

URBAN WATER MANAGEMENT PLAN

**RAINBOW MUNICIPAL WATER DISTRICT
SAN DIEGO COUNTY, CALIFORNIA**

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URBAN WATER MANAGEMENT PLAN

1.1. INTRODUCTION

In 1983, the California Legislature passed the California Urban Water Management Planning Act (Act) as defined within the Water Code Sections (Codes) 10610 through 10656. The Appendix A contains the text of the Act. The purpose of the act is to require and permit water suppliers to implement appropriate level of water management planning commensurate with the numbers of customers served and the volume of water supplied. The Act describes the required contents of an Urban Water Management Plan (UWMP) as well as how urban water suppliers should adopt and implement the UWMP. The plan should address methods to ensure reliable and adequate water service to meet the needs of the various categories of customers during normal, dry, and multiple dry years.

1.2. CODE REQUIREMENTS

This report was prepared to satisfy the Water Code Section 10620 which states every urban water supplier shall prepare and adopt an UWMP and coordinate the preparation with other relevant agencies. Water Code Section 10617 defines an urban water supplier as any supplier that provide water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually. Furthermore the Codes require the UWMP to be updated at least once every 5 years on or before December 31, in years ending in fives and zero.

In 2001 the state legislature passed Senate Bill (SB) 610 and SB 221 which require public agencies to verify the availability of water for certain large proposed developments.

1.2.1. SB 610

SB 610 requires projects that are subject to CEQA and are supplied with water from a public water supplier to obtain a "water supply assessment" from the supplier indicating the availability of adequate water over a 20 year projection. Furthermore, it requires agencies that depend on ground water to include a copy of the Ground Water Management Plan to its UWMP.

1.2.2. SB 221

SB 221 prohibits the approval of subdivisions consisting of 500 or more dwelling units unless there is verification of adequate water availability over a 20-year projection. Projects with less than 500 dwelling units but adds 10 percent or more service connections to the existing public supply system is also subjected to this requirement. Though is bill does not modify the requirements of an UWMP, the supplier may include the proposed projects impact to the UWMP to satisfy SB 221.

1.3. AGENCY COORDINATION

Coordination with other agencies is essential to formulate a meaningful Urban Water Management Plan. The process provides an avenue for regional wholesale water suppliers, retail water suppliers, public and private agencies and general public to contribute to the preparation of the UWMP. During the process of preparing the Rainbow Municipal Water District's (District) 2005 UWMP update, a letter was sent to relevant agencies informing them about the UWMP preparation. Appendix B contains a sample of the letter. The general public will be given an opportunity to contribute to the UWMP during a public hearing scheduled in November 2005.

Table 1 outlines the names of the agencies and groups contacted, and their general involvement in the preparation of this plan.

Table 1: Agency Coordination						
Check at least one box per row	Participated in UWMP Development	Commented on the draft	Attended Public Meetings	Contacted for Assistance	Received copy of draft	Sent Notice of intention to adopt
SDCWA	-	-	-	yes	-	-
County of San Diego	-	-	-	yes	-	-
City of Oceanside	-	-	-	yes	-	-
City of Vista	-	-	-	yes	-	-
General Public	-	-	-	no	-	-

2. CONTENTS OF THE PLAN

2.1. RAINBOW MUNICIPAL WATER DISTRICT PLANNING

The Rainbow Municipal Water District is a local governmental agency serving water and sanitation services to an unincorporated area of northern inland San Diego County in California. The District was formed in 1953 under the Municipal Water District Act of 1911 (Section 7100 et. seq. of the California Water Code). The District joined the San Diego County Water Authority (SDCWA) and the Metropolitan Water District of Southern California (MWD) the same year to acquire the right to purchase and distribute imported water throughout its service area.

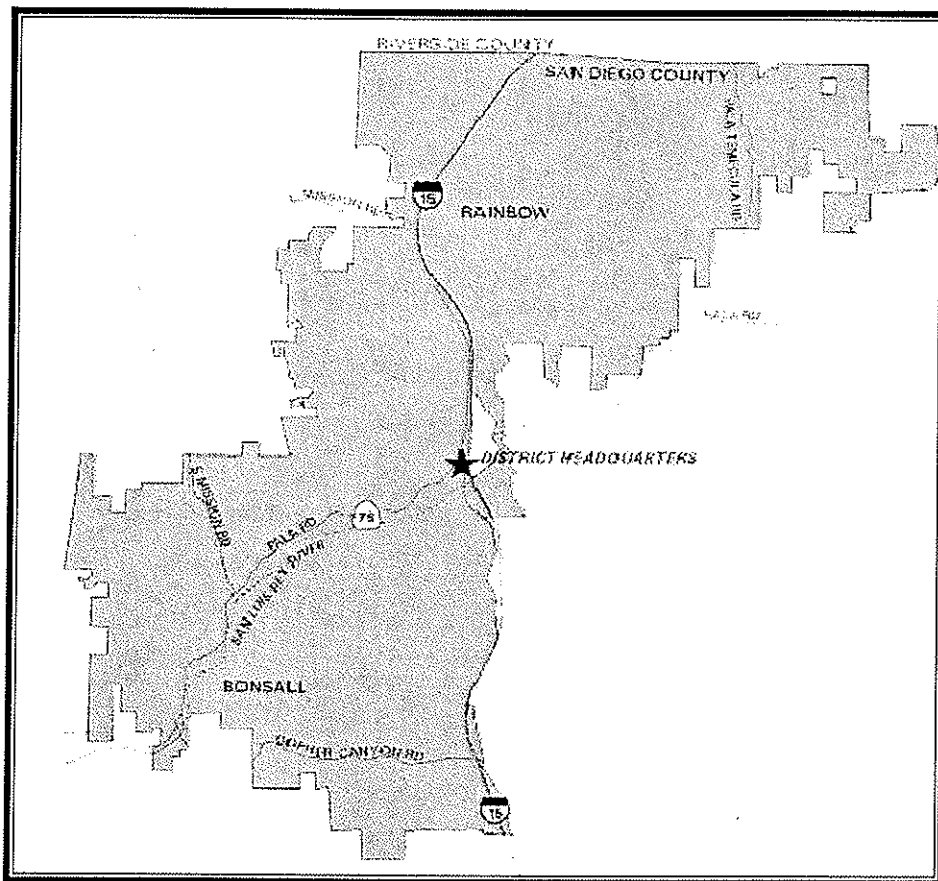


Figure 1 – Rainbow Municipal Water District Service Area

The District is a retail supplier that currently depends entirely upon imported water purchased through the SDCWA to service a small customer base within a very large agricultural water use area. As such the content within this plan shall depend heavily upon the data provided by the SDCWA and MWD.

