Southeastern Colorado Water Conservancy District
Water Conservation Field Services Grant Application
July 14, 2015 (Revised Oct. 06, 2015)

Project Scope of Work
Implementation of the Regional Water Conservation Plan

Approach

The Southeastern Colorado Water Conservancy District (District) has developed a Regional Water Conservation Plan (RWC Plan) to address the water conservation related needs of the Arkansas Valley Conduit (AVC) participants. The RWC Plan was conceived to organize and support local water conservation planning and implementation for those entities that may receive AVC water deliveries. If the construction of the AVC is approved, the entities that will receive AVC deliveries will execute a Memorandum of Agreement (MOA) with the District dictating the terms of the relationship between the District and the organization related to said deliveries including data reporting and sharing protocols and requirements, as well as stipulations on the reporting of local water conservation planning and implementation efforts.

Given that the RWC Plan provided details on how the District provides technical and financial support to the AVC participant community related to improved water use efficiency and meaningful water conservation, one goal of the RWC Plan was to expand its applicability to other water providing entities that participate in District programs – with a specific interest in those that may participate in the Long-Term Excess Capacity Master Contract (MC) for storage in Pueblo Reservoir. Recent funding from the Colorado Water Conservation Board has helped the District to meet this goal, by assisting the MC participants, who will execute MOAs with the District, in conducting baseline data collection and water audits that support local water resources management needs. A list of participating project participants is provided in Table 1. The project has expanded the applicability of the RWC Plan through enhancing and adding to the approved RWC Plan in the following ways:

- Collecting baseline data characterizing infrastructure and water loss in a manner consistent with the data collected from the AVC participants;
- Incorporating that data into the development of future water conservation goals relevant to the MC participants;
- Developing an implementation plan that addresses the needs of the MC participants, the requirements of the US Bureau of Reclamation (Reclamation), and the State of Colorado; and
- Identifying opportunities for the District to support the efforts of the MC participants to develop and implement local water conservation plans.

During the development and implementation of the RWC Plan, it became apparent to the District that the management of non-revenue water by the AVC and MC participants was a key component of future water conservation efforts to be performed on a local and regional scale. In addition, the District was able to collect data to suggest that the characterization of current non-revenue water issues within the

project partnership was not adequate to support RWC Planning efforts. Specifically, the following information is needed by the District to allow for the adequate estimation of future project costs and development of implementation prioritization:

- Quantification of non-revenue water;
- Understanding of ongoing meter testing and replacement programs (including master meters and customer meters);
- Characterization of current meter reading accuracy; and
- Characterization of ongoing water loss prevention efforts.

TABLE 1. Listing of Regional Water Conservation Plan Participants

County	Entities	County	Entities
Bent	Hasty Water Company[1]	Otero	Fayette Water Association[3]
	Las Animas, City of [3]		Fowler, Town of[3]
	McClave Water Company[1]		Hilltop Water Company[3]
Chaffee	Poncha Springs, Town of[2]		Holbrook Center Soft Water[3]
	Salida, City of[2]		Homestead Improvement Association[3]
	Upper Arkansas Water Conservancy District[2]		La Junta, City of[3]
Crowley	96 Pipeline Company[3]		Lower Arkansas Valley Water Conservancy District[2]
	Crowley County Water Association[3]		Manzanola, Town of[3]
	Crowley, Town of[1]		Newdale Grand Valley Water[3]
	Olney Springs, Town of[3]		North Holbrook Water[1]
	Ordway, Town of[3]		Patterson Valley Water Company[3]
	Sugar City, Town of[1]		Rocky Ford, City of[3]
El Paso	Fountain, City of[2]		South Side Water Association[3]
	Security Water and Sanitation District[2]		South Swink Water Company[3]
	Stratmoor Hills Water District[2]		Swink, Town of[1]
	Widefield Water and Sanitation District[2]		Valley Water Company[3]
Fremont	Canon City, City of[2]		Vroman Water Company[3]
	Florence, City of[2]		West Grand Valley Water Inc.[3]
	Penrose Water District[2]		West Holbrook Water[1]
Kiowa	Eads, Town of[3]	Prowers	Lamar, City of[1]
Otero	Beehive Water Association[3]		May Valley Water Association[3]
	Bent's Fort Water Company[3]		Wiley, Town of[1]
	Cheraw, Town of[1]	Pueblo	Boone, Town of[1]
	East End Water Association[1]		Pueblo West Metropolitan District[2]
	Eureka Water Company[1]		St. Charles Mesa Water District[3]

[1] Arkansas Valley Conduit participant

[2] Excess Capacity Master Contract participant

[3] Both Arkansas Valley Conduit and Master Contract participant

Past efforts by the District to assist all project participants in conducting system-wide water audits has established some best management practices related to collecting and organizing that information that

is necessary to track and characterize non-revenue water and water loss. The District's efforts to devise and implement the audit program was necessary to help the District and its project partners organize, evaluate, and prioritize the overall Regional Planning efforts. The system-wide water audits also provided excellent baseline data in which to evaluate the success of implementing the RWC Plan. It is now imperative that the District continue the process of conducting system-wide water audits in the future with each of its partner organizations such that positive and appropriate processes and management practices can be reinforced and progress related to improved water loss management can be tracked.

Given the various roles and responsibilities of the District regarding water conservation and management, this proposed project includes three specific sets of tasks:

i. Support the development of three local water conservation plans using the Best Management Practices (BMPs) Tool Box contained in the RWC Plan and presented on the District web site. The scope includes developing local water conservation plans for up to three project participants in partial fulfillment of the implementation plan defined in the RWC Plan.
ii. Conduct sixteen system-wide water audits for project participants in order to evaluate the success of the implementation of the RWC Plan and the local conservation planning efforts that have recently been enacted (noting that 16 is approximately one third of the combined AVC and MC project participants and that the District has a goal to conduct third-party water audits of all the 47 water providing project participants every three years).
iii. Perform administrative tasks in order to track project budgets, schedules, deliverables, prepare progress reports, and invoices.

