate Domestic Water Demand Projections
(Average Annual Demand)

Pressure Zone	1997 Master Plan Update		2005 WFMP Update [1]		Change Quantity	Change %	
Santa Rosa Division							
2850	927	AF	1,214	AF	287	31	%
1550	3,992	AF	6,412	AF	2,420	61	%
2260	831	AF	1,111	AF	280	34	%
2160	642	AF	371	AF	-271	-42	%
1990	4,511	AF	3,771	AF	-740	-16	%
1670	13,441	AF	11,873	AF	-1,568	-12	%
1500	5,166	AF	9,469	AF	4,303	83	%
1440	5,939	AF	7,982	AF	2,043	34	%
Santa Rosa Subtotal	35,449	AF	42,256	AF	6,807	19	%
Rancho Division							
Vail	3,971	AF	3,546	AF	-425	-11	%
2600	274	AF	432	AF	158	58	%
2350	403	AF	444	AF	41	10	%
2070	1,158	AF	1,754	AF	596	51	%
1790	4,928	AF	6,363	AF	1,435	29	%
1610	6,929	AF	8,839	AF	1,910	28	%
1550	1,479	AF	3,159	AF	1,680	114	%
1485	14,238	AF	21,567	AF	7,329	51	%
1380	10,463	AF	20,836	AF	10,373	99	%
1305	22,843	AF	20,349	AF	-2,494	-11	%
(1540)	1,554	AF	-	[2]	-	-	
Rancho Subtotal	68,240	AF	87,289	AF	19,049	28	%
DISTRICT TOTAL	**103,689**	**AF**	**129,545**		**25,856**	**25**	**%**

[1] Does not include CCSA demands.

4.5 Non-Domestic Water

The 2005 WFMP Update includes an update to the non-domestic water system master plan and revisions to the land uses anticipated to include major irrigation demands, as provided from the recent city and county general plans. The potential service areas include various types of open space recreational uses such as golf courses and sports parks, as well as community parks, schools and freeway landscaping.

The District began construction of a regional recycled water transmission and distribution system in the early 1990s. The regional system is complete, and is capable of serving the major irrigation uses within the 1305, 1380, 1485 and 1500 Zone service areas. These Class I demands are the areas deemed most feasible to serve, and either recently retrofitted for non-domestic water service, or slated to be retrofitted. Class II demands have been identified as potentially feasible depending on future water supply scenarios and the cost to distribute recycles water.

Table 4.7 summarizes the land uses and projected recycled water demands. As shown, the potential average annual non-domestic water demand is approximately 11,200 AF based on the demands identified as Class I. Figure 4-6 illustrates the total potential non-domestic water use areas.

Table 4.7
RANCHO CALIFORNIA WATER DISTRICT
WATER FACILITIES MASTER PLAN UPDATE

Estimated Ultimate Non-domestic Water Demands

Domestic Water Zone Service area	Land Use Type	Acres	Average (Ac-ft/yr)	Average (cfs)	Max Day (cfs)
Class I					
1500	OS - Recreational	**392**	**1,568**	**2.17**	**4.76**
1485	OS - Recreational	**566**	**2,264**	**3.13**	**6.88**
1380	OS - Recreational	**753**	**3,012**	**4.16**	**9.15**
1305	OS - Recreational	**1,005**	**4,020**	**5.55**	**12.22**
1305	Public/Freeway	**242**	**363**	**0.50**	**1.10**
Subtotal Class I		**2,958**	**11,227**	**15.51**	**34.12**
Class II					
1670	OS - Recreational	184	736	1.02	2.24
1610	Ag/Vineyard PA	2,300	3,450	4.77	10.48
Subtotal Class II		**2,484**	**4,186**	**5.78**	**12.72**

Class I = landscape irrigation areas in proximity to the the District's existing non-domestic water distribution system.
Class II = more remote irrigation areas, including Agriculture/Vineyard and Walker Basin Golf Course, which were determined potentially feasible to be served from the existing non-domestic water distribution system.

TABLE 4.8
RANCHO CALIFORNIA WATER DISTRICT
WATER FACILITIES MASTER PLAN UPDATE

Water Demand Summary Based on 2004 Master Plan Update Land Use Designations
Contemplated Contract Service Areas

CCSA	Description	Proposed RCWD Pressure Zone	General Plan Land Use	Acres	Duty Factor [1]	Assumed Density (du/acre)	Average (gpd)	Average (cfs)	Max Day (cfs) [2]	Peak Hour (cfs) [2]
1	South of Santa Rosa	1440	OS - Native	3.4	0.0	-	-	-	-	-
	(WMWD-South Area)		Ag/Vineyard PA	1,387.9	2.5 AF/Ac/Yr	0.05	3,097,824	4.79	10.54	
	CCSA 1 Sub Total:			**1,391.2**			**3,097,824**	**4.79**	**10.54**	**15.81**
2	I.D. "A" (Rainbow)	1305	Public/Fwy	178.2	0.0	-	-	-	-	-
	(WMWD-Rainbow Gap)		BP/Industrial	53.8	1,500.0 gpd/Ac	-	80,700	0.12	0.27	
			Res - Med high	40.0	800.0 gpd/du	6.50	208,208	0.32	0.71	
			OS - Native	2.6	0.0	-	-	-	-	-
			OS - Rec.	46.5	4.0 AF/Ac/Yr	-	165,889	0.26	0.56	
			Estate 20	18.0	0.75 AF/Ac/Yr	0.05	12,026	0.02	0.04	
			Commercial	24.9	1,500.0 gpd/Ac	-	37,335	0.06	0.13	
			Estate 10	384.4	0.75 AF/Ac/Yr	0.075	257,398	0.40	0.88	
			Estate 5	16.4	0.75 AF/Ac/Yr	0.15	10,989	0.02	0.04	
	CCSA 2 Sub Total:			**764.7**			**772,544**	**1.20**	**2.63**	**3.94**
3	Pechanga	1305	Commercial/Golf				2,000,000 [3]	3.09 [3]	6.81	10.21
	CCSA 3 Sub Total:			**275.0**			**2,000,000**	**3.09**	**6.81**	**10.21**
4	Monte Verde/	1485	Commercial	0.3						
	Anza Annex		Res - Low	148.3						
	(Anza Road Area)		Res - Med	160.6			[4]			
			OS - Native	0.4						
	CCSA 4 Sub Total:			**-**			**0**	**0.00**	**0.00**	**0.00**
5	Grey Squirrel	2600	Estate 10	297.2	0.75 AF/Ac/Yr	0.075	199,006	0.31	0.68	
	(Rancho Glen Oaks)		Estate 5	409.8	0.75 AF/Ac/Yr	0.15	274,419	0.42	0.93	
	CCSA 5 Sub Total:			**707.0**			**473,426**	**0.73**	**1.61**	**2.42**
6	Buck Mesa strip	1790	Estate 5	315.8	0.75 AF/Ac/Yr	0.15	211,441	0.33	0.72	
	(EMWD)									
	CCSA 6 Sub Total:			**315.8**			**211,441**	**0.33**	**0.72**	**1.08**
7	Lake Skinner	1790	OS - Rec.	**28.3**	4.0 AF/Ac/Yr	-	100,890	0.16	0.34	
	CCSA 7 Sub Total:			**28.3**			**100,890**	**0.16**	**0.34**	**0.52**
8	WMWD/MCWD	1305	-	3,300.0	-	-	-	4.25	9.36	9.36
	CCSA 8 Sub Total:			**3,300.0** [6]			**2,748,595**	**4.25**	**9.36** [5]	**9.36** [5]
	Total:			**6,782.0**			**9,404,721**	**14.55**	**32.01**	**43.34**

[1] Duty factors based on 2004 RCWD Master Plan Update (draft).
[2] Peaking factors based on 2004 RCWD Master Plan Update draft (average x 2.2 = Max Day, Max Day x 1.5 = Peak Hour.
[3] Represents approximate difference between existing (2004) Pechanga demands and estimated ultimate Pechanga demands based on ultimate land use plan provided by Pechanga Development Corporation. Includes 1.1 MGD average irrigation demand estimate for proposed golf course.
[4] CCSA No. 4 to be annexed into RCWD service area, and included in 1485 Zone domestic water demand estimate.
[5] Based on May 4, 2004 letter from Western Municipal Water District outlined ultimate water supply needs: Annual Demand = 4,400 AFY, Flow Rate = 4,200 gpm.
[6] Based on area provided by RCWD April 7, 2005.

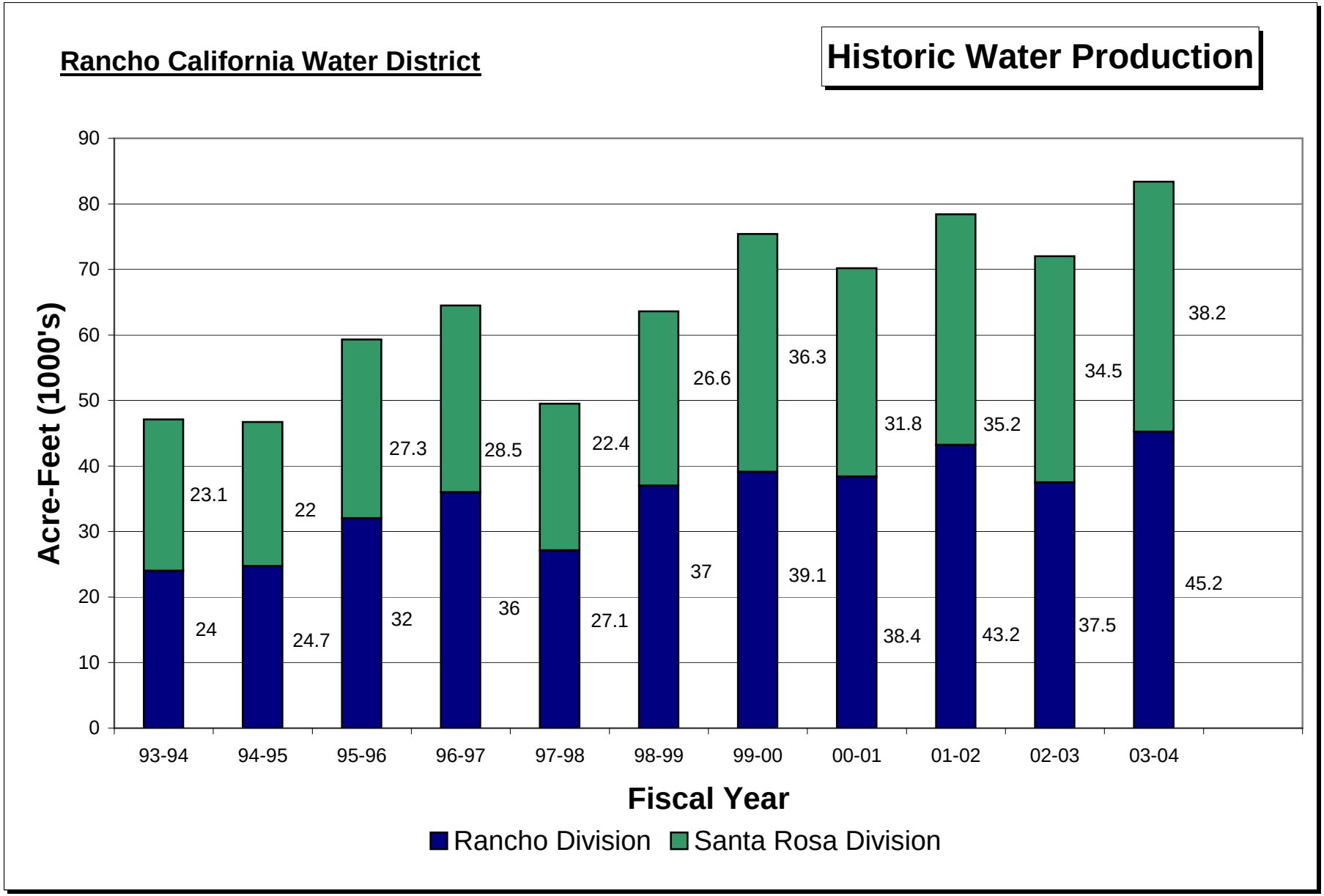
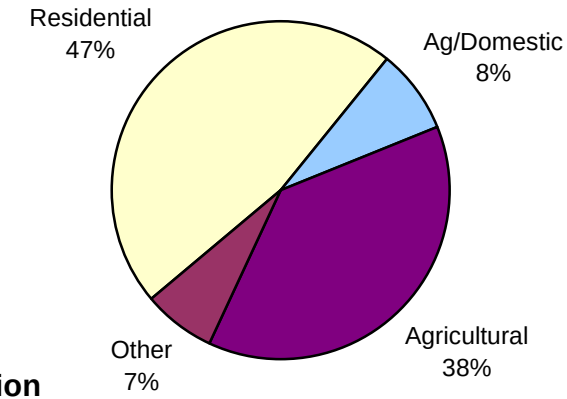

Rancho California Water District
Historic Water Production
Acre-Feet (1000's)
90
80
70
60
50
40
30
20
10
0
23.1
24
22
24.7
27.3
32
28.5
36
22.4
27.1
26.6
37
36.3
39.1
31.8
38.4
35.2
43.2
34.5
37.5
38.2
45.2
93-94
94-95
95-96
96-97
97-98
98-99
99-00
00-01
01-02
02-03
03-04
Fiscal Year
Rancho Division
Santa Rosa Division

FIGURE 4-1

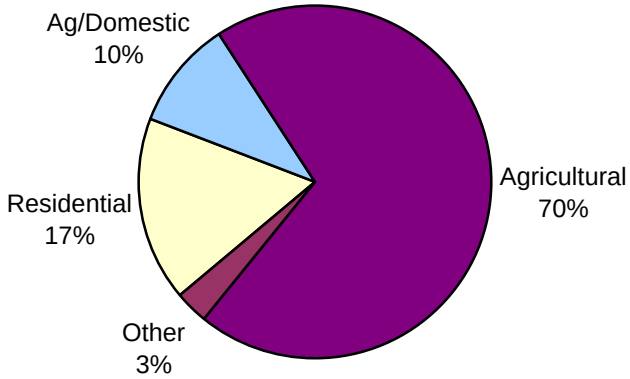
Rancho California Water District

2003 WATER USAGE BY SERVICE TYPE

RCWD



Santa Rosa Division



Rancho Division

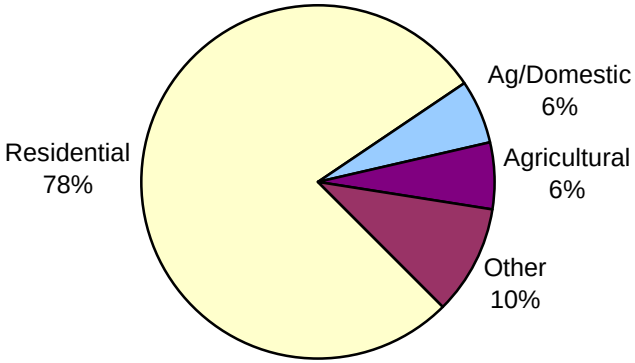


FIGURE 4-2

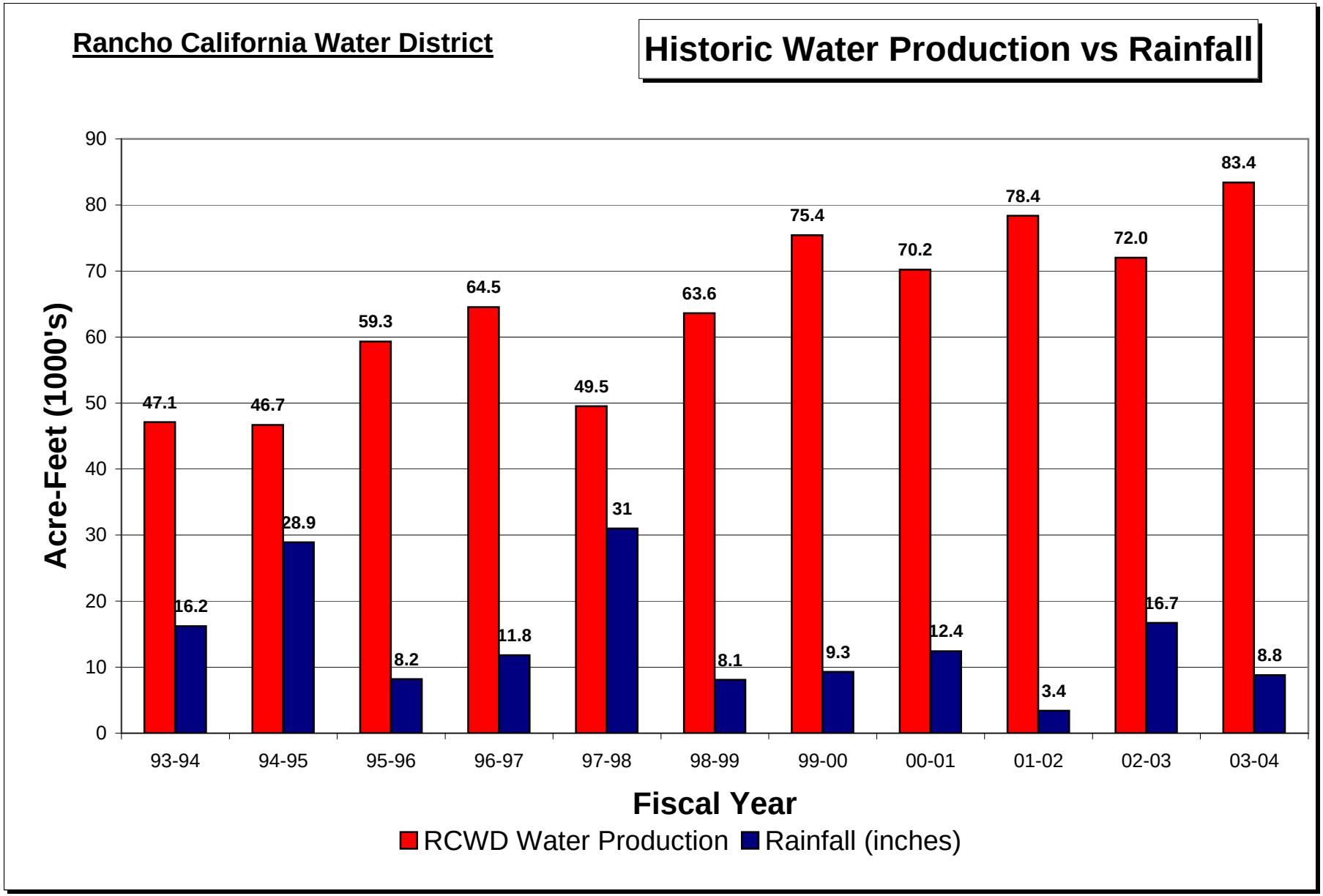
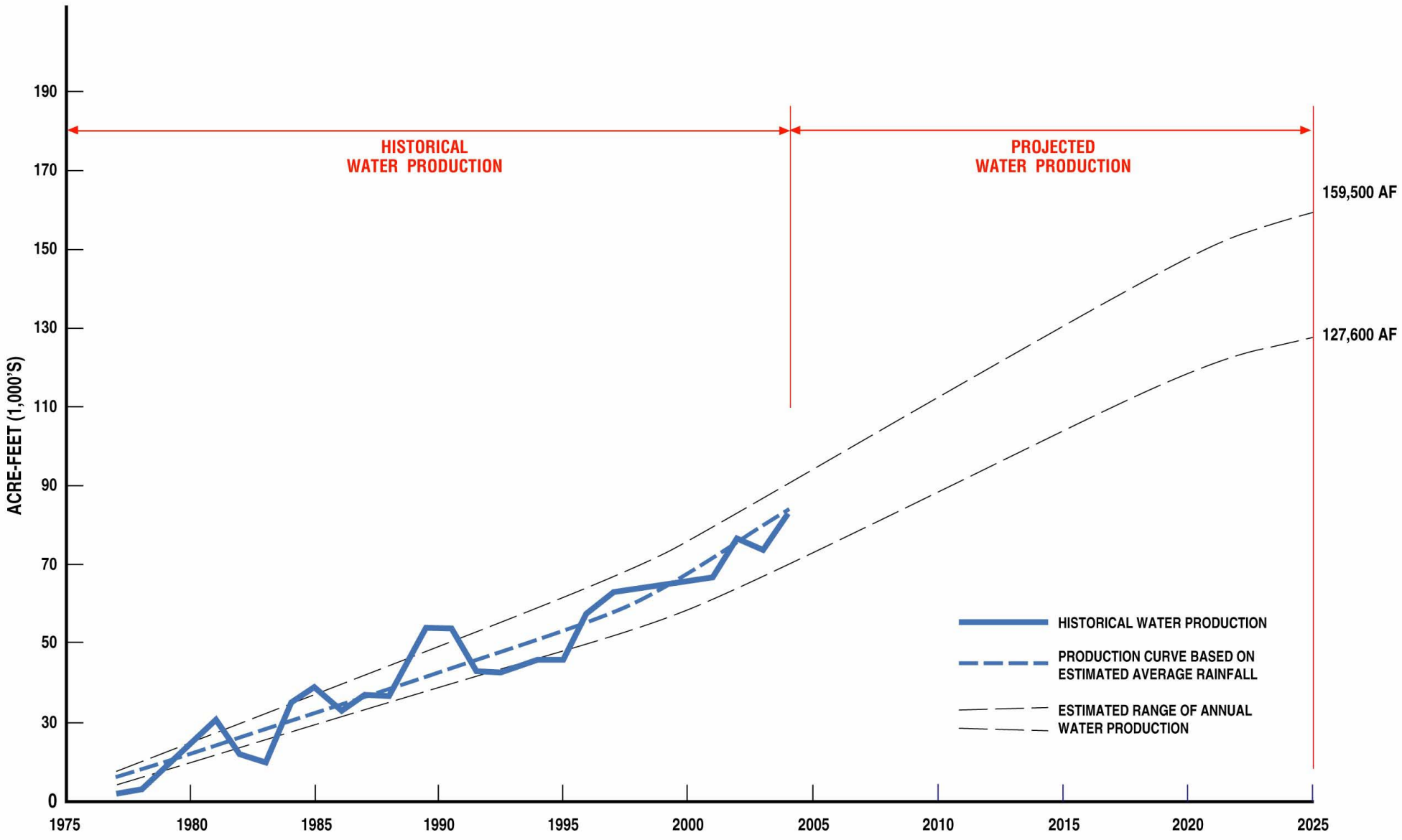

Rancho California Water District
Historic Water Production vs Rainfall
Acre-Feet (1000's)
90
80
70
60
50
40
30
20
10
0
47.1
16.2
46.7
28.9
59.3
8.2
64.5
11.8
49.5
31
63.6
8.1
75.4
9.3
70.2
12.4
78.4
3.4
72.0
16.7
83.4
8.8
93-94
94-95
95-96
96-97
97-98
98-99
99-00
00-01
01-02
02-03
03-04
Fiscal Year
RCWD Water Production
Rainfall (inches)

FIGURE 4-3



RANCHO CALIFORNIA WATER DISTRICT

2005 Master Plan Update
Projections Through Buildout

RBF CONSULTING

4/12/05 JN 65-100064-11325

WATER FACILITIES MASTER PLAN UPDATE

Figure 4-4

Pressure Zones

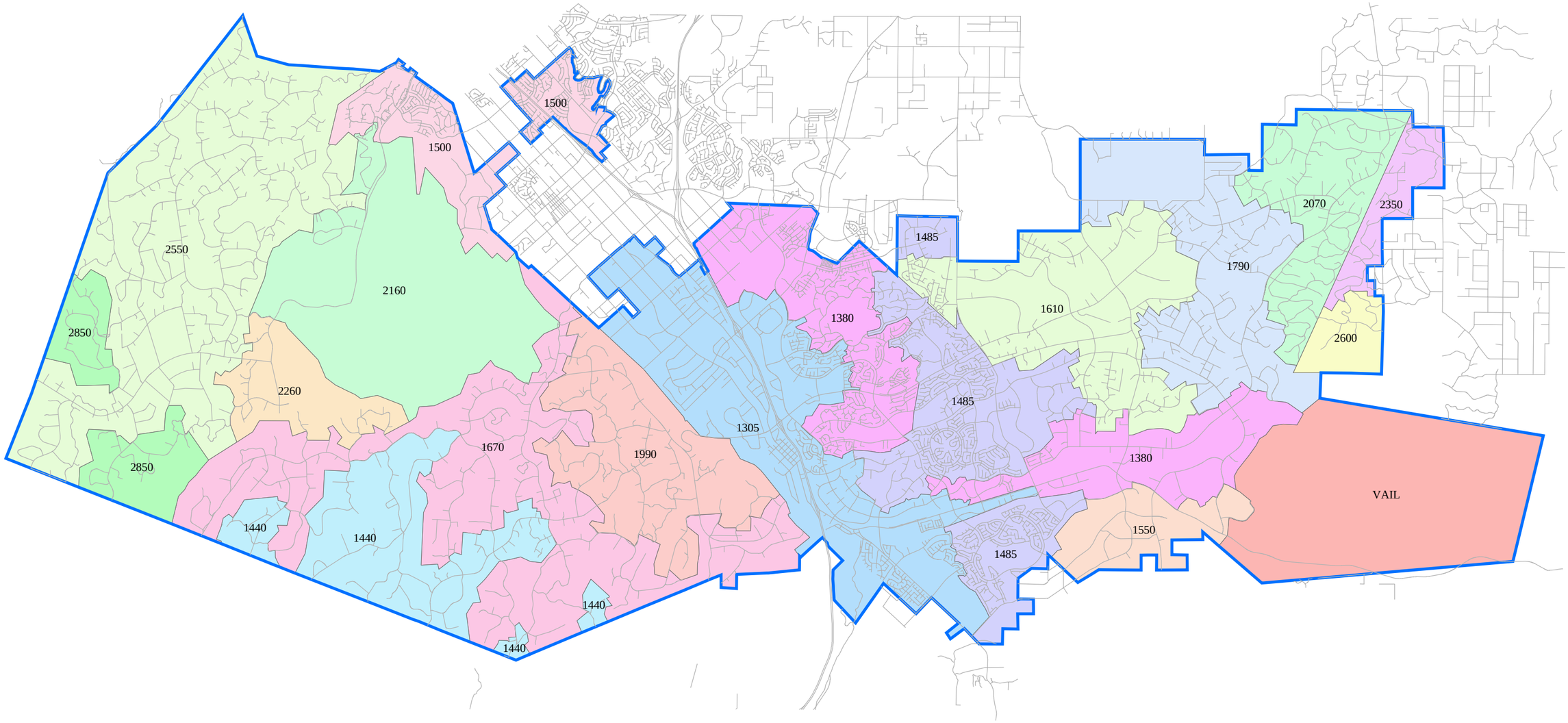


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Figure 4-5

WATER FACILITIES MASTER PLAN

Potential Nondomestic Water Use Map

Class 1 Nondomestic Irrigation Area

Class 2 Nondomestic Irrigation Area

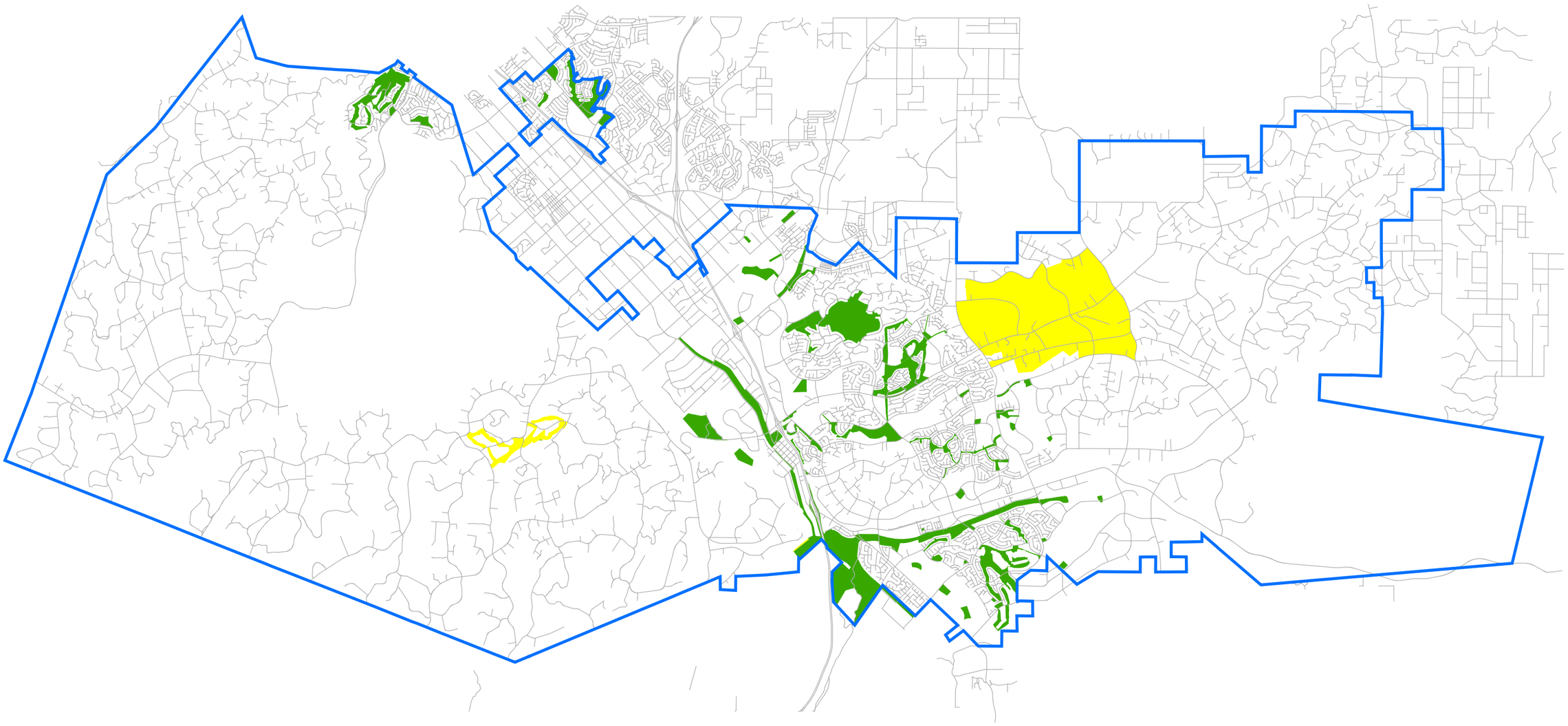

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Figure 4-6

Chapter 5

WATER SUPPLY

5.1 Existing Water Supply Sources

The District currently receives water from local groundwater sources and imported water from the Metropolitan Water District of Southern California (MWD). The previously constructed Pauba Valley Transmission Main in De Portola Road conveys imported MWD raw water to the Valle De Los Caballos (VDC) spreading basin for enhancing groundwater supplies within their conjunctive use program. Treated imported water from MWD has historically been used to supplement the local groundwater sources. In addition, RCWD has been serving major irrigation customers with recycled water. Table 5.1 summarizes the District's historic uses of groundwater, imported water and reclaimed water. Figure 5-1 shows a graphic representation of the historic water usage.

5.1.1 Existing Groundwater Sources

Since its inception, the District has sought to develop its groundwater supply sources to the greatest extent feasible. The District overlies two major aquifers, the Temecula and the Pauba. These aquifers have been the subject of a number of studies over the years. The District regularly updates their Water Facilities Master Plan Update, and is currently preparing a comprehensive integrated water resources plan. In addition, each year the District has prepared a Groundwater Audit and a Recommended Groundwater Production Report (RGPR). The amount of groundwater which can be produced varies due to such factors as rainfall, recharge area and amount and location of well pumping capacity.

The District's rights to use much of its groundwater and the water captured in Vail Lake are defined in a 1940 Stipulated Judgment in the case of Santa Margarita versus Vail and Appropriations Permit 7032 issued by the State Water Resources Control Board. The provisions of those documents have been the subject of dispute between the District and Camp Pendleton.

The District currently operates approximately 60 active groundwater production wells. The total sum design flow delivery from these wells is approximately 210 cfs – 170 cfs from wells producing native groundwater and 40 cfs from groundwater recharge and recovery wells. For master planning purposes, an allowance of 100 cfs capacity for native water is assumed.

5.1.2 Existing Metropolitan Treated Water Turnouts

The Metropolitan Water District of Southern California provides wholesale imported water to the majority of the urban coastal plain of Southern

California. Metropolitan member agencies such as the Eastern Municipal Water District (EMWD) and the Western Municipal Water District (WMWD) purchase water from Metropolitan on behalf of their member agencies. Metropolitan operates a storage and filtration facility at Lake Skinner, just north of RCWD. Three aqueducts, including one raw water (Pipeline No. 5) and two treated water (Nos. 3 and 4), emanate from the Skinner facilities and cross the District en route to San Diego County area users. These importation aqueducts are shown on Figure 5-2.

With the recent completion of the new EM-20 MWDSC Turnout by EMWD and the RCWD, the District currently has capacity for up to 200 cfs (peak flow) of treated water from Pipeline Nos. 3 and 4. WR-26 and WR-28 are each designed to deliver 40 cfs via WMWD, and EM-13 is designed to deliver another 40 cfs via EMWD. Assuming seasonal aqueduct peaking proportional to demand, this is equivalent to an average annual volume of 104,000 AF or 11,000 AF from each of WR-26, WR-28 and EM-13, and 71,000 AF from EM-20. Due to MWDSC System constraints, WR-26 and WR-28 have a reduced summer peak capacity of 65 cfs.

5.1.3 Recycled Water

The RCWD operates a non-domestic water system, which includes pipelines, pumping capacity, distribution storage and seasonal storage facilities. During fiscal 2003-04, the District recycled a total of approximately 4,200 AF for irrigation demands. The District delivers recycled water for irrigation through their recently completed water supply system and multi-zone transmission piping network. The recycled water supply is from tertiary facilities at the Santa Rosa Water Reclamation Facility and the seasonal storage ponds constructed adjacent to the reclamation plant. The recycled water system is discussed in more detail in Chapter 8.

5.2 Projected Ultimate Water Supply Requirements

The projected ultimate average annual potable water demand, as outlined in Chapter 4, is 129,500 acre-feet (179 cfs), and the ultimate average annual Class I non-potable water demand is 11,200 AF (15.5 cfs). The District's fiscal year 2003-04 total water demand was 83,400 AF (115 cfs), with a maximum-day demand estimated at 253 cfs.

Based on currently available groundwater and imported water facilities, the District has an average annual supply capability of 100,000 AF to 150,000 AF, depending on duty time for each of the MWDSC turnouts. In addition, the District can currently meet maximum day flows in excess of 355 cfs. Figures 5-3 and 5-4 illustrate the projected demand and the current supply for average annual and maximum day conditions, respectively. This is expected to be sufficient through the 20-year planning horizon of this Update based on the land use projections of the city and county general plans. However, opportunities exist for the District to develop more

economical water sources by expanding their conjunctive-use program and minimize imported water dependency. Augmenting the existing water supply sources are investigated as part of the WFMP Update and include Vail Lake integration facilities for seasonal storage benefit, expanded water conservation, and Class II irrigation water service in an expanded recycled water system operation.

5.3 Augmented Water Supply Sources

As the District has essentially completed construction of the final water supply source to meet ultimate projected demands, the focus should be on methods to enhance existing source reliability; to, maximize production of local water; and study treatment methods of lower cost untreated (raw) water. The 2005 WFMP Update includes evaluation of the District's conjunctive use program and techniques for expanding the program to include enhancements to the Valle de Los Caballos (VDC) spreading grounds, new treatment facilities, and Vail Lake.

5.3.1 Turnout EM-21

RCWD is currently overseeing the design and construction of a new turnout that will furnish raw water from the proposed MWD Pipeline No. 6. Pipeline No. 6 will be supplied from Lake Skinner that receives a blend of State Project Water and feed from the Colorado River. Turnout EM-21 is currently under design. Construction completion is anticipated in 2006. Pipeline No. 6 is also expected to be on line in 2006.

Turnout EM-21 is sized to accommodate flows from 8 to 80 cubic feet per second (cfs). Hydraulic gradeline at the turnout will range from 1483 feet to 1760 feet. Ground elevation at Turnout EM-21 is approximately 1170 feet, yielding pressures of 135 pounds per square inch (psi) to 255 psi.

5.3.2 Existing Raw Water Supply System

RCWD currently purchases raw water from MWD via Turnout EM-19. Raw water from EM-19 is piped east via De Portola Road to the RCWD Recharge and Recovery System. This system consists of 26 wells and the Upper VDC and Lower VDC Percolation Ponds. The Upper VDC Ponds have an effective recharge area of 113 acres and an estimated maximum recharge capacity of 37,000 acre-feet per year (af/yr). The Lower VDC Ponds have an effective recharge area of 18 acres and a recharge capacity of approximately 6,000 af/yr. Recharge capacities are assumed over an eight-month period to allow four months for basin cleaning and maintenance. RCWD currently takes one pond out of service every three months to disc and scarify (an operation which has a duration of approximately two days).

RCWD designed the system to provide up to 30,000 af/yr of artificial recharge and is currently recharging and recovering raw water at a rate of approximately 17,000 af/yr, or 23.5 cfs. Extracted water is supplied to the

RCWD 1305 Zone. The Upper VDC recovery wells (RCWD Well Nos. 152, 153, 157 and 158) are located in the berms adjacent to the percolation ponds. Figure 5-7 is a schematic diagram showing the Upper Ponds and wells in an expanded recharge and recovery concept.

The DOHS has given RCWD credit for a 2.5 log removal for Giardia and a 2.0 log removal for virus based upon the natural filtration capacity of the surrounding aquifer. The remaining required 2.0 log reduction of virus and 0.5 log reduction of Giardia is achieved by RCWD through chlorine disinfection. The DOHS also requires that a minimum 40 feet depth-to-groundwater be maintained at all times.

RCWD completed a Monitoring Program for the Upper Ponds in 1996 to demonstrate compliance with the 40 feet DOHS rule. In 1999, the RCWD issued its Disinfection Operations Plan for the Upper Ponds. This plan describes the staffing, facilities operating procedures, performance monitoring, reporting procedures and reliability features required for the chlorine disinfection systems utilized at each extraction well.

In 2001, the Initial 12 Months Performance Report was submitted to the DOHS for Wells 153, 157 and 158. It was determined that turbidity and bacteriological raw water requirements were continuously met. The RCWD added Well No. 152 to increase overall extraction capacity and provide additional flexibility to meet the depth to groundwater requirement.

5.3.3 Raw Water Options

Several options were evaluated for accommodating raw water from EM-21. These options are summarized in Figure 5-8 and include:

- Utilize the existing treatment/storage process of percolation followed by extraction and chlorination.
- Route raw water to and from Vail Lake.
- Construct a raw water treatment system to accommodate raw water directly and deliver treated water to the 1305 Zone.
- Make provisions for treatment of well water and Vail Lake discharge at the new treatment facility.

Any option would change the capacity of the existing VDC Recovery Well Project.

5.3.4 Existing Storage and Treatment Systems

The existing percolation, extraction and treatment systems are operating under a plan approved by the DOHS. The approved system requires that well

capacity be sufficient to maintain groundwater level at no less than 40 feet below ground surface and disinfection levels be maintained. Additional raw water discharge to the percolation ponds would necessitate construction of equipment that maintains compliance with the RCWD Operating Plan. The percolation capacity of the existing ponds must not be exceeded.

In 1993, RCWD's hydrogeologist estimated that the Upper Ponds are capable of recharging at a maximum rate of 37,000 af/yr, or 51.1 cfs. The proposed turnout is designed to supply up to 80 cfs. One of the existing ponds (U6) is currently leased to a private company and is not utilized for percolation. This pond is approximately 7 acres with a commensurate spreading capacity of approximately 2,300 af/yr or 3.2 cfs. The lower ponds can accommodate 6,000 af/yr; yielding a net raw water capacity of approximately 62 cfs. The additional 18 cfs would require approximately eight additional acres of percolation ponds to satisfy the maximum application rate established in 1993. Experience since that date has indicated that a higher percolation rate can be achieved in the Upper Ponds. A rate of 2 feet per day (common for soils similar to those of the Upper Ponds) would yield a maximum instantaneous application rate of 114 cfs, well above the EM-21 maximum capacity.

Six to ten additional wells will be necessary to accommodate the additional raw water flow in order to satisfy the 40 feet rule from DOHS. A hydrogeologic model should be performed to more accurately define this number. In addition, each well must be equipped with chloramination facilities to match the existing wells.

5.3.5 Route Flow to Vail Lake

Two options were evaluated for routing flow to Vail Lake – 1) up the existing drainage creek to the lake (northerly route), and 2) within existing public rights-of-way to the lake (southerly route). The existing drainage creek option has the advantage of the shortest length, an estimated 18,750 lineal feet. The option could suffer from environmental restrictions. Erosion potential will necessitate encasement in concrete. The public right-of-way option is over twice as long, at approximately 38,600 lineal feet. Traffic control issues must be resolved, and the end of the route at Vail Lake would require easement acquisition. A 36 inch-diameter pipe is required for the 80 cfs. Figure 5-9 shows the two alternatives.

The minimum design hydraulic gradient at Turnout EM-21 is 1483 feet. Vail Lake has a high water level of 1470 feet. Therefore, a water booster station would be required to lift raw water to Vail Lake when the hydraulic gradient at EM-21 falls below the level required to deliver water by gravity to the lake

Raw water stored in Vail Lake would drain in the creek to the Upper Ponds.

This system would have the added advantage of recharging the groundwater basin between Vail Lake and the Upper Ponds. Several piping options are available at the existing lake discharge system to convey water to and from the lake.

5.3.6 Treatment System

Raw water could be treated to potable water standards and discharged directly to the 1305 Zone. A treatment facility suitable for MWD Water would be required. Two basic options are available for treatment:

- Conventional treatment utilizing flash mix followed by flocculation, sedimentation, filtration and chlorination
- Flash mixing followed by a membrane treatment process, such as the Zenon Z500 heavy duty membrane.

Both processes could be accommodated on RCWD property. Approximately one acre would be required for the new plant. Provisions must be made to raise treatment facilities above the 100-year flood plain.

5.3.7 Future Potable Water Regulations

Future potable water regulations may require additional treatment to meet more rigorous standards. It may be advantageous to make provisions for treating well and Vail Lake discharge water at the proposed raw water treatment facility. This could be fairly easily achieved through valving and pipe extensions to the site for the proposed treatment plant. It may be possible to generate electricity by installing a turbine in the pipeline that flows from Vail Lake to the new treatment facility.

5.3.8 Recommendations

The following is recommended to accommodate raw water from EM-21 and integrate Vail Lake into the supply system:

- Construct a new 36-inch pipeline from the termination of the existing pipeline to Vail Lake via the existing drainage channel. Encase the pipe in concrete. Connect to the existing lake discharge system and directly to the lake. Install valves to permit flow in either direction.
- Reevaluate the percolation ponds to confirm that they can accommodate the increased raw water flow.
- Update the hydrogeologic model for the increased flow to determine the required additional well capacity. Construct new wells. Equip the existing well that is drilled.
- Construct a new membrane treatment facility capable of accommodating MWD Project Water. Size the new facility at 14 cfs (Master Plan capacity goal of 40 cfs minus existing well capacity, including well that is drilled but not yet equipped.