2.2. RMWD SERVICE AREA

The District serves the unincorporated communities of Rainbow, Bonsall, and a portion of Fallbrook covering approximately 49,800 acres. The northern part of the District is located north of San Luis Rey River straddling Interstate 15(I-15) while the southern part is located west of I-15 straddling the San Luis Rey River. The service area of the District contains a large agricultural industry, including citrus, avocados, strawberries, tomatoes, corn, commercial nurseries, and livestock. As a result, the agricultural demand for water is over twice that of municipal and industrial water demand. However, according the District is expected to see significant growth in its residential customer base in the future as forecasted in **Table 2**. The population within the District's boundaries in 2004 was approximately 17,750. Based on projections by the San Diego Association of Governments (SANDAG) the population will increase to 20,571 in 2015, and is projected to reach 24,301 by the year 2025 (see **Appendix C**). It should be noted these projections reflect a slower growth rate than previously forecasted.

Table 2: Current and Projected Population						
	2005	2010	2015	2020	2025	2030/opt
Service Area Population	17,750	18,855	20,571	22,286	24,301	26,316
Projections forecasted by SANDAG						

The terrain within the District is rugged and mountainous, consisting predominantly of developed groves, with some residential areas interspersed in the more accessible valleys. Much of the area still remains in its natural state of chaparral, oak, and coastal sage vegetation, characteristic of Mediterranean west coast climatic regions. Temperatures vary from a low mean daytime temperature of 69 degrees in the winter to a high mean daytime temperature of 86 degrees in the summer (see **Table 3**).

Table 3: Area Climate							
	Jan	Feb	Mar	Apr	May	June	
Standard Monthly Average Eto	2.81	2.76	3.78	5.31	6.1	6.97	
Average Rainfall (inches)	2.8	2.55	2.43	1.05	0.23	0.13	
Average Temp (Fahrenheit)	55.7	56.5	57.2	59.8	63	66.5	
	July	Aug	Sep	Oct	Nov	Dec	Annual
Standard Monthly Average Eto	7.08	6.83	5.67	4.15	3.31	2.56	57.33
Average Rainfall (inches)	0.04	0.08	0.28	0.54	1.46	1.69	13.28
Average Temp (Fahrenheit)	70.7	72.3	70.9	66.5	60.3	55.7	63.3
Note: Average rainfall and temperature data is for the Vista 1 NE station. Period of Record : 8/1/1957 to 3/31/200							
Average Monthly Eto data is for Escondido SPV Since Feb 1999							

2.3. WATER SOURCES

The District is, currently, a single sourced water retailer which depends upon imported water purchased from the SDCWA and one of 23 member agencies of the SDCWA. Member agency status entitles the District to directly purchase water for its needs from SDCWA on a wholesale basis. The District depends on SDCWA to ensure, to the best of its ability, that adequate amounts of water will be available to satisfy existing and future water requirements.

The District receives SDCWA water through nine aqueduct connections. The locations of the connections are shown on **Figure 2**.

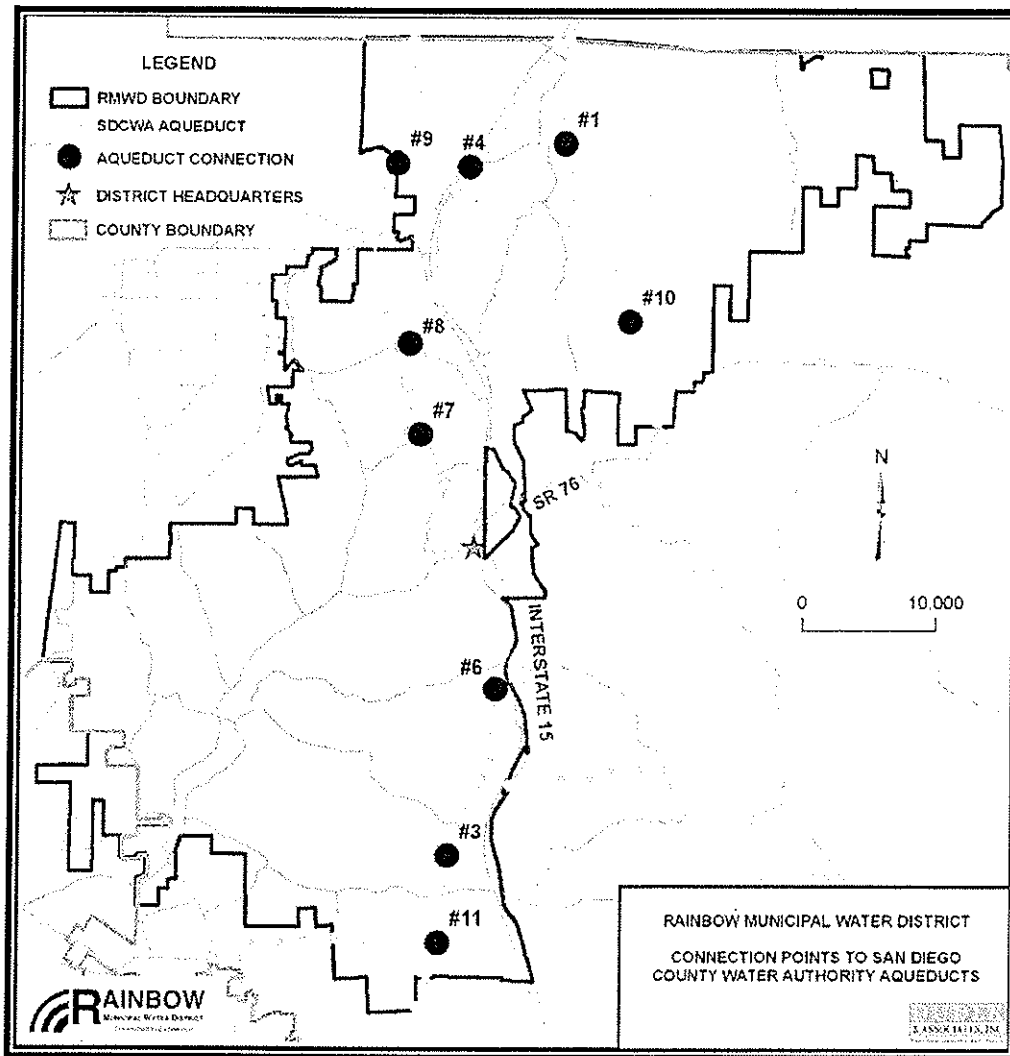


Figure 2 – Rainbow Municipal Water District Connection Points

Additional sources of water can be realized through conservation, reclamation, transfer of water and desalinization. Currently the District's effort is limited to the

promotion of water conservation through efficient use while the SDCWA pursues other means to maximize available resources. However, since the Act places the responsibility of promoting conservation efforts upon local retailers, it is important the District investigate other sources of water supplies. Each of the existing or potential water sources listed in Table 4 will be addressed in the following section.

