



Tri-County Water Conservancy District
Water Conservation Implementation Plan
Grant Application

Original Submission - July 25, 2011
Revised Submission - February 15, 2012
Second Revised Submission – May 15, 2012

IMPLEMENTATION GRANT PROPOSAL

EXECUTIVE SUMMARY

Tri-County Water (TCW), has a state approved Water Conservation Plan (WCP) and is a covered entity, provides domestic water service to areas in the Tri-County Water Conservancy District that are outside of the water service areas of the City of Montrose, the Town of Olathe, the City of Delta, the Menoken and Chipeta Water Districts. The WCP for TCW was completed and approved by the CWCB in 2009. TCW is now seeking funding to implement the conservation measures of the Commercial and Industrial sectors identified in the WCP.

APPLICATION SUBMITTAL REQUIREMENTS

Contact information of entity seeking grant:

Tri-County Water Conservancy District
Mike Berry, General Manager and Kathleen Margetts, Assistant Manager
647 North 7th Street
Montrose, CO 81401
P.O. Box 347, 81402
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TCW staff will assist Ms. Rebecca Nichols (Project Manager, RHN) with her efforts to implement conservation measures for the Commercial-Industrial (C-I) sectors identified in the WCP. The Brendle Group (Consultants) will be conducting the water audits. Ms. Kathleen Margetts (Assistant Manager) and Mr. David Roatcap (GIS Technician) will assist in data gathering and analyzing as well as the review of the implementation measures and final document.

Selected firms to assist in implementation of the WCP:

RHN Water Resource Consultants
Attn: Rebecca H. Nichols, M.S.
1600 American Way
Montrose, Colorado 81401
T: (970) 252-0278
F: (970) 252-9464
Email: rhnwater@bresnan.net

Ms. Nichols holds a Masters of Science degree in Watershed Science. She has been involved in water rights and water development for over 25 years. For the past eleven years, she has conducted general water resource consulting including development of plans for research, augmentation, and water rights analysis, and development of water management, conservation, and supply plans. Additionally, Ms. Nichols prepared the 2003 Tri-County

Water Conservancy District Water Management Plan and the 2009 Tri-County Water Conservation Plan.

Selected firms conduct the water audit of the C-I sector of the WCP

The Brendle Group
212 Mulberry St.
Fort Collins, CO 80521
T: 970-207-0058
F: 970-207-0059
Email: www.brendlegroup.com

The Brendle Group was formed in 1996 and has been working for over a decade with local governments and utilities that are water providers on assessments/audits and resource conservation plans as well as sustainability planning initiatives. The key members of the Brendle Group that will be working on this project are Julie Sieving, P.E., LEED-AP and Becky Fedak, P.E., Energy and Water Resources Engineer. The Great Western Institute will be assisting with the Brendle Group on the water audits.

Background:

Retail Water Delivery for the years 2006-2010

TCW had 6,721 active taps in 2010 and sold over 700 million gallons of treated water. Approximately 99% of the taps were “standard” taps which are 5/8” x 3/4” in size. The balance of the taps were “demand” taps which are larger than a standard tap in size. In 2010, 81.5% of the annual use was attributed to standard taps totaling approximately 574 million gallons and the balance was delivered through the demand taps to commercial and industrial users. Not all standard taps serve a residential use as some serve commercial or industrial uses. Taps are classified by “potential demand and delivery due to tap size” only and not type of customer. Tap sizes ranging from 3/4” to 1” are classified as commercial and meter sizes ranging from 1.5” to 2” are classified as industrial. However, TCW has four meters larger than 1 inch that serve large mobile home parks. Table 1 shows the TCW sector water use, estimated population, and per capita water use for the years 2006 through 2010.

Water Delivery System

The TCW distribution system runs South from Montrose to the vicinity of the City of Ouray and North from Montrose to the Gunnison River. The original system was constructed in 1970 and consisted of 255 miles of pipeline, two water storage tanks and three pump stations. Since the original construction, many miles of pipeline have been added and other system improvements have been made. Presently, there are 610 miles of pipeline, 21 water storage tanks totaling 8.0 MG of storage, and 42 pump stations. The TCW boundary currently encompasses approximately 1,420 square miles and serves domestic water to 6,721 active taps and approximately 17,375 people in a 350 square mile service area. TCW distributed over 700,000,000 gallons of treated domestic water in 2010.

