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DESERT WATER AGENCY
2005 URBAN WATER MANAGEMENT PLAN

DECEMBER 2005

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DESERT WATER AGENCY
Palm Springs, California

2005 URBAN WATER MANAGEMENT PLAN
CONTACT SHEET

Date plan submitted to the Department of Water Resources:	**December 29, 2005**
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The Water supplier is a:	**Public Agency**
The Water supplier is a:	**Retailer**
Utility services provided by the water supplier include:	**Domestic and municipal water (for residential and commercial development), recycled water (for municipal park and landscape irrigation), sanitary sewage (for Cathedral City area), hydroelectric power (for energy delivery to Southern California Edison Company), solar energy power (for energy delivery to Desert Water Agency Operations Center with excess to Southern California Edison Company), and ground water basin management (for ground water replenishment and assessment therefor)**
Is This Agency a Bureau of Reclamation Contractor?	**No**
Is This Agency a State Water Project Contractor?	**Yes**

TABLE OF CONTENTS

TABLE OF CONTENTS

Section Page

CONTACT SHEET

SECTION I: PUBLIC PARTICIPATION

A. Public Participation I-1
  1. General I-1
  2. Plan Adoption I-1
B. Agency Coordination I-2
  1. Coordination within the Agency and Interagency Coordination I-2
C. Supplier Service Area I-3
  1. Formation, Purpose, and Service Area I-3
  2. Climate I-4
  3. Population I-5
  4. Past Drought, Water Demand, and Conservation Information I-6

SECTION II: WATER SOURCES (SUPPLY)

A. Water Supply Sources II-1
B. Surface Water II-2
C. Ground Water II-3
  1. Ground Water Production II-3
  2. Ground Water Recharge II-4
D. Imported Water II-5
E. Water Exchanges/Transfers II-6
F. Recycled Water II-7
G. Opportunities for Desalinated Water II-7
H. Future Water Supply Projects II-8

SECTION III: RELIABILITY PLANNING

A. Reliability III-1
B. Frequency and Magnitude of Supply Deficiencies III-3
C. Plans to Assure a Reliable Water Supply III-3
  1. Ground Water Replenishment and Assessment Program III-3
  2. Water Recycling III-4
D. Reliability Comparison III-4
E. 2005 through 2008 Water Supply III-6
F. Transfer or Exchange Opportunities III-7
G. Water Quality Impacts on Reliability III-9

TABLE OF CONTENTS
(continued)

Section Page

SECTION IV: WATER USE PROVISIONS

A. Past, Current, and Projected Water Use IV-1
1. Residential Sector IV-3
2. Commercial Sector IV-3
3. Industrial Sector IV-3
4. Institutional/Governmental Sector IV-3
5. Landscape/Recreational Sector IV-4

SECTION V: SUPPLY AND DEMAND COMPARISON PROVISIONS

A. Normal Water Year V-2
B. Single Dry Water Year and Multiple Dry Water Years V-4
C. Summary V-12

SECTION VI: WATER DEMAND MANAGEMENT MEASURES

BMP 1 - Water Survey Programs for Single-Family and Multi-Family Residential Customers VI-2
BMP 2 - Residential Plumbing Retrofit VI-2
BMP 3 - System Water Audits, Leak Detection, and Repair VI-3
BMP 4 - Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections VI-4
BMP 5 - Large Landscape Conservation Programs and Incentives VI-4
BMP 6 - High-Efficiency Washing Machine Rebate Program VI-6
BMP 7 - Public Information Programs VI-6
BMP 8 - School Education Programs VI-9
BMP 9 - Conservation Programs for Commercial, Industrial, and Institutional Accounts VI-10
BMP 9a - CII ULFT Water Savings VI-11
BMP 10 - Wholesale Agency Assistance Programs VI-11
BMP 11 - Conservation Pricing VI-11
BMP 12 - Conservation Coordinator VI-13
BMP 13 - Water Waste Prohibition VI-13
BMP 14 - Residential ULFT Replacement Program VI-14

SECTION VII: WATER SHORTAGE CONTINGENCY PLAN

A. Preparation for Catastrophic Water Supply Interruption VII-1
1. Water Shortage Emergency Response VII-1
B. Water Shortage Contingency Ordinance/Resolution VII-2
1. Desert Water Agency's Water Shortage Response VII-2
C. Stages of Action VII-2
1. Rationing Stages and Reduction Goals VII-3
2. Priority by Use VII-4
3. Health and Safety Requirements VII-4

TABLE OF CONTENTS
(continued)

Section Page

D. Prohibitions, Consumption Reduction Methods, and Penalties VII-5
1. Mandatory Prohibitions on Water Wasting VII-5
2. Excessive Use Penalties VII-6
E. Revenue and Expenditure Impacts and Measures to Overcome Impacts VII-7
F. Reduction Measuring Mechanism VII-7
1. Mechanism to Determine Reductions in Water Use VII-7

SECTION VIII: WATER RECYCLING

A. Wastewater System Description VIII-1
1. Introduction VIII-1
2. WateReuse Association Membership VIII-2
3. Customer Base VIII-2
B. Wastewater Generation, Collection, and Treatment VIII-2
C. Wastewater Disposal and Recycled Water Uses VIII-4
1. Disposal of Wastewater (Non-Recycled) VIII-4
2. Current and Potential Uses of Recycled Water VIII-5
D. Encouraging Recycled Water Use VIII-6
1. Marketing Strategy VIII-6
2. Proposed Actions to Encourage Use of Recycled Water VIII-7
3. Projected Results VIII-7
E. Recycled Water Optimization Plan VIII-8
1. Plan for Optimizing the Use of Recycled Water VIII-8

APPENDIX A: MINUTE ORDER FOR ADOPTION OF THE URBAN WATER MANAGEMENT PLAN

APPENDIX B:
- ORDINANCE NO. 31 - PROHIBITING THE WASTE OF WATER
- ORDINANCE NO. 45 - RESTRICTING WATER USE DURING WATER SUPPLY EMERGENCIES

APPENDIX C: WATER CONSERVATION PROGRAM OF THE DESERT WATER AGENCY, JANUARY, 1977

APPENDIX D: 2003 AND 2004 CUWCC BMP REPORTS

APPENDIX E: FIGURES

LIST OF TABLES

Table 1 Coordination with Appropriate Agencies I-2
Table 2 Climate I-4
Table 3 Population - Current and Projected I-6
Table 4 Current and Planned Water Supplies II-1
Table 5 Surface Water II-2
Table 6 Ground Water II-4
Table 7 Recycled Water II-7
Table 8 Supply Reliability III-5
Table 9 Basis of Water Year Data III-5
Table 10 Three-Year Estimated Minimum Supply III-7
Table 11 Projected Table A Allocations III-9
Table 12 Past, Current, and Projected Water Deliveries IV-2
Table 13 Additional Water Uses and Losses IV-2
Table 14 Total Water Use IV-3
Table 15 Normal Water Year Supply and Demand Projections V-3
Table 16A Supply and Demand Projections, Single Dry Water Year Occurring in 2010 ..... V-6
Table 16B Supply and Demand Projections, Single Dry Water Year Occurring in 2017 ..... V-7
Table 16C Supply and Demand Projections, Single Dry Water Year Occurring in 2024 ..... V-8
Table 17A Supply and Demand Projections, Multiple Dry Water Year Period Occurring 2010-2013 ..... V-9
Table 17B Supply and Demand Projections, Multiple Dry Water Year Period Occurring 2017-2020 ..... V-10
Table 17C Supply and Demand Projections, Multiple Dry Water Year Period Occurring 2024-2027 ..... V-11
Table 18 Actions in Preparation for a Catastrophe VII-1
Table 19 Water Supply Shortage Stages and Conditions, Rationing Stages VII-3
Table 20 Mandatory Prohibitions VII-6
Table 21 Consumption Reduction Methods VII-6
Table 22 Wastewater Collected and Treated VIII-4
Table 23 Disposal of Wastewater (Non-Recycled) VIII-5
Table 24 Recycled Water Uses - Actual VIII-5
Table 25 Recycled Water Uses - Potential VIII-5
Table 26 Projected Future Use of Recycled Water in Service Area VIII-7
Table 27 Recycled Water Uses - 2000 Projection Compared with 2005 Actual VIII-7
Table 28 Participating Agencies VIII-8

SECTION I

PUBLIC PARTICIPATION

SECTION I
PUBLIC PARTICIPATION

A. PUBLIC PARTICIPATION

Law 10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published … After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

1. General

Desert Water Agency (DWA or Agency) has actively encouraged community participation in its urban water management planning efforts since the first plan was developed in 1985. Public meetings were held on the 1985, 1990, 1995, 2000, and 2005 plans. For the 2005 Plan, the appropriate legal notice was published in the Desert Sun Newspaper on November 22 and 29, 2005.

DWA's Board of Directors received copies of the Draft Plan for review at its November 15, 2005 meeting. On December 6, 2005, DWA held a Public Hearing to receive comments on its 2005 Draft Urban Water Management Plan. All comments received prior to and during the Public Hearing were taken into consideration in the preparation of the final Plan.

2. Plan Adoption

DWA prepared this Urban Water Management Plan (UWMP or Plan) in 2005. This Plan was adopted by DWA's Board of Directors by Minute Order on December 6, 2005, and submitted to the California Department of Water Resources (DWR) within 30 days of Board approval. A signed copy of DWA's Minute Order of Plan Adoption is included as Appendix A of this Final Plan. This Plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 (Urban Water Management Planning).

B. AGENCY COORDINATION

Law 10620 (d) (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

1. Coordination within the Agency and Interagency Coordination

DWA staff met and coordinated the development of this plan with Coachella Valley Water District (CVWD) and Mission Springs Water District (MSWD). Historically, DWA has worked closely with local cities and other local agencies in order to serve the public's best interests; therefore, DWA has developed this plan through coordination with the public and other entities as summarized in Table 1 below. DWA's Draft UWMP was submitted to these entities for review and comment prior to final plan adoption.

Table 1
Coordination with Appropriate Agencies

Entities	Coordination and Public Involvement Actions						
	Participated in UWMP Development	Commented on Draft	Attended Public Meetings	Contacted for Assistance	Sent Copy of Draft	Sent Notice of Intention to Adopt	Not Involved/ No Information
City of Palm Springs		✓			✓	✓	
City of Cathedral City					✓	✓	
Coachella Valley Water District	✓			✓	✓	✓	
Mission Springs Water District	✓	✓		✓	✓	✓	
County of Riverside Planning Department					✓	✓	
Coachella Valley Resource Conservation District					✓	✓	
Local Library					✓	✓	
General Public			✓		✓	✓	

C. SUPPLIER SERVICE AREA

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

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

1. Formation, Purpose, and Service Area

DWA was formed in 1961 for the purpose of importing water into the northwesterly portion of the Upper Coachella Valley. In 1962, DWA entered into a water supply contract with the State of California through the DWR. CVWD entered into a similar contract the following year. In 1968, DWA purchased the Palm Springs and Cathedral City Water Company water systems to provide domestic and municipal water service (hereafter municipal water service) to Palm Springs and vicinity.

DWA's territory has increased from an initial 72 square miles to the current 325 square miles, and it includes the City of Palm Springs (C/PS), the southwest portion of the City of Cathedral City (C/CC), the City of Desert Hot Springs (C/DHS), essentially all of Mission Springs Water District (MSWD), and some unincorporated areas within Riverside County.

DWA's Municipal Water Service Area includes C/PS, the southwest portion of C/CC, and some unincorporated areas within Riverside County. It does not include the MSWD Service Area, which is generally northerly of Interstate 10 and includes C/DHS and its surroundings. MSWD provides municipal water service throughout its Service Area, and is preparing its own Urban Water Management Plan.

DWA provides municipal and recycled water service through two separate systems within its Service Area, which is generally southerly of Interstate 10. DWA's current Institutional Boundary and Service Area are shown on Figure 1 in Appendix F.

DWA is responsible for management of the water supply within its Institutional Boundary, as is CVWD within its Institutional Boundary, including artificial ground water recharge or replenishment to augment natural recharge or replenishment. Specifically, DWA makes imported water available to DWA and MSWD for water service within their respective municipal service areas by augmenting local ground water supplies.

2. Climate

DWA's Service Area lies within the Upper Coachella Valley. Climate within the Upper Coachella Valley is characterized by low humidity, high summer temperatures, mild dry winters, an average annual precipitation of about five and one half inches (most of which occurs in January, February, or March, except for summer thundershowers), and prevailing winds which are usually gentle but occasionally increase to velocities as high as 50 to 60 miles per hour or more. Midsummer temperatures average in excess of 100°F, with about 60°F average temperatures during the winter.

The average rainfall and maximum and minimum monthly temperatures, as well as monthly average evapotranspiration rates (ETo), are shown in Table 2 below.

Table 2
Climate

Month	Average Rainfall (inches)	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Standard Monthly Average ETo (inches)
Jan	1.12	69.6	42.0	1.59
Feb	1.01	73.5	45.2	2.20
Mar	0.60	79.4	48.6	3.66
Apr	0.17	86.9	54.0	5.08
May	0.05	94.4	60.1	6.83
June	0.07	103.1	66.7	7.80
July	0.20	108.3	74.8	8.67
Aug	0.30	106.9	74.1	7.81
Sept	0.35	101.9	67.9	5.67
Oct	0.24	91.6	59.2	4.03
Nov	0.47	78.7	48.8	2.13
Dec	0.94	70.1	42.0	1.59
Annual	5.51	88.7	56.9	57.06

Source: National Oceanic and Atmospheric Administration website (NOAA) (http://www.wrcc.dri.edu/CLIMATEDATA.html)

Due to the low annual rainfall and excessively high summer temperatures, large quantities of water are required for supplemental landscape irrigation, even during the cooler winter months.

3. Population

Population within DWA's Service Area (C/PS, the southwest portion of C/CC, and several small unincorporated areas along the western boundary) has increased from approximately 18,000 persons in 1961, when DWA was formed, to more than 68,000 persons in 2005.

C/PS contains the largest population within DWA's Service Area. The Palm Springs area has experienced tremendous growth since its beginnings during the late 1800s, in particular, the period from 1970 to the present, during which time the population more than doubled. The golf and tourist industries remain paramount to the area's economy, with continued growth in these areas expected.

Table 3 shows population projections within DWA's Service Area as well as population projections within DWA's Institutional Boundary (see Figure 1 in Appendix F). Population within DWA's Institutional Boundary includes the entire DWA Service Area, essentially all of the MSWD Service Area (including C/DHS), and certain adjacent unincorporated areas within Riverside County. The population estimates within DWA's Institutional Boundary were developed based on historic population data within DWA's Service Area in addition to population projections prepared by the Southern California Association of Governments (SCAG) and the Coachella Valley Association of Governments (CVAG). Figure 2 in Appendix F shows historic and projected population within DWA's Service Area, 1970 through 2030. Figure 3 in Appendix F shows a comparison of DWA's projected population with Riverside County's projected population, 2005 through 2030.

Table 3 Population – Current and Projected						
	2005	**2010**	**2015**	**2020**	**2025**	**2030**
Population within DWA's Service Area	68,450	76,000	82,100	88,300	94,400	100,600
Population within DWA's Institutional Boundary	101,350	117,100	133,150	150,450	167,650	184,200

Existing development primarily occupies the floor of the Upper Coachella Valley and is situated in Palm Springs, Cathedral City, Palm Springs Oasis (commonly known as Palm Oasis), and Snow Creek Village. Future development will consist of infill within the local communities and expansion into canyons, coves, and mountainous areas.

4. Past Drought, Water Demand, and Conservation Information

Historically, droughts have had little effect on DWA's water supply. Since DWA relies primarily on ground water and has imported water for ground water replenishment, the droughts of 1965-1967, 1976-1977, and 1989-1992 had negligible effects on DWA's ability to supply water to its customers.

DWA has pioneered water conservation. Since the early 1970s, DWA has focused its conservation efforts on long-term solutions in areas of water-efficient landscaping, consumer education, and utilization of new technologies. In the mid-1970s, DWA established numerous affirmative water reduction programs that resulted in relatively uniform consumption, and therefore, generally level per capita production.

Per capita water production increased from 0.31 acre-feet per year (AF/yr) in 1940 to 0.77 AF/yr in 1970. Water production subsequently decreased to 0.73 AF/yr in 1980 before peaking at 0.83 AF/yr in 1990. Since 1990, per capita water production has ranged from 0.62 AF/yr to 0.77 AF/yr. The general consistency in per capita water production in the 1980s and 1990s is attributable to DWA's water conservation activities and measures.

