

Mammoth Community Water District – Water Conservation Program

Chapter 1 – INTRODUCTION

This Water Conservation Program Plan is developed pursuant to the Settlement Agreement between the Mammoth Community Water District, California Trout, and California Department of Fish and Wildlife. The plan describes and evaluates water conservation measures implemented by the Mammoth Community Water District (MCWD or District) to reduce water demand. All of the water supplied to the community comes from local resources and the costs for developing new groundwater resources are high, therefore the District is conscientious and highly motivated to reduce system losses, reduce demand and help customers make effective use of the supplied water.

Chapter 2 – PROGRAM CONSERVATION GOALS AND PRIORITIES

The MCWD is committed to reducing water demand on an ongoing basis as described in Chapter 3. Code Book was revised in 2014 to update the water conservation and water shortage regulations and provide clear, time and penalty based steps for enforcing those regulations. The District declared a threat of water shortages in early 2012. In August the Board of Directors voted to implement Level 1 restrictions. These restrictions remain in place in 2014. The updated ordinances to the Code Book includes a goal of obtaining a 10% reduction of normal water demand.

The Code Book focuses on landscape irrigation as the main source of water demand reductions during times of threatened shortages. Recently, District staff have investigated and developed new tools and approaches to reducing inefficient irrigation demand. Multiple factors are involved in irrigation waste including high property manager turnover, poor understanding of appropriate irrigation principles, old and mismatched sprinkler systems, and lack of incentive to make changes. As described under various sections in Chapter 3, the MCWD has made great strides in addressing these obstacles and will continue to implement effective methods.

Water conservation activities for 2014 in order of priority:

1. Complete deployment of meter replacements.
2. Achieve the 10% demand reduction Level 1 (see Section 3.2 below) target. Reductions based on usage in 2013.
3. Continue outreach to top 100 water users to reduce water demand.
4. Site a California Irrigation Management Information System weather station in the Mammoth Lakes area.

Chapter 3 – EXISTING WATER CONSERVATION ACTIONS

3.1 Conservation Coordinator (CUWCC 1.1 A.1)

The District has regularly filled a staff position to promote and implement water conservation programs for over 15 years. However, due to the relatively small size of the customer base, the duties of the

position is combined with performing other environmental and regulatory tasks at the District. To promote water conservation on a more consistent basis, the District developed and filled a permanent position in 2013 that provides part-time, year-round assistance to the water conservation program at the District. The Water Conservation Program receives an annual budget of approximately \$100K, excluding personnel costs, to oversee a wide-range of activities as described in this plan.

Contact information for the Water Conservation Program Coordinator:

Irene Yamashita
 (760) 934-2596 ext. 314
 P.O. Box 597
 Mammoth Lakes, CA 93546
 iyamashita@mcwd.dst.ca.us

Effectiveness of program to result in water savings

The position is essential to inform the public about water demand reduction programs, perform outreach activities, and develop and administer water conservation activities. The District does not have a method to evaluate the overall effectiveness of the position to result in water savings. The Water Conservation department maintains several programs that have measurable savings and are described below.

3.2 Water Waste Prevention (CUWCC 1.1 A.2)

In 2014, the District updated the section of the Code Book related to water waste prohibitions, water shortage restrictions and enforcement of the regulations. The code update reduced the number of days that outdoor irrigation is allowed and added other prohibitions that will further reduce water waste. In addition to reducing the number of watering days, irrigation account customers will be in violation if irrigation usage exceeds 150% of a Maximum Applied Water Allowance (MAWA). MAWA allocations are based on landscape size, plant water needs and varies by month of the year. The Code Book update also created targets for reducing water demand during forecasted shortages conditions. Level 1 -3 restrictions are intended to reduce normal water demand by 10% for each level increase, e.g. Level 1 restrictions reduce demand by 10%, Level 2 restrictions reduce demand by 20% and so forth. Level 4 is intended to reduce customer demand by 50%.

