

Additional Water Uses and Losses

The following table indicates additional water uses and losses. The column entitled “Unaccounted-for system losses” includes fire protection water, leaks in the transmission and distribution system, and customer meter losses.

Additional Water Uses and Losses in AF (Table 7)

	2000	2005	2010	2015	2020	2025	2030
Construction water	19	21	23	25	28	31	34
Unaccounted-for system losses	186	285	335	385	418	450	482
Total	205	306	358	410	446	481	516

Total Water Use in AF (Table 8)

Water Use	2000	2005	2010	2015	2020	2025	2030
Sum - Tables 6 & 7	2,814	2,975	3,506	4,023	4,368	4,713	5,058

Section 2 – Step 7: Demand Management Measures

Since 1990, the District began implementing various water conservation measures by the adoption of various resolutions and ordinances. The following provides an overview of the various programs in effect, and those that were in effect at some time and discontinued:

(A) Water survey programs for single-family residential and multifamily residential customers:

The District currently conducts water surveys for both of these classes on a voluntary basis. The program began in 1990 and is free for customers who call the District and make an appointment.

The survey is completed by a District representative who arrives with a checklist of tasks to perform. These tasks includes the following:

- Checking for leaks, including toilets, faucets and use of the meter to check for leaks.
- Checking showerheads and toilets for low flow efficiency.
- Checking irrigation systems and timers for proper functionality.
- During the winter months, checking for properly wrapped water pipes including swamp cooler lines.
- Educate the customer on checking for leaks.
- Educate the customer of the advantages of low-flow toilets and showerheads if non-existent.
- Review the District’s seasonal watering hours with the customer.

Since the District representative is usually a subcontractor, this person is compensated on a per-survey cost. Currently this cost is \$13.50 per survey.

The following table provides data on the quantity of survey performed for 2001 through 2005. Both single-family and multifamily survey quantities have been combined into one since the data that separates these two classes is not readily available. Additionally, determining water savings from this program is not provided since the District has many programs in effect to conserve water and isolating this particular program would not be feasible.

Water Surveys Performed (Table 9)

Actual	2001	2002	2003	2004	2005
# of Surveys	204	180	219	242	202
Expenditures - \$	\$2,754	\$2,430	\$2,957	\$3,267	\$2,727

(B) Residential plumbing retrofit.

In 1990, the District implemented a residential and commercial plumbing retrofit program through Resolution No. 90-4 (**Attachment 2-3**). The program requires that all fixtures be replaced with low-flow fixtures whenever a structure is sold or rented to a new tenant. Those fixtures include toilets to ultra-low-flush, showerheads, and the new installation of flow restrictors. The District does not currently provide the low-flow fixtures to customers.

To date, it is estimated that approximately 65% of the District has been completed. It is estimated that the water savings from one retrofitted home is approximately 9,700 gallons per year. This savings will of course increase as the remaining homes throughout the District are retrofitted. Compliance with the retrofit requirement is completed by a District representative who is a subcontractor. This individual is compensated \$6.00 per inspection.

The following table provides data on the quantity of retrofit inspections completed since 1992. Both single-family and multifamily classes are combined into one.

Plumbing retrofit inspections performed (Table 10)

Actual	1992-2001	2002	2003	2004	2005
# of inspections	3,441	491	716	557	678
Expenditures - \$	\$20,646	\$2,946	\$4,296	\$3,342	\$4,068

(C) System water audits, leak detection and repair.

The District does not conduct system water audits or leak detection at this time. The District is undergoing an aggressive pipeline replacement program targeting undersized and aging transmission and distribution pipelines. Due to the condition of the existing pipelines, the District has been experiencing a high volume of leaks on a yearly basis. Because of the soil conditions in the Yucca Valley area, the vast majority of leaks are visible on the surface. The quantity of leaks

and amount of lost water in any given area, determines the priority of which pipes need replacing.

The pipeline replacement program began in 1995 and the District budgets \$800,000 - \$1,000,000 per year. The District utilizes an in-house crew as opposed to the bid and contract process for replacing the lines. This method has provided the opportunity to install more quantity of pipeline than otherwise could be installed.