The residents within DWA have a high commitment to quality of life and are active participants in resource and planning discussions held by DWA. Water conservation is one of several high priority policies actively implemented within DWA, and programs

such as water audits for large volume water users, residential water audits, landscape water audits, and water efficient landscape gardens are encouraged and well accepted.

Water deliveries to DWA consumers have been metered since the 1920s. In 1978, DWA constructed a new Operations Center using low water use fixtures in the building and low water use plants in the landscaping. It also developed and operated a low water use demonstration garden for public benefit. During the 1980s and 1990s, DWA constructed and expanded a water recycling plant, together with additional demonstration garden plantings. During the 1970s, 1980s, and 1990s, DWA joined with the local Resource Conservation District (Soil Conservation Service) in conducting water efficient ornamental plant research with both potable and recycled water, as well as selling low water use plants to the public. Since most water is used outdoors, up to 80 percent, DWA has concentrated in outdoor conservation measures.

SECTION II

WATER SOURCES (SUPPLY)

SECTION II
WATER SOURCES (SUPPLY)

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

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

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

10631(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of section 10635.

10631(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and ground water, as a long-term supply.

A. WATER SUPPLY SOURCES

DWA's sources of supply include locally diverted surface water (which is diverted from streams in the San Jacinto Mountains), locally produced ground water (which is produced by potable water supply wells), imported State Water Project (SWP) water exchanged for Colorado River water pursuant to an exchange agreement among The Metropolitan Water District of Southern California (MWD), CVWD, and DWA, and recycled water (which is used only for irrigation). All imported and exchanged water is used to replenish or recharge the Upper Coachella Valley Ground Water Basin, particularly the Whitewater River and Mission Creek Subbasins.

Table 4
Current and Planned Water Supplies
(AF/yr)

Individual Water Supply Sources	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Surface Water (1)	2,500	2,800	2,800	2,800	2,800	2,800
Natural Ground Water (2)	7,250	7,250	7,250	7,250	7,250	7,250
Imported Ground Water (3)	35,800	37,800	36,400	35,000	33,650	33,650
Non-Consumptive Return(4):						
Ground Water	12,050	11,750	13,100	12,500	13,800	15,200
Recycled Water	2,850	6,000	6,000	8,000	8,000	8,000
Total	**60,450**	**65,600**	**65,550**	**65,550**	**65,500**	**66,900**
Grouped Water Supply Sources						
Surface Water	2,500	2,800	2,800	2,800	2,800	2,800
Ground Water	55,100	56,800	56,750	54,750	54,700	56,100
Recycled Water	2,850	6,000	6,000	8,000	8,000	8,000
Total	**60,450**	**65, 600**	**65,550**	**65,550**	**65,500**	**66,900**

(1) DWA surface diversions include diversions from Snow Creek, Falls Creek, Chino Creek North, and Chino Creek West, which are tributary to the Whitewater River.

(2) Long term natural recharge within the Upper Whitewater River Subbasin is approximately 29,000 AF/yr (36,000 AF/yr natural inflow less 7,000 AF/yr natural outflow per USGS Water Resources Investigation 91-4142). DWA's share is approximately one-quarter of said recharge (7,250 AF/yr).

(3) Colorado River water exchanged for SWP water. Of CVWD's and DWA's Table A allocation of SWP water, 7 percent is directed to the Mission Creek Subbasin and 93 percent is directed to the Whitewater River Subbasin. Approximately 25 percent is allocable to DWA for recharging the Upper Whitewater River Subbasin and the other 75 percent is allocable to CVWD for recharging the same Subbasin.

(4) Non-consumptive return is approximately 35 percent of consumptive use (USGS Water Resources Investigation 91-4142). The consumptive use estimate is considered conservatively low.

B. SURFACE WATER

More than 90 percent of the source of supply for DWA's Service Area is derived from replenished ground water and recycled water, and less than 10 percent is derived from surface water. DWA secures surface water from diversions on Snow and Falls Creeks and Chino Creeks North and West. These creeks are all tributary to the Whitewater River. No other streams which are tributary to the Whitewater River are diverted for water supply.

DWA has licenses to divert 2,475 gallons per minute (5.5 cubic feet per second) from Snow Creek and 675 gallons per minute (1.5 cubic feet per second) from Falls Creek, 3,150 gallons per minute (7.0 cubic feet per second) from both streams, and an adjudicated right to divert 900 gallons per minute (2.0 cubic feet per second) from both Chino Creek North and Chino Creek West.

Table 5
Surface Water

Source	2000	2001	2002	2003	2004	2005	2010	2015	2020	2025	2030
Surface Water (1) (AF/yr)	2,470	2,403	1,986	2,366	2,639	2,500	2,800	2,800	2,800	2,800	2,800
Percent of Total Water Supply	**5%**	**5%**	**4%**	**5%**	**6%**	**4%**	**4%**	**4%**	**4%**	**4%**	**4%**

(1) DWA surface diversions include diversions from Snow Creek, Falls Creek, Chino Creek North, and Chino Creek West, which are tributary to the Whitewater River.

Surface water projections for 2010 through 2030 are based on DWA's average surface water diverted from 1977 through 2004. As noted in Table 5, surface water diverted from Snow Creek, Falls Creek, Chino Creek North, and Chino Creek West constitutes 100 percent of DWA's surface water supply, but it constitutes only 4 to 6 percent of DWA's entire municipal water supply.

C. GROUND WATER

1. Ground Water Production

DWA and CVWD both extract naturally and artificially replenished ground water from the Whitewater River Subbasin. DWA extracts water from the northerly portion of the Subbasin and CVWD extracts water from the mid and southerly portions of the Subbasin. CVWD and DWA jointly replenish the Subbasin.

Except for DWA's surface water diversions, all water produced within the Whitewater River Subbasin is ground water. Imported water is artificially recharged to augment natural ground water replenishment. The Whitewater River Subbasin (Fingal Point to Point Happy) contains an estimated 10 million AF in storage (USGS 1971 Open-File Report "Analog Model Study of the Ground-Water Basin of the Upper Coachella Valley, California"). CVWD's and DWA's annual ground water extractions approximate two percent of ground water in storage.

Combined CVWD and DWA ground water extractions and surface water diversions within the Whitewater River Subbasin increased from approximately 93,000 AF in 1966 (1965 through 1967 averaged) to 187,000 AF in 1990, then decreased to approximately 174,000 AF in 1991 before increasing again to approximately 187,000 AF in 1997 and then increasing to 208,285 AF in 1999.

Annual production within the Whitewater River Subbasin (ground water extractions plus surface water diversions) has averaged 210,000 AF/yr for the past five years (2000-2004). Based on past ground water production or extractions, approximately 25 percent of annual water production within the Whitewater River Subbasin occurs within DWA and the remaining 75 percent occurs within CVWD. For projection purposes through 2030, this relationship has been assumed to remain constant.

Table 6 Ground Water											
Source	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**[1]	**2010**	**2015**	**2020**	**2025**	**2030**
Whitewater River Subbasin (AF/yr)	40,011	39,911	41,457	39,895	41,244	55,100	56,800	56,750	54,750	54,700	56,100
Percent of Total Water Supply	**88%**	**88%**	**90%**	**89%**	**88%**	**91%**	**87%**	**87%**	**84%**	**84%**	**84%**

[1] The increase in ground water for 2005 is attributable to higher SWP water deliveries in 2005 than in 2004.

2. Ground Water Recharge

The Whitewater River Subbasin is recharged naturally with runoff from the San Jacinto, Santa Rosa, and San Bernardino Mountains. Per USGS Water Resources Investigation 91-4142, long-term natural recharge (natural inflow less natural outflow) to the Whitewater River Subbasin is approximately 29,000AF/yr. Since the 1950s (if not earlier), groundwater extractions in the Whitewater River Subbasin have exceeded the long-term natural recharge, a condition termed *overdraft*, resulting in declining ground water levels.

In recognition of the overdraft conditions in the Whitewater River Subbasin and to arrest or offset these conditions, DWA and CVWD secured SWP entitlements (now known as "allocations") in 1962 and 1963, respectively. To delay costly aqueduct facilities needed to convey SWP water from the California Aqueduct to the Coachella Valley, DWA and CVWD entered into water exchange contracts with MWD in 1967, which were amended in 1972, to deliver through 1990 Colorado River water to the Upper Coachella Valley in exchange for SWP water delivered to MWD at San Bernardino. In 1973, they jointly commenced a program of artificial recharge of the Subbasin using imported water. The imported water is infiltrated in the Whitewater River spreading grounds (recharge basins) near Windy Point, from which it percolates to the ground water basin underlying the spreading area.

DWA and CVWD entered a water management agreement in 1976, which was amended in 1992, to jointly manage the Whitewater River Subbasin, importing sufficient SWP or Colorado River water to jointly recharge or replenish the Whitewater River Subbasin. In 1983, DWA and CVWD extended their water exchange agreements with MWD to 2035 and, in 1984, they entered advance delivery agreements with MWD to permit MWD to

store excess Colorado River water within the Whitewater River Subbasin for later exchange for DWA and CVWD SWP allocations. In 2003, DWA, CVWD, and MWD entered into the 2003 exchange agreement which clarifies and augments the earlier exchange and advance delivery agreements and transfers, with certain callback provisions, a portion of MWD's SWP allocation.

From 1978 through 1980, the ground water table underlying the spreading basins reached its lowest levels. The ground water table reached its highest levels during 1986 as a result of artificial recharge from both exchange and advance deliveries of Colorado River water pursuant to exchange and advance delivery agreements with MWD. As a result of continuing ground water recharge, the water table underlying DWA's Service Area has been maintained at relatively stable levels.

In addition to natural and artificial recharge, ground water production is offset by *non-consumptive return*, which is water returned to the aquifer after use (for example, irrigation water percolating into the ground, and treated wastewater discharged to percolation ponds). Per USGS Water Resources Investigation 91-4142, consumptive use in the Whitewater River Subbasin is estimated to be approximately 65 percent of annual water production, which results in non-consumptive return of approximately 35 percent.

The Whitewater River and Mission Creek Subbasins are capable of meeting the demands that will be placed on them, provided they continue to be replenished with sufficient quantities of imported water to meet future needs. Pursuant to the above agreements, ground water recharge of the Upper Coachella Valley Ground Water Basin, from 1973 through 2005, has approximated 1,867,000 AF, about 1,830,000 AF in the Whitewater River Subbasin and about 37,000 AF in the Mission Creek Subbasin.

D. IMPORTED WATER

As stated in the previous section, DWA and CVWD have been importing water to replenish the Whitewater River Subbasin since 1973. The two agencies entered into a joint Water Management Agreement in 1976 (amended 1992), which formalized the replenishment program and provided a mechanism for benefit assessment. The program was implemented in 1978. A similar agreement was implemented in 2002 for the Mission Creek Subbasin.

The Water Management Agreement calls for maximum importation of SWP Contract Table A water allocations (formerly known as "entitlements") by DWA and CVWD for replenishment of ground water basins or subbasins within defined Water Management Areas. The Agreement also requires collection of data necessary for sound management of all water resources within the same Water Management Areas.

CVWD and DWA are State Water Contractors with a combined maximum Table A allocation of SWP water of 171,100 AF/yr through 2010 (CVWD's allocation is 121,100 AF/yr and DWA's allocation is 50,000 AF/yr) and 187,100 AF/yr thereafter through 2035 (CVWD's allocation is 133,100 AF/yr and DWA's allocation is 54,000 AF/yr). In addition, CVWD and DWA have and continue to secure surplus water in addition to their Table A allocations, when available.

E. WATER EXCHANGES/TRANSFERS

CVWD and DWA do not currently have facilities which would permit direct delivery of SWP water to the Upper Coachella Valley. To avoid the multi-million dollar cost of constructing an aqueduct from the SWP to the Upper Coachella Valley, CVWD and DWA entered into water exchange agreements with MWD to deliver Colorado River Aqueduct water to the Upper Coachella Valley Ground Water Basin.

Since 1973, MWD has taken CVWD's and DWA's SWP allocations in exchange for equivalent quantities of Colorado River water. The exchanged Colorado River water is delivered to ground water recharge facilities as described above.

In addition, CVWD and DWA entered into advance delivery agreements with MWD allowing MWD to deliver and store ("bank") excess Colorado River water in the Upper Coachella Valley Ground Water Basin during periods of surplus water in the Colorado River Basin for subsequent exchange for SWP water when needed by MWD.

To further offset overdraft conditions, since 1996, CVWD and DWA have secured surplus SWP water, whenever available, to supplement the exchange deliveries of Table A water. From 1996 through 2004, CVWD and DWA jointly obtained 288,060 AF of surplus water under the DWR/SWP Turn-Back Water Pool Program, which was exchanged for a like quantity of Colorado River water delivered to the ground water basin. These additional supplies are not expected to be consistently available in the future and therefore cannot be relied upon to provide a

reliable long-term source of water to the Upper Coachella Valley, at least in the quantities formerly available.

Artificial recharge of Colorado River water, equivalent to SWP Table A and surplus water deliveries (exchange and advance deliveries), has approximated 1,867,000 AF, (approximately 1,830,000 AF delivered to the Whitewater River Subbasin from 1973 through 2005 and approximately 37,000 AF delivered to the Mission Creek Subbasin from 2002 through 2005).

F. RECYCLED WATER

Part of DWA's irrigation supply formerly derived from stream water or ground water is now being derived from recycled water. Recycled water use reduces demands on the municipal water supply to the extent that irrigation deliveries are diverted from the municipal water supply to the recycled water system. Recycled water used for irrigation water deliveries is currently equal to slightly more than 5 percent of the municipal water supply. Recycled water use is projected to equal approximately 9 percent of the municipal water supply by the year 2006.

The use of recycled water plays a key role in DWA's Basin Management Program as it conserves and protects the valuable ground water supply. To further expand the use of recycled water, DWA is actively pursuing the expansion of its existing recycled water customer base. Refer to the Section VIII: Water Recycling for a detailed discussion regarding DWA's water recycling facilities.

Table 7
Recycled Water

Source	2000	2001	2002	2003	2004	2005[1]	2010	2015	2020	2025	2030
Recycled Water (AF/yr)	2,900	3,018	2,875	2,797	2,922	2,850	6,000	6,000	8,000	8,000	8,000
Percent of Total Water Supply	**7%**	**7%**	**6%**	**6%**	**6%**	**5%**	**9%**	**9%**	**12%**	**12%**	**12%**

[1] The increase in ground water for 2005 is attributable to higher SWP water deliveries in 2005 than in 2004.

G. OPPORTUNITIES FOR DESALINATED WATER

DWA does not currently have direct access to ocean water or a significant quantity of brackish ground water. There is a limited and questionable supply of brackish water at the downstream (lower or southeasterly) end of the Mission Creek Subbasin; however, extraction of such brackish

ground water would deplete the same ground water subbasin from which usable ground water is extracted. At this time, DWA has no plans to extract and treat any brackish water. Therefore, at this time, desalinated water is not a probable source of water supply for DWA.

H. FUTURE WATER SUPPLY PROJECTS

CVWD and DWA are exploring possible future joint water supply projects to increase water supply for the Upper Coachella Valley; however, none have advanced beyond the concept stage. An aqueduct from the California Aqueduct to the Upper Coachella Valley is now under consideration.

In order to meet increasing water system demands, DWA's existing potable water system will have to be expanded and improved. Additional well pumping plants will need to be constructed for water supply purposes as demands increase, and additional recycling facilities will have to be constructed to satisfy projected increases in recycled water demand. Routinely, these facilities will continue to be constructed as needed pursuant to DWA's Domestic Water System General Plan dated 1998.

SECTION III

RELIABILITY PLANNING

SECTION III
RELIABILITY PLANNING

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

> 10631 (c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable.
>
> 10631 (c) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.
>
> 10631 (c) Provide data for each of the following:
> (1) An average water year, (2) A single dry water year, (3) Multiple dry water years.

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

> 10632 (b) An estimate of the minimum water supply available during each of the next three-water years based on driest three-year historic sequence for the agency's water supply.

A. RELIABILITY

DWA recognizes that throughout history, water availability and quality have been the principal factors in dictating a population's survival, and that a reliable, high-quality source of water is essential for survival and well-being.

DWA is acutely aware of the vital role water has had in the development of the Palm Springs area as a world renowned destination resort. Clearly, a reliable, abundant, high-quality water supply has been the most important factor in the success of the Palm Springs area. DWA's goal is to provide its customers with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible manner.

DWA relies on local water sources augmented by imported water and recycled water to meet the needs of its customers. As discussed in the preceding section, more than 90 percent of the water supply is derived from ground water replenished by imported water together with recycled water derived from the municipal wastewater treatment plant.