TABLE 5.1
RANCHO CALIFORNIA WATER DISTRICT
WATER FACILITIES MASTER PLAN UPDATE

Historic Water Production by Type

Fiscal Year	Total Production (AF)	Groundwater*		Imported Water		Recycled Water	
		(AF)	(%)	(AF)	(%)	(AF)	(%)
95-96	59,330	34,918	58.85%	22,358	37.68%	2,054	3.46%
96-97	64,524	38,267	59.31%	23,690	36.72%	2,567	3.98%
97-98	49,515	28,167	56.89%	19,206	38.79%	2,142	4.33%
98-99	63,606	38,027	59.79%	22,843	35.91%	2,736	4.30%
99-00	75,436	39,096	51.83%	33,621	44.57%	2,719	3.60%
00-01	70,222	41,706	59.39%	26,070	37.13%	2,446	3.48%
01-02	78,368	41,348	52.76%	33,765	43.09%	3,255	4.15%
02-03	71,988	37,188	51.66%	32,190	44.72%	2,610	3.63%
03-04	83,413	37,832	45.36%	41,312	49.53%	4,269	5.12%

*Groundwater is defined as the total Native Groundwater plus the Groundwater Recharge

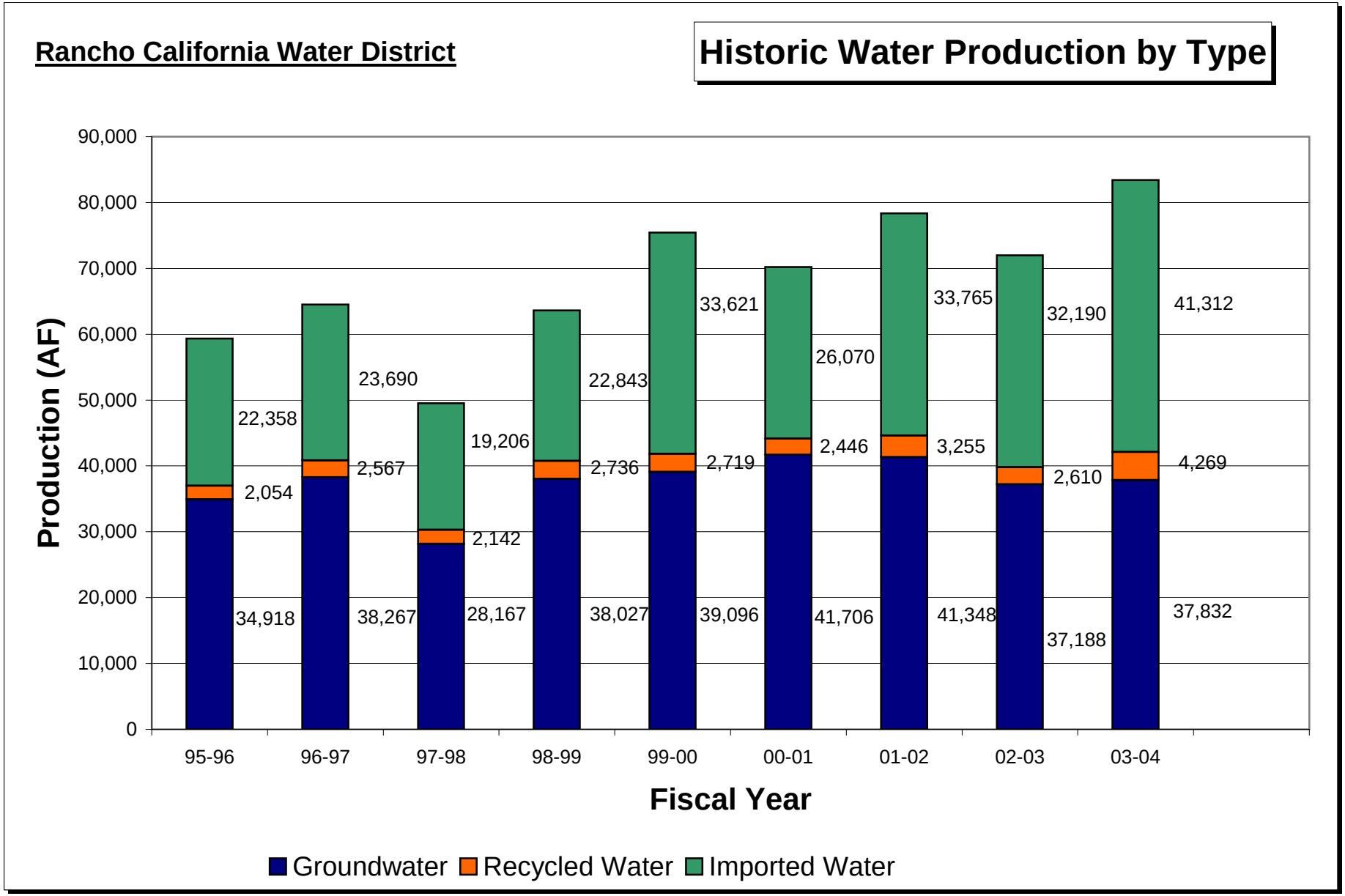

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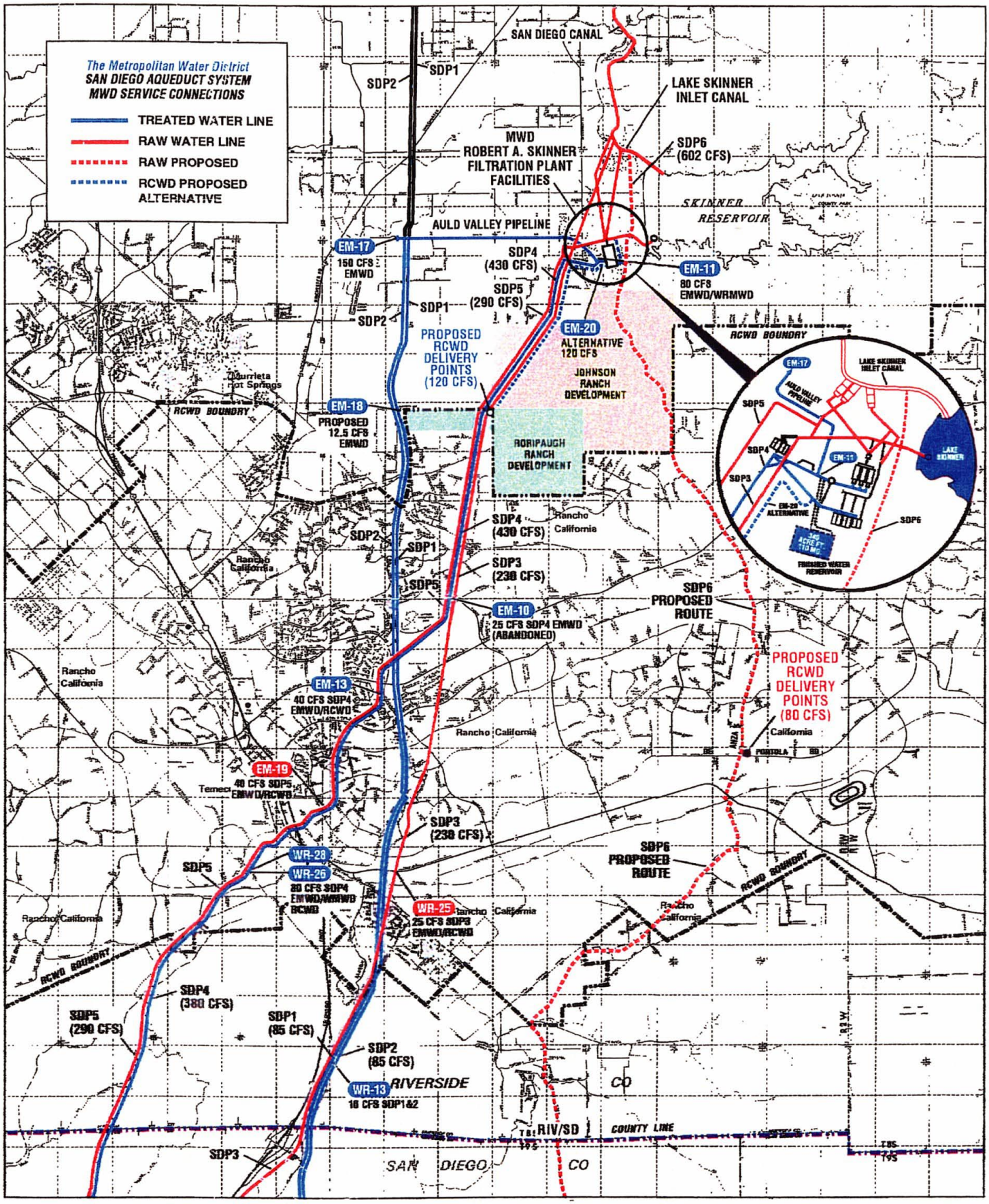
FIGURE 5-1



RANCHO CALIFORNIA WATER DISTRICT

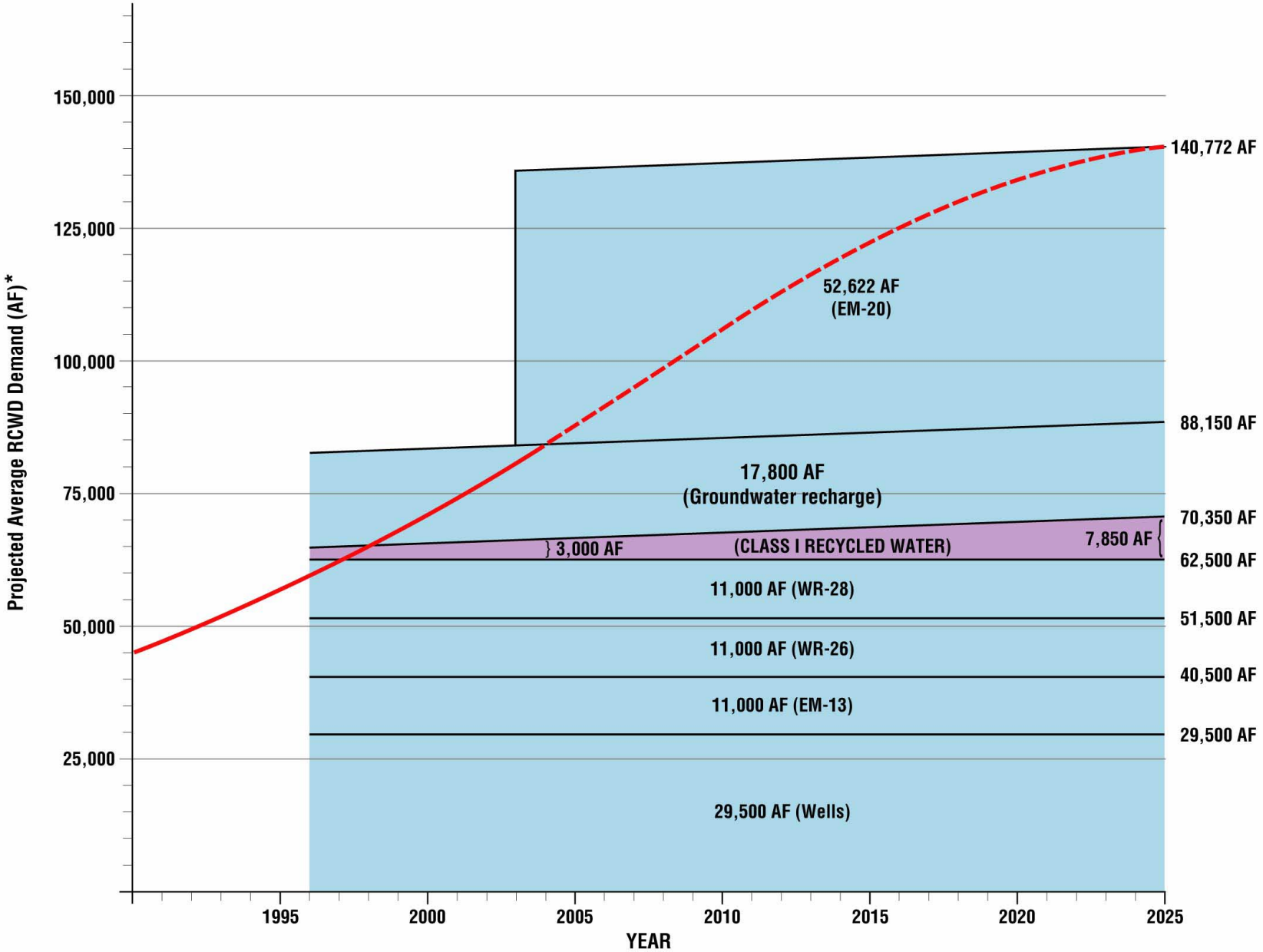
Metropolitan Water District Service Connections

RBF CONSULTING

4/12/05 JN 65-100064-11325

WATER FACILITIES MASTER PLAN UPDATE

Figure 5-2



* Excludes Demands for Contemplated Contract Service Areas.

Recycled Water Source
Domestic Water Source
Historical Water Production
Projected Water Production

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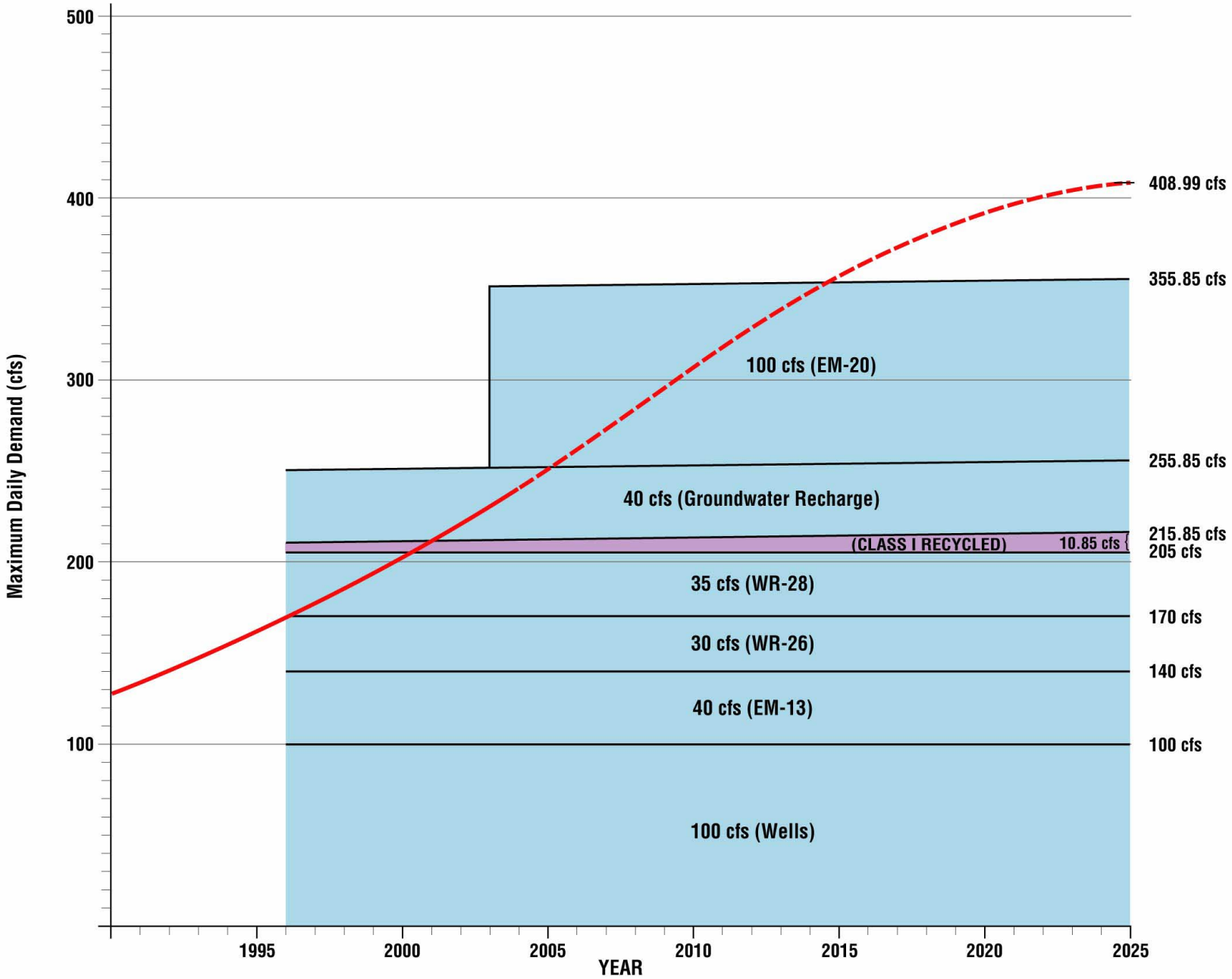
RANCHO CALIFORNIA WATER DISTRICT

Ultimate Water Sources

WATER FACILITIES MASTER PLAN UPDATE

Figure 5-3



* Excludes Demands for Contemplated Contract Service Areas.

Recycled Water Source
Domestic Water Source
Historical Water Production
Projected Water Production

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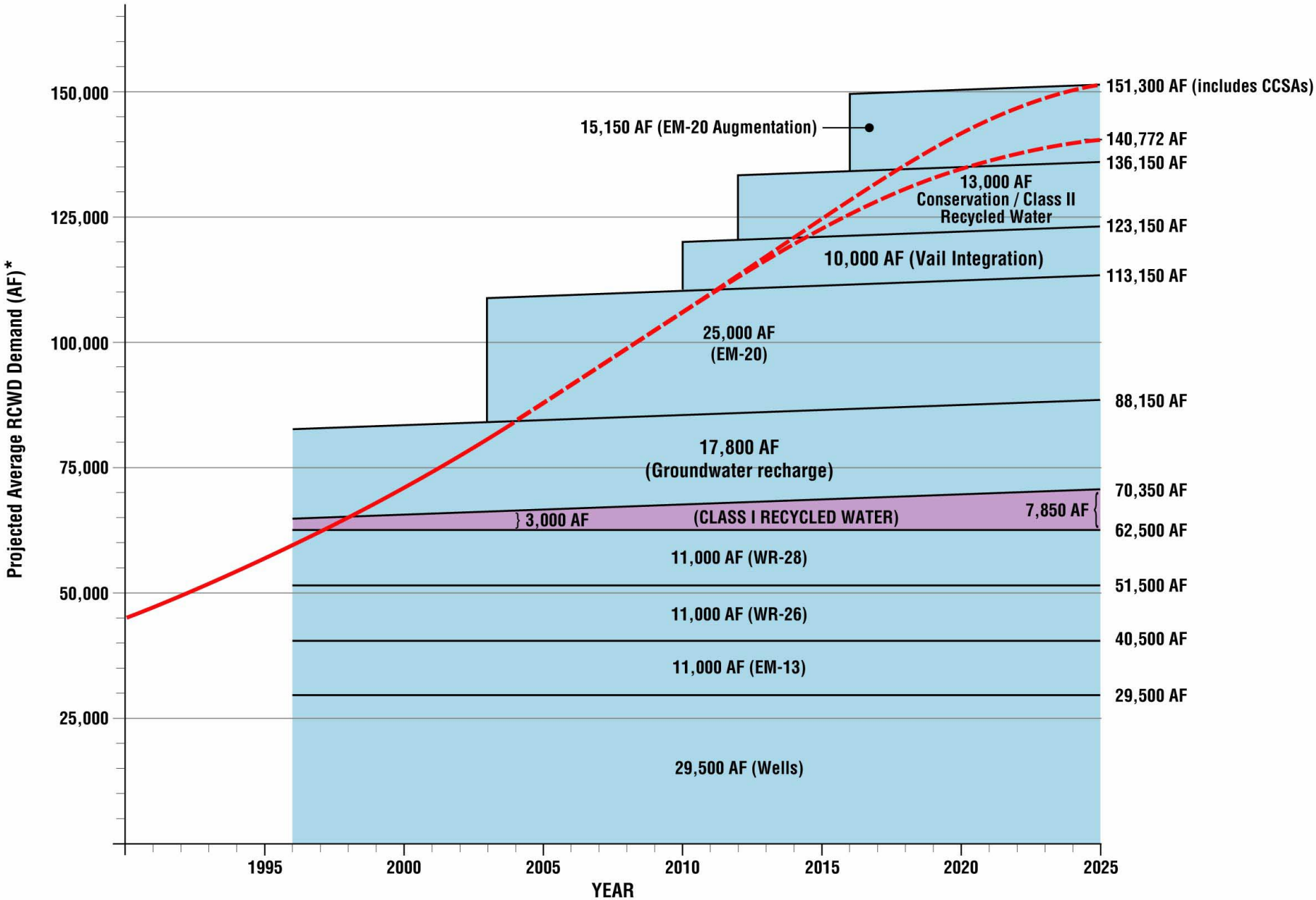
RANCHO CALIFORNIA WATER DISTRICT

Existing Water Sources - Max Day

WATER FACILITIES MASTER PLAN UPDATE

Figure 5-4



Recycled Water Source
Domestic Water Source
Historical Water Production
Projected Water Production

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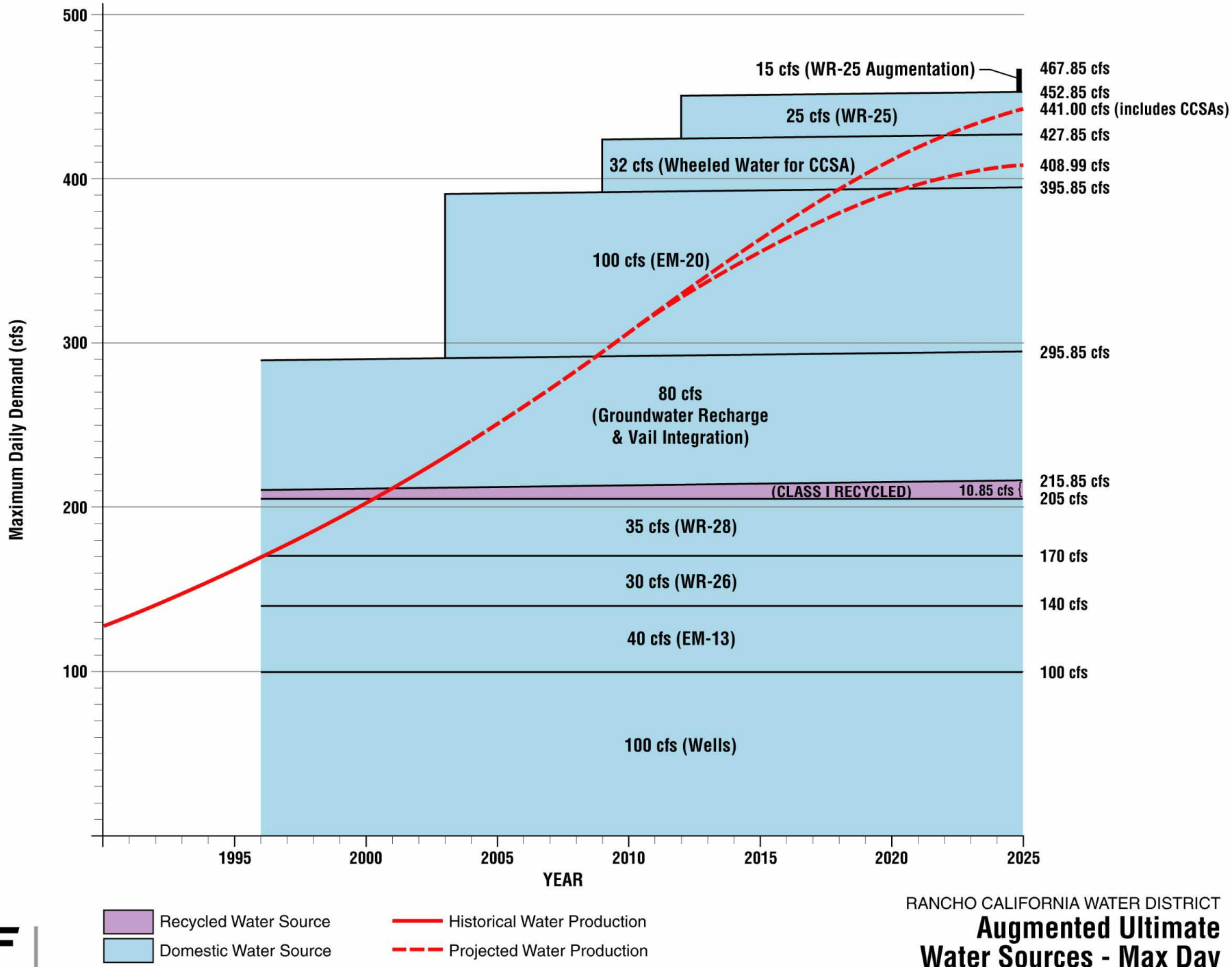
RANCHO CALIFORNIA WATER DISTRICT

Augmented Ultimate Water Sources

WATER FACILITIES MASTER PLAN UPDATE

Figure 5-5



RANCHO CALIFORNIA WATER DISTRICT

Augmented Ultimate Water Sources - Max Day

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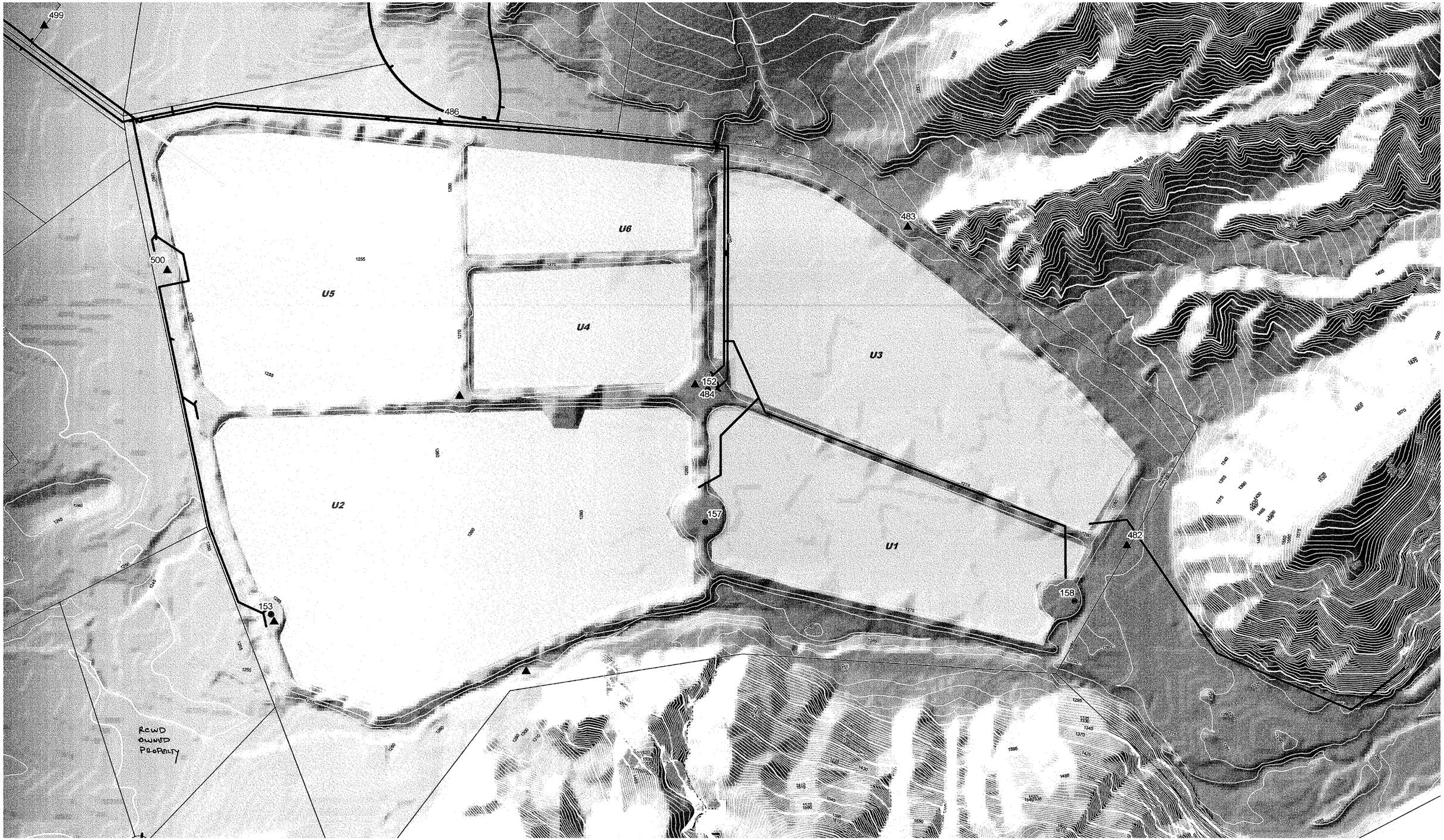
WATER FACILITIES MASTER PLAN UPDATE

Figure 5-6



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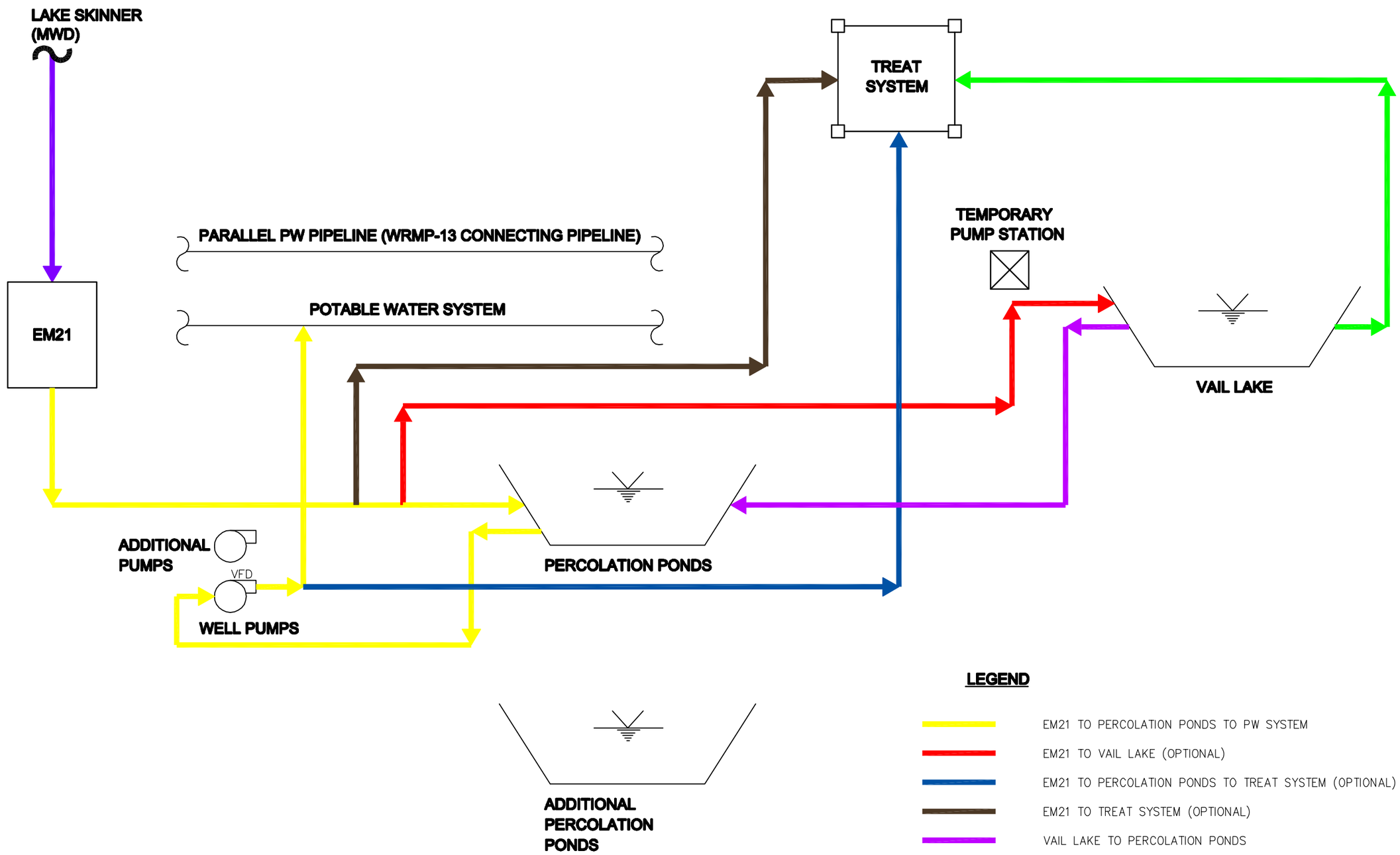
RANCHO CALIFORNIA WATER DISTRICT

RCWD RECHARGE
AND RECOVERY SYSTEM

FIGURE
5-7

H:\PDATA\65100064\CADD\WATER\EXHIBITS\FIG5-7.DWG CHESS 6/17/05 9:13 am



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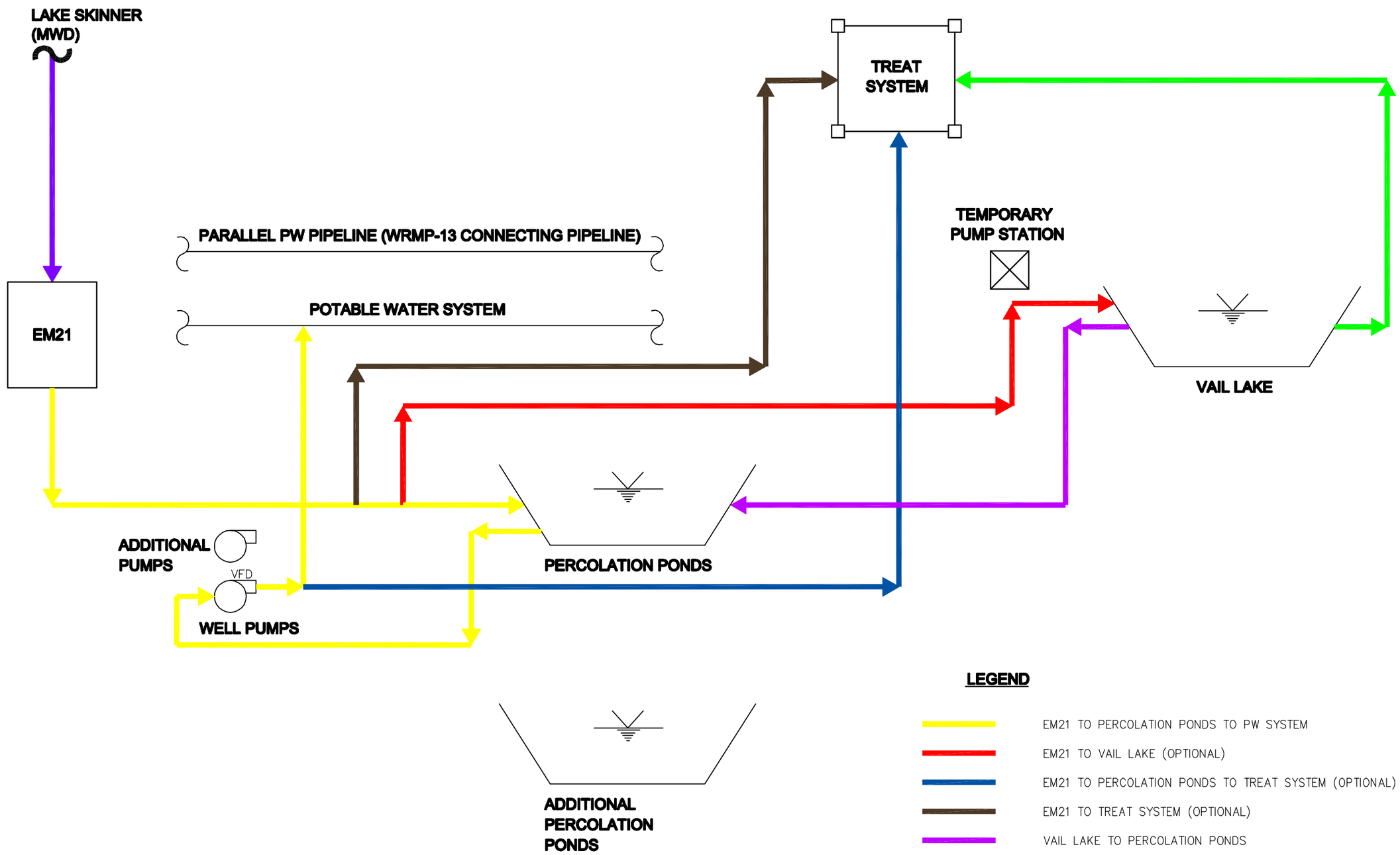
RAW WATER OPTIONS

FIGURE 5–8

H:\PDATA\65100064\CADD\WATER\EXHIBITS\FIG5-8.DWG BYOUNG 7/1/05 12:01 pm



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RANCHO CALIFORNIA WATER DISTRICT

RAW WATER OPTIONS

FIGURE 5–8

H:\PDATA\65100064\CADD\WATER\EXHIBITS\FIG5-8.DWG BYOUNG 7/1/05 12:01 pm

Chapter 6

DOMESTIC WATER DISTRIBUTION SYSTEM

6.1 System Overview

The RCWD domestic water distribution system distinctly operates within the two divisions, the Santa Rosa Division in the westerly half, and the Rancho Division in the easterly half. Each division provides water through a number of pressure zones ranging from 1305 to 2850 feet in the Santa Rosa Division, and 1305 to 2600 feet in the Rancho Division. The 1305 Zone provides service to the I-15 corridor area and serves as the forebay zone for several pump stations, which deliver water to higher zones within both Divisions. Treated water from Metropolitan turnouts and the majority of groundwater production enters the RCWD system in this zone. Some additional groundwater enters the system in the 1380, 1610, and 1790 Zones of the Rancho Division, in the 1500 Zone of the Santa Rosa Division.

The Santa Rosa Division is generally divided into three areas: the Upper Santa Rosa, Lower Santa Rosa, and Murrieta Valley. The Lower Santa Rosa area includes the 1440 (1160, 1060), 1670, and 1990 Zones. With the exception of the new Cross Creek Golf Course (formerly the Walker Basin Specific Plan), this area is mostly agricultural with some rural and estate type residential land use. Water is delivered from the 1305 Zone to this area via the Ace Bowen Nos. 1 and 2 (1670) and Ace Bowen Nos. 3 and 4 (1440) Pump Stations, the East Bluff (1670) Pump Station, and the recently completed Senga Doherty (1670) Pump Station.

The Upper Santa Rosa area includes the 2160, 2260, 2550 and 2850 pressure zones. The majority of the 2160 Zone has recently been dedicated as nature-conservancy property. The 2260, 2550 and 2850 Zones include rural residential and agricultural uses. Water is delivered to this area through the Carancho Pump Station (1670 to 2260), De Luz Pump Station (1670 to 2160), Bear Creek Pump Station (1500 to 2160), Baldaray Pump Station (2160 to 2550), and the 2850 Zone Redondo Mesa and Avenida Escala Pump Stations.

The Murrieta Valley area comprises the northerly 1305 Zone and the 1500 Zone. The 1500 Zone includes the Bear Creek, Joaquin Ranch, and the Cal Oaks development regions. The northerly 1305 Zone includes a large business park development. Joaquin Ranch No. 1 Pump Station supplies the westerly portion of the 1500 Zone, and the Cal Oaks Pump Station supplies the easterly portion of the 1500 Zone.

The Rancho Division can also be categorized into three areas - the Core Area, comprised of the more urban and suburban 1305, 1380 and 1485 Zones; the Mesa Grande region consisting of the rural residential and vineyard/citrus agricultural lands of the 1610, 1790, 2070 (1880), 2350, and 2600 Zones; and the remaining area south and east of Highway 79 in the Pauba Valley includes the portions of the 1380 Zone, the 1550 Zone, and the future Vail Lake Specific Plan service area.

Water is delivered to the Rancho Division in a stair-step manner with the Meadowview and Norma Marshall Pump Stations feeding the 1380 Zone, which in turn supplies the Rancho California No. 1 (1380 to 1610) and Rancho California No. 2 (1380 to 1485) Pump Stations and the Anza Pump Station (1380 to 1610). Buck Mesa Pump Station (1610 to 1790) and Los Caballos Pump Station (1305 to 1790) provide flows to the 1790 Zone, which in turn supplies the 2070 Zone via De Portola Pump Station. The 1550 Zone is supplied from the Alvarez Pump Station out of the 1380 Zone. Vail Lake development may require service within two separate pressure zones, either from the 1305 or 1550 Zones. This stair-step manner of domestic water distribution is illustrated in Figures 6-1 and 6-2, for the existing and ultimate domestic water transmission, respectively.

6.2 Reservoir Storage

The criterion of 16 hours of maximum-day demand was determined to be an adequate volume of storage in each pressure zone. Table 6.1 is a summary of an analysis of the existing and proposed reservoir storage volume.

It should be noted that the 1485 Zone System Storage combination results in a volume equal to 12.2 hours. Although this is slightly below the 16 hour criteria, it is considered adequate due to the nature of max day demands being primarily residential (as opposed to the large peaks of agriculture).

Should the nature of demands evolve to higher peaking characteristics, the District can consider expanded pressure reduction capability from the 1550 or 1610 Zone Systems to provide additional redundancy. Reservoir site availability for the 1485 Zone is considered extremely limited.

Within each pressure zone a number of potential tank sites were identified based on topographic elevation and their proximity to the pressure zone service area. Of these sites, those with the best access and location relative to other existing or planned facilities within the zone were selected. The sizes of individual tanks were managed to provide the best balance of storage volume within the zone. The location and name of each proposed reservoir are shown in the Proposed Facility Map (see pocket).

6.3 Pump Station

Table 6.2 summarizes the existing and proposed pump station capacity within the Santa Rosa and Rancho Divisions. The pumping requirements for each pressure zone were evaluated based on the combined maximum day demand within a specific zone plus flow-through demand required to supply higher zones. The proposed pumping facilities are shown in the Proposed Facility Map (see pocket).

6.4 Transmission Facilities

Proposed transmission mains were identified with the help of computer modeling. Backbone mains were located within known future development areas to provide adequate water distributions. In some instances, parallels of existing mains were required to meet transmission capacities under ultimate conditions, or to rectify current system deficiencies. Sizing of proposed piping was based on the optimal combination of maximizing system efficiency, and minimizing capital cost. The proposed transmission pipelines are shown on the Proposed Facility Map (see pocket), and are summarized within the cost estimates in Chapter 9.

6.5 Common Facilities

A number of major transmission lines were identified which will convey increasing amounts of source water from wells and turnouts to the various pump stations in each Division. Since these pipelines are closely linked to water supply, which directly benefit all service areas within the RCWD, they have been identified as common facilities.

Table 6.1 (cont.)
Rancho California Water District
Water Facilities Master Plan Update

Summary of Existing & Proposed Domestic Reservoir Storage

RCWD Division	Pressure Zone	Ultimate Demands Max Day (cfs)	Ultimate Demands 16 Hrs of Max Day (MG)	Existing or Under Construction Reservoirs	Capacity (MG)	Hours of Max Day Flow	Proposed Reservoirs	Ultimate Capacity (MG)	Hours of Max Day Flow
RANCHO	1305	61.84	26.65	Ace Bowen No. 1 Ace Bowen No. 2 Norma Marshall Senga Doherty	3.0 5.0 5.0 10.0		Murrieta Rainbow No. 1 Rainbow No. 2	5.0 3.0 3.0	
	Subtotal for Zone 1305				23.0	13.8 hrs		34.0	20.4 hrs
	1380	63.31	27.28	Anza General Kearny Winchester No. 1	2.2 7.7 4.6		Winchester No. 2 Anza No. 2	5.0 7.0	
	Subtotal for Zone 1380				14.5	8.5 hrs		26.5	15.5 hrs
	1485	65.54	28.24	Calle Contento No. 1 Calle Contento No. 2 El Chimisal No. 1 Stan Kemp El Chimisal No. 2	2.2 3.5 6.2 3.5 6.2				
	Subtotal for Zone 1485				21.6	12.2 hrs		21.6	12.2 hrs
	1550	9.60	4.14	Alvarez No. 1 El Chimisal No. 3	1.5 2.2		El Chimisal No. 4	1.0	
	Subtotal for Zone 1550				3.7	14.3 hrs		4.7	18.2 hrs
	1610	26.86	11.57	Buck Mesa No. 1 Buck Mesa No. 2	1.5 5.0		Buck Mesa No. 3	6.0	
	Subtotal for Zone 1610				6.5	9.0 hrs		12.5	17.3 hrs
	1790	19.33	8.33	De Portola No. 1 De Portola No. 2 Tucalota	2.2 3.5 3.5				
	Subtotal for Zone 1790				9.2	17.7 hrs		9.2	17.7 hrs
	2070	5.33	2.30	Glen Oaks No. 1 Glen Oaks No. 2	2.2 2.2				
	Subtotal for Zone 2070				4.4	30.7 hrs		4.4	30.7 hrs
	2350	1.35	0.58	Calaveras No. 1	0.5		Calaveras No. 2	0.5	
	Subtotal for Zone 2350				0.5	13.8 hrs		1.0	27.5 hrs
	2600 [1]	1.31	0.56				Zone 2600	1.0	
	Subtotal for Zone 2600					--		1.0	28.3 hrs
	Vail [1]	10.78	4.64				Vail No. 1 (1675) Vail No. 2 (1850	1.0 4.3	
	Subtotal for Vail					--		5.3	18.3 hrs

[1] Future zone.

Table 6.1
Rancho California Water District
Water Facilities Master Plan Update

Summary of Existing & Proposed Domestic Reservoir Storage

RCWD Division	Pressure Zone	Ultimate Demands Max Day (cfs)	Ultimate Demands 16 Hrs of Max Day (MG)	Existing or Under Construction Reservoirs	Capacity (MG)	Hours of Max Day Flow	Proposed Reservoirs	Ultimate Capacity (MG)	Hours of Max Day Flow
SANTA ROSA	1440 [1]	24.25	10.45	Prado No. 1 Prado No. 2	5.0 6.0		Los Gatos [3]	2.0	
	Subtotal for Zone 1440 [1]				11.0	16.8 hrs		13.0	19.9 hrs
	1500	28.77	12.40	Bear Creek No. 1 Antelope	2.2 5.2		Vineyard No. 1 Bear Creek No. 2	3.5 1.5	
	Subtotal for Zone 1500				7.4	9.6 hrs		12.4	16.0 hrs
	1670	38.72 [2]	16.68	De Luz No. 1 De Luz No. 2 Carancho No. 3 Via Vaquero No. 1	3.0 3.0 5.0 5.0		Via Vaquero No. 2 (or Carancho No. 4)	5.0	
	Subtotal for Zone 1670				16.0	15.3 hrs		21.0	20.1 hrs
	1990	11.46	4.94	Freeman No. 1 Freeman No. 2	3.3 5.0				
	Subtotal for Zone 1990				8.3	26.9 hrs		8.3	26.9 hrs
	2160	1.13	0.49	Baldaray No. 1	2.2				
	Subtotal for Zone 2160				2.2	72.3 hrs		2.2	72.3 hrs
	2260	3.38	1.46	Tenaja	2.2				
	Subtotal for Zone 2260				2.2	24.2 hrs		2.2	24.2 hrs
	2550	19.48	8.39	La Cresta Avocado Mesa No. 1	1.1 5.0		Avocado Mesa No. 2	2.3	
	Subtotal for Zone 2550				6.1	11.6 hrs		8.4	16.0 hrs
	2850	3.69	1.59	Redondo Mesa Calle Parama	0.5 1.0		Redondo Mesa No. 2	0.5	
	Subtotal for Zone 2850				1.5	15.1 hrs		2.0	20.1 hrs

[1] Zone 1440 includes 1060 and 1160 Zones.
[2] Demand for 1670 Zone includes 36.08 cfs maximum-day plus 2.64 cfs supplemental flow for 1440 via PRVs at west end.
[3] For fixed grade head source at west end of pressure zone and reduced dependency on pressure-reduced flows from 1670 Zone.

Table 6.2 (cont.)
Rancho California Water District
Water Facilities Master Plan Update

Summary of Existing & Proposed Pumps and Projected Ultimate Water Demands by Pressure Zone

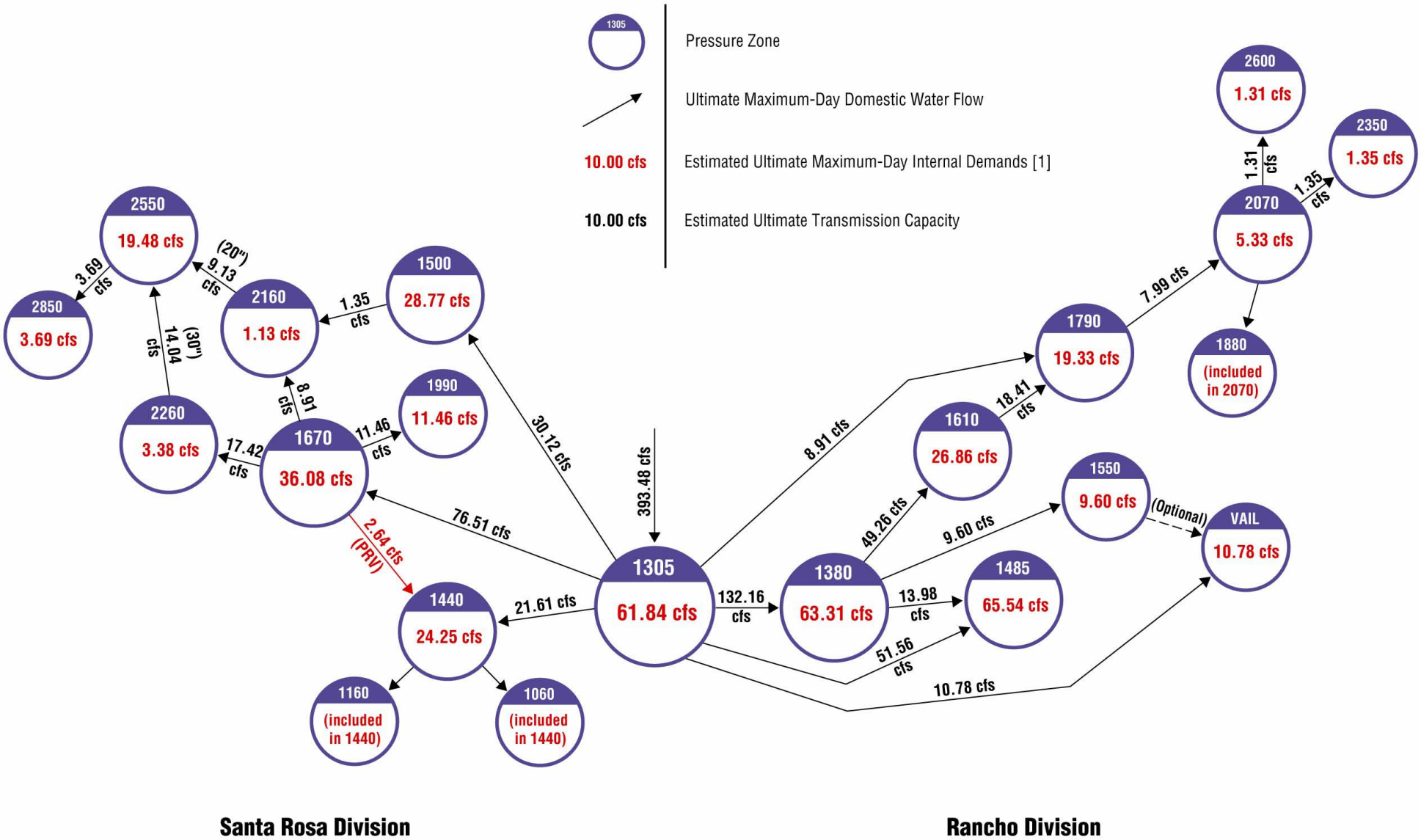
RCWD Division	Pressure Zone (Ultimate Max Day Demand)	Pump Station	Status [1]	Supply (from Zone)	(gpm) Existing Firm Capacity (no. of pump units) [2]	(gpm) Proposed Firm Capacity [3]	Projected Ultimate Max. Day Water Demands and Flow-Through Capacity (gpm)	Surplus/ Deficit (gpm)
RANCHO	1305 (61.84 cfs)	VDC (recharge)	E	groundwtr	17,953	35,904		
		Wells (native) [5]	E	groundwtr	50,856	50,856		
		EM-13	E		17,953	17,953		
		EM-20	E		44,880	44,880		
		WR-25	P		0	11,200		
		WR-26	E		13,464	13,464		
		WR-28	E		15,708	15,708		
	Subtotal for Zone 1305				160,814	189,965	178,809	11,156
	1380 (63.31 cfs)	Winchester	E	1305	11,100 (6)	11,100		
		Norma Marshall	E	1305	14,300 (6)	14,300		
		Meadowview	E	1305	6,900 (6)	15,000		
		Los Caballos No. 2	P	1305	0	2,000		
		Wells (native) [5]		groundwtr	17,440	17,440		
	Subtotal for Zone 1380				49,740	59,840	59,317	523
	1485 (65.54 cfs)	Rancho California #2	E	1380	2,600 (3)	6,300		
		Butterfield Stage	E	1305	24,600 (6)	24,600		
	Subtotal for Zone 1485				27,200	30,900	29,416	1,484
	1550 (9.60 cfs)	Alvarez (Booster 40)	E	1380	1,300 (2)	9,200		
	Subtotal for Zone 1550				1,300	9,200	9,147	53
	1610 (27.58 cfs)	Anza	E	1380	4,000	11,000 [7]		
		Rancho California #1	E	1380	6,600	10,000 [7]		
		Wells (native) [5]	E	groundwtr	5,100	5,100		
	Subtotal for Zone 1610				10,600 [6]	21,000	20,314	686
	1790 (23.52 cfs)	Buck Mesa	E	1610	8,400	8,400		
		Los Caballos No. 1	E	1305	4,000	5,700		
		Wells (native) [5]	E	groundwtr	1,500	1,500		
	Subtotal for Zone 1790				12,400 [6]	14,100	12,262	1,838
	2070 (5.33 cfs)	De Portola	E	1790	5,700	5,700		
	Subtotal for Zone 2070				5,700	5,700	3,586	2,114
	2350 (1.35 cfs)	Calle Breve	E	2070	1,200	1,200		
	Subtotal for Zone 2350				1,200	1,200	606	594
	2600 (1.31 cfs)	Zone 2600	P	2070	0	600		
	Subtotal for Zone 2600				0	600	588	12
	Vail (10.78 cfs)	Vail No. 1 (1675)	P	1305	0	4,900		
		Vail No. 2 (1850)	P	1305				
	Subtotal for Zone 2850				0	4,900	4,838	62

[1] "E" = existing; "P" = proposed; "UC" = under construction.
[2] Based on 2004 Pump testing (less largest unit).
[3] Based on 2004 Pump testing (less largest unit) or proposed firm capacity from 1997 Master Plan Update, except as otherwise noted.
[4] Includes demands for Zone 1060 and Zone 1160.
[5] Wells (native) total 'maximum capacity' based on "Existing Water Supply Sources" provided by RCWD 6/30/04, which equals 170 cfs, or 76,300 gpm.
[6] Subtotal excludes well pumping capacity.
[7] Suction side of RC #1 (1380 Zone) may limit its expansion potential to 10,000 gpm. Expansion of Anza PS and Anza Road TMs would depend on reliability of 1610 Zone well capacity.