Water Supply

TCW has a right to store 28,100 AF in the Ridgway Reservoir for M&I supply. The domestic water providers in the Uncompahgre Valley currently use approximately 30% of that water on an annual basis. TCW has 12,860 AF of the M&I supply and is currently using approximately 21% of that supply. It is estimated that at today's consumption rate, the water supply might last between 25 and 50 years depending on a number of variables. TCW indicated in the recent Statewide Water Supply Initiative (SWSI) report that they had no gap for the foreseeable future which was the year 2030.

Population

Current population forecasts made by the State Demographer indicate that Montrose County growth is expected to increase at a rate of 2.8% per year for the years of 2010 through 2015 and 2.9% for the years 2016 through 2020. After 2020, growth in Montrose County is forecasted to decrease to 2.5% for the years of 2021 through 2025. It should be noted that TCW has not experienced the State Demographer's growth estimates in the past several years.

Estimated Water Saving Goals

TCW has offered water audits to the top four C-I users and has received letters of commitment from three of the four C-I users. In TCW's WCP, it was estimated that water audits for the C-I sector would result in a 1% water savings per audited tap, however, TCW believes that audits will produce a water savings of between 3% and 5% per audited tap. Table 2 shows the annual estimated water savings of 1%, 3%, and 5% using the 2010 retail water use for each C-I customer that will be offered audits.

Estimated Water Savings in the Past Five Years

No water savings have been realized to date from implementation measures.

Table 1
Sector Water Use

Year		Customer Class	Active Taps	Metered Water (1000 gallons)	Acre- feet	Water Use % of Total	% of Taps	*Population	** Per Capita (gallons)
2010		Residential	6,640	574,029	1,762	81.5%	98.8%	17,375	91
		Commerical	49	30,513	94	4.3%	0.7%		
		Industrial	32	99,821	306	14.2%	0.5%		
		Total	6,721	704,363	2,162				
2009		Residential	6,739	582,617	1,788	80.8%	98.8%	17,635	91
		Commerical	49	31,659	97	4.4%	0.7%		
		Industrial	31	107,022	328	14.8%	0.5%		
		Total	6,819	721,298	2,214				
2008		Residential	7,076	593,081	1,820	77.0%	98.9%	18,182	89
		Commerical	47	30,543	94	4.0%	0.7%		
		Industrial	34	146,774	450	19.1%	0.5%		
		Total	7,157	770,398	2,364				
2007		Residential	7,246	586,727	1,801	76.4%	98.8%	18,790	86
		Commerical	49	36,407	112	4.7%	0.7%		
		Industrial	38	144,436	443	18.8%	0.5%		
		Total	7,333	767,570	2,356				
2006		Residential	6,970	598,946	1,838	81.4%	98.9%	18,278	90
		Commerical	50	35,218	108	4.8%	0.7%		
		Industrial	31	101,774	312	13.8%	0.4%		
		Total	7,051	735,938	2,259				

Note: Residential includes single family and multi-family units for all meter sizes.

*Population estimates based on 2.5 person per residential unit.

**Per Capita calculations: Annual residential use divided by population divided by 365.

Table 2**Estimated Water Savings through Implementation Measures**

Tap Description	Water Use (1000 gal)	Water Use (af)	1% Savings (af)	3% Savings (af)	5% Savings (af)
Delta Correctional Center	50,880	156.14	1.56	4.68	7.81
Ridgway State Park	5,910	18.14	0.18	0.54	0.91
Del Mesa Farms (8 units)	2,557	7.85	0.08	0.24	0.39
	2,206	6.77	0.07	0.20	0.34
	1,901	5.83	0.06	0.18	0.29
	1,809	5.55	0.06	0.17	0.28
	1,627	4.99	0.05	0.15	0.25
	1,000	3.07	0.03	0.09	0.15
	911	2.80	0.03	0.08	0.14
	817	2.51	0.03	0.08	0.13
Nationwide Communities	44,129	135.43	1.35	4.06	6.77
Total	113,747	349.08	3.49	10.47	17.45