To incentivize adherence to the code provisions for reducing water waste, the Code Book update also revised enforcement provisions. Multiple violations can result in financial penalties for failing to correct violations within a set number of days. In addition, a new phone line was added in 2014 to accept anonymous calls reporting irrigation violations (760-924-4511). The water conservation code to prevent water waste is described in the following table with the additional restrictions for the Level 1-4 water shortage conditions. The entire water regulation and enforcement portion of the Code Book may be accessed at <http://www.mcwd.dst.ca.us/assets/division-xii-of-chapter-12-.pdf>. Exemptions from the regulations are identified in the District’s Code Book.

Prohibitions	Stage when implemented
Irrigation is only allowed 3 days a week. Irrigation on permitted days is allowed between the hours of 5 pm to 10 am. The permitted days of week depend on whether you have an even or odd address.	Normal conditions
Irrigation hours reduced, irrigation allowed between 7 pm to 10 am.	Level 1
Irrigation hours reduced, irrigation allowed between 8 pm to 9 am.	Level 2

Prohibitions	Stage when implemented
Irrigation is only allowed 2 days a week. Irrigation hours reduced, irrigation allowed between 10 pm to 9 am. The permitted days of week depend on whether you have an even or odd address.	Level 3
All landscape irrigation, except golf courses, public parks, school playing fields, and landscape products of commercial growers and nurseries, shall be prohibited.	Level 4
No exemptions from time of day or day of week for watering with a handheld hose equipped with a shut-off nozzle.	Levels 2-4
No more than five percent of existing turf area may be replaced or reseeded.	Level 1-4
No new lawns areas requiring water from potable water system.	Level 1-4
No runoff of 50 feet or greater or no ponding of 0.25 inches or greater on impervious surfaces from any hose pipe, valve, faucet, sprinkler, or irrigation device connected to District supplied water.	Normal conditions through Level 4
No overfilling of swimming pools and spas.	Normal conditions through Level 3
No filling or refilling of residential pools and spas.	Level 4
No person shall permit leaks of water that he/she has the authority to eliminate.	Normal conditions through Level 4
Washing of outdoor hard surfaces with water allowed provided hose is equipped with an automatic shut-off device.	Normal conditions
No washing of outdoor hard surfaces with water unless required by health or safety requirements.	Level 1-4
Leaks must be repaired upon discovery by customer or within 5 days of notification from the District.	Level 1
Leaks must be repaired upon discovery by customer or within 3 days of notification from the District.	Level 2
Leaks, breaks or plumbing malfunctions shall be repaired upon discovery or within 48 hours after notification by the District with the exception of rental properties which shall have up to 72 hours to repair interior leaks.	Level 3
Leaks, breaks or plumbing malfunctions shall be repaired upon discovery or within 24 hours after notification by the District with the exception of rental properties which shall have up to 72 hours to repair interior leaks.	Level 4
Water for construction and maintenance activities may come from potable or reclaimed sources. Customers may utilize a fire hydrant meter supplied by the District or reclaimed water.	Level 1
Water for construction and maintenance activities must utilize reclaimed water. No potable water is for these activities is allowed.	Level 2-4
No vehicle washing is allowed unless the hose is equipped with an automatic shut-off device.	Normal conditions through Level 2
No vehicle washing except at commercial car washing facilities.	Level 3-4
A hose connected to an irrigation device, e.g. sprinkler, must be equipped with a timer that will automatically shut-off the water supply after a set amount of time.	Normal conditions through Level 4
No person shall permit misting of irrigation devices, operation of a broken sprinkler head or operation of a misaligned or improperly adjusted sprinkler head such that water is spraying over an impervious surface.	Normal conditions through Level 4
A customer with an irrigation meter shall not exceed 150% of the District Maximum Applied Water Allowance.	Normal conditions through Level 4
Dining establishments shall only serve water to customers on request	Normal conditions through Level 4

Prohibitions	Stage when implemented
Hotels/Motels shall offer customers with the option of not having towels and linen laundered daily by having a prominently displayed notice of this option	Normal conditions through Level 4
Filling or refilling of ornamental ponds is prohibited except to the extent needed to sustain plants or animals that have been actively managed within the water feature prior to the declaration of a Level 3 Condition.	Level 3-4

