



**PLAN TO ASSIST LOW INCOME RESIDENTS
WITH WATER USE EFFICIENCY**

**City of Yreka
Department of Public Works
Water Division**

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1. Background

1.1 The City of Yreka Water System

Yreka is an old city for California, settled in 1851 and incorporated in 1857 during the north state gold rush. Much of its older water supply was from wells and the distribution system was installed in increments over the years. As the City grew, population increases, droughts and water shortages began to have greater impacts. In 1968, the reliable and high quality Fall Creek water source 23 miles to the northeast was developed, along with a 24 inch transmission line, pumping and treatment plants and water tank reservoirs. Although Yreka has a good source of water from Fall Creek and the existing system functions adequately, after 42 years, significant infrastructure repairs, replacements and upgrades are needed.

For a comprehensive look at present and future water system requirements, the City prepared and approved the 2005 Yreka Master Water Plan. The City established an enterprise fund system for water and sewer services which operate similar to a business in that they are self-sufficient and fully supported by user fees. In 2008, the City also reviewed its rate structure to ensure that sufficient revenue would be generated to pay for the required improvements and remedial work identified in the Water Master Plan. Construction was started in 2010 on an \$11 million dollar project, funded by a USDA Rural Development loan and grant, to start improving deficiencies in the water system and to meet new State and Federal Regulations.

In 2010, Yreka reached the key water service threshold of over 3000 connections, and was required to prepare its first Urban Water Management Plan (UWMP). The California Water Code requires preparation of an UWMP for submission to the State Department of Water Resources, and periodic updates thereafter. The Yreka City Council approved the UWMP in June of 2011.

1.2 Federal and State Laws

The City must comply with the regulations of laws enacted; including the Federal Clean Water Act of 1972, the State 1974 Safe Drinking Water Act, the State 1986 Surface Water Treatment Rule, Proposition 65 California Safe Drinking Water and Toxic Enforcement Act of 1986, the California Safe Drinking Water Act of 1995, and the State 1998 Enhanced Surface Water Treatment Rule. The City is experiencing significant cost increases as it works to comply with these requirements and standards.

In addition, the City must also comply with the California Water Conservation Act of 2009, which requires that per capita urban water use statewide be reduced by 20% by 2020. In the Yreka UWMP, a 2020 target GPCD (gallons per capita per day) was set for compliance with State law. Urban water systems that do not meet the requirements of the Conservation Act by 2016 will not be eligible for State water grants or loans.

2. Rising Costs of Domestic Water to Customers in Yreka

2.1 Water Enterprise Fund

The City of Yreka operates its domestic water system as a Water Enterprise Fund, and customer water rates must generate sufficient revenues to cover the costs of system operation, replacement and maintenance needs, and debt service for capital improvement loans. Yreka has adopted a Development Impact Fee ordinance to provide funds for growth related improvements to the water and wastewater systems.

2.2 Water Utility Rate Study

In 2008, the City completed a Water and Wastewater Utility Rate Study that reviewed the current rate structures and recommended possible rate adjustments. The Study found that the current rate structure was not equitable for residential customers because they were paying more than their fair share of the costs of providing the services received. In addition, the previous rates did not produce enough annual revenue to pay for replacement capital improvements, for debt service for new capital improvement loans, or for reserve funds for emergencies and seasonal revenue variations. The Rate Study recommended that the water rate structure be changed to a more customer-equitable meter size base rate plus consumption costs. To encourage water use efficiency as required by the State, the study also recommended a tiered rate structure wherein the cost per unit of water is increased for higher consumption.

2.3 Increasing Costs for Construction, Operation and Maintenance

According to the 2008 City of Yreka Utility Rate Study, the cost of water supply and treatment, water distribution and meter replacement increased by about 63 percent between 2003 and 2007. These increases were primarily in the costs of materials, manufactured goods and equipment, fuel, electrical power for pumping, and construction services. Most of these costs have continued to rise and are projected to continue to increase in the future.

Previously, water rates had been adjusted annually based on a statewide cost index. As recommended in the Utility Rate Study, in October 2008 Yreka implemented a five year rate increase plan with tiered rates to produce the revenue required to cover planned expenditures. By 2012, after full implementation, the monthly service rate will be increased approximately 100% over 2007 rates, and the consumption charges will also significantly increase.

3. Assistance for Low Income Water Customers

3.1 Yreka Household Incomes

In 2007, a Citywide Household Income Study for Yreka was performed, funded by a CDBG PTA grant. The study showed that 68% of Yreka households surveyed were low income Target Income Group (TIG) households based on random, representative sampling methods. City staff, through utility bills and other contacts, understands that many of the customers in TIG households are seniors, have fixed incomes and/or are health-impaired. Any increase in a basic cost, such as domestic water, can have a significant and disproportional impact on low income households. However, the Yreka water system must be financially self-supporting, even if it means increased water rates. Saving water and, therefore, money can be very important to TIG households.

3.2 Importance of Good Household Water

The City has invested considerable effort and funding over many years to ensure that all of its citizens and utility customers, regardless of income, are provided with a sufficient quantity of high quality domestic water in their homes. The benefits of good drinking water to its recipients are safety from water-borne toxins and disease, and the provision of a foundation for healthy living conditions.

3.3 Benefits of Gardens and Irrigation

Irrigation of landscaping and gardens takes a significant amount of domestic water because of Yreka's western inter-mountain climate with a hot, dry summer and no significant rainfall. Efficient use of water in landscape and garden irrigation can be an important consideration for saving water, and money, in low income households. For TIG households with stay-at-home seniors and health-impaired residents, landscaping can become important for both health and finances. An example would be shade trees to keep summer house temperatures down, instead of high cost air conditioning. For low income families in these lean times, vegetable gardens can provide low cost and high quality produce.

Multi-family residential developments have landscaped common areas, and public facilities have landscaped grounds. Landscaping provides environmental and livability benefits for the residents of the apartments, users of public facilities and for the City as a whole.

It is important to provide water for these outdoor areas as well as for domestic use to support these intangible values, but outdoor water usage must be examined periodically to ensure that this precious and limited natural resource is used effectively.

3.4 Planning to Assist Low Income Water Customers

This report documents how the City is planning for programs and practices that will assist low income customers in saving water and reducing their water bills. Main planning efforts were as follows:

1. Investigations to determine if the water system is operating as effectively and efficiently as possible in order to minimize operational costs paid by water customers.
2. Develop a methodology for contacting low income water customers for water use efficiency surveys and distribution of educational materials.
3. Develop and test prototype surveys for representative samples of TIG customers regarding current water usage and conservation to assess the potential for reducing water use.
4. Develop and test prototype educational materials and instruction in water conservation for low income customers.
5. Determine training needs for City staff or others, as required to assist TIG customers.
6. Develop a program to investigate replacement or new installation of water efficient appliances, fixtures, and irrigation equipment in low income households.
7. Investigate financial incentives and program costs for assistance to low income households.

4. California Urban Water Conservation Council

4.1 Reference Materials and Methodology

The City of Yreka is a member of the California Urban Water Conservation Council (CUWCC), an organization of water suppliers, environmental groups, consultants, manufacturers, and water consumers who are interested in saving the State's essential and limited water resources. Since the year 2000, the City has been a signatory to a Memorandum of Understanding (MOU) between the water suppliers in the CUWCC; which outlines a series of Best Management Practices (BMPs) designed to conserve limited urban water resources. The City is required to perform work on compliance with the BMPs each calendar (water) year, and to report to the CUWCC biennially.

The Council, staff, MOU document and its BMPs have provided reference materials, methodology and contacts with other water agencies; which have been valuable to plan the water use efficiency program for Yreka's low-income customers.

4.2 Water Efficiency Coordinator

In 2008 the City of Yreka created the position of Water Efficiency Coordinator in the Department of Public Works. The Coordinator, with the assistance of other City staff, has been primarily responsible for the planning efforts to assist low income customers with water efficiency.

4.3 CUWCC BMPs for Low Income Customers

Four of the CUWCC BMP's for water use efficiency are relevant to the planning efforts for TIG customers. These four BMPs are as follows:

BMP 1.2 Water Loss Control - A water system audit and balance to evaluate overall system efficiency and the distribution of operational costs.

BMP 2.1 Public Information - Educational programs and materials on water efficiency for residential households.

BMP 3. Residential - Single-family and multi-family residential household, and single family landscape water use surveys to provide planning data for leak detection, fixture replacement and water-efficiency education programs for low-income households. Guidelines for reimbursement or rebate programs for installation/replacement of water efficient appliances, fixtures, and equipment in targeted households.

BMP 5. Landscape – Multi-family residential and public facility landscape water use surveys to provide planning data for water use and cost reduction.

