JOSHUA BASIN WATER DISTRICT

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2005 URBAN WATER MANAGEMENT PLAN

DUDEK
& ASSOCIATES, INC.
Professional Teams for Complex Projects

JOSHUA BASIN WATER DISTRICT

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30 December 2005

Department of Water Resources
770 Fairmont Avenue, Suite 102
Glendale, CA 91203-1035

Attention: Sergio Fierro
Phone: (818) 500-1645 x 247
FAX: (818) 543-4604
E-mail: sergiof@water.ca.gov

Re: Joshua Basin Water District 2005 Urban Water Management Plan

Dear Mr. Fierro:

The Joshua Basin Water District is pleased to present its 2005 Urban Water Management Plan Update. The Plan was prepared in accordance with the relevant statutes and represents our current state of water resource planning. Our current plan reflects our dedication to the safe and reliable management of water resources to provide reliable, high quality water to our current and future customers.

Should you have any questions regarding the Plan please do not hesitate to call.

Sincerely,

Joe Guzzetta
General Manager
Joshua Basin Water District
(760) 366-2042, ext. 226

JG/ms

Enclosure

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1. URBAN WATER MANAGEMENT PLAN

1.1. INTRODUCTION

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

1.2. CODE REQUIREMENTS

This report was prepared to satisfy the Water Code Section 10620 which states every urban water supplier shall prepare and adopt an UWMP. Water Code Section 10617 defines an urban water supplier as any supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually. The current customer count of over 4,000 qualifies the Joshua Basin Water District. Furthermore the Codes require the UWMP to be updated at least once every 5 years on or before December 31, in years ending in five or zero.

1.3. AGENCY COORDINATION

Coordination with other agencies is essential to formulate a meaningful UWMP. The process provides an avenue for regional wholesale water suppliers, retail water suppliers, public agencies, and private agencies to contribute to the preparation of the UWMP. During the process of preparing the 2005 Joshua Basin Urban Water Management Plan update, the regional water management plan of the Mojave Water Agency (MWA) was consulted.

The following table lists the names of the agencies and groups contacted and their general involvement in the preparation of this plan.

Table 1 - Agency Coordination

Agency Coordination							
Check at least one box per row	Participated in UWMP Development	Referenced Documents	Commented on the draft	Attended Public Meetings	Contacted for Assistance	Received copy of draft	Sent Notice of intention to adopt
Mojave Water Agency	-	**YES**	-	-	**YES**	-	-
County of San Bernardino	-	**YES**	-	-	-	-	-

1.4. PUBLIC PARTICIPATION

Water Code Section 10620 - "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 adoption, the plan will be made available for public inspection and a public hearing held. The plan shall be adopted as prepared or modified after the hearing."

The Joshua Basin Water District (District) encouraged public participation through the Citizen's Advisory Committee meetings on November 8, 2005, December 6, and a public meeting and presentation with the Board of Directors meeting, November 16, 2005. The general public was given an opportunity to contribute to the UWMP. A draft copy of the UWMP was made available on December 2, 2005. A public meeting will be held at the next board meeting (December 7). A public hearing will be held concurrently with the UWMP adoption on December 28, 2005.

2. CONTENTS OF PLAN

2.1. LEVEL OF DETAIL

The Urban Water Management Plan is a supply and demand planning document that does not address specific infrastructure requirements. Its' key elements are the available and planned water supply and the predicted water demands. The level of detail for the plan does not address specific infrastructure improvement. The District currently depends only on groundwater as its water supply. The District is currently updating its Groundwater Management Plan. This document may be revised and amended once the new groundwater management plan has been completed and adopted.

2.2. SERVICE AREA

The Joshua Basin Water District service area is located at 34°7'37" North, 116°19'7" West in San Bernardino County, approximately 70 miles east of the City of San Bernardino. The District is bordered on the west by Yucca Valley and on the east by Twenty-Nine Palms. The southern most part of the District is bounded by the Joshua Tree National Park. The northern most part is bounded by the Marine Corps Air Ground Combat Center at Twenty-Nine Palms. The District consists of approximately 96 square miles.