Enforcement provisions:

Violation #	Enforcement description
First violation	District issues warning. Customer has 48 hours to correct the violation if personally contacted. If notified by mail, customer has 7 days to correct. For violations concerning common areas, landscaping or vegetation, the District will contact the customer or his/her agents or employees. If oral communication is unsuccessful, the District will mail written notice of the violation to the customer's billing address. Correction times are the same as above.
Second violation	Same as first violation.
Third violation	District notifies customer by mail. The customer has 7 days from the date of the notice to correct the violation. If not corrected, a fine of \$50 per day will be charged to the customer until the correction is made or the meter is disconnected or a flow restrictor is installed.
Fourth violation	If violations concern irrigation, the District may disconnect the irrigation meter or install a flow restrictor in a mixed meter. If there are four violations of whatever nature, then the District may install a flow restrictor to reduce water service for essential uses only, if there is a separate meter for irrigation, the District may disconnect that meter. For violations concerning common areas, the District may disconnect all the customer's irrigation meters if the customer's common areas, are separately metered. If irrigation is not separately metered, the District may install flow restrictors on all of the customer's meters to reduce water service for essential us only. For all disconnections, the District will notify customers in advance, 48 hours if personal contact or one week notice if customer is notified by mail.
Restoring Service	
In the event that service is disconnected or reduced pursuant to subsections A.3 or A.4 above, service shall not be restored and flow restrictors shall not be removed until the customer pays the District the sum of \$100.00 per meter which is disconnected and \$200.00 per meter for which a flow restrictor is installed in order to reimburse the District for its costs in disconnecting or reducing service, and then restoring service, and a fine of \$500. The District shall have 5 working days from the date of payment to restore service and/or remove the flow restrictors. Upon restoration of service, the customer will be subject to the provisions of this subsection A, except the customer will be considered to already have received 2 warnings.	

If a flow restrictor is installed, there shall also be a \$20 monthly fee to administer the process water use information, monitor water use and install the restrictor.

The District also updated the Code Book in 2012 and 2013 to address changes in the California Green Building Code (Green Code) in regards to water conservation fixtures. In 2012, the District developed new fixture counts for the high efficiency fixtures to incorporate their reduced water demand. The Green Code does not apply to remodel projects, however, by allowing remodel project to apply the new fixture count tables to avoid the cost of installer a larger meter, the projects installed high efficiency fixtures in accordance with Green Code fixture requirements.

To reduce water waste in new landscape projects, the District worked closely with the Town of Mammoth Lakes from 2008 to 2013 to update the Town's Water-Efficient Landscape Ordinance (WELO) and supporting documents. The revisions were adopted by the Town Council in 2014.

Effectiveness of program to result in water savings

The District tracks monthly water demand but it isn't possible to directly attribute changes in use to the prohibitions. Water demand is heavily influenced by irrigation demand and irrigation demand is heavily influenced by the weather. This variable makes it difficult to make a direct link between water demand changes and the District's conservation efforts. The District has been discussing how to best evaluate changes in water demand that incorporates the vagaries of the weather. However, the changes in the prohibitions and enforcement provisions are expected to reduce water waste.