5. Overall Water System Efficiency

A water system audit and balance can be a valuable planning tool. It addresses system operation, real water losses, apparent water losses, annual system costs and customer water costs. To assess the overall efficiency, a Water Audit and Balance using American Water Works Association M36 software, was performed for the Yreka water system for 2009. City staff in the Finance Department utility billing, and Public Works Department Maintenance and Water Divisions produced the data for the Audit.

The Audit revealed that the water system is generally working well, that real water losses are within norms, and that the costs of producing and distributing domestic water in Yreka are comparable to other water systems in the region. The audit did not identify any significant changes that could be made in the City of Yreka water system that would both provide the quantity and quality of domestic water required, and would reduce system costs for low income households.

6. Contacting TIG Water Customers

6.1 Identification of TIG Households

This task involved establishing effective methods to identify and contact TIG households for water conservation assistance. This is a critical element in this program because water services are provided to all customers without regard to income status. There is no easy way to identify TIG water customers for a focused water efficiency program so for this report, the City developed and tested several different mechanisms.

In 2007, a Citywide Household Income Study was performed by Great Northern Corporation, funded by CDBG PTA Grant #07-PTAG-3673. From a list of 3,117 total

addresses in Yreka, 474 residents responded, and after appropriate follow up, 321 were identified as TIG households. Great Northern estimated that approximately 68% of Yreka households were at the low income level; which is 80% of County median family income for the household size. For this planning study, in 2010 the list of all utility bill customer addresses was compared with the Income Study TIG household list to produce a contact list of 77 potential TIG water customer households. In addition, the 20 water customer accounts which had applied for a senior or low-income utility bill discount in 2010 were identified as TIG households. Thus, a total of 97 TIG water customer households were identified on a contact list to offer appointments for on-site water use surveys. These easily identified TIG customers were contacted in 2010 with limited success.

Therefore, planning for a different method was needed for future contacts. In 2011 a second sample of customers were contacted to test identification for low income. Because 68% of Yreka households were identified as low income, the first 2011 contact list started with the highest water users. It was assumed that the higher water users would include a representative percentage of TIG households, and that they could use the most help in reducing water bills. For TIG verification in 2011, all households surveyed were asked to identify whether their income was above or below the TIG threshold. After results of initial on-site surveys were analyzed, it was determined that the higher water users did not include a representative number of low income households. An additional contact list was developed for 2011, starting from the average water level use. All of the on-site survey households from this additional contact list were below the TIG threshold.

6.2 2010 Plans for Contacting TIG Water Customers

Contact with TIG household water customers could be made by mail, phone or email. Mail and phone contact were determined to be the best contact methods because many customers, especially low-income residents, do not have access to the internet at home. The plan to contact customers to test the on-site surveys for efficacy involved two approaches as follows:

- In 2010, all 97 identified TIG residential water customers were contacted by phone, and if reached, asked if they wanted to set up an appointment for a water use survey. Phone calls were made during business hours. A copy of the script for phone contacts is attached as *Appendix A*.
- In 2010, a sample flyer consisting of water efficiency information, a water use self-survey form and contact phone numbers, was mailed with the utility bills to all 3502 customers. It was planned that this method would reach additional potential TIG customers not previously identified. A copy of the flyer is attached as *Appendix E*, and the self-survey form is attached as *Appendix C*.

The following table shows the success rate of the contacts for 2010:

RESIDENTIAL WATER CUSTOMERS	CONTACTS	SURVEYS	% of contacts requesting surveys
77 Identified TIG Households, phone	49	15	19%
20 Senior Low-income, phone	17	7	35%
3502 All customers, mail	3	3	< 1%

6.3 Analysis of the 2010 Contacts

From the 2010 experience, it is evident that direct phone contact works better than mailed information for contacting customers to convey water efficiency information. The initial list of 97 TIG customers in 2010 yielded about 66 actual phone contacts, or about 68% contact success. From the 66 phone contacts, 22 on-site surveys were conducted or about 33%. Phone contacts were somewhat limited by the lack of phone numbers, due to no answering machine, disconnected numbers, and customers not wanting to publish their phone numbers. Many of the phone calls made during business hours were not answered and messages were left. From the messages, only a few TIG customers returned the call.

The mailed self-survey did not yield satisfactory results in terms of contacts made or survey appointments requested. Out of approximately 3500 mailers, only 3 residential customers made contact with the City and requested a household survey.

6.4 2011 Phase 2 Plan for Contacting TIG Water Customers

The ability to identify and contact TIG customers is critical to a targeted assistance program and due to the limited success in 2010, additional procedures were developed for testing in 2011. In 2011, only single family residential households were contacted. All phone contacts were made after working hours. From the 88 customer phone contacts, 34 on-site surveys were conducted, or about 38%. This was an improvement over the 33% in 2010. On-site water use surveys were offered after working hours to all customers contacted, and about 35% preferred an evening appointment.

6.5 Recommendations for future TIG contacts

The contact lists should be made from customers that have average or below water consumption. It is recommended that all phone contacts should be made after working hours, and appointments for on-site water use surveys should also be offered after working hours. All of these methods should increase the percentages of TIG respondents.

7. TIG Residential Water Use Surveys

7.1 Analysis of the 2010 Household Surveys

A copy of the Water Use On-site Survey form use in 2010 is attached as *Appendix C*. The surveys serve a dual purpose to provide water efficiency education for the household and data gathering for the City. The completed survey forms are left with the customer as a checklist of things to do to save water. Analysis and summary of the surveys are as follows:

- As a water efficiency educational tool, the household surveys were very helpful. Most of the customers finished the survey with a better understanding of how water could be saved. Many households did not know basic things about their water system; such as how to read the water meter or what the static water pressure was. Important factors were the direct contact between customer and staff, and the time for questions and answers.
- Very high water pressure, which can produce leaks or make them worse, was a problem in many of the households.
- Leaks were detected in about 25% of the households; most were minor and easily repairable, such as leaking flapper valves in toilets.
- Almost all households had low water use toilets (1.6 gal/flush), aerators on faucets, low water use shower heads and good functioning diverter valves. Therefore, replacing toilets does not appear to offer much potential for an assistance program in the future.
- Only a few of the homes had high efficiency washing machines. Therefore, replacing these appliances appears to offer good potential for an assistance program in the future.
- None of the homes had WaterSense toilets, or any other WaterSense devices. The replacement cycle for most of these large appliances and fixtures is 10 to 20 years, and the WaterSense products are relatively new. TIG households do not appear to have the funds to replace appliances and fixtures just to save water.

7.2 2011 Household Surveys

In 2011 a second sample with a higher percentage of TIG households were surveyed. The same water efficiency survey was used and with results similar to 2010; which confirms that the survey methods are effective. In the 2011 second sample, all households surveyed were asked if their income level was above or below TIG, and all were willing to answer the question.

7.3 Single-Family Residential Landscape Surveys

Residential landscape surveys were conducted at the same time as the in-home water use surveys. Identification of TIG households and contact methods were the same. Seasonal landscape irrigation represents much of the discretionary water use in residential households, so some emphasis was placed on exterior landscapes. The household survey form in *Appendix C* shows the landscape items surveyed. Analysis and summary of the landscape surveys are as follows:

- The landscape on-site surveys were a helpful resource as a water efficiency educational tool. Therefore, this area appears to offer good potential to assist TIG clients in reducing water use, and resultant costs, in the future.
- High water pressure was even more of a problem in the landscapes than interior uses. Houses, especially newer ones, often have a pressure regulator on the main supply line, but many landscape supply lines do not. Most household appliances will withstand 100 psi or more, but residential irrigation equipment is designed to operate at 40 to 60 psi. This increases the potential for exterior leaks and excessive water use.
- At least half of the TIG households irrigated their landscapes and gardens by hose, without any automatic timers. Overwatering because of forgetting to turn the hose off was a common reason for excess water use. Inexpensive automatic hose timers could effectively address these oversights. This area appears to offer excellent potential to assist TIG clients in reducing water use, and their resultant water bills. Staff estimates that water use reductions could be from 15-25%.
- In the automatic irrigation systems, most of the irrigation heads are older and not water efficient types. The replacement cycle seems to be 10 to 20 years, and much of the newer irrigation equipment is more efficient.
- Drip irrigation is not used in most of the household shrub areas and gardens.
- Drought resistant or water efficient plants are rarely specifically selected for residential landscapes in Yreka. The reason seems to be that nurseries and plant sales locations either do not identify or do not emphasize water efficient plants. This item offers an excellent opportunity for education with TIG and general residents, as well as vendors, to improve the opportunities for efficient water use.
- An estimate was prepared of potential single family residential water savings if drought resistant plants and drip irrigation were substituted for standard lawn and garden landscaping. It is estimated that annual water bill totals for single family residential customers could be reduced by an average of approximately 24.6% with full conversion to water efficient gardens.