Table 4: Current and Planned Water Supplies - AF/Y						
Water Supply Source	2005	2010	2015	2020	2025	2030/opt
SDCWA	526,000	345,400	343,400	290,800	310,900	NA
Imperial Irrigation	30,000	70,000	100,000	190,000	200,000	200,000
District Transfer						
Supplier produces	31,100	53,500	57,500	59,500	59,500	59,500
Groundwater						
Supplier surface	85,600	85,600	85,600	85,600	85,600	85,600
diversion						
Recycled Water	33,400	45,100	51,800	53,400	53,400	53,400
Desalination	0	56,000	56,000	56,000	56,000	56,000
Channel Lining	0	77,700	77,700	77,700	77,700	77,700
Total	706,100	733,300	772,000	813,000	843,100	Incomp
Projections taken out of SDCWA 2004 Annual Water Supply Report Table 1						

2.3.1. San Diego County Water Authority

The SDCWA was organized June 9th, 1944, by the California State Legislature and operates under the County Water Authority Act for the purpose of importing Colorado River water into San Diego County. The imported water, now a combination of Colorado River Water and State Water Project water, is sold wholesale to 23 member agencies. The member agencies are autonomous and their city councils or boards of directors set their own local policies and water pricing structures. Each member agency may appoint at least one representative (based on assessed valuation) to the Board of Directors of the SDCWA. The **Figure 3** shows the extent of the boundary and lists the member agencies.

The SDCWA is the second largest consumer of the 27 member agencies of Metropolitan Water District of Southern California (MWD) and currently purchases approximately 30% of the total MWD water supply which in turn accounts for 100% of imported water distributed by the SDCWA. The water is delivered into SDCWA pipelines from MWD facilities located just south of the San Diego - Riverside County line. The SDCWA allocation of the MWD water is approximately 15%.

MWD's ability to provide reliable supplies, particularly in a dry year, is constrained by the preferential right of each of its member agencies. SDCWA draws nearly twice their allocated amount of water. In order to minimize the impact on supply in dry years and to generally reduce its sole dependency on MWD water, the SDCWA has taken steps to diversify available water sources. In April 1998, the Authority entered into an agreement with the Imperial Irrigation District (IID) for the transfer of 200,000 AF/Y of conserved water. The SDCWA plans to receive 30,000 AF of water from IID during 2005 and expect the supply to increase incrementally to 200,000 AF by the year 2025.

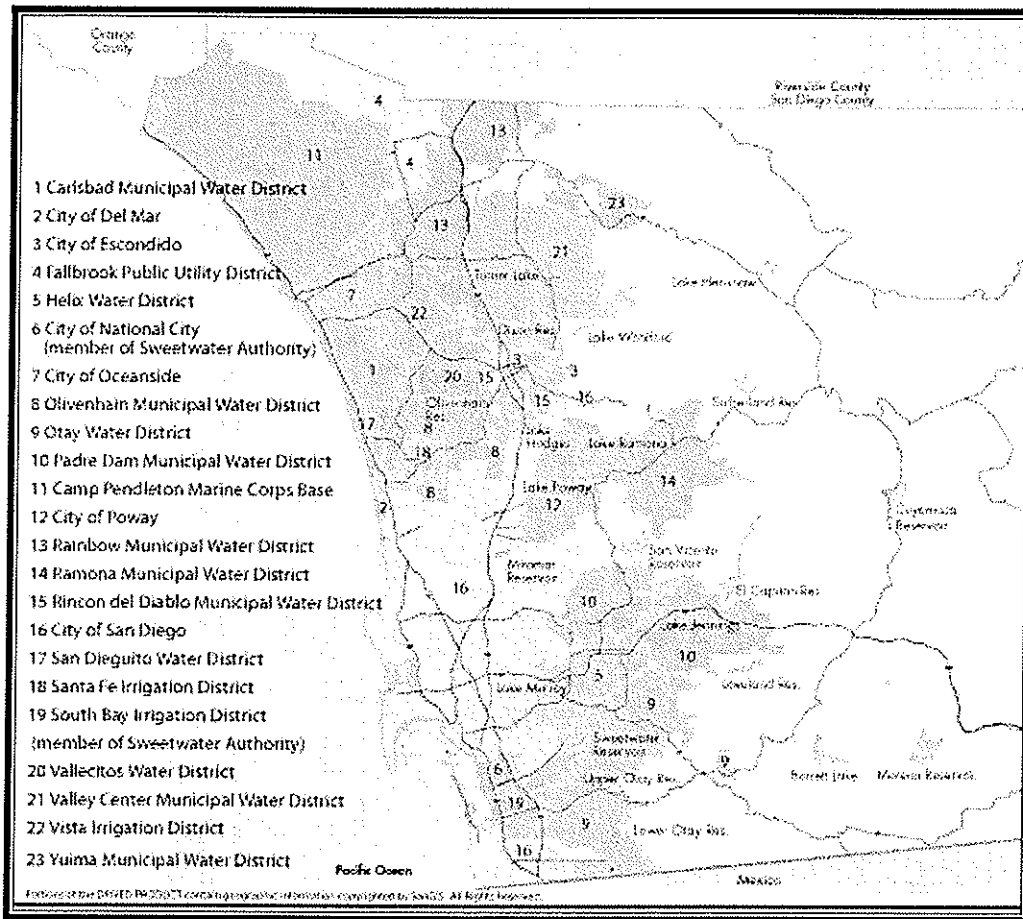


Figure 3 – San Diego County Water Authority Limits and Member Agencies

2.3.2. Metropolitan Water District of Southern California

The MWD was created in 1928 following the passage of the Metropolitan Water District Act by the California Legislature to provide supplemental water for cities and communities on the south coastal plain of California.

Since its formation, MWD has grown to include 27 member agencies (including the SDCWA), as shown on **Figure 3**, and currently covers an area which includes portions or all of Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties. As a water wholesaler providing waters from both the Colorado River and Northern California, MWD supplies nearly 2 million acre-feet of water to the nearly 17 million people within its service area.