Descriptions of each of the proposed tasks are provided below. The proposed budget and project schedule is provided in Attachment A.

Organizational Background

The District was formed under Colorado State Statutes on April 29, 1958 by the District Court in Pueblo, Colorado. The District's purpose is to develop and administer the Fryingpan-Arkansas Project (FAP). The District holds the water rights to the FAP. The District contracted with the United States Department of Interior Bureau of Reclamation (Reclamation) for construction of the FAP. Public Law 87-590, the authorizing legislation for the FAP and the District's Repayment Contract with the Bureau of Reclamation provides the principles that govern the FAP's design and operations. The FAP consists of diversions, conveyances, and storage facilities designed primarily to divert water from Colorado River tributaries on the west slope for use in the water-short areas in the Arkansas River Valley on the east slope. The District annually allocates approximately 54,700 acre feet of FAP water to municipal and agricultural entities within the District.

As the largest wholesale water distributor in southeastern Colorado, the District's allocations, to some degree, influence all water activities in its service area. Policies established by the Board of Directors

consistently have been aimed at yielding maximum possible benefits to its water users through flexibility of operations and adaptability to changing needs. The District Board members and staff encourage policies of wise and efficient use of all available water supplies. The District supports efficient water management, optimizes water resource operations, and enhances water availability and water resources within the FAP and the Arkansas River Basin.

In keeping with the District's policies of promoting the wise use of FAP water, the District has developed and will oversee the implementation of the RWC Plan. The District will provide technical support and funding to implement the Plan. In addition, the District will be responsible for tracking the success of the RWC Plan and water savings derived from its implementation.

Contact Information

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Roles and Responsibilities

The District will take the lead in conducting the proposed scope of work with Ms. Jean Van Pelt acting as the Project - Program Coordinator. The District will contract with Mr. Tracy Bouvette, Executive Director of Sustainable Practices, to develop the local Plans and perform the water system audits. A written statement of their background is included in Attachment 1.

Expected Changes in Population

The change of population in the various counties that contain Southeastern District participants is highly variable as evidenced by trends since the turn of the century. East of Pueblo, in Otero, Crowley, Bent, Prowers and Kiowa Counties, population has decreased from 2000 to 2012 in all locations at a rate of 5 to 15%. The only noteworthy exception to this observation is Crowley County, where residential population decreased but prison population increased, allowing for a growth of nearly 20% from 2000 to

2008. Since 2008; however, Crowley County has seen a decrease of more than 20% owing to changes in prison and residential population.

West of Pueblo is a different story, for most populous areas, especially in and around the Colorado Springs Metro Area and along the Fountain Creek corridor have seen substantial growth since 2000. In addition, the mountain areas and the prisons in Cañon City and Salida, as well as Penrose and Florence, have seen increases in population served.

Future populations for each of the included counties as predicted by the State Demographer are illustrated in the figures below.

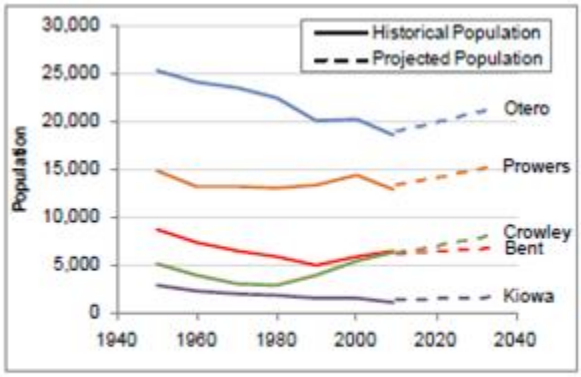

Figure 1–11. Historical and Projected Population of Bent, Crowley, Kiowa, Otero, and Prowers Counties