7.4 Multi-Family Residential Landscape Surveys

Large landscaped common areas of multi-family residential developments can account for a significant amount of seasonal irrigation water use. Yreka has approximately 10 low-income multi-family residential developments with large landscapes. Because the water bills have a service charge based on water meter size, these larger landscapes pay a higher rate in the tiered structure. For low-income developments, efficient and effective landscape water use reduces a cost which directly correlates to keeping rental amounts low. The larger irrigation systems are more complex and require more detailed survey information to determine water efficiency.

For planning, in 2010 one low income multifamily development, Emerald Pointe Senior Housing, was surveyed as a sample. Results of the survey are summarized as follows:

- The on-site survey was a valuable educational tool for the professional management staff of the development.

- The Emerald Pointe development presents a dramatic example of how much water and money can be saved through water efficient landscape practices. The Emerald Pointe Senior Housing project turf and landscaping appears to be in good to very good condition, which is an indication that irrigation system, operation and maintenance is effective. The project was completed in 2007 and the landscape maintenance was taken over by JBL Landscape Services in 2009. To assess the water use efficiency in the current landscape maintenance program, annual irrigation water use was compared for the years 2007 through 2010. The average annual irrigation water use for 2007 and 2008 was 5,264,425 gallons. In 2009, a change in the landscape maintenance program caused the annual irrigation water use to drop to 1,854,010 gallons. Projections for 2010 indicate that annual irrigation water use for Emerald Pointe will be even less than 2009. Irrigation water use is 65% less and the money saved is about \$6,000 annually.

7.5 Analysis of Potential Residential Water Use Savings

Yreka water (calendar) year statistics developed for reporting to the State Department of Water Resources were used for the analysis. Since the high point of residential water use in 2007, there has been a trend of reduced water use in each subsequent year. Staff attributes the reduction trend primarily to increased water rates starting in 2008 with the Utility Rate Study. An analysis of water use reductions in 2010 was conducted to estimate the effect of Planning Grant activities.

- Residential water use declined by 1.8% in 2009, before the Planning Grant.
- Residential water use declined by 12.1% in 2010, during the Grant surveys and education. Staff estimates that approximately 20-25% of that reduction could be attributed to water efficiency activities, and the remainder to increasing water rates.
- Water use statistics are not yet available, but preliminary numbers indicate that residential water use reductions for 2011, during the second phase of the Planning Grant, will be similar to 2010.

Although the water use for individual surveyed TIG households has not been tracked, it is staff's opinion that water efficiency education and instruction, including the household surveys, played a significant role in water conservation during the 2010 and 2011 water years.

7.6 Public Facility Landscape Surveys

As in the multi-family residential developments, the grounds of public facilities account for a significant amount of seasonal irrigation water use. Although the City public facilities are not directly billed to customers, reductions in use of water help to reduce overall system costs. For planning, in 2010 one TIG serving public facility, the Yreka Community Center and Theatre complex, which is used as a senior center, was surveyed as a sample. The same Outline of Survey was used as in the multi-family residential development. The survey indicated that irrigation water use could be significantly reduced through water efficient landscape practices.

8. Educational Programs and Instruction

Research into educational programs for water use efficiency has revealed that there should be several primary areas of planning effort for low income TIG water customers, as follows:

- Development and distribution of educational materials.
- TIG customer instruction.

8.1 2010 Educational Materials and Distribution

There are numerous resources for educational materials about water use efficiency. Water agency and industry organizations such as the American Waterworks Association, the California Urban Water Conservation Council, the California Rural Water Association and others, develop reports, manuals, handouts, advertisements and similar materials. Government agencies such as the U.S. Environmental Protection Agency and the California Department of Water Resources also produce general educational materials to promote efficient water use.

The City has distributed water efficiency educational handouts with utility bills in the past. In order to plan for Yreka TIG households, available materials were reviewed, and other water agencies were contacted to try to determine what materials have been most effective. It was decided that a sample handout incorporating the latest and best information about water efficiency in the household and landscaping, should be developed for distribution in 2010. A local City based handout can provide more specific information about Yreka water saving conditions. This handout was tested by mailing it to water customers and attempting to gauge its effectiveness in reducing household water use. Overall water use for Yreka was reduced by 3.6% between 2010 and 2012.

8.2 2011 Phase 2 Educational Materials and Distribution

After staff analysis of the effectiveness of the 2010 flyer, a revised sample flyer was prepared and distributed in 2011. The revised handout flyer is attached as *Appendix E*. Staff believes that the revised flyer is more effective in helping low income customers understand why household water use should be reduced and how to accomplish this to lower their water bills. Although on-going analysis of effectiveness should be performed, the revised flyer will provide a good prototype for future educational materials.

In addition, in 2011 two sample educational documents for water conservation were produced. The publications are intended to provide detailed landscape garden information which is specific to Yreka. The documents are summarized as follows:

1. *Reducing Water Bills through Water Efficient Landscaping*, landscaping and irrigation ideas for the residential household. The publication suggests ways to save irrigation water, and introduces the concept of sustainable landscaping in residential gardens.

2. *Water Efficient Plant Guide*, for reducing irrigation water use. This guide provides a residential garden plant list appropriate for Yreka conditions, based on a State-wide list. Plants in the guide are rated for water use from very low to moderate.

Both sample publications have been posted in the water efficiency section of the Yreka City website, for initial evaluation of effectiveness. Additional distribution methods to low income households are being evaluated.

8.3 TIG Customer Instruction

Educational materials can be useful in reaching water users. However, just the distribution of information is not as effective as an interactive environment; which includes distribution of materials, explanations, and answering questions about water use efficiency. To develop programs for water efficiency education for Yreka's low income households, staff tested two methods in 2010.

One method was to instruct TIG households through household surveys conducted by staff on-site. At the households, sample survey forms were used as a guide for instructing customers in how to save water in their homes and gardens. This survey form was left at the household as a checklist which can be used by the water customer. (*Appendix C*)

The second method was to distribute the survey form with utility bills; to be used as a self-survey. Contact information was included in case TIG households wished to arrange an appointment for a staff conducted survey. If the self-survey utility bill insert appeared to be effective, similar methods could be used for water efficiency educational distribution in the future.

8.4 Analysis of Education Programs for TIG Customers

After distributing educational materials by both methods in 2010, the results were evaluated for the effectiveness in instructing TIG customers about ways to reduce water use and utility bills. It was found that the self-survey method was not nearly as effective as on-site interaction with staff.

To confirm this conclusion and plan for long term help for TIG customers, in 2011 a confirming sample of customers was contacted to offer household on-site water use surveys conducted by staff. Summaries of results for both the 2010 and 2011 on-site surveys are attached in *Appendix D*.

Data is not yet available for determining if the sample water efficiency publications posted on the City website will be effective educational tools for low income families. This is longer term education and should continue to be evaluated.

The educational methods which appear to be most effective in identifying and reaching TIG households, in distributing educational materials and in effecting water use reductions are as follows:

- Written materials sent with utility bills, as handouts, or on the City website have some educational value. However, repeated distribution of simple educational materials will serve as a reminder to TIG customers of the potential for saving water and money.
- Detailed or technical information and materials on water conservation has limited educational value for low income customers. This longer term education should continue to be evaluated.
- An interactive process with staff, on-site at the TIG household, provides the best environment for instructing TIG customers in water use efficiency.

9. Staff and Community Training

9.1 Staff Training

City of Yreka staff is projected to provide most of the assistance to low income water customers in future implementation. No staff training will probably be necessary for the program areas of educational materials and financial incentives. Staff training efforts should focus on effectively conducting the residential in-home and landscape surveys, and other outreach programs. Personnel from the Public Works Water Division with technical knowledge have done most of the water efficiency assistance planning work so far, and could perform the implementation phase. Other City staff could also be utilized, and training emphasis should be as follows:

1. Phone contact with customers, utilizing the sample script in *Appendix A*.
2. General conduct of staff during water use surveys on private property; see the outline in *Appendix B*.
3. General water system; including meter and flow indicator reading, and static water pressure for house and landscaping.
4. In-home leak detection, appliance and water saving device review; including toilets, faucets and aerators; shower heads and tub diverter valves; and washing machines.
5. Residential landscaping and irrigation; including leak detection, amount of lawn, water efficient plants, separation of lawn and shrub irrigation, amount of watering, water efficient irrigation equipment, and automatic irrigation controls or timers.

City staff without technical training may have some difficulty with the landscaping and irrigation parts of the survey. Irrigation system training is periodically available at the local community college, College of the Siskiyous, as an adult education class.