Due to DWA's reliance on local water sources and its ability to secure imported water and store it within the Whitewater River Subbasin, short-term drought situations have historically had a negligible effect on DWA's ability to supply water to its customers. Since the surface water sources are fed with water originating in the local mountains, they are inherently more susceptible to seasonal variation and drought situations.

The majority of DWA's Service Area depends exclusively on ground water, while the northwest portion is supplied by a mix of ground water and surface water. A small group of relatively isolated single-family, minimally landscaped residences (Snow Creek Village) are supplied solely with surface water. If delivery of surface water to these residences were interrupted or reduced, demand could be met in the interim through stored water in reservoirs dedicated to that area. In the unlikely event that water were to become unavailable, a supply would have to be trucked in from the remainder of DWA's water system.

As with any water system, reliability has the potential to be affected by earthquakes, power outages, floods, and other potentially devastating occurrences. Emergency preparedness planning is therefore a key part of DWA's operations. DWA has coordinated internally with all departments and with local entities to formulate an Emergency Preparedness Plan. The Plan outlines specific courses of action DWA personnel will follow in the event of a natural disaster or breach in facility security. In the Plan, all areas of emergency preparedness are addressed, with emphasis on employee response and delivering safe water to DWA's customers as quickly as possible.

Additionally, earthquake valves have been installed on approximately half of DWA's 21 above-ground steel reservoirs to conserve stored water supply in the event of a pipeline break resulting from an earthquake. Additional earthquake valve installations will be constructed as funds become available. Aging pipelines are also replaced as part of an ongoing mainline replacement program to further enhance the reliability of the system. All new facilities are designed taking into consideration the potential for earthquakes, power shortages, and flooding potential. In the event of an interruption in the ability to serve recycled water customers, potable water is made available to all recycled water users.

DWA has adopted an ordinance detailing restrictions in water supply use during emergencies.

On October 18, 1988, DWA adopted Ordinance No. 45, An Ordinance of the Board of Directors of the Desert Water Agency Restricting Water Use During Water Supply Emergencies (refer to Appendix B). This Ordinance provides a water supply plan for four stages of water supply emergencies.

Stage No. 1	**Normal Conditions**: Voluntary conservation measures.
Stage No. 2	**Water Shortage Alert**: Mandatory conservation measures.
Stage No. 3	**Water Shortage Warning**: Stronger mandatory conservation measures.
Stage No. 4	**Mandatory Compliance-Water Shortage Emergency**: Severe water use prohibitions.

B. FREQUENCY AND MAGNITUDE OF SUPPLY DEFICIENCIES

Although Southern California has experienced serious droughts during the past twenty years, DWA has not experienced any actual supply deficiency. Droughts have historically had a negligible effect on DWA's ability to supply water to customers, since DWA relies on local water sources and has imported and stored water within the Whitewater River Subbasin to meet expected demands.

C. PLANS TO ASSURE A RELIABLE WATER SUPPLY

DWA is taking the following actions to ensure overall water supply reliability for its customers:

1. Ground Water Replenishment and Assessment Program

DWA has implemented Ground Water Replenishment and Assessment Programs for the Whitewater River and Mission Creek Subbasins (see Section II). These programs were established to augment ground water supplies and arrest or retard declining water table conditions within the Upper Coachella Valley, specifically the Whitewater River Subbasin within DWA's Service Area and the Mission Creek Subbasin within DWA's boundary and MSWD's Service Area. The intention of these programs is to optimize and protect the use of ground water in addition to providing sound management of the ground water supplies.

2. Water Recycling

DWA will continue to increase recycling efforts, with major environmental and municipal reuse projects planned for implementation in the next five (5) years.

These efforts, in combination with continuing work to improve planning for imported water supply development will ensure DWA's ability to meet the projected water demands of its customers.

D. RELIABILITY COMPARISON

Table 7 details estimated water supply projections associated with the Whitewater River Subbasin, which includes surface water diversions, ground water recharge, non-consumptive return, and recycled water. For further information on the data, refer to Three-year Minimum Supply and Water Shortage Contingency Plan sections.

As previously stated, the majority of the water supply is obtained from local ground water stored in a large aquifer, the Whitewater River Subbasin. In addition, the aquifer is artificially recharged with imported water from MWD pursuant to the 2003 Exchange Agreement among CVWD, DWA, and MWD (refer to Transfer or Exchange Opportunities, Part F. herein). Historical well level data supports DWA's ability to supply water to its customers in the event of a short-term drought or short-term discontinuance of the imported water supply.

The Urban Water Management Planning Act requires a description of a water provider's supply reliability and vulnerability for an average (normal) water year, a single dry year, or multiple dry years. Such analysis is clearly relevant to water systems that rely on and are supplied primarily by surface water. DWA's system, however, is supplied primarily by ground water. Therefore, in Tables 7 and 8, average/normal, single, and multiple dry water year data primarily applies to surface water. The following tables address supply reliability during a normal water year, a single dry water year, and multiple dry water years. For purposes of this section, a normal water

year, single dry water year, and multiple dry year period are defined below:

- **Normal Water Year** is defined as a year in the historical sequence that most closely represents median runoff levels and patterns.
- **Single Dry Water Year** is defined as the lowest annual runoff for a watershed.
- **Multiple Dry Water Year Period** is defined as the lowest average runoff for a consecutive multiple year period (three years or more).

Table 8
Supply Reliability
(AF/yr)

Source	Normal Water Year	Single Dry Water Year	Multiple Dry Water Years			
			Year 1	Year 2	Year 3	Year 4
Surface Water [1]	2,800	1,350	1,500	1,500	1,500	1,500
Natural Ground Water [2]	7,250	6,000	6,000	5,500	5,000	4,500
Imported Water for Ground Water [3]	35,600	800	8,100	8,100	6,700	6,700
Non-Consumptive Return[4]:						
Ground Water	13,000	13,000	10,650	10,900	11,200	11,450
Recycled Water	6,000	6,000	6,000	6,000	6,000	6,000
Ground Water Storage		37,500	32,400	32,650	34,250	34,500
Total	**64,650**	**64,650**	**64,650**	**64,650**	**64,650**	**64,650**
Percent of Normal	100%	100%	100%	100%	100%	100%

[1] DWA surface diversions include diversions from Snow Creek, Falls Creek, Chino Creek North, and Chino Creek West, which are tributary to the Whitewater River.

[2] Long term natural recharge within the Upper Whitewater River Subbasin is approximately 29,000 AF/yr (36,000 AF/yr natural inflow less 7,000 AF/yr natural outflow per USGS Water Resources Investigation 91-4142). DWA's share is approximately one-quarter of said recharge (7,250 AF/yr).

[3] Colorado River water exchanged for SWP water. Of CVWD's and DWA's Table A allocation of SWP water, 7 percent is directed to the Mission Creek Subbasin and 93 percent is directed to the Whitewater River Subbasin. Approximately 25 percent is allocable to DWA for recharging the Upper Whitewater River Subbasin and the other 75 percent is allocable to CVWD for recharging the same Subbasin.

[4] Non-consumptive return is approximately 35 percent of consumptive use (USGS Water Resources Investigation 91-4142). The consumptive use estimate is considered conservatively low.

Table 9
Basis of Water Year Data

Water Year Type	Base Year(s) [1]	Historic Sequence
Normal Water Year	1996	1977-2004
Single-Dry Water Year	1988	
Multiple-Dry Water Years	1989-1992	

[1] Base year(s) identified and defined using USGS gauging station data and DWA's historic surface water diversion data.

The water supply within DWA is not directly affected by short-term fluctuations in hydrology (i.e. drought conditions), since more than 90 percent of DWA's water supply is from ground water and recycled water. Due to DWA's reliance on local water sources and its ability to import water and store it within the Whitewater River Subbasin, short-term drought situations have historically had a negligible effect on the ability to supply water to customers. Since the surface water sources are fed with water originating in the local mountains, they are inherently more susceptible to seasonal variation and drought situations. These variations are presented above in Table 8.

The challenges that DWA faces are long-term in nature, as opposed to short-term shortage situations, due to the large supply of stored ("banked") ground water. While there is sufficient ground water in storage to weather short-term droughts, it will not sustain the current population indefinitely due to the limited quantity of natural recharge. Continued water importation, water recycling, water conservation, and long-range planning are necessary to meet current and future population requirements without depleting the ground water in storage.

E. 2005 THROUGH 2008 WATER SUPPLY

DWA has never experienced an actual water supply deficiency since more than 90 percent of DWA's domestic water supply is derived from ground water and DWA has the ability to import water and store it within the Whitewater River Subbasin. Short-term droughts have historically had negligible effects on DWA's ability to supply water to its customers since DWA can secure needed water supplies from ground water in storage, if necessary.

DWA's annual water supply available in 2005 together with minimum water supply available for the three subsequent years based on multiple dry year history is set forth in Table 10. The 2005 year supply, which excludes ground water from storage, is about 60,450 AF, about 13,000 AF more than demand, estimated to be 45,400 AF (Table 14). In contrast, the 2006 through 2008 multiple dry year supplies require ground water extractions of about 21,000 AF, 22,000 AF, and 25,000 AF, respectively, from ground water in storage to meet demands. Such ground water extractions would reduce ground water in storage about one-half of one percent when offset by excess supplies in 2005.

Table 10 Three-Year Estimated Minimum Water Supply (AF/yr)				
Source	**2005**	**2006**	**2007**	**2008**
Surface Water [1]	2,500	1,500	1,500	1,500
Natural Ground Water [2]	7,250	6,000	5,500	5,000
Imported Ground Water [3]	35,800	8,100	8,100	6,700
Non-Consumptive Return[4]:				
Ground Water	12,050	10,650	10,900	11,200
Recycled Water	2,850	6,000	6,000	6,000
Ground Water in Storage		21,300	22,300	24,700
Total	**60,450**	**53,550**	**54,300**	**55,100**

[1] DWA surface diversions include diversions from Snow Creek, Falls Creek, Chino Creek North, and Chino Creek West, which are tributary to the Whitewater River.

[2] Long term natural recharge within the Upper Whitewater River Subbasin is approximately 29,000 AF/yr (36,000 AF/yr natural inflow less 7,000 AF/yr natural outflow per USGS Water Resources Investigation 91-4142). DWA's share is approximately one-quarter of said recharge (7,250 AF/yr).

[3] Colorado River water exchanged for SWP water. Of CVWD's and DWA's Table A allocation of SWP water, 7 percent is directed to the Mission Creek Subbasin and 93 percent is directed to the Whitewater River Subbasin. Approximately 25 percent is allocable to DWA for recharging the Upper Whitewater River Subbasin and the other 75 percent is allocable to CVWD for recharging the same Subbasin.

[4] Non-consumptive return is approximately 35 percent of consumptive use (USGS Water Resources Investigation 91-4142). The consumptive use estimate is considered conservatively low.

Since DWA's goal is to provide its customers with adequate and reliable supplies of high-quality water to meet present and future needs, DWA strives to ensure that customer demand can be met at all times. CVWD and DWA jointly recharge the Whitewater River Subbasin in years of surplus water supplies to prepare or recover from dry years. Therefore, in the event that the next three years are not dry, surplus water supplies will be stored within the ground water basin for future use.

F. TRANSFER OR EXCHANGE OPPORTUNITIES

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

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

Currently, DWA does not have facilities to take direct delivery of SWP water. Since the conveyance facilities needed to convey SWP water to DWA and CVWD have not been constructed, DWA and CVWD exchange their SWP water allocations for Colorado River water

delivered by MWD through the Colorado River Aqueduct. MWD accepts DWA and CVWD SWP allocations from the California Aqueduct, East Branch, in San Bernardino.

The water discharged from the Colorado River Aqueduct flows along the Whitewater River channel to recharge basins to augment the Whitewater River Subbasin, and by pipeline to recharge basins to augment the Mission Creek Subbasin. Since 1973, DWA and CVWD have imported Colorado River water to recharge the Whitewater River Subbasin, and since 2002, DWA and CVWD have imported Colorado River water to recharge the Mission Creek Subbasin, both for the purpose of augmenting natural recharge.

In 2003, CVWD and DWA available Table A allocations were 33,000 AF and 38,100 AF, respectively, or 71,200 AF combined.

Pursuant to the 2003 Exchange Agreement among CVWD, DWA, and MWD, CVWD and DWA also obtained 100,000 AF/yr of additional Table A allocations (88,100 AF/yr for CVWD and 11,900 AF/yr for DWA). MWD has the option to call-back (or recall) the annual Table A allocation of 100,000 AF (in 50,000 AF increments) during periods of limited or low water supply conditions. Regardless, the 2003 Exchange Agreement provides CVWD and DWA the opportunity to secure increased quantities of surplus water in addition to increased quantities of Table A water during periods of normal or high water supply conditions.

Currently and through 2009, the maximum Table A water allocation for CVWD and DWA combined is 171,100 AF/yr. CVWD and DWA are currently securing an additional 16,000 AF/yr (12,000 AF/yr for CVWD and 4,000 AF/yr for DWA) from Berrenda Mesa Water District through the Kern County Water Agency, to become effective from 2010 and through 2035, thus increasing the combined maximum Table A water allocation to 187,100 AF for years 2010 through December 31, 2035, provided the transfer is completed.

Pursuant to a letter titled, "Implementation of the 2003 Exchange Agreement", during calendar years 2004 through and including 2009 (Interim Period), MWD shall deliver at least 17,000 AF to CVWD and DWA (12,094 AF/yr for CVWD and 4,906 for DWA) in any year when the SWP Table A allocation as of May 1 is at least 50 percent. During the Interim Period, when SWP Table A allocation is less than 50 percent, MWD is only obligated to deliver a quantity of water equal to 50 percent of the combined Table A quantity of SWP water allocated to CVWD and

DWA for that year. However, MWD is obligated to deliver a minimum of 100,000 AF during the Interim Period.

Table 11 Projected Table A Allocations (AF/yr)				
Year	CVWD/DWA Table A Allocation (AF/yr)	DWR's Projected SWP Table A Delivery		DWA's Share of Projected Delivery to Whitewater River Subbasin (AF/yr)
		Fraction	AF/yr	
2005	171,100	0.90	154,000	35,800
2010	187,100	0.87	162,450	37,750
2015	187,100	0.84	156,500	36,400
2020	187,100	0.81	150,550	35,000
2025	187,100	0.77	144,650	33,650
2030	187,100	0.77	144,650	33,650

Table 11 above sets forth projected Table A water deliveries based on studies performed by DWR. DWA is responsible for providing artificial recharge to both the Whitewater River and Mission Creek Subbasins, even though DWA only extracts water from the Whitewater River Subbasin for use within its Service Area. Based on 2002 through 2004 production, ground water extractions from the Mission Creek Subbasin comprised approximately 7 percent of the combined production of the Whitewater River and Mission Creek Subbasins. This percentage of ground water extraction serves as the basis for the distribution of imported recharge water to the two subbasins. The projected delivery to the Whitewater River Subbasin is approximately 93 percent of the projected Table A delivery for the respective year. Approximately 25 percent of Whitewater River Subbasin allocation is used by DWA to recharge the Upper Whitewater River Subbasin and the remaining 75 percent is used by CVWD to recharge the same Subbasin.

G. WATER QUALITY IMPACTS ON RELIABILITY

Law 10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

As mentioned previously, CVWD and DWA exchange their Table A allocations of State Water Project (SWP) water for Colorado River water to augment the Whitewater River Subbasin. Colorado River water is generally of good quality, however, Colorado River water has a

relatively higher total dissolved solids (TDS) concentration (greater than 500 milligrams per liter) than native ground water (less than 500 milligrams per liter).

TDS consists of minerals and salts dissolved in water, which acts as an indicator of potential concerns. The California Department of Health Services has established a secondary maximum contaminant level (MCL) of 1,000 milligrams per liter for TDS, with a recommended maximum level of 500 milligrams per liter. TDS concentration is a secondary drinking water standard and is therefore regulated for aesthetic purposes and is not a health hazard. TDS is not expected to affect the reliability of the ground water supply.

As a result of contamination from ammonium perchlorate manufacturing facilities in Nevada, perchlorate levels have been found in Colorado River water. Perchlorate is a natural occurring and man-made material. Currently, there is no federal or state drinking water standard (MCL) for perchlorate. In 2004, the Office of Environmental Health Hazard Assessment (OEHHA) established a 6 micrograms per liter public health goal (PHG). The PHG is defined as the concentration of contaminant in drinking water which does not pose a significant risk to health. Within DWA's Service Area, very low levels of perchlorate (<1 microgram per liter) have been detected in nearly every well, however, perchlorate concentrations are well below the PHG and are expected to continually decrease over time. The presence of perchlorate in Colorado River water is not expected to affect the reliability of the ground water supply.

