

Otay Water District
Pilot Commercial and Institutional Water Use Survey Project

SERVICES FOR ADMINISTRATION OF A PILOT COMMERCIAL AND INSTITUTIONAL WATER USE SURVEY PROJECT

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Prepared for:

**OTAY WATER DISTRICT
Mr. William Granger
Water Conservation Manager**

Prepared by:

Water Management, Inc.

Russell Horner
Frank Fuchs



Headquarters
117 Clermont Avenue
Alexandria, VA 22304-4837
(703) 370-9070



San Diego Office
Suite 120
San Diego, CA 92122
(800) 394-5325

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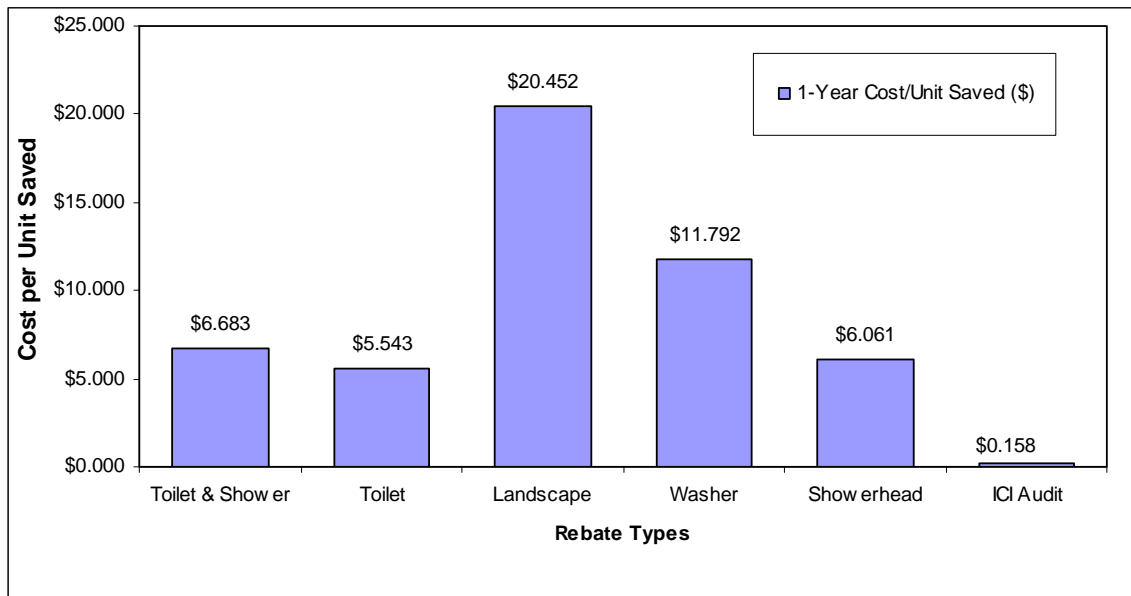
Executive Summary

At the most recent American Water Works Association (AWWA) Water Sources Conference in Albuquerque, NM one of the sessions presented by Christy Smith of CH2MHill summarized the Return on Investment that is realized from the popular Residential Rebate Programs. The program that Ms. Smith summarized is the Albuquerque Rebate program between the years of 1995 and 2002. During this time frame a total of \$5.6 million dollars was spent in rebate money from toilets, to washing machines to landscaping measures.⁽¹⁾ The result has been a saving of ~800 million gallons saved annually.

This summer in San Diego a Pilot Program was developed by the San Diego Water Authority and the Otay Water District. They decided to try something different. Something they call their “High Five Program”. Here’s how it worked; last year the Otay Water District (District) paid \$23,000 to perform extensive water audits on their three (3) highest water users in the District.

The three (3) audits identified many water saving measures for a total annual savings in excess of 145 million gallons. The clients in the Otay Water District that received this free audit service were very receptive and expressed a great deal of interest in implementing the measures identified. As a result of the audits one of the clients has already begun to make improvements. Because of Otay Water’s close involvement with the projects the likelihood of these suggested measures being implemented in this next year is very high.

Measuring the relative effectiveness of the Otay Water Pilot project to the City of Albuquerque’s Water Conservation Rebate program revealed that the Otay Water Pilot program was approximately 25 X more effective.



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The average cost per thousand gallons of water saved in the Albuquerque Water Conservation Rebate Program was \$7.00, whereas the cost of the Otay High Five Program was \$0.158.

Otay's High Five Program: Cost is \$0.158 / 1,000 gallons saved.

Albuquerque's Rebate Program: Cost is \$7.00 / 1,000 gallons saved.

The take-home message of this comparison of a traditional rebate program to a well designed ICI audit program is that a larger payback and much better return on investment can be accomplished by thinking outside the box and being committed to the outcome. This outside thinking is reflected in the District's close involvement with its customer's. The commitment reflects a desire to working at the speed of business, and the innovation to look beyond rebate dogmas that may serve the Water Industry better as enhancement feature than as a cure-all solution. Rebate programs are typically time consuming for both the water provider and the end users.