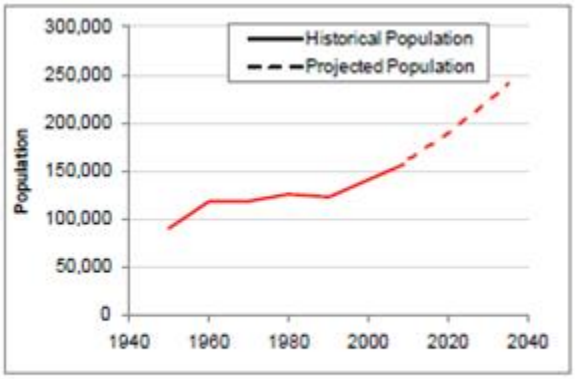

Figure 1–12. Historical and Projected Population of Pueblo County

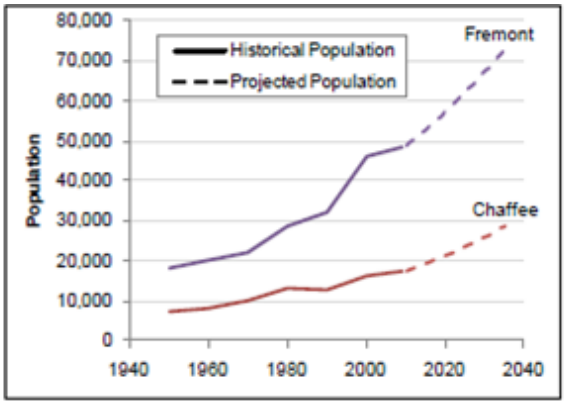

Figure 1–18. Historical and Projected Population of Fremont and Chaffee Counties

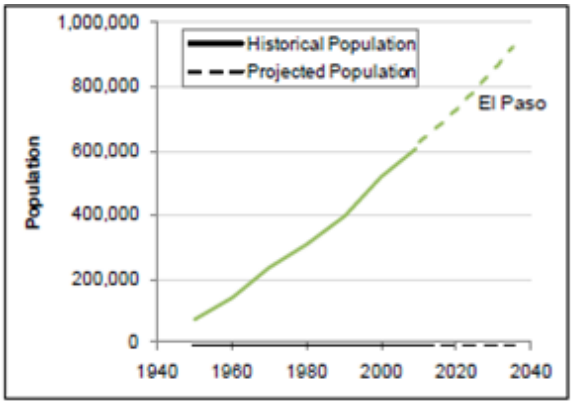

Figure 1–19. Historical and Projected Population of El Paso County

Water Demand and Use by Sector

This section of the application presents an overview of the current water supply attributes and characteristics for the 50 RWC Plan participants. Detailed information related to the subject matter contained in this section can be found in Reclamation's Arkansas Valley Conduit and Long-Term Excess Capacity Master Contract Environmental Impact Statement (EIS) (USBR, 2012) and Pre-NEPA State and

Tribal Assistance Grant (STAG) Reports (Black and Veatch, 2010). It was also supplemented by the System Wide Water Audits conducted by the District, and actively supported by the Plan participants, in 2011, 2012, 2014, and 2015. The System Wide Water Audit report is available under separate cover (Great Western Institute, 2012 and Sustainable Practices, 2015).

The RWC Plan participants' 2010 water demand was obtained from the EIS (USBR, 2012) Appendix A.1 are presented in Table 2. Table 2 also presents the per capita water use on a system wide basis for each of the RWC Plan participants based on values reported by USBR (2012).

Water use by the RWC Plan participant customers varies depending on water provider location and local water demands. A listing of the various water uses supported by the individual RWC Plan participants is also provided in Table 2. Note that per capita water use for each of the RWC Plan participants varies according to the customer types being served by the individual water providers. For example, those RWC Plan participants that provide water for feedlots typically have higher per capita water use than those that do not. Overall, the RWC Plan participants have an average system-wide per capita water use of about 164.6 gallons per person per day (gpcd) as of 2010.

Many of the largest water customers are feedlots that have peak use during various times of the year. To this point, peak demand is not necessarily concurrent with summertime irrigation except in the cities and towns. Monthly water use data which was used to characterize peak demand is contained in the System Wide Water Audit Report (Great Western Institute, 2012 and Sustainable Practices 2015).

Future RWC Plan participant water demands were also presented in the EIS, in that the EIS presented future estimated demands for the AVC and MC Plan participants for the years 2070 and 2060, respectively[1]. Table 3 presents that estimated future demands, including a straight line interpolation of demands for key milestones in the future using the EIS reported values.

Note that the 2060 and 2070 water demands predicted in support of the EIS (USBR, 2012) are based in part on predicted passive savings estimates; however the EIS analyses did not include passive savings estimates for communities with lower than state average per capita water use (e.g., McClave, Beehive, Bents Fort, etc.). Additionally, passive savings are not consistently included in the EIS forecasts for the Master Contract participants. For example, the passive savings estimated using methods developed by Great Western Institute for the CWCB (2010) were used to adjust per capita water use, and therefore future demands, projected for Canon City, Poncha Springs, Florence, and the Upper Arkansas River Water Conservancy District in the EIS. Passive savings were also included in the calculations used by Salida, as reported in their local water conservation plan; however the details of these calculations were not explicitly presented in the EIS. Some of the remaining future demand forecasts (e.g., for Security, Pueblo West, and Widefield) were reported based on the results of local water conservation planning, which may or may not have included the effects of passive water conservation. Finally, future water

[1] The AVC Plan participants will have a 50 year contract with the District, thus the future demands are for 2070; whereas the MC Plan participants will have a 40 year contract with the District, thus the future demands were estimated for 2060.

Table 2. Summary of RWC Plan Participant Current Water Demands and Water Uses

County	Participant	2010 Per Capita Water Use (gpcd)[1]	2010 demand[1] (Acre-Feet)	Water Customer Types[2]					
				Feedlot	Other Commercial	Other Industrial	Municipal	Residential	Other[3]
Bent	Hasty Water Company	100	32		✓			✓	✓
	Las Animas, City of	116	570		✓	✓	✓	✓	✓
	McClave Water Assoc.	114	56	✓	✓			✓	✓
Chaffee	Poncha Springs, Town of	187	147		✓		✓	✓	✓
	Salida, City of	224	1,406		✓	✓	✓	✓	✓
	Upper Arkansas WCD	NA	602		✓	✓	✓	✓	
Crowley	96 Pipeline Co.	311	56	✓				✓	
	Crowley County Water Assoc.	165	580			✓		✓	
	Crowley, Town of	151	34		✓		✓	✓	✓
	Ordway, Town of	169	240	✓	✓		✓	✓	✓
	Olney Springs, Town of	92	40		✓	✓	✓	✓	
	Sugar City, Town of	261	82		✓		✓	✓	
El Paso	Fountain, City of	150	4,369		✓	✓	✓	✓	✓
	Security WSD	179	3,653		✓	✓	✓	✓	✓
	Stratmoor Hills Water District	104	640		✓	✓	✓	✓	✓
	Widefield WSD	139	2,491		✓	✓	✓	✓	✓
Fremont	Canon City, City of	198	5,600		✓	✓	✓	✓	✓
	Florence, City of	160	1,450		✓	✓	✓	✓	✓
	Penrose Water District	138	510		✓	✓	✓	✓	✓
Kiowa	Eads, Town of	357	250		✓	✓	✓	✓	✓
Otero	Beehive Water Assn	43	8	✓				✓	
	Bents Fort Water Co.	62	63	✓				✓	✓
	Cheraw, Town of	222	48		✓	✓	✓	✓	✓
	East End Water Assn.	131	11					✓	
	Eureka Water Co.	200	74					✓	
	Fayette Water Assn.	179	12	✓				✓	
	Fowler, Town of (potable only)	110	210	✓	✓	✓	✓	✓	✓
	Hilltop Water Co.	141	45	✓				✓	
	Holbrook Center Soft Water	321	18	✓				✓	
	Homestead Improvement Assn.	93	7					✓	
	La Junta, City of	256	2,040		✓	✓	✓	✓	✓
	Lower Arkansas Valley WCD	0	0						
	Manzanola, Town of	73	39		✓		✓	✓	✓
	Newdale-Grand Valley Water	110	57	✓	✓			✓	
	North Holbrook Water	156	7					✓	
	Patterson Valley Water Co.	139	15					✓	
	Rocky Ford, City of	199	890		✓	✓	✓	✓	✓
	South Side Water Assoc.	130	7					✓	
	South Swink Water Co.	126	86					✓	✓
	Swink, Town of	51	38		✓		✓	✓	✓
	Valley Water Co.	104	38	✓				✓	
Otero	Vroman Water Co.	190	32	✓				✓	
	West Grand Valley Water Inc.	266	25	✓				✓	
	West Holbrook Water	543	14					✓	
Prowers	Lamar, City of	262	2,400	✓	✓	✓	✓	✓	✓
	May Valley Water Assoc.	244	410	✓	✓	✓		✓	✓
	Wiley, Town of	49	24		✓		✓	✓	✓
Pueblo	Boone, Town of	182	66		✓		✓	✓	✓
	Pueblo West Metro District	198	6,877		✓	✓	✓	✓	✓
	St. Charles Mesa Water District	135	1,660		✓			✓	✓
Total		**8,230**	**38,029**						