Table 6.2
Rancho California Water District
Water Facilities Master Plan Update

Summary of Existing & Proposed Pumps and Projected Ultimate Water Demands by Pressure Zone

RCWD Division	Pressure Zone (Ultimate Max Day Demand)	Pump Station	Status [1]	Supply (from Zone)	(gpm) Existing Firm Capacity (no. of pump units) [2]	(gpm) Proposed Firm Capacity [3]	Projected Ultimate Max. Day Water Demands and Flow-Through Capacity (gpm)	Surplus/ Deficit (gpm)
SANTA ROSA	1440 [4] (24.25 cfs)	Ace Bowen #3	E	1305	2,900 (2)	3,500		
		Ace Bowen #4	E	1305	6,800 (2)	7,400		
	Subtotal for Zone 1440 [4]				9,700	10,900	10,884	16
	1500 (28.77 cfs)	California Oaks	E	1305	7,600 (6)	7,600		
		Joaquin Ranch No. 1	E	1305	5,300 (3)	6,300		
		Wells (native) [5]	E	groundwater	1,400	1,400		
	Subtotal for Zone 1500				12,900 [6]	13,900	13,519	381
	1670 (36.08 cfs)	Ace Bowen #1	E	1305	7,600 (5)	7,600		
		Ace Bowen #2	E	1305	12,600 (4)	12,600		
		East Bluff	E	1305	6,000 (6)	6,000		
		Senga Doherty	E	1305	20,000 (7)	20,000		
	Subtotal for Zone 1670				46,200	46,200	34,340	11,860
	1990 (11.46 cfs)	Santa Rosa	E	1670	2,300 (3)	2,300		
		Vaquero	E	1670	2,100 (3)	2,100		
		Del Oro	E	1670	3,600 (4)	3,600		
	Subtotal for Zone 1990				8,000	8,000	5,144	2,856
	2160 (1.13 cfs)	Bear Creek	E	1500	1,300 (3)	1,300		
		De Luz	E	1670	4,000 (4)	4,000		
	Subtotal for Zone 2160				5,300	5,300	4,605	695
	2260 (3.38 cfs)	Carancho	E	1670	1,500 (2)	7,800		
	Subtotal for Zone 2260				1,500	7,800	7,819	(19)
	2550 (19.48 cfs)	Baldaray	E	2160	4,100 (4)	4,100		
		Tenaja	P	2260	0	6,300		
	Subtotal for Zone 2550				4,100	10,400	10,404	(4)
	2850S 2850N (3.69 cfs)	Redondo Mesa	E	2550	800	1,050		
		Avenida Escala	E	2550	1,100	1,100		
	Subtotal for Zone 2850				1,900	2,150	1,656	494



[1] Based on "Summary of Projected Ultimate Domestic Water Demands" excluding Contemplated Contract Service Areas (CCSA).

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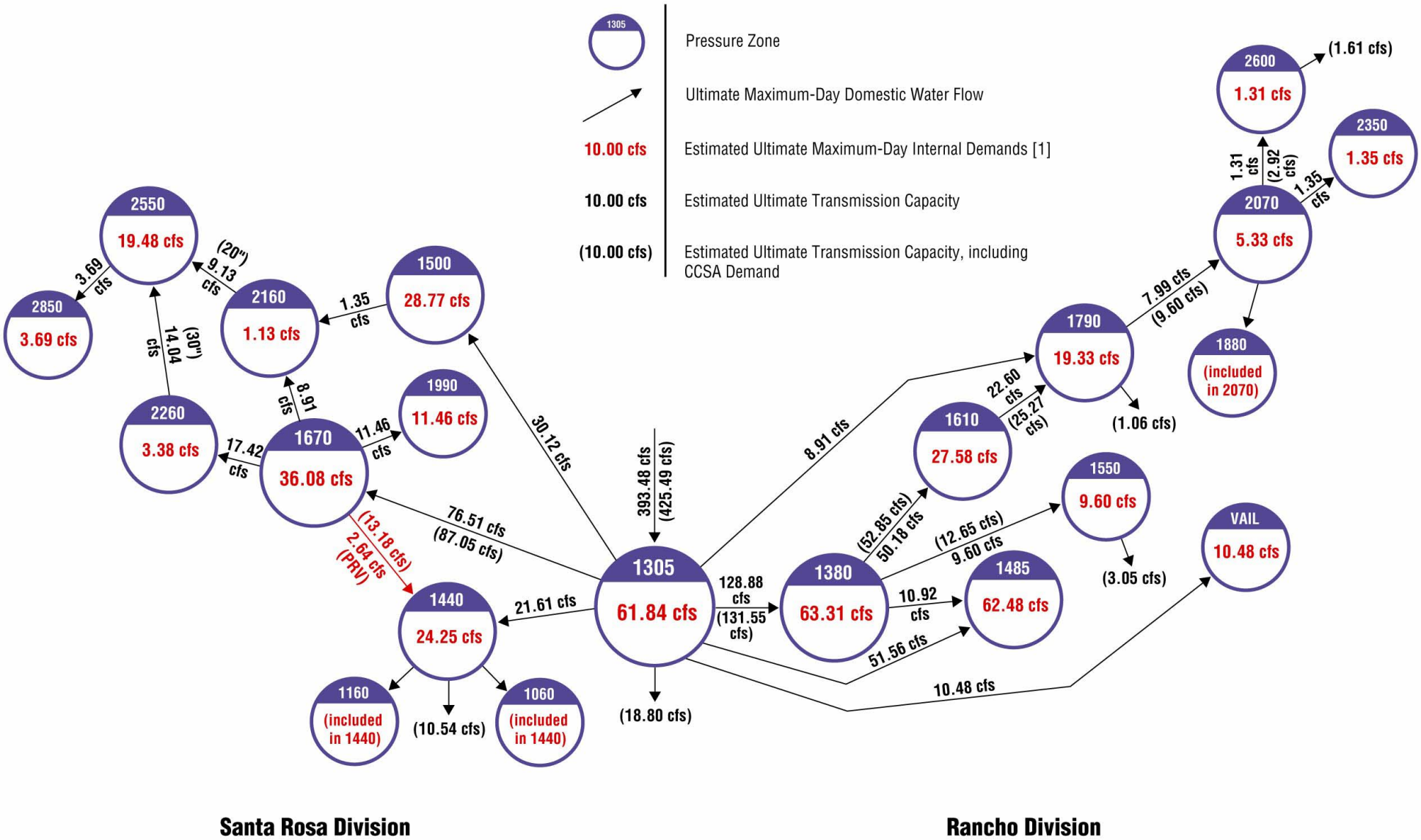
RANCHO CALIFORNIA WATER DISTRICT

Ultimate Domestic Water Transmission

WATER FACILITIES MASTER PLAN UPDATE

Figure 6-1



[1] Based on "Summary of Projected Ultimate Domestic Water Demands".

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RANCHO CALIFORNIA WATER DISTRICT

Ultimate Domestic Water Transmission

WATER FACILITIES MASTER PLAN UPDATE

Figure 6-2

Chapter 7

HYDRAULIC ANALYSIS

7.1 System Overview

The existing computer model of the domestic water distribution system was converted to the H2OMap hydraulic analysis software (MWH Soft, Inc.). The model is actually a series of individual computer models set up to independently analyze the separate 'backbone' distribution systems of each pressure zone, i.e. looping pipelines 16-inch in diameter and larger. Due to the nature of RCWD system operation, the stair-step distribution system, as described in Chapter 6, requires 'flow-through' capacities of lower pressure zones for supply to higher zones. Maximum flow-through during summer months represents the most critical operating scenario for the major zones serving the lower elevations of the District service area.

The 1305 Zone, often referred to as the fore-bay zone, is responsible for delivery of all imported water supplies to the Santa Rosa and Rancho divisions. The zones required for the majority of the imported water delivery to each division from the 1305 Zone is the 1670 Zone (for Santa Rosa) and the 1380 Zone (for Rancho). The previous demand estimates were removed from the existing model. Upon model conversion, the revised demands were applied to the model to reflect RCWD's ultimate land uses based on the new general plans within the service area. This was done using the state-of-the-art features developed by MWH Soft within the H2OMap software. One feature, labeled 'demand-allocator', enables computer models to more accurately simulate changes to demand estimates and their locations. These changes, although not major in the case of RCWD, proved to be significant enough to warrant capital improvement program modifications (Chapter 9). This 're-loading' of a computer model to update a master plan can cause subtle shifting of demand-center locations, which is also important to simulate for master planning analysis.

The basic criteria used to evaluate the computer analysis results were headloss per unit length of pipe, velocity of water within the pipeline and resulting pressures at hydraulically-remote locations. For the purposes of analyzing the overall system within a master planning format, the critical operating scenario was based on maximum-day demand of a summer day, plus all pump stations and turnouts operating at their rated capacities. The majority of the pipelines in the model are 16-inch or larger due to the flow-through capacities. Localized fireflow simulations, although foreseeable, are not considered critical at the District-wide master-planning level. These local emergency conditions can be critical in smaller zones, and therefore, should be evaluated for specific development projects.

As part of the hydraulic analysis, the WFMP Update also investigated current pumping and storage efficiency of each pressure zone. The methodology used for this evaluation incorporated four basic characteristics of each pressure Zone:

- Internal maximum-day demand

- Total summer pumping hours
- Available storage capacity
- Pump station utilization

Pumping hours were obtained from RCWD operations staff for the summer months of 2004. The District's pump stations use two separate power sources – electrical power and gasoline power. The majority of the pump stations operate on electrical power with on-site backup power generation. Therefore, time-of-use and total pumping hours were an important consideration. The electrical power rates governing the power cost to the District employ a tiered rate structure, which is defined as follows:

Table 7.1

Tier	Time of day	Hours/day	Rate
Off-peak	11pm – 8am	9 hrs	$0.0886/kwh
Mid-peak	8am – 12noon, 6pm – 11pm	9 hrs	$0.1104/kwh
On-peak	12noon – 6pm	6 hrs	$0.2021/kwh

Table 7.2 was developed to detail the individual pumping units and their hours of operation through the month of August 2004. Based on this data, a pump utilization factor was developed comparing total hours of operation with available hours of off- and mid-peak operation for the entire month. Such a factor can indicate which pump stations are necessarily operating during on-peak power cost times-of-use (TOU) and reveal alternative system operating techniques that could be more efficient. As a further indication to the potential cause of inefficient system operation, storage capacity, and its ability to provide the majority of supply during a maximum summer day, was considered. The old adage always applies when operational storage volume is less than the volume of water demanded: "the lower the storage capacity, the more pumping required".

Upon observation of Table 7.2, five zones showed indicators where operational efficiency could be improved: the 1670 and 1440 Zones of the Santa Rosa division, and 1610, 1485 and 1380 Zones of the Rancho division.

7.2 1670/1440 Zones

The pump utilization factor calculated collectively for all pump stations serving the 1670 Zone is within the system's ability to operate efficiently, i.e. not require pumping during on-peak power cost time of the day. Table 7.2 shows the gas engine-driven units of the Ace Bowen No. 2 and East Bluff pump stations were used

predominantly. RCWD Operations staff has indicated that, traditionally, gas-powered pumps have been much less expensive to operate and maintain than electric-powered pump stations *and* the fuel costs are constant for all hours of the day. However, staff also indicated that the recent rise in fuel costs have significantly reduced the cost gap making electric-powered pumps more feasible. This should have the affect of equalizing the usage of each pump station serving the 1670 Zone.

An additional operational consideration involves pressure-reduced flow to the 1440 Zone, and minimizing the dependency on flow from pressure-reducing stations. Operations staff has indicated as much as 500 gpm, on average during the summer months, flows through pressure-reduction from the 1670 Zone to the 1440 Zone. This represents a significant operational cost that could be minimized by replacing the head source benefits of the PRV station with the proposed 1440 Los Gatos Reservoir (CIP 1440-1).

7.3 1610 Zone

Pumps serving the 1610 Zone are within the Anza and Rancho California No. 1 (RC-1) Pump Stations. Both of these stations incorporate electric-powered pumps with backup power generator on-site. Their unbalanced use is attributed to the hydraulics of the distribution grid. Table 7.2 shows that RC-1 is over-utilized when comparing the utilization factors of the two pump stations. Hydraulic analysis confirms that the discharge piping of the RC-1 allows for more effective conveyance to the 1610 Zone reservoirs than from the Anza pumps. However, consideration should be given to the fact that RC-1 draws its supply from the same suction piping as RC-2 (1485 Zone), which could limit the expandability of the RC Pump Stations. Capital improvement projects will improve the suction piping capacity of RC-1 and the discharge piping capacity of Anza, thereby providing future flexibility to safely expand either pump station first (or both at the same time) when additional 1610 Zone storage capacity is required.

7.4 1485 Zone

The 1485 Zone is served by three reservoir sites and two pump station sites. This provides multiple outlets for the discharge of each pump station. Both pump stations incorporate electric-powered pumps with backup power generator on-site. As with the 1610 Zone hydraulic characteristics, the 1485 Zone pump stations are not sharing the supply burden equally. RC-2 is over-utilized when comparing the utilization factors of the two pump stations. Upon conversion of the 48-inch raw water transmission main in Pauba Road to the domestic water transmission system and 1305 Zone, a greater transmission capacity will be afforded to the Butterfield Stage Pump Station. This will, in turn, allow increased pumping time for Butterfield Stage pumping units and increased volume to the 1485 Zone via the south end where the majority of the storage capacity also exists (El Chimisal site). This will increase the Butterfield Stage Pump Station utilization as demands increase within the zone.

7.5 1380 Zone

The 1380 Zone is served by three reservoir sites, three pump station sites and several direct-supply wells. The wells provide the zone the flexibility to optimize the utilization balance between the Norma Marshal, Meadowview and Winchester Pump Stations. Although the utilization between the Norma Marshall and Meadowview Pump Stations does not appear to be balanced, RCWD Operations staff has indicated that supply burden can be readily shifted between the two pump stations due to their existing capacities and proximity to each other within the distribution grid. As with the wells and their effectiveness to directly supply demands at the southeast end of this expansive zone, Winchester can only be expected to perform effectively for demands at the north end of the zone. Hydraulic analysis was performed to provide an indication of the effect on discharge pressures at Winchester if significant supply burden was shifted from the Norma Marshal and Meadowview Pump Stations to the Winchester Pump Station. Required discharge pressure at Winchester increases under this scenario indicating a definite limitation of Winchester to supply demands to the central and southern portions of the service area.

Appendix D includes printouts of the general computer hydraulic analysis results of each pressure zone and the schematic diagrams representing each pressure zone model.

Table 7.2
Rancho California Water District
Water Facilities Master Plan Update

Pumping Efficiency Evaluation

Discharge Pressure Zone	Pump Name	Booster No.	Fuel/ Power Supply	Total Hours of Operation [1] (Monthly)	Off/Mid-Peak Hours Per Day [2] [3]	Required Hours to Operate during Peak Power Costs	Pump Station Utilization Ratio [4]	Estimated hours of Max Day storage (adjusted for 2003 demands)	Estimated 2003 Maximum-day Production, "Same-day" (cfs)
2850S	Avocado Mesa	1	Electric	0	540	0		n/a	n/a
		2	Electric	5	540	0			
	Total Pumping Hours			*5*	*1080*		*0.00*		
2850N	Avenida Escala	1	Electric	33	540	0			
		2	Electric	0	540	0			
		3	Electric	0	540	0			
	Total Pumping Hours			*33*	*1620*		*0.02*		
2550	Baldaray	1	Electric	140	540	0		41.3	5.47
		2	Electric	78	540	0			
		3	Electric	559	540	19			
		4	Electric	447	540	0			
	Total Pumping Hours			*1224*	*2160*		*0.57*		
2260	Carancho	1	Electric	8	540	0		25.2	3.25
		2	Electric	203	540	0			
	Total Pumping Hours			*211*	*1080*		*0.20*		
2160	Bear Creek	1	Electric	174	540	0		75.6	1.08
		2	Electric	65	540	0			
		3	Electric	352	540	0			
	Total Pumping Hours			*591*	*1620*		*0.36*		
	De Luz	1	Electric	530	540	0			
		2	Electric	20	540	0			
		3	Electric	273	540	0			
		4	Electric	2	540	0			
	Total Pumping Hours			*825*	*2160*		*0.38*		

RCWD Recommended Facilities - Table 2
RCWD 2005 Water Master Plan Update

Pump Name	Service Pressure Zone	Supply Pressure Zone	Description of Facilities to Enhance Pumping Efficiency	Notes
Ace Bowen No. 1	1670	1305	No planned upgrade.	Check for better utilization.
Ace Bowen No. 2	1670	1305	Gas driven engine, but possibility of better utilization of Ace Bowen No. 1 or Senga Doherty	With price of petroleum based products rising, might not be as cost effective to run gas fueled motors.
East Bluff	1670	1305	No planned upgrade.	
Senga Doherty	1670	1305	No planned upgrade.	Check for better utilization.
Ace Bowen No. 3 (and No. 4 - parallel unit)	1440	1305	Los Gatos Reservoir to replace fixed gradient supplied by 1670 pressure reducing valves (PRV), therefore reducing PRV flows and reducing wasted pumping from 1670 to 1440.	
Anza	1610	1380	Upgrade might not be required if RC No. 1 can take greater load of the system, but RC No. 1 can only take greater load if 1380-100 is constructed.	Therefore, parallel piping not might be required.
Rancho California No. 1	1610	1380	If CIP project 1380-100 is constructed, suction side to RC No. 1 and 2 will have greater flow, along with a greater capacity, could elimate CIP 1610-5.	Regardless, need more pump units to alleviate utilization of current pumps and motors.
Butterfield Stage	1485	1305	No change	
Rancho California No. 2	1485	1380	Can simply shift load from RC No. 2 to Butterfield PS. No change.	Or Butterfield Stage pump station could be utilized more.
Meadowview	1380	1305	Upgrade due to upgrades in Alvarez, Anza, and possibly a new Los Caballos pump station. Check for ability to distribute pumping needs among Winchester and Norma Marshall PS.	
Norma Marshall	1380	1305	Can simply shift load from Meadowview to Norma Marshall PS and stay within off-peak power costs.	
Winchester	1380	1305	No change	

Chapter 8

NON-DOMESTIC WATER DISTRIBUTION SYSTEM

8.1 Introduction

The District is pursuing maximum use of a non-domestic water distribution system supplied with recycled water for the following reasons:

- Historically, the District has been required to supplement its groundwater supply sources with expensive imported water, the cost of which is expected to double within the next several years. Costly imported water use could be reduced by using recycled water.

- Water agencies that import Metropolitan water can benefit from financial incentives by Metropolitan for developing local water supply sources.

- Recycled water use reduces dependency on treated water sources and increases the District's tolerance to extended low-rainfall periods, such as in recent years within the Rancho California area. Drought conditions would raise the likelihood of water officials mandating large water users to use recycled water.

- The District would realize a direct reduction in future required water allocations.

The Rancho California Water District has been operating their non-domestic water distribution system since the early 1990s, which is supplied primarily by reclaimed water produced from the Santa Rosa Water Reclamation Facility. The District has steadily increased the capacity of the system, which supplied a total of 4,200 acre-feet during fiscal year 2003-04. Figure 8-1 shows the system layout and use areas.

8.2 Non-Domestic Water Supply

The District currently has a non-domestic water delivery capability of approximately 3.75 mgd, or 4,200 acre-feet per year. The majority of this supply originates from the tertiary treatment facilities at the Santa Rosa Water Reclamation Plant. Future supply, therefore, somewhat depends on population growth within the District.

The RCWD has discussed the possibility of increasing the wastewater generation to the Santa Rosa Water Reclamation Facility by accepting flows from the Eastern Municipal Water District. The increase in non-domestic system water supply due to these potential sources combined with an assumed increase in RCWD wastewater service area flows (600 DU's / year at 300 GPD / DU = 180,000 GPD increase / year) will form the foundation for recycled water supply.

8.3 Non-Domestic Water Demands

The total estimated ultimate annual demand that could potentially be supplied by the basic non-domestic system, as identified in Chapter 4, is summarized as follows:

Type	Demand (AF)
Class I	11,227
Class II	4,186
Total	15,413

This Master Plan provides for supplying only Class I demands due to proximity to the ultimate proposed system. Class II demands were identified to illustrate the potential increase in irrigation demands to remote areas, which would require additional non-domestic system facilities. The extent of agricultural conversions could vary significantly. Obviously, the large agricultural demands represent tremendous potential. Some of the factors that will require additional consideration and will influence these opportunities include the following:

- RWQCB Requirements
- Capital / O+M cost implications
- Phasing and Availability of recycled water
- Customer / Market Place variables
- Environmental process

The following is a discussion of the District's non-domestic water distribution system and expanded service capabilities to supply future irrigation demands.

8.4 Non-Domestic Water System

The District has proceeded with the implementation of a comprehensive non-domestic system expansion program. The system currently in place or under construction includes the majority of the distribution system pipelines, pump stations, and storage tanks ultimately planned. In addition, the system includes reclaimed water storage ponds with a total existing capacity of 1,252 AF, and total planned capacity of 1,900 AF. The capacity allows for reclaimed water system service to existing and future customers with total annual demands projected to be 11,200 acre-feet (AF). The system allows for pumping of tertiary treated water from the Santa Rosa Wastewater Reclamation Plant to users within the 1500 Zone in the northern Santa Rosa Division, and to users within the 1305, 1380 and 1485 Zones of the Rancho Division. In addition, water can be pumped to the recycled water storage ponds for extended storage. The existing system is shown on Figure 8-1.

The Class I demands include landscape irrigation areas in proximity to the distribution system, such as golf courses, schools and open space areas, which are described as follows:

Santa Rosa Division

- Bear Creek Golf Course
- Colony Golf Course
- Open Space/Schools (1500 Zone Domestic Water Service Area)

Rancho Division

- Temeku Golf Course
- Redhawk Golf Course
- Temecula Creek Golf Course
- Open space along Interstate 15 and Highway 79
- Open space/schools (1380 Zone Domestic Water Service Area)

Additional non-domestic water use areas, which are somewhat geographically removed from the proposed system and would require additional facilities, have been identified as Class II use areas. Irrigation of these areas with non-domestic water may or may not be deemed economically feasible. The Class II use areas include the existing Cross Creek Golf Course in the Santa Rosa Division and a portion of the vineyard and the agricultural land within the Rancho Division and west of Anza Road.

8.5 Hydraulic Analysis

The model of the recycled water (non-domestic) distribution system was updated for the 2005 WFMP Update, and analyzed to verify the proposed sizing of pump stations and pipelines. The system necessarily incorporates four separate distribution pressure zones, which are described as follows:

1. Cole Creek Zone - supplied by effluent pumps at the Santa Rosa Water Reclamation Facility (separate from Rancho system)

2. Rancho Zone - supplied by effluent pumps at the Santa Rosa Water Reclamation Facility (separate from Cole Creek system)

3. Bear Creek Zone - supplied by pumps at the Cole Creek reservoir site

4. Redhawk Zone - supplied by pumps at the Redhawk Golf Course site

The demands applied to each Zone of the model were determined using the tributary area duty method similar to the domestic system analysis. The following is a summary of the demands applied to each model component:

Cole Creek	(1181 HGL)	402 AF/YR	(548 GPM)
General Kearney	(1381 HGL)	7,646 AF/YR	(10,427 GPM)
Bear Creek	(1491 HGL)	1,757 AF/YR	(2,396 GPM)
El Chimisal	(1441 HGL)	1,436 AF/YR	(1,959 GPM)
TOTAL		11,240 AF/YR	(15,330 GPM)

RCWD's GIS department provided billing account records for existing reclaimed water users. Ultimate demands were created based on the updated (2005) land use map, which depicted Class I irrigation areas as described previously in this section. Class II demands are being excluded to stay consistent with the 1997 Master Plan.

Each Zone was analyzed under a critical operating scenario to test for adequacy. With the above stated ultimate demands (representing maximum day demands) and no pump station flow (supply coming only from the reservoirs), the four Zones were checked for pressures and velocities. Reservoir levels were set at mid water level in the tank, or 16 feet below the HGL, to simulate a realistic condition not requiring pumping. During peak demands of summer months, it is assumed that the reservoirs and pump stations will supply each Zone simultaneously, therefore no peak summer scenario was analyzed. The H2O Map Water computer diagrams and results are located in Appendix E.
However, the Non-Domestic System operation will continue to rely heavily on the storage ponds for meeting peak summer demands. A typical Non-Domestic System demand hydrograph for RCWD is shown on Figure 8-2.

8.6 Non-Domestic System Capital Costs

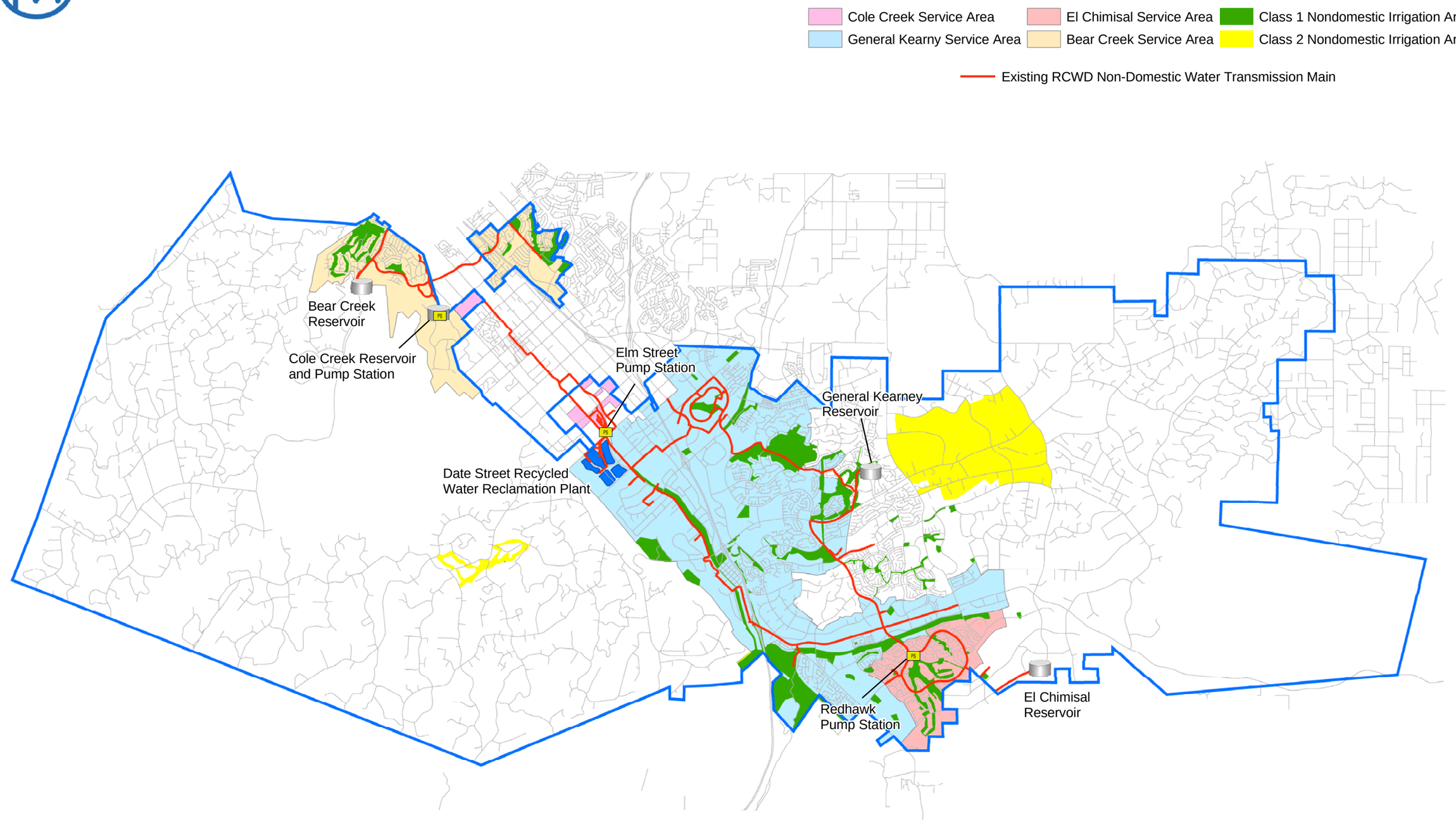
The Non-Domestic System Capital Projects and corresponding estimated capital costs are shown on Table 8.1. The total estimated costs are $25.5 million.

TABLE 8.1
RANCHO CALIFORNIA WATER DISTRICT
Recommended Recycled Water System
Capital Improvements Projects

Item No.	Description of Recommended Improvements	Status	size/ Capacity	Quantity	Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200 [1]
BASIC SYSTEM IMPROVEMENTS							
1	Pond No. 5					$2,400,000	$3,240,000
2	Pond No. 6					$2,400,000	$3,240,000
3	Pond No. 4 Expansion					$1,000,000	$1,350,000
Total Basic Improvements						$5,800,000	$7,830,000
FUTURE SANTA ROSA SYSTEM EXPANSION							
4	SBR West Pump Station		650 hp	3,000 gpm	$3,000 /HP	$1,950,000	$2,632,500
5	Walker Basin Golf Course TM		20 in	20,000 LF	$200 /LF	$4,000,000	$5,400,000
6	Reservoir Inlet/Outlet		16 in	500 LF	$150 /LF	$75,000	$101,250
7	Storage/Equalization Reservoir (Tank)		1.5 MG	1.5 MG	$0.70 /GAL	$1,050,000	$1,417,500
8	Secondary Pipelines					$2,000,000	$2,700,000
9	Conversion of Existing Users					$1,000,000	$1,350,000
Total Estimated Santa Rosa System Expansion						$10,075,000	$13,601,250
FUTURE RANCHO SYSTEM EXPANSION							
10	Secondary Pipelines					$2,000,000	$2,700,000
11	Conversion of Existing Users					$1,000,000	$1,350,000
Total Estimated Rancho System Expansion						$3,000,000	$4,050,000
TOTAL RECYCLED WATER SYSTEM EXPANSION PROGRAM						**$18,875,000**	**$25,481,250**

[1] Estimated capital cost based on an additional 35% of the estimated construction cost.

Nondomestic Water System and Use Areas



RBF CONSULTING

(M:\Mdata\65100064\GIS\Border.mxd) - _mp_non_dom_system.pdf - 4/12/2005

Figure 8-1

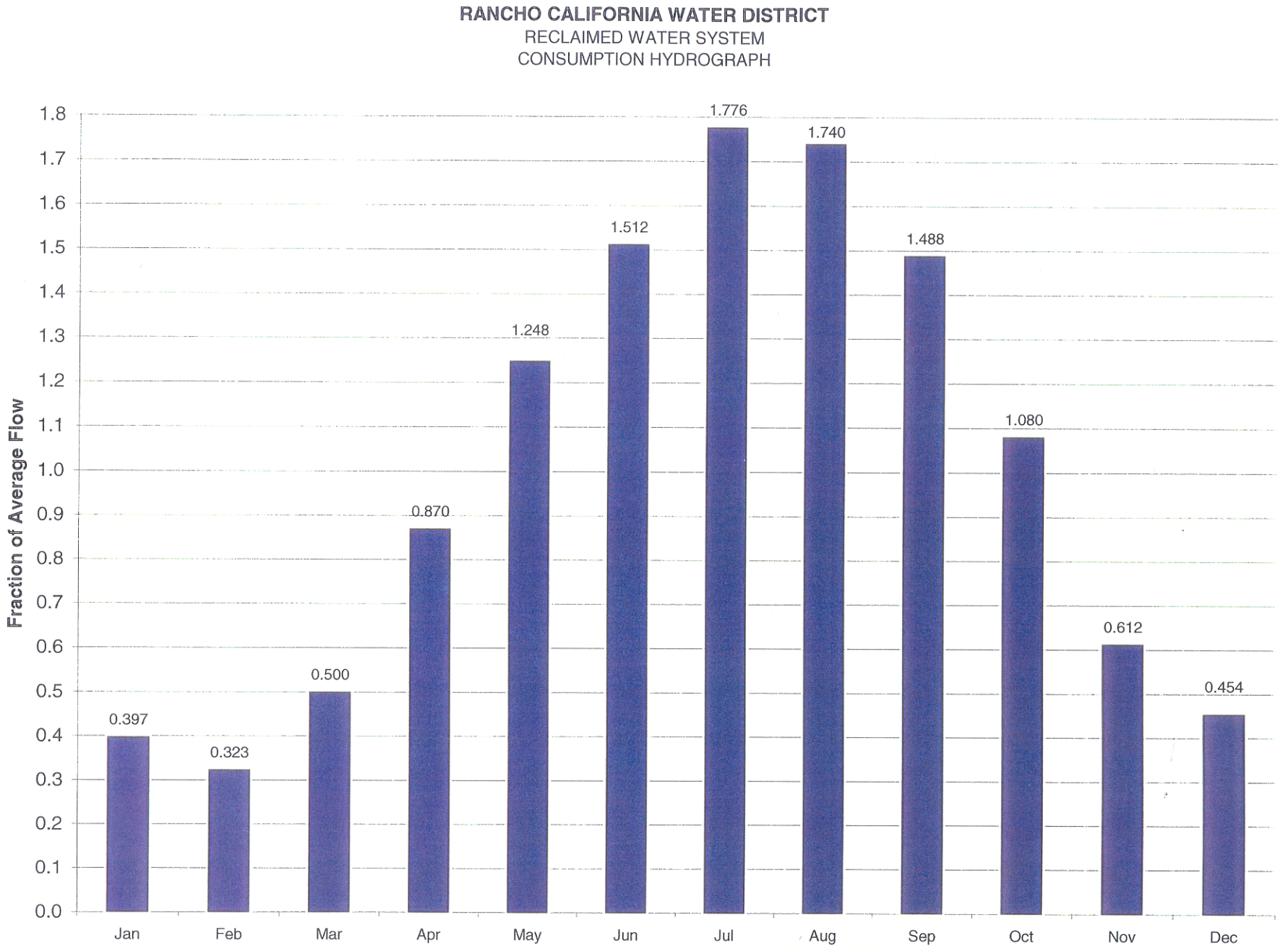

RANCHO CALIFORNIA WATER DISTRICT
RECLAIMED WATER SYSTEM
CONSUMPTION HYDROGRAPH
Fraction of Average Flow
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.397
0.323
0.500
0.870
1.248
1.512
1.776
1.740
1.488
1.080
0.612
0.454
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Figure 8-2

Chapter 9

CAPITAL IMPROVEMENT PROJECTS AND COSTS

The revised Master Plan of water facilities outlined in this report was the basis for revisions made to the current list of capital improvements projects. The capital improvement project's list identified in the RCWD Capital Improvement Program, dated June 2005 as analyzed against this RCWD Water Facilities Master Plan Update to identify the status of each facility as one of the following: 1) Completed 2) Canceled 3) Modified.

The revised Capital Improvement Program (CIP) includes all "modified" projects as well as additional projects necessary to provide adequate backbone water supply for the ultimate land use plan identified in Chapter 3.

The proposed CIP projects were categorized as either being of benefit to all pressure zones within the District equally (Category 1), being of benefit to only a few zones (Category 2), or being of benefit to a particular zone only (Category 3). This is to ensure that project costs are allocated to only those users within zones that receive a direct or indirect benefit from the facility. Those facilities needed exclusively for Santa Rosa Division pressure zones are included in Table 9.1 (pages 1 through 8), those facilities needed exclusively for Rancho division Pressure Zones are included in Table 9.2 (pages 1 through 8), and all "common" facilities are included in Table 9.3 (pages 1 and 2).

A phasing study was also performed to estimate the year required to initiate the construction of each CIP project. An escalated cost was then determined for each project at an estimated average interest rate of 5 percent. The phases are as follows:

	Year
Phase One	2005-2009
Phase Two	2010
Phase Three	2015
Phase Four	2020
Phase Five	2025

Tables 9.1 (pages 9 through 16), 9.2 (pages 9 through 16) and 9.3 (pages 3 and 4) show when each CIP project is needed and their escalated cost for Santa Rosa Division projects, Rancho Division projects, and Common Facilities, respectively. A summary of total escalated capital costs for each is as follows:

Santa Rosa	$ 71,550,900
Rancho	$ 140,487,000
Common	$ 17,531,100
Total	$ 229,569,000

Additionally, a schedule for Capital Replacement facilities has been prepared (Table numbers 9.4, 9.5 and 9.6). This represents an update to the previous (1993) analysis. The update includes reflection of subsequently constructed facilities, modified C.I.P. information, and project cost experiences.

Table 9.1
Rancho California Water District
Water Facilities Master Plan Update
Status of 1997 Capital Improvement Projects &
Recommended Capital Improvement Projects
Santa Rosa Division

			Recommended Facilities Improvements					Preliminary Cost Estimate: Recommended Facilities			
Item No.	**Cate-gory No.**	**Facility Name**	**Description of Recommended Improvements Per the 1997 Master Plan**	**Changes to Recommended Improvements**	**Status**	**Size/ Capacity**	**Quantity**	**Unit Cost**	**Estimated Construction Cost (2005 $) ENR=8200**	**Estimated Capital Cost (2005 $) ENR=8200**	**Escalated Cost ($)**
2850 ZONE:											
2850-1	3	Calle Parama Reservoir Nos. 1 and 2	Construct 2-0.5 MG steel tanks near Calle Parama.	Constructed as single 1.0 MG Tank	Completed				$0	$0	$0
2850-2	3	Bosque Pump Station	Construct 750 gpm (500 firm) pump station @ Ave Bosque & Calle Corriente. 150 HP.	Renamed Escala P.S. @ 1,100 gpm	Completed				$0	$0	$0
2850-3	3	Huerto/Parama Trans Main	Construct 12,000 ft of 12-inch pipeline between North P.S. and North Resvr in Huerto & Parama.		Completed				$0	$0	$0
2850-100 (south)	3	Redondo Mesa P.S. expansion		Increase Redondo Mesa pumping capacity by 250 gpm		250 gpm	50 HP	$2,500.00 /HP	$125,000	$168,750	$288,600
2850-101 (south)	3	Redondo Mesa Reservoir No. 2		Construct 0.5 MG steel tank at Redondo Mesa site, existing stor-age capacity provides ~8 hrs at maximum-day demand			0.5 MG	$0.70 /gal	$350,000	$472,500	$808,100
		Subtotal Category 3:							**$475,000**	**$641,250**	**$1,096,700**
		Subtotal 2850 Zone:							**$475,000**	**$641,300**	**$1,096,700**

Table 9.1
Rancho California Water District
Water Facilities Master Plan Update
Status of 1997 Capital Improvement Projects &
Recommended Capital Improvement Projects
Santa Rosa Division

			Recommended Facilities Improvements					Preliminary Cost Estimate: Recommended Facilities			
Item No.	**Cate-gory No.**	**Facility Name**	**Description of Recommended Improvements Per the 1997 Master Plan**	**Changes to Recommended Improvements**	**Status**	**Size/ Capacity**	**Quantity**	**Unit Cost**	**Estimated Construction Cost (2005 $) ENR=8200**	**Estimated Capital Cost (2005 $) ENR=8200**	**Escalated Cost ($)**
2550 ZONE:											
2550-1	2	Tenaja Pump Station	Completion of Tenaja Pump Station Facility to be 4500 gpm (3100 firm), 1800 HP. Suction from ex 2260 Tenaja Resvr.	Increase proposed firm capacity to 6,300 gpm		6300 gpm	1200 HP	$3,500.00 /HP	$4,200,000	$5,670,000	$9,697,600
2550-6	2	Baldary P.S. Relocation/Expansion	Relocate Pump Station below Baldaray Reservoir and match required 4500gpm capacity. Requres Tenaja Pump station in place	Completed, but tested at 4,100 gpm	Completed					$0	$0
2550-100	2	La Cresta Reservoir No. 2		Increase storage capacity at La Cresta site to achieve 16 hrs max day volume			2.3 MG	$0.70 /gal	$1,610,000	$2,173,500	$3,717,400
		Subtotal Category 2:							**$5,810,000**	**$7,843,500**	**$13,415,000**
		Subtotal 2550 Zone							**$4,200,000**	**$5,670,000**	**$9,697,600**
		Subtotal Above Zones							**$4,675,000**	**$6,311,300**	**$10,794,300**

Table 9.1
Rancho California Water District
Water Facilities Master Plan Update
Status of 1997 Capital Improvement Projects &
Recommended Capital Improvement Projects
Santa Rosa Division

			Recommended Facilities Improvements					Preliminary Cost Estimate: Recommended Facilities			
Item No.	**Cate-gory No.**	**Facility Name**	**Description of Recommended Improvements Per the 1997 Master Plan**	**Changes to Recommended Improvements**	**Status**	**Size/ Capacity**	**Quantity**	**Unit Cost**	**Estimated Construction Cost (2005 $) ENR=8200**	**Estimated Capital Cost (2005 $) ENR=8200**	**Escalated Cost ($)**
2260 ZONE:											
2260-1	2	Carancho Pump Station Expansion	Add pump units 3 and 4.	Increase P.S. capacity to 7,800 gpm 2 Units at 3,200 gpm each, or 4 Units at 1,600 gpm each.		6300 gpm	1600 HP	$3,000.00 /HP	$4,800,000	$6,480,000	$8,683,800
2260-2	2	El Calamar Parallel	Construct 6,500 ft of 16-inch pipeline in El Calamar between Carancho P.S. and Via Escalon; and in Via Escalon from El Calamar to existing 24"	Increase pipe size to 24-inch		24 in	6500 LF	$225.00 /LF	$1,462,500	$1,974,375	$2,645,900
		Subtotal Category 2:							**$6,262,500**	**$8,454,375**	**$11,329,700**
		Subtotal 2260 Zone							**$6,262,500**	**$8,454,400**	**$11,329,700**
		Subtotal Above Zones							**$10,937,500**	**$14,765,700**	**$22,124,000**

Table 9.1
Rancho California Water District
Water Facilities Master Plan Update
Status of 1997 Capital Improvement Projects &
Recommended Capital Improvement Projects
Santa Rosa Division

			Recommended Facilities Improvements					Preliminary Cost Estimate: Recommended Facilities			
Item No.	**Cate-gory No.**	**Facility Name**	**Description of Recommended Improvements Per the 1997 Master Plan**	**Changes to Recommended Improvements**	**Status**	**Size/ Capacity**	**Quantity**	**Unit Cost**	**Estimated Construction Cost (2005 $) ENR=8200**	**Estimated Capital Cost (2005 $) ENR=8200**	**Escalated Cost ($)**
2160 ZONE:											
2160-3	2	Baldaray Resvr #2	Construct 1.0 MG steel tank in vicinity of exist Baldaray Resvr.	Not needed	Cancelled				$0	$0	$0
2160-10	2	La Cresta Road Parallel	Construct 6,300 ft of 24-inch pipeline in La Cresta Rd btw Clinton Keith Rd and proposed New Baldaray Reservoirs.	Not needed	Cancelled				$0	$0	$0
2160-11	2	Clinton Keith Parallel	Construct 8,300 ft of 24-inch parallel in Clinton Keith Rd. north of La Cresta Rd	Not needed	Cancelled				$0	$0	$0
2160-12	2	Bear Cr. P.S. Expansion	Exist P.S. has three units: two @ 150HP 600 gpm one @ 250HP 1000 gpm Add: one @ 225HP 800 gpm Total = 4200gpm, Firm = 3200gpm	No expansion needed	Cancelled				$0	$0	$0
		Subtotal Category 2:							**$0**	**$0**	**$0**
		Subtotal 2160 Zone:							**$0**	**$0**	**$0**
		Subtotal Above Zones:							**$10,937,500**	**$14,765,700**	**$22,124,000**

Table 9.1
Rancho California Water District
Water Facilities Master Plan Update
Status of 1997 Capital Improvement Projects &
Recommended Capital Improvement Projects
Santa Rosa Division

			Recommended Facilities Improvements					Preliminary Cost Estimate: Recommended Facilities			
Item No.	**Cate-gory No.**	**Facility Name**	**Description of Recommended Improvements Per the 1997 Master Plan**	**Changes to Recommended Improvements**	**Status**	**Size/ Capacity**	**Quantity**	**Unit Cost**	**Estimated Construction Cost (2005 $) ENR=8200**	**Estimated Capital Cost (2005 $) ENR=8200**	**Escalated Cost ($)**
1990 ZONE:											
1990-7	3	Del Oro/La Cruz Loop Main	Construct 3,800 ft of 12-inch pipeline in easements from Avenida Del Oro to La Cruz Rd.	Revise alignment: Del Oro from PS to Creek Hollow, Cr Hollow from Del Oro to La Cruz		12 in	3800 LF	$100.00 /LF	$380,000	$513,000	$687,500
		Subtotal Category 3:							**$380,000**	**$513,000**	**$687,500**
		Subtotal 1990 Zone							**$380,000**	**$513,000**	**$687,500**
		Subtotal Above Zones:							**$11,317,500**	**$15,278,700**	**$22,811,500**