Figure 1 is a vicinity map taken from the "Joshua Basin Community Plan" by San Bernardino County.

Based on known development plans the potential for accelerated growth has been identified. Reviewing these plans and development potential the following projected connections have been prepared.

Table 2 - Projected Connections

Current and Projected Connections							
	2005	2010	2015	2020	2025	2030	2035
Water Connections	4,375	6,094	8,594	10,805	11,930	13,172	14,543

Note: 900 additional water commitments have been purchased but are currently inactive. These may request service at any time.

This is much higher than the Mojave Water Agency's (MWA) 1.63% expected growth rate because recent local data has shown more than 5% growth rate in the past few years.

The environmental climate within the service area is typical of the Mojave Desert. Temperatures can reach as low as 10° F in the winter and in excess of 115° F in summer months. The average precipitation is 4.6 inches per year and the Evapotranspiration rate (ETo) is quite high during summer months.

Table 3 – Area Climate

Area Climate

	Jan	Feb	Mar	Apr	May	June
Standard Monthly Average Eto	1.59	2.2	3.66	5.08	6.83	7.8
Average Rainfall (inches)	0.57	0.55	0.41	0.17	0.1	0.03
Average Temperature (Fahrenheit)	49.95	54.05	59.2	65.95	74.25	83.1

	July	Aug	Sep	Oct	Nov	Dec	Annual
Standard Monthly Average Eto	8.67	7.81	5.67	4.03	2.13	1.59	57.06
Average Rainfall (inches)	0.6	0.84	0.5	0.2	0.22	0.42	4.6
Average Temperature (Fahrenheit)	88.2	86.5	80.1	68.9	54.6	49.6	68.1

Note: Average rainfall and temperature data is for the Twenty-nine Palms station. Period of Record : 1971-2000