Surveys of large area landscaping and irrigation at low income multi-family developments and public facilities will probably require professional expertise in plants, landscape maintenance practices, and in water system and irrigation design and maintenance. Because there are only a small number of these large landscape customers and because of the technical background necessary, it may be more efficient to hire professionals to conduct these surveys, rather than train City staff.

9.2 Community Training

Community groups and organizations could provide much of the water conservation assistance to low income Yreka residents and water customers as a public service. These community groups could take the place of City staff in the time consuming program elements of residential in-home and landscape surveys. Possible groups and organizations for this work could include the following:

- The Yreka Garden Club and Siskiyou Gardens, Parks and Greenways Association.
- Service Clubs.
- Boy Scout and Girl Scout groups.
- School groups and clubs involved in conservation or community service.
- Senior groups involved in conservation or community service.

Training for these citizen volunteers could be conducted by City staff, consultants or educational institutions such as College of the Siskiyous. Training efforts should be concentrated in the same areas as for City staff training. Once the community groups have trained leaders, they may be able to conduct their own training sessions for members. Utilizing community groups and organizations would have the benefit of increasing overall community knowledge about water conservation.

10. Appliance, Fixture and Irrigation Equipment Replacement

10.1 In-home Appliance Replacements

The CUWCC suggests that public agencies consider implementing replacement programs for water-saving toilets, shower heads, faucet aerators and washing machines, to assist customers with water conservation. However, the sampling completed in Yreka reveals that most households surveyed already had low flow toilets at 1.6 gal/flush, low flow shower heads at 2.5 gal/min, and aerators on the faucets.

WaterSense toilets, at 1.3 gal/flush, are now recommended as the most water efficient type, and use about 18.75% less water than water-saving types at 1.6 gal/flush. Because of the relatively small amount of water saved per household with WaterSense toilets, replacement would have limited benefit for low income households.

The sample household surveys revealed that a replacement program for showerheads and faucet aerators would not be effective for reducing water use, since most households already have the equipment.

The surveys also revealed that some TIG families had high water use just because of extensive washing machine use. High efficiency washers are one of the most effective water saving appliances; some reducing water use up to 65%. A program to promote replacement of washing machines would benefit TIG households in water efficiency.

10.2 Irrigation Equipment Replacements for Water Efficiency

Landscape irrigation significantly increases the summertime water use for most TIG households, and a high percentage of those examined do not have automatic irrigation systems. It is estimated that manual hose watering without timers accounts for half of excess irrigation water use per household. A program to supply hose irrigation timers at low cost would help TIG households to reduce irrigation water use.

Other landscape programs to pursue for water efficiency, could be pressure regulation, and automatic irrigation system and equipment supply and/or installation. Because of the expense of these programs as water efficiency measures, they are not recommended as cost-effective for low income households at this time.

10.3 Financial Incentives for Low Income Customers

A program to actively promote toilet replacements through rebates or reimbursements is not recommended at this time since most homes already have low-flow fixtures. A toilet replacement program may be more appropriate in 5 to 10 years; when the replacement cycle is due and when the WaterSense toilets become more readily available.

Some low income TIG households in Yreka would benefit from a High Efficiency clothes washer replacement program; because their high water use is a mostly a result of clothes washing. A City sponsored rebate program for high efficiency (HE) clothes washers was considered as part of the planning to assist TIG customers. The Staff Report on the HE washer investigations is attached as *Appendix F*. Recent changes in the residential clothes washer industry have resulted new models of top loading HE washers at lower prices, but still using 50% or less water. Previously, most HE washers were front loading at higher costs. Pacific Power, the local electric company, currently offers a \$75 rebate for high efficiency washers on a Qualified List. There are no other HE washer financial assistance programs available to Yreka customers at this time.

Simple battery operated hose timers are easy to use and relatively inexpensive at about \$30 per unit retail. A program by the City to make hose water times available to TIG water customers at reduced costs was considered in the planning. The Staff Report on the hose water timer investigations is attached as *Appendix G*.

11. Program Implementation Guidelines

11.1 Summary of Recommendations

Based on data from the sample on-site surveys and sample handout flyers, efforts in the following program areas would be effective (or should not be pursued, as noted) to assist Yreka TIG households with efficient water use to keep their water bills as low as possible:

- 1. Household Surveys.** For single family residential TIG customers, the most effective educational tools for water use efficiency and potential reduction of water bills were the household surveys with customer participation. It is

recommended that 5-10% of the Yreka residential customers be contacted each year, and that household water conservation on-site surveys be offered and performed.

- a. TIG Identification. The income survey indicated that 68% of all Yreka households are in the TIG category. The sample surveys revealed that at least half of the residential customers using average and below water quantities are low income, and that a smaller percentage of high water users were low income. Addition of a TIG household income threshold question in household surveys, for the household size, can provide verification.
- b. TIG Contacts. The contact lists should be made from customers that have average or below water consumption. Contacting households directly by phone often results in conversations that help to identify TIG households and leads to water use survey appointments. It is recommended that all phone contacts be made after normal business hours and after-hours appointments for household water use surveys are offered. Written materials do not work as well as personal conversations. Based on the 2011 samples, 100 phone calls could result in about 39 actual surveys.
- c. Water Supply. The survey should include customer instruction in reading the water meter and using a flow indicator as a basic leak detection tool. Many water leaks and inefficient landscape irrigation water use were due to high static water pressure in the supply lines. Water pressure, both in the house and in the yard, should be tested as part of the survey.
- d. In-Home. Inside the house, the survey should include looking for leaks and a review the water fixtures and appliances for water efficiency.
- e. Landscape. Because seasonal landscape irrigation represents much of the discretionary water use in residential households, landscape planting and irrigation surveys can be an important part of identifying potential water savings. In the sample surveys, it was found that many customers needed instruction about water use in their landscaping and gardens.
- f. Collection of Data. Since the sample surveys were aimed primarily at water efficiency education for the households, the completed survey forms were left with the customers as a checklist and no data was collected. For future implementation, some data from the surveys may need to be collected for application to other water saving programs.
- g. Staff Training. Some staff training may be needed each year in customer contact methods and conduct during household surveys. Until an adequate level of staff knowledge is attained, some training may be required in landscape and irrigation installation and maintenance.

2. Educational Materials. Education in water savings to reduce utility bills will be one of the primary implementation efforts. Existing water efficiency educational materials from other agencies and organizations should be utilized where possible, or modified to focus on Yreka conditions and requirements.

- a. Utility Bill Flyers. A sample Yreka handout incorporating the latest and best information about water efficiency in the home and landscaping was developed for distribution. This flyer was mailed with utility bills, and there is evidence that it was somewhat effective in education of TIG households. For implementation, it is recommended that the handout flyers should be

distributed annually to provide basic local information and reinforce the water conservation message.

- b. Technical Documents. Two sample educational documents for water conservation in Yreka were produced; *Reducing Water Bills through Water Efficient Landscaping* and *Water Efficient Plant Guide*. Both sample publications were posted in the water efficiency section of the Yreka City website for initial evaluation of effectiveness. At this time, it does not appear that these documents have been much utilized by low income customers. With other distribution methods, the educational documents may prove to be more useful. It is not recommended that other technical documents be developed until effectiveness has been verified.
- c. Other Educational Material Possibilities. The Yreka website could include a links page to other water efficiency educational sources, although many TIG households do not have an internet access. The production of videos of in-home and landscape water use surveys, illustrating ideas for water conservation, could be implemented in the future for distribution on the website and the public television station.
- d. Staff Training. No additional staff training should be required to produce the annual flyer or modify the City website. If additional technical materials are proposed as implementation programs, then staff training or professional assistance may be required to produce these.

3. Distribution of Educational Materials. There is a lot of material available concerning water efficiency, but distribution to low income households can be difficult.

- a. Utility Bills. The main advantage of sending materials with the utility bills is that all of the water customers are reached. There is no other reliable method for contacting all of the customers; so it is recommended that mailers in utility bills continue to be sent annually.
- b. City Website. Yreka has made water efficiency detail documents available on the City website with limited results. However, the website is available and accessible at minimum cost, and more households continue to connect to the internet. It is recommended that Yreka continue to develop and post water conservation materials on the City website.
- c. Handouts. The publications *Reducing Water Bills Through Water Efficient Landscaping* and *Water Efficient Plant Guide* should be printed and made available as handouts for those low income customers without an internet connection. It could be effective to distribute water efficiency literature to outlets serving low income clientele. Examples include placing handout materials at the County Human Services offices, Community Resource Center offices, senior centers or reaching a wider potential audience at local events such as the County Fair, special senior events, or community health fairs.
- d. Other Distribution Possibilities. The City cable TV station could be utilized for flash messages on water conservation, or perhaps for showing videos on water saving techniques. Reaching out to the managers of multi-family facilities is also a promising avenue to assist TIG customers to save water and save their limited funds for other household expenses.
- e. Staff Training. No additional staff training should be required.