[1] From Appendix A.1 Draft EIS (USBR (2012)) (gpcd – gallons per capita per day)

[2] From the "Merrick Participant Surveys," (Black and Veatch, 2010) with water customer data augmented by System Wide Water Audits (Great Western Institute, 2012 & Sustainable Resources, 2015)

3 Includes institutional (e.g., schools), cemeteries, State Park, etc.

Table 3. Summary of RWC Plan Participant Future Water Demands

AVC Participants		2010 Per Capita Water Use (gpcd)	Demands (Acre-Feet) 2010	2020	2030	2050	2060	2070
Hasty Water Company	Bent	100	32	32	32	33	33	33
Las Animas, City of	Bent	116	570	575	581	591	597	602
McClave Water Assoc.	Bent	114	56	58	61	65	68	70
96 Pipeline	Crowley	311	56	61	66	75	80	85
CCWA	Crowley	165	580	631	681	782	833	883
Crowley	Crowley	151	34	37	40	45	48	51
Ordway	Crowley	169	240	261	282	324	345	366
Olney Springs, Town of	Crowley	92	40	43	46	53	56	59
Sugar City, Town of	Crowley	261	82	90	98	115	123	131
Eads, Town of	Kiowa	357	250	247	244	238	235	232
Beehive Water Assn	Otero	43	8	8	9	9	10	10
Bents Fort Water Co.	Otero	62	63	66	69	75	78	81
Cheraw	Otero	222	48	50	51	54	56	57
East End Water Assn.	Otero	131	11	11	12	12	13	13
Eureka Water Co.	Otero	200	74	76	78	82	84	86
Fayette Water Assn.	Otero	179	12	12	13	13	14	14
Fowler, Town of (potable only)	Otero	110	210	212	214	219	221	223
Hilltop Water Co.	Otero	141	45	46	47	48	49	50
Holbrook Center Soft Water	Otero	321	18	19	19	21	21	22
Homestead Improvement Assn.	Otero	93	7	7	8	8	9	9
La Junta, City of	Otero	256	2,040	2,104	2,167	2,294	2,358	2,421
Manzanola, Town of	Otero	73	39	41	43	46	48	50
Newdale-Grand Valley Water Co.	Otero	110	57	58	58	59	60	60
North Holbrook Water	Otero	156	7	7	7	7	7	7
Patterson Valley	Otero	139	15	15	16	16	17	17
Rocky Ford, City of	Otero	199	890	914	937	984	1,008	1,031
South Side Water Assoc. (LaJunta)	Otero	130	7	7	7	7	7	7
South Swink Water Co.	Otero	126	86	87	88	90	91	92
Swink, Town of	Otero	51	38	40	42	45	47	49
Valley Water Co.	Otero	104	38	38	38	39	39	39
Vroman	Otero	190	32	33	34	35	36	37
West Grand Valley Water Inc.	Otero	266	25	26	27	28	29	30
West Holbrook Water	Otero	543	14	15	15	16	17	17
Lamar, City of	Prowers	262	2,400	2,360	2,319	2,238	2,198	2,157
May Valley Water Assoc.	Prowers	244	410	414	418	427	431	435
Wiley, Town of	Prowers	49	24	25	25	27	27	28
Boone, Town of	Pueblo	182	66	74	81	96	104	111
St. Charles Mesa Water District	Pueblo	135	1,660	1,832	2,004	2,347	2,519	2,691
			10,284	**10,629**	**10,975**	**11,665**	**12,011**	**12,356**
MC Participants								
Poncha Springs	Chaffee	187	147	190	232	317	360	
Salida	Chaffee	224	1,406	1,808	2,211	3,016	3,418	
Fountain	El Paso	130	4,369	6,126	7,884	11,399	13,156	
Security	El Paso	179	3,653	3,908	4,164	4,675	4,930	
Stratmoor Hills	El Paso	104	640	662	684	728	750	
Widefiled	El Paso	139	2,491	3,032	3,573	4,654	5,195	
Canon City	Freemont	198	5,600	6,694	7,788	9,976	11,070	
Florence	Freemont	160	1,450	1,755	2,060	2,670	2,975	
Penrose	Freemont	138	510	744	978	1,445	1,679	
Pueblo West	Pueblo	198	6,877	7,502	8,126	9,375	10,000	
UAWCD	Chaffee	n/a	602	674	745	888	960	
			27,745	**33,095**	**38,444**	**49,143**	**54,493**	
			38,029	**43,724**	**49,419**	**60,809**	**66,504**	

demands for Penrose and Stratmoor Hills do not appear to include the effects of passive water conservation savings.