Average Monthly ETo data is for Cathedral City station Since DEC 1995

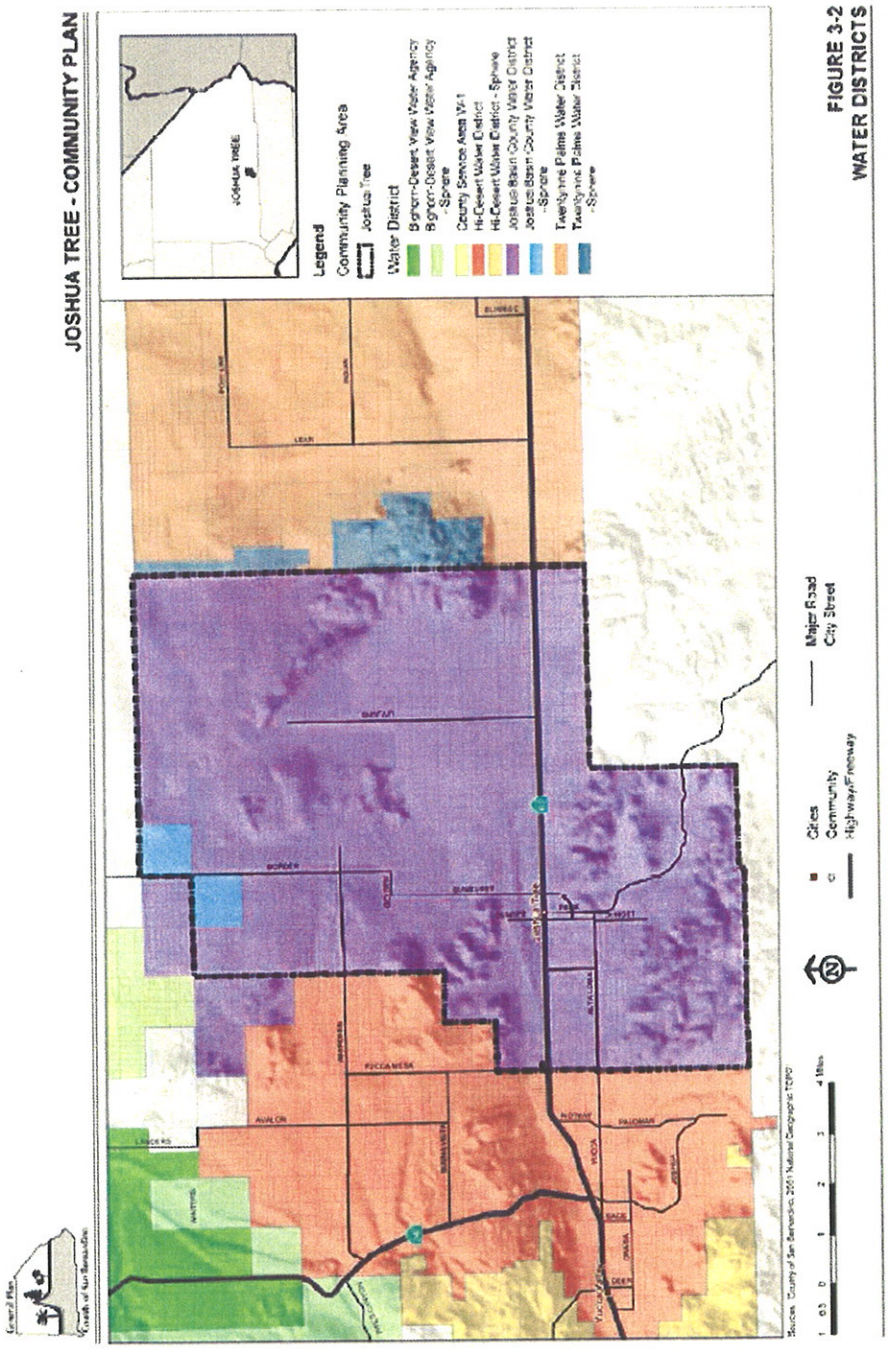

Figure 1- Joshua Basin Water District Location

2.3. WATER SOURCES

Currently the District relies exclusively on groundwater as its' sole water source. The groundwater stored in reserves managed by the district is currently estimated (Dudek 2005) at 625,000 Acre-Feet of usable water based on quality. This vast stored quantity of groundwater provides the District with a reliable and safe water supply. While the groundwater may be extracted at a rate greater

than recharge (mining or overdrafting), the quantity of withdrawals relative to the stored amounts are small. Significant reductions in groundwater levels would not require significant additional investments in wells until well beyond the 30 year planning horizon of this study. The estimated total water demand for the District for the next 35 years using the aggressive growth strategy will amount to just over 111,000 acre feet. This represents less than 19% of the groundwater in storage.

To provide alternate water supply sources, the District has entitlements to receive surface water from the State Water Project. These entitlements were achieved via funding participation with the Mojave Water Agency which paid a portion of the initial construction cost and continues to pay for the operation and maintenance of the project as noted in the Morongo Basin Pipeline Agreement. These entitlements amount to approximately 1,959 Acre-feet per year. The District also has submitted an application to the State for a grant to assist in funding the infrastructure needed to access its entitlement. In conclusion the District is well positioned to meet the predicted demands with its existing water sources.

Table 4 - Water Supplies

Current and Planned Water Supplies – AFY							
Water Supply Source	2005	2010	2015	2020	2025	2030	2035
Groundwater supply	1,650	2,285	3,223	4,052	4,474	4,939	5,454
Mojave Water Agency	1,959*	1,959	1,959	1,959	1,959	1,959	1,959
Total	3,609	4,244	5,182	6,011	6,433	6,898	7,413

The Groundwater sources described in Table 3 are described and qualified in section 2.3.2.
*NOTE: This water source is not currently being used.

2.3.1. Wholesale Suppliers

The District has entitlements to the State Water Project through cost participation with the Mojave Water Agency Morongo Basin Pipeline Project.