4. **Financial Incentives.** Although Yreka is a small city and has limited financial resources, there are two financial incentive programs in water efficiency which appear to have a high benefit to cost ratio as implementation programs.
 - a. High Efficiency Washers. New high efficiency washing machines are more expensive than standard washers for low income households; even with currently available \$75.00 rebates from Pacific Power. Yreka should consider a financial assistance rebate program for the purchase of replacement HE washing machines by TIG households which have demonstrated high water usage from clothes washing. The City rebates combined with the Pacific Power rebates could make up the additional price of water (and energy) efficient washers over standard washers.
 - b. Irrigation Hose Timers. Many of the low income families in Yreka irrigate their gardens and landscaping by hose, and inadvertent high water use occurs because of hoses left running and watering during the hot and windy daylight hours. The City should consider a program of bulk purchases of hose water timers, and resale to TIG customers at reduced costs.
 - c. Staff Training. No additional staff training should be required.
5. **Multi-family Housing Landscaping.** Yreka has approximately 10 low-income multi-family residential developments with large landscapes. Because the water bills have a service charge based on water meter size, these larger landscapes pay a higher rate in the tiered structure. For private or subsidized low-income developments, lower water use and costs help keep rents low.
 - a. Landscape Irrigation Surveys. The one sample survey, Emerald Pointe Senior Housing, indicated that significant water savings in large landscapes can be accomplished with good landscape practices. Landscape water and cost savings in TIG multi-family developments could be a significant part of maintaining rent levels for low-income residents while providing significant environmental benefits. It is recommended that at least one low income multi-family housing project per year have a large landscape survey performed to help reduce irrigation water costs.
 - b. Staff Training. The larger irrigation systems are more complex and require more detailed survey information to determine water efficiency. It may be necessary to hire professional consultants or obtain special training for staff in irrigation design, installation, and maintenance.
6. **Public Facilities for TIG Residents.** As in the multi-family residential developments, the grounds of public facilities account for a significant amount of seasonal irrigation water use. Although the City public facilities are not directly billed to customers, reductions in use of water help to reduce overall system costs which does benefit TIG customers. Yreka Public Works staff should continue to work on improvements in the public parks and grounds which will reduce irrigation water use.
 - a. Landscape Irrigation Surveys. In order to review progress in irrigation water efficiency at public parks and grounds, one project per year should have a large landscape survey performed.

- b. Staff Training. No additional staff training should be required.

11.2 Estimated Program Budget Requirements

The following is an estimate of annual staff time and materials costs in 2011 dollars for recommended implementation of TIG customer assistance; based on the sample planning work performed under the CDBG Grant.

1. **Household surveys.** The tasks include identifying TIG water customers, developing contact lists, contacts and appointments, performing the surveys, and reporting on results.
 - a. Staff Time. Approximately 80 hours is required annually for identifying and contacting 100 TIG customers, and conducting 35 to 40 household surveys. In addition, approximately 8 hours per person will be needed annually for routine staff training, plus 8 hours each for the first few years in landscape and irrigation training.
 - b. Materials. No special materials are required, but there will be normal in-house reproduction costs for contact lists and survey forms.
2. **Educational materials and distribution.** The tasks include researching currently available water conservation materials, updating the Water Efficiency Flyer, printing and inserting the flyer into the utility bills, and updating the City website. Also included in this estimate is additional distribution of educational material handouts to low income households. Production of new Yreka specific technical or educational documents is not included in this estimate.
 - a. Staff Time. Approximately 40 hours is required for the annual flyer and website water conservation updates and distribution. To reproduce and distribute additional educational materials requires an additional 20 hours of staff time.
 - b. Materials. The cost of materials is estimated to be as follows:
 - Flyer reproduction, 3200 copies –
 - Utility bill insertion and mailing –
 - Reproduction of water conservation materials, 200 copies -
3. **Financial incentives and administration.** The tasks include identifying and contacting qualified TIG customers, developing application forms for financial assistance, reviewing applications and issuing approvals, financial record keeping and issuing checks, ordering and storing equipment, and delivery of equipment.
 - a. Staff Time. For high efficiency washer financial assistance to an estimated 10 customers per year, and for resale of approximately 100 hose bibb irrigation timers per year, approximately 60 hours of staff time will be required annually.
 - b. Financial Assistance.
 - High Efficiency Washer rebates and CUWCC program administration, 10 customers annually, approximate cost = \$1115

Hose Water Timer purchase and resale, 100 customers, net cost = \$2000

- c. Materials. No special materials are required, but there will be normal in-house reproduction costs.

4. Multi-family housing landscape surveys. For one multi-family housing development per year, the tasks include identifying and contacting management of the development, coordination with landscape maintenance personnel, conducting the landscape and irrigation survey, and preparing a report on the findings.

- a. Staff Time. Approximately 20 hours will be required for the above work. If available staff does not have sufficient knowledge of large scale landscape and irrigation design, installation and maintenance, then an additional 8 to 20 hours may be required for the initial training. Subsequent years may not need as much training time.
- b. Professional consultants. Instead of trained staff, professional consultants including licensed Landscape Architects, licensed Landscape Contractors, or Certified Landscape Irrigation Auditors could be retained to perform the landscape surveys. At estimated hourly billing rates of between \$75 and \$125, the 20 hours estimated for the survey could cost between \$1,500 and \$2,500. Because professional consultants may have more training and experience, hours required for the survey may be reduced.
- c. Materials. No special materials are required, but there will be normal in-house reproduction costs.

5. Public facility landscape surveys. One facility per year is recommended for a water efficiency landscape survey which includes coordination with maintenance personnel, conducting the landscape and irrigation survey, and preparing a report on the findings.

- a. Staff Time. Approximately 20 hours will be required for the above work. Public facility staffs have some knowledge, and it is assumed that staff training requirements will be no more than 8 hours in the first year. Subsequent years should not need any additional training time.
- b. Materials. No special materials are required, but there will be normal in-house reproduction costs.

11.3 Table of TIG Household Program Implementation Guidelines

Assistance Type	Frequency	TIG Income Verification	Recommended
Household water use survey and leak detection	100 TIG water customers per year contacted	Partially - income survey, questionnaire	Yes
Educational flyer	Annual	No	Yes
Educational technical documents	Periodic	No	No, at this time
Educational utility bill insert	Annual	No	Yes
Educational website	Annual	No	Yes
Educational handout material	Annual	Partially – select TIG venues	Yes
Educational local TV	Periodic	No	No, at this time
Financial incentive high efficiency washers	Annual, 10 customers	Yes, by qualification	Yes
Financial incentive hose bibb timers	Annual, 100 customers	Yes, by qualification	Yes
TIG multi-family residential landscape survey	Annual, one project	Yes	Yes
TIG public facility landscape survey	Annual, one project	Partially, select TIG venues	Yes

APPENDIX A

TO: ROB TAYLOR, TAMMY MCINTIRE

FROM: Don Rolph, Water Efficiency Coordinator

SUBJECT: Phone Contact for On-site Water Use Survey

DATE: 8/4/10

The following is a draft script for phone contacts with selected customers to set up appointments for On-site Water Use Surveys:

Hello, this is (Don Rolph or Tammy McIntire) with the Water Division of Yreka Public Works. I am calling to ask if you would be interested setting up an appointment to survey your home and yard to see if you could be saving water.

The surveys are free, would take about an hour, and would be conducted by City Public Works employees during business hours on Tuesdays, Wednesdays or Thursdays in August or September.

Potential water savings items which will be covered in the survey include water meter reading, leaks, water efficient fixtures and appliances, landscape plantings and irrigation systems.

The survey team will evaluate your water use and offer suggestions for saving water in your home and yard.

(Confirm appointment date, time and service location)

Thank you for (setting up an appointment) or (your consideration of this offer).

APPENDIX B

TO: File
FROM: Don Rolph, Water Efficiency Coordinator
SUBJECT: On-site Water Use Surveys Outline and Training – Final
DATE: 7/14/11

The following is an outline of the residential on-site water use survey process and training that staff needs to go through before starting.

Overview

- The purpose of the on-site surveys is to help customers determine if they could be saving water at their homes.
- Surveys are voluntary by appointment at the request of the customer.
- The surveys will last about one hour, and will cover both inside the home and outside landscaping.
- Some additional time should be allowed for questions and answers.
- The surveys are a requirement for compliance with BMPs 3.1 and 3.2 in the MOU with the CUWCC.
- Approximately 35 surveys need to be conducted each year for compliance with the BMPs.
- The surveys will also fulfill requirements of the CDBG grant by helping low income customers to save money in their water bills.
- Customers will be contacted primarily by phone; evening and after work calls will be most effective.
- Survey appointment times should be offered both during the day and in the evenings after work hours.
- For compliance, only the number of surveys conducted during a fiscal year is required to be reported. Results of the surveys are not required to be tabulated.