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			Recommended Facilities Improvements					Preliminary Cost Estimate: Recommended Facilities			
Item No.	**Cate-gory No.**	**Facility Name**	**Description of Recommended Improvements Per the 1997 Master Plan**	**Changes to Recommended Improvements**	**Status**	**Size/ Capacity**	**Quantity**	**Unit Cost**	**Estimated Construction Cost (2005 $) ENR=8200**	**Estimated Capital Cost (2005 $) ENR=8200**	**Escalated Cost ($)**
1670 ZONE:											
1670-3a	2	Carancho Reservoir #4	Construct 4.0-MG tank	Revise size based on make-up for 1440 Zone, current demands may require as interim facility			4.0 MG	$0.70 /gal	$2,800,000	$3,780,000	$5,065,600
1670-4	2	Via Del Verano Resvr	Construct 4.0 MG steel tank in vicinity of Via Del Verano, off Vaquero. With HWL = 1670 ft.	Replaced with new Via Vaquero Tank No. 1	Completed				$0	$0	$0
1670-5	2	Del Verano Resvr Inlet	Construct 1,500 ft of 24-inch pipeline in easements from Vaquero to Del Verano Resvr.	Replaced with new 36-inch Via Vaquero Inlet/ Outlet	Completed				$0	$0	$0
1670-6	2	Via Pino Reservoir (Renamed Via Vaquero No. 2)	Construct 4.0 MG steel tank in vicinity of Via Pino, off Vaquero. With HWL = 1670 ft.	Renamed Via Vaquero Tank No. 2			5.0 MG	$0.70 /gal	$3,500,000	$4,725,000	$6,030,400
1670-7	2	Pino Resvr Inlet	Construct 1,800 ft of 24-inch pipeline in easements from Vaquero to Pino Resvr.	Replaced with new 36-inch Via Vaquero Inlet/ Outlet	Completed				$0	$0	$0
1670-10	2	De Luz Reservoir No. 3	Construct 7.0 MG steel tank in vicinity of existing De Luz, Remove ex Tanks Resvr's. With HWL = 1670 ft.		Cancel				$0	$0	$0
1670-11	2	De Luz Reservoir No. 3 Inlet	Construct 400 ft of 36-inch, and 800 ft of 24-inch main from R.C. Rd to De Luz Resvr #3.		Cancel				$0 $0	$0 $0	$0 $0
1670-14	2	Rancho Road Trans Main	Construct 7,800 ft of 42-inch pipeline in Rancho Calif Rd from Camino Sec Resvrs to De Luz Rd.		Completed				$0	$0	$0
1670-15	2	Vaquero/De Luz Parallel Transmission Main	Construct 5,800 ft of 36-inch pipeline parallel in Vaquero fr 2000 ft S of A. Del Oro to Rancho California Rd.	De Luz tank cancelled, therefore existing transmission facilities are adequate (Note existing demand INCREASE at west end due to Carancho PS)	Cancel				$0	$0	$0
1670-16	2	Sandia Creek Loop Transmission Main	Construct 6400 ft of 16-inch pipeline in Sandia Crk Dr from Carancho to Vaquero.			16 in	6400 LF	$150.00 /LF	$960,000	$1,296,000	$1,500,300
1670-17	2	C. Roca/Cresta Parallel Transmission Main	Construct 4900 ft of 16-inch pipeline parallel to exist 8-inch in Calle Roca/Cresta btw Vaquero and Tierra.			16 in	4900 LF	$150.00 /LF	$735,000	$992,250	$1,148,700
1670-18	2	C. Uva/Cresta Loop Transmission Main	Construct 6100 ft of 12-inch loop completion in easements from C. Cresta to C. Uva.			12 in	6100 LF	$100.00 /LF	$610,000	$823,500	$907,900
1670-100	2	Existing Carancho tanks demolition		Existing tanks taken out of service due to incompatible elevation			1 LS	$100,000.00 /ea	$100,000	$135,000	$230,900
		Subtotal Category 2:							**$8,705,000**	**$11,751,750**	**$14,883,800**
		Subtotal 1670 Zone:							**$8,705,000**	**$11,751,800**	**$14,883,800**
		Subtotal Above Zones:							**$20,022,500**	**$27,030,500**	**$37,695,300**

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Item No.	**Cate-gory No.**	**Facility Name**	**Description of Recommended Improvements Per the 1997 Master Plan**	**Changes to Recommended Improvements**	**Status**	**Size/ Capacity**	**Quantity**	**Unit Cost**	**Estimated Construction Cost (2005 $) ENR=8200**	**Estimated Capital Cost (2005 $) ENR=8200**	**Escalated Cost ($)**
1440 ZONE:											
1440-1	3	Los Gatos Resvr	Construct 5.6 MG steel tank in vicinity of Los Gatos Rd, off Carancho Road. With HWL = 1440 ft.	Revise size based on potential need as interim facility for existing high demands, assume 2.0 MG adequate			2.0 MG	$0.70 /gal	$1,400,000	$1,890,000	$2,083,700
1440-3	3	L. Gatos Rsvr Inlet	Construct 6200 ft of 24-inch pipeline in Carancho Rd and Los Gatos Rd from Calamar to Los Gatos Reservoirs.			24 in	6200 LF	$225.00 /LF	$1,395,000	$1,883,250	$2,076,300
1440-101	3	Carancho Road Parallel Transmission Main	Construct 6,000 ft of 24-inch pipeline parallel to exist 20-inch in Carancho btw El Calamar and Vista Del Mar.	Although lower zone demands, stay in CIP due to increased need to support 1440 Zone thru PRVs	formerly CIP No. 1670-19	24 in	5700 LF	$225.00 /LF	$1,282,500	$1,731,375	$4,324,500
1440-102	3	Los Gatos Parallel Transmission Main	Construct 4500 ft of 16-inch pipeline parallel to exist 12-inch in Los Gatos btw Carancho and Buena Vista	Although lower zone demands, stay in CIP due to increased need to support 1440 Zone thru PRVs	formerly CIP No. 1670-20	16 in	4500 LF	$150.00 /LF	$675,000	$911,250	$956,800
1440-103	3	Buena Vista/Los Vientos Zone Conversion	Convert existing 1440 Zone 12-inch mains in B. Vista btw L. Gatos and Del Mar, and in Los Vientos btw B. Vista and Vista Del Mar. to 1670 Zone trans. Mains.		formerly CIP No. 1670-21		1 EA	$150,000.00 /ea	$150,000	$202,500	$212,600
1440-104	3	Los Gatos Loop Transmission Main	Construct 2800 ft of 12-inch to complete loop in Los Gatos fr V. Del Mar to ex 12-inch.	Although lower zone demands, stay in CIP due to increased need to support 1440 Zone thru PRVs	formerly CIP No. 1670-22	12 in	2800 LF	$100.00 /LF	$280,000	$378,000	$396,900
1440-105	3	Ace Bowen PS expansion		Expand Ace Bowen Pumps #3 and #4 to 10,900 gpm	Pumps tested in 2004 show reduced flows	1200 gpm	150 HP	$2,500.00 /HP	$375,000	$506,250	$586,000
		Subtotal Category 3:							**$5,557,500**	**$7,502,625**	**$10,636,800**
		Subtotal 1440 Zone:							**$5,557,500**	**$7,502,600**	**$10,636,800**
		Subtotal Above Zones:							**$25,580,000**	**$34,533,100**	**$48,332,100**

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Item No.	**Cate-gory No.**	**Facility Name**	**Description of Recommended Improvements Per the 1997 Master Plan**	**Changes to Recommended Improvements**	**Status**	**Size/ Capacity**	**Quantity**	**Unit Cost**	**Estimated Construction Cost (2005 $) ENR=8200**	**Estimated Capital Cost (2005 $) ENR=8200**	**Escalated Cost ($)**
1500 ZONE (West):											
1500W-1	2	Vineyard Reservoir#1	Construct 1.0 MG steel tank in vicinity of Fut Tenaja Rd, with HWL = 1500 ft.	Currently under design as 3.5 MG	Under Design		3.5 MG	$0.70 /gal	$2,450,000	$3,307,500	$3,472,900
1500W-3	2	Joaquin Ranch No. 1 P.S. Expansion	Exist P.S. has two firm units: two @ 250HP 2600 gpm Add one addtl firm unit: one @ 260HP 2400 gpm Total = 7600 gpm, Firm = 5000 gpm		Completed				$0	$0	$0
1500W-5	2	Tenaja/Vineyard TM	Construct 6300 ft of 36-inch pipeline in Tenaja Rd to the proposed Vineyard Reservoir	Change diameter to 24-inch	Under Design	24 in	6300 LF	$225.00 /LF	$1,417,500	$1,913,625	$2,009,300
1500W-6	2	Vineyard S.P. TM	Construct 9800 ft of 24-inch pipeline from Tenaja Rd to the ex 30-inch main in Oso Del Oro/ Nutmeg St. Align Per S.P.		Under Design	24 in	9800 LF	$225.00 /LF	$2,205,000	$2,976,750	$3,125,600
1500W-7	2	Bear Creek Resvr Parallel TM	Construct 4200 ft of 16-inch pipeline parallel to exist 16-inch in Clinton Keith betw Oso Del Oro and Bear Creek Resvr.	Change diameter to 24-inch, abandon existing 16-inch		24 in	4200 LF	$225.00 /LF	$945,000	$1,275,750	$1,628,200
1500W-100	2	Bear Creek Resvr No. 2		Required for increased estimated demands and 16 hrs of max day			1.5 MG	$0.70 /gal	$1,050,000	$1,417,500	$1,809,100
1500W-101	2	Joaquin Ranch No. 1 P.S. further expansion		Add 1 - 1,000 gpm unit in separate building		1000 gpm	125 HP	$2,500.00 /HP	$312,500	$421,875	$538,400
		Subtotal Category 2:							**$8,380,000**	**$11,313,000**	**$12,583,500**
		Subtotal 1500W Zone:							**$8,380,000**	**$11,313,000**	**$12,583,500**
		Subtotal Above Zones:							**$33,960,000**	**$45,846,100**	**$60,915,600**

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Item No.	**Cate-gory No.**	**Facility Name**	**Description of Recommended Improvements Per the 1997 Master Plan**	**Changes to Recommended Improvements**	**Status**	**Size/ Capacity**	**Quantity**	**Unit Cost**	**Estimated Construction Cost (2005 $) ENR=8200**	**Estimated Capital Cost (2005 $) ENR=8200**	**Escalated Cost ($)**
1500 ZONE (East, Formerly 1432 Zone):											
1500E-10	3	Cross Zone Transmission Main	Construct 24-inch pipe in Cal Oaks Road between Cal Oaks Pump Station & Joaquin Ranch Pump Station		Complete				$0	$0	$0
		Subtotal Category 3:							**$0**	**$0**	**$0**
		Subtotal 1550E Zone:							**$0**	**$0**	**$0**
		Subtotal Above Zones:							**$33,960,000**	**$45,846,100**	**$60,915,600**

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Item No.	**Cate-gory No.**	**Facility Name**	**Description of Recommended Improvements Per the 1997 Master Plan**	**Changes to Recommended Improvements**	**Status**	**Size/ Capacity**	**Quantity**	**Unit Cost**	**Estimated Construction Cost (2005 $) ENR=8200**	**Estimated Capital Cost (2005 $) ENR=8200**	**Escalated Cost ($)**
1305 ZONE: (Santa Rosa)											
1305-17	2	Lemon St Trans Main	Construct 3000 ft of 30-inch pipeline in Lemon from Hayes to proposed Murrieta Resvr.		Under design	30 in	3000 LF	$250.00 /LF	$750,000	$1,012,500	$1,063,100
1305-18	2	Murrieta Reservoir	Construct 3.0 MG steel tank.	Change to 5.0 MG	Under design		5.0 MG	$0.70 /gal	$3,500,000	$4,725,000	$4,961,300
		Subtotal Cateogry 2:							**$4,250,000**	**$5,737,500**	**$6,024,400**
		Subtotal 1305 Zone (Santa Rosa):							**$4,250,000**	**$5,737,500**	**$6,024,400**
		Subtotal Above Zones:							**$38,210,000**	**$51,583,600**	**$66,940,000**
GENERAL ITEMS (Santa Rosa)											
SR-1		Reservoir Site Acquisition				N/A	6	$150,000 /EA	$900,000	$1,215,000	$1,781,900
SR-2		Pump Station Site Acquisition				N/A	3	$50,000 /EA	$150,000	$202,500	$292,000
SR-3		City of Murrieta Road Imp. Allow.							$1,000,000	$1,350,000	$2,537,000
		Subtotal General Items (Santa Rosa):							**$2,050,000**	**$2,767,500**	**$4,610,900**
		SUBTOTAL SANTA ROSA DIVISION							**$40,260,000**	**$54,351,100**	**$71,550,900**

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2850 ZONE:											
2850-1	3	Calle Parama Reservoir Nos. 1 and 2									
2850-2	3	Bosque Pump Station									
2850-3	3	Huerto/Parama Trans Main									
2850-100 (south)	3	Redondo Mesa P.S. expansion							$288,600		
2850-101 (south)	3	Redondo Mesa Reservoir No. 2							$808,100		
		Subtotal Category 3:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,096,700**	**$0**	**$0**
		Subtotal 2850 Zone:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,096,700**	**$0**	**$0**

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2550 ZONE:											
2550-1	2	Tenaja Pump Station							$9,697,600		
2550-6	2	Baldaray P.S. Relocation/Expansion									
2550-100	2	La Cresta Reservoir							$3,717,400		
		Subtotal Category 2:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$13,415,000**	**$0**	**$0**
		Subtotal 2550 Zone	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$9,697,600**	**$0**	**$0**
		Subtotal Above Zones	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$10,794,300**	**$0**	**$0**

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2260 ZONE:											
2260-1	2	Carancho Pump Station Expansion						$8,683,800			
2260-2	2	El Calamar Parallel						$2,645,900			
		Subtotal Category 2:	**$0**	**$0**	**$0**	**$0**	**$0**	**$11,329,700**	**$0**	**$0**	**$0**
		Subtotal 2260 Zone	**$0**	**$0**	**$0**	**$0**	**$0**	**$11,329,700**	**$0**	**$0**	**$0**
		Subtotal Above Zones	**$0**	**$0**	**$0**	**$0**	**$0**	**$11,329,700**	**$10,794,300**	**$0**	**$0**

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2160 ZONE:											
2160-3	2	Baldaray Resvr #2									
2160-10	2	La Cresta Road Parallel									
2160-11	2	Clinton Keith Parallel									
2160-12	2	Bear Cr. P.S. Expansion									
		Subtotal Category 2:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
		Subtotal 2160 Zone:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
		Subtotal Above Zones:	**$0**	**$0**	**$0**	**$0**	**$0**	**$11,329,700**	**$10,794,300**	**$0**	**$0**

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1990 ZONE:											
1990-7	3	Del Oro/La Cruz Loop Main						$687,500			
		Subtotal Category 3:	**$0**	**$0**	**$0**	**$0**	**$0**	**$687,500**	**$0**	**$0**	**$0**
		Subtotal 1990 Zone	**$0**	**$0**	**$0**	**$0**	**$0**	**$687,500**	**$0**	**$0**	**$0**
		Subtotal Above Zones:	**$0**	**$0**	**$0**	**$0**	**$0**	**$12,017,200**	**$10,794,300**	**$0**	**$0**

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1670 ZONE:											
1670-3a	2	Carancho Reservoir #4						$5,065,600			
1670-4	2	Via Del Verano Resvr									
1670-5	2	Del Verano Resvr Inlet									
1670-6	2	Via Pino Reservoir (Renamed Via Vaquero No. 2)					$6,030,400				
1670-7	2	Pino Resvr Inlet									
1670-10	2	De Luz Reservoir No. 3									
1670-11	2	De Luz ReservoirNo. 3 Inlet									
1670-14	2	Rancho Road Trans Main									
1670-15	2	Vaquero/De Luz Parallel Transmission Main									
1670-16	2	Sandia Creek Loop Transmission Main			$1,500,300						
1670-17	2	C. Roca/Cresta Parallel Transmission Main			$1,148,700						
1670-18	2	C. Uva/Cresta Loop Transmission Main			$907,900						
1670-100	2	Existing Carancho tanks demolition							$230,900		
		Subtotal Category 2:	**$0**	**$0**	**$3,556,900**	**$0**	**$6,030,400**	**$5,065,600**	**$230,900**	**$0**	**$0**
		Subtotal 1670 Zone:	**$0**	**$0**	**$3,556,900**	**$0**	**$6,030,400**	**$5,065,600**	**$230,900**	**$0**	**$0**
		Subtotal Above Zones:	**$0**	**$0**	**$3,556,900**	**$0**	**$6,030,400**	**$17,082,800**	**$11,025,200**	**$0**	**$0**

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1440 ZONE:											
1440-1	3	Los Gatos Resvr		$2,083,700							
1440-3	3	L. Gatos Rsvr Inlet		$2,076,300							
1440-101	3	Carancho Road Parallel Transmission Main			$2,004,300			$2,320,200			
1440-102	3	Los Gatos Parallel Transmission Main	$956,800								
1440-103	3	Buena Vista/Los Vientos Zone Conversion	$212,600								
1440-104	3	Los Gatos Loop Transmission Main	$396,900								
1440-105	3	Ace Bowen PS expansion			$586,000						
		Subtotal Category 3:	**$1,566,300**	**$4,160,000**	**$2,590,300**	**$0**	**$0**	**$2,320,200**	**$0**	**$0**	**$0**
		Subtotal 1440 Zone:	**$1,566,300**	**$4,160,000**	**$2,590,300**	**$0**	**$0**	**$2,320,200**	**$0**	**$0**	**$0**
		Subtotal Above Zones:	**$1,566,300**	**$4,160,000**	**$6,147,200**	**$0**	**$6,030,400**	**$19,403,000**	**$11,025,200**	**$0**	**$0**

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1500 ZONE (West):											
1500W-1	2	Vineyard Reservoir#1	$3,472,900								
1500W-3	2	Joaquin Ranch No. 1 P.S. Expansion									
1500W-5	2	Tenaja/Vineyard TM	$2,009,300								
1500W-6	2	Vineyard S.P. TM	$3,125,600								
1500W-7	2	Bear Creek Resvr Parallel TM					$1,628,200				
1500W-100	2	Bear Creek Resvr No. 2					$1,809,100				
1500W-101	2	Joaquin Ranch No. 1 P.S. further expansion					$538,400				
		Subtotal Category 2:	**$8,607,800**	**$0**	**$0**	**$0**	**$3,975,700**	**$0**	**$0**	**$0**	**$0**
		Subtotal 1500W Zone:	**$8,607,800**	**$0**	**$0**	**$0**	**$3,975,700**	**$0**	**$0**	**$0**	**$0**
		Subtotal Above Zones:	**$10,174,100**	**$4,160,000**	**$6,147,200**	**$0**	**$10,006,100**	**$19,403,000**	**$11,025,200**	**$0**	**$0**

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1500 ZONE (East, Formerly 1432 Zone):											
1500E-10	2	Cross Zone Transmission Main		$0							
		Subtotal Category 2:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
		Subtotal 1550E Zone:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
		Subtotal Above Zones:	**$10,174,100**	**$4,160,000**	**$6,147,200**	**$0**	**$10,006,100**	**$19,403,000**	**$11,025,200**	**$0**	**$0**

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1305 ZONE: (Santa Rosa)											
1305-17	2	Lemon St Trans Main	$1,063,100								
1305-18	2	Murrieta Reservoir	$4,961,300								
		Subtotal Cateogry 2:	**$6,024,400**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
		Subtotal 1305 Zone (Santa Rosa):	**$6,024,400**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
		Subtotal Above Zones:	**$16,198,500**	**$4,160,000**	**$6,147,200**	**$0**	**$10,006,100**	**$19,403,000**	**$11,025,200**	**$0**	**$0**
GENERAL ITEMS (Santa Rosa)											
SR-1		Reservoir Site Acquisition	$425,300		$234,400	$246,100	$258,400	$271,400	$346,300		
SR-2		Pump Station Site Acquisition					$86,100	$90,500	$115,400		
SR-3		City of Murrieta Road Imp. Allow.	$61,600	$64,700	$68,000	$71,400	$74,900	$236,000	$502,000	$640,700	$817,700
		Subtotal General Items (Santa Rosa):	**$486,900**	**$64,700**	**$302,400**	**$317,500**	**$419,400**	**$597,900**	**$963,700**	**$640,700**	**$817,700**
		SUBTOTAL SANTA ROSA DIVISION	**$16,685,400**	**$4,224,700**	**$6,449,600**	**$317,500**	**$10,425,500**	**$20,000,900**	**$11,988,900**	**$640,700**	**$817,700**

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								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
2600 ZONE:											
2600-1	3	2600 Reservoir	Construct 1.0 MG steel tank.				1.0 MG	$0.70 /gal	$700,000	$945,000	$1,266,400
2600-2	3	2600 Pump Station	Construct 750 gpm (500 firm) pump station @ Ladera Vista Glen Oaks Resvr. 150 HP.	Increase to 600 firm		600 gpm	200 HP	$3,000.00 /HP	$600,000	$810,000	$1,085,500
2600-3	3	2600 Trans Main	Construct 10,600 ft of 12-inch pipeline between 2600 P.S. and 2600 Resvr.			12 in	10600 LF	$100.00 /LF	$1,060,000	$1,431,000	$1,917,700
		Subtotal Category 3:							**$2,360,000**	**$3,186,000**	**$4,269,600**
		Subtotal 2600 Zone							**$2,360,000**	**$3,186,000**	**$4,269,600**

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								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
2350 ZONE:											
2350-1	3	Calle Breve Pump Station Expansion	Exist P.S. has two units: two @ 125HP 500 gpm Add one addtl unit: one @ 125HP 500 gpm Total = 1500gpm, Firm = 1000 gpm		Completed, tested in 2004 at 1,200 gpm firm				$0	$0	$0
2350-2	3	Calaveras Reservoir #2	Construct 0.5 MG steel tank adjacent to exist reservoir.[1]				0.5 MG	$0.70 /gal	$350,000	$472,500	$808,100
2350-3	3	2070 to 2350 Zone Conversion I	Construct 6500 ft of 12-inch pipeline fr C. Breve P.S. discharge in De Portola and Camino Sierra.		Cancel				$0	$0	$0
		Subtotal Category 3:							**$350,000**	**$472,500**	**$808,100**
		Subtotal 2350 Zone							**$350,000**	**$472,500**	**$808,100**
		Subtotal Above Zones							**$2,710,000**	**$3,658,500**	**$5,077,700**

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								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
2070 ZONE: 2070-100	2	Portola Dr/ Cordova Dr Parallel		Construct approx. 5,000 ft of 16-inch pipeline between Portola P.S. and Glenoaks/ Portola Dr intersection	ONLY NEED IF DE PORTOLA PS OPERATES AT FULL CAP; HOWEVER, FULL CAPACITY NOT NEEDED BASED ON ULTIMATE DEMANDS	16 in	5000 LF	150 /LF	$750,000	$1,012,500	$1,230,700
		Subtotal Category 2:							**$750,000**	**$1,012,500**	**$1,230,700**
		Subtotal 2070 Zone							**$750,000**	**$1,012,500**	**$1,230,700**
		Subtotal Above Zones							**$3,460,000**	**$4,671,000**	**$6,308,400**

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								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
1790 ZONE:											
1790-2	2	Mesa Dr Resvr	Construct 3.3 MG steel tank near Mesa Dr. HWL = 1790 ft.	Renamed "Tucalota" and currently under design at 3.5 MG.	Under Design		3.5 MG	$0.70 /gal	$2,450,000	$3,307,500	$3,472,900
1790-7	2	Buck Road Parallel Trans Main	Construct 3,000 ft of 24-inch pipeline in Buck Rd btw Buck Mesa P.S. and Rancho Cal Rd.	Due to proposed expansion of Los Caballos instead of Buck Mesa PS, parallel not needed	Cancel				$0	$0	$0
1790-8	2	Mesa Resvr Trans Main (Tucalota TM)	Construct 5,400 ft of 24-inch pipeline in Glenoaks Rd. and Mesa Rd to proposed Mesa Resvrs.	Renamed "Tucalota" TM - relocate to E. Benton and Calle Jojoba	Under Design	24 in	5400 LF	$225.00 /LF	$1,215,000	$1,640,250	$1,722,300
1790-100	2	Los Caballos PS expansion		Expand Pumping Cap from 4,000 GPM (2004 Test) to 5,700 GPM		1,700 gpm	400 HP	$2,500.00 /HP	$1,000,000	$1,350,000	$1,809,100
1790-101	2	Demolition of De Portola Res. No. 1; replace with new tank		Remove old tank (2.2 MG) Construct new tank at 3.5 MG			3.5 MG	$1.00 /gal	$3,500,000	$4,725,000	$6,332,000
		Subtotal Category 2:							**$8,165,000**	**$11,022,750**	**$13,336,300**
		Subtotal 1790 Zone							**$8,165,000**	**$11,022,750**	**$13,336,300**
		Subtotal Above Zones							**$11,625,000**	**$15,693,750**	**$19,644,700**

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								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
1610 ZONE:											
1610-4	2	Buck Mesa Resvr #3	Construct 6.0 MG steel tank near existing Buck Mesa Resvrs.			6.0 MG	6.0 MG	$0.70 /gal	$4,200,000	$5,670,000	$7,598,300
1610-5	2	Anza Rd Parallel Trans Main	Construct 10,800 ft of 24-inch pipeline in Anza Rd from Anza Pump Station to R.C. Rd.	Reduce length to 5400 ft: from Anza P.S. to Madera De Playa	Not needed if RC PS and 1380 Zone upgrades (1610-101 and 1380-100) are constructed	24 in	5400 LF	$225.00 /LF	$1,215,000	$1,640,250	$2,198,100
1610-6	2	Anza Pump Station Expansion	Add pump units 5, 6 and 7. 250 HP and 2300 gpm each.	Revise capacity of each proposed pump unit to 2350 gpm, total firm cap = 11,000 gp	Station tested (2004) at 4,000 gpm firm Expansion depends on RC #1 expansion	7000 gpm	900 HP	$3,000.00 /HP	$2,700,000	$3,645,000	$4,884,600
1610-7	2	Vista Del Monte Loop Trans Main	Construct 1,900 ft of 30-inch pipeline in Butterfield Stage Rd. between La Serena and Vista Del Monte.		Completed as 16"						
1610-100	2	Buck Mesa Reservoir #3 Inlet/Outlet		Construct 6,000 ft of 24-inch within El Sol Road north from Buck Mesa to potential Tank #3 site		24 in	6000 LF	$225.00 /LF	$1,350,000	$1,822,500	$2,215,300
1610-101	2	Rancho California P.S. #1 expansion		Increase station firm cap to 10,000 gpm	Station tested (2004) at 6,600 gpm firm Expansion depends on Anza expansion	3400 gpm	450 HP	$2,500.00 /HP	$1,125,000	$1,518,750	$2,035,300
		Subtotal Category 2:							**$10,590,000**	**$14,296,500**	**$18,931,600**
		Subtotal 1610 Zone							**$10,590,000**	**$14,296,500**	**$18,931,600**
		Subtotal Above Zones							**$22,215,000**	**$29,990,250**	**$38,576,300**

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								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
1550 ZONE:											
1550-2	3	Monte Verde Trans Main/Parallel	Construct 6,500 ft of 12-inch in Anza Monte Verde, and Los Caballas Rd.		Upsize to 24", depends if 1550 is supply zone to Vail	24 in	6500 LF	$225.00 /LF	$1,462,500	$1,974,375	$2,519,900
1550-3	3	Los Caballos Trans Main	Construct 3,600 ft of 16-inch in Los Caballos		Completed				$0	$0	$0
1550-4	3	Highway 79 Trans Main	Construct 2,600 ft. of 16-inch in Highway 79	Increase length to 5400LF and upsize to 24 for potential supply to Vail	Upsize to 24", depends if 1550 is supply zone to Vail	24 in	2600 LF	$225.00 /LF	$585,000	$789,750	$1,007,900
1550-5	3	Future Transmission Main (name not determined)	Construct 1,400 ft. of 16-inch in easements from Hwy 79 to Los Corralitos		Upsize to 24", depends if 1550 is supply zone to Vail	24 in	1400 LF	$225.00 /LF	$315,000	$425,250	$569,900
1550-6	3	Los Corralitos Trans Main	Construct 2,300 ft. of 16-inch in Los Corralitos		Upsize to 24", depends if 1550 is supply zone to Vail	24 in	2300 LF	$225.00 /LF	$517,500	$698,625	$936,200
1550-7	3	Pauba Trans Main	Construct 3,300 ft. of 16-inch in Pauba		Upsize to 24", depends if 1550 is supply zone to Vail	24 in	3300 LF	$225.00 /LF	$742,500	$1,002,375	$1,343,300
1550-8	3	1640 (1675 Zone) to 1550 Pressure Reducing Station	Construct Pressure Reducing Station between 1640 (1675) and 1550 Zones				1	Lump Sum	$100,000	$135,000	$180,900
1550-9	3	Alvarez Reservoir No. 2	Construct 2.2 MG tank		Completed as El Chimisal #3				$0	$0	$0
1550-100	3	Highway 79 Trans Main Parallel/ Upsize		Extend length to Alverez P.S. with parallel existing 24" pipeline in Highway 79S (to include future Vail demands)		24 in	4500 LF	$225.00 /LF	$1,012,500	$1,366,875	$1,744,500
1550-101	3	Alvarez PS expansion		Expand from 1,300 gpm (2004 test) to 9,200 gpm (to incl. future Vail demands)	Expansion cap depends if 1550 is supply zone to Vail	7900 gpm	800 HP	$3,000.00 /HP	$2,400,000	$3,240,000	$3,572,100
1550-102	3	El Chimisal Reservoir No. 4		Construct a new 1.0 MG tank		1.0 MG	1.0 MG	$0.70 /gal	$700,000	$945,000	$1,266,400
1550-103	3	Anza Road Transmission Main		Construct 4,000 LF of 16-inch in Anza Road from El Mirador Corte and continue west.		16 in	4000 LF	$150.00 /LF	$600,000	$810,000	$1,085,500
		Subtotal Category 3:							**$8,435,000**	**$11,387,250**	**$14,226,600**
		Subtotal 1550 Zone							**$8,435,000**	**$11,387,250**	**$14,226,600**
		Subtotal Above Zones							**$30,650,000**	**$41,377,500**	**$52,802,900**

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								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
1485 ZONE:											
1485-2	3	El Chimisal Resvr #2	Construct 6.2 MG steel tank near El Chimisal Rd.		Completed				$0	$0	$0
1485-4	3	Nicolas Resvr	Construct 7.0 MG steel tank north of Nicolas Road.		Completed as 3.5 MG tank				$0	$0	$0
1485-8	3	Meadows Parkway Trans Main	Construct 6,700 ft of 16-inch pipeline in Meadows Pkwy from De Portola to Pauba.	Revise length to 3,500 LF	3,200 LF constructed	16 in	3500 LF	$150.00 /LF	$525,000	$708,750	$820,500
1485-13	3	Meadows Parkway Trans Main	Construct 5,100 ft of 24-inch pipeline in Meadows Pkwy from Rancho CA to LaSerena		Completed				$0	$0	$0
1485-14	3	Rancho Cal Rd. Trans Main	Construct 2,000 ft of 16-inch pipeline in Rancho Cal Rd from BS Rd to Margarita Rd.		Cancelled				$0	$0	$0
1485-19	3	Unnamed Trans Main	Construct 2,000 ft of 16-inch pipeline.		Completed as 12"				$0	$0	$0
1485-21	3	Fairview Ave. Trans Main	Construct 3,000 ft of 16-inch pipeline in Fairview Avenue.		Completed				$0	$0	$0
1485-24	3	Butterfield Stage Rd Trans Main	Construct 4,700 ft of 30-inch pipeline in B.St. Rd from R.C. Road to La Serena.		Completed				$0	$0	$0
1485-26	3	La Serena Parallel Trans Main	Construct 400 ft of 30-inch pipeline in La Serena from B.St. Rd to Walcott Ln.		Completed				$0	$0	$0
1485-27	3	Walcott/Nicolas Trans Main	Construct 3,100 ft of 30-inch pipeline in Walcott Ln and Nicolas Rd		Completed						
1485-28	3	Nicolas Resvr Inlet Trans Main	Construct 5,000 ft of 30-inch pipeline to Nicolas Resvrs.		Completed as a 24"				$0	$0	$0
1485-100	3	Rancho Ca No. 2 P.S. Expansion		Expand from 2,600 gpm firm (2004 test) to 6,300 gpm	Help to relieve burden on Butterfield Stage PS and discharge system	3700 gpm	300 HP	$2,500.00 /HP	$750,000	$1,012,500	$1,731,700
		Subtotal Category 3:							**$1,275,000**	**$1,721,250**	**$2,552,200**
		Subtotal 1485 Zone							**$1,275,000**	**$1,721,250**	**$2,552,200**
		Subtotal Above Zones							**$31,925,000**	**$43,098,750**	**$55,355,100**

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								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
1380 ZONE:											
1380-1	2	Meadowview PS Upgrade	Expand to 15,000 gpm firm		NOT complete, based on 2004 pump test, tested at 6900 gpm firm	8100 gpm	550 HP	$3,000.00 /HP	$1,650,000	$2,227,500	$2,455,800
1380-7	2	La Serena/Meadows Loop Completion	Construct 5,400 ft of 24-inch pipeline between exist La Serena Main and G. Kearny Rsvr Inlet.		Completed				$0	$0	$0
1380-12	2	Meadowview Loop Compl Trans Main	Construct 2,800 ft of 12-inch in Del Rey and Buene Suerte.			12 in	2800 LF	$100.00 /LF	$280,000	$378,000	$416,700
1380-17	3	Winchester Resvr #2	Construct 2.0 MG steel tank.	Revise to 5.0 MG			5.0 MG	$0.70 /gal	$3,500,000	$4,725,000	$8,081,400
1380-19	3	Winchester Rd Parallel/Ynez Rd. Connection Trans Mains	Convert existing 16-inch to 1380, construct 3,800 ft of 16-inch pipeline between Winchester Rd and Ynez		Cancel. Harveston development projects provide the looping that was intended.				$0	$0	$0
1380-100	2	Rancho Cal Rd 24-inch parallel		Construct 5,500 ft of 24-inch in RC Rd from Yukon to Margarita for increased suction-side capacity for RC Pump Stations, caused by increased 1485 projected demand and may replace the need for CIP 1610-5		24 in	5500 LF	$225.00 /LF	$1,237,500	$1,670,625	$2,238,800
1380-101	2	Anza I/O 24-inch parallel		Construct ~1,000 ft of 24" parallel to existing I/O pipe for Anza Res		24 in	1000 LF	$225.00 /LF	$225,000	$303,750	$369,200
1380-102	2	Anza/Hwy 79S 20-inch parallel		Construct 3,000 ft of 20" in Anza Rd and Hwy 79S for suction to Alvarez PS		20 in	3000 LF	$200.00 /LF	$600,000	$810,000	$984,600
1380-103	2	Hwy 79S 12-inch parallel		Contruct 4,000 ft of 12-inch parallel to ex. 12" west from Alvarez PS (local area demand increase)		12 in	4000 LF	$100.00 /LF	$400,000	$540,000	$656,400
1380-104	2	Anza Resvr #2		Construct 6.0 MG steel tank for 15 hrs of storage, or as site constraints allow			6.0 MG	$0.70 /gal	$4,200,000	$5,670,000	$6,891,900
1380-105	2	Los Caballos PS (1305 to 1380)		Construct Los Caballos PS - 2000 gpm firm; expand existing or construct in new bldg)		2000 gpm	150 HP	$3,000.00 /HP	$450,000	$607,500	$738,400
		Subtotal Category 2:							**$9,042,500**	**$12,207,375**	**$14,751,800**
		Subtotal Category 3:							**$3,500,000**	**$4,725,000**	**$8,081,400**
		Subtotal 1380 Zone							**$12,542,500**	**$16,932,375**	**$22,833,200**
		Subtotal Above Zones							**$44,467,500**	**$60,031,125**	**$78,188,300**

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								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
1305 ZONE (Rancho):											
1305-19	2	Rainbow Canyon Trans Main	Construct 7900 ft of 30-inch pipeline in Rainbow Cyn from Hwy 79 to prop Rainbow Resvrs.			30 in	7900 LF	$250.00 /LF	$1,975,000	$2,666,250	$4,560,200
1305-20	2	Rainbow Resvr #1	Construct 3.0 MG steel tank.				3.0 MG	$0.70 /gal	$2,100,000	$2,835,000	$4,848,800
1305-21	2	Rainbow Resvr #2	Construct 3.0 MG steel tank.				3.0 MG	$0.70 /gal	$2,100,000	$2,835,000	$4,848,800
1305-22	2	Rainbow Canyon TM Bridge Crossing	Construct 400 feet of 30-inch pipeline		Complete				$0	$0	$0
1305-23	2	Front St. Waterline Replacement	Construct 3700 ft of 24-inch pipeline		Complete				$0	$0	$0
1305-100	2	Diaz Road "water quality" 12-inch pipeline		Construct 4,000 lf of 12-inch in Diaz Road from Winchester Rd to Cherry Street	Completed as 16-inch						
1305-101	2	Winchester Road Parallel		Construct parallel 3,200 LF of 24-inch in Winchester Road easterly from Ynez to ex. 36-inch TM	Based on increased Winchest. PS capacity to operate safely with 1305 wells off	24 in	3200 LF	$225.00 /LF	$720,000	$972,000	$1,662,400
1305-102	2	Margarita Road Parallel		Construct 2,000 lf of 24-inch suction TM in Margarita Road for Winch. PS	Based on increased Winchest. PS capacity to operate safely with 1305 wells off	24 in	2000 LF	$225.00 /LF	$450,000	$607,500	$1,039,000
		Subtotal Category 2:							**$7,345,000**	**$9,915,750**	**$16,959,200**
		Subtotal 1305 Zone							**$7,345,000**	**$9,915,750**	**$16,959,200**
		Subtotal Above Zones							**$51,812,500**	**$69,946,875**	**$95,147,500**

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								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
RAINBOW GAP AREA											
1540 ZONE (Proposed)											
1540-1	3	1540 Zone Pump Station	Construct 3600 gpm PS near 1305 Zone Vinyard Reservoir			1000 gpm	150 HP	$3,000.00 /HP	$450,000	$607,500	$1,039,000
1540-2	3	1540 Zone Reservoir	Construct 2.3 MG Reservoir	Reduce to 1.0 MG for RCWD Service Area only.			1.0 MG	$0.70 /gal	$700,000	$945,000	$1,616,300
1540-3	3	1540 Zone Trans Main	Construct 4500 feet of 20-inch trans main	Reduce to 12 inch for RCWD Service Area only.		12 in	4500 LF	$100.00 /LF	$450,000	$607,500	$1,039,000
1540-4	3	1540 Zone Trans Main	Construct 7000 feet of 16-inch trans main from the 1540 Zone Reservoir South, portion to be jack and bored Includes 500 foot jack casing cost.		Cancel				$0	$0	$0
		Subtotal Category 3:							**$1,600,000**	**$2,160,000**	**$3,694,300**
		Subtotal 1540 Zone							**$1,600,000**	**$2,160,000**	**$3,694,300**
		Subtotal Above Zones							**$53,412,500**	**$72,106,875**	**$98,841,800**

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								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
VAIL LAKE											
1675 ZONE:											
1675-1	2	1675 Reservoir					1.0 MG	$0.70 /gal	$700,000	$945,000	$1,266,400
1675-2	2	1675 Trans Main				24 in	12650 LF	$225.00 /LF	$2,846,250	$3,842,438	$5,149,200
1675-3	2	1305 to 1675 Pump Station		Revised to 4900 gpm firm capacity		4900 gpm	1100 HP	$3,500.00 /HP	$3,850,000	$5,197,500	$6,965,100
		Subtotal Category 2:							**$7,396,250**	**$9,984,938**	**$13,380,700**
		Subtotal Vail Lake 1675 Zone							**$7,396,250**	**$9,984,938**	**$13,380,700**
		Subtotal Above Zones							**$60,808,750**	**$82,091,813**	**$112,222,500**

Table 9.2
Rancho California Water District
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Status of 1997 Capital Improvement Projects &
Recommended Capital Improvement Projects
Rancho Division

Item No.	Cate-gory No.	Facility Name	Description of Recommended Improvements Per the 1997 Master Plan	Changes to Recommended Improvements	Status	Size/ Capacity	Quantity	Preliminary Cost Estimate: Recommended Facilities			Escalated Cost ($)
								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
1850 ZONE											
1850-1	3	1850 Reservoir					4.3 MG	$0.70 /gal	$3,010,000	$4,063,500	$5,445,500
1850-2	3	1850 Pump Station				2500 gpm	350 HP	$3,000.00 /HP	$1,050,000	$1,417,500	$1,899,600
1850-3	3	1850 Trans Main				24 in	5100 LF	$225.00 /LF	$1,147,500	$1,549,125	$2,076,000
1850-4	3	1850 Trans Main				30 in	1800 LF	$250.00 /LF	$450,000	$607,500	$814,100
1850-5	3	1850 Trans Main				24 in	2600 LF	$225.00 /LF	$585,000	$789,750	$1,058,300
1850-6	3	1850 Trans Main				16 in	9900 LF	$150.00 /LF	$1,485,000	$2,004,750	$2,686,600
1850-7	3	1850 Trans Main				20 in	14900 LF	$200.00 /LF	$2,980,000	$4,023,000	$5,391,200
1850-8	3	1850 Trans Main				20 in	5800 LF	$200.00 /LF	$1,160,000	$1,566,000	$2,098,600
		Subtotal Category 3:							**$11,867,500**	**$16,021,125**	**$21,469,900**
		Subtotal Vail Lake 1850 Zone							**$11,867,500**	**$16,021,125**	**$21,469,900**
		Subtotal Above Zones							**$72,676,250**	**$98,112,938**	**$133,692,400**
GENERAL ITEMS (Rancho)											
R-1		Reservoir Site Acquisition				N/A	9	$150,000 /EA	$1,350,000	$1,822,500	$1,781,900
R-2		Pump Station Site Acquisition				N/A	6	$50,000 /EA	$300,000	$405,000	$636,800
R-3		City of Temecula Road Imp. Allowance							$1,000,000	$1,350,000	$4,375,900
		Subtotal General Items (Rancho):							**$2,650,000**	**$3,577,500**	**$6,794,600**
		SUBTOTAL RANCHO DIVISION							**$75,326,250**	**$101,690,438**	**$140,487,000**

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Item No.	Cate-gory No.	Facility Name	PHASE ONE					PHASE TWO	PHASE THREE	PHASE FOUR	PHASE FIVE
			2005	2006	2007	2008	2009	2010	2015	2020	2025
2600 ZONE:											
2600-1	3	2600 Reservoir						$1,266,400			
2600-2	3	2600 Pump Station						$1,085,500			
2600-3	3	2600 Trans Main						$1,917,700			
		Subtotal Category 3:	**$0**	**$0**	**$0**	**$0**	**$0**	**$4,269,600**	**$0**	**$0**	**$0**
		Subtotal 2600 Zone	**$0**	**$0**	**$0**	**$0**	**$0**	**$4,269,600**	**$0**	**$0**	**$0**

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Item No.	Cate-gory No.	Facility Name	PHASE ONE 2005	2006	2007	2008	2009	PHASE TWO 2010	PHASE THREE 2015	PHASE FOUR 2020	PHASE FIVE 2025
2350 ZONE:											
2350-1	3	Calle Breve Pump Station Expansion						$0			
2350-2	3	Calaveras Reservoir #2							$808,100		
2350-3	3	2070 to 2350 Zone Conversion I									
		Subtotal Category 3:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$808,100**	**$0**	**$0**
		Subtotal 2350 Zone	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$808,100**	**$0**	**$0**
		Subtotal Above Zones	**$0**	**$0**	**$0**	**$0**	**$0**	**$4,269,600**	**$808,100**	**$0**	**$0**

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Item No.	Cate-gory No.	Facility Name	PHASE ONE					PHASE TWO	PHASE THREE	PHASE FOUR	PHASE FIVE
			2005	2006	2007	2008	2009	2010	2015	2020	2025
2070 ZONE: 2070-100	2	Portola Dr/ Cordova Dr Parallel				$1,230,700					
		Subtotal Category 2:	**$0**	**$0**	**$0**	**$1,230,700**	**$0**	**$0**	**$0**	**$0**	**$0**
		Subtotal 2070 Zone	**$0**	**$0**	**$0**	**$1,230,700**	**$0**	**$0**	**$0**	**$0**	**$0**
		Subtotal Above Zones	**$0**	**$0**	**$0**	**$1,230,700**	**$0**	**$4,269,600**	**$808,100**	**$0**	**$0**

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Item No.	Cate-gory No.	Facility Name	PHASE ONE 2005	2006	2007	2008	2009	PHASE TWO 2010	PHASE THREE 2015	PHASE FOUR 2020	PHASE FIVE 2025
1790 ZONE:											
1790-2	2	Mesa Dr Resvr	$3,472,900								
1790-7	2	Buck Road Parallel Trans Main									
1790-8	2	Mesa Resvr TM (Tucalota TM)	$1,722,300								
1790-100	2	Los Caballos PS expansion						$1,809,100			
1790-101	2	Demolition of De Portola Res. No. 1; replace with new tank						$6,332,000			
		Subtotal Category 2:	**$5,195,200**	**$0**	**$0**	**$0**	**$0**	**$8,141,100**	**$0**	**$0**	**$0**
		Subtotal 1790 Zone	**$5,195,200**	**$0**	**$0**	**$0**	**$0**	**$8,141,100**	**$0**	**$0**	**$0**
		Subtotal Above Zones	**$5,195,200**	**$0**	**$0**	**$1,230,700**	**$0**	**$12,410,700**	**$808,100**	**$0**	**$0**

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Item No.	Cate-gory No.	Facility Name	PHASE ONE 2005	2006	2007	2008	2009	PHASE TWO 2010	PHASE THREE 2015	PHASE FOUR 2020	PHASE FIVE 2025
1610 ZONE:											
1610-4	2	Buck Mesa Resvr #3						$7,598,300			
1610-5	2	Anza Rd Parallel Trans Main						$2,198,100			
1610-6	2	Anza Pump Station Expansion						$4,884,600			
1610-7	2	Vista Del Monte Loop Trans Main									
1610-100	2	Buck Mesa Reservoir #3 Inlet/Outlet				$2,215,300					
1610-101	2	Rancho California P.S. #1 expansion						$2,035,300			
		Subtotal Category 2:	**$0**	**$0**	**$0**	**$2,215,300**	**$0**	**$16,716,300**	**$0**	**$0**	**$0**
		Subtotal 1610 Zone	**$0**	**$0**	**$0**	**$2,215,300**	**$0**	**$16,716,300**	**$0**	**$0**	**$0**
		Subtotal Above Zones	**$5,195,200**	**$0**	**$0**	**$3,446,000**	**$0**	**$29,127,000**	**$808,100**	**$0**	**$0**

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Item No.	Cate-gory No.	Facility Name	PHASE ONE 2005	2006	2007	2008	2009	PHASE TWO 2010	PHASE THREE 2015	PHASE FOUR 2020	PHASE FIVE 2025
1550 ZONE:											
1550-2	3	Monte Verde Trans Main					$2,519,900				
1550-3	3	Los Caballos Trans Main									
1550-4	3	Highway 79 Trans Main					$1,007,900				
1550-5	3	Future Transmission Main (name not determined)						$569,900			
1550-6	3	Los Corralitos Trans Main						$936,200			
1550-7	3	Pauba Trans Main						$1,343,300			
1550-8	3	1640 (1675 Zone) to 1550 Pressure Reducing Station						$180,900			
1550-9	3	Alvarez Reservoir No. 2									
1550-100	3	Highway 79 TM Parallel/ Upsize					$1,744,500				
1550-101	3	Alvarez PS expansion		$3,572,100							
1550-102	3	El Chimisal Reservoir No. 4							$1,266,400		
1550-103	3	Anza Road Transmission Main							$1,085,500		
		Subtotal Category 3:	**$0**	**$3,572,100**	**$0**	**$0**	**$5,272,300**	**$3,030,300**	**$2,351,900**	**$0**	**$0**
		Subtotal 1550 Zone	**$0**	**$3,572,100**	**$0**	**$0**	**$5,272,300**	**$3,030,300**	**$2,351,900**	**$0**	**$0**
		Subtotal Above Zones	**$5,195,200**	**$3,572,100**	**$0**	**$3,446,000**	**$5,272,300**	**$32,157,300**	**$3,160,000**	**$0**	**$0**