The table above shows an available water supply from the MWA beginning in 2010. The surface water may be stored in existing aquifers and later repumped to serve customers. This "conjunctive" use of surface and groundwater provides additional management options for the District.

2.3.2. Ground Water

The current water supply is from the Joshua Tree Groundwater Basin and the Copper Mountain Valley Groundwater Basin. The USGS groundwater plan estimates that there are 0 acre feet of recharges. For the purposes of this plan no annual recharge is considered. Both basins are being over drafted but this has little effect on the quantities stored. As stated earlier, the current Groundwater Management Plan Update will address the impacts on total groundwater storage and levels. Preliminary indications are that the overdraft will result in additional groundwater pumping facilities being required in more than thirty years. This report may be revised to reflect the adopted Groundwater Management Plan.

2.4. RELIABILITY OF WATER SUPPLY

Since the District relies on groundwater as its source of supply, it is not subject to short-term shortages caused by periodic drought. The water stored in groundwater is estimated to be well over 625,000 acre feet (Dudek 2005). As a result the groundwater basins are capable of absorbing the effects of multiple dry years without seriously hindering the water supply. The water supply for the District is highly reliable.

Table 5 - Water Supply Reliability

Supply Reliability - AF Year					
Normal Water Year	Single Dry Water Year	Year 1	Year 2	Year 3	Year 4
1,604	1,588	1,572	1,556	1,540	1,524
% of Normal	99.00%	98.00%	97.00%	96.00%	95.00%

2.5. TRANSFER AND EXCHANGE

No current opportunities for water transfer and exchanges exist. As the system expands, emergency interties will be planned for where beneficial.

2.6. WATER USE BY CUSTOMER TYPE

Water use by customer type is broken down in table 6 (below). Some water is not or cannot be metered for a variety of reasons. Line leakage, fire flows, and flushing/disinfecting of pipelines cannot be metered. Faulty flow meters and illegal connections can go undetected for a period of time, thereby un-metered as well.

The projected water deliveries are based on the growth rate described in Section 2.2

Table 6 - Past, Current and Projected Water Demand by Type

Past, Current and Projected Water Deliveries										
Year		Water Use Sectors	Single Family	Multi-Family	Com-mercial	Indust-rial	Instit / gov	Land-scape	Agric	Total AF/Y
2000	metered	Deliveries AF/Y	1058	83	172	27	-	66	-	1406
	unmetered/ unaccounted	Deliveries AF/Y	172	14	28	4	-	11	-	229
2005	metered	Deliveries AF/Y	1150	91	187	29	-	193	-	1,650
	unmetered/ unaccounted	Deliveries AF/Y	187	15	30	5	-	12	-	266
2010	metered	Deliveries AF/Y	1,819	112	230	36	-	88	-	2,285
	unmetered/ unaccounted	Deliveries AF/Y	230	18	37	6	-	15	-	326
2015	metered	Deliveries AF/Y	2,670	133	273	42	-	105	-	3,223
	unmetered/ unaccounted	Deliveries AF/Y	272	22	44	7	-	17	-	387
2020	metered	Deliveries AF/Y	3,394	158	325	50	-	125	-	4,052
	unmetered/ unaccounted	Deliveries AF/Y	325	26	52	9	-	21	-	462
2025	metered	Deliveries AF/Y	3,688	189	388	60	-	149	-	4,474
	unmetered/ unaccounted	Deliveries AF/Y	388	31	62	10	-	25	-	552
2030	metered	Deliveries AF/Y	4,045	215	441	68	-	170	-	4,939
	unmetered/ unaccounted	Deliveries AF/Y	441	35	71	12	-	28	-	627

2.7. DEMAND MANAGEMENT

The various measures involved in water management can generally be placed into one of five major categories. Those categories are residential/ commercial interior measures, landscape measures, industrial measures, systems measures, and other measures (such as pricing, incentives, and public information). The measures included in the District's Plan provide reasonable coverage of the five categories, and address agency-implemented measures as well as promote water conservation by the end-user. The District considers environmental, economic, social and health impacts during implementation of each measure listed.