The surface water and ground water that DWA delivers to its customers is of high quality and complies with Safe Drinking Water Standards without any treatment, except disinfection, where needed. Surface water, from a controlled watershed, is disinfected. Ground water, with few exceptions, such as during well construction and rehabilitation, is not disinfected since the ground water is naturally filtered and the wells are securely sealed from contaminants. The water that DWA provides meets or exceeds all guidelines and standards established by the USEPA and the California Department of Health Services. DWA regards adequate, high-quality water a primary goal to ensure public health, safety, and community well-being.

SECTION IV

WATER USE PROVISIONS

SECTION IV
WATER USE PROVISIONS

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

> 10631(e)(1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:
>
> > (A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, ground water recharge, or conjunctive use, or any combination thereof; and (I) Agricultural.
>
> (2) The water use projections shall be in the same 5-year increments to 20 years or as far as data is available.

A. PAST, CURRENT, AND PROJECTED WATER USE

Past, current, and projected annual water deliveries from 2000 through 2030 are set forth in Table 12. As shown therein, annual projected domestic water use within DWA's Municipal Service Area is projected to increase from approximately 40,000 AF presently to approximately 62,000 AF in 2030. Figure 4 in Appendix F shows historic and projected water deliveries (AF/yr) and water meters (each) from 1980 through 2030.

Past, current, and projected additional water uses and losses from 2000 through 2030 are set forth in Table 13. As shown therein, annual projected additional water uses and losses within DWA's Municipal Service Area are projected to increase from approximately 5,500 AF in 2005 to nearly 12,000 AF in 2030. Past, current, and projected annual Total Water Use (Total Water Production) is set forth in Table 14; it is expected to increase from about 45,400 AF to about 74,300 AF in 2030.

Outdoor water use accounts for an estimated 60 percent to 80 percent of the residential and commercial water use within the DWA Service Area. With the unique climate, extensive landscape irrigation requirements, and destination resort atmosphere, the average annual water consumption per capita is considerably higher than that of most Southern California areas outside the Coachella Valley, on the order of 1½ to 2 times.

From 1999 through 2003, DWA added new connections at a rate of about 1 percent per year. However, during the 2003-2004 fiscal year, DWA served 20,414 active services exclusive of fire service, an increase of 613 active services, or 3.10 percent over the 2002-2003 fiscal year. Average water consumption per active service for the 2003-2004 fiscal year was approximately 1,900 gallons per day (0.005 AF per day).

DWA enjoys very low unaccounted-for water quantities, under 5 percent for decades and just 2.6 percent in 2004 (unaccounted-for water is the difference between production meter records and customer meter records, and water loss due to unauthorized connections and system leaks, as well as inaccuracies of production and consumption meters). DWA estimates or measures water for fire fighting, fire hydrant flow testing, water main flushing, reservoir cleaning, and identifiable system leaks and therefore excludes these quantities from unaccounted for water.

Table 12
Past, Current, and Projected Water Deliveries
(AF/yr)

Year	Metered/ Unmetered	Water Use Sectors	Single Family	Multi-Family	Com-mercial	Indus -trial	Inst/ Gov	Land-scape	Agricul -tural	Total
2000	Metered	# of accounts	16,445	0	2,545	0	280	0	0	19,270
		Deliveries	27,220	0	12,030	0	1,900	0	0	41,150
2005	Metered	# of accounts	17,770	0	2,680	0	300	0	0	20,750
		Deliveries	26,230	0	11,940	0	1,780	0	0	39,950
2010	Metered	# of accounts	19,650	0	3,040	0	330	0	0	23,020
		Deliveries	31,180	0	13,750	0	2,170	0	0	47,100
2015	Metered	# of accounts	21,240	0	3,280	0	360	0	0	24,880
		Deliveries	33,700	0	14,860	0	2,340	0	0	50,900
2020	Metered	# of accounts	22,830	0	3,530	0	390	0	0	26,750
		Deliveries	36,250	0	15,980	0	2,520	0	0	54,750
2025	Metered	# of accounts	24,425	0	3,770	0	410	0	0	28,600
		Deliveries	38,760	0	17,090	0	2,700	0	0	58,550
2030	Metered	# of accounts	26,030	0	4,020	0	450	0	0	30,500
		Deliveries	41,300	0	18,200	0	2,900	0	0	62,400

Note: All of DWA's connections are metered.

Table 13
Additional Water Uses and Losses
(AF/yr)

Water Use	2000	2005	2010	2015	2020	2025	2030
Water Use by DWA	250	250	300	300	300	300	300
Construction Water for Dust Mitigation During Construction	350	1,900	2,000	2,000	2,000	2,000	2,000
Recycled Water (Landscape)	2,900	2,850	6,000	6,000	8,000	8,000	8,000
Unaccounted-For System Losses	750	450	1,250	1,350	1,450	1,550	1,600
Total	4,250	5,450	9,550	9,650	11,750	11,850	11,900

Table 14 Total Water Use (AF/yr)							
Water Use	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Sum of Tables 12 and 13	45,400	45,400	56,650	60,550	66,500	70,400	74,300

1. Residential Sector

Single-family residential customers constitute the majority of DWA's customers with each average service connection serving 3.3 persons. The residential sector is growing steadily each year, and growth is expected to continue through 2030.

2. Commercial Sector

DWA has a complex mix of commercial customers, ranging from family restaurants, insurance offices, and gas stations to shopping centers, high-volume restaurants, and other facilities serving the visitor population. The commercial sector is growing steadily each year, and some growth is expected to continue to occur over the next several years. Businesses for the growing tourist industry are also contributing. This trend is expected to continue through 2030.

3. Industrial Sector

DWA serves a small industrial sector, primarily centered on light manufacturing. The industrial sector has not grown much in the last decade or so, and is not expected to increase significantly in the next 25 years. The industrial sector is considered part of the commercial sector as far as water service is concerned.

4. Institutional/Governmental Sector

DWA has a stable institutional/governmental sector, primarily local government, parks, schools, and other types of public facilities. The institutional/governmental sector, with the exception of schools, is not expected to increase significantly over the next 25 years.

5. Landscape/Recreational Sector

Currently, DWA utilizes recycled water for irrigation of large turf areas, such as golf courses and public parks. Landscape and recreational customer demand is expected to increase gradually over the next 25 years. Increased efficiency and use of recycled water at existing golf courses, public parks, and other facilities should help offset new demand resulting from projected increases in this sector.

Currently, recycled water use approximates 3,000 AF/yr; however, three additional recycled water use sites are proposed for 2006; they will increase recycled water use significantly. DWA plans to continue actively pursuing the expansion of its existing recycled water customer base and it is anticipated that with DWA's proactive approach to obtaining new customers, four additional locations will be served with recycled water prior to 2010.

SECTION V

SUPPLY AND DEMAND COMPARISON PROVISIONS

SECTION V
SUPPLY AND DEMAND COMPARISON PROVISIONS

Law 10635 (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to it customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from the state, regional, or local agency population projections within the service area of the urban water supplier.

As detailed in Section III, Reliability Planning, more than 90 percent of the domestic and irrigation water supply for DWA's Municipal Service Area is derived from ground water from the Whitewater River Subbasin and recycled water from the recycled water treatment plant, and less than 10 percent is derived from surface water (Snow Creek, Falls Creek, Chino Creek North, and Chino Creek West). Domestic requirements are met with surface water and ground water; irrigation requirements are met through the use of ground water and recycled water.

Due to its size, the Whitewater River Subbasin, which has been historically recharged from natural runoff, and which has also been recharged with imported water since 1973, is capable of meeting demands placed on it during normal or dry years. It will continue to meet such demands, provided the ground water basin continues to be replenished with sufficient quantities of imported water to meet future needs.

The following tables (Tables 15 through 17) provide comparisons of current and projected water supply and demand under various conditions of normal and dry water years. The tables indicate that in normal and dry water years, DWA has sufficient water to meet its customers' needs through 2030. Generally, through the 25-year period from 2005 to 2030, ground water in storage will not be reduced under normal and single dry water year conditions; however, under multiple dry water year conditions, ground water in storage may be slightly reduced, less than 1 percent of ground water in storage, depending on non-consumptive return.

"Non-Consumptive Return" refers to water returned to the aquifer after use (for example, irrigation water percolating into the ground, and treated wastewater discharged to percolation ponds). Per USGS Water Resources Investigation 91-4142, consumptive use in the Whitewater River Subbasin is estimated to be approximately 65 percent of annual water production, which results in non-consumptive return of approximately 35 percent. There is evidence that non-consumptive return is now significantly higher

than 35 percent, perhaps 40 percent or 45 percent. The non-consumptive return proportion of developed water is now being re-evaluated in light of current ground water basin conditions and operations.

In the far right columns of Tables 15 through 17 ("Supply Less Demand"), a negative value indicates the extraction of stored ground water in excess of replenishment, which would (if cumulative) result in decreased ground water in storage in the Whitewater River Subbasin, which contains a reported 10 million AF in ground water storage.

A. NORMAL WATER YEAR

Table 15 provides a comparison of water supply and demand for normal water years through 2030. Note that water recycling increases significantly in the years 2006 and 2020, with corresponding decreases in ground water recharge from non-consumptive return (because water recycling reduces the quantity of treated wastewater that is discharged to percolation basins). Also, note that ground water in storage is increased nearly 60,000 AF during the 25-year period based on non-consumptive return of 35 percent. If non-consumptive return were 40 percent or 45 percent, as it may well be, ground water in storage would be increased about 133,000 AF or 206,000 AF, respectively, during the 25-year period. Clearly, the supply and demand comparison for normal water conditions is conservative.

Table 15
Normal Water Year Supply and Demand Projections
(AF/yr)

Year	Supply						Demand			Supply Less Demand	
	Surface Water	Natural Ground Water	Imported Water Delivered to Whitewater River Subbasin	Non-Consumptive Return		Total Supply	Recycled Water	Water Production	Total Demand	Annual	Cumulative
				Ground Water	Recycled Water						
2005	2,500	7,250	35,800	12,050	2,850	60,450	2,850	42,550	45,400	15,050	15,050
2006	2,800	7,250	35,550	10,650	6,000	62,250	6,000	47,550	53,550	8,700	23,750
2007	2,800	7,250	35,300	10,900	6,000	62,250	6,000	48,300	54,300	7,950	31,700
2008	2,800	7,250	35,050	11,200	6,000	62,300	6,000	49,100	55,100	7,200	38,900
2009	2,800	7,250	34,800	11,450	6,000	62,300	6,000	49,800	55,800	6,500	45,400
2010	2,800	7,250	37,800	11,750	6,000	65,600	6,000	50,650	56,650	8,950	54,350
2011	2,800	7,250	37,500	12,000	6,000	65,550	6,000	51,450	57,450	8,100	62,450
2012	2,800	7,250	37,200	12,250	6,000	65,500	6,000	52,150	58,150	7,350	69,800
2013	2,800	7,250	36,950	12,550	6,000	65,550	6,000	53,000	59,000	6,550	76,350
2014	2,800	7,250	36,650	12,850	6,000	65,550	6,000	53,800	59,800	5,750	82,100
2015	2,800	7,250	36,400	13,100	6,000	65,550	6,000	54,550	60,550	5,000	87,100
2016	2,800	7,250	36,100	13,350	6,000	65,500	6,000	55,350	61,350	4,150	91,250
2017	2,800	7,250	35,850	13,600	6,000	65,500	6,000	56,050	62,050	3,450	94,700
2018	2,800	7,250	35,550	13,900	6,000	65,500	6,000	56,900	62,900	2,600	97,300
2019	2,800	7,250	35,300	14,200	6,000	65,550	6,000	57,700	63,700	1,850	99,150
2020	2,800	7,250	35,000	12,500	8,000	65,550	8,000	58,500	66,500	-950	98,200
2021	2,800	7,250	34,750	12,750	8,000	65,550	8,000	59,250	67,250	-1,700	96,500
2022	2,800	7,250	34,450	13,000	8,000	65,500	8,000	60,050	68,050	-2,550	93,950
2023	2,800	7,250	34,200	13,300	8,000	65,550	8,000	60,800	68,800	-3,250	90,700
2024	2,800	7,250	33,900	13,550	8,000	65,500	8,000	61,600	69,600	-4,100	86,600
2025	2,800	7,250	33,650	13,800	8,000	65,500	8,000	62,350	70,350	-4,850	81,750
2026	2,800	7,250	33,650	14,100	8,000	65,800	8,000	63,150	71,150	-5,350	76,400
2027	2,800	7,250	33,650	14,400	8,000	66,100	8,000	63,950	71,950	-5,850	70,550
2028	2,800	7,250	36,650	14,650	8,000	69,350	8,000	64,700	72,700	-3,350	67,200
2029	2,800	7,250	36,650	14,950	8,000	69,650	8,000	65,500	73,500	-3,850	63,350
2030	2,800	7,250	36,650	15,200	8,000	69,900	8,000	66,300	74,300	-4,400	58,950

B. SINGLE DRY WATER YEAR AND MULTIPLE DRY WATER YEARS

In addition to meeting the demands for normal water years, DWA must also meet the demands of its customers during a single dry water year and during multiple dry water years. If surface water flows are reduced as a result of dry or critically dry water years, DWA has the ability to meet demands by increasing its ground water extractions.

Water supply and demand for selected single dry water years through 2030 are set forth in Tables 16A through 16C, and water supply and demand for selected multiple dry water years through 2030 are set forth in Tables 17A through 17C.

With the reliability of DWA's ground water, surface water, and recycled water supplies, DWA is confident of its ability to meet demand through 2030. As noted in the tables, the available supply will be determined by the quantity of water required to meet demands. DWA will not extract more ground water than is needed to meet such demands.

Table 16A represents a single dry water year occurring in 2010; Table 16B represents a single dry water year occurring in 2017; and Table 16C represents a single dry water year occurring in 2024. Note that, despite the single dry water years selected (dry years that may or may not occur or may occur during other years), ground water in storage would be increased by about 19,000 AF to 23,000 AF during the 25 year period, depending on the specific dry water year. With an increase in non-consumptive return from 35 percent to 40 percent or 45 percent, ground water in storage would be increased by 93,000 AF to 97,000 AF and 166,000 AF to 170,000 AF, respectively.

Similarly, Table 17A represents a multiple dry water year period occurring from 2010 through 2013; Table 17B represents a multiple dry water year period occurring from 2017 through 2020; and Table 17C represents a multiple dry water year period occurring from 2024 through 2027. Note that in Tables 17A through 17C, of the series of dry years selected (as with single dry years, multiple dry years may or may not occur or may occur during other years), ground water in storage would be decreased by about 60,000 AF to about 74,000 AF, depending upon the selected multiple year period. Such a decrease in ground water in storage, less than one percent, is insignificant, if not unlikely.

The imported water quantities do not include surplus water which would more than likely offset the quantities of water extracted from ground water in storage. In addition, with an increase in

non-consumptive return from 35 percent to 40 percent, ground water in storage would not be significantly altered in Table 17A, but it would be increased about 7,500 AF in Table 17B and about 14,000 AF in Table 17C. Further, with an increase to 45 percent, ground water in storage would be increased in all three scenarios, from about 73,000 AF to about 87,000 AF.