Training:

- *Review the above information, be clear on the concept.*

Conduct During the On-site Surveys

- Staff will arrive at the home at the appointment time if at all possible. Some customers will take time off work for the survey or make other inconvenient arrangements.
- Staff will wear a Public Works hat and safety vest, and will carry a City of Yreka identification card.
- Staff will introduce themselves, explain the survey and answer preliminary questions.
- The customer will be asked if it is OK to conduct the survey; if not, staff will leave the premises.
- During the survey, if staff sense that the customer is not comfortable with the process, or staff are uncomfortable with the situation, staff will leave the premises.

- After the survey, staff will fill out the form, explain the results, answer questions, and leave the survey form with the customer.
- Staff will check for left tools, shut off water left running, and will make sure that all doors and gates are left as found.
- Staff will thank the customer for allowing the survey before leaving.

Training:

- *Review conduct list.*
- *Discuss politeness, courtesy, and public relations for the City.*
- *Never argue or insist.*
- *Emergency procedures while on site.*

Meter Reading

- Locate the water meter and show the customer how to read it.
- Explain to the customer how to detect leaks by watching the flow indicator; or by shutting off all water, reading the meter and then checking it one hour later.
- Locate the main shutoff valve for the house (if present), and if yard water is supplied separately, explain to the customer how to detect outside leaks by shutting off the house and reading the meter.

Training:

- *Reading water meters.*

Inside the Home Survey

- Look for obvious leaks; dripping faucets or fixtures, sound of running water at a toilet. Also check the water heater, washing machine, dish washer and other appliances.
- If there appears to be a leak at a toilet, put food coloring in the tank and look for color traces in the toilet bowl after a minute or so. Be sure to flush the toilet to eliminate the food coloring.
- If there is a tub/shower combination, turn on the tub faucet and work the diverter valve to see if shower water is going back to the tub.
- Check toilets to see if they are high efficiency 1.3 gpf, low flow 1.6 gpf, or older toilets.
- Check shower heads to see if they are low flow 2 gpm, or older heads.
- Check washing machines to see if they are high efficiency or older machines.
- Check all faucets for aerators.

Training:

- *Food coloring in the toilet tank.*
- *Tub/shower diverter valve operation.*
- *Identification of high efficiency or low flow toilets.*
- *Identification of low flow shower heads.*
- *Identification of high efficiency washing machines.*
- *Identification of aerators.*

Outside the Home, Landscaping Survey

- Check water pressure of the landscape irrigation supply lines, and pressure regulation.
- Review overall landscaping types, and tree and shrub species for suitability and water use efficiency for the Yreka climate.
- If possible, check the general soil type; sandy, loamy or clay.
- Check for water retention features such as terraces or basins on slopes.
- Check for adequate surface drainage of flat areas.
- Are there hydrozones; separate lawn and shrub/tree watering sections.
- Overall review of irrigation system, automatic or manual.
- Check irrigation controls for watering times, cycle times, repeat cycles, smart devices.
- Check for irrigation head types, spray or droplet types for lawns and groundcovers, and drip for shrubs and trees.
- Are there automatic shutoffs for all hand nozzles.
- Mulch or bark, and thickness in shrub areas.
- Covers for pools, hot tubs and spas.
- Re-circulating systems for fountains and water features.

Training:

- *Yreka plant climate, plant suitability zones.*
- *Review plant species lists for Yreka suitability.*
- *Latest irrigation manufacturer recommendations.*

APPENDIX C

City of Yreka, Department of Public Works WATER EFFICIENCY PROGRAM RESIDENTIAL WATER USE SURVEY FORM

Customer Name: _____ Phone Number: _____
Address: _____ Survey Date & Time: _____

Water Meter:

Initial meter reading _____	Time _____	(Wait at least one hour for next reading)
Second reading _____	Time _____	(If readings are different, there may be a leak)

Bathroom(s):

Toilets:	Tank leaking? 1) _____ 2) _____ (Water loss can be 30 to 40 gal. per day)
	Low flow toilets (1.6 gpf)? 1) _____ 2) _____ High efficiency toilets (1.3 gpf)? 1) _____ 2) _____
Showers:	Showerhead leak? 1) _____ 2) _____ (Water loss 15 to 20 gal. per day)
	Tub to shower diverter valve leak? 1) _____ 2) _____
	Low water use showerheads (2 gpm or less)? 1) _____ 2) _____
Faucets:	Leaks? _____ (Water loss 15 to 20 gpd) Aerators installed? _____ (Water savings 1 gpm)

Laundry/Kitchen:

Washer:	Low volume washer? _____ (Water savings up to 50%)
	High-efficiency washer? _____ (Water savings up to 75%)
Faucets:	Leaks? _____ (Water loss 15 to 20 gpd) Aerators installed? _____ (Water savings 1 gpm)

Landscape/Outdoor:

Irrigation:	Water pressure over 60 psi? _____ (Pressure reducer can save water)
	Automatic system? _____ Manual by hose? _____ (Water savings of up to 50% with timers)
	Separate lawn and shrub sections? _____ (Water amounts and times are different)
	Leaks in piping or heads? _____ (Turn off main house valve to see if leaks are outside)
	Overspray or runoff? _____ Water before 8 am? _____ (To reduce evaporation water loss)
Lawns:	Lower water use irrigation head type? _____ (Spray or misting heads are least efficient)
	Lawn aerated or de-thatched recently? _____ (For water penetration and less runoff)
Shrubs:	Drip irrigation? _____ (Water savings of 50% or more over spray type heads)
	Lower water use plant types? _____ (Drought tolerant plants for Yreka climate)
	Beds mulched 2 inches deep? _____ (Mulch or bark will help retain soil moisture)
Trees:	Lower water use tree types? _____ (Trees naturally suited to Yreka climate)
	Drip irrigation? _____ (Water savings of 50% or more over spray type heads)
Hoses:	Hand nozzles with auto shutoff? _____
Pools, Hot Tubs, Spas:	Covers to limit evaporation? _____
Other Notes:	

APPENDIX D

City of Yreka, Department of Public Works WATER EFFICIENCY PROGRAM

Residential Water Use On-Site Surveys Summary Report – Sept.15, 2010

Residential on-site surveys are required for compliance with BMP 3A1) Water Survey, and BMP 3A2) Landscape Water Survey of the MOU with the CUWCC. Implementation was to commence 7/1/10, the year following the MOU Amendment of 9/16/09 for those BMPs. The coverage requirement is to conduct water and landscape surveys on 1.5% per year of the current residential accounts, up to a total of 15% of the accounts in 10 years.

The City of Yreka in July of 2010 had a total of 3100 water use accounts. The total of residential water use accounts in July of 2010 was 2221, and 1.5% of that total is 33 accounts.

In order to contact customers to make appointments for on-site surveys, two approaches were taken. A flyer consisting of water efficiency information, a water use self-survey form and contact phone numbers was sent with the utility bills to all 3502 customers. In addition, lists of about 200 residential customers, including low income and high water users were put together for contact by phone. Phone numbers from account information, phone books and the internet were used in the contact attempts. Because many customers do not have access to the internet, phone contact was determined to be best. The following contacts with residential water customers were made:

1. With the August utility bills, a flyer with water efficiency information and a water use self-survey form was sent to 3100 water customers. In response, 3 residential and 2 commercial on-site water and landscape surveys were done.
2. From 20 total low income accounts, 17 customers were contacted by phone and 7 on-site water and landscape surveys were done.
3. From 77 identified TIG household accounts, 49 were contacted by phone and 15 on-site water and landscape surveys were done.
4. From a list of 100 highest water usage accounts, 50 were contacted by phone and 13 on-site water and landscape surveys were done.

In total, 38 residential on-site water and landscape surveys were conducted during August and September, 2010. This number of surveys is about 1.7% of the 2221 residential water accounts. The minimum yearly requirement is for 1.5% or about 33 surveys.

To comply with the BMP 3A1) and 3A2) requirements, an average of 33 on-site surveys will need to be conducted each year for the next 9 years. Based on 2010 experience, direct phone contact works better than mailed information. The 2010 lists of 197 customers yielded about 116 actual phone contacts, or about 59%. From the 116 phone contacts, 35 on-site surveys were conducted, or about 30%. Phone contacts were somewhat limited by the lack of phone numbers due to no answering machine,

disconnected numbers and customers not wanting to publish their phone numbers. A higher percentage of low income accounts were contacted and requested surveys; probably because of the higher percentage of seniors at home during the day. Phone contact and conduct of surveys after working hours would probably increase the percentages.