In addition, the analyses presented in the EIS included demand reductions for active conservation efforts that will be conducted by participants that are covered entities over the coming decades without including passive savings in these communities. As more and more participant water conservation plans are implemented and annual water use and loss reporting is reported to the District, it is anticipated that better estimates on conservation savings will be available.

Noteworthy is that even with passive water conservation savings explicitly included in all the RWC Plan participant future demand projections, an estimated reduction of 7 to 9% (as reported in the 2010 Great Western Institute report) would only offset a portion of the nearly 30,000 AF of additional future water demands projected for 2060 – which is about 66,500 AF (see Table 3).

Water Contracting and Water Conservation Goals

The water conservation goals developed for the RWC Plan and approved by the District Board are based on an understanding that the District does not provide Project water for retail sale; instead the District has an administrative role that includes being the local contracting agency who is responsible for repayment to Reclamation of locally funded construction costs of the AVC and the management of the long-term excess capacity Master Contract. The Master Contract is a long-term contract between the District and Reclamation allowing for storage of non-Project water in Pueblo Reservoir when space is available. The water providers that could benefit from the existence of the Master Contract are all located within the District's service boundaries. The AVC participants that are also participating in the Master Contract may store non-Project water for delivery through the AVC. Non-AVC water providers that are participating in the Master Contract would use existing water systems or the Arkansas River to receive water deliveries.

To this point, the water conservation goals specified in the RWC Plan related to expected water use efficiencies that will be realized collectively by the 50 RWC Plan participants over the planning horizon, which is to say by 2030 and 2050. These goals are solely the District's and are non-binding for the project participants. However, each participant must enter into an MOA with the District to allow for requisite stipulations and conditions regarding data sharing and reporting, project costs and fees, etc. Through these MOAs, the District will require annual reporting of water deliveries, water sales, and water loss, at a minimum for each individual organization. This information will allow the District to track progress related to improved water use efficiencies on a local scale.

In addition, the District will offer technical assistance to RWC Plan participants that wish to plan for and implement local water conservation programs. Given that the water lost from distribution after it is purchased from the District and/or paid for through the Master Contract cannot be recovered, leaking water lines and/or inaccurate meters will detrimentally impact participant organizational cash flow. It is therefore anticipated that all project participants will benefit from at least water loss management

programs. In that a much broader set of water conservation programs are supported by the District and the State, and are documented within the BMP Tool Box, organizations that choose to develop local water conservation plans will be able to evaluate and potentially select measures and practices that extend into areas of system wide water management, integrated planning, water production and treatment, customer delivery and customer demand management – whatever suits the needs of the local entity and its customers.

For this reason, the District does not, and will not, directly control how local water providers and their customers will leverage the benefits of local water conservation programs to reduce water demand. However, the District is committed to provide financial and technical resources to support local water conservation efforts being planned and implemented by the RWC Plan participants.

Given that the efforts of the District and the RWC Plan participants will over time will improve local water use efficiency though improvements to water loss control and overall system water management, as well as other water conservation measures and programs, the District has developed the following broad goals for improved water use efficiency by the RWC Plan participants:

- By 2030, reduce water loss from an average of 14% to 10% of total water production (reducing demand by about 1,500 acre-feet from estimated 2030 demands (49,400 acre-feet)); and
- By 2050, reduce water loss from an average of 10% to 8% of total water production (reducing demand by another 1,000 acre-foot for a total of about 2,500 acre-feet from expected 2050 demands (60,800 acre-feet)).

These goals were developed to align with the expected gaps in future water supply discussed in the RWC Plan.

Additionally, the District is requesting that the RWC Plan participants:

- Develop local water conservation RWC plans that document water demand reduction goals (including water loss management improvements);
- Select water conservation measures from the District's BMP Toolbox to support local water conservation efforts; and
- Implement the selected water conservation and water use efficiency activities (or an appropriate portion thereof) by 2022 (which is when the AVC is predicted to be constructed and operational.

The District suggests that the Plan participant water use efficiency goals identify potential water demand reductions that may be expected in 2030 and 2050 as a result of implementing the individual water conservation plans.

The District will strive to facilitate and support the development of 24 local water conservation plans by 2026 (which constitutes 50% of the Plan participants, which is approximately 3 plans and/or plan updates every two years)[2]. The District will also strive to conduct regular third-party system wide water audits of all RWC Plan participants on a rotating 5 year cycle, coinciding with reporting requirements of Reclamation and expected RWC Plan updates for the CWCB.

It is fully anticipated that Plan participant water conservation programs will evolve over time as data collection improves, and management systems and technology changes. For this reason, some Plan participants may choose to have water conservation plans that focus on data collection (including meters) and interpretation activities before developing programs that address water loss management and/or customer demand reductions.

Monitoring Activities to Estimate Water Savings during Implementation

It will be incumbent on the District to maintain contact with all the RWC Plan participants to track individual water provider water use, water loss, and water use efficiency. The terms of data sharing and reporting will be by necessity contained in the contract terms and conditions that will be created between the District and each of the RWC Plan participants; however, the District currently has Memorandum of Agreement (MOAs) with the AVC participants that commits the participants to provide information to track the effectiveness of implemented RWC Plan or participates in a RWC Plan (MOA Section V.A.9.). The District intends to include the same language in the MOAs that will be developed with the Master Contract participants. This language is as follows:

Participants will provide information to SECWCD, as requested, in order to track the effectiveness of implemented water conservation plans, whether the Participant has its own water conservation plan or participates in a regional water conservation plan.