An essential component of an Urban Water Management Plan is a description of conservation measures required by the Department of Water Resources. These

Demand Management Measures (DMM's) will support continuing improvements in water use efficiency.

2.7.1. Water Survey Programs for Residential Customers

The Urban Water Management Planning Act, as revised, includes the requirement that water Districts employ a water survey program for single-family residential and multifamily residential customers. JBWD has implemented this Demand Management Measure through Resolution 00-618 (see Appendix B). This resolution includes a commitment to planning a water survey program that will include, but not be limited to, an annual customer survey as a water bill insert. The customer survey will obtain current end-user information that facilitates the District's water conservation planning, as well as provide water-saving tips to water customers.

2.7.2. Residential Plumbing Retrofit

In the past the District has considered the use of residential plumbing retrofits. Since the District's per capita water use is low and with the common availability of high water efficient plumbing through retail outlets, no specific residential plumbing retrofit program is in place.

2.7.3. System Water Audits

The District conducts water loss analysis describing what's being produced vs. what's being sold, calling the difference the "loss." The District conducts a visual leak detection survey of the distribution system to locate and detect leaks. The pipeline replacement program and the recently updated Supervisory Control and Data Acquisition (SCADA) system will provide much more information related to use and loss. As a result of these improvements areas that are identified as high use will be targeted for high priority replacements.

The ability of the District to combine the parcel Geographic Information System (GIS) with the billing data will provide further tools and information for identifying abnormally high water usage. Once identified property owners may be contacted.

2.7.4. Metering with commodity rates new and existing connections

Since 1995, More than 3,800 new meters have been installed to replace older, less efficient meters within the service area. The new water meter

retrofits have the capability to detect low-flow leaks and in turn reduce water losses. The commodity rates or "bill by volume" structure can by found in Appendix C.

2.7.5. Large Landscape Conservation

The District currently employs a rate structure with escalating rates for increasing water usage for all customers. This rate structure is an incentive to use less water. The District is working with the Building Industry Association (BIA) and other agencies for a Model Landscape Ordinance. In addition to this effort, the District works with the Association for Water Awareness and Conservation to provide pamphlets and information related to low water use plants for landscaping. These are made available to the public at the District office.

2.7.6. High Efficiency Washing Machines

Because of the historically low per capita water use, the District has determined that rebate programs for High Efficiency Washing Machines would not provide a direct benefit to the customers of the District.

2.7.7. Public Information Programs

The JBWD provides a number of informational programs, including:

- Televised Board meetings, where water conservation is a frequent topic of discussion.

- "A Guide to High Desert Landscaping", which is a booklet on landscapes that are suitable for desert climates.

- A seasonal report titled "Waterline Report" that describes projects currently underway at the District.

- Several small brochures on leak detection, component familiarization and household repairs are available in the District office

- Historical use data is printed on each water bill and a space for additional information has been provided in the new billing format.

Joshua Basin Water District intends to provide web-based information on water conservation, district programs and links to other educational, informational websites.

2.7.8. School Education Programs

The District continues to pursue funding and cooperative agreements with other regional water suppliers to initiate a teacher-training program on groundwater management in order to expand the District's outreach to the community through the schools.

2.7.9. Conservation Programs for Commercial, Industrial and Institutional Accounts

The District currently employs an escalating rate structure for commercial and industrial water customers. The cost per unit increases with increased use.

2.7.10. Wholesale Agency Programs

Joshua Basin Water District supplies groundwater to its customer's only, wholesale agency programs do not apply.

2.7.11. Conservation Pricing

The JBWD currently uses an escalating rate plan for increasing water use. It does not provide sewer service; the service area relies exclusively on septic tanks for sewage disposal.