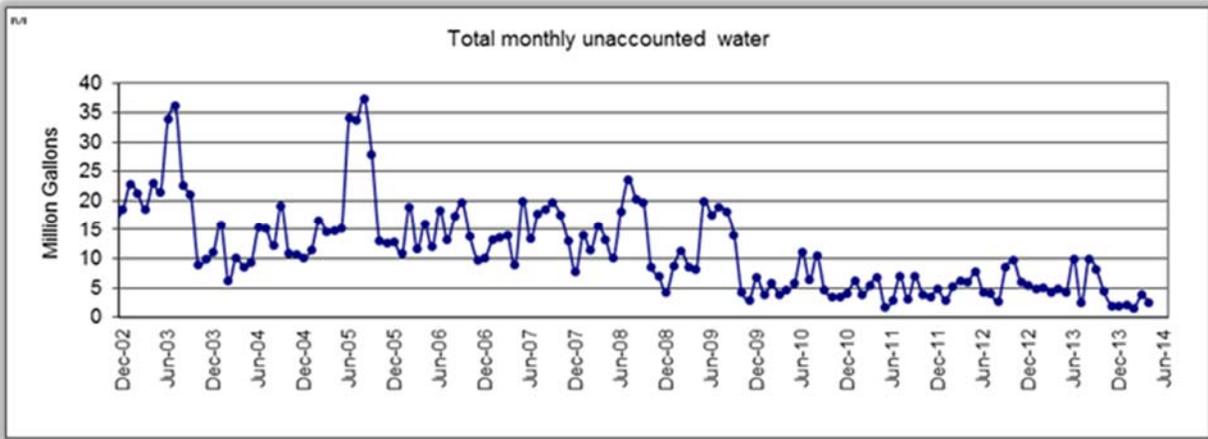
Remodel projects that install water efficient fixtures should reduce indoor water demand by about 20%. Water savings resulting from the Town's WELO will mostly apply to new developments. The new WELO does provide require applicants to submit landscape water budgets to the MCWD. These water budgets may be incorporated in the billing database for tracking compliance with MCWD's regulations. The Town of Mammoth Lakes Water Efficient Landscape Ordinance can be found in the town's municipal code, section 17.38.010.

3.3 Water Loss Control (CUWCC 1.2)

The District monitors distribution system non-revenue water losses monthly. The monthly auditing system has been an effective mechanism for quickly addressing unexpected water losses. The District recently completed a high priority project to reduce water losses. Over 110,700 feet of steel water line was replaced with ductile iron pipe. This project significantly reduced losses from old leaking mainlines. In 2013, the District began a systematic replacement of aging water laterals. District water loss reduction efforts have resulted in ameliorating to rates below 6%. Aging water meters may be contributing to non-revenue water losses and a project is in place this year to replace all meters in 2014.

Effectiveness of program to result in water savings

In 2010, over 200 million gallons of water were saved compared to 2002, largely attributed to the pipeline replacement project. The project water savings exceeded expectations. In 2005, the District estimated losses in 2010 would be about 760 acre-feet; however, actual losses were about 233 acre-feet. The reduction of non-revenue water is evident in the following graph. In addition, the replacement of the water mainline has significantly reduced the number of emergency calls to repair leaks.



3.4 Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections (CUWCC 1.3)

All District customers are metered per District ordinance. A plan to replace all MCWD meters with newer model meters is scheduled for implementation in 2014. The new meters are expected to have a lifespan of 20 years. The new meter technology will reduce the number and frequency of estimated meter reads and store hourly water usage information. The District budget includes the replacement costs for the meters in long-range budget projections.

Effectiveness of program to result in water savings

Metered water use allows the MCWD to apply tiered water conservation rates for domestic and irrigation demand. Next year, the District will be able to meter water usage hourly and will use this information to enforce watering regulations.

3.5 Retail Conservation Pricing (CUWCC 1.4)

MCWD customers are billed monthly for a base water service charge and a volumetric (commodity) charge based on the amount of water used. To encourage conservation and cover the costs for distribution and treatment, the volumetric rates are tiered so that increased usage results in higher rates per volume of water. This measure uses price signals to encourage the reduction of average or peak water use. All customers pay a monthly water fee which consists of a minimum base water service charge and a quantity rate charge. For example, single-family residential customers pay a base charge depending on their meter size. The quantity rate charge increases from \$1.46 per 1,000 gallons for the first 8,000 gallons of metered water used, the next 4,000 gallons cost \$2.44 per 1,000 gallons after two additional tiers, the highest tier, usage over 20,000 gallons, is charged \$7.97 per 1,000 gallons used. Commercial users are not charged on an increasing block rate like residential customers are. Instead,

they are charged a flat rate for each 1000 gallons used, multiplied by the rate factor of \$2.95 per 1,000 gallons of metered use. The charges described above represent fiscal year 2015 rates.