The District has considered the data collection and reporting requirements of both the State and Reclamation with regards to the District's repayment contract, as well as the District's RWC Plan in developing its requirements for RWC Plan participant reporting. Reclamation requires an update of the RWC Plan every 5 years, whereas the State requires updates no longer than every 7 years. In addition, the District became aware of the current data collection activities that all the RWC Plan participants undertake as a result of the System Wide Audits that were performed in 2011, 2012, 2014, and 2015. As a result, the District has developed the following annual reporting requirements for all RWC Plan participants, beginning in 2014, to include, at a minimum:

- Monthly data production data
- Monthly water sales data (by customer category if possible)
- Number of active connections by customer category

[2] As of the end of 2015, the District has supported the development of plans and/or planning grants for South Swink, Las Animas, Rocky Ford, Lamar, and La Junta.

- Non-revenue water (as a percent of annual water production)
- Status of local water conservation planning efforts
- Listing of implemented water conservation programs (in the last year)
- Current water rates (base fee and fee structure

CWCB Grant Monies

The District is requesting $49,889 in CWCB grant funds to fund the proposed project. CWCB and $33,259 in Reclamation grant funds with $42,348 from in-kind from the District and the participants will be used to focus on building the successes of the RWC Plan with three specific sets of tasks. The total cost to complete the proposed project is $125,496.

The grant monies will be used as follows (see attached scope of work (Attachment B) and budget and schedule (Attachment C) for additional detail).

Develop Local Water Conservation Plans Overview

The scope of work for the development of these water conservation plans for selected project participants[3] will be essentially the same for each of the entities, even though the final plan for each entity will be crafted for the unique circumstances that each organization faces. The proposed scope includes:

- Developing an engagement program that will identify and connect with three project participants that will participate in developing local water conservation plans
- Conducting outreach to the three project participants such that data exchange can occur and matters related to the planning effort can be explained and discussed
- Meeting with the three individual organizations to initiate development of the local water conservation plans
- Performing the data analyses and plan preparation necessary to define the needs of the individual organizations with respect to local water conservation planning and implementation, identifying goals and selecting relevant content from the District BMP Tool Box
- Preparing the draft plans and making the plans available for public review and comment
- Finalizing the plans after public comment has been received

[3] The participants will be chosen according to those with future water supply limitations and/or large observed current water loss (measured as non-revenue water) and based on interest and data availability to support appropriate planning efforts.

Conduct System-Wide Water Audits Overview

The system-wide audits will be conducted using the methodology contained in Manual-36 – Water Audits and Loss Control Programs – prepared by the American Water Works Association (AWWA). This manual of water supply practices defines a water audit program that "is an effective tool available to utilities to quantify consumption and losses that occur in the distribution system and the management of these processes."

The proposed scope of work for the project includes seven tasks which allow for the following:

- Planning for the audits
- Conducting the audits and analyzing the data collected during the audits
- Documentation of each of the individual audits
- Presentation of the results to each of the audited entities

Note that it is the expectation of the District that the audits will be performed in a "top-down" manner as described in the M-36 Manual. In other words, the District's efforts will focus on collecting information from existing records, procedures, data and other information systems, and developing desk-top analyses of these data. It is expected that some of the participating organizations and communities will utilize the results of the District's audit to move toward more of a "bottom-up" approach which will utilize District and other resources to validate the top-down assessment with field measurements, billing system reviews, and detailed customer meter testing. The District will support and encourage local water conservation planning to be a part of the bottom-up approach that concerned and/or engaged communities initiate as a result of the audit performed using this grant.

Administrative Scope and Project Communications Components

District will conduct linked but separate administrative tasks to track project budgets and perform requisite progress reporting associated with State and Federal requirements. The District will also conduct the following project communications tasks:

- Coordinate activities
- Maintain communications between project stakeholders
- Inform the District Board regarding project progress and outcomes

Project Budget and Schedule

The estimated budget and schedule for the proposed project are included as Attachment C.

Attachment A – Project Team Summary

Jean Van Pelt, Southeastern Colorado Water Conservancy District. Ms. Van Pelt is the Water Conservation Specialist and Program - Project Coordinator for the District and will serve as the Project Coordinator. Ms. Van Pelt has been an employee with the District for over a decade. She has been involved with all aspects of the District's water conservation, public engagement and outreach programs, and is currently serving as the Project Manager for the AVC and Master Contract projects. Ms. Van Pelt oversees the District's Xeriscape Garden, and manages the District's technical and over site roles related to its support of local water education and water conservation programs.

Tracy Bouvette, Sustainable Practices. Mr. Bouvette is the past Executive Director of Great Western Institute, a Colorado non-profit focused on promoting the benefits of water conservation and water use efficiency. Mr. Bouvette has over 35 years of experience in water resources engineering and policy development. He was the primary author of the State's original Water Conservation Plan Development Guidance Document, and the Statewide Water Supply Initiative (SWSI) Water Conservation Levels Analyses looking at passive savings and water conservation policy for the State of Colorado. He has been involved with over 80 local water conservation planning and/or water system auditing efforts in Colorado and he has traveled the state conducting workshops on water conservation planning and implementation.

Attachment B - Detailed Project Task Description

Task 1 – Project Communications

Purpose

The activities described under this task will be used to engage and communicate with the project participants during the development and completion of the proposed scope of work including the 16 water audits and the preparation of the three local water conservation plans. These activities will be chiefly comprised of meetings with the District and the water providers, in groups or individually, to support discussion making related to the execution of the proposed project. The specific activities that will be performed include the following.

Tasks

1.1 Kickoff and organizational meetings with SECWCD – a project kickoff meeting and organizational meetings will be conducted with the District to coordinate project logistics and exchange updates related to relevant project issues, track budget progress and coordinate all aspects of project execution.

1.2 Pre-audit/planning meeting communications – Develop messaging and communications for outreach and scheduling efforts associated with the proposed data collection (i.e., system-wide water audits) with each of the organizations targeted for the 16 water audits. Messaging will also be developed to engage the three (3) entities that will participate in preparing local water conservation plans.