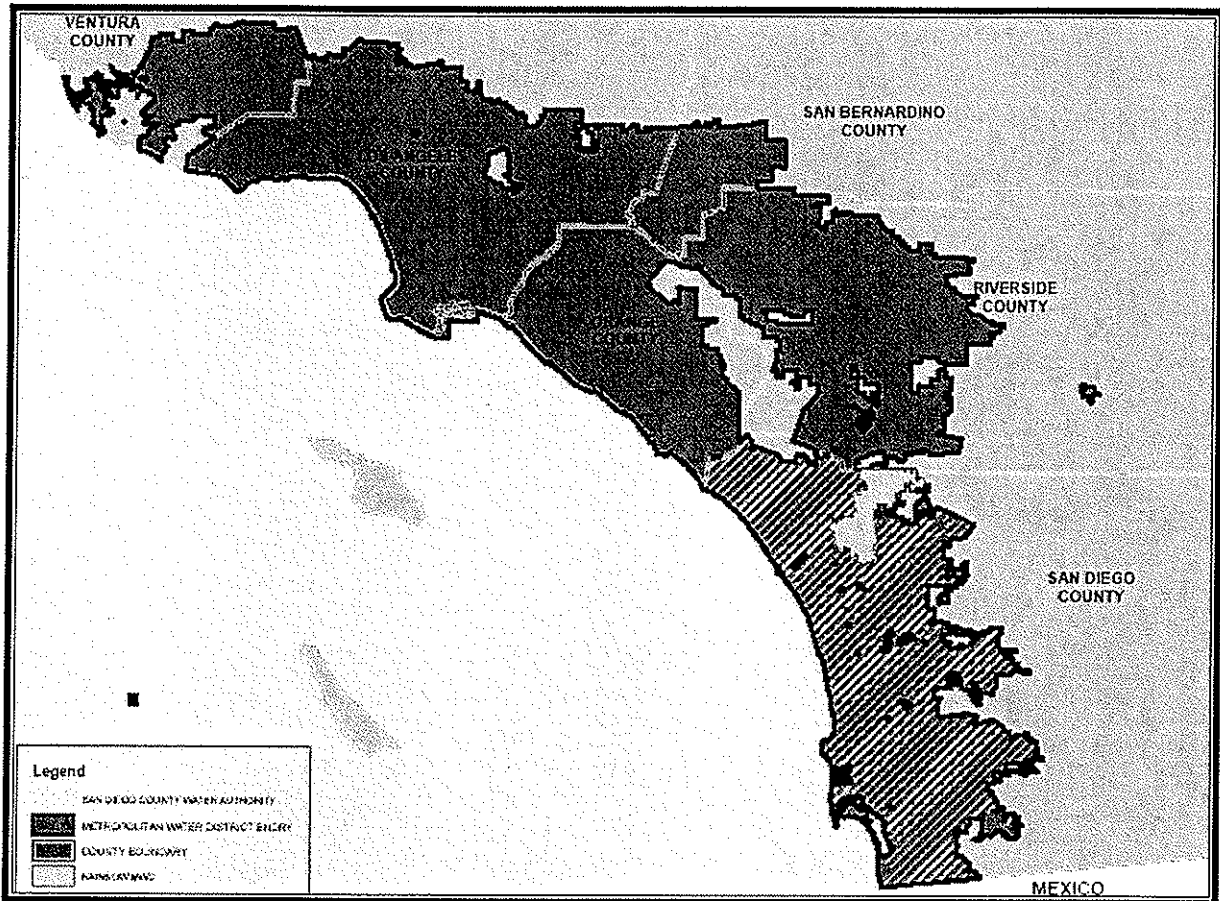


Figure 4 – Metropolitan Water District Limits

2.3.3. Ground Water

The District, currently does not utilize groundwater as a source of water supply. Dudek and Associates (Dudek) has prepared a Ground Water management Plan (GWMP) to investigate the availability of ground water within the Rainbow Valley. The Appendix D contains the executive summary of the GWMP.

The Rainbow Valley ground water basin encompasses the tributary area of Rainbow Creek, east of Interstate 15 and ends at the western boundary of the District. The Rainbow Valley basin is generally surrounded by foothills

composed of granitic rock creating an ideal storage facility. Years of precipitation, irrigation, minimal pumping by private parties and septic system drainage has recharged the Rainbow Valley Basin to an extent that groundwater in many areas is nearly surface level and has caused a number of existing septic system failures.

During the preparation of the GWMP, Dudek found very little data available to make informed decisions about the management of valley's ground water. A hydraulic model was created and used to determine that 11 acre-feet of surcharge water is added to the basin annually. Sampling from four existing wells revealed total dissolved solids (TDS) to be in the range of 370 milligrams per liter (mg/l) to 2330 mg/l. The state drinking water regulations recommend a limit of 500 mg/l with an upper limit of 1000 mg/l.

Therefore the potential exists within the District to utilize groundwater as a supplemental water supply. The infrastructure necessary, such as reverse osmosis treatment to bring down TDS levels, will be determined with future research. At such time the economic viability of such infrastructure will also be investigated.

2.3.4. Recycled water

The District currently does not generate nor distribute recycled water. All wastewater collected within the District is conveyed to treatment plants within the City of Oceanside. Considering the abundance of agricultural water users, the District has the demand available for providing recycled water.

Acquiring water for distribution would require either construction of a wastewater treatment plant or negotiation with the City of Oceanside to purchase both the infrastructure and the recycled water for distribution. In addition, due to the dispersion of agricultural demands within the District, providing a separate and independent distribution system would require essentially a parallel system nearly the size of the entire existing water delivery system. The financial impacts of acquiring, installing and maintaining a paralleled recycled water system are not viable within the Districts economic plan at this time.

As the population within the District increases and the cost and reliability of import water become unfavorable, the District may begin to investigate the potential viability of developing a recycled water system.

2.3.5. Desalinization

Desalination is a process under which saline water is separated from salt water to potable water. Considering the location of the District relative to the ocean, desalination is beyond the scope of the Districts independent water acquisition.

The SDCWA may however have the ability for supplementing their overall water supply with desalinized water. Per their Regional Water Facilities Master Plan the SDCWA concludes that it should pursue seawater desalination "for a major portion of the (Water) Authority's supply portfolio". Sea water desalination should be the preferred choice for a coastal regions since it can provide a source of water with abundant storage capacity, is not effected by hydrologic cycle, provides treated water and is becoming economically competitive to new imported water sources.

2.4. RELIABILITY OF WATER SUPPLY

The water supply reliability assessment is an integral requirement of the Act. As a retail supplier that depends on the wholesale supplier, the District depends on the related water supply data from the SDCWA's 2005 UWMP.