2.7.12. Water Conservation Coordinator

The District's General Manager is currently carrying out the responsibilities of a water conservation coordinator. Acting as a Conservation Coordinator, the General Manager carries out the following duties:

- Coordinates agency conservation programs staff.
- Prepares annual conservation budget.
- Coordinates the oversight of conservation programs and BMP implementation.
- Prepares Urban Water Management Plan update

2.7.13. Water Waste Prohibition

The District's water shortage contingencies include penalties for excessive use during periods of water shortage. (See Section 4. of this report)

2.7.14. Residential Ultra-Low Flush Toilet Replacement Programs

The District requires compliance with state regulations for water efficient devices in new construction, per the Uniform Building code. Retailers in California are generally required to provide only high water efficiency toilets and appliances.

2.8. EVALUATION OF DMM'S NOT IMPLEMENTED

Many of the demand management measures are being implemented and others are managed through the escalating rates for increasing water use. As further growth demands, future plans will be considered.

2.9. PLANNED WATER SUPPLY PROJECTS AND PROGRAMS

Based on the water demand and supply in the 2 sub basins the District will need to import water from the Mojave Water Agency. The District is entitled to 1,959 AFY per year but must build the infrastructure to bring the water in. A currently in-progress Ground Water Availability study will determine the timeframe in which the infrastructure is needed. As an option the District is considering banking its entitlement through conjunctive use for future demands.

2.10. DESALINATED WATER

There are currently no opportunities to develop desalinated water.

2.11. CURRENT AND PROJECTED WHOLESALE WATER SUPPLIES

The water supply from the District does not currently rely on wholesale water supplies.

3. DETERMINATION OF DMM IMPLEMENTATION

The implementation of the Demand Management Measures has been described in above sections (2.7.1 – 2.7.14).

4. WATER SHORTAGE CONTINGENCY PLAN

The District has a civic and legal responsibility to provide for the water-related health and safety needs of the community. In response a four-stage plan was developed for reacting to a water shortage, procedures for which are defined in Section 4.1.

In order to minimize the social and economic impact of water shortages, the District prudently manages water supplies. In correlation with the Urban Water Management Planning Act 1999 amendment, the District provides a 3-year estimate of minimum water supply as shown in Section 4.3. The contingency plan is designed to provide a minimum of 60% of normal supply during a severe or extended water shortage.

The District's priorities for use of available water during a water shortage are:

A. Fire protection, health, and welfare emergency uses.
B. Domestic-interior uses only (residential).
C. Public buildings, school-interior uses only.
D. Commercial and Industrial-interior use only.
E. Commercial and Industrial-other uses (not including landscape watering or other nonessential uses).
F. Domestic-other uses.

The Stage 3 and Stage 4 health and safety allotments are roughly 68 gallons per capita per day (gpcd). These health and safety levels are used as a basis for water allocations using the priorities listed above. This provides sufficient water for essential interior use with no change in either water use habits or plumbing fixtures.

As mentioned, the District currently relies solely on groundwater. Rationing stages may be triggered by a shortage in aquifer supply, equipment failure, or catastrophe. Shortages may trigger a stage at any time.

The District has rights to surface water through the State Water Project. The water would be accessed through the west-end of the District, although there are currently no facilities in place to provide access such as line extensions, percolation ponds, or treatments plants.. If the District decides to access the surface water in the future, the Water Shortage Contingencies will be modified. Also the District has a potential temporary tie-in to the Hi-Desert Water District in emergency situations.

Individual customer allotments will be based on a five-year base period. This gives the District a more accurate view of the usual water needs of each customer and provides additional flexibility in determining allotments and reviewing appeals. However, no allotment will be greater than the amount used in the most recent year of the five-year base period.

The District's General Manager will classify each customer and calculate each customer's allotment according to the methods described in Appendix D. The allotments will reflect seasonal patterns. Customers will be notified of their classification and allotment by mail before the effective date of the Water Shortage Emergency. New customers and connections will be notified at the time service commences. In a disaster, prior notice of allotment may not be possible. In that case, notice may be provided by other means, such as radio, television and newspaper. Any customer may appeal the General Manager's classification on the basis of use or the allotment on the basis of incorrect calculation; the appeals process is also set forth in Appendix D.