The District has also implemented tiered pricing for irrigation accounts based on Maximum Applied Water Allowances (MAWA) for each account. Rates are \$3.36 per 1,000 gallons for usage within the MAWA amount, \$4.29 per 1,000 gallons for usage above MAWA to 200% of MAWA and \$7.97 per 1,000 gallons for over 200% of MAWA. The District is evaluating whether monthly water demand from mixed-use meter accounts can be parsed into domestic and irrigation usage and billed accordingly. The ability to separate domestic and irrigation use would incentivize mixed use meter customers to reduce irrigation demand to meet MAWA. Significant barriers exist to installing separate irrigation meters at most of the older development projects in the District's service area. Most developments would require major re-plumbing work to separate irrigation from domestic use.

Effectiveness of program to result in water savings

There is no method for evaluating the direct results of using a price signal to reducing water demand.

3.6 Retail Wastewater Rates (CUWCC 1.4)

The MCWD provides wastewater service in its service area boundaries. There are no meters for measuring wastewater, therefore the District does not have a wastewater charge based on flow volumes.

3.7 Public Information Programs (CUWCC 2.1)

The District has a Public Affairs position pursuant to the District's Code. The responsibilities of the position include promoting knowledge and understanding of the area's water situation in general, promoting methods to conserve the water supply and keeping the public informed about all District Board meetings and other important District activities. The District considers the program as an important tool to maintain communication with the public and convey important messages regarding our water resources and other relevant activities. The Public Affairs position is part of the Water Conservation Department's responsibilities.

Outreach to the community is typically through advertising, billing inserts, the District's website and social media platforms, billing messages and news releases to the local newspapers and radio stations. The District also provides public speakers and attends local events as appropriate.

In 2013, the District started a Public Information Tour. Guests meet indoors to learn about the community's water supply resources, water treatment methods, the District's energy consumption and solar power array, and the wastewater treatment process. Guest are then given a tour of the wastewater treatment plant.

Effectiveness of program to result in water savings

There is no method to evaluate water savings resulting from this program. In 2014, the budget for advertising during this drought year was increased to maintain weekly contact with community about water shortages and the implementation of Level 1 regulations.

3.8 School Education Programs (CUWCC 2.2)

The District has been a co-sponsor of the Mammoth Middle School sixth-grade classroom program, LivingWise, since 2007. The program's approach to empower students to make changes in their own

homes that result in reduced water and energy demand is successful. Students typically start the class unaware of where their water resources come from, the processes required to ensure it's safe to drink, and what happens to all the wastewater that leaves their home. The program includes classroom discussions, home water and energy audits, and a "Resource Action Kit" containing water and energy conserving fixtures as educational and empowering tools.

In addition to funding assistance, the District takes the students on a field trip to see surface water measurement stations, visit the inside of a water treatment plant and learn about the processes required to deliver safe potable water to the community, tour the wastewater plant, and the 1 MW solar power array. In 2014, the LivingWise program administrators partnered with the District to bring more attention to the drought conditions in Mammoth Lakes. Students polled customers at a local grocery store to find out whether the customer was aware of the drought, knew where their water came from and whether they were taking any measures to conserve water. Students also entered local customers in a raffle for a high-efficiency toilet and passed out free water conservation devices that were provided by the District.

The program has been well-received by students and their parents. The District believes it is critical to inform our youth about the intricate processes and energy requirements necessary to deliver safe drinking water and to instill the importance of using water conscientiously. The program identifies state education standards and benchmarks for educators. The District does not have water conservation presentations in the other grade levels. Mammoth Lakes is a small community, and the District believes the annual sixth-grade program eventually reaches almost all of the local student population

Effectiveness of program to result in water savings

The majority of the students install the free water-efficient fixtures provided by the program in their homes. In addition to the long-term savings by the replacement program, the students completing the program have a new awareness of the reasons why water and energy conservation is important for their future. Based on the number of students that install the free fixtures, the program calculates water savings. In addition to these quantifiable savings, about half of the students report implementing lifestyle changes to save water and energy.