The reliability of water supply is affected by the seasonal and climatic shortages. In order to evaluate single dry water and multiple dry water years, a normal water year was established by SDCWA, based on historical rainfall data and adjusted for growth projections provided by SANDAG. **Table 5** summarizes the normal water year demands for the District and includes the SDCWA data which was used to determine the District' demand. Single Dry year water demand and multiple dry year water demands are listed in **Table 6** and **Table 7** respectively. Single dry water demands are determined by applying 7% multiplier to normal water demand data similar to the SDCWA and multiple dry year water demands were determined by applying 0.7% factor for each year consecutively.

Table 5- Normal Year Water Demand					
Wholesaler	2010	2015	2020	2025	2030/opt
RMWD	25,849	24,087	22,091	17,957	17,506
SDCWA	715,450	742,900	771,510	795,640	829,030
Data is based on SDCWA 2005 UWMP and includes near term annexation demands					

Table 6- Single Dry Year Water Demand					
Wholesaler	2010	2015	2020	2025	2030/opt
RMWD	27,735	25,808	23,639	19,152	18,646
SDCWA	767,650	795,970	825,560	848,610	883,030
Data is based on SDCWA 2005 UWMP					

Table 7- Multiple dry year water demand			
Multiple Dry Year Group	Year	RMWD	SDCWA
1	2006	24,323	744,520
	2007	24,493	749,780
	2008	24,664	755,030
2	2011	27,929	771,410
	2012	28,125	777,280
	2013	28,321	783,150
3	2016	25,988	801,030
	2017	26,170	807,150
	2018	26,353	813,270
4	2021	23,804	830,680
	2022	23,971	835,840
	2023	24,139	841,010
5	2026	19,287	858,480
	2027	19,422	865,630
	2028	19,558	872,770

2.5. TRANSFER AND EXCHANGE

Transfers and exchanges are encouraged by the Act in order to improve the reliability and quality of the water supply. Currently, the District has no planned transfer and/or exchange programs independent of the SDCWA. The SDCWA's agreement with IID to transfer conserved water to San Diego region is listed in Table 8.

Table 8: Transfer and Exchange Opportunities - AF/Y					
Water Supply Source	Transfer or Exchange	Short Term	Proposed Quantities	Long Term	Proposed Quantities
Imperial Irrigation District	Transfer	No	NA	Yes	200,000
Total					200,000

2.6. WATER USE BY CUSTOMER TYPE

Agriculture is the primary consumer of water within the District. In the year 2000 and 2004, 82% and 72% of water demand respectively was used for agriculture. The remaining supply was used for domestic purposes. As of 2005 the domestic consumption is approximately 23% of total demand, while the industrial and commercial use is approximate 5% of total. Table 9 shows the water use by customer type.

Currently there are no existing sales of water to other agencies and there are no plans to sell water to other agencies in the foreseeable future. There are no additional water losses or usage for saline barriers, ground water recharging or water recycling. All the other losses are considered to be unaccounted for system losses. Currently the District does not have in place the necessary facilities or a program to determine the actual system losses, but estimates comparing ordered water versus reservoir level fluctuation put water losses on the order of 4% of total supply.

Water use projections prepared by SDCWA are based on the population growth data generated by SANDAG. Projections indicate a steady reduction of agricultural water use and steady increase in domestic water use. The reduction of agricultural demand over time is significant, and is likely due to the delicate balance of water prices to profit potential of agricultural lands. In the likely event that water prices will steadily increase over time, the profitability of agricultural businesses may decrease depending on markets rates, resulting in an overall decrease in agricultural water demand. In addition, many parcels currently zoned agriculture will be converted to low density residential over time, increasing the residential water demands of the District.

Table 9 Past, Current and Project Water Deliveries						
Year	Water Use Sectors	Residential	Residential and Agricultural	Agri-cultural	Construction	Total
2000*	# of accounts	N/A	N/A	N/A	N/A	0
	Deliveries AF/Y	4,127	10,145	11,153	73	25,499
2005*	# of accounts	4,013	1,974	1,255	N/A	7,242
	Deliveries AF/Y	4,761	9,415	9,883	95	24,154
2010	# of accounts	6,454	3,011		N/A	9,465
	Deliveries AF/Y	7,657	17,998		194	25,849
2015	# of accounts	6,874	2,637		N/A	9,511
	Deliveries AF/Y	8,155	15,762		170	24,087
2020	# of accounts	7,658	2,153		N/A	9,811
	Deliveries AF/Y	9,085	12,867		139	22,091
2025	# of accounts	8,982	1,209		N/A	10,190
	Deliveries AF/Y	10,656	7,223		78	17,957
2030	# of accounts	9,414	1,049		N/A	10,463
/opt	Deliveries AF/Y	11,169	6,270		68	17,506
* Based on data collected by the District						
Projected data is based on SDCWA 2005 UWMP						

2.7. DEMAND MANAGEMENT MEASURES

Demand Management Measures are methods or ways to conserve water through efficient tools, education and encouragement through incentives. Currently there are 14 best management practices (BMP's) that are promoted by California Urban Water Conservation Council (CUWCC). Each of these BMP's shall be discussed within this section to determine the current state of implementation by the District, as well as the future possibilities of expansion or inclusion. All of these BMP's are implemented by the SDCWA and the District is a participating member of the SDCWA program.

2.7.1. Water Survey Programs for Residential Customers

The District has not developed an independent marketing strategy for single or multifamily residential water survey program to detect leaks; including toilets, toilet flappers and faucets, check flow rates; including showerheads, aerators and toilets, and other checks to determine efficient use of water and recommend or offer to replace with low flow devices. At present the District's participation is limited to its association to the SDCWA program. The District should consider the initiation of a water survey program to increase the visibility of the Water District programs. Such information can be supplied as a leaflet within the monthly water bill.

2.7.2. Residential Plumbing Retrofit

The District, as a member of SDCWA, participates in the low flow showerhead retrofit program which, since its inception, has distributed over half a million showerheads.

2.7.3. System Water Audits

The District has an active water pipe audit program. The work is performed by a specialized contractor and the District has a budget of approximately \$20,000 to \$25,000 per year for leak detection. The District pays about \$500 per mile of water line which allows for up to 40 to 50 miles of pipe lines per year. The most recent audit report from the leak detection company shows that during fiscal year (FY) 2003-2004 they inspected 31.6 miles of pipe and confirmed 10 leaks using 247 monitoring points. The audit report for FY 2004-2005 is not available at the time of this writing; however the District's plans call for surveying 38.1 miles of pipe during this period. **Figure 5** illustrates a summary of system audits performed during FY 2003-2004.

2.7.4. Commodity rate Metering

The District retails water at a commodity rate of \$1.59 for each unit of water. A unit of water is equivalent to one Hundred Cubic Feet (HCF) or 748 gallons. Included in this rate are costs necessary to pay the MWD and SDCWA for the costs of imported water.