Scope of Work:

Background

With grant approval, TCW will conduct water audits on the top three C-I water users and will provide water saving information to the largest mobile home park in the TCW water service area located outside of the City of Montrose. The Brendle Group was selected to conduct the water audits for the Delta Correctional Center, Ridgway State Park and the Del-Mesa Farms and will be assisted by Rebecca Nichols, the Project Manager. Rebecca Nichols will provide water savings information that will be included in the monthly water billing for each unit in the Nationwide Communities Mobile Home Park.

The budget for the Project Manager (Rebecca Nichols) was estimated based on a consulting fee of \$125.00 per hour. The budget for the Brendle Group (Consultant) was based on a consulting fee ranging from \$150.00 per hour for a Principal Engineer, \$135.00 per hour for a Senior Engineer, \$78.00 per hour for an Engineer II and \$63.00 per hour for an Engineer I. Mileage under “Overhead Direct Costs” is billed at \$0.555 per mile. TCW staff will conduct the meter testing with time billed at \$45.00 per person per hour. The TCW General Manager and Assistant Managers will also review all reports by the Consultant and the Project Manager which will be billed as services in-kind. Below is a description of the Implementation Plan and Table 3 is a detail summary of the project cost.

1. Pre-Audit Preparation

The pre-audit preparation will consist of conference calls with the Consultant and Project Manager to discuss the details of each audit including current water use and water savings opportunities and the logistics for each audit. The Project Manager will also contact the customer to set up the time and date of each audit and the contact person for the Consultant contact. Pre-audit preparation costs have been estimated to total \$1,476.00 for the Brendle Group, \$1,000.00 for RHN, Project Manager, and \$542.72 in matching funds by TCW. Pre-audit costs total \$3,018.72.

2. On-Site Audit

The on-site audits will consist of a Consultant, staff technician(s), and the Project Manager, if necessary. A meter inspection and test will be conducted by TCW staff with total time estimated at 30 to 40 hours total. During the on-site audit, all sources of water use will be evaluated including end use fixtures, irrigation, and process operations. End use fixtures to be evaluated are sinks, showers, toilets, and water spigots. Other water use fixtures will include production equipment, laundry and kitchen fixtures, and heating/cooling systems.

TCW staff technicians will conduct on-site meter testing. The testing will be conducted with a new factory calibrated meter and the discharge from the old meter will then be compared to the discharge from the new meter for accuracy. It is estimated that each meter test will take between 4-6 hours, including travel, with two technicians.

Below is a summary of the individual audits:

- A. Delta Correctional Center: The Delta Correctional Center is a low security Colorado state prison. The audit will consist of fixture assessments to determine if fixture upgrades would yield less water use. If there is outside irrigation that is provided by treated water, an irrigation assessment will be made to determine if water can be saved by improving operation and/or performance of the existing irrigation system or by reducing irrigated areas. The budgeted costs for the audit by the Consultant and the Project Manager was estimated at \$800.00 with both to be paid from the grant and \$715.17 to be provided by TCW through in-kind efforts. The total estimated cost for this audit is \$1,515.17.
- B. Ridgway State Park: Ridgway State Park is located above and below the dam at Ridgway Reservoir. There are three campgrounds with shower and toilet facilities as well as several outside spigots. The audit will consist of fixture assessments to determine if fixture upgrades would yield less water use. The budgeted costs for the audit by the Consultant and the Project Manager was estimated at \$2,797.50 with both to be paid from the grant and \$715.17 to be provided by TCW through in-kind efforts. The total estimated cost for this audit is \$3,512.67.
- C. Del-Mesa Farms: Del-Mesa Farms are an agribusiness that raises chickens for both egg production and for poultry sales. There are eight sites that will be inspected for meter accuracy, line leakage in the facilities, and efficiency of use in the chicken rearing houses. The budgeted costs for the audit by the Consultant and the Project Manager was estimated at \$3,047.50 with both to be paid from the grant and \$3,151.17 to be provided by TCW through in-kind efforts. The total estimated cost for this audit is \$6,198.67.
- D. Nation Wide Communities: (a mobile home park). Water conservation information will be developed by the Project Manager and will be distributed with a monthly billing to approximately 250 mobile homes. The water savings information will be written in both English and Spanish. The information will consist of the importance of efficient coolers, toilet, showerhead, and faucets as well as listing the potential water and cost savings. Also included will be a reply portion if a homeowner wants to have a home water audit. The budgeted cost for the water conservation information by the Project Manager was estimated at \$1,500.00 to be paid from the grant and \$1,069.37 to be provided by TCW through in-kind efforts. The total estimated cost for this audit is \$2,569.37