Unaccounted water for the District can be attributed by many factors such as:

- Main line leaks
- Slow registering water meters
- Use of water through fire hydrants for fire fighting purposes

Upon the near completion of the pipelines targeted for replacement, it is anticipated a reduction of main line leaks will occur.

In addition to a pipeline replacement program, the District began a water meter replacement program for those meters that have recorded an excess of 2,500 units or 1.8 million gallons of water. Replacing these meters assures that all of the water flowing through those meters are accounted for.

The following table provides data of unaccounted water within the District’s service area:

Unaccounted water (Table 11)

Actual	2001	2002	2003	2004	2005
Water Produced (AF)	2,823	3,101	3,126	3,188	2,975
Water Billed (AF)	2,633	2,804	2,772	2,832	2,764
% of unaccounted water	6.7%	9.6%	11.3%	11.2%	7.1%

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

Every water account provided by the District is metered and a monthly consumption charge applies according to water usage. The District’s water rate structure consists of five tiers—initially developed to encourage conservation.

While every water service is metered, there are various classes of service to which the monthly fees are charged. One class of service billed differently is a multi-family account. These particular accounts typically contain one water meter to serve water to multiple units. As a result, an equation exists that applies to the monthly fixed fees and consumption charges. For example, multi-family services are considered 2/3 of one unit and calculated accordingly while a mobile home park is considered 3/4 of one unit.

Currently, there is a policy in effect that requires individual water meters be installed for all new multi-family structures constructed. For those existing multi-family environments, there is no intention to require conversion to single meters per unit because of the method the water lines were installed for these services. Conversion would be cost prohibitive for the majority of the multi-family accounts.

(E) Large landscape conservation programs and incentives.

In 1995, The District adopted a landscape Ordinance No. 72 (**Attachment 2-4**), which applies to all new and rehabilitated landscape areas greater than 500 square feet for industrial, commercial, recreational projects, and developer installed landscaping. The ordinance establishes water budgets and requires water audits to ensure that the irrigation system is operating efficiently. The water budget is allotted based on water tolerant plants and turf. If the budget is exceeded by 10% in any given year, then a penalty water rate is applied. However, if the water consumer uses less than the budgeted amount by 10%, then a bonus rate is applicable. Water usage that neither exceeds nor is below the budget by 10% is calculated at the base rate. The irrigation rate is based on the price of State Project water the District pays to Mojave Water Agency.

While there are currently 46 irrigation accounts, eight of those are assigned annual water budgets—subject to the bonus, base, and penalty rate.

(F) High-efficiency washing machine rebate program

Currently, the District does not provide rebates for the purchase and installation of high-efficiency washing machines. This type of rebate program may be considered in the future. However, the District has developed a phased approach for water conservation rebate programs. In the forefront is a gray water rebate pilot program. Upon completion of this pilot program, other rebate programs may be considered for those installing hot water re-circulating systems, high efficient washing machines, and other water conserving appliances.

(G) Public information programs

The District has an ongoing public information program. Every year, approximately \$30,000 is budgeted for public information activities. The following is a summary of the activities performed on an ongoing basis:

- Internet service provides information about the District to computer users all around the world.
- Bill inserts provide relevant information on water conservation or other messages.
- District Board meetings are aired on local television.
- Messages-on-hold are provided to customers that telephone the District.
- Newspaper and radio public service announcements and paid advertisements.
- Landscape demonstration garden at the District's administration facility.
- Speaker's bureau on water conservation and other District subjects.

(H) School education programs

The District provides education programs as requested by the local schools but does not solicit these programs on an ongoing basis. Mojave Water Agency, which is the local State Water contractor, has assumed responsibility for school education programs within the Morongo Basin area. MWA officials work directly with the local college regarding water conservation and provide the necessary funding to accomplish this task.

(I) Conservation programs for commercial, industrial, and institutional accounts

Conservation programs for these particular classes is provided through the same programs as provided for single-family residential as previously discussed.

(J) Wholesale agency programs

This is non-applicable since the District is a water retail provider as opposed to a water wholesale agency. The District purchases its supplemental water from the Mojave Water Agency who is the wholesaler in this case.