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Item No.	Cate-gory No.	Facility Name	PHASE ONE 2005	2006	2007	2008	2009	PHASE TWO 2010	PHASE THREE 2015	PHASE FOUR 2020	PHASE FIVE 2025
1485 ZONE:											
1485-2	3	El Chimisal Resvr #2									
1485-4	3	Nicolas Resvr									
1485-8	2	Meadows Parkway Trans Main			$820,500						
1485-13	3	Meadows Parkway Trans Main									
1485-14	3	Rancho Cal Rd. Trans Main									
1485-19	2	Unnamed Trans Main									
1485-21	3	Fairview Ave. Trans Main									
1485-24	3	Butterfield Stage Rd Trans Main									
1485-26	3	La Serena Parallel Trans Main									
1485-27	3	Walcott/Nicolas Trans Main									
1485-28	3	Nicolas Resvr Inlet Trans Main									
1485-100	3	Rancho Ca No. 2 P.S. Expansion							$1,731,700		
		Subtotal Category 3:	**$0**	**$0**	**$820,500**	**$0**	**$0**	**$0**	**$1,731,700**	**$0**	**$0**
		Subtotal 1485 Zone	**$0**	**$0**	**$820,500**	**$0**	**$0**	**$0**	**$1,731,700**	**$0**	**$0**
		Subtotal Above Zones	**$5,195,200**	**$3,572,100**	**$820,500**	**$3,446,000**	**$5,272,300**	**$32,157,300**	**$4,891,700**	**$0**	**$0**

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Status of 1997 Capital Improvement Projects &
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Rancho Division

Item No.	Cate-gory No.	Facility Name	PHASE ONE 2005	2006	2007	2008	2009	PHASE TWO 2010	PHASE THREE 2015	PHASE FOUR 2020	PHASE FIVE 2025
1380 ZONE:											
1380-1	2	Meadowview PS Upgrade		$2,455,800							
1380-7	2	La Serena/Meadows Loop Completion		$0							
1380-12	2	Meadowview Loop Compl Trans Main		$416,700							
1380-17	3	Winchester Resvr #2							$8,081,400		
1380-19	3	Winchester Rd Parallel/Ynez Rd. Connection Trans Mains									
1380-100	2	Rancho Cal Rd 24-inch parallel						$2,238,800			
1380-101	2	Anza I/O 24-inch parallel				$369,200					
1380-102	2	Anza/Hwy 79S 20-inch parallel				$984,600					
1380-103	3	Hwy 79S 12-inch parallel				$656,400					
1380-104	3	Anza Resvr #2				$6,891,900					
1380-105	3	Los Caballos PS (1305 to 1380)				$738,400					
		Subtotal Category 2:	**$0**	**$2,872,500**	**$0**	**$9,640,500**	**$0**	**$2,238,800**	**$0**	**$0**	**$0**
		Subtotal Category 3:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$8,081,400**	**$0**	**$0**
		Subtotal 1380 Zone	**$0**	**$2,872,500**	**$0**	**$9,640,500**	**$0**	**$2,238,800**	**$8,081,400**	**$0**	**$0**
		Subtotal Above Zones	**$5,195,200**	**$6,444,600**	**$820,500**	**$13,086,500**	**$5,272,300**	**$34,396,100**	**$12,973,100**	**$0**	**$0**

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Status of 1997 Capital Improvement Projects &
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Item No.	Cate-gory No.	Facility Name	PHASE ONE 2005	2006	2007	2008	2009	PHASE TWO 2010	PHASE THREE 2015	PHASE FOUR 2020	PHASE FIVE 2025
1305 ZONE (Rancho):											
1305-19	2	Rainbow Canyon Trans Main							$4,560,200		
1305-20	2	Rainbow Resvr #1							$4,848,800		
1305-21	2	Rainbow Resvr #2							$4,848,800		
1305-22	2	Rainbow Canyon TM Bridge xing									
1305-23	2	Front St. Waterline Replacement									
1305-100	2	Diaz Road "water quality" 12-inch TM									
1305-101	2	Winchester Road Parallel							$1,662,400		
1305-102	2	Margarita Road Parallel							$1,039,000		
		Subtotal Category 2:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$16,959,200**	**$0**	**$0**
		Subtotal 1305 Zone	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$16,959,200**	**$0**	**$0**
		Subtotal Above Zones	**$5,195,200**	**$6,444,600**	**$820,500**	**$13,086,500**	**$5,272,300**	**$34,396,100**	**$29,932,300**	**$0**	**$0**

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Status of 1997 Capital Improvement Projects &
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Item No.	Cate-gory No.	Facility Name	PHASE ONE 2005	2006	2007	2008	2009	PHASE TWO 2010	PHASE THREE 2015	PHASE FOUR 2020	PHASE FIVE 2025
RAINBOW GAP AREA											
1540 ZONE (Proposed)											
1540-1	3	1540 Zone Pump Station							$1,039,000		
1540-2	3	1540 Zone Reservoir							$1,616,300		
1540-3	3	1540 Zone Trans Main							$1,039,000		
1540-4	3	1540 Zone Trans Main									
		Subtotal Category 3:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$3,694,300**	**$0**	**$0**
		Subtotal 1540 Zone	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$3,694,300**	**$0**	**$0**
		Subtotal Above Zones	**$5,195,200**	**$6,444,600**	**$820,500**	**$13,086,500**	**$5,272,300**	**$34,396,100**	**$33,626,600**	**$0**	**$0**

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Item No.	Cate-gory No.	Facility Name	PHASE ONE 2005	2006	2007	2008	2009	PHASE TWO 2010	PHASE THREE 2015	PHASE FOUR 2020	PHASE FIVE 2025
VAIL LAKE											
1675 ZONE:											
1675-1	2	1675 Reservoir						$1,266,400			
1675-2	2	1675 Trans Main						$5,149,200			
1675-3	2	1305 to 1675 Pump Station						$6,965,100			
		Subtotal Category 2:	**$0**	**$0**	**$0**	**$0**	**$0**	**$13,380,700**	**$0**	**$0**	**$0**
		Subtotal Vail Lake 1675 Zone	**$0**	**$0**	**$0**	**$0**	**$0**	**$13,380,700**	**$0**	**$0**	**$0**
		Subtotal Above Zones	**$5,195,200**	**$6,444,600**	**$820,500**	**$13,086,500**	**$5,272,300**	**$47,776,800**	**$33,626,600**	**$0**	**$0**

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Status of 1997 Capital Improvement Projects &
Recommended Capital Improvement Projects
Rancho Division

Item No.	Cate-gory No.	Facility Name	PHASE ONE 2005	2006	2007	2008	2009	PHASE TWO 2010	PHASE THREE 2015	PHASE FOUR 2020	PHASE FIVE 2025
1850 ZONE											
1850-1	2	1850 Reservoir						$5,445,500			
1850-2	2	1850 Pump Station						$1,899,600			
1850-3	2	1850 Trans Main						$2,076,000			
1850-4	2	1850 Trans Main						$814,100			
1850-5	3	1850 Trans Main						$1,058,300			
1850-6	3	1850 Trans Main						$2,686,600			
1850-7	3	1850 Trans Main						$5,391,200			
1850-8	3	1850 Trans Main						$2,098,600			
		Subtotal Category 3:	**$0**	**$0**	**$0**	**$0**	**$0**	**$21,469,900**	**$0**	**$0**	**$0**
		Subtotal Vail Lake 1850 Zone	**$0**	**$0**	**$0**	**$0**	**$0**	**$21,469,900**	**$0**	**$0**	**$0**
		Subtotal Above Zones	**$5,195,200**	**$6,444,600**	**$820,500**	**$13,086,500**	**$5,272,300**	**$69,246,700**	**$33,626,600**	**$0**	**$0**
GENERAL ITEMS (Rancho)											
R-1		Reservoir Site Acquisition	$425,300		$234,400	$246,100	$258,400	$271,400	$346,300		
R-2		Pump Station Site Acquisition				$82,000	$86,100	$90,500	$230,900	$147,300	
R-3		City of Temecula Road Imp. Allow.	$106,300	$111,600	$117,200	$123,100	$129,200	$407,100	$865,900	$1,105,100	$1,410,400
		Subtotal General Items (Rancho):	**$531,600**	**$111,600**	**$351,600**	**$451,200**	**$473,700**	**$769,000**	**$1,443,100**	**$1,252,400**	**$1,410,400**
		SUBTOTAL RANCHO DIVISION	**$5,726,800**	**$6,556,200**	**$1,172,100**	**$13,537,700**	**$5,746,000**	**$70,015,700**	**$35,069,700**	**$1,252,400**	**$1,410,400**

Table 9.3
Rancho California Water District
Water Facilities Master Plan Update
Status of 1997 Capital Improvement Projects and
Recommended Capital Improvement Projects
Common Facilities

Item No.	Cate-gory No.	Facility Name	Description of Recommended Improvements Per the 1997 Master Plan	Changes to Recommended Improvements	Status	Size/ Capacity	Quantity	Preliminary Cost Estimate: Recommended Facilities			Escalated Cost ($)
								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
1305 ZONE (Common Facilities):											
1305-2	1	Butterfield Tie-in	Construct 1,600 ft of 30-inch pipeline in Butterfield from De Portola to Hwy 79.		Under Design as 36-inch	36 in	1600 LF	$250.00 /LF	$400,000	$540,000	$567,000
1305-3	1	Margarita Tie-in	Construct 1,400 ft of 24-inch pipeline in Margarita from De Portola to Hwy 79.		Under Design	24 in	1400 LF	$225.00 /LF	$315,000	$425,250	$446,500
1305-4	1	La Paz Tie-in	Construct 1,500 ft of 24-inch pipeline in La Paz from Ynez to Hwy 79.		Under Design	24 in	1500 LF	$225.00 /LF	$337,500	$455,625	$478,400
1305-5	1	Ynez Road Trans Main	Construct 12,800 ft of 48-inch pipeline in Ynez from Jededia Smith to R.C. Road.		Under Design	48 in	12800 LF	$350 /LF	$4,480,000	$6,048,000	$6,350,400
1305-7	1	Nicolas Road Feeder Trans Main	Construct 13,000 ft of 34-inch pipeline in Nicolas Rd from prop MWD TO's to Winchester.		Complete				$0	$0	$0
Subtotal Category 1:									**$5,532,500**	**$7,468,875**	**$7,842,300**
Subtotal General Items (Common Facilities):									**$5,532,500**	**$7,468,875**	**$7,842,300**

Table 9.3
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Water Facilities Master Plan Update
Status of 1997 Capital Improvement Projects and
Recommended Capital Improvement Projects
Common Facilities

Item No.	Cate-gory No.	Facility Name	Description of Recommended Improvements Per the 1997 Master Plan	Changes to Recommended Improvements	Status	Size/ Capacity	Quantity	Preliminary Cost Estimate: Recommended Facilities			Escalated Cost ($)
								Unit Cost	Estimated Construction Cost (2005 $) ENR=8200	Estimated Capital Cost (2005 $) ENR=8200	
COMMON - WRMP											
WRMP-10	1	EM20A	Construct treated MWD turnout connection		Completed				$0	$0	$0
WRMP-11	1	EM20B	Construct treated MWD turnout connection		Completed				$0	$0	$0
WRMP-12		Misc. Well Improvements	Construct necessary improvements and/or modifications to wells						$570,000	$769,500	$1,031,200
WRMP-13a	1	Future Raw Water T.O. Conversion	Relocate EM-19 to future aqueduct No. 6 near VDC recharge facilities	Renamed EM-21 (80 cfs)	Under Design		1 EA	$400,000.00 /EA	$400,000	$540,000	$567,000
WRMP-13b	1	VDC Recharge Pipeline		EM-21 Discharge Pipeline to VDC	Under Design	48 in	13000 LF	$350 /LF	$4,550,000	$6,142,500	$6,449,600
WRMP-15	1	Joint RCWD/MWDSC Pipeline	Approximately 2.5 miles of 60-inch pipeline to Lake Skinner		Completed						
WRMP-16	1	WR26/WR28 Discharge Pipeline	Construct 1100 LF of 42" pipeline		Cancel				$0	$0	$0
WRMP-100	1	WR-25 activation					1 Ea	$500,000.00 /EA	$500,000	$675,000	$820,500
WRMP-101	1	WR-25 Augmentation					1 Ea	$500,000.00 /EA	$500,000	$675,000	$820,500
Subtotal Category 1:									**$6,520,000**	**$8,802,000**	**$9,688,800**
Subtotal General Items (WRMP-Common Fac.):									**$6,520,000**	**$8,802,000**	**$9,688,800**
Total Common Facilities									**$12,052,500**	**$16,270,875**	**$17,531,100**
TOTAL SANTA ROSA, RANCHO and COMMON:									**$127,638,750**	**$172,312,413**	**$229,569,000**

Alternative Water Source Augmentation											
WRMP-101	1	New VDC Extraction Wells		Construct additional well pump capacity at VDC			5 EA	$900,000.00 /EA	$4,500,000	$6,075,000	$7,384,200
WRMP-102	1	New VDC Extraction Wells		Construct additional well pump capacity at VDC			5 EA	$900,000.00 /EA	$4,500,000	$6,075,000	$10,390,300
WRMP-103	1	Raw Water Pipeline to Vail Lake		Construct 16000 LF of 36" pipe from VDC to Vail Lake		36 in	16000 LF	$275.00 /LF	$4,400,000	$5,940,000	n/a
WRMP-104	1	Raw Water Booster Station		Construct Pump Station for raw water conveyance from VDC to Vail Lake and through treatment plant			55 MGD	$20,000.00 /MGD	$1,100,000	$1,485,000	n/a
WRMP-105	1	Raw Water Treatment Plant		Construct raw water treatment plant at VDC for EM-21 and/of for extractin wells			9 MGD	$1,500,000.00 /MGD	$13,500,000	$18,225,000	n/a
WRMP-106	1	Conservation Facilities					1 LS	$10,000,000 /LS	$10,000,000	$13,500,000	n/a

Table 9.3
Rancho California Water District
Water Facilities Master Plan Update
Status of 1997 Capital Improvement Projects and
Recommended Capital Improvement Projects
Common Facilities

			PHASE ONE					PHASE TWO	PHASE THREE	PHASE FOUR	PHASE FIVE
Item No.	**Cate-gory No.**	**Facility Name**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2015**	**2020**	**2025**
1305 ZONE (Common Facilities):											
1305-2	1	Butterfield Tie-in	$567,000								
1305-3	1	Margarita Tie-in	$446,500								
1305-4	1	La Paz Tie-in	$478,400								
1305-5		Ynez Road Trans Main	$6,350,400								
1305-7	1	Nicolas Road Feeder Trans Main									
Subtotal Category 1:			**$7,842,300**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Subtotal General Items (Common Facilities):			**$7,842,300**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Table 9.3
Rancho California Water District
Water Facilities Master Plan Update
Status of 1997 Capital Improvement Projects and
Recommended Capital Improvement Projects
Common Facilities

Item No.	Cate-gory No.	Facility Name	PHASE ONE 2005	2006	2007	2008	2009	PHASE TWO 2010	PHASE THREE 2015	PHASE FOUR 2020	PHASE FIVE 2025
COMMON - WRMP											
WRMP-10	1	EM20A									
WRMP-11	1	EM20B									
WRMP-12		Misc. Well Improvements						$1,031,200			
WRMP-13	1	Future Raw Water T.O. Conversion	$567,000								
WRMP-13b	1	VDC Recharge Pipeline	$6,449,600								
WRMP-15	1	Joint RCWD/MWDSC Pipeline									
WRMP-16	1	WR26/WR28 Discharge Pipeline									
WRMP-100	1	WR-25 activation				$820,500					
WRMP-101	1	WR-25 Augmentation				$820,500					
Subtotal Category 1:			**$7,016,600**	**$0**	**$0**	**$1,641,000**	**$0**	**$1,031,200**	**$0**	**$0**	**$0**
Subtotal General Items (WRMP-Common Fac.):			**$7,016,600**	**$0**	**$0**	**$1,641,000**	**$0**	**$1,031,200**	**$0**	**$0**	**$0**
Total Common Facilities			**$14,858,900**	**$0**	**$0**	**$1,641,000**	**$0**	**$1,031,200**	**$0**	**$0**	**$0**
TOTAL SANTA ROSA, RANCHO and COMMON:			**$37,271,100**	**$10,780,900**	**$7,621,700**	**$15,496,200**	**$16,171,500**	**$91,047,800**	**$47,058,600**	**$1,893,100**	**$2,228,100**

Alternative Augmentation											
WRMP-101	1	New VDC Extraction Wells				$7,384,200					
WRMP-102	1	New VDC Extraction Wells							$10,390,300		
WRMP-103	1	Raw Water Pipeline to Vail Lake	n/a								
WRMP-104	1	Raw Water Booster Station	n/a								
WRMP-105	1	Raw Water Treatment Plant	n/a								
WRMP-106	1	Conservation Facilities	n/a								

TABLE 9.4
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Santa Rosa Division

Item No.	Facility Name	Description of Facilities	Size/ Capacity	Quantity	Unit Cost	Estimated Capital Cost 2004 ($)	Estimated Replacement Items %	Estimated Replacement Items Cost	Life Cycle In Years	Construction Date	Repl. Date	Estimated Future Replacement Cost ($)
		RESERVOIRS										
1670E-6	Carancho Reservoir #1	3.0 MG tank at Carancho Site (abandoned)										
1305E-1	Ace Bowen Reservoir #1	3.0 MG tank at Ace Bowen Site		3 MG	$0.70 /gal	$2,100,000	10%	$210,000	60	1978	2038	$1,103,203
1990E-1	Freeman Reservoir	3.0 MG tank at Calle Escadera		3 MG	$0.70 /gal	$2,100,000	10%	$210,000	60	1978	2038	$1,103,203
1670E-1	De Luz Reservoir #1	3.0 MG tank at De Luz Site		3 MG	$0.70 /gal	$2,100,000	10%	$210,000	60	1978	2038	$1,103,203
1670E-2	De Luz Reservoir #2	3.0 MG tank at De Luz Site		3 MG	$0.70 /gal	$2,100,000	10%	$210,000	60	1978	2038	$1,103,203
1670E-7	Carancho Reservoir #2	2.2 MG tank at Carancho Site (abandoned)										
1305E-2	Ace Bowen Reservoir #2	5.0 MG tank at Ace Bowen Site		5 MG	$0.70 /gal	$3,500,000	10%	$350,000	60	1980	2040	$2,027,136
2160E-3	Baldaray Reservoir	2.2 MG tank at Baldaray Site		2.2 MG	$0.70 /gal	$1,540,000	10%	$154,000	60	1981	2041	$936,537
2550E-1	La Cresta Reservoir	1.1 MG tank at La Cresta Site		1.1 MG	$0.70 /gal	$770,000	10%	$77,000	60	1981	2041	$468,268
1440E-1	Prado Reservoir	5.0 MG tank at Prado Site		5 MG	$0.70 /gal	$3,500,000	10%	$350,000	60	1985	2045	$2,587,196
2260E-1	Tenaja Reservoir	2.2 MG tank at Tenaja Site		2.2 MG	$0.70 /gal	$1,540,000	10%	$154,000	60	1987	2047	$1,255,049
1500E-1	Bear Creek Reservoir	2.2 MG tank at Bear Creek Site on Clinton Keith		2.2 MG	$0.70 /gal	$1,540,000	10%	$154,000	60	1987	2047	$1,255,049
1432E-1	Antelope Reservoir	2.2 MG tank at Antelope Site		2.2 MG	$0.70 /gal	$1,540,000	10%	$154,000	60	1988	2048	$1,317,801
2550E-35	Avocado Mesa Reservoir	5.8 MG tank at Avocado Mesa Site		5.8 MG	$0.70 /gal	$4,060,000	10%	$406,000	60	1988	2048	$3,474,203
1440	Prado Reservoir #2			6.0 MG		$3,958,400	10%	$395,840	60	2000	2060	$6,083,037
1670	Carancho Reservoir #3			5.0 MG		$3,200,000	10%	$320,000	60	2000	2060	$4,917,572
1670	Vaquero Reservoir #1			5.0 MG		$3,692,000	10%	$369,200	60	2000	2060	$5,673,649
1990	Freeman Reservoir #2			5.0 MG		$3,200,000	10%	$320,000	60	2000	2060	$4,917,572
2850	Redondo Mesa Reservoir			0.5 MG		$320,000	10%	$32,000	60	2000	2060	$491,757
2850	Calle Parama Reservoir			1.0 MG		$1,096,600	10%	$109,660	60	2000	2060	$1,685,190
		Subtotal				$41,857,000		$4,185,700				$41,502,827
		PUMP STATIONS										
1990E-3	Del Oro Pump Station	4900 gpm pump station (4 units at 150 HP each) at Avd. Del Oro & C. Capistrano	4900 gpm	600 HP	$2,745 /HP	$1,646,754	40%	$658,702	35	1974	2009	$840,689
1670E-3	East Bluff Pump Station	7500 gpm pump station (2 units at 150 HP, 4 units at 200 HP) at East Bluff	7500 gpm	1100 HP	$4,548 /HP	$5,002,995	40%	$2,001,198	35	1975	2010	$2,681,797
2550E-2	Baldaray Pump Station	4500 gpm pump station (4 units, 200 HP each) at Baldaray site.	4500 gpm	800 HP	$2,588 /HP	$2,070,205	40%	$828,082	35	1975	2010	$1,109,709
1670E-4	Ace Bowen #1 Pump Station	11800 gpm pump station (3 units at 350 HP, 2 units at 250 HP) at Ace Bowen	11800 gpm	1550 HP	$2,196 /HP	$3,403,291	40%	$1,361,316	35	1977	2012	$2,011,284
2160E-10	De Luz Pump Station	5300 gpm pump station (2 units at 350 HP, 2 units at 200 HP) at De Luz Site	5300 gpm	1100 HP	$2,274 /HP	$2,501,497	40%	$1,000,599	35	1977	2012	$1,478,340
1440E-2	Ace Bowen #3 Pump Station	6000 gpm pump station (2 units at 250 HP each) at Ace Bowen Site	6000 gpm	500 HP	$2,980 /HP	$1,489,920	40%	$595,968	35	1980	2015	$1,019,308
1990E-2	Santa Rosa Pump Station	3200 gpm pump station (3 units at 150 HP each) at Via Santa Rosa & Vaqu	3200 gpm	450 HP	$2,980 /HP	$1,340,928	40%	$536,371	35	1981	2016	$963,246
1670E-5	Ace Bowen #2 Pump Station	18000 gpm pump station at Ace Bowen Site	18000 gpm	2500 HP	$3,764 /HP	$9,410,022	40%	$3,764,009	35	1983	2018	$7,452,480
1440E-3	Ace Bowen #4 Pump Station	14500 gpm pump station (2 units at 650 HP each) at Ace Bowen Site	14500 gpm	1300 HP	$4,548 /HP	$5,912,630	40%	$2,365,052	35	1984	2019	$4,916,774
2160E-4	Bear Creek Pump Station	2500 gpm pump station (2 units at 150 HP, 1 unit at 250 HP) at Bear Creek Site	2500 gpm	550 HP	$2,823 /HP	$1,552,654	40%	$621,061	35	1984	2019	$1,291,142
1500E-2	Joaquin Ranch Pump Station	5400 gpm pump station (2 units at 250 HP each) at Tenaja & Hayes Rd.	5400 gpm	500 HP	$2,980 /HP	$1,489,920	40%	$595,968	35	1984	2019	$1,238,975
2260E-6	Carancho Pump Station	1700 gpm pump station (1 unit at 350 HP) at Carancho Site	1700 gpm	350 HP	$3,137 /HP	$1,097,836	40%	$439,134	35	1987	2022	$1,056,829
1432E-2	Cal Oaks Pump Station	3000 gpm pump station (2 units at 125 HP each) at Cal Oaks Site	3000 gpm	250 HP	$3,137 /HP	$784,168	40%	$313,667	35	1987	2022	$754,878
1670	Senga Doherty P.S.		20000 gpm			$5,015,000	40%	$2,006,000	35	2000	2035	$9,103,307
1990	Vaquero P.S.		2100 gpm			$1,700,000	40%	$680,000	35	2000	2035	$3,085,867
2850S	Redondo Mesa P.S.		800 gpm			$600,000	40%	$240,000	35	2000	2035	$1,089,129
2850N	Avenida Escala P.S.		1100 gpm			$691,000	40%	$276,400	35	2000	2035	$1,254,314
		Subtotal				$45,708,821		$18,283,528				$41,348,068

TABLE 9.4
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Santa Rosa Division

Item No.	Facility Name	Description of Facilities	Size/ Capacity	Quantity	Unit Cost	Estimated Capital Cost 2004 ($)	Estimated Replacement Items %	Estimated Replacement Items Cost	Life Cycle In Years	Construction Date	Repl. Date	Estimated Future Replacement Cost ($)
		TRANSMISSION MAINS										
1440E-17	Upper Sandia Creek T.M. #3	12-inch pipeline between De Lorme Dr. & Via De Los Fideos in Sandia Creek	12 in	2250 /LF	$100 /LF	$225,000	100%	$225,000	50	1978	2028	$725,647
1440E-24	Upper Carancho T.M. #2	20-inch pipeline between Carancho Reservoirs & Camaron Road	20 in	9000 /LF	$200 /LF	$1,800,000	100%	$1,800,000	50	1978	2028	$5,805,180
1670E-27	El Prado trans Main	12-inch pipeline between Sandia Creek & Carancho in El Prado	12 in	12250 /LF	$100 /LF	$1,225,000	100%	$1,225,000	50	1978	2028	$3,950,747
1305E-5	Upper Jefferson Ave. T.M.	36-inch pipeline in Jefferson Ave. between Lemon R. & Winchester Rd.	36 in	23200 /LF	$275 /LF	$6,380,000	100%	$6,380,000	50	1978	2028	$20,576,138
1670E-28	Upper El Prado Trans Main	8-inch pipeline between Carancho & La Vella Rd. in El Prado	8 in	3000 /LF	$75 /LF	$225,000	100%	$225,000	50	1978	2028	$725,647
1440E-25	Upper Carancho T.M. #3	24-inch pipeline extends 3500 ft. from Camaron Rd. towards De Luz in Carancho	24 in	3500 /LF	$225 /LF	$787,500	100%	$787,500	50	1978	2028	$2,539,766
1670E-29	Lower Carancho Trans Main	8-inch pipeline between Sandia Creek & Calle Jardin in Carancho	8 in	8250 /LF	$75 /LF	$618,750	100%	$618,750	50	1978	2028	$1,995,531
2550E-36	Avenida La Cresta T.M. #4	20-inch pipeline in Avd. La Cresta between Calle Bandido and Gallop Lane	20 in	6700 /LF	$200 /LF	$1,340,000	100%	$1,340,000	50	1978	2028	$4,321,634
2550E-27	Calle Pino Trans Main	16-inch pipeline between Rancho Calif. Rd. & Avd. La Cresta in Calle Pino	16 in	7500 /LF	$150 /LF	$1,125,000	100%	$1,125,000	50	1978	2028	$3,628,237
1440E-26	Upper Carancho T.M. #4	16-inch pipeline extends toward Camaron Rd. from De Luz in Carancho	16 in	4000 /LF	$150 /LF	$600,000	100%	$600,000	50	1978	2028	$1,935,060
2550E-33	Avocado Mesa Inlet T.M.	36-inch pipeline in Avocado Mesa & Corona Cala Camino between Avocado	36 in	7000 /LF	$275 /LF	$1,925,000	100%	$1,925,000	50	1978	2028	$6,208,317
2260E-3	Via Escalon Trans Main	12-inch pipeline between Calamar Rd. & 24" Trans Main in Via Escalon	12 in	3700 /LF	$100 /LF	$370,000	100%	$370,000	50	1978	2028	$1,193,287
2550E-25	Avenida Bosque T.M.	24-inch pipeline from Calle Bandido to Calle Corriente in Avd. Bosque	24 in	2250 /LF	$225 /LF	$506,250	100%	$506,250	50	1978	2028	$1,632,707
1440E-27	Prado Trans Main	42-inch pipeline between Prado Reservoir & Carancho	42 in	1000 /LF	$300 /LF	$300,000	100%	$300,000	50	1978	2028	$967,530
2550E-37	Calle de Companero T.M. #2	12-inch pipeline in C. de Companero between Avd. La Cresta and Vista	12 in	1000 /LF	$100 /LF	$100,000	100%	$100,000	50	1978	2028	$322,510
2160E-1	Paseo Chaparro T.M. #1	12-inch pipeline in Paseo Chaparro extending 6000 ft. from Via Ent	12 in	4500 /LF	$100 /LF	$450,000	100%	$450,000	50	1978	2028	$1,451,295
2260E-2	Calle de Mucho Trans Main	24-inch pipeline between Tenaja Reservoir & Via Escalon in Via Volcano	24 in	18600 /LF	$225 /LF	$4,185,000	100%	$4,185,000	50	1978	2028	$13,497,043
1440E-28	Via Vaquero T.M. #7	39-inch pipeline between Ace Bowen #3 & 4 P.S. & Calle Roca in Via Vaquero	36 in	15000 /LF	$275 /LF	$4,125,000	100%	$4,125,000	50	1978	2028	$13,303,537
2260E-4	Upper El Calamar Rd. T.M.	8-inch pipeline extending north along El Calamar Rd. from Via Escalon	8 in	5000 /LF	$75 /LF	$375,000	100%	$375,000	50	1978	2028	$1,209,412
2160E-5	Upper Clinton Keith T.M. #1	16-inch pipeline between Bear Creek P.S. & Via Entrada	16 in	7750 /LF	$150 /LF	$1,162,500	100%	$1,162,500	50	1978	2028	$3,749,179
2550E-23	La Cresta Res. Inlet T.M.	24-inch pipeline from Vista de Montanas to La Cresta Reservoir	24 in	2000 /LF	$225 /LF	$450,000	100%	$450,000	50	1978	2028	$1,451,295
1440E-29	Calle Uva Trans Main #1	36-inch pipeline between Via Vaquero & Sandia Creek in Calle Rosa	36 in	20500 /LF	$275 /LF	$5,637,500	100%	$5,637,500	50	1978	2028	$18,181,501
2160E-2	Via Entrada Trans Main	8-inch pipeline between Clingo Keith & Avd. La Cresta in Via Ent	8 in	3000 /LF	$75 /LF	$225,000	100%	$225,000	50	1978	2028	$725,647
2160E-9	Santa Rosa Plateau T.M. #3	36-inch pipeline between De Luz P.S. & S.R. Sprs. Rd	39 in	7000 /LF	$288 /LF	$2,016,000	100%	$2,016,000	50	1978	2028	$6,501,801
2550E-21	Vista de Montanas T.M. #1	24-inch pipeline between Calle de Companero & nod to La Cresta Res.	24 in	2500 /LF	$225 /LF	$562,500	100%	$562,500	50	1978	2028	$1,814,119
1305E-104	Kalima St. Trans Main	24-inch pipeline in Kalima and I-inch pipline between15 between Cal Oaks P.S. and Jefferson	24 in	3750 /LF	225 /LF	$843,750	100%	$843,750	50	1978	2028	$2,721,178
2160E-6	Upper Clinton Keith T.M. #2	20-inch pipeline between Via Entrada & S.R. Springs Road in Cilinton Keith	20 in	2500 /LF	$200 /LF	$500,000	100%	$500,000	50	1978	2028	$1,612,550
2550E-18	Camino Noroeste T.M.	8-inch pipeline between Calle de Suenos & Sierra Sota Rd. in Valle Vista	8 in	5500 /LF	$75 /LF	$412,500	100%	$412,500	50	1978	2028	$1,330,354
2160E-8	Santa Rosa Plateau T.M. #2	33-inch pipeline between Tenaja Rd. & the end of S.R. Springs Rd. in S.R.	30 in	5500 /LF	$250 /LF	$1,375,000	100%	$1,375,000	50	1978	2028	$4,434,512
1440E-31	Lower De Luz T.M. #2	12-inch pipeline in De Luz, extending south from De Luz PRS	12 in	5000 /LF	$100 /LF	$500,000	100%	$500,000	50	1978	2028	$1,612,550
2550E-20	Via Caballos Trans Main	12-inch pipeline between Avd. Castilla & Avd. La Cresta in Via Caballos	12 in	9000 /LF	$100 /LF	$900,000	100%	$900,000	50	1978	2028	$2,902,590
1990E-6	Sycamore Mesa Trans Main	16-inch pipeline between Via Baranca & Via Santa Rosa in Sycamore Mesa	16 in	5500 /LF	$150 /LF	$825,000	100%	$825,000	50	1978	2028	$2,660,707
2550E-19	Sierra Soto Rd. T.M.	12-inch pipeline between Camino Noroesta & Sierra Maria in Sierra Soto	12 in	1500 /LF	$100 /LF	$150,000	100%	$150,000	50	1978	2028	$483,765
1305E-33	Blackdeer Loop Trans Main	16-inch pipeline in Blackdeer Loop between Diaz & Rancho Calif. Airport	16 in	2850 /LF	$150 /LF	$427,500	100%	$427,500	50	1978	2028	$1,378,730
2550E-17	Valle Vista Trans Main	12-inch pipeline between Avd. Cresta & C. de Suenos in Valle Vista	12 in	6000 /LF	$100 /LF	$600,000	100%	$600,000	50	1978	2028	$1,935,060
1990E-10	Upper Sandia Creek T.M.	20-inch pipeline between Via Barranca & Del Oro P.S. in Sando Creek	20 in	7300 /LF	$200 /LF	$1,460,000	100%	$1,460,000	50	1978	2028	$4,708,646
1990E-5	Upper Santa Rosa T.M. #1	16-inch pipeline between Santa Rosa P.S. & Sycamore Mesa in Via Santa	16 in	4000 /LF	$150 /LF	$600,000	100%	$600,000	50	1978	2028	$1,935,060
1440E-33	Lower Sandia Creek T.M. #3	8-inch pipeline in Sandia Creek between De Anza & El Prado	8 in	1750 /LF	$75 /LF	$131,250	100%	$131,250	50	1978	2028	$423,294
1990E-7	Via Peregrino Trans Main	12-inch pipeline from Via Santa Rosa in Via Peregrino	12 in	3500 /LF	$100 /LF	$350,000	100%	$350,000	50	1978	2028	$1,128,785
1990E-14	Calle Capistrano Loop T.M.	12-inch pipeline in Calle Capistrano, Rancho Calif. & Calle Monticello	12 in	13000 /LF	$100 /LF	$1,300,000	100%	$1,300,000	50	1978	2028	$4,192,630
1990E-9	Via Barranca Trans Main	20-inch pipeline between Freeman Res. & Sandia Creek Dr. in Calle	20 in	5000 /LF	$200 /LF	$1,000,000	100%	$1,000,000	50	1978	2028	$3,225,100
2550E-6	Calle De Lobo Trans Main	12-inch pipeline between Paseo Montana & C. de Componero in C.D. Lobo	12 in	7250 /LF	$100 /LF	$725,000	100%	$725,000	50	1978	2028	$2,338,197
1990E-11	Lower Sandia Creek T.M.	16-inch pipeline between Via Barranco & La Cruz in Sandia Creek	16 in	5000 /LF	$150 /LF	$750,000	100%	$750,000	50	1978	2028	$2,418,825
2550E-15	Avenida Castilla T.M.	12-inch pipeline between Avd. La Cresta & Avd. La Cresta & Avd. La Cresta in Avd. Castilla	12 in	8300 /LF	$100 /LF	$830,000	100%	$830,000	50	1978	2028	$2,676,833
1990E-13	Upper La Cruz Dr. T.M. #2	8-inch pipeline extends 2350 ft. below Via Vega in La Cruz Dr.	8 in	2350 /LF	$75 /LF	$176,250	100%	$176,250	50	1978	2028	$568,424
2550E-5	Paseo Montana Trans Main	8-inch pipeline between Majorica & Calle De Lobo in P. Montana	8 in	6750 /LF	$75 /LF	$506,250	100%	$506,250	50	1978	2028	$1,632,707
1990E-15	Upper Calle Capistrano T.M.	10-inch pipeline in Calle Capistrano between Rancho Calif Rd. & Prader	10 in	1250 /LF	$88 /LF	$110,000	100%	$110,000	50	1978	2028	$354,761
2550E-11	Avenida Bonita T.M. #2	8-inch pipeline between Avd. La Cresta & Avd. Castilla in Ave. Bonita	8 in	2500 /LF	$75 /LF	$187,500	100%	$187,500	50	1978	2028	$604,706
2550E-16	Calle de Suenos T.M.	12-inch pipeline between Avd. Castilla & Valle Vista in Calle de Suenos	12 in	10750 /LF	$100 /LF	$1,075,000	100%	$1,075,000	50	1978	2028	$3,466,982
1500E-3	Lower Clinton Keith T.M. #1	16-inch pipeline in Clinton Keith between Calle Del Oso & Ransho Santa	16 in	3500 /LF	$150 /LF	$525,000	100%	$525,000	50	1978	2028	$1,693,177
2550E-14	Avenida La Cresta T.M. #2	16-inch pipeline between Gallop Ln. & Sierra Maria Rd. in Avd. La Cresta	16 in	3300 /LF	$150 /LF	$495,000	100%	$495,000	50	1978	2028	$1,596,424
1670E-10	Calle Nuevo Trans Main	39-inch pipeline between V. Vaquero & Caramcho in Calle Nuevo & Cara	39 in	6000 /LF	$288 /LF	$1,728,000	100%	$1,728,000	50	1978	2028	$5,572,973

TABLE 9.4
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Santa Rosa Division

Item No.	Facility Name	Description of Facilities	Size/ Capacity	Quantity	Unit Cost	Estimated Capital Cost 2004 ($)	Estimated Replacement Items %	Estimated Replacement Items Cost	Life Cycle In Years	Construction Date	Repl. Date	Estimated Future Replacement Cost ($)
2550E-12	Calle de Companero T.M. #1	12-inch pipeline between C. de Lobo & Vista de Montanas in Calle de Companero	12 in	5700 /LF	$100 /LF	$570,000	100%	$570,000	50	1978	2028	$1,838,307
1500E-4	Upper Bear Creek T.M.	12-inch pipeline in Bear Creek Drive between Clinton Keith & Creek Vie	12 in	4000 /LF	$100 /LF	$400,000	100%	$400,000	50	1978	2028	$1,290,040
2550E-10	Avenida Bonita T.M. #1	12-inch pipeline between Avd. De Arboles & Avd. La Cresta in Ave. Bonita	12 in	5000 /LF	$100 /LF	$500,000	100%	$500,000	50	1978	2028	$1,612,550
1670E-14	Upper De Luz Trans Main	12-inch pipeline between Via Nortada & De Luz Reservoir in De Luz	12 in	1500 /LF	$100 /LF	$150,000	100%	$150,000	50	1978	2028	$483,765
1670E-9	Upper Carancho T.M. #1	36-inch pipeline between De Luz Rd & Carancho P.S. in Carancho Rd.	36 in	16000 /LF	$275 /LF	$4,400,000	100%	$4,400,000	50	1978	2028	$14,190,440
1500E-5	Lower Bear Creek T.M.	12-inch pipeline in Bear Creek Drive between Clinton Keith & Twin Oaks	12 in	4000 /LF	$100 /LF	$400,000	100%	$400,000	50	1978	2028	$1,290,040
1670E-11	Mid De Luz Trans Main	16-inch pipeline between V. Vaquero & El Prado in De Luz Rd & Carancha	16 in	1125 /LF	$150 /LF	$168,750	100%	$168,750	50	1978	2028	$544,236
1670E-18	Lower La Cruz Trans Main	12-inch pipeline between Sandia Creek & El Perro Dr. in La Cruz Dr.	12 in	3000 /LF	$100 /LF	$300,000	100%	$300,000	50	1978	2028	$967,530
2850E-1	Avocado Mesa T.M. #1	12-inch pipeline between Calle Viento and 16-inch main in Avocado Mesa	12 in	5750 /LF	$100 /LF	$575,000	100%	$575,000	50	1978	2028	$1,854,432
1500E-6	Calle Del Oso Oro T.M.	30-inch pipeline between Clinton Keith & Joaquin Ranch Pump Station in	30 in	14000 /LF	$250 /LF	$3,500,000	100%	$3,500,000	50	1978	2028	$11,287,850
1670E-15	Via Vaquero Trans Main #1	20-inch pipeline between Avd. Del Oro & Calle Cuero in Via Vaquero &	20 in	9600 /LF	$200 /LF	$1,920,000	100%	$1,920,000	50	1978	2028	$6,192,192
1670E-22	Calle Roca Trans Main	8-inch pipeline between Via Vaquero & Avd. Tierra in Calle Roca	8 in	4750 /LF	$75 /LF	$356,250	100%	$356,250	50	1978	2028	$1,148,942
1670E-17	Via Vaquero Trans Main #3	39-inch pipeline between Calle Nuevo & Calle Roca in Via Vaquero	39 in	19500 /LF	$288 /LF	$5,616,000	100%	$5,616,000	50	1978	2028	$18,112,161
1500E-7	Magnolia Trans Main	16-inch pipeline Hayes and Douglas in Magnolia	16 in	2000 /LF	$150 /LF	$300,000	100%	$300,000	50	1978	2028	$967,530
1670E-19	Via Vaquero Trans Main #5	24-inch pipeline between Calle Cuero & Via Santa Rosa in Via Vaquero	24 in	24000 /LF	$225 /LF	$5,400,000	100%	$5,400,000	50	1978	2028	$17,415,540
1670E-26	Calle Cuero Trans Main	12-inch pipeline extending from Via Vaquero in Calle Cuervo	12 in	4500 /LF	$100 /LF	$450,000	100%	$450,000	50	1978	2028	$1,451,295
1670E-21	Lower Santa Rosa T.M.	24-inch pipeline between Ace Bowen #1 & 2 P.S. & Santa Rosa P.S. in Santa Rosa	24 in	8000 /LF	$225 /LF	$1,800,000	100%	$1,800,000	50	1978	2028	$5,805,180
1500E-8	Lower Clinton Keith T.M. #2	16-inch pipeline between Calle Del Oso Oro and Bear Creek Reservoir in	16 in	3500 /LF	$150 /LF	$525,000	100%	$525,000	50	1978	2028	$1,693,177
1670E-23	Calle Uva Trans Main #2	12-inch pipeline in Calle Uva extending from Calle Jardin	12 in	3500 /LF	$100 /LF	$350,000	100%	$350,000	50	1978	2028	$1,128,785
2550E-24	Calle Bandido Trans Main	24-inch pipeline from Avd. La Cresta to Avd. Bosque in Calle Bandido	24 in	12000 /LF	$225 /LF	$2,700,000	100%	$2,700,000	50	1978	2028	$8,707,770
1670E-25	Avenida Tierra Trans Main	16-inch pipeline in Ave Tierra between Calle Jardin & Calle Roca	16 in	6000 /LF	$150 /LF	$900,000	100%	$900,000	50	1978	2028	$2,902,590
1305E-12	Camino Estribo T.M. #2	30-inch pipeline in C. Estribo between Ace Bowen P.S. #3 & 4 & 2nd San	30 in	11250 /LF	$250 /LF	$2,812,500	100%	$2,812,500	50	1978	2028	$9,070,594
2550E-28	Tenaja Rd. Trans Main #1	24-inch pipeline in Tenaja Rd. between 2260 Tenaja Reservoir & 30-inch	24 in	1100 /LF	$225 /LF	$247,500	100%	$247,500	50	1978	2028	$798,212
2550E-22	Vista de Montanas T.M. #2	16-inch pipeline between node to La Cresta Res. & Hombre Ln. in Vista	16 in	3500 /LF	$150 /LF	$525,000	100%	$525,000	50	1978	2028	$1,693,177
2550E-29	Tenaja Rd. Trans Main #2	30-inch pipeline from 24" trans main to Rancho Calif. Rd. in Tenaja Rd.	30 in	6300 /LF	$250 /LF	$1,575,000	100%	$1,575,000	50	1978	2028	$5,079,532
1305E-8	Diaz Rd. Trans Main #2	12-inch pipeline in Diaz Rd. between Cherry St. & Rancho Calif. Rd.	12 in	11750 /LF	$100 /LF	$1,175,000	100%	$1,175,000	50	1978	2028	$3,789,492
2550E-32	Viejo Road Trans Main	16-inch pipeline in the Viejo Road loop	16 in	3750 /LF	$150 /LF	$562,500	100%	$562,500	50	1978	2028	$1,814,119
2160E-11	Lower Avenida La Cresta T.M.	20-inch pipeline in Avd. La Cresta between Clinton Keith and Baldaray Road	20 in	6000 /LF	$200 /LF	$1,200,000	100%	$1,200,000	50	1978	2028	$3,870,120
1670E-32	Calle Colina Trans Main	8-inch pipeline extending from Carancho in Calle Colina	8 in	2000 /LF	$75 /LF	$150,000	100%	$150,000	50	1978	2028	$483,765
2550E-4	Via Majorica Trans Main	12-inch pipeline between Avd. De Arboles & Avia Vista Grande in V. Majorica	12 in	7250 /LF	$100 /LF	$725,000	100%	$725,000	50	1978	2028	$2,338,197
1670E-34	Los Gatos T.M. #1	12-inch pipeline extends from Carancho 9500 ft. in Via Los Gatos	12 in	9500 /LF	$100 /LF	$950,000	100%	$950,000	50	1978	2028	$3,063,845
1990E-8	Via Horca Trans Main	12-inch pipeline between Camino Gatillo & Santa Rosa in Via Horca	12 in	5000 /LF	$100 /LF	$500,000	100%	$500,000	50	1978	2028	$1,612,550
1670E-36	Via Vaquero T.M. #4	20-inch pipeline between De Luz Reservoir and Avd. Del Oro in Via Vaquero	20 in	5000 /LF	$200 /LF	$1,000,000	100%	$1,000,000	50	1978	2028	$3,225,100
2550E-3	Via Vista Grande T.M.	12-inch pipeline between Avd. De Arboles & Via Majorica in V.V. Grande	12 in	5250 /LF	$100 /LF	$525,000	100%	$525,000	50	1978	2028	$1,693,177
2550E-8	Avenida De Arboles T.M. #2	16-inch pipeline between Via Huerta & ViaVista Grande in Avd. De Arboles	16 in	6500 /LF	$150 /LF	$975,000	100%	$975,000	50	1978	2028	$3,144,472
1990E-16	Upper Santa Rosa T.M. #2	12-inch pipeline between Santa Rosa P.S. & Via Horca	12 in	5500 /LF	$100 /LF	$550,000	100%	$550,000	50	1978	2028	$1,773,805
1440E-4	Vuelta Grande Trans Main	12-inch pipeline in Carancho & Vuelta Grande	12 in	8000 /LF	$100 /LF	$800,000	100%	$800,000	50	1978	2028	$2,580,080
1432E-3	Antelope Rd. Trans Main	24-inch pipeline between Antelope Reservoir & Cal Oaks P.S. in Antelope Rd.	24 in	8750 /LF	$225 /LF	$1,968,750	100%	$1,968,750	50	1978	2028	$6,349,416
1440E-6	Lower De Luz T.M. #1	16-inch pipeline between Carancho & De Luz PRS in De Luz	16 in	13000 /LF	$150 /LF	$1,950,000	100%	$1,950,000	50	1978	2028	$6,288,945
1670E-8	Del Oro Trans Main	20-inch pipeline between East Bluff P.S. & Via Vaquero in Avd. Del Oro	20 in	19000 /LF	$225 /LF	$4,275,000	100%	$4,275,000	50	1978	2028	$13,787,302
1440E-8	Lower Camaron R. T.M. #1	12-inch pipeline between De Luz & De Anza in Camaron Rd.	12 in	3250 /LF	$100 /LF	$325,000	100%	$325,000	50	1978	2028	$1,048,157
1432E-4	Jackson Ave. Trans Main	16-inch pipeline between Antelope Rd. & Nutmeg Rd. in Jackson Ave.	16 in	6500 /LF	$150 /LF	$975,000	100%	$975,000	50	1978	2028	$3,144,472
1440E-10	De Anza Rd. Trans Main #1	24-inch pipeline between Camaron & Sandi Creek in De Anza Rd.	24 in	4000 /LF	$225 /LF	$900,000	100%	$900,000	50	1978	2028	$2,902,590
1670E-16	Via Vaquero Trans Main #2	24-inch pipeline between De Luz Reservoir & Calle Nuevo in Via Vaquero	24 in	7250 /LF	$225 /LF	$1,631,250	100%	$1,631,250	50	1978	2028	$5,260,944
1440E-12	De Anza Rd Trans Main #3	10-inch pipeline in De Anza from Sandia Creek	10 in	2500 /LF	$88 /LF	$220,000	100%	$220,000	50	1978	2028	$709,522
1432E-5	Upper Nutmeg Loop T.M.	12-inch pipeline between Nutmeg & 16" node in Unnamed Road	12 in	2000 /LF	$100 /LF	$200,000	100%	$200,000	50	1978	2028	$645,020
1440E-14	Lower Sandia Creek T.M. #2	8-inch pipeline in Sandia Creek between De Anza & Carancho	8 in	7000 /LF	$75 /LF	$525,000	100%	$525,000	50	1978	2028	$1,693,177
1670E-24	Calle Jardin Trans Main	16-inch pipeline in Calle Jardin between Calle Cuero & Carancho	16 in	10000 /LF	$150 /LF	$1,500,000	100%	$1,500,000	50	1978	2028	$4,837,650
1440E-16	Upper Sandia Creek T.M. #2	8-inch pipeline between Sandia Creek between Carancho Rd. & DeLorme Dr.	8 in	2750 /LF	$75 /LF	$206,250	100%	$206,250	50	1978	2028	$665,177
1432E-6	Lower Nutmeg Loop T.M.	16-inch pipeline between Jackson Ave. & 12-inch node in Unnamed Road	16 in	2500 /LF	$150 /LF	$375,000	100%	$375,000	50	1978	2028	$1,209,412
1440E-18	Mid El Calamar Trans Main	16-inch pipeline in El Calamar between carancho & Lillian Lane	16 in	2000 /LF	$150 /LF	$300,000	100%	$300,000	50	1978	2028	$967,530
2260E-5	Carancho Pump Trans Main	12-inch pipeline from Carancho Pump Station to Via Escalon	12 in	4000 /LF	$100 /LF	$400,000	100%	$400,000	50	1978	2028	$1,290,040
1440E-20	Lillian Lane Trans Main	16-inch pipeline in Lillian Lane between El Calamar & Camaron Rd.	16 in	4000 /LF	$150 /LF	$600,000	100%	$600,000	50	1978	2028	$1,935,060
1432E-7	Nutmeg Trans Main	12-inch pipeline in Nutmeg between Lincoln Ave. & Jefferson Ave.	12 in	6000 /LF	$100 /LF	$600,000	100%	$600,000	50	1978	2028	$1,935,060