Table 16A
Supply and Demand Projections
Single Dry Water Year Occurring in 2010
(AF/yr)

Year	Supply						Demand			Supply Less Demand	
	Surface Water	Natural Ground Water	Imported Water Delivered to Whitewater River Subbasin	Non-Consumptive Return		Total Supply	Recycled Water	Water Production	Total Demand	Annual	Cumulative
				Ground Water	Recycled Water						
2005	2,500	7,250	35,800	12,050	2,850	60,450	2,850	42,550	45,400	15,050	15,050
2006	2,800	7,250	35,550	10,650	6,000	62,250	6,000	47,550	53,550	8,700	23,750
2007	2,800	7,250	35,300	10,900	6,000	62,250	6,000	48,300	54,300	7,950	31,700
2008	2,800	7,250	35,050	11,200	6,000	62,300	6,000	49,100	55,100	7,200	38,900
2009	2,800	7,250	34,800	11,450	6,000	62,300	6,000	49,800	55,800	6,500	45,400
2010	1,350	6,000	800	11,750	6,000	25,900	6,000	50,650	56,650	-30,750	14,650
2011	2,800	7,250	37,500	12,000	6,000	65,550	6,000	51,450	57,450	8,100	22,750
2012	2,800	7,250	37,200	12,250	6,000	65,500	6,000	52,150	58,150	7,350	30,100
2013	2,800	7,250	36,950	12,550	6,000	65,550	6,000	53,000	59,000	6,550	36,650
2014	2,800	7,250	36,650	12,850	6,000	65,550	6,000	53,800	59,800	5,750	42,400
2015	2,800	7,250	36,400	13,100	6,000	65,550	6,000	54,550	60,550	5,000	47,400
2016	2,800	7,250	36,100	13,350	6,000	65,500	6,000	55,350	61,350	4,150	51,550
2017	2,800	7,250	35,850	13,600	6,000	65,500	6,000	56,050	62,050	3,450	55,000
2018	2,800	7,250	35,550	13,900	6,000	65,500	6,000	56,900	62,900	2,600	57,600
2019	2,800	7,250	35,300	14,200	6,000	65,550	6,000	57,700	63,700	1,850	59,450
2020	2,800	7,250	35,000	12,500	8,000	65,550	8,000	58,500	66,500	-950	58,500
2021	2,800	7,250	34,750	12,750	8,000	65,550	8,000	59,250	67,250	-1,700	56,800
2022	2,800	7,250	34,450	13,000	8,000	65,500	8,000	60,050	68,050	-2,550	54,250
2023	2,800	7,250	34,200	13,300	8,000	65,550	8,000	60,800	68,800	-3,250	51,000
2024	2,800	7,250	33,900	13,550	8,000	65,500	8,000	61,600	69,600	-4,100	46,900
2025	2,800	7,250	33,650	13,800	8,000	65,500	8,000	62,350	70,350	-4,850	42,050
2026	2,800	7,250	33,650	14,100	8,000	65,800	8,000	63,150	71,150	-5,350	36,700
2027	2,800	7,250	33,650	14,400	8,000	66,100	8,000	63,950	71,950	-5,850	30,850
2028	2,800	7,250	36,650	14,650	8,000	69,350	8,000	64,700	72,700	-3,350	27,500
2029	2,800	7,250	36,650	14,950	8,000	69,650	8,000	65,500	73,500	-3,850	23,650
2030	2,800	7,250	36,650	15,200	8,000	69,900	8,000	66,300	74,300	-4,400	19,250

Table 16B
Supply and Demand Projections
Single Dry Water Year Occurring in 2017
(AF/yr)

	Supply						Demand			Supply Less Demand	
				Non-Consumptive Return							
Year	Surface Water	Natural Ground Water	Imported Water Delivered to Whitewater River Subbasin	Ground Water	Recycled Water	Total Supply	Recycled Water	Water Production	Total Demand	Annual	Cumulative
2005	2,500	7,250	35,800	12,050	2,850	60,450	2,850	42,550	45,400	15,050	15,050
2006	2,800	7,250	35,550	10,650	6,000	62,250	6,000	47,550	53,550	8,700	23,750
2007	2,800	7,250	35,300	10,900	6,000	62,250	6,000	48,300	54,300	7,950	31,700
2008	2,800	7,250	35,050	11,200	6,000	62,300	6,000	49,100	55,100	7,200	38,900
2009	2,800	7,250	34,800	11,450	6,000	62,300	6,000	49,800	55,800	6,500	45,400
2010	2,800	7,250	37,800	11,750	6,000	65,600	6,000	50,650	56,650	8,950	54,350
2011	2,800	7,250	37,500	12,000	6,000	65,550	6,000	51,450	57,450	8,100	62,450
2012	2,800	7,250	37,200	12,250	6,000	65,500	6,000	52,150	58,150	7,350	69,800
2013	2,800	7,250	36,950	12,550	6,000	65,550	6,000	53,000	59,000	6,550	76,350
2014	2,800	7,250	36,650	12,850	6,000	65,550	6,000	53,800	59,800	5,750	82,100
2015	2,800	7,250	36,400	13,100	6,000	65,550	6,000	54,550	60,550	5,000	87,100
2016	2,800	7,250	36,100	13,350	6,000	65,500	6,000	55,350	61,350	4,150	91,250
2017	1,350	6,000	800	13,600	6,000	27,750	6,000	56,050	62,050	-34,300	56,950
2018	2,800	7,250	35,550	13,900	6,000	65,500	6,000	56,900	62,900	2,600	59,550
2019	2,800	7,250	35,300	14,200	6,000	65,550	6,000	57,700	63,700	1,850	61,400
2020	2,800	7,250	35,000	12,500	8,000	65,550	8,000	58,500	66,500	-950	60,450
2021	2,800	7,250	34,750	12,750	8,000	65,550	8,000	59,250	67,250	-1,700	58,750
2022	2,800	7,250	34,450	13,000	8,000	65,500	8,000	60,050	68,050	-2,550	56,200
2023	2,800	7,250	34,200	13,300	8,000	65,550	8,000	60,800	68,800	-3,250	52,950
2024	2,800	7,250	33,900	13,550	8,000	65,500	8,000	61,600	69,600	-4,100	48,850
2025	2,800	7,250	33,650	13,800	8,000	65,500	8,000	62,350	70,350	-4,850	44,000
2026	2,800	7,250	33,650	14,100	8,000	65,800	8,000	63,150	71,150	-5,350	38,650
2027	2,800	7,250	33,650	14,400	8,000	66,100	8,000	63,950	71,950	-5,850	32,800
2028	2,800	7,250	36,650	14,650	8,000	69,350	8,000	64,700	72,700	-3,350	29,450
2029	2,800	7,250	36,650	14,950	8,000	69,650	8,000	65,500	73,500	-3,850	25,600
2030	2,800	7,250	36,650	15,200	8,000	69,900	8,000	66,300	74,300	-4,400	21,200

Table 16C
Supply and Demand Projections
Single Dry Water Year Occurring in 2024
(AF/yr)

	Supply						Demand			Supply Less Demand	
				Non-Consumptive Return							
Year	Surface Water	Natural Ground Water	Imported Water Delivered to Whitewater River Subbasin	Ground Water	Recycled Water	Total Supply	Recycled Water	Water Production	Total Demand	Annual	Cumulative
2005	2,500	7,250	35,800	12,050	2,850	60,450	2,850	42,550	45,400	15,050	15,050
2006	2,800	7,250	35,550	10,650	6,000	62,250	6,000	47,550	53,550	8,700	23,750
2007	2,800	7,250	35,300	10,900	6,000	62,250	6,000	48,300	54,300	7,950	31,700
2008	2,800	7,250	35,050	11,200	6,000	62,300	6,000	49,100	55,100	7,200	38,900
2009	2,800	7,250	34,800	11,450	6,000	62,300	6,000	49,800	55,800	6,500	45,400
2010	2,800	7,250	37,800	11,750	6,000	65,600	6,000	50,650	56,650	8,950	54,350
2011	2,800	7,250	37,500	12,000	6,000	65,550	6,000	51,450	57,450	8,100	62,450
2012	2,800	7,250	37,200	12,250	6,000	65,500	6,000	52,150	58,150	7,350	69,800
2013	2,800	7,250	36,950	12,550	6,000	65,550	6,000	53,000	59,000	6,550	76,350
2014	2,800	7,250	36,650	12,850	6,000	65,550	6,000	53,800	59,800	5,750	82,100
2015	2,800	7,250	36,400	13,100	6,000	65,550	6,000	54,550	60,550	5,000	87,100
2016	2,800	7,250	36,100	13,350	6,000	65,500	6,000	55,350	61,350	4,150	91,250
2017	2,800	7,250	35,850	13,600	6,000	65,500	6,000	56,050	62,050	3,450	94,700
2018	2,800	7,250	35,550	13,900	6,000	65,500	6,000	56,900	62,900	2,600	97,300
2019	2,800	7,250	35,300	14,200	6,000	65,550	6,000	57,700	63,700	1,850	99,150
2020	2,800	7,250	35,000	12,500	8,000	65,550	8,000	58,500	66,500	-950	98,200
2021	2,800	7,250	34,750	12,750	8,000	65,550	8,000	59,250	67,250	-1,700	96,500
2022	2,800	7,250	34,450	13,000	8,000	65,500	8,000	60,050	68,050	-2,550	93,950
2023	2,800	7,250	34,200	13,300	8,000	65,550	8,000	60,800	68,800	-3,250	90,700
2024	1,350	6,000	800	13,550	8,000	29,700	8,000	61,600	69,600	-39,900	50,800
2025	2,800	7,250	33,650	13,800	8,000	65,500	8,000	62,350	70,350	-4,850	45,950
2026	2,800	7,250	33,650	14,100	8,000	65,800	8,000	63,150	71,150	-5,350	40,600
2027	2,800	7,250	33,650	14,400	8,000	66,100	8,000	63,950	71,950	-5,850	34,750
2028	2,800	7,250	36,650	14,650	8,000	69,350	8,000	64,700	72,700	-3,350	31,400
2029	2,800	7,250	36,650	14,950	8,000	69,650	8,000	65,500	73,500	-3,850	27,550
2030	2,800	7,250	36,650	15,200	8,000	69,900	8,000	66,300	74,300	-4,400	23,150

Table 17A
Supply and Demand Projections
Multiple Dry Water Year Period Occurring 2010-2013
(AF/yr)

	Supply						Demand			Supply Less Demand	
				Non-Consumptive Return							
Year	Surface Water	Natural Ground Water	Imported Water Delivered to Whitewater River Subbasin	Ground Water	Recycled Water	Total Supply	Recycled Water	Water Production	Total Demand	Annual	Cumulative
2005	2,500	7,250	35,800	12,050	2,850	60,450	2,850	42,550	45,400	15,050	15,050
2006	2,800	7,250	35,550	10,650	6,000	62,250	6,000	47,550	53,550	8,700	23,750
2007	2,800	7,250	35,300	10,900	6,000	62,250	6,000	48,300	54,300	7,950	31,700
2008	2,800	7,250	35,050	11,200	6,000	62,300	6,000	49,100	55,100	7,200	38,900
2009	2,800	7,250	34,800	11,450	6,000	62,300	6,000	49,800	55,800	6,500	45,400
2010	1,500	6,000	8,100	11,750	6,000	33,350	6,000	50,650	56,650	-23,300	22,100
2011	1,500	5,500	8,100	12,000	6,000	33,100	6,000	51,450	57,450	-24,350	-2,250
2012	1,500	5,000	6,700	12,250	6,000	31,450	6,000	52,150	58,150	-26,700	-28,950
2013	1,500	4,500	6,700	12,550	6,000	31,250	6,000	53,000	59,000	-27,750	-56,700
2014	2,800	7,250	36,650	12,850	6,000	65,550	6,000	53,800	59,800	5,750	-50,950
2015	2,800	7,250	36,400	13,100	6,000	65,550	6,000	54,550	60,550	5,000	-45,950
2016	2,800	7,250	36,100	13,350	6,000	65,500	6,000	55,350	61,350	4,150	-41,800
2017	2,800	7,250	35,850	13,600	6,000	65,500	6,000	56,050	62,050	3,450	-38,350
2018	2,800	7,250	35,550	13,900	6,000	65,500	6,000	56,900	62,900	2,600	-35,750
2019	2,800	7,250	35,300	14,200	6,000	65,550	6,000	57,700	63,700	1,850	-33,900
2020	2,800	7,250	35,000	12,500	8,000	65,550	8,000	58,500	66,500	-950	-34,850
2021	2,800	7,250	34,750	12,750	8,000	65,550	8,000	59,250	67,250	-1,700	-36,550
2022	2,800	7,250	34,450	13,000	8,000	65,500	8,000	60,050	68,050	-2,550	-39,100
2023	2,800	7,250	34,200	13,300	8,000	65,550	8,000	60,800	68,800	-3,250	-42,350
2024	2,800	7,250	33,900	13,550	8,000	65,500	8,000	61,600	69,600	-4,100	-46,450
2025	2,800	7,250	33,650	13,800	8,000	65,500	8,000	62,350	70,350	-4,850	-51,300
2026	2,800	7,250	33,650	14,100	8,000	65,800	8,000	63,150	71,150	-5,350	-56,650
2027	2,800	7,250	33,650	14,400	8,000	66,100	8,000	63,950	71,950	-5,850	-62,500
2028	2,800	7,250	36,650	14,650	8,000	69,350	8,000	64,700	72,700	-3,350	-65,850
2029	2,800	7,250	36,650	14,950	8,000	69,650	8,000	65,500	73,500	-3,850	-69,700
2030	2,800	7,250	36,650	15,200	8,000	69,900	8,000	66,300	74,300	-4,400	-74,100

Table 17B
Supply and Demand Projections
Multiple Dry Water Year Period Occurring 2017-2020
(AF/yr)

Year	Supply						Demand			Supply Less Demand	
	Surface Water Diversions	Natural Ground Water Replenishment	Imported Water Delivered to Whitewater River Subbasin	Non-Consumptive Return		Total Supply	Recycled Water	Water Production	Total Demand	Annual	Cumulative
				Ground Water Recharge	Recycled Water						
2005	2,500	7,250	35,800	12,050	2,850	60,450	2,850	42,550	45,400	15,050	15,050
2006	2,800	7,250	35,550	10,650	6,000	62,250	6,000	47,550	53,550	8,700	23,750
2007	2,800	7,250	35,300	10,900	6,000	62,250	6,000	48,300	54,300	7,950	31,700
2008	2,800	7,250	35,050	11,200	6,000	62,300	6,000	49,100	55,100	7,200	38,900
2009	2,800	7,250	34,800	11,450	6,000	62,300	6,000	49,800	55,800	6,500	45,400
2010	2,800	7,250	37,800	11,750	6,000	65,600	6,000	50,650	56,650	8,950	54,350
2011	2,800	7,250	37,500	12,000	6,000	65,550	6,000	51,450	57,450	8,100	62,450
2012	2,800	7,250	37,200	12,250	6,000	65,500	6,000	52,150	58,150	7,350	69,800
2013	2,800	7,250	36,950	12,550	6,000	65,550	6,000	53,000	59,000	6,550	76,350
2014	2,800	7,250	36,650	12,850	6,000	65,550	6,000	53,800	59,800	5,750	82,100
2015	2,800	7,250	36,400	13,100	6,000	65,550	6,000	54,550	60,550	5,000	87,100
2016	2,800	7,250	36,100	13,350	6,000	65,500	6,000	55,350	61,350	4,150	91,250
2017	1,500	6,000	8,100	13,600	6,000	35,200	6,000	56,050	62,050	-26,850	64,400
2018	1,500	5,500	8,100	13,900	6,000	35,000	6,000	56,900	62,900	-27,900	36,500
2019	1,500	5,000	6,700	14,200	6,000	33,400	6,000	57,700	63,700	-30,300	6,200
2020	1,500	4,500	6,700	12,500	8,000	33,200	8,000	58,500	66,500	-33,300	-27,100
2021	2,800	7,250	34,750	12,750	8,000	65,550	8,000	59,250	67,250	-1,700	-28,800
2022	2,800	7,250	34,450	13,000	8,000	65,500	8,000	60,050	68,050	-2,550	-31,350
2023	2,800	7,250	34,200	13,300	8,000	65,550	8,000	60,800	68,800	-3,250	-34,600
2024	2,800	7,250	33,900	13,550	8,000	65,500	8,000	61,600	69,600	-4,100	-38,700
2025	2,800	7,250	33,650	13,800	8,000	65,500	8,000	62,350	70,350	-4,850	-43,550
2026	2,800	7,250	33,650	14,100	8,000	65,800	8,000	63,150	71,150	-5,350	-48,900
2027	2,800	7,250	33,650	14,400	8,000	66,100	8,000	63,950	71,950	-5,850	-54,750
2028	2,800	7,250	36,650	14,650	8,000	69,350	8,000	64,700	72,700	-3,350	-58,100
2029	2,800	7,250	36,650	14,950	8,000	69,650	8,000	65,500	73,500	-3,850	-61,950
2030	2,800	7,250	36,650	15,200	8,000	69,900	8,000	66,300	74,300	-4,400	-66,350

Table 17C
Supply and Demand Projections
Multiple Dry Water Year Period Occurring 2024-2027
(AF/yr)