Summary of School Program Water Savings

Academic Year	Estimate of annual water savings (gallons)
2006-2007	Not quantified
2007-2008	539,744
2008-2009	426,069
2009-2010	702,065
2010-2011	322,869
2011-12	532,271

3.9 Residential Assistance Program

The District provides free showerheads and faucet aerators to customers on request. Customers violating the outdoor regulations that require shut-off nozzles and timers are given these items when a violation is observed. All of these devices are given to customers during public events where the District

staffs a display table. In 2014, the District provided the 6th Mammoth Middle School students with these devices for a local public outreach effort during the LivingWise water and energy conservation school program. The students were also given a free high-efficiency toilet as a raffle prize for customers participating in the student's water knowledge survey. In addition, the District's Permit Coordinator installs aerators during inspections if they are not already installed.

Water leaks are also controlled through review and comparison of customer billing data. Inconsistent or anomalous water usage may indicate leaks or failing meters. If billing data indicates a leak, customers are contacted and assistance is provided to find the leaks. Customers may also contact the District to request assistance to find leaks. Leaks on the customer side of the meter are the customer's responsibility to repair. In 2010, the District began a master metering project for customers with multiple meters on their property. The master meters will capture readings at the property line to reduce non-revenue water losses.

In 2015, the District will have an advanced metering infrastructure system in place that will alert District staff if a potential leak is detected. Potential leaks are identified as consistent low water usage throughout a 24 hour period. This new system will be better able to notify staff of potential leaks or unusual water usage patterns.

Effectiveness of program to result in water savings

The District does not closely track the number of showerheads and aerators distributed although the LivingWise program calculates water savings from fixtures based on student survey results. Fixtures provided by the District are frequently given away at community events and there is no follow-up to ensure that they were installed in a customer's home or business.

3.10 High-efficiency Clothes Washer Program (CUWCC 3.A.3)

Clothes washers are the second largest water user in the home. The District implemented a rebate program to incentivize installation of high-efficiency clothes washers (HECW) in 2009. HECWs installed in shared common areas are eligible for a slightly higher rebate. In 2010, the rebate amount was increased to attract higher program participation. Participation in the program remains low in comparison with the high-efficient toilet rebate program. Several factors that likely contribute to the discrepancy are: toilet rebate amounts can cover the entire cost of a new toilet while the cost of HECW are high even with a rebate, no local store carries clothes washers and delivery costs can be high, and the economy remains relatively depressed in Mammoth Lakes.

For the District's rebate program, eligible HECWs must have a water factor of 4.5 or less. In comparison, the criteria to certify a WaterSense home, requires installation of an EnergyStar rated washer with a water factor of 6.0. The USEPA estimates that, on average, an American family washes 400 loads of laundry every year and every load of laundry in a HECW uses about 35-50% less water than older style models. This consistent water savings is an effective and permanent method for implementing water savings without impacting lifestyle.

The District also believes that the presence of a rebate program is an ongoing reminder that water demand reduction is an important effort in our community. Review of rebate programs offered by other water utilities indicates the District's program is average to above average for the rebate amount.

Effectiveness of program to result in water savings

Summary of HECW Rebate Program

Fiscal Year	Number HECWs installed	Rebated funds
2010	0	\$0
2011	8	\$2,400
2012	16	\$4,800
2013	23	\$6,900

3.11 WaterSense Specification Toilets (CUWCC 3.A.4)

Toilets are the largest water user in the home. For the average family, installation of high-efficiency toilets (HETs) will result in a 20-60% savings in water, about 13,000 gallons per year. To encourage customers to install water efficient toilets, the District implemented a toilet rebate program about eight years ago. The program was updated in 2010 to align with the USEPA WaterSense specifications of 1.28 gallons per flush or less. High-efficient toilets (HET) are eligible for a \$200 rebate for the first two in a household. Additional HETs are eligible for \$100 each with no limitation on the number of rebates per household. Large year to year fluctuations in the number of toilets replaced are caused by large projects applying for rebates, for example a motel may apply to replace all toilets in their business in a given year. The California Green Building Code requires installation of HETs in new developments, therefore new building are not eligible for the District’s rebate program.