2.7.5. Large Landscape Conservation

The SDCWA has a large landscape audit program called Professional Assistance for Landscape Management (PALM) Program. PALM has two levels of audits, one for sites with separate meter and a more thorough site review for commonly metered sites. The SDCWA, in cooperation with the MWD, provides separately metered sites that are installed to central irrigation controllers. The SDCWA provides landscape retrofit assistance resulting in a savings of \$154 for each acre foot of water saved. The SDCWA coordinates with the Metropolitan Water District to provide irrigation training classes known as Protector Del Agua. The free classes are taught in Spanish or English with material covering basic soil, plant, and water science using hands-on activities.

2.7.6. High Efficiency Washing Machines

The District is a participating member of the SDCWA's Residential High-Efficiency Clothes Washer (HEW) Voucher Program. The program provides a point-of-purchase discount of \$125 off the cost of a new qualifying HEW. HEW machines use 60% less water and 55% less energy per load than standard top-loading machines and the drying time is reduced by half. HEW's cleans clothes more thoroughly yet uses less detergent, and the action has less wear and tear on clothing.

2.7.7. Public Information Programs

The SDCWA in its 2000 BMP Management Practices Report to CUWCC detailed its Public information Program. The program used public service announcements, Brochures, demonstration gardens, special events and its speaker's bureau to give speeches as its medium to relay the message of conservation. SDCWA had a budget of \$887,605 that year to spend on public information programs. The exhibit at Reuben H. Fleet Center for example compares water usage in a traditional house with one that has been retrofitted with conservation fixtures. Public can learn how outdoor irrigation can waste water, how the region uses recycled water and how to avoid polluting our local streams and bays.

In addition to the SDCWA programs this UWMP recommends the District implement a program to inform customers of the available water conservation measures and assistance through advertisements printed on the monthly billings. These advertisements need not include all available programs but include about 1 or 2 programs best applicable to type of customer on each month's bill and cycle through all the programs through out the year as needed.

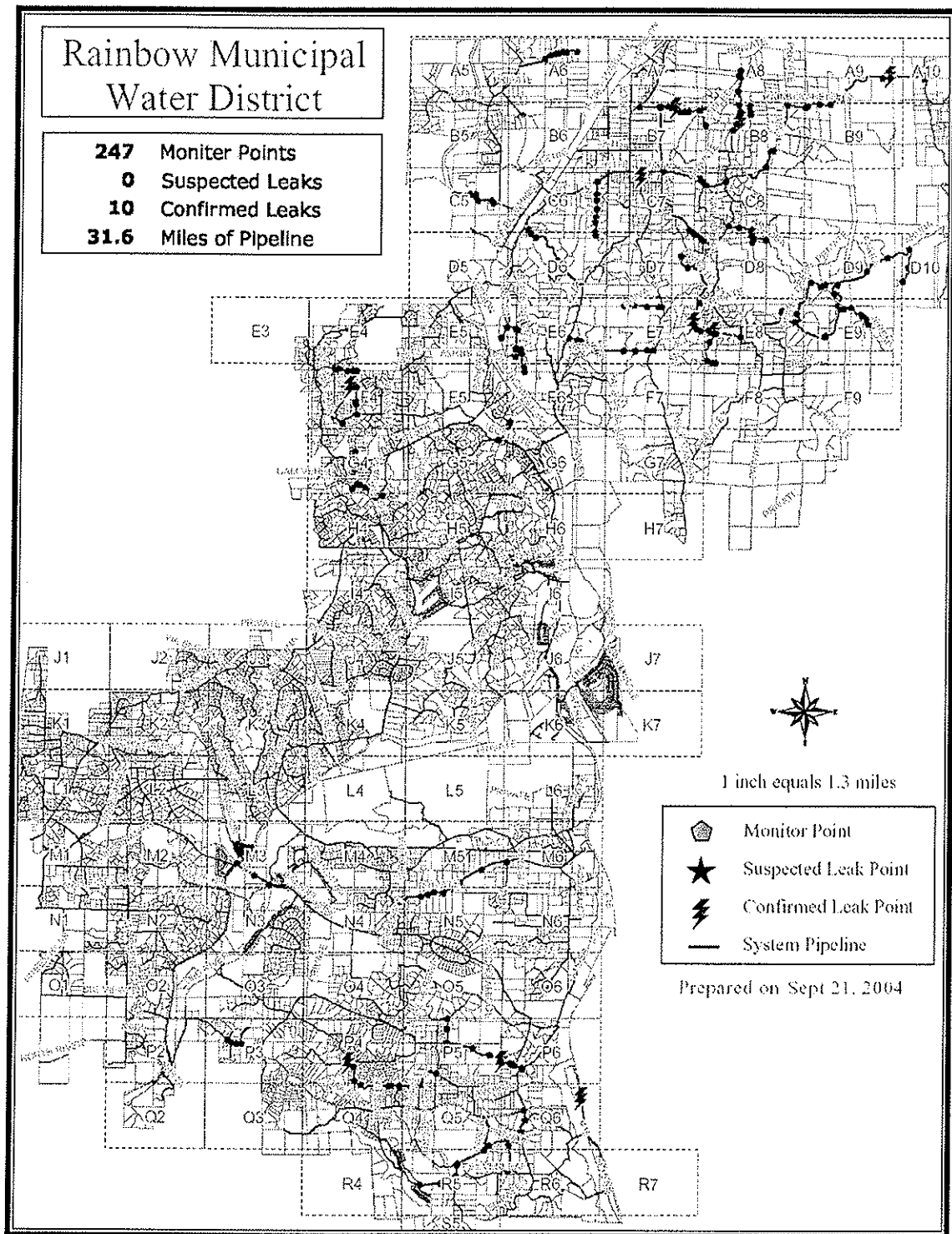


Figure 5 – RMWD 2004 System Audit Map

2.7.8. School Education Programs

The SDCWA has several programs available to school teachers and other youth programs to promote water education among local youth. The programs for teachers are grouped into elementary and secondary categories with 10 programs for K through 6 and 7 programs for 7 through 12th grades respectively. In addition to these grade specific programs, the SDCWA offers a badge program for youth organizations, mini-grants and Xeriscape gardening workshop for teachers, and does the exhibit at Reuben H. Fleet Center.

These programs teach water-related activities and science experiments. In addition to highlighting water conservation issues and provides an understanding of California's water supply, these activities are designed to integrate math, science, art and language. Secondary school level programs emphasize on are water quality, water distribution, water conservation, the water cycle and fresh and salt water topics.