Year	Supply						Demand			Supply Less Demand	
	Surface Water	Natural Ground Water	Imported Water Delivered to Whitewater River Subbasin	Non-Consumptive Return		Total Supply	Recycled Water	Water Production	Total Demand	Annual	Cumulative
				Ground Water	Recycled Water						
2005	2,500	7,250	35,800	12,050	2,850	60,450	2,850	42,550	45,400	15,050	15,050
2006	2,800	7,250	35,550	10,650	6,000	62,250	6,000	47,550	53,550	8,700	23,750
2007	2,800	7,250	35,300	10,900	6,000	62,250	6,000	48,300	54,300	7,950	31,700
2008	2,800	7,250	35,050	11,200	6,000	62,300	6,000	49,100	55,100	7,200	38,900
2009	2,800	7,250	34,800	11,450	6,000	62,300	6,000	49,800	55,800	6,500	45,400
2010	2,800	7,250	37,800	11,750	6,000	65,600	6,000	50,650	56,650	8,950	54,350
2011	2,800	7,250	37,500	12,000	6,000	65,550	6,000	51,450	57,450	8,100	62,450
2012	2,800	7,250	37,200	12,250	6,000	65,500	6,000	52,150	58,150	7,350	69,800
2013	2,800	7,250	36,950	12,550	6,000	65,550	6,000	53,000	59,000	6,550	76,350
2014	2,800	7,250	36,650	12,850	6,000	65,550	6,000	53,800	59,800	5,750	82,100
2015	2,800	7,250	36,400	13,100	6,000	65,550	6,000	54,550	60,550	5,000	87,100
2016	2,800	7,250	36,100	13,350	6,000	65,500	6,000	55,350	61,350	4,150	91,250
2017	2,800	7,250	35,850	13,600	6,000	65,500	6,000	56,050	62,050	3,450	94,700
2018	2,800	7,250	35,550	13,900	6,000	65,500	6,000	56,900	62,900	2,600	97,300
2019	2,800	7,250	35,300	14,200	6,000	65,550	6,000	57,700	63,700	1,850	99,150
2020	2,800	7,250	35,000	12,500	8,000	65,550	8,000	58,500	66,500	-950	98,200
2021	2,800	7,250	34,750	12,750	8,000	65,550	8,000	59,250	67,250	-1,700	96,500
2022	2,800	7,250	34,450	13,000	8,000	65,500	8,000	60,050	68,050	-2,550	93,950
2023	2,800	7,250	34,200	13,300	8,000	65,550	8,000	60,800	68,800	-3,250	90,700
2024	1,500	6,000	8,100	13,550	8,000	37,150	8,000	61,600	69,600	-32,450	58,250
2025	1,500	5,500	8,100	13,800	8,000	36,900	8,000	62,350	70,350	-33,450	24,800
2026	1,500	5,000	6,700	14,100	8,000	35,300	8,000	63,150	71,150	-35,850	-11,050
2027	1,500	4,500	6,700	14,400	8,000	35,100	8,000	63,950	71,950	-36,850	-47,900
2028	2,800	7,250	36,650	14,650	8,000	69,350	8,000	64,700	72,700	-3,350	-51,250
2029	2,800	7,250	36,650	14,950	8,000	69,650	8,000	65,500	73,500	-3,850	-55,100
2030	2,800	7,250	36,650	15,200	8,000	69,900	8,000	66,300	74,300	-4,400	-59,500

C. SUMMARY

In summary, DWA has sufficient water supplies available to meet normal, single dry year, and multiple dry year water demands without significant reduction of ground water in storage and without risk of not having sufficient water supplies to meet anticipated water demands within the next 25 years.

SECTION VI

WATER DEMAND MANAGEMENT MEASURES

SECTION VI
WATER DEMAND MANAGEMENT MEASURES
(BEST MANAGEMENT PRACTICES)

Law 10631(f). Provide a description of the supplier's water demand management measures. This description shall include all of the following: (1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (2) A schedule of implementation for all water demand management measures proposed or described in the plan. (3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan. (4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

10631(g). An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do the following:

10631(j). Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

DWA is a signatory to the Memorandum of Understanding regarding Urban Water Conservation in California (MOU), and is therefore a member of the California Urban Water Conservation Council (CUWCC). The Agency's signed MOU is dated October 15, 1991.

As a member of the CUWCC, DWA has complied with all Best Management Practice Targets outlined in the MOU that have been determined appropriate for the conditions within its Service Area. Full explanations have been provided in cases whereby DWA has determined it in the best interest of its customers to implement a Best Management Practice (BMP) other than as the CUWCC suggests, or to channel its efforts in another direction.

The following are excerpts from DWA's Year 2004 BMP report to the CUWCC (refer to Appendix D for full reports) with additional explanations included as necessary:

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

A.	**Implementation**	
1.	Has your agency developed and implemented a targeting/marketing strategy for SINGLE-FAMILY residential water use surveys?	NO
2.	Has your agency developed and implemented a targeting/marketing strategy for MULTI-FAMILY residential water use surveys?	NO

B.	**"At Least As Effective As"**	
1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	YES

C.	**Explanation**
	DWA studies have concluded that as much as 80 percent of all residential water use is for landscape irrigation. Therefore, DWA has concluded that it is most cost effective for DWA to concentrate the bulk of its efforts on reducing water consumption in the landscape. DWA, therefore, has chosen to put its resources into performing BMP 5. (Complete information may be found in the "Water Conservation Program of the Desert Water Agency", which is included in Appendix C of this report and on file with the CUWCC).

BMP 02: Residential Plumbing Retrofit

A.	**Implementation**	
1.	Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts?	NO
2.	Has your agency satisfied the 75 percent saturation requirement for single-family housing units?	NO
3.	Has your agency satisfied the 75 percent saturation requirement for multi-family housing units?	NO

B.	**Low-Flow Device Distribution Information**	
1.	Has your agency developed a targeting/marketing strategy for distributing low-flow devices?	NO

C.	**"At Least As Effective As"**	
1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	YES

D.	Explanation
	In January 1977, DWA published the results of a residential pilot program to analyze Agency's customer water use habits, and to establish the focus of a water conservation program (refer to Appendix C, "Water Conservation Program of the Desert Water Agency"). The study concluded that 60 to 80 percent of all residential water use within DWA's Service Area is for landscape irrigation. This is due to the arid desert environment where temperatures reach as high as 123 degrees Fahrenheit. The study did involve the installation of devices such as low flow showerheads and toilet displacement devices (toilet retrofits) by DWA personnel. Public acceptance of the showerheads was favorable; however, the toilet devices were not well received. Since a large percentage of water was found to be used for landscape irrigation, DWA felt that future programs should be directed towards customers reducing water use in the landscape as it has the highest potential for savings and is the most cost effective.

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

A.	Implementation	
1.	Has your agency completed a pre-screening system audit for this reporting year?	NO
2.	Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production?	YES
3.	Did your agency complete a full-scale audit during this report year?	NO
4.	Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit?	NO
5	Does your agency operate a system leak detection program?	NO

B.	Survey Data	
1.	Total number of miles of distribution system line:	368
2.	Number of miles of distribution system line surveyed:	0

C.	"At Least As Effective As"	
1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	YES

D.	Explanation
	DWA informs all customers of possible on-site leaks when excessive consumption occurs when compared to the prior year's usage. DWA performs water audits by metering all customer connections and water used for construction purposes through fire hydrants. Water used for other purposes such as city street washing and fire fighting is also recorded. The combined usage is calculated and the percent unaccounted-for is determined. DWA does not have a leak detection program since DWA feels that it is more cost effective to fund an aggressive main replacement program. Additionally, the soils in DWA's area are composed of coarse sand. This allows water from a leak to surface quickly where it is easily detected. All leaks are repaired as soon as they are discovered to prevent damage and waste of water. All leaks are tracked using on maps and on a pipeline inventory computer program. In addition to aging mains, mains with a history of leaks are budgeted for replacement.

BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

A.	**Implementation**		
	1.	Does your agency require meters for all new connections and bill by volume-of-use?	YES
	2.	Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use?	NO
		All DWA service connections are metered	

B.	**Feasibility Study**		
	1.	Has your agency conducted a feasibility study to provide incentives to switch mixed-use accounts to dedicated landscape meters?	NO
		Landscape water audits conducted and consumptive use mailings have shown that the majority of applicable developments within DWA's Service Area were fitted with dedicated irrigation meters at the time of construction. A feasibility study would not be cost effective.	

C.	**"At Least As Effective As"**		
	1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	NO

BMP 05: Large Landscape Conservation Programs and Incentives

A.	**Water Use Budgets**		
	1.	Number of Dedicated Irrigation Meter Accounts:	Not Determined
	2.	Number of Dedicated Irrigation Meter Accounts with Water Budgets:	0
	3.	Does your agency provide water use notices to accounts with budgets each billing cycle?	NO
	5.	Does your agency provide water use notices to accounts with budgets each billing cycle?	NO

B.	**Landscape Surveys**			
	1.	Has your agency developed a marketing/targeting strategy for landscape surveys?		YES
		a.	If YES, when did your agency begin implementing this strategy?	07/01/85
		b.	Description of marketing/targeting strategy:	
			Since 1985, DWA has had irrigation system evaluations conducted under contract with the Coachella Valley Resource Conservation District (Irrigation Evaluation/Management Mobile Lab) and the California Department of Water Resources. The program targets large volume irrigation users such as golf courses, parks, school grounds, and condominium projects. Water consumption reductions of 25 to 30 percent are not uncommon when the Mobile Lab recommendations are followed. In the early years of the program, sites were selected by reviewing DWA's system map pages and choosing ones with the greatest areas. Customers were then offered an evaluation by letter or telephone.	

		Recently, as more customers have become aware of the program, all new evaluations and a number of follow-ups performed have been triggered following customers contacting DWA regarding this service. DWA contracts to have eleven new evaluations, and seven follow-ups performed annually. Of this quantity, up to eight sites may be designated as "implementation sites" whereby personnel will "walk" the customer through any changes they wish to execute.	
2.	Number of Surveys Offered:		5
3.	Number of Surveys Completed:		5
4.	Indicate which of the following Landscape Elements are part of your survey:		
	a.	Irrigation System Check	YES
	b.	Distribution Uniformity Analysis	YES
	c.	Review / Develop Irrigation Schedules	YES
	d.	Measure Landscape Area	YES
	e.	Measure Total Irrigable Area	YES
	f.	Provide Customer Report / Information	YES
5.	Do you track survey offers and results?		YES
6.	Does your agency provide follow-up surveys for previously completed surveys?		NO
	a.	If YES, describe below:	
		Follow-up surveys are performed following customer implementation of recommended changes, or as requested by the customer.	

C.	**Other BMP 5 Actions**		
1.	An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program. Does your agency provide mixed-use accounts with landscape budgets?		YES
2.	Number of Commercial/Industrial/Institutional (CII) mixed-use accounts with landscape budgets.		0
3.	Do you offer landscape irrigation training?		NO
4.	Does your agency offer financial incentives to improve landscape water use efficiency? If YES, describe below:		NO
5.	Do you provide landscape water use efficiency information to new customers and customers changing services?		YES
	DWA provides all new customers and customers changing service with a comprehensive, easy-to-read brochure which includes all facets of out functions, along with water conservation information. The brochure contains specific conservation information offering additional booklets containing plant lists and suggestions for conserving water. A rate brochure is provided as well. In addition, DWA plays on-hold telephone messages containing information about water conservation and water efficient plants.		
6.	Do you have irrigated landscaping at your facilities?		YES
	a.	If YES, is it water-efficient?	YES
		All new facility sites are designed utilizing exclusively water-efficient plants and low-volume irrigation systems. Older sites have been retrofitted utilizing water-efficient plants and irrigation systems. All outdated irrigation systems have been retrofitted with water-efficient components. Additionally, all facility site water usage is metered and evaluated using a computer generated spread sheet.	
	b.	If YES, does it have dedicated irrigation metering?	YES
7.	Do you provide customer notices at the start of the irrigation season?		NO

8.	Do you provide customer notices at the end of the irrigation season?	NO

D.	**Landscape Conservation Program Expenditures**		
		This Year	**Next Year**
1.	Budgeted Expenditures	$12,500	$0
2.	Actual Expenditures	$5,100	

E.	**"At Least As Effective As"**	
1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	NO

BMP 06: High-Efficiency Washing Machine Rebate Programs

A.	**Implementation**	
1.	Do any energy service providers or wastewater utilities in your area offer rebates for high-efficiency washers?	NO
2.	Does your agency offer rebates for high-efficiency washers?	NO

B.	**"At Least As Effective As"**	
1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	NO

C.	**Explanation**
	DWA studies have concluded that as much as 80 percent of all residential water use is for landscape irrigation. Therefore, DWA has concluded that it is more cost effective for us to concentrate the bulk of our efforts on reducing water consumption in the landscape. DWA, therefore, has chosen to put its resources into performing BMP 5. (Complete information may be found in the "Water Conservation Program of the Desert Water Agency", which is included in Appendix C of this report and on file with the CUWCC).

BMP 07: Public Information Programs

A.	**Implementation**	
1.	Does your agency maintain an active public information program to promote and educate customers about water conservation?	YES
	a. If YES, describe the program and how it's organized.	
	Public education has played an expanding role in the Agency's formal Water Conservation Program since its adoption by its Board of Directors 1982 (refer to Appendix B, Ordinance No. 31). The program utilizes both staff personnel and contract consultants. All aspects of DWA's functions are communicated to the public utilizing the items checked below. Additionally, this year, DWA redesigned and expanded its website. It is now more user-friendly and several items were added to better serve the public.	
	1) <u>Public Tours</u> DWA has always encouraged members of the public to tour its facilities for purposes of learning how their water supply is obtained and why it is essential to	

not waste it. Recently, on-hold telephone messages have been added which invite callers to inquire about facility tours. In addition, DWA is in the process of redesigning the landscape at DWA's Operations Center using drought tolerant plants to further promote outdoor water conservation.

Additionally, as the seasons permit, DWA invites key members of the public to participate in comprehensive tours of its water and water recycling facilities. In these one-half day tours, DWA provides transportation and a box lunch at its Snow Creek intake facility at the base of the San Jacinto Mountains.

In 2005, DWA sponsored a tour of MWD's Colorado River Aqueduct (CRA) and the Foothill Feeder (FF) from the Colorado River to Diamond Valley Lake. The tour was intended to inform interested members of the public of the interrelationship of the SWP and the CRA and the Coachella Valley's dependence on both.

Periodically, DWA sponsors public tours of SWP facilities. In these tours, participants generally travel by bus from Lake Oroville south along the Project route to the new Diamond Valley Lake near Hemet. The tours are intended to inform participants of the essential role the SWP plays within California, and how it relates to the water supply within DWA's Service Area. Because of security, DWA has not been permitted to tour SWP facilities since "9/11".

2) Conservation Literature

A wide selection of conservation literature illustrating how to save water both indoors and outdoors (landscaping) is available at the DWA's Operations Center and the public library. Brochures are also located at the local convention and visitor's bureau and on public transportation buses operating within DWA's Service Area. Literature is also distributed on public tours and to all new customers, as described in BMP 5.

3) Exhibits

DWA has prepared many exhibits on water conservation and water recycling. The exhibits have been displayed at DWA, home shows, shopping malls, energy conservation fairs, Chamber of Commerce events, Desert Hospital, schools, the public library, water conferences including ACWA and AWWA, and other locations throughout DWA's Service Area.

4) Speaker's Bureau

The "Speaker's Bureau" has provided speakers and presented programs to service clubs, social clubs, garden clubs, environmental groups, and schools within DWA's Service Area. Topics include water conservation, water management, use of water, the water cycle, water recycling, water/energy relationships, landscaping and plant materials, low flow irrigation, key water issues within the Service Area, southwestern water supply, and the SWP.

The "Speaker's Bureau" has a library of video, movie, and slide presentations available to interested organizations. In addition, DWA produced a 25-minute motion picture video presentation entitled "Water – The Flow of Life in the Desert" which describes water supply, use, and conservation in the desert environment. A condensed 12-minute version for viewing by service clubs was also produced, along with four 30 second Public Service Announcements for

broadcasting on local television.

Members of the "Speaker's Bureau" have appeared on local radio and television interview and talk programs to discuss water conservation. Members of the "Speaker's Bureau" have prepared news releases for the local newspaper on conservation, landscaping, and reducing the waste of water.

5) Demonstration Gardens

DWA believes that it is essential to provide the public with settings in which water-efficient plants may be viewed. By observing the plants in attractive settings, the chance of people adopting similar types of landscapes is substantially increased.

When DWA constructed its new Operations Center in 1978, it also constructed a low water use demonstration garden. Subsequently, in 1981, it entered a 10-year research study of water efficient ornamental plants for the Coachella Valley with the U. S. Department of Agriculture's Natural Resources Conservation Service. The joint study, conducted at a special garden adjacent to DWA's Operations Center, resulted in a series of publications, one each in 1983, 1986, 1993, and 2000 which addressed drought tolerant and water efficient ornamental plants for the Coachella Valley using both ground water and recycled water.