Effectiveness of program to result in water savings

The District maintains a database of all applicants and fixtures replaced through the rebate program. This database includes the gallons per flush of the existing toilets and adjusts saving if non-HETs remain in the home. The estimate of the program’s water saving is shown in the table below. These annual savings are permanent changes to the household water demand. The following assumptions were applied to develop the estimate of savings, each household has 2.4 people (Town of Mammoth Lakes General Plan 2007) and 5 flushes per person per day.

The District also believes that the presence of a rebate program is an effective reminder that water demand reduction is an ongoing effort in our community. Review of rebate programs offered by other water utilities indicates the District’s program is average to above average for the rebate amount.

Summary of Toilet Rebate Program

	Quantity replaced	Annual water savings (gal)	Rebate money expended
2006	73	177,609	\$2,500
2007	24	490,122	\$5,953
2008	5	127,020	\$1,800
2009	176*	222,650	\$2,700
2010	85	544,872	\$15,845
2011	159	886,951	\$30,317
2012	176	960,797	\$31,196
2013	302	1,723,575	\$54,262
Totals	722	5,133,596	\$144,573.00

* Program changed in 2009 to include higher rebates for 1.28 gallon per flush toilet. In 2010, only 1.28 gpf or lower were eligible for rebates.

3.12 Commercial, Industrial, and Institutional (CUWCC 4)

The District does not have any industrial accounts. Water conservation for commercial and institutional customers is encouraged by:

- a) The indoor and outdoor rebate program includes higher rebate amounts for shared fixtures and larger landscaped areas.
- b) Monthly service charges are based on meter size. Meter size is determined by fixture counts.
- c) A District ordinance to increase water rates for commercial irrigation meters that exceed maximum applied water allowance (MAWA) as calculated for each irrigation meter. The landscape irrigation price tiers were implemented in 2012. See Section 3.5
- d) Irrigation account customers equipped with newer meter received hourly water usage data that revealed leaks, violations of irrigation regulations, and poor management practices. On-site irrigation management assistance was provided to these and other customers on request.

Effectiveness of program to result in water savings

Significant water saving have resulted from working with irrigation account customers. The District has been focusing water conservation efforts on wasteful irrigation practices because it holds the greatest potential for water savings. The effort requires significant staff time to develop reports for the customer, present the reports to HOA and property managers, assess the irrigated areas and follow up on recommended changes throughout the entire irrigation season.

The rebate program does not seem to provide much incentive for commercial and industrial customers to replace fixtures. However, the District has not conducted a saturation study to determine whether the level of need for more efficient fixtures is high in this customer category. The table below shows the commercial rebate estimated water savings and rebate amounts

Summary of Commercial Rebate Program.

Fiscal Year	Toilets replaced	Showerheads replaced	Est. annual water savings (gal)	Rebate money expended
2007	1		14,892	\$100
2008	0		0	\$0
2009	9		141,694	\$1,756
2010	4		15,287	\$543
2011	40		78,990	\$7,430
2012	4		19,447	\$754
2013	11	102	60,935	\$7219
Total	69	102	331,245	\$17,802

Additional effort could be made for to reduce water use in this category of customers. The Water Conservation is currently focused on reducing irrigation waste as the top priority.

3.13 Landscape (CUWCC 5)

Since 2012, the District has focused water conservation efforts on increasing irrigation efficiency and promoting low water use landscapes. If a customer is one of the 100 top water users and has a newer

model water meter that stores hourly usage data, an irrigation report was delivered to the customer. The report included water usage in hourly increments. Hourly usage is useful for finding irrigation violations and consistent low-level flows that indicate leaks in the irrigation system. The report also provided a Maximum Applied Water Allowance (MAWA) for the customer based on the size of the landscaped area. The reports included potential water financial savings, by month, if irrigation usage stayed within 100% of MAWA or less. (See Section 3.5 for a description of irrigation tiered pricing based on MAWA.) These water usage reports are also available to any customer that requests one. Breaking down usage in hourly intervals is only available to customers with the new water meter model. Approximately 30 irrigation reports were generated during 2012-2013 when the data interval pilot project was initiated. In 2014, the MCWD Board of Directors approved implementation of a meter replacement project to replace older meters with new meters capable of collecting hourly data. The new meters are anticipated to be operational by the end of 2014.