TABLE 9.4
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Santa Rosa Division

Item No.	Facility Name	Description of Facilities	Size/ Capacity	Quantity	Unit Cost	Estimated Capital Cost 2004 ($)	Estimated Replacement Items %	Estimated Replacement Items Cost	Life Cycle In Years	Construction Date	Repl. Date	Estimated Future Replacement Cost ($)
1440E-22	Mid-Carancho T.M. #1	24-inch pipeline between De Luz Rd. & El Prado Rd. in Carancho Rd.	24 in	2500 /LF	$225 /LF	$562,500	100%	$562,500	50	1978	2028	$1,814,119
1990E-4	Via Vaquero Trans Main #1	12-inch pipeline in Vaquero Rd. from Via Santa Rosa	12 in	5500 /LF	$100 /LF	$550,000	100%	$550,000	50	1978	2028	$1,773,805
2550E-26	Calle Corriente T.M.	24-inch pipeline between Avd. Bosque & Rancho Calif. In Calle Corriente	24 in	3600 /LF	$225 /LF	$810,000	100%	$810,000	50	1978	2028	$2,612,331
1432E-8	I-15 Trans Main	12-inch pipeline in I-15 between Nutmeg & Cal Oaks P.S.	12 in	5000 /LF	$100 /LF	$500,000	100%	$500,000	50	1978	2028	$1,612,550
2550E-31	Rancho Calif Rd. T.M. #2	16-inch pipeline between Corona Cala Camino & Viejo Rd. in Rancho Calif Rd.	16 in	3000 /LF	$150 /LF	$450,000	100%	$450,000	50	1978	2028	$1,451,295
2550E-13	Avenida La Cresta T.M. #1	20-inch pipeline between Baldaray P.S. & Calle Bandido in Avd. La Cresta	20 in	16800 /LF	$200 /LF	$3,360,000	100%	$3,360,000	50	1978	2028	$10,836,336
1670E-33	Upper Vista Del Mar T.M.	16-inch pipeline between Buena Vista & Carancho in Vista Del Mar	16 in	4250 /LF	$150 /LF	$637,500	100%	$637,500	50	1978	2028	$2,056,001
1432E-6	Upper Jefferson Ave. T.M.	12-inch pipeline in Jefferson between Nutmeg & Arikara St.	12 in	3000 /LF	$100 /LF	$300,000	100%	$300,000	50	1978	2028	$967,530
2550E-9	Calle Centro Trans Main	16-inch pipeline between Avd. De Arboles & Avd. La Cresta in Calle Centro	16 in	1000 /LF	$150 /LF	$150,000	100%	$150,000	50	1978	2028	$483,765
1670E-20	Via Vaquero Trans Main #6	36-inch pipeline between Ace Bowen #1 & 2 P.S. & Calle Roca in Via Vaquero	36 in	15000 /LF	$275 /LF	$4,125,000	100%	$4,125,000	50	1978	2028	$13,303,537
1440E-5	Via Los Gatos T.M. #2	12-inch pipeline between Buena Vista & Vista Del Mar in Via los Gatos	12 in	6000 /LF	$100 /LF	$600,000	100%	$600,000	50	1978	2028	$1,935,060
2850E-4	Corona Cala Camino T.M. #2	12-inch pipeline extends 3000 ft. from Redondo Mesa in Corona Cala Camino	12 in	3000 /LF	$100 /LF	$300,000	100%	$300,000	50	1978	2028	$967,530
1440E-9	Lower Camaron R. T.M. #2	20-inch pipeline between De Luz & De Anza in Camaron Rd.	20 in	3250 /LF	$200 /LF	$650,000	100%	$650,000	50	1978	2028	$2,096,315
2160E-7	Santa Rosa Plateau T.M. #1	24-inch pipeline between Clinton Keith Rd. & Tenaja Rd. in S.R. Sprs. Rd.	24 in	7750 /LF	$225 /LF	$1,743,750	100%	$1,743,750	50	1978	2028	$5,623,768
1440E-13	Lower Sandia Creek T.M. #1	24-inch pipeline in Sandia Creek between De Anza & Carancho	24 in	7000 /LF	$225 /LF	$1,575,000	100%	$1,575,000	50	1978	2028	$5,079,532
2850E-3	Corona Cala Camino T.M. #1	16-inch pipeline between Avocado Mesa & Redondo Mesa in Corona Cala Camino	16 in	2000 /LF	$150 /LF	$300,000	100%	$300,000	50	1978	2028	$967,530
1670E-13	De Luz Pump Trans Main	36-inch pipeline between De Luz P.S. & De Luz Reservoir	36 in	3000 /LF	$275 /LF	$825,000	100%	$825,000	50	1978	2028	$2,660,707
1670E-12	Mid-inch pipline betweenCaran	12-inch pipeline between El Prado Rd. & Sadi in Carancho	12 in	9000 /LF	$100 /LF	$900,000	100%	$900,000	50	1978	2028	$2,902,590
1440E-21	Buena Vista Trans Main	12-inch pipeline in Buena Vista Road between El Calamar & Via Los Gatos	12 in	9000 /LF	$100 /LF	$900,000	100%	$900,000	50	1978	2028	$2,902,590
1990E-12	Upper La Cruz Dr. T.M. #1	12-inch pipeline extends 6750 ft. above Via Vega in La Cruz Dr.	12 in	6750 /LF	$100 /LF	$675,000	100%	$675,000	50	1978	2028	$2,176,942
2550E-30	Rancho Calif Rd. T.M. #1	24-inch pipeline between Calle Pino & Corona Cala Camino in Rahcno Calif Rd.	24 in	7500 /LF	$225 /LF	$1,687,500	100%	$1,687,500	50	1978	2028	$5,442,356
2550E-34	Avenida La Cresta T.M. #3	20-inch pipeline in Avd. La Cresta between Sierra Maria Rd. & Tenaja	20 in	5100 /LF	$200 /LF	$1,020,000	100%	$1,020,000	50	1978	2028	$3,289,602
1670E-35	Upper Carancho T.M. #6	20-inch pipeline between Via Los Gatos & El Calamar in Carancho	20 in	4000 /LF	$200 /LF	$800,000	100%	$800,000	50	1978	2028	$2,580,080
1305E-4	Lemon Road Trans Main	36-inch pipeline in Lemon Rd. between Jefferson Ave. & Joaquin Ranch Rd.	36 in	6400 /LF	$275 /LF	$1,760,000	100%	$1,760,000	50	1978	2028	$5,676,176
1440E-7	Upper Camaron Rd. T.M.	16-inch pipeline between Carancho Rd. & De Luz Rd. in Cameron Rd.	16 in	7750 /LF	$150 /LF	$1,162,500	100%	$1,162,500	50	1978	2028	$3,749,179
1670E-31	Upper Carancho T.M. #5	16-inch pipeline between Los Gatos & Carancho PRS in Carancho	16 in	9000 /LF	$150 /LF	$1,350,000	100%	$1,350,000	50	1978	2028	$4,353,885
2550E-7	Avenida De Arboles T.M. #1	12-inch pipeline between Calle de Lobo & Via Herta in Avd. De Arbole	12 in	4000 /LF	$100 /LF	$400,000	100%	$400,000	50	1978	2028	$1,290,040
1440E-19	Lower El Calamar T.M.	12-inch pipeline in El Calamar between Lillian Lane & Buena Vista Rd.	12 in	2000 /LF	$100 /LF	$200,000	100%	$200,000	50	1978	2028	$645,020
1440E-15	Upper Sandia Creek T.M. #1	12-inch pipeline in Sandia Creek between Carancho & Via Vaquero	12 in	6250 /LF	$100 /LF	$625,000	100%	$625,000	50	1978	2028	$2,015,687
1440E-23	Mid-Carancho T.M. #2	30-inch pipeline between El Prado Road & Sandia Creek in Carancho	30 in	9000 /LF	$250 /LF	$2,250,000	100%	$2,250,000	50	1978	2028	$7,256,475
1440E-11	De Anza Rd. Trans Main #2	12-inch pipeline in De Anza from Camaron	12 in	1500 /LF	$100 /LF	$150,000	100%	$150,000	50	1978	2028	$483,765
1305E	Meriedes St. T.M.	24-inch pipeline beginning at Rancho CA Rd. to Mercedes St. and ending at 1st. St.	24 in	4098 /LF	$225 /LF	$922,050	100%	$922,050	50	2000	2050	$8,698,858
1990E	Freeman Res. T.M.	30-inch pipeline at Freeman Res. Outlet pipe	30 in	237 /LF	$250 /LF	$59,250	100%	$59,250	50	2000	2050	$558,980
1670E	Carancho Res. T.M.	30-inch pipeline from El Calamar to Carancho Rd.	30 in	6199 /LF	$250 /LF	$1,549,750	100%	$1,549,750	50	2000	2050	$14,620,742
1305E	Rorck Dr. T.M.	x-inch pipeline between Via Industria and Dendy Pkwy.	20 in	600 /LF	$200 /LF	$120,000	100%	$120,000	50	2000	2050	$1,132,111
1790E	Los Caballos P.S. T.M.	16-inch pipeline between Pauba Road & De Portola Rd.	16 in	3435 /LF	$150 /LF	$515,250	100%	$515,250	50	2000	2050	$4,861,002
1305E	RWBP T.M.	48-inch pipeline located around Temecula Creek Rd.	48 in	1571 /LF	$350 /LF	$549,850	100%	$549,850	50	2000	2050	$5,187,427
2160E	Vineyard Pkwy T.M.	x-inch pipeline between Del Oro and Silverwood St.	24 in	818 /LF	$225 /LF	$184,050	100%	$184,050	50	2000	2050	$1,736,375
2850	Redonda Mesa T.M.	x-inch pipelline beginning at Redonda Mesa Res. No. 2 heading east	20 in	1600 /LF	$200 /LF	$320,000	100%	$320,000	50	2000	2050	$3,018,963
		Subtotal				$153,242,700		$153,242,700				$520,426,913
		PRESSURE REDUCING STATIONS										
1670E-30	Carancho P.R.S.	Pressure Reducing Station at Carancho & Barona		1 LS		$158,830	30%	$47,649	30	1978	2008	$57,918
1440E-32	Sandia Creek P.R.S.	Pressure Reducing Station at Sandia Creek & De Anza		1 LS		$158,830	30%	$47,649	30	1978	2008	$57,918
1440E-30	De Luz P.R.S.	Pressure Reducing Station at De Luz & Cameron		1 LS		$158,830	30%	$47,649	30	1978	2008	$57,918
		Subtotal				$476,489		$142,947				$173,753
		WELLS										
1500E-9	Well No. 302	Well at Hayes Rd.	0 gpm	1 LS		$635,176	100%	$635,176	30	1979	2009	$810,664
1500E-10	Well No. 301	Well at Tenaja and Hayes	0 gpm	1 LS		$635,176	100%	$635,176	30	1979	2009	$810,664
1305E-58	Well No. 309	Well below Elm & Jefferson	3200 gpm	1 LS		$741,111	100%	$741,111	30	1987	2017	$1,397,474
		Subtotal				$2,011,463		$2,011,463				$3,018,802
TOTAL SANTA ROSA DIVISION						$243,296,474		$177,866,339				$606,470,363

TABLE 9.4
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Santa Rosa Division

Item No.	Facility Name	Description of Facilities	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2040	2041-2050	2051-2060
		RESERVOIRS								
1670E-6	Carancho Reservoir #1	3.0 MG tank at Carancho Site (abandoned)								
1305E-1	Ace Bowen Reservoir #1	3.0 MG tank at Ace Bowen Site						$1,103,203		
1990E-1	Freeman Reservoir	3.0 MG tank at Calle Escadera						$1,103,203		
1670E-1	De Luz Reservoir #1	3.0 MG tank at De Luz Site						$1,103,203		
1670E-2	De Luz Reservoir #2	3.0 MG tank at De Luz Site						$1,103,203		
1670E-7	Carancho Reservoir #2	2.2 MG tank at Carancho Site (abandoned)								
1305E-2	Ace Bowen Reservoir #2	5.0 MG tank at Ace Bowen Site						$2,027,136		
2160E-3	Baldaray Reservoir	2.2 MG tank at Baldaray Site							$936,537	
2550E-1	La Cresta Reservoir	1.1 MG tank at La Cresta Site							$468,268	
1440E-1	Prado Reservoir	5.0 MG tank at Prado Site							$2,587,196	
2260E-1	Tenaja Reservoir	2.2 MG tank at Tenaja Site							$1,255,049	
1500E-1	Bear Creek Reservoir	2.2 MG tank at Bear Creek Site on Clinton Keith							$1,255,049	
1432E-1	Antelope Reservoir	2.2 MG tank at Antelope Site							$1,317,801	
2550E-35	Avocado Mesa Reservoir	5.8 MG tank at Avocado Mesa Site							$3,474,203	
1440	Prado Reservoir #2									$6,083,037
1670	Carancho Reservoir #3									$4,917,572
1670	Vaquero Reservoir #1									$5,673,649
1990	Freeman Reservoir #2									$4,917,572
2850	Redondo Mesa Reservoir									$491,757
2850	Calle Parama Reservoir									$1,685,190
		Subtotal	$0	$0	$0	$0	$0	$6,439,948	$11,294,102	$23,768,777
		PUMP STATIONS								
1990E-3	Del Oro Pump Station	4900 gpm pump station (4 units at 150 HP each) at Avd. Del Oro & C. Capistrano	$840,689							
1670E-3	East Bluff Pump Station	7500 gpm pump station (2 units at 150 HP, 4 units at 200 HP) at East Bluff	$2,681,797							
2550E-2	Baldaray Pump Station	4500 gpm pump station (4 units, 200 HP each) at Baldaray site.	$1,109,709							
1670E-4	Ace Bowen #1 Pump Station	11800 gpm pump station (3 units at 350 HP, 2 units at 250 HP) at Ace Bowen		$2,011,284						
2160E-10	De Luz Pump Station	5300 gpm pump station (2 units at 350 HP, 2 units at 200 HP) at De Luz Site		$1,478,340						
1440E-2	Ace Bowen #3 Pump Station	6000 gpm pump station (2 units at 250 HP each) at Ace Bowen Site		$1,019,308						
1990E-2	Santa Rosa Pump Station	3200 gpm pump station (3 units at 150 HP each) at Via Santa Rosa & Vaqu			$963,246					
1670E-5	Ace Bowen #2 Pump Station	18000 gpm pump station at Ace Bowen Site			$7,452,480					
1440E-3	Ace Bowen #4 Pump Station	14500 gpm pump station (2 units at 650 HP each) at Ace Bowen Site			$4,916,774					
2160E-4	Bear Creek Pump Station	2500 gpm pump station (2 units at 150 HP, 1 unit at 250 HP) at Bear Creek Site			$1,291,142					
1500E-2	Joaquin Ranch Pump Station	5400 gpm pump station (2 units at 250 HP each) at Tenaja & Hayes Rd.			$1,238,975					
2260E-6	Carancho Pump Station	1700 gpm pump station (1 unit at 350 HP) at Carancho Site				$1,056,829				
1432E-2	Cal Oaks Pump Station	3000 gpm pump station (2 units at 125 HP each) at Cal Oaks Site				$754,878				
1670	Senga Doherty P.S.							$9,103,307		
1990	Vaquero P.S.							$3,085,867		
2850S	Redondo Mesa P.S.							$1,089,129		
2850N	Avenida Escala P.S.							$1,254,314		
		Subtotal	$4,632,194	$4,508,933	$15,862,616	$1,811,707	$0	$14,532,618	$0	$0

TABLE 9.4
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Santa Rosa Division

Item No.	Facility Name	Description of Facilities	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2040	2041-2050	2051-2060
		TRANSMISSION MAINS								
1440E-17	Upper Sandia Creek T.M. #3	12-inch pipeline between De Lorme Dr. & Via De Los Fideos in Sandia Creek					$725,647			
1440E-24	Upper Carancho T.M. #2	20-inch pipeline between Carancho Reservoirs & Camaron Road					$5,805,180			
1670E-27	El Prado trans Main	12-inch pipeline between Sandia Creek & Carancho in El Prado					$3,950,747			
1305E-5	Upper Jefferson Ave. T.M.	36-inch pipeline in Jefferson Ave. between Lemon R. & Winchester Rd.					$20,576,138			
1670E-28	Upper El Prado Trans Main	8-inch pipeline between Carancho & La Vella Rd. in El Prado					$725,647			
1440E-25	Upper Carancho T.M. #3	24-inch pipeline extends 3500 ft. from Camaron Rd. towards De Luz in Carancho					$2,539,766			
1670E-29	Lower Carancho Trans Main	8-inch pipeline between Sandia Creek & Calle Jardin in Carancho					$1,995,531			
2550E-36	Avenida La Cresta T.M. #4	20-inch pipeline in Avd. La Cresta between Calle Bandido and Gallop Lane					$4,321,634			
2550E-27	Calle Pino Trans Main	16-inch pipeline between Rancho Calif. Rd. & Avd. La Cresta in Calle Pino					$3,628,237			
1440E-26	Upper Carancho T.M. #4	16-inch pipeline extends toward Camaron Rd. from De Luz in Carancho					$1,935,060			
2550E-33	Avocado Mesa Inlet T.M.	36-inch pipeline in Avocado Mesa & Corona Cala Camino between Avocado					$6,208,317			
2260E-3	Via Escalon Trans Main	12-inch pipeline between Calamar Rd. & 24" Trans Main in Via Escalon					$1,193,287			
2550E-25	Avenida Bosque T.M.	24-inch pipeline from Calle Bandido to Calle Corriente in Avd. Bosque					$1,632,707			
1440E-27	Prado Trans Main	42-inch pipeline between Prado Reservoir & Carancho					$967,530			
2550E-37	Calle de Companero T.M. #2	12-inch pipeline in C. de Companero between Avd. La Cresta and Vista					$322,510			
2160E-1	Paseo Chaparro T.M. #1	12-inch pipeline in Paseo Chaparro extending 6000 ft. from Via Ent					$1,451,295			
2260E-2	Calle de Mucho Trans Main	24-inch pipeline between Tenaja Reservoir & Via Escalon in Via Volcano					$13,497,043			
1440E-28	Via Vaquero T.M. #7	39-inch pipeline between Ace Bowen #3 & 4 P.S. & Calle Roca in Via Vaquero					$13,303,537			
2260E-4	Upper El Calamar Rd. T.M.	8-inch pipeline extending north along El Calamar Rd. from Via Escalon					$1,209,412			
2160E-5	Upper Clinton Keith T.M. #1	16-inch pipeline between Bear Creek P.S. & Via Entrada					$3,749,179			
2550E-23	La Cresta Res. Inlet T.M.	24-inch pipeline from Vista de Montanas to La Cresta Reservoir					$1,451,295			
1440E-29	Calle Uva Trans Main #1	36-inch pipeline between Via Vaquero & Sandia Creek in Calle Rosa					$18,181,501			
2160E-2	Via Entrada Trans Main	8-inch pipeline between Clingo Keith & Avd. La Cresta in Via Ent					$725,647			
2160E-9	Santa Rosa Plateau T.M. #3	36-inch pipeline between De Luz P.S. & S.R. Sprs. Rd					$6,501,801			
2550E-21	Vista de Montanas T.M. #1	24-inch pipeline between Calle de Companero & nod to La Cresta Res.					$1,814,119			
1305E-104	Kalima St. Trans Main	24-inch pipeline in Kalima and l-inch pipline between15 between Cal Oaks P.S. and Jefferson					$2,721,178			
2160E-6	Upper Clinton Keith T.M. #2	20-inch pipeline between Via Entrada & S.R. Springs Road in Cilinton Keith					$1,612,550			
2550E-18	Camino Noroeste T.M.	8-inch pipeline between Calle de Suenos & Sierra Sota Rd. in Valle Vista					$1,330,354			
2160E-8	Santa Rosa Plateau T.M. #2	33-inch pipeline between Tenaja Rd. & the end of S.R. Springs Rd. in S.R.					$4,434,512			
1440E-31	Lower De Luz T.M. #2	12-inch pipeline in De Luz, extending south from De Luz PRS					$1,612,550			
2550E-20	Via Caballos Trans Main	12-inch pipeline between Avd. Castilla & Avd. La Cresta in Via Caballos					$2,902,590			
1990E-6	Sycamore Mesa Trans Main	16-inch pipeline between Via Baranca & Via Santa Rosa in Sycamore Mesa					$2,660,707			
2550E-19	Sierra Soto Rd. T.M.	12-inch pipeline between Camino Noroesta & Sierra Maria in Sierra Soto					$483,765			
1305E-33	Blackdeer Loop Trans Main	16-inch pipeline in Blackdeer Loop between Diaz & Rancho Calif. Airport					$1,378,730			
2550E-17	Valle Vista Trans Main	12-inch pipeline between Avd. Cresta & C. de Suenos in Valle Vista					$1,935,060			
1990E-10	Upper Sandia Creek T.M.	20-inch pipeline between Via Barranca & Del Oro P.S. in Sando Creek					$4,708,646			
1990E-5	Upper Santa Rosa T.M. #1	16-inch pipeline between Santa Rosa P.S. & Sycamore Mesa in Via Santa					$1,935,060			
1440E-33	Lower Sandia Creek T.M. #3	8-inch pipeline in Sandia Creek between De Anza & El Prado					$423,294			
1990E-7	Via Peregrino Trans Main	12-inch pipeline from Via Santa Rosa in Via Peregrino					$1,128,785			
1990E-14	Calle Capistrano Loop T.M.	12-inch pipeline in Calle Capistrano, Rancho Calif. & Calle Monticello					$4,192,630			
1990E-9	Via Barranca Trans Main	20-inch pipeline between Freeman Res. & Sandia Creek Dr. in Calle					$3,225,100			
2550E-6	Calle De Lobo Trans Main	12-inch pipeline between Paseo Montana & C. de Componero in C.D. Lobo					$2,338,197			
1990E-11	Lower Sandia Creek T.M.	16-inch pipeline between Via Barranco & La Cruz in Sandia Creek					$2,418,825			
2550E-15	Avenida Castilla T.M.	12-inch pipeline between Avd. La Cresta & Avd. La Cresta & Avd. La Cresta in Avd. Castilla					$2,676,833			
1990E-13	Upper La Cruz Dr. T.M. #2	8-inch pipeline extends 2350 ft. below Via Vega in La Cruz Dr.					$568,424			
2550E-5	Paseo Montana Trans Main	8-inch pipeline between Majorica & Calle De Lobo in P. Montana					$1,632,707			
1990E-15	Upper Calle Capistrano T.M.	10-inch pipeline in Calle Capistrano between Rancho Calif Rd. & Prader					$354,761			
2550E-11	Avenida Bonita T.M. #2	8-inch pipeline between Avd. La Cresta & Avd. Castilla in Ave. Bonita					$604,706			
2550E-16	Calle de Suenos T.M.	12-inch pipeline between Avd. Castilla & Valle Vista in Calle de Suenos					$3,466,982			
1500E-3	Lower Clinton Keith T.M. #1	16-inch pipeline in Clinton Keith between Calle Del Oso & Ransho Santa					$1,693,177			
2550E-14	Avenida La Cresta T.M. #2	16-inch pipeline between Gallop Ln. & Sierra Maria Rd. in Avd. La Cresta					$1,596,424			
1670E-10	Calle Nuevo Trans Main	39-inch pipeline between V. Vaquero & Carancho in Calle Nuevo & Cara					$5,572,973			

TABLE 9.4
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Santa Rosa Division

Item No.	Facility Name	Description of Facilities	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2040	2041-2050	2051-2060
2550E-12	Calle de Companero T.M. #1	12-inch pipeline between C. de Lobo & Vista de Montanas in Calle de Companero					$1,838,307			
1500E-4	Upper Bear Creek T.M.	12-inch pipeline in Bear Creek Drive between Clinton Keith & Creek Vie					$1,290,040			
2550E-10	Avenida Bonita T.M. #1	12-inch pipeline between Avd. De Arboles & Avd. La Cresta in Ave. Bonita					$1,612,550			
1670E-14	Upper De Luz Trans Main	12-inch pipeline between Via Nortada & De Luz Reservoir in De Luz					$483,765			
1670E-9	Upper Carancho T.M. #1	36-inch pipeline between De Luz Rd & Carancho P.S. in Carancho Rd.					$14,190,440			
1500E-5	Lower Bear Creek T.M.	12-inch pipeline in Bear Creek Drive between Clinton Keith & Twin Oaks					$1,290,040			
1670E-11	Mid De Luz Trans Main	16-inch pipeline between V. Vaquero & El Prado in De Luz Rd & Carancha					$544,236			
1670E-18	Lower La Cruz Trans Main	12-inch pipeline between Sandia Creek & El Perro Dr. in La Cruz Dr.					$967,530			
2850E-1	Avocado Mesa T.M. #1	12-inch pipeline between Calle Viento and 16-inch main in Avocado Mesa					$1,854,432			
1500E-6	Calle Del Oso Oro T.M.	30-inch pipeline between Clinton Keith & Joaquin Ranch Pump Station in					$11,287,850			
1670E-15	Via Vaquero Trans Main #1	20-inch pipeline between Avd. Del Oro & Calle Cuero in Via Vaquero &					$6,192,192			
1670E-22	Calle Roca Trans Main	8-inch pipeline between Via Vaquero & Avd. Tierra in Calle Roca					$1,148,942			
1670E-17	Via Vaquero Trans Main #3	39-inch pipeline between Calle Nuevo & Calle Roca in Via Vaquero					$18,112,161			
1500E-7	Magnolia Trans Main	16-inch pipeline Hayes and Douglas in Magnolia					$967,530			
1670E-19	Via Vaquero Trans Main #5	24-inch pipeline between Calle Cuero & Via Santa Rosa in Via Vaquero					$17,415,540			
1670E-26	Calle Cuero Trans Main	12-inch pipeline extending from Via Vaquero in Calle Cuervo					$1,451,295			
1670E-21	Lower Santa Rosa T.M.	24-inch pipeline between Ace Bowen #1 & 2 P.S. & Santa Rosa P.S. in Santa Rosa					$5,805,180			
1500E-8	Lower Clinton Keith T.M. #2	16-inch pipeline between Calle Del Oso Oro and Bear Creek Reservoir in					$1,693,177			
1670E-23	Calle Uva Trans Main #2	12-inch pipeline in Calle Uva extending from Calle Jardin					$1,128,785			
2550E-24	Calle Bandido Trans Main	24-inch pipeline from Avd. La Cresta to Avd. Bosque in Calle Bandido					$8,707,770			
1670E-25	Avenida Tierra Trans Main	16-inch pipeline in Ave Tierra between Calle Jardin & Calle Roca					$2,902,590			
1305E-12	Camino Estribo T.M. #2	30-inch pipeline in C. Estribo between Ace Bowen P.S. #3 & 4 & 2nd San					$9,070,594			
2550E-28	Tenaja Rd. Trans Main #1	24-inch pipeline in Tenaja Rd. between 2260 Tenaja Reservoir & 30-inch					$798,212			
2550E-22	Vista de Montanas T.M. #2	16-inch pipeline between node to La Cresta Res. & Hombre Ln. in Vista					$1,693,177			
2550E-29	Tenaja Rd. Trans Main #2	30-inch pipeline from 24" trans main to Rancho Calif. Rd. in Tenaja Rd.					$5,079,532			
1305E-8	Diaz Rd. Trans Main #2	12-inch pipeline in Diaz Rd. between Cherry St. & Rancho Calif. Rd.					$3,789,492			
2550E-32	Viejo Road Trans Main	16-inch pipeline in the Viejo Road loop					$1,814,119			
2160E-11	Lower Avenida La Cresta T.M.	20-inch pipeline in Avd. La Cresta between Clinton Keith and Baldaray Road					$3,870,120			
1670E-32	Calle Colina Trans Main	8-inch pipeline extending from Carancho in Calle Colina					$483,765			
2550E-4	Via Majorica Trans Main	12-inch pipeline between Avd. De Arboles & Avia Vista Grande in V. Majorica					$2,338,197			
1670E-34	Los Gatos T.M. #1	12-inch pipeline extends from Carancho 9500 ft. in Via Los Gatos					$3,063,845			
1990E-8	Via Horca Trans Main	12-inch pipeline between Camino Gatillo & Santa Rosa in Via Horca					$1,612,550			
1670E-36	Via Vaquero T.M. #4	20-inch pipeline between De Luz Reservoir and Avd. Del Oro in Via Vaquero					$3,225,100			
2550E-3	Via Vista Grande T.M.	12-inch pipeline between Avd. De Arboles & Via Majorica in V.V. Grande					$1,693,177			
2550E-8	Avenida De Arboles T.M. #2	16-inch pipeline between Via Huerta & ViaVista Grande in Avd. De Arboles					$3,144,472			
1990E-16	Upper Santa Rosa T.M. #2	12-inch pipeline between Santa Rosa P.S. & Via Horca					$1,773,805			
1440E-4	Vuelta Grande Trans Main	12-inch pipeline in Carancho & Vuelta Grande					$2,580,080			
1432E-3	Antelope Rd. Trans Main	24-inch pipeline between Antelope Reservoir & Cal Oaks P.S. in Antelope Rd.					$6,349,416			
1440E-6	Lower De Luz T.M. #1	16-inch pipeline between Carancho & De Luz PRS in De Luz					$6,288,945			
1670E-8	Del Oro Trans Main	20-inch pipeline between East Bluff P.S. & Via Vaquero in Avd. Del Oro					$13,787,302			
1440E-8	Lower Camaron R. T.M. #1	12-inch pipeline between De Luz & De Anza in Camaron Rd.					$1,048,157			
1432E-4	Jackson Ave. Trans Main	16-inch pipeline between Antelope Rd. & Nutmeg Rd. in Jackson Ave.					$3,144,472			
1440E-10	De Anza Rd. Trans Main #1	24-inch pipeline between Camaron & Sandi Creek in De Anza Rd.					$2,902,590			
1670E-16	Via Vaquero Trans Main #2	24-inch pipeline between De Luz Reservoir & Calle Nuevo in Via Vaquero					$5,260,944			
1440E-12	De Anza Rd Trans Main #3	10-inch pipeline in De Anza from Sandia Creek					$709,522			
1432E-5	Upper Nutmeg Loop T.M.	12-inch pipeline between Nutmeg & 16" node in Unnamed Road					$645,020			
1440E-14	Lower Sandia Creek T.M. #2	8-inch pipeline in Sandia Creek between De Anza & Carancho					$1,693,177			
1670E-24	Calle Jardin Trans Main	16-inch pipeline in Calle Jardin between Calle Cuero & Carancho					$4,837,650			
1440E-16	Upper Sandia Creek T.M. #2	8-inch pipeline between Sandia Creek between Carancho Rd. & DeLorme Dr.					$665,177			
1432E-6	Lower Nutmeg Loop T.M.	16-inch pipeline between Jackson Ave. & 12-inch node in Unnamed Road					$1,209,412			
1440E-18	Mid El Calamar Trans Main	16-inch pipeline in El Calamar between carancho & Lillian Lane					$967,530			
2260E-5	Carancho Pump Trans Main	12-inch pipeline from Carancho Pump Station to Via Escalon					$1,290,040			
1440E-20	Lillian Lane Trans Main	16-inch pipeline in Lillian Lane between El Calamar & Camaron Rd.					$1,935,060			
1432E-7	Nutmeg Trans Main	12-inch pipeline in Nutmeg between Lincoln Ave. & Jefferson Ave.					$1,935,060			

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Santa Rosa Division

Item No.	Facility Name	Description of Facilities	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2040	2041-2050	2051-2060
1440E-22	Mid-Carancho T.M. #1	24-inch pipeline between De Luz Rd. & El Prado Rd. in Carancho Rd.					$1,814,119			
1990E-4	Via Vaquero Trans Main #1	12-inch pipeline in Vaquero Rd. from Via Santa Rosa					$1,773,805			
2550E-26	Calle Corriente T.M.	24-inch pipeline between Avd. Bosque & Rancho Calif. In Calle Corriente					$2,612,331			
1432E-8	I-15 Trans Main	12-inch pipeline in I-15 between Nutmeg & Cal Oaks P.S.					$1,612,550			
2550E-31	Rancho Calif Rd. T.M. #2	16-inch pipeline between Corona Cala Camino & Viejo Rd. in Rancho Calif Rd.					$1,451,295			
2550E-13	Avenida La Cresta T.M. #1	20-inch pipeline between Baldaray P.S. & Calle Bandido in Avd. La Cresta					$10,836,336			
1670E-33	Upper Vista Del Mar T.M.	16-inch pipeline between Buena Vista & Carancho in Vista Del Mar					$2,056,001			
1432E-6	Upper Jefferson Ave. T.M.	12-inch pipeline in Jefferson between Nutmeg & Arikara St.					$967,530			
2550E-9	Calle Centro Trans Main	16-inch pipeline between Avd. De Arboles & Avd. La Cresta in Calle Centro					$483,765			
1670E-20	Via Vaquero Trans Main #6	36-inch pipeline between Ace Bowen #1 & 2 P.S. & Calle Roca in Via Vaquero					$13,303,537			
1440E-5	Via Los Gatos T.M. #2	12-inch pipeline between Buena Vista & Vista Del Mar in Via los Gatos					$1,935,060			
2850E-4	Corona Cala Camino T.M. #2	12-inch pipeline extends 3000 ft. from Redondo Mesa in Corona Cala Camino					$967,530			
1440E-9	Lower Camaron R. T.M. #2	20-inch pipeline between De Luz & De Anza in Camaron Rd.					$2,096,315			
2160E-7	Santa Rosa Plateau T.M. #1	24-inch pipeline between Clinton Keith Rd. & Tenaja Rd. in S.R. Sprs. Rd.					$5,623,768			
1440E-13	Lower Sandia Creek T.M. #1	24-inch pipeline in Sandia Creek between De Anza & Carancho					$5,079,532			
2850E-3	Corona Cala Camino T.M. #1	16-inch pipeline between Avocado Mesa & Redondo Mesa in Corona Cala Camino					$967,530			
1670E-13	De Luz Pump Trans Main	36-inch pipeline between De Luz P.S. & De Luz Reservoir					$2,660,707			
1670E-12	Mid-inch pipline betweenCaran	12-inch pipeline between El Prado Rd. & Sadi in Carancho					$2,902,590			
1440E-21	Buena Vista Trans Main	12-inch pipeline in Buena Vista Road between El Calamar & Via Los Gatos					$2,902,590			
1990E-12	Upper La Cruz Dr. T.M. #1	12-inch pipeline extends 6750 ft. above Via Vega in La Cruz Dr.					$2,176,942			
2550E-30	Rancho Calif Rd. T.M. #1	24-inch pipeline between Calle Pino & Corona Cala Camino in Rahcno Calif Rd.					$5,442,356			
2550E-34	Avenida La Cresta T.M. #3	20-inch pipeline in Avd. La Cresta between Sierra Maria Rd. & Tenaja					$3,289,602			
1670E-35	Upper Carancho T.M. #6	20-inch pipeline between Via Los Gatos & El Calamar in Carancho					$2,580,080			
1305E-4	Lemon Road Trans Main	36-inch pipeline in Lemon Rd. between Jefferson Ave. & Joaquin Ranch Rd.					$5,676,176			
1440E-7	Upper Camaron Rd. T.M.	16-inch pipeline between Carancho Rd. & De Luz Rd. in Cameron Rd.					$3,749,179			
1670E-31	Upper Carancho T.M. #5	16-inch pipeline between Los Gatos & Carancho PRS in Carancho					$4,353,885			
2550E-7	Avenida De Arboles T.M. #1	12-inch pipeline between Calle de Lobo & Via Herta in Avd. De Arbole					$1,290,040			
1440E-19	Lower El Calamar T.M.	12-inch pipeline in El Calamar between Lillian Lane & Buena Vista Rd.					$645,020			
1440E-15	Upper Sandia Creek T.M. #1	12-inch pipeline in Sandia Creek between Carancho & Via Vaquero					$2,015,687			
1440E-23	Mid-Carancho T.M. #2	30-inch pipeline between El Prado Road & Sandia Creek in Carancho					$7,256,475			
1440E-11	De Anza Rd. Trans Main #2	12-inch pipeline in De Anza from Camaron					$483,765			
1305E	Meriedes St. T.M.	24-inch pipeline beginning at Rancho CA Rd. to Mercedes St. and ending at 1st. St.							$8,698,858	
1990E	Freeman Res. T.M.	30-inch pipeline at Freeman Res. Outlet pipe							$558,980	
1670E	Carancho Res. T.M.	30-inch pipeline from El Calamar to Carancho Rd.							$14,620,742	
1305E	Rorck Dr. T.M.	x-inch pipeline between Via Industria and Dendy Pkwy.							$1,132,111	
1790E	Los Caballos P.S. T.M.	16-inch pipeline between Pauba Road & De Portola Rd.							$4,861,002	
1305E	RWBP T.M.	48-inch pipeline located around Temecula Creek Rd.							$5,187,427	
2160E	Vineyard Pkwy T.M.	x-inch pipeline between Del Oro and Silverwood St.							$1,736,375	
2850	Redonda Mesa T.M.	x-inch pipelline beginning at Redonda Mesa Res. No. 2 heading east							$3,018,963	
		Subtotal	$0	$0	$0	$0	$480,612,456	$0	$39,814,456	$0
		PRESSURE REDUCING STATIONS								
1670E-30	Caranco P.R.S.	Pressure Reducing Station at Carancho & Barona	$57,918							
1440E-32	Sandia Creek P.R.S.	Pressure Reducing Station at Sandia Creek & De Anza	$57,918							
1440E-30	De Luz P.R.S.	Pressure Reducing Station at De Luz & Cameron	$57,918							
		Subtotal	$173,753	$0	$0	$0	$0	$0	$0	$0
		WELLS								
1500E-9	Well No. 302	Well at Hayes Rd.	$810,664							
1500E-10	Well No. 301	Well at Tenaja and Hayes	$810,664							
1305E-58	Well No. 309	Well below Elm & Jefferson			$1,397,474					
		Subtotal	$1,621,328	$0	$1,397,474	$0	$0	$0	$0	$0
TOTAL SANTA ROSA DIVISION			$6,427,275	$4,508,933	$17,260,090	$1,811,707	$480,612,456	$20,972,566	$51,108,559	$23,768,777

TABLE 9.5
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Rancho Division

Item No.	Facility Name	Description of Facilities	Size/ Capacity	Quantity	Unit Cost	Estimated Capital Cost 2004 ($)	Estimated Replacement Items %	Estimated Replacement Items Cost	Life Cycle In Years	Construction Date	Repl. Date	Estimated Future Replacement Cost ($)
		RESERVOIRS										
1610E-1	Buck Mesa Reservoir #1	1.5 MG tank at Brenda Rd. and Buck Rd.		1.5 MG	$0.70 /gal	$1,050,000	10%	$105,000	60	1967	2027	$322,510
1550E-1	Alvarez Reservoir	1.5 MG tank at Los Panteras Rd. Site		1.5 MG	$0.70 /gal	$1,050,000	10%	$105,000	60	1968	2028	$338,635
1380E-8	Anza Reservoir #1	2.2 MG tank at Anza Rd. and Linda Rosea Road		2.2 MG	$0.70 /gal	$1,540,000	10%	$154,000	60	1969	2029	$521,499
1380E-1	General Kearny Reservoir	2.2 MG tank at Kaiser Pkwy site		2.2 MG	$0.70 /gal	$1,540,000	10%	$154,000	60	1969	2029	$521,499
2070E-1	Glen Oaks Reservoir #1	2.2 MG tank at Camino Sierra		2.2 MG	$0.70 /gal	$1,540,000	10%	$154,000	60	1970	2030	$547,574
1790E-1	De Portola Reservoir #1	2.2 MG tank at De Portola Site		2.2 MG	$0.70 /gal	$1,540,000	10%	$154,000	60	1970	2030	$547,574
1485E-1	Calle Contento Reservoir	2.2 MG tank at Calle Contento and Pauba Rd.		2.2 MG	$0.70 /gal	$1,540,000	10%	$154,000	60	1982	2042	$983,364
2070E-2	Glen Oaks Reservoir #2	2.2 MG tank at Ladera Vista		2.2 MG	$0.70 /gal	$1,540,000	10%	$154,000	60	1982	2042	$983,364
1610E-2	Buck Mesa Reservoir #2	5.0 MG tank at Brenda Rd. and Buck Rd.		5 MG	$0.70 /gal	$3,500,000	10%	$350,000	60	1982	2042	$2,234,917
1305E-3	Norma Marshall Res.	5.0 MG tank at Rancho Calif. Rd. and Margarita		5 MG	$0.70 /gal	$3,500,000	10%	$350,000	60	1982	2042	$2,234,917
1790E-2	De Portola Reservoir #2	3.5 MG tank at De Portola Site		3.5 MG	$0.70 /gal	$2,450,000	10%	$245,000	60	1984	2044	$1,724,797
2350E-1	Calaveras Reservoir #1	0.5 MG tank at Esplendida and Avd. Alturas		0.5 MG	$0.70 /gal	$350,000	10%	$35,000	60	1987	2047	$285,238
1305	Senga Doherty Reservoir			10.0 MG		$6,400,000	10%	$640,000	60	2000	2060	$9,835,144
1380	Winchester Reservoir #1			4.6 MG		$2,900,000	10%	$290,000	60	2000	2060	$4,456,550
1485	El Chimisal Reservoir #1			6.2 MG		$3,900,000	10%	$390,000	60	2000	2060	$5,993,291
1485	Nicolas Reservoir			3.5 MG		$2,200,000	10%	$220,000	60	2000	2060	$3,380,831
1485	El Chimisal Reservoir #2			6.2 MG		$3,900,000	10%	$390,000	60	2000	2060	$5,993,291
1550	El Chimisal Reservoir #3			2.2 MG		$2,400,000	10%	$240,000	60	2000	2060	$3,688,179
1790	Tucalota Reservoir			3.5 MG		$2,500,000	10%	$250,000	60	2000	2060	$3,841,853
		Subtotal				$45,340,000		$4,534,000				$48,435,025
		PUMP STATIONS										
1550E-5	Booster 40 Pump Station	1100 gpm pump station (1 unit at 125 HP) at Hwy 79 Site	1100 gpm	125 HP	$2,509 /HP	$313,667	40%	$125,467	35	1966	2001	$108,383
1790E-3	Buck Mesa Pump Station	12900 gpm pump station (3 units at 100 HP, 4 units at 150 HP)	12900 gpm	900 HP	$2,438 /HP	$2,194,246	40%	$877,698	35	1967	2002	$796,098
1380E-20	Meadowview Pump Station	9300 gpm pump station (6 units at 75 HP each) at Rancho Calif. Rd. and Margarite	9300 gpm	450 HP	$2,980 /HP	$1,340,928	40%	$536,371	35	1970	2005	$563,190
2070E-3	De Portola Pump Station	5000 gpm pump station (1 unit at 75 HP, 3 units at 150 HP) at De Portola Site	5000 gpm	525 HP	$2,980 /HP	$1,564,416	40%	$625,766	35	1972	2007	$724,403
1485E-2	Rancho Calif. Pump Station #2	4600 gpm pump station (3 units at 75 HP each) at Rancho Calif. And Butterfield Stage Rd.	4600 gpm	225 HP	$2,823 /HP	$635,176	40%	$254,071	35	1974	2009	$324,266
1610E-9	Anza Pump Station	6900 gpm pump station (4 units at 150 HP each) at Anza rd. Site	6900 gpm	600 HP	$2,752 /HP	$1,651,031	40%	$660,412	35	1976	2011	$929,267
1610E-18	Rancho Calif. Pump Station #1	9700 gpm pump station (6 units at 200 HP each) at Rancho Calif. And Butterfield Stage Rd.	9700 gpm	1200 HP	$2,281 /HP	$2,737,461	40%	$1,094,984	35	1982	2017	$2,064,756
1790E-30	Los Caballos Pump Station	7300 gpm pump station (3 units at 350 HP each) at Los Caballos Site in De Portola	7300 gpm	1050 HP	$2,353 /HP	$2,470,131	40%	$988,052	35	1984	2019	$2,054,090
2350E-2	Calle Breve Pump Station	1000 gpm pump station (2 units at 125 HP each) at Calle Breve Site	1000 gpm	250 HP	$2,823 /HP	$705,752	40%	$282,301	35	1987	2022	$679,390
1380	Winchester P.S.		11100 gpm			$1,600,000	40%	$640,000	35	2000	2035	$2,904,345
1380	Norma Marshal P.S.		14300 gpm			$2,700,000	40%	$1,080,000	35	2000	2035	$4,901,083
1485	Butterfield Stage P.S.		24600 gpm			$4,400,000	40%	$1,760,000	35	2000	2035	$7,986,950
		Subtotal				$22,312,809		$8,925,123				$24,036,220