1.3 Post-audit/planning meeting communications – This task involves conducting meetings with the entities that participated in the water audits and the water conservation planning to support technology transfer, manage implementation and future data collection, and obtain feedback regarding the positives and opportunities for change in future District programs.

1.4 Board Presentations (2) – The project team will prepare for and conduct two (2) presentations for the District Board – one prior to and one after data collection and the local water conservation plans have been completed. The presentations will serve to engage and inform the District Board regarding the activities that will be conducted, the schedule for project execution and the recommendations for future implementation of the District's RWC Plan.

1.5 Project Summary White Paper – The project team will prepare a project summary white paper that summarizes the activities conducted and the results and outcomes realizes, with a discussion of future needs and recommendations related to the continued implementation of the District's Water Conservation Management Plan and the RWC Plan.

Deliverables

The project team will develop the project messaging that will be used to engage the project participants, will conduct internal and external meetings, and will conduct two (2) project presentations to the District Board. A Project Summary White Paper will also be prepared.

Task 2 - Prepare Three Local Water Conservation Plans

Purpose

This task relates to the drafting of the three individual local water conservation plans for the selected organizations. Generally, the plans will follow the water conservation planning methodologies recommended by both the Colorado Water Conservation Board (CWCB) and Reclamation; however, due to the size and nature of the operations of some of the expected participating entities, and the content that the District has provided to support the planning process embodied by the BMP Tool Box, the local water conservation plans will contain a subset of the information that would typically be included in a plan developed for a larger organization[4], as appropriate and dictated by Colorado statute.

In general the scope will focus on explaining the framework for the water conservation plan, defining the water conservation goals, and selecting water conservation measures and programs from the District's BMP Tool Box. The plan will also present the implementation tasks that the organization will conduct to move the water conservation programs forward, including listing data collection, monitoring, and verification efforts.

2.1 Data Collection and Assessment – collect information from the planning entity to update and supplement the data that has already been provided to the District to support preparation of the RWC Plan, including information on water production, customer water use, meters, billing, non-revenue water, population served, and expected future water demand; infrastructure needs related to meter and water line replacement; water rates; and current water conservation activities. An assessment will be performed organizing and summarizing the data in conjunction with the information available in the RWC Plan.

2.2 Framework for Conservation – a narrative will be developed to describe the ongoing organizational needs and opportunities related to water supply reliability and sustainability; and to identify how water conservation and water use efficiencies could benefit the planning entity.

2.3 Water Conservation Goals - identify water demand reductions that the planning entity identifies as valuable and worthy of future investments related to planning for and implementing water conservation measures and programs.

2.4 Tool Box Evaluations and Selection – based on the water conservation goals of each planning entity, best management practices (BMP) will be selected and evaluated for applicability from the District's Tool Box. The evaluations will assess the costs and potential benefits of implementing any specific BMP to reduce system and/or customer water demands. BMPs will be selected based on cost and benefit, as well as the interests of the planning entity and the District, to the extent reasonable.

2.5 Establish Implementation Plan –

[4] The State of Colorado statute requiring local water conservation plans relates to only those organizations (AKA - covered entities) with retail sales of water to its customers of 2,000 acre-feet (AF) or more annually. Some of the organizations that are being considered for this grant are covered entities that would be creating an update to their past planning, or organizations that provide less than 2,000 AF of water for retail sales annually.

- Develop implementation schedule - identify significant implementation actions, and challenges that may impact the implementation of the selected conservation measures.
- Describe how to involve and engage the planning entity's customers in the implementation process, to the extent necessary.
- Develop plan for monitoring and evaluation processes - describe how water conservation will be measured and verified for effectiveness, and what the role of each of the planning entities, as well as the District, will be during monitoring and reporting efforts.
- Develop plan for updating and revising the Plan - describe when and how the Plan will be updated, in part, in accordance with any agreements in place with the District.
- Develop funding strategy for the plan – identify potential funding needs and options related to the selected implementation efforts.

2.6 Draft Plan - compile and format information, data and other content into the Draft Plan for review and comment by the planning entity for each of the three project participants. Produce adequate copies for public, District, and other stakeholder review. Include review cycle for District staff prior to completion and circulation of the Draft Plan.

2.7 Gather public and stakeholder comments and prepare a comment response – Gather and organize comments and develop comment responses for each comment.

2.8 Develop Final Plan – finalize each of the four plans based on comments received and the prepared comment responses, and produce and deliver the finalized plan for the participating organization's Board approval.

Deliverables
The project team will develop the Draft Plan for each of the three planning entities after District review. The project team will also develop and deliver the Final Plan for each of the three planning entities including a comment response document for the participating organization's Board adoption.

Task 3 - Conduct System-Wide Water Audits

Purpose
Prior to the audits being performed, communications will be made with the 16 project participants to inform them of the nature and intent of the water audit; and to request that specific data be made available (in any format that is easy for the project participant) for the audit team on their arrival. The project team will work closely with the 16 participating entities to schedule and conduct the System-Wide Water Audits. Finally, a white paper will be developed presenting the data assessment and audit outcomes and recommendations.

3.1 A transmittal will be delivered to each participant that will include the following:

- A request for the definition of the system boundaries and area;
- A request for information on the largest customers for each project participant and the breakdown of water delivery by customer category (i.e., residential, commercial, industrial);
- Setting a specific time period over which data will be collected; and
- Setting the units of measure.

Based on this request, the project participants will be asked to assemble the data and have it prepared to provide to the audit team when they arrive. Data can be in either electronic or hard copy; however, it will be necessary for the data to be taken by the audit team to our home office for evaluation and interpretation. All original files and maps will be returned to the project participants as needed to help support the project's progress.