Table 3, below, is a detailed cost estimate for each audit.

On-site audit costs have been estimated to total \$4,395.00 for the Brendel Group plus \$1,680.00 for direct costs, \$3,750.00 for RHN, Project Manager, plus \$125.00 for direct costs, and \$5,800.86 in matching funds by TCW plus \$150.00 in direct costs. On-site audit costs plus direct costs total \$13,945.86.

3. Reporting

Following the on-site audits, the Consultant will prepare a list of efficiency opportunities and a draft assessment report for each customer that will include the evaluation of potential system leaks through the development of water use models, water use savings identified during the on-site audit, identification of water savings and cost savings for selected opportunities and implementation costs as well as a payback period. Also included will be a summary of rebates and other incentives as well as equipment recommendations. Reports will be provided to the audited customer as well as TCW. All periodic reports will be written by the Project Manager according to the set timeline.

Report development and post-audit follow-up by the Brendel Group has been estimated to cost \$6,963.00.

4. Project Deliverables and Timelines

It is estimated that audits will begin in June of 2012 and will be completed by the end of June 2012. The 50% completion report will be submitted to the CWCB by the end of June 2012, the 75% completion report submitted to the CWCB by the end of July, 2012 and the final report submitted to the CWCB not later than August 31, 2012. All reports will be developed by the Project Manager and have been budgeted at \$2,750.00 with in-kind matching provided by TCW of \$1,086.36. Total costs for project management and report writing is estimated at \$3,836.36. Project management costs are also included in Table 3.

Summary:

Tracking

A tracking system will be set up by the Project Manager. Tracking of monthly and annual water use will be followed and compared to prior month and prior year values to determine if the audits have resulted in lower monthly and/or annual water usage. This information will be provided to each audited customer annually or upon request. The estimated timeline for the C-I Water Audits Project is one year and tracking will continue for three to five years.

TCW has estimated that the implementation project will total \$29,568.94 with \$22,139.00 funded by a CWCB grant and a 25% matching of \$7,429.94 provided by TCW through in-kind efforts.

Table 3
Revised Budget: Second CWCW Water Conservation Implementation Plan Grant Request