The irrigation rebate program has changed its focus on irrigation system improvement and smart controllers to new PRVs on irrigation systems. Smart controllers do not save water unless the irrigation system is well designed although some smart controllers installed on second homes resulted in water savings because irrigation was skipped if adequate rain was received. Irrigation system improvements have typically involved new sprinkler heads. Similar to the smart controllers, placing a water efficient sprinkler head on a poorly designed irrigation system does not always result in reducing irrigation demand. Installation of a PRV decreases misting and can increase sprinkler efficiency by 30%. Many older irrigation systems in Mammoth Lakes were designed for higher pressures and may no longer cover the same area under reduced pressure. However, because misting causes high water losses, the District has included misting as a water regulation violation. To increase the efficacy of the rebate program, interested customers must now meet with District staff to present their proposed landscape changes. If the proposal looks promising, an onsite visit is required to evaluate the planned improvements. If the proposal is approved, the customer must work closely with the District to ensure the proposed project is implemented according to plans and the landscape project results in actual water savings.

The District hosts community workshops on topics such as efficient irrigation systems and landscape management. In 2014, the District held its first certification course for the Qualified Water Efficient Landscaper program. Six evening classes were held at the District covering a broad range of topics. Students seeking certification also took an exam and must complete a water audit for certification. This certification is acceptable for conducting water audits required under applications for the Town's recently adopted Water Efficient Landscape Ordinance.

In late 2013, the District began a project to locate a Crop Irrigation Management Information System (CIMIS) weather station in Mammoth Lakes. A CIMIS station would provide verifiable reference evaporation-transpiration (ET_o) values for MAWA calculations. Newer irrigation control stations can utilize these locally derived ET_o values directly from the station and irrigate according to real time plant water needs. District staff and the Department of Resources located a couple of potential sites and developed a land use agreement for citing the station on private property. The District is conducting discussions with the land owners over placement of the CIMIS station.

Shut-off hose nozzles and hose timers are also provided free of charge to customers observed to be violating regulations requiring the use of these conservation items. The District also provides propagation and sales assistance to the local California Native Plant Society to increase the availability of native plants for landscapes in our region.

Effectiveness of program to result in water savings

In 2013, water savings from irrigation customers that received water usage reports saved about 8 to 9 million gallons of water. Many of these customers also received repeat visits and phone calls from District staff and one-on-one assistance with irrigation specialist. Personal contact with customers to discuss violations, actual usage comparisons with MAWA, potential financial savings, and to make recommended changes has been successful although the demand on staff time was high. The meter replacement program that will be fully implemented for the 2015 irrigation system will alleviate some of the time required for this program.

The District’s update to the Code Book now identifies irrigation usage over 150% of MAWA as a violation and is subject to fines and shut-offs if multiple violations are observed. Customers with MAWA accounts have been calling the District for information on their water usage to avoid a violation.

Summary of outdoor rebate program:

Outdoor rebate program					
	Number of applicants	Sprinkler improvements	Controllers	PRV	Rebate money expended
2009	2		x		\$2,951
2010	12	x	x	x	\$11,456
2011	2	x	x	x	\$2,492
2012	5	x	x	x	\$2,047
2013	23	x	x	x	\$9,242
Total	44				\$28,188

Chapter 4 – SUMMARY

The MCWD has had a long-term commitment to reducing water waste through facility maintenance and improvements and in partnership with our customers. This report reviews the multiple programs being implemented to meet our desire to ensure our water resources are being used effectively. Our community has the unique challenge of having a high percentage of developments that serve second home owners. These customers can be difficult to contact and influence because they do not receive the District’s messages on local media. Both second homeowners and multi-family residents often remain unaware of their water usage amount and cost because bills are typically sent to accountants or homeowner associations. Despite the challenges in our customer base, the Water Conservation Program continues to gain insight on programs that work for our customers. Conservation programs are reviewed annually and revised as necessary to meet the needs of the District and our customers. We believe we have made long lasting changes to decreasing our non-revenue water losses and to decreasing customers’ water demand as demonstrated in this report.