DWA's Operations Center is currently undergoing an extensive expansion with adjacent landscape replacement to demonstrate water-efficient landscaping and irrigation systems. Most of the grounds will be available for public viewing at any time with the rest being available for public viewing by appointment. Identification signs containing plant names and descriptions and irrigation components and descriptions will be located throughout the site.

DWA's 12-acre water recycling facility site has been developed as a water-efficient landscape laboratory dedicated to research and demonstration of environmentally appropriate landscapes. The facility is available for public tours and also contains plant identification signs. Both DWA's Operations Center and Recycling Facility grounds are irrigated with recycled water.

DWA has also partnered with the City of Palm Springs, Palm Springs Chamber of Commerce, and the Palm Springs Public Library on separate occasions to produce demonstration gardens.

6) Water Bills

Since the early 1980s, DWA's monthly water bill has provided water users with comparative consumption use figures for the same period of the previous year. In addition, for high water bills, a special notice is included with the bill to alert the water user that on-site repairs or adjustments may be necessary.

DWA is currently in the process of redesigning its water bills with a more attractive, easy-to-read format. The bill will also include a section showing customers how to read the meter for purposes of conserving water.

7) Annual Water Quality Report

Each year, DWA publishes and distributes an Annual Water Quality Report so that its customers have the opportunity to learn more about the water they receive. The report is distributed through a customer mailing and it is displayed at various locations throughout DWA's Service Area.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	NO	N/A
b. Public Service Announcement	NO	N/A
c. Bill Inserts / Newsletters / Brochures	YES	2
d. Bill showing water usage in comparison to previous year's usage	YES	N/A
e. Demonstration Gardens	YES	2
f. Special Events, Media Events	YES	1
g. Speaker's Bureau	YES	15
h. Program to coordinate with other government agencies, industry, and public interest groups and media	YES	N/A

B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	$58,500	$0
2. Actual Expenditures	$184,237	

C. "At Least As Effective As"

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

BMP 08: School Education Programs

A. Implementation

1. Has your agency implemented a school information program to promote water conservation?	YES

2. Please provide information on your school programs (by grade level):

Grade	Are Grade-Appropriate Materials Distributed?	No. of Class Presentations	No. of Students Reached	No. of Teachers' Workshops
Grades K-3rd	NO	0	0	0
Grades 4th-6th	NO	0	0	0
Grades 7th-8th	NO	0	0	0
High School	NO	0	0	0

3. Did your Agency's materials meet the state education framework requirements?	NO
4. When did your Agency begin implementing this program?	5/01/89

B.	School Education Program Expenditures		
		This Year	**Next Year**
1.	Budgeted Expenditures	$0	$0
2.	Actual Expenditures	$0	$0

C.	"At Least As Effective As"	
1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	NO

D.	Comments
	Please note that the entity DWA contracted with to perform its in-classroom school education program (Palm Springs Desert Museum) elected to dissolve its Natural Science Education Program effective July 1, 2004. DWA is currently exploring options for a suitable replacement program.

BMP 09: Conservation Programs for Commercial/Industrial/Institutional (CII) Accounts

A.	Implementation	
1.	Has your agency identified and ranked COMMERCIAL customers according to use?	NO
2.	Has your agency identified and ranked INDUSTRIAL customers according to use?	NO
3.	Has your agency identified and ranked INSTITUTIONAL customers according to use?	NO
4.	Is your agency operating on CII water use survey and customer incentives program for the purpose of complying with BMP 09 under this option?	NO
5.	Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option?	YES
6.	Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings?	NO
7.	Estimated annual savings (AF/yr) from site-verified actions taken by the agency since 1991.	0
8.	Estimated annual savings (AF/yr) from non-site verified actions taken by agency since 1991.	0

B.	"At Least as Effective As"	
1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	NO

C.	Explanation
	DWA chooses to perform neither Option A (item A.4.), nor Option B (items A.5. through A.8.). The reasons are contained in the comments below. "Yes" was checked for Option B as CII accounts are tracked for purposes of the mailings listed below, but not specifically for BMP 9. DWA does not differentiate between commercial and industrial accounts. All multi-family residential connections are classified as commercial. Since DWA's studies indicate that the highest potential for water savings exists in landscape irrigation practices, the bulk of DWA's conservation efforts have been focused in this direction. DWA does not, however, discard the potential for water savings in its commercial

accounts. Annual consumptive use reports and conservation literature are mailed to most of DWA's large commercial accounts (nearly 200 customers annually).

Even though DWA has chosen to perform "Water Audits" solely on irrigated areas (on the basis that DWA believes it is most cost effective to do so), the consumptive use program has received good response from its customers.

Additionally, DWA co-sponsors the Mobile Irrigation Laboratory Evaluation Program implemented by the Coachella Valley Resource Conservation District. The Mobile Lab team evaluates large water users and issues a comprehensive report. A follow-up evaluation is provided after five years. Frequently, customers will request a mobile lab survey following the mailings previously mentioned.

BMP 09a: CII ULFT Water Savings

1.	Did your agency implement a CII ULFT replacement program in the reporting year?	NO

A.	**Implementation**
1.	Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting? DWA studies have concluded that as much as 80 percent of all residential water use is for landscape irrigation. Therefore, DWA has concluded that it is more cost effective to concentrate the bulk of its efforts on reducing water consumption in the landscape. DWA, therefore, has chosen to direct its resources into performing BMP 5 (refer to Appendix C, "Water Conservation of the Desert Water Agency").

BMP 10: Wholesale Agency Assistance Programs

DWA is a retail water agency and therefore does not report on this BMP.

BMP 11: Conservation Pricing

A.	**Implementation**		
	Rate Structure Data Volumetric Rates for Water Service by Customer Class		
1.	**Residential**		
	a.	Water Rate Structure	Uniform
	b.	Sewer Rate Structure	Non-Volumetric Flat Rate
	c.	Total Revenue from Volumetric Rates	$9,136,703
	d.	Total Revenue from Non-Volumetric Charges, Fees, and other Revenue Sources	$2,155,873
2.	**Commercial**		
	a.	Water Rate Structure	Uniform
	b.	Sewer Rate Structure	Uniform
	c.	Total Revenue from Volumetric Rates	$3,706,689

	d.	Total Revenue from Non-Volumetric Charges, Fees, and other Revenue Sources	$ amount from these accounts is contained in the residential total.
3.	**Industrial**		
	a.	Water Rate Structure	Service Not Provided
	b.	Sewer Rate Structure	Service Not Provided
	c.	Total Revenue from Volumetric Rates	$0
	d.	Total Revenue from Non-Volumetric Charges, Fees, and other Revenue Sources	$0
4.	**Institutional / Government**		
	a.	Water Rate Structure	Uniform
	b.	Sewer Rate Structure	Uniform
	c.	Total Revenue from Volumetric Rates	$588,258
	d.	Total Revenue from Non-Volumetric Charges, Fees, and other Revenue Sources	$ amount from these accounts is contained in the residential total.
5.	**Irrigation**		
	a.	Water Rate Structure	Uniform
	b.	Sewer Rate Structure	Service Not Provided
	c.	Total Revenue from Volumetric Rates	$490,926
	d.	Total Revenue from Non-Volumetric Charges, Fees, and other Revenue Sources	$0
6.	**Other**		
	a.	Water Rate Structure	Service Not Provided
	b.	Sewer Rate Structure	Service Not Provided
	c.	Total Revenue from Volumetric Rates	$0
	d.	Total Revenue from Non-Volumetric Charges, Fees, and other Revenue Sources	$0

B.	**Conservation Pricing Program Expenditures**		
		This Year	**Next Year**
1.	Budgeted Expenditures	$0	$0
2.	Actual Expenditures	$0	$0

C.	**"At Least as Effective As"**	
1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	NO

D.	**Comments**
	DWA does not classify accounts as "Industrial". All industrial (light industrial) customers are included under "Commercial"; therefore "Service Not Provided" is listed within the "Industrial" category.

BMP 12: Conservation Coordinator

A.	Implementation		
1.	Does your Agency have a conservation coordinator?		YES
2.	Is this a full time position?		YES
3.	If your agency supplies the conservation coordinator:		
	a.	What percent is this conservation coordinator's position?	38%
	b.	Coordinator's Name	Michael F. Bergan
	c.	Coordinator's Title	Administrative Services Officer
	d.	Coordinator's Experience and Number of Years	25 Years
	e.	Date Coordinator's position was created	01/02/1977
4.	Number of conservation staff, including Conservation Coordinator		1

B.	Conservation Pricing Program Expenditures		
		This Year	**Next Year**
1.	Budgeted Expenditures	$85,800	
2.	Actual Expenditures	$43,651	

C.	"At Least as Effective As"	
1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	NO

BMP 13: Water Waste Prohibition

A.	Requirements for Documenting BMP Implementation		
1.	Is a water waste prohibition ordinance in effect in your service area?		YES
	a.	If YES, describe the ordinance:	
		DWA adopted Ordinance No. 31, An Ordinance of the Board of Directors of Desert Water Agency Prohibiting the Waste of Water in February 1982 (refer to Appendix B). Said Ordinance prohibits the waste of water supplied by DWA, discusses actions to be taken, states customers rights and exemptions, and gives DWA the authority to enforce the Ordinance.	
2.	Is a copy of the most current ordinance(s) on file with CUWCC?		YES
	a.	List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second box:	
		Desert Water Agency	Typically violators have been cooperative in eliminating waste after being sent a written notice informing them of the situation.

B.	Implementation		
1.	Indicate which of the water uses listed below is prohibited by your agency or service area.		
	a.	Gutter flooding	YES
	b.	Single-pass cooling system for new connections	NO
	c.	Non-recirculating systems in all new conveyor or car wash systems	YES
	d.	Non-recirculating systems in all new commercial laundry systems	NO

	e.	Non-recirculating systems in all new decorative fountains	NO
2.	Describe measures that prohibit water uses as listed above.		
	In cases such as gutter flooding, written notice is sent to the subject customer, or a blanket mailing is conducted throughout neighborhoods with high incidences of waste. In areas where DWA is responsible for providing sewage collection, DWA requires submittal of plans, and then checks them to verify that recirculation systems are installed. In situations where water is used in cooling systems and decorative fountains, it is not practical to use non-recirculating types due to the cost associated with water.		
Water Softeners:			
3.	Indicate which of the following measures your agency has supported in developing state law:		
	a.	Allow the sale of more efficient demand-initiated regenerating DIR models.	NO
	b.	Develop minimum appliance efficiency standards that:	
		i) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used.	NO
		ii) Implement an identified maximum number of gallons discharged per gallon of soft water produced.	NO
	c.	Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or ground water supply.	NO
4.	Does your agency include water softener checks in home water audit programs?		NO
5.	Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient time models?		NO

C.	**Water Waste Prohibition Program Expenditures**
	Water Waste Prohibition Program costs are included in the Conservation Staff Program Expenditures, BMP 12.

D.	**"At Least as Effective As"**	
1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	NO

BMP 14: Residential ULFT Replacement Programs

A.	Implementation		
		Single-Family Accounts	**Multi-Family Accounts**
1.	Does your Agency have program(s) for replacing high-water-using toilets?	NO	NO
2.	Is a toilet retrofit on resale ordinance in effect for your service area?	NO	
3.	Is a toilet retrofit or resale ordinance in effect for your service area?	NO	

B.	Residential ULFT Program Expenditures		
		This Year	**Next Year**
1.	Budgeted Expenditures	$0	$0
2.	Actual Expenditures	$0	$0

C.	"At Least As Effective As"	
1.	Is your AGENCY implementing an "at least as effective as" variant of this BMP?	NO
	DWA studies have concluded that as much as 80 percent of all residential water use is for landscape irrigation. Therefore, DWA has concluded that it is most cost effective for DWA to concentrate the bulk of its efforts on reducing water consumption in the landscape. DWA, therefore, has chosen to direct its resources into performing BMP 5 (refer to Appendix C, "Water Conservation Program of the Desert Water Agency"). DWA does recognize that Ultra Low Flush Toilets (ULFT) save substantial quantities of water in comparison to older models. DWA, therefore, has supported legislation requiring installation of ULFTs in building applications. City and County Standards require the installation of ULFTs. Building department personnel verify that these standards are being enforced.	

SECTION VII

WATER SHORTAGE CONTINGENCY PLAN

SECTION VII
WATER SHORTAGE CONTINGENCY PLAN

A. PREPARATION FOR CATASTROPHIC WATER SUPPLY INTERRUPTION

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

> 10632 (c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

1. Water Shortage Emergency Response

DWA frequently reviews and updates its Emergency Response Plan, with the most recent update in August 2005. DWA has developed specific disaster related procedures which guide staff in responding efficiently to catastrophic interruptions of water supply. Disaster related drills are conducted periodically involving DWA staff, City, Fire, and County personnel. DWA also coordinates its planning efforts with the local hospital. DWA staff periodically attends local disaster preparedness coordinating meetings, and closely adheres to all disaster response training requirements.

Table 18
Actions in Preparation for a Catastrophe

Possible Catastrophe	Examples of Actions	Check if Discussed
Regional Power Outage	Determine what constitutes a proclamation of a water shortage.	✓
Earthquake	Restrict water use.	✓
	Develop alternative water supplies.	✓
	Contact and coordinate with other agencies.	✓
	Create an Emergency Response Team/Coordinator.	✓
	Create a catastrophe preparedness plan.	✓
	Put employees/contractors on-call.	✓
	Develop methods to communicate with the public.	✓
	Develop methods to prepare for water quality interruptions.	✓

Water Supply. Refer to the Reliability Planning section for a discussion regarding short- and long-term water supplies.

Water Transfers. Refer to the Transfer or Exchange Opportunities section for a discussion regarding water transfers.

B. WATER SHORTAGE CONTINGENCY ORDINANCE / RESOLUTION

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

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

1. Desert Water Agency's Water Shortage Response

In October 1988, the DWA adopted Ordinance No. 45, An Ordinance of the Board of Directors of the Desert Water Agency Restricting Water Use During Water Supply Emergencies (refer to Appendix B). The Ordinance details specific actions to be taken during water shortage emergencies that are deemed to be in the best interest of the public at large.

Ordinance No. 45 describes specific rules and regulations which will be in effect, should the Board declare a water supply emergency, and illustrates the methods in which the public shall be informed. Four stages of severity are discussed, each containing specific restrictions corresponding to the degree of incidence.

Also included are exemptions to the restrictions, and penalties for violations. Methods for which the public may voice their objection to any penalties levied for violation are also described. To date, there have been no incidents requiring any portion of this ordinance to go into effect within the DWA Service Area.

C. STAGES OF ACTION

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

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

1. Rationing Stages and Reduction Goals

DWA has established four stages of water use restrictions to be evoked during water supply emergencies. The stages involve voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage. The stages are summarized below in Table 19.

Table 19
Water Supply Shortage Stages and Conditions
Rationing Stages

Stage	Percent Shortage	Type of Rationing Program	Customer Actions	Customer Reduction Goal
1 Normal Conditions	25-40%	Voluntary Conservation Measures	Use water wisely / Prevent waste	15%
2 Water Supply Shortage Alert	40-50%	Mandatory Conservation Measures	Irrigation restrictions / Specific use restrictions	25%
3 Water Shortage Warning	50-60%	Stronger Mandatory Conservation Measures	Irrigation restrictions / Swimming pool and fountain filing is prohibited / Specific use restrictions / No new construction meters	30%
4 Water Shortage Emergency	60%+	Severe Water Use Prohibitions	Irrigation is prohibited / Swimming pool and fountain filing is prohibited / Construction water use is prohibited / Specific use prohibitions	50%

DWA has a civic and legal responsibility to provide for the water-related health and safety needs of the community. In order to minimize the social and economic impact of water shortages, DWA will prudently manage water supplies.

As previously described in various sections of this Plan, DWA obtains its water supply from stored local ground water, local surface water, and imported water to recharge the Whitewater River Subbasin, thus augmenting ground water supplies. Since the majority of the supply is pumped from approximately 30 deep wells located throughout the community, the inability to pump water from a less than significant number of wells will not result in a shortage situation. Additionally, DWA's reliance on stored ("banked") ground water as its primary source provides a sufficient cushion against dry years.

Due to the current and historic condition of overdraft of the Whitewater River Subbasin (where ground water extractions exceed natural replenishment) and the need to import water to recharge the ground water supply, DWA has established a Stage 1 condition which is, and will remain, in effect. This involves voluntary conservation measures. Stages 2, 3, and 4 restrictions will most likely be triggered by a large scale emergency such as a sustained power outage or earthquake disaster. The specific stage in which the Board elects to implement will be determined by the type and severity of the event and the water supply conditions at the time.