TABLE 9.5
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Rancho Division

Item No.	Facility Name	Description of Facilities	Size/ Capacity	Quantity	Unit Cost	Estimated Capital Cost 2004 ($)	Estimated Replacement Items %	Estimated Replacement Items Cost	Life Cycle In Years	Construction Date	Repl. Date	Estimated Future Replacement Cost ($)
		TRANSMISSION MAINS										
2350E-6	Esplendida Trans Main	16-inch pipeline in Esplendida between Via De Oro and Calaveras Res	16 in	3000 /LF	$150 /LF	$450,000	100%	$450,000	50	1978	2028	$1,451,295
2350E-5	Via De Oro Trans Main	23-inch pipeline in Via De Oro below Esplandida	12 in	2000 /LF	$100 /LF	$200,000	100%	$200,000	50	1978	2028	$645,020
2350E-4	Calaveras Trans Main	12-inch pipeline in Calaveras Rd. between Parado del Sol Dr. and Via Del Oro	12 in	2500 /LF	$100 /LF	$250,000	100%	$250,000	50	1978	2028	$806,275
2350E-3	Calle Breve Trans Main	16-inch pipeline in Calle Breve and Via De Oro between Calle Breve P.S. & Esplendida	16 in	16000 /LF	$150 /LF	$2,400,000	100%	$2,400,000	50	1978	2028	$7,740,240
2070E-9	Upper Glen Oaks Trans Main #1	12-inch pipeline between De Portola and Mesa Drive in Glen Oaks	12 in	3500 /LF	$100 /LF	$350,000	100%	$350,000	50	1978	2028	$1,128,785
2070E-8	East Sierra Rd. Trans Main	16-inch pipeline between Glen Oaks Res. #1 and De Portola in Sierra Road	16 in	1000 /LF	$150 /LF	$150,000	100%	$150,000	50	1978	2028	$483,765
2070E-7	West Sierra Rd. Trans Main	14-inch pipeline between Mesa Dr. and Glen Oaks Reservoir #1 in Camino Sierra	14 in	6250 /LF	$125 /LF	$781,250	100%	$781,250	50	1978	2028	$2,519,609
2070E-6	Lower Mesa Drive Trans Main	14-inch pipeline between Via Lobato and Glen Oaks Rd. in Mesa Dr.	14 in	7250 /LF	$125 /LF	$906,250	100%	$906,250	50	1978	2028	$2,922,747
2070E-5	Upper Mesa Drive Trans Main	16-inch pipeline between De Portola and Via Lobato in Mesa Dr.	16 in	5700 /LF	$150 /LF	$855,000	100%	$855,000	50	1978	2028	$2,757,460
2070E-4	Upper De Portola Trans Main	16-inch pipeline between Mesa Dr. and Parado Del Sol in De Portola, Via De Oro, Cordova, & Cha	16 in	14500 /LF	$150 /LF	$2,175,000	100%	$2,175,000	50	1978	2028	$7,014,592
2070E-16	Mid Prado Del Sol Trans Main	8-inch pipeline in Prado Del Sol between Chapparal & Caparral	8 in	2750 /LF	$75 /LF	$206,250	100%	$206,250	50	1978	2028	$665,177
2070E-15	Avenida Bravura Trans Main	8-inch pipeline Avd. Bravura between Chaparral and Prado Del Sol	8 in	2900 /LF	$75 /LF	$217,500	100%	$217,500	50	1978	2028	$701,459
2070E-14	Chaparral Loop Trans Main	8-inch pipeline in Chaparral between Prado Del Sol and Prado Del Sol	8 in	7500 /LF	$75 /LF	$562,500	100%	$562,500	50	1978	2028	$1,814,119
2070E-13	Lower Prado Del Sol Trans Main	12-inch pipeline in Chaparral and Prado Del Sol	12 in	5700 /LF	$100 /LF	$570,000	100%	$570,000	50	1978	2028	$1,838,307
2070E-12	Ladera Vista Trans Main	14-inch pipeline between Glen Oaks Res. And Chaparral Dr. in Ladera Vista	14 in	1250 /LF	$125 /LF	$156,250	100%	$156,250	50	1978	2028	$503,922
2070E-11	Lower Chaparral Trans Main	12-inch pipeline between Parado Del Sol and Parado Del Sol in Chaparral	12 in	4800 /LF	$100 /LF	$480,000	100%	$480,000	50	1978	2028	$1,548,048
2070E-10	Prado Del Sol Drive Trans Main	14-inch pipeline between Chaparral and Chaparral in Parado Del Sol	14 in	7750 /LF	$125 /LF	$968,750	100%	$968,750	50	1978	2028	$3,124,316
1790E-9	Buck Rd. Trans Main #2	12-inch pipeline between Buck Mesa P.S. and Glen Oaks in Buck and Rancho Calif. Rd.	24 in	4300 /LF	$225 /LF	$967,500	100%	$967,500	50	1978	2028	$3,120,284
1790E-8	Buck Rd. Trans Main #1	24-inch pipeline between Buck Mesa P.S. and Rancho Calif Rd. in Buck Rd.	24 in	3500 /LF	$225 /LF	$787,500	100%	$787,500	50	1978	2028	$2,539,766
1790E-7	Warren Road Trans Main	20-inch pipeline in Warren and Buck Rd. between Rancho Calif. Rd. and Benton	20 in	2750 /LF	$200 /LF	$550,000	100%	$550,000	50	1978	2028	$1,773,805
1790E-6	Upper Camino del Vino Trans Main	8-inch pipeline in Camino del Vino between Warren and Glen Oaks	8 in	4000 /LF	$75 /LF	$300,000	100%	$300,000	50	1978	2028	$967,530
1790E-5	East Benton Rd. Trans Main	20-inch pipeline in E. Benton Rd. between Camino del Vino and Bella Vista	20 in	3700 /LF	$200 /LF	$740,000	100%	$740,000	50	1978	2028	$2,386,574
1790E-4	Upper Bella Vista Trans Main	8-inch pipeline in Bella Vista between Avd. Brista and E. Benton Rd.	20 in	4900 /LF	$200 /LF	$980,000	100%	$980,000	50	1978	2028	$3,160,598
1790E-31	Upper Glen Oaks Trans Main #2	12-inch pipeline in Glen Oaks between Mesa Drive and Bella Vista	12 in	2600 /LF	$100 /LF	$260,000	100%	$260,000	50	1978	2028	$838,526
1790E-29	Mid De Portola Trans Main #3	30-inch pipeline between Camino Del Vino and Los Caballos P.S. in De Portola	30 in	4600 /LF	$250 /LF	$1,150,000	100%	$1,150,000	50	1978	2028	$3,708,865
1790E-28	Mid De Portola Trans Main #2	16-inch pipeline between Monte De Oro and Camino Del Vino in De Portola	16 in	6500 /LF	$150 /LF	$975,000	100%	$975,000	50	1978	2028	$3,144,472
1790E-27	Mid De Portola Trans Main #1	20-inch pipeline between Camino Arroyo Seco and Monte de Oro in de Portola	20 in	3750 /LF	$200 /LF	$750,000	100%	$750,000	50	1978	2028	$2,418,825
1790E-26	De Portola Reservoir T.M. #1	20-inch pipeline between De Portola Res. #2 and Chaparral	20 in	500 /LF	$200 /LF	$100,000	100%	$100,000	50	1978	2028	$322,510
1790E-25	Cordova Dr. Trans Main #2	30-inch pipeline between De Portola and De Portola Reservoir in Cordova	30 in	5000 /LF	$250 /LF	$1,250,000	100%	$1,250,000	50	1978	2028	$4,031,375
1790E-24	Luna Drive Trans Main	24-inch pipeline between De Portola and De P{ortola P.S. in Luna Drive	24 in	3750 /LF	$225 /LF	$843,750	100%	$843,750	50	1978	2028	$2,721,178
1790E-23	Avenida Brisa Trans Main	18-inch pipeline in Avd. Brisa and C. Arroyo Seco between Bella Vista and De Portola	18 in	3600 /LF	$175 /LF	$630,000	100%	$630,000	50	1978	2028	$2,031,813
1790E-22	Cruz Way Trans Main	8-inch pipeline in Cruz Way between Calle Napal and Meadow Ridge	8 in	2000 /LF	$75 /LF	$150,000	100%	$150,000	50	1978	2028	$483,765
1790E-21	Meadow Ridge Trans Main	12-inch pipeline in Meadow Ridge Rd. between Valencia and Meadow Ridge cul-de-sac	12 in	3500 /LF	$100 /LF	$350,000	100%	$350,000	50	1978	2028	$1,128,785
1790E-20	Via Anita Trans Main	8-inch pipeline in Via Anita between Calle Nopal and Meadow Ridge	8 in	2750 /LF	$75 /LF	$206,250	100%	$206,250	50	1978	2028	$665,177
1790E-19	Calle Nopal Trans Main	12-inch pipeline in Calle Nopal between Valencia Way and Calle Cancion	12 in	4900 /LF	$100 /LF	$490,000	100%	$490,000	50	1978	2028	$1,580,299
1790E-18	Upper Pauba Trans Main	12-inch pipeline in Pauba Rd. from Linda Rosea toward De Anza	12 in	3850 /LF	$100 /LF	$385,000	100%	$385,000	50	1978	2028	$1,241,663
1790E-17	Valencia Way Trans Main	14-inch pipeline in Valencia Way between Camino del Vino and Pauba Rd.	14 in	4350 /LF	$125 /LF	$543,750	100%	$543,750	50	1978	2028	$1,753,648
1790E-16	Lower Camino Del Vino T.M.	16-inch pipeline in Camino Del Vino between Monte de Oro and De Portola	16 in	10250 /LF	$150 /LF	$1,537,500	100%	$1,537,500	50	1978	2028	$4,958,591
1790E-15	Monte De Oro Trans Main	18-inch pipeline in Monte de Oro between Camino Del Vino and De Portola	18 in	6250 /LF	$175 /LF	$1,093,750	100%	$1,093,750	50	1978	2028	$3,527,453
1790E-14	Upper Camino Del Vino T.M. #3	20-inch pipeline in Camino Del Vino between Glen Oaks and Monte de Oro	20 in	2900 /LF	$200 /LF	$580,000	100%	$580,000	50	1978	2028	$1,870,558
1790E-13	Upper Camino Del Vino T.M. #2	20-inch pipeline in Camino Del Vino between Glen Oaks and Monte de Oro	20 in	2900 /LF	$200 /LF	$580,000	100%	$580,000	50	1978	2028	$1,870,558
1790E-12	Lower Bella Vista Trans Main	12-inch pipeline in Belle Vista between Glen Oaks and Monte de Oro Rd.	12 in	5600 /LF	$100 /LF	$560,000	100%	$560,000	50	1978	2028	$1,806,056
1790E-11	Mid Glenoaks Trans Main	18-inch pipeline between Camino Del Vino and Bella Vista in Glen Oaks	18 in	4500 /LF	$175 /LF	$787,500	100%	$787,500	50	1978	2028	$2,539,766
1790E-10	Lower Glenoaks Trans Main	24-inch pipeline between Rancho Calif. Rd. and Camino Del Vino in Glen Oaks	24 in	4200 /LF	$225 /LF	$945,000	100%	$945,000	50	1978	2028	$3,047,719
1610E-8	Mid Anza Trans Main #2	24-inch pipeline in Anza Rd. between Rancho Calif. Rd. and Anza P.S.	24 in	10300 /LF	$225 /LF	$2,317,500	100%	$2,317,500	50	1978	2028	$7,474,169
1610E-7	Upper Anza Rd. Trans Main #2	18-inch pipeline in Anza Rd. between Brenda Rd. and Rancho Calif. Rd.	18 in	2750 /LF	$175 /LF	$481,250	100%	$481,250	50	1978	2028	$1,552,079
1610E-6	Upper Anza Rd. Trans Main #1	16-inch pipeline in Anza Rd. between Vino Way and Brenda Rd.	16 in	1700 /LF	$150 /LF	$255,000	100%	$255,000	50	1978	2028	$822,400
1610E-5	Los Nogales Trans Main	12-inch pipeline in Los Nogales extending from Anza Rd.	12 in	4350 /LF	$100 /LF	$435,000	100%	$435,000	50	1978	2028	$1,402,918
1610E-4	Brenda Rd. Trans Main	20-inch pipeline between Buck Mesa P.S. and Anza in Brenda Rd.	20 in	8000 /LF	$200 /LF	$1,600,000	100%	$1,600,000	50	1978	2028	$5,160,160
1610E-3	Upper Rancho Calif. Rd. T.M. #1	24-inch pipeline between Buck Mesa P.S. and Anza in Rancho Calif Rd.	24 in	10000 /LF	$225 /LF	$2,250,000	100%	$2,250,000	50	1978	2028	$7,256,475
1610E-25	Lower Calle Contento T.M.	16-inch pipeline in C. Contento between Madera de Playa and Linda Rosea	16 in	5500 /LF	$150 /LF	$825,000	100%	$825,000	50	1978	2028	$2,660,707
1610E-24	Mid Calle Contento Trans Main	18-inch pipeline in C. Contento between Rancho Calif. Rd. and Madera de Playa	18 in	3050 /LF	$175 /LF	$533,750	100%	$533,750	50	1978	2028	$1,721,397

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ESTIMATED CAPITAL COST
Rancho Division

Item No.	Facility Name	Description of Facilities	Size/ Capacity	Quantity	Unit Cost	Estimated Capital Cost 2004 ($)	Estimated Replacement Items %	Estimated Replacement Items Cost	Life Cycle In Years	Construction Date	Repl. Date	Estimated Future Replacement Cost ($)
1610E-23	Upper Calle Contento T.M. #2	16-inch pipeline in C. Contento between Vista Del Monte and Rancho Calif Rd.	16 in	5700 /LF	$150 /LF	$855,000	100%	$855,000	50	1978	2028	$2,757,460
1610E-22	Upper Calle Contento T.M. #1	12-inch pipeline in C. Contento between Vista Del Monte Dr. and Pauba Rancho boundary	12 in	2450 /LF	$100 /LF	$245,000	100%	$245,000	50	1978	2028	$790,149
1610E-21	Vino Way Trans Main	16-inch pipeline in Vino Way between Anza Rd. and C. Contento	16 in	4400 /LF	$150 /LF	$660,000	100%	$660,000	50	1978	2028	$2,128,566
1610E-20	Vista Del Monte Drive T.M.	12-inch pipeline in Vista Del Monte Dr. between C. Contento and Butterfield Stage Rd.	12 in	8350 /LF	$100 /LF	$835,000	100%	$835,000	50	1978	2028	$2,692,958
1610E-19	Upper La Serena Way Trans Main	14-inch pipeline in La Serena Way between Madera de Playa and Butterfield Stage	14 in	9850 /LF	$175 /LF	$1,723,750	100%	$1,723,750	50	1978	2028	$5,559,266
1610E-17	Upper Rancho Calif. T.M. #4	24-inch pipeline in Rancho Calif. Rd. between La Serena and Rancho Calif. P.S. #1	24 in	5000 /LF	$225 /LF	$1,125,000	100%	$1,125,000	50	1978	2028	$3,628,237
1610E-16	Upper Rancho Calif. T.M. #3	20-inch pipeline in Rancho Calif. Rd. between C. Contento and La Serena Way	20 in	5100 /LF	$200 /LF	$1,020,000	100%	$1,020,000	50	1978	2028	$3,289,602
1610E-15	Upper Rancho Calif. T.M. #2	18-inch pipeline in Rancho Calif. Rd. between Anza and Calle Contento	18 in	4650 /LF	$175 /LF	$813,750	100%	$813,750	50	1978	2028	$2,624,425
1610E-14	Modera De Playa Dr. Trans Main	18-inch pipeline in Madera De Playa Dr. between Anza and C. Cabrillo	18 in	10400 /LF	$175 /LF	$1,820,000	100%	$1,820,000	50	1978	2028	$5,869,682
1610E-13	Upper Pauba Rd. Trans Main	16-inch pipeline in Pauba Rd. between Anza Rd. and Calle Contento	16 in	3850 /LF	$150 /LF	$577,500	100%	$577,500	50	1978	2028	$1,862,495
1610E-12	Upper Linda Rosea Trans Main #3	16-inch pipeline in Linda Rosea between Sea Wind Circle and Calle Contento	16 in	2750 /LF	$150 /LF	$412,500	100%	$412,500	50	1978	2028	$1,330,354
1610E-11	Upper Linda Rosea Trans Main #2	24-inch pipeline in Linda Rosea between Anza Rd. and 10" pipe node	24 in	4350 /LF	$225 /LF	$978,750	100%	$978,750	50	1978	2028	$3,156,567
1610E-10	Upper Linda Rosea Trans Main #1	10-inch pipeline in Linda Rosea extending south from Pauba Rd.	10 in	4250 /LF	$88 /LF	$374,000	100%	$374,000	50	1978	2028	$1,206,187
1550E-4	Lower Anza Rd. Trans Main #1	14-inch pipeline in Anza Rd. between Booster 40 P.S. and Santa Rita Rd.	14 in	8500 /LF	$125 /LF	$1,062,500	100%	$1,062,500	50	1978	2028	$3,426,669
1550E-3	Santa Rita Rd. Trans Main	14-inch pipeline in Santa Rita Rd. between L. Panteras and Monte Verde	14 in	5150 /LF	$125 /LF	$643,750	100%	$643,750	50	1978	2028	$2,076,158
1550E-2	Los Panteras Trans Main	24-inch pipeline in Los Panteras between Alvares Reservoir and St. Rita Rd.	24 in	2500 /LF	$225 /LF	$562,500	100%	$562,500	50	1978	2028	$1,814,119
1485E-9	Chenin Blanc Trans Main	12-inch pipeline in Chenin Blanc off of Rancho Calif. Rd.	12 in	1800 /LF	$100 /LF	$180,000	100%	$180,000	50	1978	2028	$580,518
1485E-8	Mid Rancho Calif. Trans Main #1	24-inch pipeline in Rancho Calif. Rd. between Riesling Ct. and Rancho Calif. P.S. #2	24 in	3250 /LF	$225 /LF	$731,250	100%	$731,250	50	1978	2028	$2,358,354
1485E-7	Linda Rosea Loop Trans Main	12-inch pipeline looped in Linda Rosea and C. Contento	12 in	8750 /LF	$100 /LF	$875,000	100%	$875,000	50	1978	2028	$2,821,962
1485E-6	Cee Cee Rd. Trans Main	8-inch pipeline in Cee Cee Road between Lisa Rd. and Orlinda Dr.	8 in	2125 /LF	$75 /LF	$159,375	100%	$159,375	50	1978	2028	$514,000
1485E-5	Lisa Rd. Trans Main	16-inch pipeline in Lisa Rd. between Vista Del Monte and Cee Cee Rd.	16 in	850 /LF	$150 /LF	$127,500	100%	$127,500	50	1978	2028	$411,200
1485E-4	Via Del Monte Trans Main	16-inch pipeline in Vista Del Monte between Pauba and Linda Rosea	16 in	5500 /LF	$150 /LF	$825,000	100%	$825,000	50	1978	2028	$2,660,707
1485E-3	Mid Pauba Rd. Trans Main	24-inch pipeline in Pauba Rd. between R.C.P.S. #2 and Calle Contento Reservoir	24 in	15000 /LF	$225 /LF	$3,375,000	100%	$3,375,000	50	1978	2028	$10,884,712
1485E-16	Del Rey Rd. Trans Main	12-inch pipeline in Del Ray Road from Avd. Del Reposo	12 in	4000 /LF	$100 /LF	$400,000	100%	$400,000	50	1978	2028	$1,290,040
1485E-15	Loop Line #1	14-inch pipeline between Del Ray and La Serena; not in a street	14 in	1000 /LF	$125 /LF	$125,000	100%	$125,000	50	1978	2028	$403,137
1485E-14	Upper Via Norte Trans Main	12-inch pipeline in Via Norte between Avd. Centenario and Avd. De Reposo	12 in	4500 /LF	$100 /LF	$450,000	100%	$450,000	50	1978	2028	$1,451,295
1485E-13	Calle Girasol Trans Main	8-inch pipeline in Calle Girasol between Niccolas Road and 2nd S.D. Aqueduct	8 in	2700 /LF	$75 /LF	$202,500	100%	$202,500	50	1978	2028	$653,083
1485E-12	Leifer Rd. Trans Main	8-inch pipeline in Liefer Road between Nicolas Road	8 in	4650 /LF	$75 /LF	$348,750	100%	$348,750	50	1978	2028	$1,124,754
1485E-11	Calle Medusa Trans Main	12-inch pipeline in C. Medusa between Liefer Road and La Serena Way	12 in	6650 /LF	$100 /LF	$665,000	100%	$665,000	50	1978	2028	$2,144,691
1485E-10	Lower La Serena Trans Main #2	16-inch pipeline in La Serena Way between Kaiser and Butterfield Stage	16 in	4200 /LF	$150 /LF	$630,000	100%	$630,000	50	1978	2028	$2,031,813
1380E-9	Lower Anza Rd. Trans Main #2	24-inch pipeline in Anza Rd. between Anza Res. And De Portola Rd.	24 in	6200 /LF	$225 /LF	$1,395,000	100%	$1,395,000	50	1978	2028	$4,499,014
1380E-7	Lower Pauba Trans Main #1	12-inch pipeline between Calle Cedral and Ynez in Pauba Road	12 in	12200 /LF	$100 /LF	$1,220,000	100%	$1,220,000	50	1978	2028	$3,934,622
1380E-6	Rancho Vista Trans Main	12-inch pipeline between Ynez and Margarita in Rancho Vista	12 in	7400 /LF	$100 /LF	$740,000	100%	$740,000	50	1978	2028	$2,386,574
1380E-5	Camino Pina Colada Trans Main	20-inch pipeline between Del Rey Rd. and La Serena Way in C. Pina Colada	20 in	2200 /LF	$200 /LF	$440,000	100%	$440,000	50	1978	2028	$1,419,044
1380E-4	Del Rey Road Trans Main	16-inch pipeline between Via Norte and Calle Pina Colada in Del Rey Rd.	16 in	4500 /LF	$150 /LF	$675,000	100%	$675,000	50	1978	2028	$2,176,942
1380E-32	Orlinda Drive Trans Main	12-inch pipeline in Orlinda Dr. and Linda Rosea between Cee Cee Road and De Portola Rd.	12 in	2150 /LF	$100 /LF	$215,000	100%	$215,000	50	1978	2028	$693,396
1380E-3	Lower Via Norte Trans Main	16-inch pipeline between Del Rey Rd. & Avd. Centenario in Via Norte	16 in	7400 /LF	$150 /LF	$1,110,000	100%	$1,110,000	50	1978	2028	$3,579,861
1380E-21	Lower La Serena Trans Main #1	24-inch pipeline in La Sierra Way between Margarita & Calle Pina Colada	24 in	2850 /LF	$225 /LF	$641,250	100%	$641,250	50	1978	2028	$2,068,095
1380E-2	General Kearney Trans Main	24-inch pipeline in General Kearny between General Kearny Res. and Rancho Calif. Rd.	24 in	4900 /LF	$225 /LF	$1,102,500	100%	$1,102,500	50	1978	2028	$3,555,673
1380E-19	Los Corralitos Rd. Trans Main	14-inch pipeline in Los Corralitos Rd. & Los Caballos between Pauba Rd. and De Portola Rd.	14 in	8350 /LF	$125 /LF	$1,043,750	100%	$1,043,750	50	1978	2028	$3,366,198
1380E-18	Lower Pauba Rd. Trans Main #3	14-inch pipeline in Pauba Rd. between De Portola and Los Corralitos Rd.	14 in	8600 /LF	$125 /LF	$1,075,000	100%	$1,075,000	50	1978	2028	$3,466,982
1380E-17	Lower Pauba Rd. Trans Main #2	16-inch pipeline in Pauba Rd. between De Portola Rd. and Winners Circle	16 in	2750 /LF	$150 /LF	$412,500	100%	$412,500	50	1978	2028	$1,330,354
1380E-16	Upper Hwy 79 Trans Main #2	12-inch pipeline in Hwy 79 extending West from Booster 40 P.S.	12 in	4350 /LF	$100 /LF	$435,000	100%	$435,000	50	1978	2028	$1,402,918
1380E-15	Lower Anza Rd. Trans Main #4	14-inch pipeline in Anza Rd. between Booster 40 P.S. and De Portola	14 in	3900 /LF	$125 /LF	$487,500	100%	$487,500	50	1978	2028	$1,572,236
1380E-14	Lower De Portola Rd T.M. #3	24-inch pipeline in De Portola Road between C. contento and Margarite	24 in	14000 /LF	$225 /LF	$3,150,000	100%	$3,150,000	50	1978	2028	$10,159,065
1380E-13	Margarita Rd. Trans Main #1	24-inch pipeline Margarite Pkwy between De Portola and La Sierra Way	24 in	13500 /LF	$225 /LF	$3,037,500	100%	$3,037,500	50	1978	2028	$9,796,241
1380E-12	Mid Rancho Calif. Trans Main #4	30-inch pipeline extending East of Margarita Pkwy in Rancho Calif. Rd.	30 in	4500 /LF	$250 /LF	$1,125,000	100%	$1,125,000	50	1978	2028	$3,628,237
1380E-11	Mid Rancho Calif. Trans Main #3	36-inch pipeline extending West of Kaiser Pkwy in Rancho Calif. Rd.	36 in	2450 /LF	$275 /LF	$673,750	100%	$673,750	50	1978	2028	$2,172,911
1380E-10	Mid Rancho Calif. Trans Main #2	24-inch pipeline between Riesling Ct. and Rancho Calif. P.S. #2 in Rancho Calif. Rd.	24 in	3150 /LF	$225 /LF	$708,750	100%	$708,750	50	1978	2028	$2,285,790
1305E-9	Valdez Road Trans Main	24-inch pipeline in Valdez, Felix, Vincent & Rancho Calif. Road between Diaz and 6th	24 in	2700 /LF	$225 /LF	$607,500	100%	$607,500	50	1978	2028	$1,959,248
1305E-53	Lower De Portola Rd. T.M. #2	20-inch pipeline in De Portola between Los Caballos P.S. & Calle Contento	20 in	15100 /LF	$200 /LF	$3,020,000	100%	$3,020,000	50	1978	2028	$9,739,802
1305E-51	Loop Trans Main #4	36-inch pipeline between Front Street & Diaz, not in existing road	36 in	650 /LF	$275 /LF	$178,750	100%	$178,750	50	1978	2028	$576,487
1305E-50	Moraga Rd. Trans Main	16-inch pipeline in Moraga Road between Margarita & Rancho Calif.	16 in	1350 /LF	$150 /LF	$202,500	100%	$202,500	50	1978	2028	$653,083

TABLE 9.5
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Rancho Division

Item No.	Facility Name	Description of Facilities	Size/ Capacity	Quantity	Unit Cost	Estimated Capital Cost 2004 ($)	Estimated Replacement Items %	Estimated Replacement Items Cost	Life Cycle In Years	Construction Date	Repl. Date	Estimated Future Replacement Cost ($)
1305E-49	Ynez Rd. Loop Trans Main	20-inch pipeline in Ynez, Equity, & County Center Drive	20 in	6300 /LF	$200 /LF	$1,260,000	100%	$1,260,000	50	1978	2028	$4,063,626
1305E-48	Avenida Sonoma Trans Main	12-inch pipeline in Avd. Sonoma between Solana Wy. & Margarita Rd.	12 in	1800 /LF	$100 /LF	$180,000	100%	$180,000	50	1978	2028	$580,518
1305E-47	Solana Way Trans Main #2	10-inch pipeline in Solana Way between Margarita & Avd. Sonoma	10 in	4500 /LF	$88 /LF	$396,000	100%	$396,000	50	1978	2028	$1,277,140
1305E-46	Solana Way Trans Main #1	10-inch pipeline in Solana Way between Margarita & Ynez	12 in	1650 /LF	$100 /LF	$165,000	100%	$165,000	50	1978	2028	$532,141
1305E-45	Lower Margarita Rd. Trans Main #2	16-inch pipeline in Margarita Rd. between Avd. Sonoma & C. Pina Colada	16 in	12200 /LF	$150 /LF	$1,830,000	100%	$1,830,000	50	1978	2028	$5,901,933
1305E-44	Lower Rancho Calif Rd. T.M. #3	20-inch pipeline in Rancho Calif. Rd. between Norma Marshall Res. & Asteroid Rd.	20 in	2500 /LF	$200 /LF	$500,000	100%	$500,000	50	1978	2028	$1,612,550
1305E-43	Lower Rancho Calif Rd. T.M. #2	24-inch pipeline in Rancho California Rd. between Ynez Rd. & Asteroid Rd.	24 in	6700 /LF	$225 /LF	$1,507,500	100%	$1,507,500	50	1978	2028	$4,861,838
1305E-42	Lower Rancho Calif Rd. T.M. #1	20-inch pipeline between Ynez Rd. & Front St. in Rancho Calif. Rd.	20 in	2150 /LF	$200 /LF	$430,000	100%	$430,000	50	1978	2028	$1,386,793
1305E-41	Rainbow Canyon Trans Main	14-inch pipeline in Rainbow Canyon between Pala Road & Rainbow Canyon Golf Course	14 in	2400 /LF	$125 /LF	$300,000	100%	$300,000	50	1978	2028	$967,530
1305E-40	Loop Trans Main #3	16-inch pipeline between Loma Linda & Hwy 79, not in existing street	16 in	2400 /LF	$150 /LF	$360,000	100%	$360,000	50	1978	2028	$1,161,036
1305E-39	Loma Linda Trans Main	12-inch pipeline in Loma Linda between Cal Turf & Pala Rd.	12 in	8300 /LF	$100 /LF	$830,000	100%	$830,000	50	1978	2028	$2,676,833
1305E-38	Cal Turf Trans Main	16-inch pipeline in Cal Turf Road between Pala Rd. & Loma Linda Rd.	16 in	5000 /LF	$150 /LF	$750,000	100%	$750,000	50	1978	2028	$2,418,825
1305E-37	Pala Rd. Trans Main #2	24-inch pipeline in Pala Road between Rainbow Cyn. & Cal Turf	24 in	9300 /LF	$225 /LF	$2,092,500	100%	$2,092,500	50	1978	2028	$6,748,522
1305E-36	Pala Rd. Trans Main #1	18-inch pipeline in Pala Rd. between Hwy 79 & Rainbow Canyon Rd.	18 in	1500 /LF	$175 /LF	$262,500	100%	$262,500	50	1978	2028	$846,589
1305E-35	Business Park Drive Trans Main	24-inch pipeline in Business Pk. Drive & Single Oak Dr. off of Rancho Calif. Rd.	24 in	4500 /LF	$225 /LF	$1,012,500	100%	$1,012,500	50	1978	2028	$3,265,414
1305E-34	Airport Trans Main	20-inch ippeline between Airport & Business Park Dr. - not in existing rd.	20 in	1000 /LF	$200 /LF	$200,000	100%	$200,000	50	1978	2028	$645,020
1305E-32	Rio Nedo Loop Trans Main	12-inch pipeline in Diaz, Rio Nedo, Tierro Alta & Avd. Alvarado	12 in	7700 /LF	$100 /LF	$770,000	100%	$770,000	50	1978	2028	$2,483,327
1305E-31	Loop Trans Main #2	24-inch pipeline between V. Montezuma & Diaz - not in roadway	24 in	500 /LF	$225 /LF	$112,500	100%	$112,500	50	1978	2028	$362,824
1305E-30	Via Montezuma Trans Main	12-inch pipeline in V. Montezuma between Front St. & Del Rio	12 in	1000 /LF	$100 /LF	$100,000	100%	$100,000	50	1978	2028	$322,510
1305E-29	Del Rio Rd. Trans Main	14-inch pipeline in Del Rio Rd. between Via Montezuma & Front St.	14 in	2850 /LF	$125 /LF	$356,250	100%	$356,250	50	1978	2028	$1,148,942
1305E-28	Front Street Trans Main #4	12-inch pipeline in Front St. between Del Rio & Via Montezuma	12 in	3400 /LF	$100 /LF	$340,000	100%	$340,000	50	1978	2028	$1,096,534
1305E-27	Front Street Trans Main #3	16-inch pipeline in Front Street between Rancho Calif. & Del Rio Rd.	16 in	1700 /LF	$150 /LF	$255,000	100%	$255,000	50	1978	2028	$822,400
1305E-26	Front Street Trans Main #2	24-inch pipeline in Santiage, Front, & Jefferson between Ynez & Winchester	24 in	16000 /LF	$225 /LF	$3,600,000	100%	$3,600,000	50	1978	2028	$11,610,360
1305E-25	Front Street Trans Main #1	20-inch pipeline in Front St. between Hwy 79 & Santiago Rd.	20 in	3900 /LF	$200 /LF	$780,000	100%	$780,000	50	1978	2028	$2,515,578
1305E-24	La Paz Rd. Trans Main	16-inch pipeline in La Paz Rd. between Ynez Rd. & Constance St.	16 in	1350 /LF	$150 /LF	$202,500	100%	$202,500	50	1978	2028	$653,083
1305E-22	Lower Highway 79 Trans Main #1	30-inch pipeline between Margarita Rd. & 2nd Sand Diego Aqueduct in Hwy 79	30 in	7100 /LF	$250 /LF	$1,775,000	100%	$1,775,000	50	1978	2028	$5,724,552
1305E-21	Lower Margarita Trans Main #1	12-inch pipeline between De Portola Rd. & Hwy 79 in Margarita Rd.	12 in	1500 /LF	$100 /LF	$150,000	100%	$150,000	50	1978	2028	$483,765
1305E-20	Lower Ynez Rd. Trans Main #2	20-inch pipeline in Ynez Road & De Portola between La Paz St. & Margarita	20 in	9500 /LF	$200 /LF	$1,900,000	100%	$1,900,000	50	1978	2028	$6,127,690
1305E-19	Lower Ynez Rd. Trans Main #1	18-inch pipeline in Ynez Rd. between Santiago Rd. & La Paz St.	18 in	3300 /LF	$175 /LF	$577,500	100%	$577,500	50	1978	2028	$1,862,495
1305E-18	Mid Ynez Rd. Trans Main	16-inch pipeline in Ynez Road between Solana Way & Santiago Rd.	16 in	11200 /LF	$150 /LF	$1,680,000	100%	$1,680,000	50	1978	2028	$5,418,168
1305E-17	Upper Ynez Rd. Trans Main	12-inch pipeline in Ynez Road between Winchester & Solana Way	12 in	4200 /LF	$100 /LF	$420,000	100%	$420,000	50	1978	2028	$1,354,542
1305E-16	Winchester Trans Main #4	24-inch pipeline in Winchester Rd. between Jefferson and Margarita	24 in	6000 /LF	$225 /LF	$1,350,000	100%	$1,350,000	50	1978	2028	$4,353,885
1305E-15	Winchester Trans Main #3	20-inch pipeline in Winchester Rd. between Nicolas Rd. & Margarita	20 in	3300 /LF	$200 /LF	$660,000	100%	$660,000	50	1978	2028	$2,128,566
1305E-14	Winchester Trans Main #2	16-inch pipeline in Winchester Rd. between Nicolas Rd. & Winchestrick Ave.	16 in	2500 /LF	$165 /LF	$412,500	100%	$412,500	50	1978	2028	$1,330,354
1305E-13	Main Street Trans Main	6-inch pipeline in Main Street between Front St. and Pujol St.	6 in	750 /LF	$50 /LF	$37,500	100%	$37,500	50	1978	2028	$120,941
1305E-10	Pujol Street Trans Main	24-inch pipeline in Pujol Street & 6th between Valdez and C. Estribo	24 in	6000 /LF	$225 /LF	$1,350,000	100%	$1,350,000	50	1978	2028	$4,353,885
1380E	Winchester P.S. T.M.	24-inch pipeline from Winchester Rd. to General Kearny Rd. ending at Via Norte	24 in	6021 /LF	$225 /LF	$1,354,725	100%	$1,354,725	50	2000	2050	$12,780,825
1380E	Long Canyon T.M.	24-inch pipeline between Via Norte & Del Rey Rd.	24 in	3861 /LF	$225 /LF	$868,725	100%	$868,725	50	2000	2050	$8,195,776
1305E	Overland Dr. T.M.	16-inch pipeline between Ynez Rd. & Margarita Rd.	16 in	1689 /LF	$150 /LF	$253,350	100%	$253,350	50	2000	2050	$2,390,169
1305E	Promenade Wey T.M.	16-inch pipeline Overland Dr. & Loop Rd.	16 in	782 /LF	$150 /LF	$117,300	100%	$117,300	50	2000	2050	$1,106,638
1305E	Solana Way T.M.	16-inch pipeline between Ynez Rd. & Margarita Rd.	16 in	1819 /LF	$150 /LF	$272,850	100%	$272,850	50	2000	2050	$2,574,137
1485E	La Serena Way T.M.	24-inch pipeline from Via Aguila to Meadows Pkwy ending at Spyglass Hill Lane	24 in	4381 /LF	$225 /LF	$985,725	100%	$985,725	50	2000	2050	$9,299,584
1485E	Meadows Pkwy T.M. #1	24-inch pipeline between Spyglass Hill Lane & Parducci Lane	24 in	1000 /LF	$225 /LF	$225,000	100%	$225,000	50	2000	2050	$2,122,708
1485E	Meadows Pkwy T.M. #2	24-inch pipeline between Parducci Lane & Royal Birkdale Dr.	24 in	2382 /LF	$225 /LF	$535,950	100%	$535,950	50	2000	2050	$5,056,291
1610E	La Serena Way T.M. #1	24-inch pipeline between Calle Medusa & Walcott Ln.	24 in	1260 /LF	$225 /LF	$283,500	100%	$283,500	50	2000	2050	$2,674,612
1610E	La Serena Way T.M. #2	16-inch pipeline between Calle Elenita & Butterfield Stage Rd.	16 in	1145 /LF	$150 /LF	$171,750	100%	$171,750	50	2000	2050	$1,620,334
1610E	La Serena Way T.M. #3	30-inch pipeline between Walcott Ln. & Butterfield Stage Rd.	30 in	882 /LF	$250 /LF	$220,500	100%	$220,500	50	2000	2050	$2,080,254
1610E	Walcott Lane T.M. #1	30-inch pipeline between La Serena & Valone Ct.	30 in	755 /LF	$250 /LF	$188,750	100%	$188,750	50	2000	2050	$1,780,716
1610E	Walcott Lane T.M. #2	30-inch pipeline between Klare Ln. & Calle Chapos	30 in	2734 /LF	$250 /LF	$683,500	100%	$683,500	50	2000	2050	$6,448,315
1380E	Winchester Rd. T.M. #1	20-inch pipeline between Northeast of Roripaugh & Southwest of Nicolas Rd.	20 in	1328 /LF	$200 /LF	$265,600	100%	$265,600	50	2000	2050	$2,505,739
1380E	Winchester Rd. T.M. #2	16-inch pipeline North of Murrieta Hot Springs Rd. to Glen Dr.	16 in	480 /LF	$150 /LF	$72,000	100%	$72,000	50	2000	2050	$679,267
1305E	Store Rd. T.M.	16-inch pipeline between Redhaw Pkwy and Apis Rd.	16 in	965 /LF	$150 /LF	$144,750	100%	$144,750	50	2000	2050	$1,365,609
1380E	Pine Road T.M.	16-inch pipeline between Manzanita Dr. & Margarita Rd.	16 in	4219 /LF	$150 /LF	$632,850	100%	$632,850	50	2000	2050	$5,970,470

TABLE 9.5
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Rancho Division

Item No.	Facility Name	Description of Facilities	Size/ Capacity	Quantity	Unit Cost	Estimated Capital Cost 2004 ($)	Estimated Replacement Items %	Estimated Replacement Items Cost	Life Cycle In Years	Construction Date	Repl. Date	Estimated Future Replacement Cost ($)
1380E	Lakeview Rd. T.M.	16-inch pipeline from Halleston Dr. to Paddington Ct.	16 in	902 /LF	$150 /LF	$135,300	100%	$135,300	50	2000	2050	$1,276,455
1380E	Date St. T.M. #1	16-inch pipeline between Paddington Ct. & Margarita Rd.	16 in	2005 /LF	$150 /LF	$300,750	100%	$300,750	50	2000	2050	$2,837,353
1380E	Date St. T.M. #2	30-inch pipeline from Margarita Rd. to Murrieta Hot Springs Rd.	30 in	4295 /LF	$250 /LF	$1,073,750	100%	$1,073,750	50	2000	2050	$10,130,035
1380E	Date St. Ext. T.M.	16-inch pipeline ~700 lf west from Date Street	16 in	732 /LF	$150 /LF	$109,800	100%	$109,800	50	2000	2050	$1,035,882
1380E	Murrieta Hot Springs T.M.	30-inch pipeline from Date St. Ext. T.M. to Sky Larron Dr.	30 in	1116 /LF	$250 /LF	$279,000	100%	$279,000	50	2000	2050	$2,632,158
1380E	Winchester Rd. T.M. #3	16-inch pipeline from Murietta Hot Springs Rd. to ??????	16 in	973 /LF	$150 /LF	$145,950	100%	$145,950	50	2000	2050	$1,376,930
1305E	Murrieta Creek T.M.	??	20 in	2000 /LF	$200 /LF	$400,000	100%	$400,000	50	2000	2050	$3,773,703
1305E	Townfront St. T.M. #1	??	20 in	2711 /LF	$200 /LF	$542,200	100%	$542,200	50	2000	2050	$5,115,255
1305E	Townfront St. T.M. #2	??	16 in	402 /LF	$150 /LF	$60,300	100%	$60,300	50	2000	2050	$568,886
1305E	Townfront St. T.M. #3	20-inch pipeline parallel to Town Front St.	20 in	958 /LF	$200 /LF	$191,600	100%	$191,600	50	2000	2050	$1,807,604
1305E	Townfront St. T.M. #4	42-inch pipeline perpendicular to Town Front St.	42 in	933 /LF	$300 /LF	$279,900	100%	$279,900	50	2000	2050	$2,640,649
1305E	SR79 T.M. #1	30-inch pipeline between Murrieta Creek & Bedford Ct	30 in	3499 /LF	$250 /LF	$874,750	100%	$874,750	50	2000	2050	$8,252,617
1305E	SR79 T.M. #2	36-inch pipeline parallel to SR79 T.M. #1	36 in	895 /LF	$275 /LF	$246,125	100%	$246,125	50	2000	2050	$2,322,007
1305E	SR79 T.M. #3	36-inch pipeline parallel to SR79	36 in	307 /LF	$275 /LF	$84,425	100%	$84,425	50	2000	2050	$796,487
1305E	SR79 T.M. #4	30-inch pipeline parallel to SR79	30 in	534 /LF	$250 /LF	$133,500	100%	$133,500	50	2000	2050	$1,259,473
1305E	SR79 T.M. #5	36-inch pipeline parallel to SR79 T.M. #4	36 in	916 /LF	$275 /LF	$251,900	100%	$251,900	50	2000	2050	$2,376,490
1305E	Pechanga Pkwy T.M. #1	16-inch pipeline parallel to Pechanga Pkwy.	16 in	2085 /LF	$160 /LF	$333,600	100%	$333,600	50	2000	2050	$3,147,269
1305E	Pechanga Pkwy T.M. #2	30-inch pipeline parallel to Pechanga Pkwy.	30 in	660 /LF	$250 /LF	$165,000	100%	$165,000	50	2000	2050	$1,556,653
1550E	Los Caballos Rd. T.M.	24-inch pipeline between SR 79 and Rita Rd.	24 in	3900 /LF	$225 /LF	$877,500	100%	$877,500	50	2000	2050	$8,278,562
1550E	Anza Rd. T.M	16-inch pipeline from Rita Rd. to Linda Rd.	16 in	3596 /LF	$150 /LF	$539,400	100%	$539,400	50	2000	2050	$5,088,839
1610E	Playa Dr. T.M.	20-inch pipeline easterly from Brickswell lane	20 in	2800 /LF	$200 /LF	$560,000	100%	$560,000	50	2000	2050	$5,283,185
1305E	Adam Ave. T.M	30-inch pipeline between Lemon and Larchmont Ln.	30 in	15800 /LF	$250 /LF	$3,950,000	100%	$3,950,000	50	2000	2050	$37,265,320
1305E	Vineyard pkwy T.M	20-inch pipeline between Hayes and Monroe Ave.	20 in	11100 /LF	$200 /LF	$2,220,000	100%	$2,220,000	50	2000	2050	$20,944,053
1305E	Monroe Ave. T.M.	20-inch pipeline between Troyes Ln and California Oak Rd.	20 in	2000 /LF	$200 /LF	$400,000	100%	$400,000	50	2000	2050	$3,773,703
1305E	Nighthawk Wy T.M.	20-inch pipeline between Hayes St. and Santa Fe Tr	20 in	1300 /LF	$200 /LF	$260,000	100%	$260,000	50	2000	2050	$2,452,907
		Subtotal				$135,964,700		$135,964,700				$573,186,168
		PRESSURE REDUCING STATIONS										
2070E-19	Pressure Reducing Station	PRS from 2070 to 1880		1 /EA		$158,794	30%	$47,638	30	1992	2022	$114,647
2070E-18	Pressure Reducing Station	PRS from 2070 to 1880		1 /EA		$158,794	30%	$47,638	30	1992	2022	$114,647
2070E-17	Pressure Reducing Station	PRS from 2070 to 1880		1 /EA		$158,794	30%	$47,638	30	1992	2022	$114,647
1485E-17	Pressure Reducing Station	PRS at La Serena and Calle Medusa. Pressure reducing from 1610 to 1485		1 /LS		$158,794	30%	$47,638	30	1976	2006	$52,521
		Subtotal				$635,176		$190,553				$396,462
		WELLS										
1305E-92	Well No. 224	Well at Butterfield & De Portola	gpm	1 LS		$423,451	100%	$423,451	30	1953	1983	$151,994
1380E-28	Well No. 210	Well at De Portola	1400 gpm	1 LS		$529,314	100%	$529,314	30	1957	1987	$230,938
1790E-33	Well No. 202	Well at Calle Nupal and Cruz Way		1 LS		$317,588	100%	$317,588	30	1965	1995	$204,720
1380E-27	Well No. 203	Well at De Portola and Pauba	gpm	1 LS		$635,176	100%	$635,176	30	1965	1995	$409,440
1610E-28	Well No. 204	Well at Rancho Calif. Rd. and Anza		1 LS		$648,457	100%	$648,457	30	1965	1995	$418,001
1305E-94	Well No. 205	Well at General Kearny	gpm	1 LS		$741,039	100%	$741,039	30	1965	1995	$477,680
1610E-27	Well No. 201	Well at Calle Contento and R.C. Rd.		1 LS		$741,039	100%	$741,039	30	1965	1995	$477,680
1550E-6	Well No. 207	Well at Hwy 79 and Anza Rd.	gpm	1 LS		$635,176	100%	$635,176	30	1966	1996	$429,912
1610E-30	Well No. 209	Well at La Serana Way		1 LS		$648,457	100%	$648,457	30	1966	1996	$438,902
1610E-29	Well No. 208	Well at Pauba and Calle Contento		1 LS		$698,694	100%	$698,694	30	1966	1996	$472,904
1380E-29	Well No. 212	Well at Hwy 79 and Booster 40 P.S.	1000 gpm	1 LS		$635,176	100%	$635,176	30	1967	1997	$451,408
1305E-88	Well No. 211	Well at Pala Rd.	gpm	1 LS		$762,212	100%	$762,212	30	1967	1997	$541,690
1380E-30	Well No. 214	Well at Butterfield Stage	gpm	1 LS		$317,588	100%	$317,588	30	1970	2000	$261,281
1610E-31	Well No. 215	Well at Madera de Playa		1 LS		$741,039	100%	$741,039	30	1970	2000	$609,655
1305E-90	Well No. 217	Well at Pauba & Verde Dr.	900	1 LS		$635,176	100%	$635,176	30	1972	2002	$576,124
1380E-31	Well No. 216	Well at Margarita and Rancho Vista	1800 gpm	1 LS		$1,588,134	100%	$1,588,134	30	1972	2002	$1,440,484
1305E-91	Well No. 223	Well at Hwy 79	gpm	1 LS		$423,451	100%	$423,451	30	1974	2004	$423,451
1380E-23	Well No. 233	Well at De Portola	2500 gpm	1 LS		$635,176	100%	$635,176	30	1980	2010	$851,197
1305E-66	Well No. 231	Well at Hwy 79 & Valdez Rd.	2300 gpm	1 LS		$656,349	100%	$656,349	30	1980	2010	$879,570
1380E-22	Well No. 232	Well at De Portola and Anza	2300 gpm	1 LS		$741,039	100%	$741,039	30	1981	2011	$1,042,717
1380E-24	Well No. 234	Well at Hwy 79 and Anza	gpm	1 LS		$698,694	100%	$698,694	30	1982	2012	$1,032,289
1305E-89	Well No. 235	Well at Rancho Calif. & Lynde	2500 gpm	1 LS		$762,212	100%	$762,212	30	1987	2017	$1,437,264
		Subtotal				$14,614,641		$14,614,641				$13,259,303
TOTAL RANCHO DIVISION						$218,867,326		$164,229,017				$659,313,178