Since time is money, the best money spent for a successful water conservation program may lie in searching for new and innovative ways to solve water conservation challenges. Commercial and institutional water audits and surveys, leading to new BMP's that have not been recognized by the Water Industry may be a first and important step. WMI is proud to be a part of such a forward thinking project as the one set out by San Diego Water and Otay Water District.

"If we are to meet the needs of existing and future populations and ensure that future habitats and ecosystems are protected, the nation's waters must be sustainable and renewable. Sound water resource management, which emphasizes careful, efficient use of water, is essential to achieve these objectives (2006, EPA memo)⁽²⁾".

Project Background:

WMI was hired in 2005 by the District to implement a Water Use Survey Project (Survey) on its highest water users in the District. The intention of the Survey was to obtain a better understanding of the end user habits in the industrial and commercial setting under baseline conditions. Understanding industrial and commercial water user's water demand habits could lead to "critical (baseline) information that significantly affects the potential for reducing (water) demands through conservation in the future (Deoreo, 2006)⁽³⁾".

The Survey was designed to determine the greatest water savings opportunity as put forth by the project description from the District. All of this is in support of the Colorado Water Pact that "California has agreed to take specific, incremental steps that will reduce its over-reliance on Colorado River water in the next 14 years (White & Quimby, 2003)⁽⁴⁾". Understanding the users with the greatest demand on urban water supplies can

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aid California in generating the most effective Best Management Practices (BMP's), water conservation policies and programs, and to better plan for short-term emergencies such as drought or earthquake⁽⁵⁾.

Project Description:

The District first provided to WMI a list of its top industrial and commercial customers. Water Management then conducted a telephone interview with each of the highest users. The District and WMI jointly decided which three customers to select for the study. The goal of the program was to find the most effective way to save water.

WMI next did an onsite visit and developed a water balance for each of the three end users. Survey analysis, although based on a small period of time, was instrumental in evaluating water usage leading to a comprehensive water conservation program. Based on information and observations of specific performance in the industry, a customized water savings program was developed.

In designating the top candidates for the Survey for the District, WMI took a careful look at the water consumer's initial candidate survey, the customer type and current water usage. From this, the District and WMI reached an agreement based on these water survey results, and selected the following 3 facilities:

R.J. Donovan Correctional Facility

R.J. Donovan Correctional Facility provides housing for 4,386 inmates detained with a total of 1,297 support staff and is classified a medium-high prison. The Correctional Facility is the largest customer of the Otay Water District and based on our assessment offers a correspondingly large opportunity for water efficiency improvements. The facility has been using over 290 million gallons of water per year at a cost of over \$1,900,000 per year as determined by our audit.

Water Management identified savings in excess of 84 million gallons at a capital cost of \$2,583,401.

George F. Bailey Detention Center

The George F. Bailey Detention Facility was built in 1992 to house maximum-security inmates. The total number of inmates housed at this facility is 1,332. The East Mesa Detention Facility is alongside the Bailey Detention Facility on the same facility and houses approximately 490 inmates. The Detention centers are one of the largest customers of the District and based on a preliminary assessment offer a correspondingly large opportunity for water efficiency improvements.

Water Management identified savings of approximately 40 million gallons at a capital cost of \$549,788.

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Delimex

A premier manufacturer of high-quality frozen Mexican foods, Delimex has 22 products and 650 employees in a 151,000 square foot manufacturing space, with well over a \$100 million in annual sales. Processes include multiple automated lines, a complex spiral freezing system, and packaging area the name components. Under strict FDA regulations, the equipment maintenance and water usage system is expansive; including excessive water usage for equipment washing and sanitizing, water usage in the process as an ingredient, and water softening and boiler and cooling tower operations.

Water Management identified savings in excess of 20 million gallons at a cost of \$300,000.

In conclusion:

Providing monies to outside contractors to do investment grade water audits for the largest water users in a water district is an excellent use of conservation dollars.

References:

1. Flowers, John (2006) EPA Memo Attachment #2
2. Gates, Greg. (2004) City of Albuquerque Rebate Program Review. Attachment #1
3. Deoreo, W.D. (2006) The role of water conservation in a long-range drought plan. *Journal of American Water Works Association*. Vol. 98, No. 2: 94-101
4. White, K. & Quimby, F. (2003) Secretary Norton signs historic Colorado River pact. *News: U.S. Department of the Interior*. Retrieved from <http://www.doi.gov/news/031016b.htm> on February 1, 2006.
5. Memorandum of Understanding Regarding Urban Water Conservation in California (2004). Retrieved February 1, 2006 from the California Urban Water Conservation Council (CUWCC) website: http://www.cuwcc.org/uploads/memorandum/MOU_04_03_10_with_Section_4_Amendments.pdf