2.7.9. Conservation Programs for Commercial, Industrial and Institutional Accounts

The SDCWA manages a Commercial Institutional Industrial (CII) Voucher Program for all participating member agencies. The program is funded by the SDCWA, its member agencies and the Metropolitan Water District. **Table 10** lists the programs available with possible water savings and the maximum value of vouchers.

Table 10: Voucher Programs for CII Accounts		
Program	Water savings per unit	Value up to
Single load washing machine	60% less	\$150
Double load washing machine	N/A	\$775
Cooling tower conductivity controller	800,000 gal/year	\$500
Pre-rinse kitchen spray valve	400 gal/4hrs of usage	Free installation *
Toilet Fixtures	20,000 gal/year	\$95
Water Miser TM Water broom	N/A, 60% less	\$100
X-ray film processor water conservation unit	815,000 gal/year	\$150
* While supplies last		

2.7.10. Conservation Pricing

The District is in preliminary stages of establishing a pricing schedule to promote water conservation and as such has yet to determine stepping points. Also being considered at the time is a rate structure that includes a different schedule for agricultural, industrial and domestic uses.

2.7.11. Wholesale Agency Programs

All the programs with which the District participates are administered by the SDCWA and in some instances by MWD. Therefore the entire section 2.7 is a summary of programs offered by the SDCWA.

2.7.12. Water Conservation Coordinator

The District does not have a water conservation coordinator and depends on the SDCWA staff to coordinate water conservation related issues.

2.7.13. Water Waste Prohibition

For most arid regions with limited water supply, water waste prohibition is an innate concept well understood and readily practiced. However that was not the case in southern California with the abundant imported water from Colorado River, the area residents naturally created water intense lush landscapes. With the increasing demand for water in the region, local governments and water districts created regulations to regulate water conservation. The District adopted an ordinance in 1990 to promote water conservation and created an emergency water management program. The ordinance, No 90-1, was later superseded by ordinance 91-5 which in turn was slightly amended with ordinance 91-8. The Section 7 of the ordinance, "Water Conservation Stages", states that no customer shall waste or use district provided water unreasonably regardless of the conservation stage of a given time. Any violation of this ordinance is a misdemeanor which is punishable with imprisonment or fine. Appendix E contains the text of all three ordinances.

2.7.14. Residential Ultra-Low Flush Toilet Replacement Programs

The District is a participating member of the SDCWA's Residential Ultra-Low-Flush Toilet (ULFT) Voucher Program. The program offers up to \$75 per toilet to replace existing toilets with ultra-low-flush models.

ULFT uses 1.6 gallons per flush while older model may use up to 7 gallons. According to SDCWA data, installation of ULFT's for a family of three could mean savings of more than 60 gallons per day, or 23,400 gallons of water a year.

The program offers \$95 per toilet when installing dual-flush - one for liquids and one for solid matter - toilets (DFT), which can save more than 2,200 gallons of water a year over the standard ULFT.

2.8. EVALUATION OF DMM'S NOT IMPLEMENTED

All of the demand management measures are implemented in the district through the wholesale dealers programs

2.9. PLANNED WATER SUPPLY PROJECTS AND PROGRAMS

The district does not have any independently initiated planned water supplies and the SDCWA planned water supplies are discussed in section 2.3.

2.10. DESALINATED WATER

Development of desalinated sea water, brackish ocean water and brackish ground water as a long term supply is not a viable option for the District. Any such developments are to be done by the SDCWA.

2.11. CURRENT AND PROJECTED WHOLESALE WATER SUPPLIES

The District's future water needs are determined by SDCWA water demand models based on SANDAG population projections and the SDCWA, in their 2005 UWMP, commits to provide these supplies to the District.

Table 11 District's Demand Projections Provided by SDCWA					
Wholesaler	2010	2015	2020	2025	2030/opt
SDCWA	25,849	24,087	22,091	17,957	17,506
Data is based on SDCWA 2005 UWMP					

3. DETERMINATION OF DMM IMPLEMENTATION

DMM is determined through the evaluation of applications for loans and grants to the Department of Water Resource to implement DMM's identified in section 2.7. Also CUWCC members can include their most recent Annual report as well. As described in section 2.7, the district is a participating member of SDCWA and MWD's programs and the SDCWA's 2005 UWMP include the most recent Annual Report submitted to CUWCC.

4. WATER SHORTAGE CONTINGENCY PLAN

The district ordinance 91-5 addresses the possible water shortage scenarios with some minor revisions per ordinance 91-8. The sections within the ordinance discuss several stages each with both Voluntary and Mandatory reduction of water usage. Subsections herein shall discuss various components of the water shortage contingency plan. The Appendix E contains the full text of each sited ordinances.

4.1. STAGES OF ACTION

There are 6 different stages of water shortage scenarios within ordinance 91-5. The first part of each stage addresses water conservation through

Voluntary compliance while second part of each stage, with the exception of stage one, define Mandatory compliance requirements. First stage, which only contains a Voluntary compliance section, is for periods when the District is aware of the possibility of the available water supply may not adequately meet the consumer demand. At this stage the reduction sought is not quantified. Subsequent stages have a percent based incremental water conservation goal starting at 10% conservation for stage 2, 15% for stage 3, 20% for stage 4, 30% for stage 5 and 40% for stage 6. Each voluntary and Mandatory stage has specific instructions for various water uses to be prohibited or to be restricted.

4.2. CATASTROPHIC SUPPLY INTERRUPTION PLAN

A catastrophic water shortage occurs when a disaster, such as an earthquake, results in insufficient available water to meet the region's needs or eliminates access to imported water supplies. The SDCWA's Emergency Response Plan (ERP) and the Emergency Storage Plan (ESP) are developed to protect public health and safety and to prevent or limit economic damage that could occur from a severe shortage of water supplies. The ERP covers concepts such as the Authorities, policies, and procedures associated with emergency response activities, Emergency staffing, management, and organization required to assist in mitigating any significant emergency or disaster, mutual Aid Agreements and covenants that outline the terms and conditions under which mutual aid assistance will be provided and Pre-emergency planning and emergency operations procedures. The ESP identifies and implements plans to acquire additional storage facilities.

At the District level, it is important that the water stored in the Districts reservoirs are monitored and proactively managed to not allow the volumes of all the reservoirs to drop to very low level. Practice should be to maintain at a minimum the required emergency and fire flow storage within all reservoirs at all times.

4.3. PROHIBITIONS, PENALTIES AND CONSUMPTION REDUCTION METHODS

Each stage of the water shortage plan has specific prohibitions, penalties and consumption reduction methods. Section 4.1 discussed the consumption reduction and water use prohibitions. The violation of ordinance 91-8, covered under section 9, is a misdemeanor pursuant to sections 350-358, 375-377 and 71640-71644 of California Water Code and punishable by imprisonment in the county jail for not more than 30 days or a fine not to exceed \$1000 or both. Appendix E contains the complete text.