City of Yreka, Department of Public Works WATER EFFICIENCY PROGRAM

2011 Residential Domestic and Landscape Water Use On-Site Surveys Summary Report – Sept. 8, 2011

Residential on-site surveys are required for compliance with BMP 3.1 Water Survey, and BMP 3.2 Landscape Water Survey of the MOU with the CUWCC. Implementation was to commence 7/1/10, the year following the MOU Amendment of 9/16/09 for those BMPs. Residential on-site domestic and landscape water use surveys were also conducted for the 2010 calendar year. The coverage requirement is to conduct water and landscape surveys on 1.5% per year of the current residential accounts, up to a total of 15% of the accounts in 10 years. The water use surveys are also part of the work accomplished under the CDBG Grant #08-PTAE-6494, Plan to Assist Low Income Residents with Water Use Efficiency. See the attached Residential Water Use Survey Form for items covered.

The City of Yreka in January of 2011 had a total of 3022 water use accounts. The total of residential water use accounts in January of 2011 was 2286, and 1.5% of that total is 34 accounts. Because many customers do not have access to the internet, phone contact was determined to be the best method.

For 2011, Contact List No. 1 was comprised of 125 residential customers with the highest water usage City-wide from number 101 and down. Customers were contacted on July 19, 20 and 21, 2011, by phone to make appointments for on-site surveys. Based on recommendations from residential surveys in 2010, the phone calls were made in the evenings starting at about 5:30 pm until about 8 pm. The intent was to phone after work hours to reach more customers. Phone numbers from account information, phone books and the internet were used in the contact attempts. Appointments were made for July 26, 27 and 28, and for August 2, 3 and 4, 2011. Appointments were offered during the day and also in the evenings for the convenience of the customers. Customers were asked if the household income was above or below the low-income (TIG) level of 80% of median family income for 2011 for Siskiyou County. See the attached Contact List 1 – Final 9/8/11. The following is a summary of results for Contact List No. 1:

1. 71 customers were actually contacted by phone, with a conversation or message.
2. 32 appointments were made for water use surveys, or about 45% of the 71 contacts.
3. 29 combined domestic and landscape water use surveys were done, with 3 cancellations.

4. 5 of the customers surveyed were low-income (TIG), or about 17% of the total of 29 surveyed. All customers surveyed agreed to answer the household income question.

Although the 2007 City of Yreka Household Income Survey determined that about 68% of Yreka households were low income (TIG), Contact List No. 1 did not reach a representative percentage of low income households. In order to better fulfill the CDBG Grant objectives, it was decided to create a new contact list for the remaining 5 surveys needed to comply with the BMP's. Contact List No. 2 was comprised of 75 residential customers from the average water use consumption level and down. The same contact methodology was used and appointments were made for September 6, 7 and 8, 2011. See the attached Contact List No. 2 – Final 9/8/11. The following is a summary of results for Contact List No. 2:

1. 17 customers were actually contacted by phone, with a conversation or message.
2. 6 appointments were made for water use surveys, or about 35% of the 17 contacts.
3. 5 combined domestic and landscape water use surveys were done, with one cancellation.
4. All 5 of the customers surveyed were low income (TIG), 100%.

For both contact lists for 2011, the following were the combined results;

1. 88 customers were contacted.
2. 38 appointments were made, or about 43% of the contacts.
3. 34 combined domestic and landscape water use surveys were done; which is 39% of the contacts and 1.5% to the total residential accounts.
4. 10 of the total customers surveyed were low income (TIG), or about 29% of those surveyed.
5. 12 customers with appointments preferred the evening after work hours, or about 35%.

In comparison with the 2010 residential water use surveys, and for future planning; the following recommendations should be considered:

- Phone contacts are probably the best method for reaching customers, and the ensuing dialogs probably result in more appointments.
- Phoning during the evening hours reaches more customers. In 2011, 43% of the contacted customers made appointments; as compared to 32% for 2010 when phoning was done only during the day.
- Survey appointment times should be offered after work and during evening hours, as preferred by 35% of the appointment customers.
- A higher percentage of low income (TIG) customers are average level water users and below; rather than high water users. To assist TIG customers, contact lists should reflect this.
- The residential water use surveys have been an effective method for assisting water customers in water use efficiency. This is primarily because of the dialog and hands-on demonstrations resulting from face to face contacts on-site.
- Low income (TIG) water customers are clearly interested and concerned about saving water and money on utility bills.

APPENDIX E

VOLUNTARY SUMMER WATERING SCHEDULE

July 1 to August 31

For outdoor sprinklers and
irrigation systems

Even numbered addresses

Days: Mon, Wed, Fri
Hours: Before 11 am
and after 6 pm

Odd numbered addresses

Days: Tues, Thurs, Sat
Hours: Before 11 am
and after 6 pm

All addresses

Days: Sun
Hours: Before 11 am
and after 6 pm

Occasional outdoor use such as minor
hand watering, washing cars, and filling
small pools may be done any time on any
day.

City of Yreka
Department of Public Works
701 Fourth Street
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City of Yreka Department of Public Works WATER EFFICIENCY PROGRAM

It's not just for drips....



Why water efficiency?

Although Yreka has an excellent source of water, we only have a limited storage capacity for increased demands in the summer, and need to plan for emergencies such as power outages and fires.

Yreka must comply with strict State requirements to ensure the safety, security, and efficient use of drinking water as an essential and limited resource.

Significant amounts of water can be wasted by leaks, inefficient water fixtures and appliances, and inappropriate landscaping and irrigation.

Save water and save money!

WATER SAVING TIPS IN THE YARD

Choose the right plants:

- Reduce lawn areas. Lawns generally use more water than other types of landscaping.
- Select water efficient plants in tune with the climate and site conditions in the yard. Use the Yreka Water Efficient Plant Guide or other gardening books.
- Create areas where all the plants have similar water requirements.
- Improve planting area soils for deep watering and root growth.
- Mulch landscape areas 3 in. deep with bark to retain soil moisture.

Irrigate efficiently:

- Install a separate irrigation water meter for monitoring, or an irrigation pressure reducer if higher than 70 psi.
- Use automatic irrigation controllers or hose bibb timers to limit watering.
- Follow the summer watering schedule.
- Install rotary, stream type heads for lawns, instead of spray.
- Use drip irrigation for trees, shrubs, groundcovers, vines and annuals.

OTHER RESOURCES

*On the Yreka website
www.ci.yreka.ca.us:*

- Reducing Water Bills Through Water Efficient Landscaping. Landscape and irrigation ideas and photos.
- The Yreka Water Efficient Plant Guide. Trees, shrubs, groundcovers, vines, annuals and perennials suitable for the Yreka climate listed according to their water use.

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SEASONAL TIPS

How much lawn do you need? Reduce lawn areas. They use more water than other types of landscaping.

- *Smaller lawns should be located in key visual spots such as entryways, or to accommodate specific uses such as children's play.*
- *If a lawn is not needed at all but is really just a space filler, it can be replaced with lower water use groundcover plants or shrubs. Soft, porous surfaces such as gravel or decomposed granite can also replace lawn.*

WATER SAVING TIPS IN THE HOUSE

Check for leaks:

- When all water is shut off, check the water meter flow indicator; or take a reading and take another reading one hour later. There may be a leak if the flow indicator is moving or the readings are not the same.
- Leaky toilet tanks through the flapper valve can waste up to 40 gallons a day. A food color test in the tank which shows up in the bowl indicates a leak, and the flapper valve may need replacement.
- Dripping faucets can waste up to 20 gallons a day; replace o-rings or seals.
- Diverter valves between the tub and shower can leak; sending wasted shower water down the drain.

Replace old equipment:

- At replacement time, look for the **WaterSense** label on water efficient products. It's a national standard. 
- High efficiency washing machines can save up to 75% of water.
- High efficiency toilets only use 1.3 gallons per flush.

APPENDIX F

City of Yreka, Department of Public Works WATER EFFICIENCY PROGRAM

Staff Report 2-29-12 Planning to Assist Low Income Water Customers Financial Incentives – High Efficiency Clothes Washers

Financial incentive programs to assist Yreka low income water customers in reducing water use and water bills have been investigated as part of the CDBG Planning Grant. During two years of residential water use surveys, it was found that some customers had high water use just from clothes washing. These customers were primarily residential families, and extended families, with numerous children in the home; and all surveyed were low income. High efficiency (HE) clothes washers can reduce the amount of water used to 35% to 50% of water for standard clothes washers. The cost of a new high efficiency washer is more than a standard washer, and many low income customers may not be able to afford the difference in cost.

The HE Washer financial incentive program should be aimed at assisting low income families, at replacement time for their washers, with purchase of water efficient types. A rebate type of financial assistance should probably be used. For the pilot program, a limit of 10 customers per year should be planned; until the effectiveness can be evaluated.