	Brendel Group				Brendel	RHN	Grant	TCW				TCW Total	Project Total
	Principal Engineer	Senior Engineer	Engineer II	Engineer I		Project Manager	Request	TCW Manager	TCW Asst. Mgr.	TCW Tech II	TCW Tech I		
	\$ 150.00	\$ 135.00	\$ 78.00	\$ 63.00		\$ 125.00		\$ 87.25	\$ 62.54	\$ 60.20	\$ 41.30		
1. Pre-Audit Preparation													
Estimated Hours	4	0	8	4		8		2	3	3	0		
Total Pre-Audit	\$ 600.00	\$ -	\$ 624.00	\$ 252.00	\$ 1,476.00	\$ 1,000.00	\$ 2,476.00	\$ 174.50	\$ 187.62	\$ 180.60	\$ -	\$ 542.72	\$ 3,018.72
2. On-Site Audit													
A. Delta Correction Ctr.													
Estimated Hours	2	0	0	0		4		0.5	1	6	6		
Total	\$ 300.00				\$ 300.00	\$ 500.00	\$ 800.00	\$ 43.63	\$ 62.54	\$ 361.20	\$ 247.80	\$ 715.17	\$ 1,515.17
B. Ridgway State Park													
Estimated Hours	0	0	0	32.5		6		0.5	1	6	6		
Total				\$ 2,047.50	\$ 2,047.50	\$ 750.00	\$ 2,797.50	\$ 43.63	\$ 62.54	\$ 361.20	\$ 247.80	\$ 715.17	\$ 3,512.67
C. Del Mesa Farms													
Estimated Hours	0	0	0	32.5		8		0.5	1	30	30		
Total				\$ 2,047.50	\$ 2,047.50	\$ 1,000.00	\$ 3,047.50	\$ 43.63	\$ 62.54	\$ 1,806.00	\$ 1,239.00	\$ 3,151.17	\$ 6,198.67
D. Nationwide													
Estimated Hours	0	0	0	0	\$ -	12		0.5	1	8	8		
Total						\$ 1,500.00	\$ 1,500.00	\$ 43.63	\$ 62.54	\$ 481.60	\$ 481.60	\$ 1,069.37	\$ 2,569.37
Direct Costs (mileage)					\$ 1,680.00	\$ 125.00	\$ 1,805.00					\$ 150.00	\$ 1,955.00
Audit Totals	\$ 300.00	\$ -	\$ -	\$ 4,095.00	\$ 4,395.00	\$ 3,750.00	\$ 8,145.00	\$ 174.50	\$ 250.16	\$ 3,010.00	\$ 2,216.20	\$ 5,800.86	\$ 13,945.86
3. Report Development													
Estimated Hours	8	6	20	23									
Total	\$ 1,200.00	\$ 810.00	\$ 1,560.00	\$ 1,449.00	\$ 5,019.00		\$ 5,019.00						\$ 5,019.00
Post-Audit Follow-up													
Estimated Hours	1	0	23	0									
Total	\$ 150.00	\$ -	\$ 1,794.00	\$ -	\$ 1,944.00		\$ 1,944.00						\$ 1,944.00
Total Report & Follow-up	\$ 1,350.00	\$ 810.00	\$ 3,354.00	\$ 1,449.00	\$ 6,963.00		\$ 6,963.00						\$ 6,963.00

Table 3
Commercial-Industrial Water Audits
(continued)

4. Report Writing, Progress Report, and Final Report						RHN	Grant	TCW	TCW			TCW Total	Project
						Proj. Mgr.	Request	Manager	Asst. Mgr.				Total
						\$ 125.00		\$ 87.25	\$ 62.54				
Draft Reporting													
Estimated Hours						3		1	2				
Total						\$ 375.00	\$ 375.00	\$ 87.25	\$ 125.08			\$ 212.33	\$ 587.33
50% Progress Report													
Estimated Hours						4		1	2				
Total						\$ 500.00	\$ 500.00	\$ 87.25	\$ 125.08			\$ 212.33	\$ 712.33
75% Progress Report													
Estimated Hours						5		1	2				
Total						\$ 625.00	\$ 625.00	\$ 87.25	\$ 125.08			\$ 212.33	\$ 837.33
Final Report													
Estimated Hours						10		3	3				
Total						\$ 1,250.00	\$ 1,250.00	\$ 261.75	\$ 187.62			\$ 449.37	\$ 1,699.37
Total Report to CWCB						\$ 2,750.00	\$ 2,750.00	\$ 523.50	\$ 562.86			\$ 1,086.36	\$ 3,836.36

			Brendel	RHN	Grant Request		TCW
Consulting Costs	\$ 20,334.00		\$ 12,834.00	\$ 7,500.00	\$ 22,139.00		\$ 7,429.94
Direct Costs (mileage)	\$ 1,805.00		\$ 1,680.00	\$ 125.00			
Grant Request	\$ 22,139.00						
TCW 25% Match	\$ 7,429.94						
Project Total	\$ 29,568.94						