2. Priority by Use

Priorities for use of available potable water supplies during shortage situations are as follows:

A. Hospitals and disaster care centers.
B. Interior residential needs as required for health and safety.
C. Fire fighting needs.
D. Commercial / Industrial needs.
E. Existing landscaping.
F. New construction needs.

3. Health and Safety Requirements

DWA's primary goal for the ordinance restricting water usage during emergencies is to meet the minimum health and safety requirements of its customers throughout the course of the event.

During a Stage 1 condition, compliance is voluntary with emphasis on using water wisely. Stage 2, however, involves a possible inability to meet customer needs and therefore sets mandatory restrictions. In Stage 3 to 4 situations, DWA is clearly unable to meet needs and more serious restrictions are required to be in effect.

D. PROHIBITIONS, CONSUMPTION REDUCTION METHODS, AND PENALTIES

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

> 10632 (d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.
>
> 10632 (e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.
>
> 10632 (f) Penalties or charges for excessive use, where applicable.

1. Mandatory Prohibitions on Water Wasting

Detailed in Ordinance No. 45 (Appendix B), An Ordinance of the Board of Directors of the Desert Water Agency Restricting Water Use During Water Supply Emergencies, and Ordinance No. 31 (Appendix B), An Ordinance of the Board of Directors of the Desert Water Agency Prohibiting the Waste of Water, are specific prohibitions and penalties on water wasting which may result in cases of noncompliance. Also contained within each ordinance are methods in which the public may voice their objection to any penalty levied.

The specific prohibitions associated with each stage are shown in Table 20 below. As previously stated, a Stage 1 condition is and will remain in effect at all times. Additionally, Ordinance No. 31 prohibits any actions which are deemed wasteful, such as excessive landscape irrigation, severe overspray conditions, or failure to remedy a wasteful condition within a reasonable period of time.

Table 20 Mandatory Prohibitions	
Examples of Prohibitions	**Stage When Prohibition Becomes Mandatory**
Using potable water to wash driveways, parking lots, or other hard surfaced area, or building exteriors at any time, except to alleviate immediate fire hazards is prohibited	2
Irrigating parks, golf courses (golf courses using reclaimed water are exempt from this prohibition), and school grounds during daytime hours (sunrise to sunset)	2
Serving drinking water to customers at a restaurant, hotel, café, cafeteria, or other public place where food is sold, unless expressly requested	2
Commercial nurseries using water between the hours of 6:00am and midnight	2
Filling or adding water to swimming pools, wading pools, spas, ornamental ponds, fountains, and artificial lakes	3
Commercial Nurseries shall discontinue all watering and irrigation, unless reclaimed water is used	4
Washing cars, boats, trailers, aircraft, or other vehicles is prohibited, except when done by commercial car wash establishments using recycled or reclaimed water	4
Using potable water to clean, fill, or maintain decorative fountains, lakes or ponds unless such water is recycled.	At All Times
Watering of lawns and irrigating landscape between the hours of 10:00 am and 5:00 pm	At All Times
Washing cars, boats, trailers, aircraft, or other vehicles by hose without a shutoff nozzle and bucket	At All Times

Table 21 Consumption Reduction Methods	
Consumption Reduction Method	**Stage When Method Takes Effect**
Demand reduction program	All Stages
Flow restriction	4
Use prohibitions	All Stages
No new construction meter permits shall be issued by DWA	3 and 4
Restrict for only priority uses	4
All existing construction meters shall be turned off and locked	4
Water shortage pricing	All Stages
Voluntary rationing	1
Mandatory rationing	2, 3, 4
Education Programs	All Stages
Use non-potable water for construction purposes	All Stages

2. Excessive Use Penalties

Any customer violating the regulations and restrictions on water use set forth in Ordinance No. 45, shall receive a written warning for the first such violation. Upon a second violation, a 25 percent surcharge is applied to the customer's water bill. A third violation subjects the customer to a 50 percent surcharge and installation of a flow

restrictor. All subsequent violations result in discontinuance of service. More complete descriptions of each penalty assessment and the methods in which the customer is to be notified are found in the complete Ordinance contained in Appendix B.

E. REVENUE AND EXPENDITURE IMPACTS AND MEASURES TO OVERCOME IMPACTS

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

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

During a water supply emergency, depending on restrictions necessary and as water availability and use decreases, revenue from water sales will also decrease. DWA maintains and will continue to maintain sufficient funds in reserve to maintain operations during and following such periods of reduced use. As such, rate adjustments are not anticipated; however, rate adjustments can be considered, if necessary.

F. REDUCTION MEASURING MECHANISM

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

> 10632 (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

1. Mechanism to Determine Reductions in Water Use

Daily production readings are taken by personnel at all water supply sources and all reservoir water levels are monitored on a continual basis. The collected data are reviewed daily to determine water supply adequacy. Such data are then incorporated into monthly reports.

During a water supply emergency, normal monitoring will continue with strict observation and recording of all water supply sources and water reservoir storage. Collected data will be reported directly to the General Manager and/or Assistant General Manager, as deemed appropriate for the emergency conditions, for action.

SECTION VIII

WATER RECYCLING

SECTION VIII
WATER RECYCLING

A. WASTEWATER SYSTEM DESCRIPTION

Law 10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, ground water, and planning agencies and shall include all of the following:

10633 (a) A description of the wastewater collection and treatment systems in the supplier's service area…

1. Introduction

As previously mentioned in this Plan, DWA's Service Area includes the cities of Palm Springs and Cathedral City (portion), and adjoining unincorporated Riverside County areas. The City of Desert Hot Springs, while within the geographical boundaries of DWA, is served by the MSWD. As such, data pertaining to MSWD is included in MSWD's Urban Water Management Plan.

DWA is responsible for providing wastewater service within portions of Cathedral City and unincorporated Riverside County within its Service Area. The City of Palm Springs (City) provides wastewater service within its city limits (primary and secondary treatment). In addition, DWA operates a 10.0 million gallon per day Water Reclamation (Water Recycling) Plant to provide tertiary treatment for recycled water.

Currently, DWA has a wastewater collection system within areas of Cathedral City that have been developed since 1980. Since these areas are located at a lower elevation than the City of Palm Springs Wastewater Treatment Plant (City WWTP), wastewater must be pumped and piped to neighboring CVWD's system for treatment and disposal. Both DWA and the City of Cathedral City are actively involved in the pursuit of a wastewater collection system to serve any remaining areas currently served by septic systems.

2. WateReuse Association Membership

DWA is an active member of the California WateReuse Association, which helps implement water recycling in California.

3. Customer Base

DWA adopted a very aggressive stance regarding expanding the use of recycled water within its Service Area. Presently, there are seven customer locations using tertiary treated recycled water for irrigation purposes, and additional customers are forecasted to be online in the near future. The seven current customer locations are:

- DWA Operations Center
- DWA Recycling Facility
- City of Palm Springs Municipal Golf Course (36 holes)
- City of Palm Springs DeMuth Park
- Mesquite Country Club Golf Course (18 holes)
- Mid-Valley Parkway Median Strips
- Palm Springs High School

An additional three water use sites are proposed for 2006 (Palm Springs Classic Golf Course, Indian Canyons Resort Golf Course, and Sunrise Park). DWA is actively pursuing the expansion of its existing recycled water customer base and it is anticipated that with DWA's proactive approach to obtaining new customers, four additional locations will be served with recycled water prior to 2020.

B. WASTEWATER GENERATION, COLLECTION, AND TREATMENT

Law 10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, ground water, and planning agencies and shall include all of the following:

> 10633 (a) A […] quantification of the amount of wastewater collected and treated…

The use of recycled water plays a key role in DWA's Basin Management Program as it conserves and protects the valuable ground water supply. In 1988, DWA and the City entered into an agreement to treat wastewater. Under the agreement, the City provides primary and secondary treatment at the City WWTP, after which the wastewater is piped to DWA's Water Recycling Plant for tertiary treatment.

DWA's Water Recycling Plant has the ability to process all secondary treated wastewater generated by the WWTP. Currently, DWA's Water Recycling Plant has a 10.0 million gallon per day capacity, but is designed for an ultimate capacity to treat 15.0 million gallons per day. The Water Recycling Plant is expected to ultimately provide about 17,000 AF/yr of recycled water.

High quality tertiary treated recycled water is produced utilizing the following process:

1. Primary Treatment (provided by City WWTP)
2. Secondary Treatment (provided by City WWTP)
3. Tertiary Treatment (provided by DWA's Water Reclamation Plant)
    a. Chlorination
    b. Addition of Polymer and Alum
    c. Filtration
    d. Chlorination
    e. Storage and distribution to customers

The recycled water produced by DWA's Water Recycling Plant is approved for all uses, except drinking, by the California Department of Health Services. To illustrate the positive effects of using recycled water, DWA's Operations Center and Water Recycling Facility are both irrigated with recycled water. Also, the C/PS DeMuth Park and Mesquite Country Club Golf Course are irrigated with recycled water.

DWA's Water Recycling Plant has the ability to process all secondary treated wastewater generated by the City WWTP. Since recycled water is dependent upon available wastewater treatment plant effluent, DWA plans to expand the recycled water system and increase wastewater flows by adding irrigated areas in Palm Oasis and Cathedral City. The addition of these areas to the existing system will increase the quantity of wastewater to be treated and increase recycled water use.

Table 22 Wastewater Collected and Treated (AF/yr)							
	2000	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Wastewater Collected & Treated in Service Area	8,950	7,300	8,100	8,800	9,500	10,100	10,800
Quantity Meeting Recycled Water Standard	2,900	2,850	6,000	6,000	8,000	8,000	8,000

As noted in Table 22, wastewater flows have declined in recent years. The decline is most likely attributable to water conservation; however, the City of Palm Springs is currently conducting a study to determine the exact cause. Future wastewater flows are projected to increase as the population increases.

C. WASTEWATER DISPOSAL AND RECYCLED WATER USES

Law 10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, ground water, and planning agencies and shall include all of the following:

10633 (a) A description of the […] methods of wastewater disposal.

10633 (b) A description of the recycled water currently being used in the supplier's service area, including but not limited to, the type, place and quantity of use.

10633 (c) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, ground water recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

10633 (d) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years.

1. Disposal of Wastewater (Non-Recycled)

Presently, the Water Recycling Plant has the ability to process all secondary treated wastewater generated by the City WWTP; however, DWA's current recycled water customer base does not require the full capacity of the treatment plant to meet their needs.

Any secondary treated sewage produced above and beyond DWA's recycled water customer requirements is discharged into percolation ponds for ground water recharge.

Table 23 Disposal of Wastewater (Non-Recycled) (AF/yr)							
Method of Disposal	**Treatment Level**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
Percolation Ponds	Secondary	4,450	2,100	2,800	1,500	2,100	2,800
	Total	**4,450**	**2,100**	**2,800**	**1,500**	**2,100**	**2,800**

2. Current and Potential Uses of Recycled Water

Within DWA, recycled water is utilized for irrigation of large turf areas, including, but not limited to, large turf areas, such as golf courses and parks.

Table 24 Recycled Water Uses – Actual (AF/yr)		
Type of Use	**Treatment Level**	**2005**
Landscape	Tertiary	2,850
Ground Water Recharge	Secondary	4,450
	Total	**7,300**

Currently, DWA is projecting that all recycled water produced by its facility will be utilized for irrigation purposes, such as golf courses, medians, freeway landscape, schools, cemeteries, and parks. Other uses for recycled water could result; however, due to the large quantity of water required for irrigation within DWA's boundaries, it is wise to assume that the predominant use will be for irrigation. Irrigation use also has the highest potential for conserving valuable ground water as well.

Table 25 Recycled Water Uses – Potential (AF/yr)						
Type of Use	**Treatment Level**	**2010**	**2015**	**2020**	**2025**	**2030**
Landscape	Tertiary	6,000	6,000	8,000	8,000	8,000
Ground Water Recharge	Secondary	2,100	2,800	1,500	2,100	2,800
	Total	**8,100**	**8,800**	**9,500**	**10,100**	**10,800**

As supplemental irrigation is required year-round, even during the cooler winter months, recycled water use will continue throughout the year. The months with the highest usage are April through October, with the remaining winter months requiring approximately 50 percent less.

D. ENCOURAGING RECYCLED WATER USE

Law 10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, ground water, and planning agencies and shall include all of the following:

> 10633 (e) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

1. Marketing Strategy

As previously stated within this Plan, DWA has adopted a very aggressive stance toward obtaining new recycled water customers. This strategy currently occupies the primary focus of DWA's water conservation efforts as it has the ability to conserve the highest percentage of ground water.

DWA recognizes that in order to develop the widespread use of recycled water, public acceptance and cost incentives are necessary. In 1999, DWA undertook a cooperative 10-year study at the facility with the U.S. Department of Agriculture's Natural Resources Conservation Service, whereby the effects of tertiary treated recycled water on water-efficient plants was compared to that of potable water. The study has been concluded and the results published in the form of a booklet in 1999.

The purpose of the study was to show potential customers, specifically, how plants associated with DWA's Service Area perform using tertiary recycled water. In almost all cases, plants utilizing recycled water performed better than those irrigated with domestic water. It is thought that results gleaned from this study will set aside potential customers' concerns regarding the effects of recycled water on their plantings. Additionally, potential existing landscape customers within reasonable proximity to DWA's Facility have been targeted, and discussions with the appropriate representatives are underway.

2. Proposed Actions to Encourage Use of Recycled Water

To encourage customers to convert to recycled water, DWA offers the following incentives:

- DWA participation in the cost of constructing off-site water recycling facilities.
- In the event DWA is unable to provide recycled water, potable water will be supplied in the interim.
- Financial incentives in terms of one-half of domestic water costs.
- Technical assistance provided by DWA to recycled water customers at no charge.
- DWA is able to "guarantee" recycled water supply reliability (with qualifying statements) even during shortages (excluding disaster conditions).
- Comparisons of costs to drill, operate, and pay replenishment charges associated with private wells vs. utilizing recycled water.

Historically, the cost of recycled water has been the primary incentive for landscape customers to use recycled water in lieu of ground water. Therefore, it is wise to assume that DWA's continued expansion of recycled water facilities in addition to financial incentives, will play a significant role in the increase in quantity of recycled water use.

3. Projected Results

The following tabular data are the projected results of DWA's recycled water marketing efforts:

Table 26
Projected Future Use of Recycled Water in Service Area
(AF/yr)

Type of Use	2010	2015	2020	2025	2030
Landscape	6,000	6,000	8,000	8,000	8,000
Ground Water Recharge	2,100	2,800	1,500	2,100	2,800
Total projected use of Recycled Water	**8,100**	**8,800**	**9,500**	**10,100**	**10,800**

Table 27
Recycled Water Uses – 2000 Projection Compared with 2005 Actual
(AF/yr)

Type of Use	2000 Projection for 2005	2005 Actual Use
Landscape	6,000	2,850
Ground Water Recharge	Not Projected	4,450
Total	**6,000**	**7,300**

DWA's projected recycled water use in the 2000 UWMP was based on recycled water projections for anticipated golf course growth. While the actual use in 2005 was half of that projected in 2000, additional golf courses are forecasted to be online in the near future, which is expected to increase sales significantly.

E. RECYCLED WATER OPTIMIZATION PLAN

Law 10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, ground water, and planning agencies and shall include all of the following:

> 10633(g). A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

1. Plan for Optimizing the Use of Recycled Water

As previously discussed, due to the high irrigation requirements within DWA's Service Area, the optimum use for recycled water is in landscape irrigation. Large irrigated areas not currently receiving recycled water are irrigated with domestic water or pumped ground water supplied through privately owned wells. In such cases, a replenishment fee is levied upon the customer for water pumped, payable DWA.

In the year 2000, an additional storage reservoir was constructed to house tertiary treated water for purposes of meeting future customer's needs. Additional storage reservoir locations are being considered. All recycled water mains installed are sized to meet future customer demands. This assures that DWA will be able to meet future requirements.

Table 28
Participating Agencies

Participating Agencies	Role
City of Palm Springs	In 1988, DWA and the City of Palm Springs entered into an agreement where the City of Palm Springs would provide primary and secondary wastewater treatment and DWA would provide tertiary treatment.

Currently, DWA's recycled water distribution system is limited because DWA's current recycled water customer base does not require the full capacity of the treatment plant to meet their needs. DWA's Board of Directors and Staff are fully committed to increasing the use of recycled water as a means of conserving the community's municipal water supply to the greatest extent possible. As new projects develop and existing developments come on-line, DWA's ability to service more customers will increase. DWA is planning additional pipelines which will expand municipal use of recycled water over time.