(K) Conservation pricing

The District's water consumption rate is a tiered structure and has been since the late 1980's. While the structures and the tier amounts have been modified through the years, the concept of encouraging water conservation through the elevated tiered structure remains an active program.

Currently, there is a 5-tier rate structure in place. The District does not provide sewer service, therefore sewer rates are not an option at this time. All water accounts are billed according to this rate structure, with the exception of multi-family units, which are calculated with an additional factor (Please see (D) above). The following table is the District's current water rate structure:

Water rate tiered structure (Table 12)

Units (100/cu ft)	\$ per 100/cu ft
0 - 4	\$2.80
5 - 10	\$4.35
11 - 28	\$5.25
29 - 53	\$6.80
54 - over	\$7.60

(L) Water conservation coordinator

The District does not employ an in-house full-time water conservation coordinator. As previously described, the District employs a contractor to perform the retrofit compliance inspections and voluntary water surveys. This, in addition to the public information program,

previously described, has resulted in meeting the conservation goals of the District. There are no immediate plans to recruit a full-time conservation coordinator at this time.

(M) Water waste prohibitions

In 1992, a revised water use prohibitions ordinance was adopted, Ordinance No. 68 (**Attachment 2-5**). Within the ordinance are certain restrictions for water usage within the District's service boundaries, including the establishment of seasonal landscape watering hours. The ordinance established penalties for violations and opportunity for appeal. The following are highlights of the water waste prohibitions within ordinance:

- No hose washing of sidewalks, walkways, driveways, parking areas, etc., unless required by a regulatory agency for health or safety reasons;
- No water shall be used to clean, fill, operate or maintain levels in decorative fountains, unless such water is part of a recycling system;
- No person shall knowingly permit water to leak from any facility within the premises;
- No use of potable water is permitted to irrigate, water or sprinkle grass, lawns, etc. between the hours of 9:00 a.m. and 5:00 p.m. during the high use season which begins June 1 and terminates September 30 of each year. During this season, watering shall be permitted on any three (3) days of the week, of the customer's choice, but shall not exceed three (3) days of any week.
- In the low season beginning October 1st and ending May 31, watering is permitted at the discretion of the individual customer according to the weather conditions taking into account temperature and wind factors. During this season, watering shall be permitted on any three (3) days of the week, of the customer's choice, but shall not exceed three (3) days of any week.
- Water shall be allowed for construction purposes, including but not limited to de-brushing of vacant land, compaction of fills and pads, trench backfill and other construction uses, but shall be used in an efficient manner and not result in runoff.
- Potable water from within the District shall not be used to maintain dirt roads without application to the District.
- Restaurants shall provide water to customers only upon request.
- Non-commercial washing of privately owned vehicles, trailers, motor homes, busses or boats will not be permitted except from a bucket and a hose equipped with an automatic shut-off nozzle.

- No use of water for any purpose, except as provided herein, which results in flooding or run-off onto hardscape, driveways, streets, adjacent lands or into gutters shall be permitted.

(N) Residential ultra-low-flush toilet replacement programs.

This topic was previously discussed. Please see (B) Residential plumbing retrofit.

Section 2 – Step 8: Evaluation of DMM’s not implemented

Of the DMM’s previously described, the one not currently being implemented by the District is ***(F) High-efficiency washing machine rebate program.*** The following is a cost benefit analysis of implementing this program:

Assumptions:

- High efficiency washing machines average \$800 compared to a typical machine at \$400.
- A \$200 rebate could be offered to all participants.
- 200 households will participate in the rebate program in the first year.
- A high efficiency washing machine saves 5,000 gallons (.015 AF) per year per household.
- The District’s cost to purchase supplemental water is \$250 per AF.
- The life span of a high efficiency washing machine is 14 years.
- The discount rate is 3%.

Cost effectiveness summary (Table 13)

Total Costs (Year 1)	\$ 40,000 (200 rebates x \$200 ea)
Total Benefits	\$ 750 (.015 AF x 200 x \$250/AF)
Discount Rate	3%
Time Horizon	14 years
Cost of Water (\$ per AF)	\$250
Water Savings (AF/Yr)	3