4.1. STAGES OF ACTION

The District's plan includes mandatory and voluntary stages; triggering levels and allotments for each stage are described in Table 7 below. A Stage 1 shortage involves a 25-40% shortage in available supply. A Stage 2 shortage is 40-50% shortage in available supply. A Stage 3 shortage involves a 50-60% shortage in supply. A Stage 4 shortage involves a 60%+ shortage in supply.

Table 7 - Water Supply Shortage Stages

Water Supply Shortage Stages and Conditions		
Stage No.	Water Supply Conditions	% Shortage
1	A reduction goal of 10% is triggered	25% - 40%
2	A reduction goal of 15% is triggered	40% -50%
3	A reduction goal of 20% is triggered	50% - 60%
4	A reduction goal of 25% is triggered	60% or greater

4.2. THREE YEAR MINIMUM SUPPLY

Because there is minimal correlation between hydrology and available water, the supply availability is not immediately impacted by annual variations in conditions. The groundwater supply is available to meet water needs for the next three-year period.

Table 8 - Three Year Estimated Water Supply

Three-Year Estimated Minimum Water Supply - AF/Year				
Source	Year 1	Year 2	Year 3	Normal
Groundwater	1782	1746	1694	1800
Total				

4.3. CATASTROPHIC SUPPLY INTERRUPTION PLAN

The Sub Basins in the District area are the limiting factor in groundwater production, but are expected to continue to produce reliable supplies even in a catastrophe (power outage, earthquake, other).

It is important that the water stored in the District's tanks are monitored and proactively managed to not allow the volumes of all the reservoirs to drop to very low levels. Standard practice is to maintain at a minimum the required emergency and fire flow storage within all tanks at all times.

The District has an emergency plan and intends to update it in the coming year to detail operational procedures in the event of catastrophic interruptions.

Some catastrophic procedures are listed in Section 4.6

4.4. PROHIBITIONS, PENALTIES AND CONSUMPTION REDUCTION METHODS

The District's current rate structure is provided in Resolutions 04-665 (see Appendix C). During any declared water shortage emergency, a customer who exceeds the established allotment will pay a surcharge of two times the highest rate tier per hundred cubic feet (hcf) of water for excess water delivered during the first or second billing period, and a surcharge of four times the highest rate tier per hcf for excess water delivered during the third and subsequent consecutive billing periods.

As used herein, "excess water" means the amount of water delivered in excess of the specific customer's established allotment during any billing period; however, if a customer's total annual usage is equal to or less than the annual allotment, any surcharge payments will be refunded to the customer. A similar adjustment will be made for each successive twelve-month period during the term of the rationing program; if the program is terminated prior to a full twelve-month term, the adjustment will be pro-rated.

If a customer exceeds the allotment usage for three consecutive billing periods, the District will install a flow restrictor at the service meter with a capacity of two gallons per minute(gpm) for meters up to one and one-half inch sizes (and comparatively sized restrictors for larger meters) for a period of seven days. The customer must pay a flow restrictor installation and removal charge of $100 before the normal service will be restored.

Service may be terminated to any customer who knowingly and willfully violates any of the provisions included in this chapter of the Plan.

4.5. ANALYSIS OF REVENUE IMPACTS OF REDUCED SALE DURING SHORTAGES

The District's average water revenues are slightly greater than 2 million dollars, approximately half of which the meter charges provide. All surplus revenues are currently placed in the District's reserve, which is used to fund emergency repairs, the steel line replacement program, and other water system capital improvements.