4.4. ANALYSIS OF REVENUE IMPACTS OF REDUCE SALE DURING SHORTAGES

Impact upon revenue due to reduced water sales during shortages is proportional to the severity of the shortage. An analysis of FY 2004-2005 sales of agricultural only water usage shall be used to illustrate the revenue impact to the District. The agricultural only sales were 9,882.5 acre-ft which is equivalent of 4,304,904 units of water. **Table 12** summarizes the potential losses assuming a simple daily average of 11794 units based on 365 day year, 30 day month and a unit price of \$1.59.

Table 12. Potential Revenue Loss Due to Shortages		
Reduction	Daily Loss	Monthly Loss
10.0%	\$1,875	\$56,259
20.0%	\$3,751	\$112,517
30.0%	\$5,626	\$168,776
40.0%	\$7,501	\$225,034
50.0%	\$9,376	\$281,293

As illustrated on **Table 12** the potential to lose revenue is directly related to the severity and duration of the shortage. The above analysis only considered the reduction based

5. RECYCLED WATER PLAN

The District does not have an independent recycled water plan as discussed in section 2.3.4. Several Member agencies of the SDCWA such as City of Oceanside however do have programs and facilities to recycle. The size of the District, the dispersion of potential recycled water customers, the extend of facilities needed to be effective, and the economic impacts of implementing a recycled water distribution system given the relation of current potable water costs present a compelling reason for not pursuing recycled water at this time. In the event that potable water prices rise and/or recycled water becomes available, the District will consider the preparation of a Recycled Water Master Plan.

The section 5.3 of SDCWA's 2005 UWMP discuss the issues that must be addressed to implement a recycled water program including economic and financial considerations, regulatory, institutional, public acceptance, and water quality.

6. WATER QUALITY IMPACT ON RELIABILITY

The water supplied to the District by the SDCWA is treated prior to delivery to the District. The SDCWA addresses water quality issues with respect to Perchlorate,

salinity, total dissolved solids, and other contaminants in Section 7 its 2005 UWMP. The water treatment facilities operated by the MWD has the needed capacity to treat the supplies provided to its vendors and is currently being updated to provide fluoridation in addition to the existing chlorination process.

7. WATER SERVICE RELIABILITY

The Water Code section 10635 require that every urban water supplier assess the reliability of its water service to its customers during normal, dry, and multiple dry water years. The water supply and demand assesment compare the total projected water use with the expected water supply over the next 20 years in 5-year increments. The assessment contained in the 2005 Plan projects reliability through the next 25 years to correspond with the growth forecasted by SANDAG. The 2005 SDCWA UWMP identifies the needs of all its member agencies and determined and identified the means to meet those needs.

7.1. PROJECTED NORMAL YEAR WATER SUPPLY AND DEMAND

The projected normal year water demand is the same as the normal year water supply determined in section 2.4, Reliability of Water Supply, since the SDCWA based it supply goals to that of projected water demand. **Table 13** summarizes the supply and demand data for the District and also includes SDCWA data which was used to determine the Districts' future supply and demand.

Table 13- Normal Year Water Supply and Demand					
Wholesaler	2010	2015	2020	2025	2030/opt
RMWD Demand w/conservation	25,849	24,087	22,091	17,957	17,506
Supply Available to RMWD	25,849	24,087	22,091	17,957	17,506
Total SDCWA Supply & Demand w/Conservation	715,450	742,900	771,510	795,640	829,030
Data is based on SDCWA 2005 UWMP and includes near term annexation demands					

7.2. PROJECTED DRY YEAR WATER SUPPLY AND DEMAND

The single dry year water demand is same as the single dry year water supply determined in section 2.4, Reliability of Water Supply, since the SDCWA based its supply goals to that of projected water demand. **Table 14** summarizes the supply and demand data for the District and also includes the SDCWA data which was used to determine the Districts' supply and demand.

Table 14- Single Dry Year Water Supply and Demand					
Wholesaler	2010	2015	2020	2025	2030/opt
RMWD Demand w/conservation	27,735	25,808	23,639	19,152	18,646
Supply Available to RMWD	27,735	25,808	23,639	19,152	18,646
Total SDCWA Supply & Demand w/Conservation	767,650	795,970	825,560	848,610	883,030
Data is based on SDCWA 2005 UWMP					

7.3. PROJECTED MULTIPLE DRY YEAR WATER SUPPLY AND DEMAND

The SDCWA based its supply goals to that of projected water demand and therefore the multiple dry year water demand is same as the multiple dry year water supply determined in section 2.4. **Table 15** summarizes the supply and demand data for the District and also includes the SDCWA data which was used to determine the Districts' supply and demand

Table 15- Multiple Dry Year Water Supply and Demand				
Multiple Dry Year Group	Years	RMWD Demand	Supply to RMWD	Total SDCWA Supply and Demand
1	2006	24,323	24,323	744,520
	2007	24,493	24,493	749,780
	2008	24,664	24,664	755,030
2	2011	27,929	27,929	771,410
	2012	28,125	28,125	777,280
	2013	28,321	28,321	783,150
3	2016	25,988	25,988	801,030
	2017	26,170	26,170	807,150
	2018	26,353	26,353	813,270
4	2021	23,804	23,804	830,680
	2022	23,971	23,971	835,840
	2023	24,139	24,139	841,010
5	2026	19,287	19,287	858,480
	2027	19,422	19,422	865,630
	2028	19,558	19,558	872,770

8. ADOPTION AND IMPLEMENTATION OF UWMP.

The Act requires each urban water supplier adopt and implement their UWMP once every 5 years. The process involves public review of the UWMP, revisions and adaptation by the governing body of the agency/supplier. The Water District's 2005 draft UWMP shall be reviewed by the Board of Director and general public during a public review meeting. The draft shall be revised as needed to address comments and concern prior to adaptation by the Board of Directors. Once adopted by the Board of Directors the UWMP shall be submitted to the Department of Water Resources.

APPENDIX A – A COPY OF CALIFORNIA URBAN WATER MANAGEMENT PLANNING ACT

APPENDIX B – A COPY OF AGENCY COORDINATION LETTER

APPENDIX C – A COPY OF SANDAG POPULATION PROJECTIONS

APPENDIX D – RMWD GROUND WATER MANAGEMENT PLAN EXECUTIVE SUMMARY

APPENDIX E -- A COPIES OF ORDINANCE 90-1, 91-5 AND 91-8 RELATED TO
EMERGENCY WATER MANAGEMENT PROGRAM