TABLE 9.5
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Rancho Division

Item No.	Facility Name	Description of Facilities	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2040	2041-2050	2051-2060
		RESERVOIRS								
1610E-1	Buck Mesa Reservoir #1	1.5 MG tank at Brenda Rd. and Buck Rd.					$322,510			
1550E-1	Alvarez Reservoir	1.5 MG tank at Los Panteras Rd. Site					$338,635			
1380E-8	Anza Reservoir #1	2.2 MG tank at Anza Rd. and Linda Rosea Road					$521,499			
1380E-1	General Kearny Reservoir	2.2 MG tank at Kaiser Pkwy site					$521,499			
2070E-1	Glen Oaks Reservoir #1	2.2 MG tank at Camino Sierra					$547,574			
1790E-1	De Portola Reservoir #1	2.2 MG tank at De Portola Site					$547,574			
1485E-1	Calle Contento Reservoir	2.2 MG tank at Calle Contento and Pauba Rd.							$983,364	
2070E-2	Glen Oaks Reservoir #2	2.2 MG tank at Ladera Vista							$983,364	
1610E-2	Buck Mesa Reservoir #2	5.0 MG tank at Brenda Rd. and Buck Rd.							$2,234,917	
1305E-3	Norma Marshall Res.	5.0 MG tank at Rancho Calif. Rd. and Margarita							$2,234,917	
1790E-2	De Portola Reservoir #2	3.5 MG tank at De Portola Site							$1,724,797	
2350E-1	Calaveras Reservoir #1	0.5 MG tank at Esplendida and Avd. Alturas							$285,238	
1305	Senga Doherty Reservoir									$9,835,144
1380	Winchester Reservoir #1									$4,456,550
1485	El Chimisal Reservoir #1									$5,993,291
1485	Nicolas Reservoir									$3,380,831
1485	El Chimisal Reservoir #2									$5,993,291
1550	El Chimisal Reservoir #3									$3,688,179
1790	Tucalota Reservoir									$3,841,853
		Subtotal	$0	$0	$0	$0	$2,799,290	$0	$8,446,597	$37,189,138
		PUMP STATIONS								
1550E-5	Booster 40 Pump Station	1100 gpm pump station (1 unit at 125 HP) at Hwy 79 Site								
1790E-3	Buck Mesa Pump Station	12900 gpm pump station (3 units at 100 HP, 4 units at 150 HP)								
1380E-20	Meadowview Pump Station	9300 gpm pump station (6 units at 75 HP each) at Rancho Calif. Rd. and Margarite	$563,190							
2070E-3	De Portola Pump Station	5000 gpm pump station (1 unit at 75 HP, 3 units at 150 HP) at De Portola Site	$724,403							
1485E-2	Rancho Calif. Pump Station #2	4600 gpm pump station (3 units at 75 HP each) at Rancho Calif. And Butterfield Stage Rd.	$324,266							
1610E-9	Anza Pump Station	6900 gpm pump station (4 units at 150 HP each) at Anza rd. Site		$929,267						
1610E-18	Rancho Calif. Pump Station #1	9700 gpm pump station (6 units at 200 HP each) at Rancho Calif. And Butterfield Stage Rd.			$2,064,756					
1790E-30	Los Caballos Pump Station	7300 gpm pump station (3 units at 350 HP each) at Los Caballos Site in De Portola			$2,054,090					
2350E-2	Calle Breve Pump Station	1000 gpm pump station (2 units at 125 HP each) at Calle Breve Site				$679,390				
1380	Winchester P.S.							$2,904,345		
1380	Norma Marshal P.S.							$4,901,083		
1485	Butterfield Stage P.S.							$7,986,950		
		Subtotal	$1,611,858	$929,267	$4,118,846	$679,390	$0	$15,792,377	$0	$0

TABLE 9.5
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Rancho Division

Item No.	Facility Name	Description of Facilities	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2040	2041-2050	2051-2060
		TRANSMISSION MAINS								
2350E-6	Esplendida Trans Main	16-inch pipeline in Esplendida between Via De Oro and Calaveras Res					$1,451,295			
2350E-5	Via De Oro Trans Main	23-inch pipeline in Via De Oro below Esplandida					$645,020			
2350E-4	Calaveras Trans Main	12-inch pipeline in Calaveras Rd. between Parado del Sol Dr. and Via Del Oro					$806,275			
2350E-3	Calle Breve Trans Main	16-inch pipeline in Calle Breve and Via De Oro between Calle Breve P.S. & Esplendida					$7,740,240			
2070E-9	Upper Glen Oaks Trans Main #1	12-inch pipeline between De Portola and Mesa Drive in Glen Oaks					$1,128,785			
2070E-8	East Sierra Rd. Trans Main	16-inch pipeline between Glen Oaks Res. #1 and De Portola in Sierra Road					$483,765			
2070E-7	West Sierra Rd. Trans Main	14-inch pipeline between Mesa Dr. and Glen Oaks Reservoir #1 in Camino Sierra					$2,519,609			
2070E-6	Lower Mesa Drive Trans Main	14-inch pipeline between Via Lobato and Glen Oaks Rd. in Mesa Dr.					$2,922,747			
2070E-5	Upper Mesa Drive Trans Main	16-inch pipeline between De Portola and Via Lobato in Mesa Dr.					$2,757,460			
2070E-4	Upper De Portola Trans Main	16-inch pipeline between Mesa Dr. and Parado Del Sol in De Portola, Via De Oro, Cordova, & Ch.					$7,014,592			
2070E-16	Mid Prado Del Sol Trans Main	8-inch pipeline in Prado Del Sol between Chapparal & Caparral					$665,177			
2070E-15	Avenida Bravura Trans Main	8-inch pipeline Avd. Bravura between Chaparral and Prado Del Sol					$701,459			
2070E-14	Chaparral Loop Trans Main	8-inch pipeline in Chaparral between Prado Del Sol and Prado Del Sol					$1,814,119			
2070E-13	Lower Prado Del Sol Trans Main	12-inch pipeline in Chaparral and Prado Del Sol					$1,838,307			
2070E-12	Ladera Vista Trans Main	14-inch pipeline between Glen Oaks Res. And Chaparral Dr. in Ladera Vista					$503,922			
2070E-11	Lower Chaparral Trans Main	12-inch pipeline between Parado Del Sol and Parado Del Sol in Chaparral					$1,548,048			
2070E-10	Prado Del Sol Drive Trans Main	14-inch pipeline between Chaparral and Chaparral in Parado Del Sol					$3,124,316			
1790E-9	Buck Rd. Trans Main #2	12-inch pipeline between Buck Mesa P.S. and Glen Oaks in Buck and Rancho Calif. Rd.					$3,120,284			
1790E-8	Buck Rd. Trans Main #1	24-inch pipeline between Buck Mesa P.S. and Rancho Calif Rd. in Buck Rd.					$2,539,766			
1790E-7	Warren Road Trans Main	20-inch pipeline in Warren and Buck Rd. between Rancho Calif. Rd. and Benton					$1,773,805			
1790E-6	Upper Camino del Vino Trans Main	8-inch pipeline in Camino del Vino between Warren and Glen Oaks					$967,530			
1790E-5	East Benton Rd. Trans Main	20-inch pipeline in E. Benton Rd. between Camino del Vino and Bella Vista					$2,386,574			
1790E-4	Upper Bella Vista Trans Main	8-inch pipeline in Bella Vista between Avd. Brista and E. Benton Rd.					$3,160,598			
1790E-31	Upper Glen Oaks Trans Main #2	12-inch pipeline in Glen Oaks between Mesa Drive and Bella Vista					$838,526			
1790E-29	Mid De Portola Trans Main #3	30-inch pipeline between Camino Del Vino and Los Caballos P.S. in De Portola					$3,708,865			
1790E-28	Mid De Portola Trans Main #2	16-inch pipeline between Monte De Oro and Camino Del Vino in De Portola					$3,144,472			
1790E-27	Mid De Portola Trans Main #1	20-inch pipeline between Camino Arroyo Seco and Monte de Oro in de Portola					$2,418,825			
1790E-26	De Portola Reservoir T.M. #1	20-inch pipeline between De Portola Res. #2 and Chaparral					$322,510			
1790E-25	Cordova Dr. Trans Main #2	30-inch pipeline between De Portola and De Portola Reservoir in Cordova					$4,031,375			
1790E-24	Luna Drive Trans Main	24-inch pipeline between De Portola and De P{ortola P.S. in Luna Drive					$2,721,178			
1790E-23	Avenida Brisa Trans Main	18-inch pipeline in Avd. Brisa and C. Arroyo Seco between Bella Vista and De Portola					$2,031,813			
1790E-22	Cruz Way Trans Main	8-inch pipeline in Cruz Way between Calle Napal and Meadow Ridge					$483,765			
1790E-21	Meadow Ridge Trans Main	12-inch pipeline in Meadow Ridge Rd. between Valencia and Meadow Ridge cul-de-sac					$1,128,785			
1790E-20	Via Anita Trans Main	8-inch pipeline in Via Anita between Calle Nopal and Meadow Ridge					$665,177			
1790E-19	Calle Nopal Trans Main	12-inch pipeline in Calle Nopal between Valencia Way and Calle Cancion					$1,580,299			
1790E-18	Upper Pauba Trans Main	12-inch pipeline in Pauba Rd. from Linda Rosea toward De Anza					$1,241,663			
1790E-17	Valencia Way Trans Main	14-inch pipeline in Valencia Way between Camino del Vino and Pauba Rd.					$1,753,648			
1790E-16	Lower Camino Del Vino T.M.	16-inch pipeline in Camino Del Vino between Monte de Oro and De Portola					$4,958,591			
1790E-15	Monte De Oro Trans Main	18-inch pipeline in Monte de Oro between Camino Del Vino and De Portola					$3,527,453			
1790E-14	Upper Camino Del Vino T.M. #3	20-inch pipeline in Camino Del Vino between Glen Oaks and Monte de Oro					$1,870,558			
1790E-13	Upper Camino Del Vino T.M. #2	20-inch pipeline in Camino Del Vino between Glen Oaks and Monte de Oro					$1,870,558			
1790E-12	Lower Bella Vista Trans Main	12-inch pipeline in Belle Vista between Glen Oaks and Monte de Oro Rd.					$1,806,056			
1790E-11	Mid Glenoaks Trans Main	18-inch pipeline between Camino Del Vino and Bella Vista in Glen Oaks					$2,539,766			
1790E-10	Lower Glenoaks Trans Main	24-inch pipeline between Rancho Calif. Rd. and Camino Del Vino in Glen Oaks					$3,047,719			
1610E-8	Mid Anza Trans Main #2	24-inch pipeline in Anza Rd. between Rancho Calif. Rd. and Anza P.S.					$7,474,169			
1610E-7	Upper Anza Rd. Trans Main #2	18-inch pipeline in Anza Rd. between Brenda Rd. and Rancho Calif. Rd.					$1,552,079			
1610E-6	Upper Anza Rd. Trans Main #1	16-inch pipeline in Anza Rd. between Vino Way and Brenda Rd.					$822,400			
1610E-5	Los Nogales Trans Main	12-inch pipeline in Los Nogales extending from Anza Rd.					$1,402,918			
1610E-4	Brenda Rd. Trans Main	20-inch pipeline between Buck Mesa P.S. and Anza in Brenda Rd.					$5,160,160			
1610E-3	Upper Rancho Calif. Rd. T.M. #1	24-inch pipeline between Buck Mesa P.S. and Anza in Rancho Calif Rd.					$7,256,475			
1610E-25	Lower Calle Contento T.M.	16-inch pipeline in C. Contento between Madera de Playa and Linda Rosea					$2,660,707			
1610E-24	Mid Calle Contento Trans Main	18-inch pipeline in C. Contento between Rancho Calif. Rd. and Madera de Playa					$1,721,397			

TABLE 9.5
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Rancho Division

Item No.	Facility Name	Description of Facilities	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2040	2041-2050	2051-2060
1610E-23	Upper Calle Contento T.M. #2	16-inch pipeline in C. Contento between Vista Del Monte and Rancho Calif Rd.					$2,757,460			
1610E-22	Upper Calle Contento T.M. #1	12-inch pipeline in C. Contento between Vista Del Monte Dr. and Pauba Rancho boundary					$790,149			
1610E-21	Vino Way Trans Main	16-inch pipeline in Vino Way between Anza Rd. and C. Contento					$2,128,566			
1610E-20	Vista Del Monte Drive T.M.	12-inch pipeline in Vista Del Monte Dr. between C. Contento and Butterfield Stage Rd.					$2,692,958			
1610E-19	Upper La Serena Way Trans Main	14-inch pipeline in La Serena Way between Madera de Playa and Butterfield Stage					$5,559,266			
1610E-17	Upper Rancho Calif. T.M. #4	24-inch pipeline in Rancho Calif. Rd. between La Serena and Rancho Calif. P.S. #1					$3,628,237			
1610E-16	Upper Rancho Calif. T.M. #3	20-inch pipeline in Rancho Calif. Rd. between C. Contento and La Serena Way					$3,289,602			
1610E-15	Upper Rancho Calif. T.M. #2	18-inch pipeline in Rancho Calif. Rd. between Anza and Calle Contento					$2,624,425			
1610E-14	Modera De Playa Dr. Trans Main	18-inch pipeline in Madera De Playa Dr. between Anza and C. Cabrillo					$5,869,682			
1610E-13	Upper Pauba Rd. Trans Main	16-inch pipeline in Pauba Rd. between Anza Rd. and Calle Contento					$1,862,495			
1610E-12	Upper Linda Rosea Trans Main #3	16-inch pipeline in Linda Rosea between Sea Wind Circle and Calle Contento					$1,330,354			
1610E-11	Upper Linda Rosea Trans Main #2	24-inch pipeline in Linda Rosea between Anza Rd. and 10" pipe node					$3,156,567			
1610E-10	Upper Linda Rosea Trans Main #1	10-inch pipeline in Linda Rosea extending south from Pauba Rd.					$1,206,187			
1550E-4	Lower Anza Rd. Trans Main #1	14-inch pipeline in Anza Rd. between Booster 40 P.S. and Santa Rita Rd.					$3,426,669			
1550E-3	Santa Rita Rd. Trans Main	14-inch pipeline in Santa Rita Rd. between L. Panteras and Monte Verde					$2,076,158			
1550E-2	Los Panteras Trans Main	24-inch pipeline in Los Panteras between Alvares Reservoir and St. Rita Rd.					$1,814,119			
1485E-9	Chenin Blanc Trans Main	12-inch pipeline in Chenin Blanc off of Rancho Calif. Rd.					$580,518			
1485E-8	Mid Rancho Calif. Trans Main #1	24-inch pipeline in Rancho Calif. Rd. between Riesling Ct. and Rancho Calif. P.S. #2					$2,358,354			
1485E-7	Linda Rosea Loop Trans Main	12-inch pipeline looped in Linda Rosea and C. Contento					$2,821,962			
1485E-6	Cee Cee Rd. Trans Main	8-inch pipeline in Cee Cee Road between Lisa Rd. and Orlinda Dr.					$514,000			
1485E-5	Lisa Rd. Trans Main	16-inch pipeline in Lisa Rd. between Vista Del Monte and Cee Cee Rd.					$411,200			
1485E-4	Via Del Monte Trans Main	16-inch pipeline in Vista Del Monte between Pauba and Linda Rosea					$2,660,707			
1485E-3	Mid Pauba Rd. Trans Main	24-inch pipeline in Pauba Rd. between R.C.P.S. #2 and Calle Contento Reservoir					$10,884,712			
1485E-16	Del Rey Rd. Trans Main	12-inch pipeline in Del Ray Road from Avd. Del Reposo					$1,290,040			
1485E-15	Loop Line #1	14-inch pipeline between Del Ray and La Serena; not in a street					$403,137			
1485E-14	Upper Via Norte Trans Main	12-inch pipeline in Via Norte between Avd. Centenario and Avd. De Reposo					$1,451,295			
1485E-13	Calle Girasol Trans Main	8-inch pipeline in Calle Girasol between Niccolas Road and 2nd S.D. Aqueduct					$653,083			
1485E-12	Leifer Rd. Trans Main	8-inch pipeline in Liefer Road between Nicolas Road					$1,124,754			
1485E-11	Calle Medusa Trans Main	12-inch pipeline in C. Medusa between Liefer Road and La Serena Way					$2,144,691			
1485E-10	Lower La Serena Trans Main #2	16-inch pipeline in La Serena Way between Kaiser and Butterfield Stage					$2,031,813			
1380E-9	Lower Anza Rd. Trans Main #2	24-inch pipeline in Anza Rd. between Anza Res. And De Portola Rd.					$4,499,014			
1380E-7	Lower Pauba Trans Main #1	12-inch pipeline between Calle Cedral and Ynez in Pauba Road					$3,934,622			
1380E-6	Rancho Vista Trans Main	12-inch pipeline between Ynez and Margarita in Rancho Vista					$2,386,574			
1380E-5	Camino Pina Colada Trans Main	20-inch pipeline between Del Rey Rd. and La Serena Way in C. Pina Colada					$1,419,044			
1380E-4	Del Rey Road Trans Main	16-inch pipeline between Via Norte and Calle Pina Colada in Del Rey Rd.					$2,176,942			
1380E-32	Orlinda Drive Trans Main	12-inch pipeline in Orlinda Dr. and Linda Rosea between Cee Cee Road and De Portola Rd.					$693,396			
1380E-3	Lower Via Norte Trans Main	16-inch pipeline between Del Rey Rd. & Avd. Centenario in Via Norte					$3,579,861			
1380E-21	Lower La Serena Trans Main #1	24-inch pipeline in La Sierra Way between Margarita & Calle Pina Colada					$2,068,095			
1380E-2	General Kearney Trans Main	24-inch pipeline in General Kearny between General Kearny Res. and Rancho Calif. Rd.					$3,555,673			
1380E-19	Los Corralitos Rd. Trans Main	14-inch pipeline in Los Corralitos Rd. & Los Caballos between Pauba Rd. and De Portola Rd.					$3,366,198			
1380E-18	Lower Pauba Rd. Trans Main #3	14-inch pipeline in Pauba Rd. between De Portola and Los Corralitos Rd.					$3,466,982			
1380E-17	Lower Pauba Rd. Trans Main #2	16-inch pipeline in Pauba Rd. between De Portola Rd. and Winners Circle					$1,330,354			
1380E-16	Upper Hwy 79 Trans Main #2	12-inch pipeline in Hwy 79 extending West from Booster 40 P.S.					$1,402,918			
1380E-15	Lower Anza Rd. Trans Main #4	14-inch pipeline in Anza Rd. between Booster 40 P.S. and De Portola					$1,572,236			
1380E-14	Lower De Portola Rd T.M. #3	24-inch pipeline in De Portola Road between C. contento and Margarite					$10,159,065			
1380E-13	Margarita Rd. Trans Main #1	24-inch pipeline Margarite Pkwy between De Portola and La Sierra Way					$9,796,241			
1380E-12	Mid Rancho Calif. Trans Main #4	30-inch pipeline extending East of Margarita Pkwy in Rancho Calif. Rd.					$3,628,237			
1380E-11	Mid Rancho Calif. Trans Main #3	36-inch pipeline extending West of Kaiser Pkwy in Rancho Calif. Rd.					$2,172,911			
1380E-10	Mid Rancho Calif. Trans Main #2	24-inch pipeline between Riesling Ct. and Rancho Calif. P.S. #2 in Rancho Calif. Rd.					$2,285,790			
1305E-9	Valdez Road Trans Main	24-inch pipeline in Valdez, Felix, Vincent & Rancho Calif. Road between Diaz and 6th					$1,959,248			
1305E-53	Lower De Portola Rd. T.M. #2	20-inch pipeline in De Portola between Los Caballos P.S. & Calle Contento					$9,739,802			
1305E-51	Loop Trans Main #4	36-inch pipeline between Front Street & Diaz, not in existing road					$576,487			
1305E-50	Moraga Rd. Trans Main	16-inch pipeline in Moraga Road between Margarita & Rancho Calif.					$653,083			

TABLE 9.5
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Rancho Division

Item No.	Facility Name	Description of Facilities	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2040	2041-2050	2051-2060
1305E-49	Ynez Rd. Loop Trans Main	20-inch pipeline in Ynez, Equity, & County Center Drive					$4,063,626			
1305E-48	Avenida Sonoma Trans Main	12-inch pipeline in Avd. Sonoma between Solana Wy. & Margarita Rd.					$580,518			
1305E-47	Solana Way Trans Main #2	10-inch pipeline in Solana Way between Margarita & Avd. Sonoma					$1,277,140			
1305E-46	Solana Way Trans Main #1	10-inch pipeline in Solana Way between Margarita & Ynez					$532,141			
1305E-45	Lower Margarita Rd. Trans Main #2	16-inch pipeline in Margarita Rd. between Avd. Sonoma & C. Pina Colada					$5,901,933			
1305E-44	Lower Rancho Calif Rd. T.M. #3	20-inch pipeline in Rancho Calif. Rd. between Norma Marshall Res. & Asteroid Rd.					$1,612,550			
1305E-43	Lower Rancho Calif Rd. T.M. #2	24-inch pipeline in Rancho California Rd. between Ynez Rd. & Asteroid Rd.					$4,861,838			
1305E-42	Lower Rancho Calif Rd. T.M. #1	20-inch pipeline between Ynez Rd. & Front St. in Rancho Calif. Rd.					$1,386,793			
1305E-41	Rainbow Canyon Trans Main	14-inch pipeline in Rainbow Canyon between Pala Road & Rainbow Canyon Golf Course					$967,530			
1305E-40	Loop Trans Main #3	16-inch pipeline between Loma Linda & Hwy 79, not in existing street					$1,161,036			
1305E-39	Loma Linda Trans Main	12-inch pipeline in Loma Linda between Cal Turf & Pala Rd.					$2,676,833			
1305E-38	Cal Turf Trans Main	16-inch pipeline in Cal Turf Road between Pala Rd. & Loma Linda Rd.					$2,418,825			
1305E-37	Pala Rd. Trans Main #2	24-inch pipeline in Pala Road between Rainbow Cyn. & Cal Turf					$6,748,522			
1305E-36	Pala Rd. Trans Main #1	18-inch pipeline in Pala Rd. between Hwy 79 & Rainbow Canyon Rd.					$846,589			
1305E-35	Business Park Drive Trans Main	24-inch pipeline in Business Pk. Drive & Single Oak Dr. off of Rancho Calif. Rd.					$3,265,414			
1305E-34	Airport Trans Main	20-inch ippeline between Airport & Business Park Dr. - not in existing rd.					$645,020			
1305E-32	Rio Nedo Loop Trans Main	12-inch pipeline in Diaz, Rio Nedo, Tierro Alta & Avd. Alvarado					$2,483,327			
1305E-31	Loop Trans Main #2	24-inch pipeline between V. Montezuma & Diaz - not in roadway					$362,824			
1305E-30	Via Montezuma Trans Main	12-inch pipeline in V. Montezuma between Front St. & Del Rio					$322,510			
1305E-29	Del Rio Rd. Trans Main	14-inch pipeline in Del Rio Rd. between Via Montezuma & Front St.					$1,148,942			
1305E-28	Front Street Trans Main #4	12-inch pipeline in Front St. between Del Rio & Via Montezuma					$1,096,534			
1305E-27	Front Street Trans Main #3	16-inch pipeline in Front Street between Rancho Calif. & Del Rio Rd.					$822,400			
1305E-26	Front Street Trans Main #2	24-inch pipeline in Santiage, Front, & Jefferson between Ynez & Winchester					$11,610,360			
1305E-25	Front Street Trans Main #1	20-inch pipeline in Front St. between Hwy 79 & Santiago Rd.					$2,515,578			
1305E-24	La Paz Rd. Trans Main	16-inch pipeline in La Paz Rd. between Ynez Rd. & Constance St.					$653,083			
1305E-22	Lower Highway 79 Trans Main #1	30-inch pipeline between Margarita Rd. & 2nd Sand Diego Aqueduct in Hwy 79					$5,724,552			
1305E-21	Lower Margarita Trans Main #1	12-inch pipeline between De Portola Rd. & Hwy 79 in Margarita Rd.					$483,765			
1305E-20	Lower Ynez Rd. Trans Main #2	20-inch pipeline in Ynez Road & De Portola between La Paz St. & Margarita					$6,127,690			
1305E-19	Lower Ynez Rd. Trans Main #1	18-inch pipeline in Ynez Rd. between Santiago Rd. & La Paz St.					$1,862,495			
1305E-18	Mid Ynez Rd. Trans Main	16-inch pipeline in Ynez Road between Solana Way & Santiago Rd.					$5,418,168			
1305E-17	Upper Ynez Rd. Trans Main	12-inch pipeline in Ynez Road between Winchester & Solana Way					$1,354,542			
1305E-16	Winchester Trans Main #4	24-inch pipeline in Winchester Rd. between Jefferson and Margarita					$4,353,885			
1305E-15	Winchester Trans Main #3	20-inch pipeline in Winchester Rd. between Nicolas Rd. & Margarita					$2,128,566			
1305E-14	Winchester Trans Main #2	16-inch pipeline in Winchester Rd. between Nicolas Rd. & Winchestrick Ave.					$1,330,354			
1305E-13	Main Street Trans Main	6-inch pipeline in Main Street between Front St. and Pujol St.					$120,941			
1305E-10	Pujol Street Trans Main	24-inch pipeline in Pujol Street & 6th between Valdez and C. Estribo					$4,353,885			
1380E	Winchester P.S. T.M.	24-inch pipeline from Winchester Rd. to General Kearny Rd. ending at Via Norte							$12,780,825	
1380E	Long Canyon T.M.	24-inch pipeline between Via Norte & Del Rey Rd.							$8,195,776	
1305E	Overland Dr. T.M.	16-inch pipeline between Ynez Rd. & Margarita Rd.							$2,390,169	
1305E	Promenade Wey T.M.	16-inch pipeline Overland Dr. & Loop Rd.							$1,106,638	
1305E	Solana Way T.M.	16-inch pipeline between Ynez Rd. & Margarita Rd.							$2,574,137	
1485E	La Serena Way T.M.	24-inch pipeline from Via Aguila to Meadows Pkwy ending at Spyglass Hill Lane							$9,299,584	
1485E	Meadows Pkwy T.M. #1	24-inch pipeline between Spyglass Hill Lane & Parducci Lane							$2,122,708	
1485E	Meadows Pkwy T.M. #2	24-inch pipeline between Parducci Lane & Royal Birkdale Dr.							$5,056,291	
1610E	La Serena Way T.M. #1	24-inch pipeline between Calle Medusa & Walcott Ln.							$2,674,612	
1610E	La Serena Way T.M. #2	16-inch pipeline between Calle Elenita & Butterfield Stage Rd.							$1,620,334	
1610E	La Serena Way T.M. #3	30-inch pipeline between Walcott Ln. & Butterfield Stage Rd.							$2,080,254	
1610E	Walcott Lane T.M. #1	30-inch pipeline between La Serena & Valone Ct.							$1,780,716	
1610E	Walcott Lane T.M. #2	30-inch pipeline between Klare Ln. & Calle Chapos							$6,448,315	
1380E	Winchester Rd. T.M. #1	20-inch pipeline between Northeast of Roripaugh & Southwest of Nicolas Rd.							$2,505,739	
1380E	Winchester Rd. T.M. #2	16-inch pipeline North of Murrieta Hot Springs Rd. to Glen Dr.							$679,267	
1305E	Store Rd. T.M.	16-inch pipeline between Redhaw Pkwy and Apis Rd.							$1,365,609	
1380E	Pine Road T.M.	16-inch pipeline between Manzanita Dr. & Margarita Rd.							$5,970,470	

TABLE 9.5
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Rancho Division

Item No.	Facility Name	Description of Facilities	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2040	2041-2050	2051-2060
1380E	Lakeview Rd. T.M.	16-inch pipeline from Halleston Dr. to Paddington Ct.							$1,276,455	
1380E	Date St. T.M. #1	16-inch pipeline between Paddington Ct. & Margarita Rd.							$2,837,353	
1380E	Date St. T.M. #2	30-inch pipeline from Margarita Rd. to Murrieta Hot Springs Rd.							$10,130,035	
1380E	Date St. Ext. T.M.	16-inch pipeline ~700 lf west from Date Street							$1,035,882	
1380E	Murrieta Hot Springs T.M.	30-inch pipeline from Date St. Ext. T.M. to Sky Larron Dr.							$2,632,158	
1380E	Winchester Rd. T.M. #3	16-inch pipeline from Murietta Hot Springs Rd. to ??????							$1,376,930	
1305E	Murrieta Creek T.M.	??							$3,773,703	
1305E	Townfront St. T.M. #1	??							$5,115,255	
1305E	Townfront St. T.M. #2	??							$568,886	
1305E	Townfront St. T.M. #3	20-inch pipeline parallel to Town Front St.							$1,807,604	
1305E	Townfront St. T.M. #4	42-inch pipeline perpendicular to Town Front St.							$2,640,649	
1305E	SR79 T.M. #1	30-inch pipeline between Murrieta Creek & Bedford Ct							$8,252,617	
1305E	SR79 T.M. #2	36-inch pipeline parallel to SR79 T.M. #1							$2,322,007	
1305E	SR79 T.M. #3	36-inch pipeline parallel to SR79							$796,487	
1305E	SR79 T.M. #4	30-inch pipeline parallel to SR79							$1,259,473	
1305E	SR79 T.M. #5	36-inch pipeline parallel to SR79 T.M. #4							$2,376,490	
1305E	Pechanga Pkwy T.M. #1	16-inch pipeline parallel to Pechanga Pkwy.							$3,147,269	
1305E	Pechanga Pkwy T.M. #2	30-inch pipeline parallel to Pechanga Pkwy.							$1,556,653	
1550E	Los Caballos Rd. T.M.	24-inch pipeline between SR 79 and Rita Rd.							$8,278,562	
1550E	Anza Rd. T.M	16-inch pipeline from Rita Rd. to Linda Rd.							$5,088,839	
1610E	Playa Dr. T.M.	20-inch pipeline easterly from Brickswell lane							$5,283,185	
1305E	Adam Ave. T.M	30-inch pipeline between Lemon and Larchmont Ln.							$37,265,320	
1305E	Vineyard pkwy T.M	20-inch pipeline between Hayes and Monroe Ave.							$20,944,053	
1305E	Monroe Ave. T.M.	20-inch pipeline between Troyes Ln and California Oak Rd.							$3,773,703	
1305E	Nighthawk Wy T.M.	20-inch pipeline between Hayes St. and Santa Fe Tr							$2,452,907	
		Subtotal	$0	$0	$0	$0	$368,542,249	$0	$204,643,919	$0
		PRESSURE REDUCING STATIONS								
2070E-19	Pressure Reducing Station	PRS from 2070 to 1880				$114,647				
2070E-18	Pressure Reducing Station	PRS from 2070 to 1880				$114,647				
2070E-17	Pressure Reducing Station	PRS from 2070 to 1880				$114,647				
1485E-17	Pressure Reducing Station	PRS at La Serena and Calle Medusa. Pressure reducing from 1610 to 1485				$52,521				
		Subtotal	$0	$0	$0	$396,462	$0	$0	$0	$0
		WELLS								
1305E-92	Well No. 224	Well at Butterfield & De Portola								
1380E-28	Well No. 210	Well at De Portola								
1790E-33	Well No. 202	Well at Calle Nupal and Cruz Way								
1380E-27	Well No. 203	Well at De Portola and Pauba								
1610E-28	Well No. 204	Well at Rancho Calif. Rd. and Anza								
1305E-94	Well No. 205	Well at General Kearny								
1610E-27	Well No. 201	Well at Calle Contento and R.C. Rd.								
1550E-6	Well No. 207	Well at Hwy 79 and Anza Rd.								
1610E-30	Well No. 209	Well at La Serana Way								
1610E-29	Well No. 208	Well at Pauba and Calle Contento								
1380E-29	Well No. 212	Well at Hwy 79 and Booster 40 P.S.								
1305E-88	Well No. 211	Well at Pala Rd.								
1380E-30	Well No. 214	Well at Butterfield Stage								
1610E-31	Well No. 215	Well at Madera de Playa								
1305E-90	Well No. 217	Well at Pauba & Verde Dr.								
1380E-31	Well No. 216	Well at Margarita and Rancho Vista								
1305E-91	Well No. 223	Well at Hwy 79								
1380E-23	Well No. 233	Well at De Portola	$851,197							
1305E-66	Well No. 231	Well at Hwy 79 & Valdez Rd.	$879,570							
1380E-22	Well No. 232	Well at De Portola and Anza		$1,042,717						
1380E-24	Well No. 234	Well at Hwy 79 and Anza		$1,032,289						
1305E-89	Well No. 235	Well at Rancho Calif. & Lynde			$1,437,264					
		Subtotal	$1,730,768	$2,075,006	$1,437,264	$0	$0	$0	$0	$0
TOTAL RANCHO DIVISION			$3,342,626	$3,004,273	$5,556,110	$1,075,853	$371,341,539	$15,792,377	$213,090,516	$37,189,138

TABLE 9.6
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Common Facilities

Item No.	Facility Name	Description of Facilities	Size/ Capacity	Quantity	Unit Cost	Estimated Capital Cost 2004 ($)	Estimated Replacement Items %	Estimated Replacement Items Cost	Life Cycle In Years	Construction Date	Repl. Date	Estimated Future Replacement Cost ($)
		TRANSMISSION MAINS										
1305E-11	Camino Estribo Trans Main #1	42-inch pipeline in C. Estribo between Ace Bowen P.S. #1 & 2 and I-15	42 in	6700 LF	$300.00 /LF	$2,010,000	100%	$2,010,000	50	1967	2017	$3,790,155
1305E-7	Diaz Rd. Trans Main #1	36-inch pipeline in Diaz, Felix, Valdez, 6th, & Pujol Roads between Winchester and C. Escribo	36 in	16650 LF	$275.00 /LF	$4,578,750	100%	$4,578,750	50	1968	2018	$9,065,612
1305E-54	Lower Anza Rd. Trans Main #3	36-inch pipeline in Anza Rd. between De Portola Rd. and Hwy 79	36 in	2500 LF	$275.00 /LF	$687,500	100%	$687,500	50	1969	2019	$1,429,263
1305E-52	Lower De Portola Rd. T.M. #1	36-inch pipeline in De Portola Road between Los Caballos P.S. & Anza Rd.	36 in	12500 LF	$275.00 /LF	$3,437,500	100%	$3,437,500	50	1969	2019	$7,146,316
1305E-23	Lower Highway 79 Trans Main #2	30-inch pipeline between Margarita Rd. and I-15 in Hwy 79	30 in	13000 LF	$250.00 /LF	$3,250,000	100%	$3,250,000	50	1970	2020	$7,094,342
1305E-6	Winchester Rd. Trans Main #1	36-inch pipeline in Winchester Rd. between Jefferson and Diaz Road	36 in	2700 LF	$275.00 /LF	$742,500	100%	$742,500	50	1970	2020	$1,620,784
1305E-55	Upper Hwy 79 Trans Main #1	36-inch pipeline in Hwy 79 between Anza Rd. and Margarita Rd.	36 in	15000 LF	$275.00 /LF	$4,125,000	100%	$4,125,000	50	1970	2020	$9,004,358
1990E	Rancho CA, T.M.	42-inch pipeline between De Luz Rd. & Eagle Nest Rd.	42 in	5860 LF	$300.00 /LF	$1,758,000	100%	$1,758,000	50	2000	2050	$16,585,426
1990E	Eagle Nest Rd. T.M.	42-inch pipeline from Rancho CA Rd. to before Hayes Ave.	42 in	2718 LF	$300.00 /LF	$815,400	100%	$815,400	50	2000	2050	$7,692,694
1305E	Diaz Rd. T.M. #1	10-inch pipeline parallel with Date St. & ending at Cherry St.	10 in	2742 LF	$88.00 /LF	$241,296	100%	$241,296	50	2000	2050	$2,276,449
1305E	Diaz Rd. T.M. #2	24-inch pipeline continues from T.M. #1 ending 290 feet southerly	24 in	290 LF	$225.00 /LF	$65,250	100%	$65,250	50	200	2050	$615,585
1305E	Diaz Rd. T.M. #3	20-inch pipeline continues from T.M. #2 ending 713 feet southerly	20 in	713 LF	$200.00 /LF	$142,600	100%	$142,600	50	2000	2050	$1,345,325
1305E	Date St. T.M.	42-inch pipeline between Hayes Ave. & Madison Ave.	42 in	4881 LF	$300.00 /LF	$1,464,300	100%	$1,464,300	50	2000	2050	$13,814,584
1305E	Winchester P.S. T.M.	54-inch pipeline begins at Temecula Valley Rd and ends at Cantrell Rd.	54 in	27181 LF	$400.00 /LF	$10,872,400	100%	$10,872,400	50	2000	2050	$102,573,029
1305E	Ynez Rd. T.M.	48-inch pipeline between County Center & Winchester Rd.	48 in	1518 LF	$350.00 /LF	$531,300	100%	$531,300	50	2000	2050	$5,012,421
		Subtotal				$34,721,796		$34,721,796				$189,066,343
		TURNOUTS										
1305E-97	MWD Turnout EM-13	MWD turnout at Norma Marshall site	15 cfs	1 LS		$1,058,627	30%	$317,588	30	1966	1996	$214,956
1305E-95	MWD Turnout WR-26	MWD turnout at Ace Bowen site	40 cfs	1 LS		$1,058,627	30%	$317,588	30	1967	1997	$225,704
1305E-96	MWD Turnout WR-28	MWD turnout at Ace Bowen site	40 cfs	1 LS		$1,058,627	30%	$317,588	30	1970	2000	$261,281
1305	MWD Turnout EM-20		100 cfs			$2,400,000	30%	$720,000	30	2000	2030	$2,560,084
		Subtotal				$5,575,882		$1,672,765				$3,262,025
		WELLS										
1305E-65	Well No. 101	Well at Cherry & Diaz	1460 gpm	1 LS		$741,039	100%	$741,039	30	1978	2008	$900,738
1305E-60	Well No. 102	Well at Rancho California Airport	1500 gpm	1 LS		$741,039	100%	$741,039	30	1978	2008	$900,738
1305E-64	Well No. 105	Well at Winchester	2000 gpm	1 LS		$741,039	100%	$741,039	30	1978	2008	$900,738
1305E-62	Well No. 106	Well at Winchester & Ynez	gpm	1 LS		$1,693,996	100%	$1,693,996	30	1978	2008	$2,059,063
1305E-63	Well No. 107	Well at Winchester	gpm	1 LS		$1,482,078	100%	$1,482,078	30	1978	2008	$1,801,476
1305E-93	Well No. 108	Well at Winchester	2300 gpm	1 LS		$741,039	100%	$741,039	30	1978	2008	$900,738
1305E-67	Well No. 109	Well at Hwy. 79 & Margarita	1600 gpm	1 LS		$656,349	100%	$656,349	30	1978	2008	$797,796
1305E-68	Well No. 110	Well at Pauba & De Portola	gpm	1 LS		$656,349	100%	$656,349	30	1978	2008	$797,796
1790E-32	Well No. 113	Well at Camino Del Vino and Los Nocalas	500 gpm	1 LS		$648,457	100%	$648,457	30	1978	2008	$788,204
1305E-69	Well No. 115	Well at De Portola & Los Caballos P.S.	gpm	1 LS		$635,176	100%	$635,176	30	1978	2008	$772,061
1305E-70	Well No. 116	Well at De Portola & Los Caballos	gpm	1 LS		$529,314	100%	$529,314	30	1978	2008	$643,384
1305E-71	Well No. 117	Well at Loma Linda & Pala	gpm	1 LS		$741,039	100%	$741,039	30	1978	2008	$900,738
1305E-61	Well No. 118	Well at Del Rio & Front	1900 gpm	1 LS		$762,212	100%	$762,212	30	1978	2008	$926,473
1305E-72	Well No. 119	Well at Loma Linda & Pala	gpm	1 LS		$741,039	100%	$741,039	30	1978	2008	$900,738
1305E-72	Well No. 120	Well at Ynez & Margarita	2500 gpm	1 LS		$762,212	100%	$762,212	30	1978	2008	$926,473
1305E-74	Well No. 121	Well at Diaz & Winchester	gpm	1 LS		$741,039	100%	$741,039	30	1978	2008	$900,738
1305E-75	Well No. 122	Well at Pala & Gilberto	gpm	1 LS		$762,212	100%	$762,212	30	1978	2008	$926,473
1305E-76	Well No. 123	Well at Pauba & De Portola	gpm	1 LS		$762,212	100%	$762,212	30	1978	2008	$926,473
1305E-77	Well No. 124	Well at Anza & Hwy 79	1500 gpm	1 LS		$698,694	100%	$698,694	30	1978	2008	$849,267
1305E-78	Well No. 125	Well at De Portola	gpm	1 LS		$741,039	100%	$741,039	30	1978	2008	$900,738
1305E-79	Well No. 126	Well at Butterfield Stage & Hwy 79	2200 gpm	1 LS		$762,212	100%	$762,212	30	1978	2008	$926,473
1305E-80	Well No. 128	Well at Solana & Margarita	2000 gpm	1 LS		$762,212	100%	$762,212	30	1978	2008	$926,473
1305E-81	Well No. 130	Well at Los Caballos	3000 gpm	1 LS		$762,212	100%	$762,212	30	1978	2008	$926,473
1305E-82	Well No. 131	Well at Los Caballos	1600 gpm	1 LS		$698,694	100%	$698,694	30	1978	2008	$849,267
1305E-83	Well No. 132	Well at De Portola	2000 gpm	1 LS		$741,039	100%	$741,039	30	1978	2008	$900,738
1305E-84	Well No. 133	Well at Los Caballos	2000 gpm	1 LS		$698,694	100%	$698,694	30	1978	2008	$849,267
1305E-59	Well No. 135	Well at Washington & Elm	gpm	1 LS		$741,039	100%	$741,039	30	1978	2008	$900,738
1305E-85	Well No. 138	Well at Rancho Calif. & Humber	gpm	1 LS		$317,588	100%	$317,588	30	1978	2008	$386,030
1380E-25	Well No. 139	Well at General Kearny Res.	gpm	1 LS		$317,588	100%	$317,588	30	1978	2008	$386,030
1380E-26	Well No. 140	Well at Rancho Calif. And Butterfield Stage Rd.	gpm	1 LS		$317,588	100%	$317,588	30	1978	2008	$386,030
1380E-86	Well No. 141	Well at Hwy. 79	gpm	1 LS		$211,725	100%	$211,725	30	1978	2008	$257,354
1305E-87	Well No. 143	Well at Hwy. 79 & Margarita	gpm	1 LS		$211,725	100%	$211,725	30	1978	2008	$257,354
1305E-56	Well No. 144	Well at Fig & Jefferson	gpm	1 LS		$317,588	100%	$317,588	30	1978	2008	$386,030
1305E-57	Well No. 145	Well at Guava & Washington	gpm	1 LS		$317,588	100%	$317,588	30	1978	2008	$386,030
		Subtotal				$23,155,070		$23,155,070				$28,145,132
TOTAL COMMON FACILITIES						$63,452,748		$59,549,630				$220,473,501

TABLE 9.6
RANCHO CALIFORNIA WATER DISTRICT
CAPITAL REPLACEMENT PROGRAM
ESTIMATED CAPITAL COST
Common Facilities

Item No.	Facility Name	Description of Facilities	2005-2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2040	2041-2050	2051-2060
		TRANSMISSION MAINS								
1305E-11	Camino Estribo Trans Main #1	42-inch pipeline in C. Estribo between Ace Bowen P.S. #1 & 2 and I-15			$3,790,155					
1305E-7	Diaz Rd. Trans Main #1	36-inch pipeline in Diaz, Felix, Valdez, 6th, & Pujol Roads between Winchester and C. Escribo			$9,065,612					
1305E-54	Lower Anza Rd. Trans Main #3	36-inch pipeline in Anza Rd. between De Portola Rd. and Hwy 79			$1,429,263					
1305E-52	Lower De Portola Rd. T.M. #1	36-inch pipeline in De Portola Road between Los Caballos P.S. & Anza Rd.			$7,146,316					
1305E-23	Lower Highway 79 Trans Main #2	30-inch pipeline between Margarita Rd. and I-15 in Hwy 79			$7,094,342					
1305E-6	Winchester Rd. Trans Main #1	36-inch pipeline in Winchester Rd. between Jefferson and Diaz Road			$1,620,784					
1305E-55	Upper Hwy 79 Trans Main #1	36-inch pipeline in Hwy 79 between Anza Rd. and Margarita Rd.			$9,004,358					
1990E	Rancho CA, T.M.	42-inch pipeline between De Luz Rd. & Eagle Nest Rd.							$16,585,426	
1990E	Eagle Nest Rd. T.M.	42-inch pipeline from Rancho CA Rd. to before Hayes Ave.							$7,692,694	
1305E	Diaz Rd. T.M. #1	10-inch pipeline parallel with Date St. & ending at Cherry St.							$2,276,449	
1305E	Diaz Rd. T.M. #2	24-inch pipeline continues from T.M. #1 ending 290 feet southerly							$615,585	
1305E	Diaz Rd. T.M. #3	20-inch pipeline continues from T.M. #2 ending 713 feet southerly							$1,345,325	
1305E	Date St. T.M.	42-inch pipeline between Hayes Ave. & Madison Ave.							$13,814,584	
1305E	Winchester P.S. T.M.	54-inch pipeline begins at Temecula Valley Rd and ends at Cantrell Rd.							$102,573,029	
1305E	Ynez Rd. T.M.	48-inch pipeline between County Center & Winchester Rd.							$5,012,421	
		Subtotal	$0	$0	$39,150,830	$0	$0	$0	$149,915,514	$0
		TURNOUTS								
1305E-97	MWD Turnout EM-13	MWD turnout at Norma Marshall site								
1305E-95	MWD Turnout WR-26	MWD turnout at Ace Bowen site								
1305E-96	MWD Turnout WR-28	MWD turnout at Ace Bowen site								
1305	MWD Turnout EM-20						$2,560,084			
		Subtotal	$0	$0	$0	$0	$2,560,084	$0	$0	$0
		WELLS								
1305E-65	Well No. 101	Well at Cherry & Diaz	$900,738							
1305E-60	Well No. 102	Well at Rancho California Airport	$900,738							
1305E-64	Well No. 105	Well at Winchester	$900,738							
1305E-62	Well No. 106	Well at Winchester & Ynez	$2,059,063							
1305E-63	Well No. 107	Well at Winchester	$1,801,476							
1305E-93	Well No. 108	Well at Winchester	$900,738							
1305E-67	Well No. 109	Well at Hwy. 79 & Margarita	$797,796							
1305E-68	Well No. 110	Well at Pauba & De Portola	$797,796							
1790E-32	Well No. 113	Well at Camino Del Vino and Los Nocalas	$788,204							
1305E-69	Well No. 115	Well at De Portola & Los Caballos P.S.	$772,061							
1305E-70	Well No. 116	Well at De Portola & Los Caballos	$643,384							
1305E-71	Well No. 117	Well at Loma Linda & Pala	$900,738							
1305E-61	Well No. 118	Well at Del Rio & Front	$926,473							
1305E-72	Well No. 119	Well at Loma Linda & Pala	$900,738							
1305E-72	Well No. 120	Well at Ynez & Margarita	$926,473							
1305E-74	Well No. 121	Well at Diaz & Winchester	$900,738							
1305E-75	Well No. 122	Well at Pala & Gilberto	$926,473							
1305E-76	Well No. 123	Well at Pauba & De Portola	$926,473							
1305E-77	Well No. 124	Well at Anza & Hwy 79	$849,267							
1305E-78	Well No. 125	Well at De Portola	$900,738							
1305E-79	Well No. 126	Well at Butterfield Stage & Hwy 79	$926,473							
1305E-80	Well No. 128	Well at Solana & Margarita	$926,473							
1305E-81	Well No. 130	Well at Los Caballos	$926,473							
1305E-82	Well No. 131	Well at Los Caballos	$849,267							
1305E-83	Well No. 132	Well at De Portola	$900,738							
1305E-84	Well No. 133	Well at Los Caballos	$849,267							
1305E-59	Well No. 135	Well at Washington & Elm	$900,738							
1305E-85	Well No. 138	Well at Rancho Calif. & Humber	$386,030							
1380E-25	Well No. 139	Well at General Kearny Res.	$386,030							
1380E-26	Well No. 140	Well at Rancho Calif. And Butterfield Stage Rd.	$386,030							
1380E-86	Well No. 141	Well at Hwy. 79	$257,354							
1305E-87	Well No. 143	Well at Hwy. 79 & Margarita	$257,354							
1305E-56	Well No. 144	Well at Fig & Jefferson	$386,030							
1305E-57	Well No. 145	Well at Guava & Washington	$386,030							
		Subtotal	$28,145,132	$0	$0	$0	$0	$0	$0	$0
TOTAL COMMON FACILITIES			$28,145,132	$0	$39,150,830	$0	$2,560,084	$0	$149,915,514	$0