Table 9 - Revenue Impacts During Shortages

Actions and Conditions that impact Expenditures			
Condition	Estimated Revenue	% Reduction	Revenue reduction
Normal	$2,311,816	0%	$0
Stage 1	$2,242,461	3%	$69,354
Stage 2	$2,196,225	5%	$115,591
Stage 3	$2,149,989	7%	$161,827
Stage 4	$2,103,752	9%	$208,063

The above table contains predictions of the District's revenues with reduced sales. The table indicates the changes in revenues for a year-long shortage. It should be noted that, with the District's production capability margins and the current condition of the aquifer, any financial strain would only be for a period of time sufficient to affect repairs for a multiple pumping plant failure. The District maintains a financial reserve that is adequate to address the costs of multiple plant repairs, and has experienced such failures in the past. The District is adequately funded to respond to emergencies. (Table 9 data based on 2000 Joshua Basin Water District UWMP revenue reduction estimates)

4.6. DRAFT ORDINANCE AND USE MONITORING PROCEDURE

Normal Monitoring Procedures - Under normal water supply conditions, production figures are recorded daily in the District's computerized database. Total production measurements are taken in the field and the data is totaled. High demand days are determined at the end of each month, as well as at the end of the year. Water storage reservoirs and well and booster pumping plants are monitored on a continuous basis by telemetry at the District's headquarters, with alarms for abnormal conditions.

Stage 1 and 2 Water Shortages - During Stage 1 or 2 water shortages, daily production figures will be reported to the Chief of Operations, who will compare

the weekly production to the target weekly production to verify that the reduction goal is being met. Weekly reports will be forwarded to the General Manager.

Monthly reports will be provided to the Board of Directors and to the Customer Service Department; the latter will serve as the District's Water Shortage Response Team. If reduction goals are not met, the Water Shortage Response Team will examine individual customer usage and corrective action will be taken.

Stage 3 and 4 Water Shortages - During a Stage 3 or 4 water shortage, the procedure listed above will be followed, with the addition of a daily production report to the General Manager.

Disaster Shortage - During a disaster shortage, production figures will be reported to the Chief of Operations hourly and to the General Manager and the Water Shortage Response Team daily.

5. Recycled Water Plan

The District currently does not have an independent recycled water plan. The size of the District, the extent of facilities needed to be effective, and the economic impacts of implementing a recycled water distribution system present a compelling reason for not pursuing recycled water at this time. A study is underway to determine if a wastewater collection is feasible and desirable. An outcome of the creation of a collection system would be the opportunity to treat to tertiary standard for recycled water use. Connections serviced by the District currently have septic systems.

6. Water Quality Impact on Reliability

Groundwater produced by the Joshua Tree Sub Basin and the Copper Mountain Sub Basin is of high quality, and meets all federal and state standards for drinking water. The size of the groundwater source provides many options for alternate well sites and recharge facilities.

A groundwater study is currently in process. This study should provide information regarding the effect of the overdraft on the quality of the water.

7. Water Service Reliability

Although the District currently has five active pumping plants, entitlement to the water from Mojave Water Agency provides an alternate source of supply, improving the District's ability to maintain continuous potable water service (after construction of needed infrastructure).

The groundwater basins of the District act as a long-term storage facility for the region. As mentioned before, all water demands in the area are met with these

groundwater supplies. While the increased groundwater pumping in excess of natural supplies over the last few years has resulted in a slight decline in groundwater elevations, the groundwater basins remain capable of meeting annual water demands through dry years and consecutive multiple dry years.

8. ADOPTION AND IMPLEMENTATION OF UWMP

The District's Board of Directors adopted the updated Plan in December of 2005 with Resolution #05-783 (Appendix B). The District will submit the updated Plan to the Department of Water Resources within 30 days after its adoption, as required by Section 10644 of the Act. This updated Plan contains information required by the Act, which is necessary to plan for the efficient use of urban water supplies within the District's service area. Prior to its adoption, the District's board of directors and the public reviewed the Plan.

The water supply situation is frequently dependent upon forces beyond the local control of the District. The environment and the actions of other agencies can have significant impacts on local water supplies; the recent seven-year drought is an example of the environment's actions, while declines in water tables following excess pumping are an example of other agencies' actions. This Plan, while not enabling the District to control the environment, or the actions of other agencies, does allow the District to plan to mitigate the impacts of these forces through implementation of conservation measures. The plan allows the District to budget the staff and resources necessary to ensure that it continues to meet the water demands of its customers in a fair and equitable manner.