In the water conservation surveys, other household appliances, including toilets and showers, were not found to be significant contributors to high water use in the large majority of homes. This is mainly because California has allowed sales of only water efficient toilets and shower heads for the last 20 years or so.

Planning research was conducted into financial assistance to low income customers for the acquisition of new high efficiency clothes washers. A first year pilot program to test the effectiveness of financial incentives for acquisition of hose water timers is outlined as follows.

Low Income Qualification

In 2007, a Citywide Household Income Study for Yreka was performed, funded by a CDBG PTA grant. The study showed that 68% of Yreka households surveyed were low income Target Income Group (TIG) households based on random, representative sampling methods. City staff, through utility bills and other contacts, understands that many of the customers in TIG households are seniors, have fixed incomes and/or are health-impaired.

The City offers reduced utility rates for qualified very low income customers, and these all should be automatically eligible for HE washer financial assistance. Because of the relatively high cost of the equipment and financial assistance, financial records should be requested for verification of other low income customers. In the pilot program, customers might also be requested in the application forms to verify that their water usage and bills are higher than normal because of clothes washing.

Other HE Washer Financial Assistance Programs

Currently, Pacific Power offers a rebate of \$50 or \$75 on the purchase of qualifying HE washers. The California Urban Water Conservation Council, through its Smart Rebates program, did offer financial assistance for HE washers using State funds. Although the Smart Rebates program is still in place, State funding is no longer available. The CUWCC offers administrative assistance only, with a fee, for locally funded programs.

Qualifying HE Clothes Washers

Pacific Power has a Qualified Clothes Washer List for its Home Energy Savings Incentive Program. The list is a comprehensive 7 pages long, includes most brands, and rates washers for both low energy and low water use. For the pilot Yreka financial assistance program, the Pacific Power list could be used; with the benefit that HE washers from the list would qualify for both Yreka and Pacific Power financial assistance.

Cost Estimates for Washers

There have been a lot of changes in the industry in recent years, and now the majority of washers sold are high efficiency type. Instead of the more expensive front loaders, now there are many top loading HE washer models available. Most front loading HE washers will use less water, 15 to 18 gallons per load, than top loading HE washers at 20 gallons per load. Both types are very water efficient compared to the 40 to 50 gallons per load for standard washers. Low income customers would probably purchase the lowest cost and best value washer.

The following HE washer low to medium prices were obtained from local retailer sources, in 2012 dollars:

- Standard top loading washers, \$425 to \$470, average \$447
- High Efficiency top loading washers, \$565 to \$600, average \$582
- High Efficiency front loading washers, \$750 to \$800, average \$775

Amount of Financial Assistance

In order to encourage low income customers to purchase HE washers, the financial assistance should be approximately the amount of the additional retail price over the standard washer price. For HE top loaders over standard washers, the additional amount is an average of \$135. Pacific Power already offers a cash incentive of \$75; so a City of Yreka rebate of \$60 would combine to make up the \$135 additional needed.

Program Administration

Yreka is a member of the California Urban Water Conservation Council, and could apply to become part of the Smart Rebates program. For participants, the CUWCC charges \$51.52 per device to provide all the administration; including customer application on-line or by mail, and payment of the rebate. This cost may be about the same or less than the cost of Yreka staff and materials for administration of a small number of rebates, and is used here for planning purposes.

Fiscal Impact

For the first year pilot project of financial assistance for low income customers in the purchase of high efficiency clothes washers, the following costs have been projected:

Rebates for 10 customers @ \$60.00 ea.	\$600.00
CUWCC admin cost for 10 HE washers @ 51.52 ea	<u>\$515.20</u>
Subtotal	\$1115.20

Yreka staff time for coordination with CUWCC, transfer of funds, record keeping, for 10 customers annually	16 hours
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APPENDIX G

City of Yreka, Department of Public Works WATER EFFICIENCY PROGRAM

Staff Report 2-28-12 Planning to Assist Low Income Water Customers Financial Incentives – Hose Water Timers

Financial incentive programs to assist Yreka low income water customers in reducing water use and water bills have been investigated as part of the CDBG Planning Grant. Based on two years of residential water use surveys, it was discovered that a majority of residential low income water customers irrigate their yards by manual hose watering. Inattention to the hose watering times is one of the most frequent causes of excessive water bills. A simple and low cost remedy is to install water timers at the hose connection; so that the water is always shut off after the irrigation period. The timers can also permit accurate watering schedules according to plant needs. If used properly, hose water timers could help reduce customer water use by significant amounts. Although the cost of equipment is moderate, many low income customers may not be able to afford the purchase.

Planning research was conducted into financial assistance to low income customers for the acquisition of hose water timers. A first year pilot program to test the effectiveness of financial incentives for acquisition of hose water timers is outlined as follows.

Low Income Qualification

In 2007, a Citywide Household Income Study for Yreka was performed, funded by a CDBG PTA grant. The study showed that 68% of Yreka households surveyed were low income Target Income Group (TIG) households based on random, representative sampling methods. City staff, through utility bills and other contacts, understands that many of the customers in TIG households are seniors, have fixed incomes and/or are health-impaired.

The City offers reduced utility rates for qualified very low income customers, and these all should be automatically eligible for hose water timer financial assistance. For other low income customers, financial records could be requested for verification. However, 68% of Yreka customers are low income (probably more since the 2008 recession), and the cost of the financial assistance should be very modest. For the pilot program, it is recommended that customers have only to state on an application form that they are low income; unless the pilot program is funded by a grant source that requires a more stringent income verification

Equipment Specifications

Hose water timers are very common, with many manufacturers and types. An analysis of irrigation requirements by Yreka customers has indicated that suitable hose timers should have the following minimum specifications:

- Analog (not digital) operation for ease of understanding and use by all customers.
- 24 hour clock to allow watering at night between 8 pm and 8 am.

- Up to at least 60 minute long irrigation cycle times.
- At least 2 start times per day to allow repeat cycles for hard soils.
- Manual on and off.
- Battery operation with at least a one year battery life.
- Allowable operating pressure of at least 100 psi.
- Weather resistance.
- Reputable company offering at least a 2 year warranty.
- Low to moderate cost.

Based on the above, 4 hose water timers have been selected for consideration. These timers have also been recommended by users and suppliers, and are readily available in Yreka. Best on-line retail prices are included, but batteries would be extra.

1. DIG 9001EZ DC FHT Hose-End Sprinkler Timer	\$24.79
2. Nelson 56606 2 in 1 Pre-Set Water Timer	\$24.79
3. Orbit 62061N Single-Dial Water Timer	\$24.87
4. Gilmour 9501 9 Preset Selection Water Timer	\$24.62

Cost Estimate and Purchase of Equipment

The City could purchase bulk amounts from hardware stores and suppliers. For the pilot project, the number of timers offered should be limited to 100 units per year or less. An informal discussion with a local hardware supplier has indicated that this approach is feasible. With taxes and shipping costs, it is estimated that the hose water timers should cost approximately \$30.00 each in 2012 dollars. Public Works staff has confirmed that obtaining prices, purchasing and arranging shipment could be done at the Public Works Service Center office.

Customer Financial Participation

In order to ensure respect for City (the ratepayers in the enterprise fund) financial assistance in the purchase of hose water timers, it is recommended that customers pay a portion of the cost. For the pilot project, a nominal amount of \$10.00 is suggested as a co-payment.

Equipment Storage

The hose water timers are small units, and even 100 will not take much space. Public Works managers have verified that warehouse space is available in the Public Works Service Center to store a year's supply of hose water timers.

Customer Application, Payment and Delivery

City Hall staff currently handles water customer accounts and payments. For the pilot hose water timer financial assistance project in the first year, it is proposed that low income customers do the following at the City Hall front desk:

- Fill out a simple application for financial assistance in purchase of the hose timer; including name, address, phone, low income status, and promise not to resell the equipment.
- Pay the \$10.00 co-payment.
- Pick up the hose water timer at the front desk. Since the timers are small, a limited number of 10 or so could be stored at City Hall; and could be replenished

from Public Works stock. The hose timer is a very simple device which can be easily installed by the owner, and manufacturer instructions are included.

Fiscal Impact

For the first year pilot project of financial assistance for low income customers in the purchase of hose water timers, the following costs have been projected:

Purchase of 100 hose water timers @ \$30.00 ea.	\$3,000.00
Reimbursement by co-payment from customers	<u>- 1,000.00</u>
Subtotal	\$2,000.00

Public Works staff time for prices, purchasing and storage, record keeping, annual for 100 units	12 hours
City Hall staff time for preparation of forms, customer applications, payments, unit delivery, record keeping, annual for 100 units	30 hours