3.2 Once the appropriate project information has been gathered for informing and engaging the project participants, the project team will conduct outreach to schedule the site visits for the system-wide audits.

3.3 The team will perform the following tasks in conducting the audit:

- Collect water distribution information (including a map of the system and the location of key metering locations (e.g., source water metering, customer metering, treatment system water use, fire hydrants, etc.)) and water produced and water placed into distribution (to help characterize treatment losses if applicable)
- Collect water delivery information (including deliveries to customers and any unbilled uses)[5]
- Collect water billings information (to verify water rate information and to determine correlation of water delivery with water billings (for example to check on billings to municipal users for those utilities with municipal uses))
- Collect information on authorized unbilled water uses
- Collect other key water distribution system information and policies (e.g., system pressure, length of pipelines, number of customer tie-ins, history of recent leaks, leak detection and repair policies, meter testing and replacement policies)

3.4 This data will be used by the audit team to determine the key characteristics of each of the project participant systems; to estimate non-revenue water; and characterize real and apparent system losses for each operating system. As part of the data assessment and organization, the following calculations will be performed.

- Total water supplied (including cross connects with other water sources (e.g., water supplied by the Crowley County) per period
- Calculate billed authorized consumption per period
- Calculate non-revenue water per period
- Estimate authorized unbilled consumption per period
- Estimate total water losses per period
- Estimate apparent and real losses per period

3.5 The calculations and supporting data will be organized into MS Excel spreadsheets developed for each system-wide audit conducted by the project team. The spreadsheets will be used to summarize the data collected from each project participant and perform calculations characterizing system-wide real and apparent water losses.

[5] These data will include verification of water deliveries to key customer categories and identification of largest water users for each project participant.

3.6 The white papers will be prepared detailing the results of the audit and the data assessments and the white papers will be circulated to each of the project partners.

3.7 Follow-up meetings with the audited entities to discuss the draft white papers and receive comments such that the final audit white papers can be prepared.

Deliverables
Conduct all the audits and site visits to collect data and other relevant operational information that will help characterize current system-wide water losses; develop data assessment; prepare draft white paper reports; meet and /or conference call with the project participants to review the draft white papers and receive comments; and prepare final white papers.

Task 4 - Project Administration Tasks

Purpose
Track project budgets, schedules, and deliverables, prepare progress reports, and invoices.

Tasks

4.1 Track project budgets, schedules, and deliverables – to support preparation of monthly project invoices.

4.2 Prepare Progress reports – to support the District's State and Federal periodic reporting requirements.

Deliverables
Monthly invoices and project status reports are delivered.

Attachment C - Budget and Schedule

Budget

Regional Water Conservation Plan Implementation
Southeastern Colorado Water Conservancy District

		2015		2016									
		Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct
Task 1	**Project Communications**												
Project Meetings and Workshops													
1.1	Kick off Meeting and Organizational Meetings with District (6)												
1.2	Pre-Meeting Communications with Participating Organizations												
1.3	Post-Meeting Communications with Participating Organizations												
1.4	Board Presentations (2)												
1.5	Develop Project Summary Report												
Task 2	**Develop Three (3) Local Water Conservation Plans**												
Draft Local Water Conservation Plan													
2.1	Data Collection and Assessment												
2.2	Develop Framework for Conservation												
2.3	Develop Conservation Goals												
2.4	Evaluate Tool Box and Select BMPs												
2.5	Establish Implementation Plans												
2.6	Draft Plans												
Final Local Water Conservation Plan													
2.7	Public Comment, Comment Collection, and Develop Responses												
2.8	Final Plans												
Task 3	**Conduct 16 System-Wide Water Audits**												
Conduct Audit and Assess Data													
3.1	Data request transmittal to participants												
3.2	Schedule site visits												
3.3	Conduct the audit												
3.5	Develop data assessments and evaluations												
3.6	Organize data and calculations to summarize data												
Develop White Paper for Each Project Participant													
3.7	White papers developed and circulated to each participant												
3.8	Meet with participants and finalize white papers												

SECWCD WCFS Grant Application
Budget

	Cash			Cost Share Breakdown			Total Cost Inkind
				USBR Grant	CWCB Grant	Inkind SECWCD & participants	
	Costs	Expenses	Total Costs				
Task 1 Project Communications							
Project Meetings and Workshops							
1.1 Kick off Meeting and Organizational Meetings with District (6)	$ 2,450	$ 2,400	$ 4,850	$ 1,940	$ 2,910	$ 1,365	**$ 6,215**
1.2 Pre-Planning/Audit Communications with Participating Organizations	$ 2,850	$ -	$ 2,850	$ 1,140	$ 1,710	$ 1,560	**$ 4,410**
1.3 Post-Planning/Audit Communications with Participating Organizations	$ 2,850	$ -	$ 2,850	$ 1,140	$ 1,710	$ 1,560	**$ 4,410**
1.4 Board Presentations (2)	$ 800	$ 1,200	$ 2,000	$ 800	$ 1,200	$ 1,040	**$ 3,040**
1.5 Develop project summary report	$ 2,400	$ -	$ 2,400	$ 960	$ 1,440	$ 325	**$ 2,725**
SubTotal	$ 11,350	$ 3,600	$ 14,950	$ 5,980	$ 8,970	$ 5,850	$ 20,800
Task 2 Develop Three (3) Local Water Conservation Plans							
Draft Local Water Conservation Plan			$ -				
2.1 Data Collection and Assessment	$ 4,200	$ 3,400	$ 7,600	$ 3,040	$ 4,560	$ 3,120	**$ 10,720**
2.2 Develop Framework for Conservation	$ 2,400	$ -	$ 2,400	$ 960	$ 1,440	$ 260	**$ 2,660**
2.3 Develop Conservation Goals	$ 1,200	$ -	$ 1,200	$ 480	$ 720	$ 553	**$ 1,753**
2.4 Evaluate Tool Box and Select BMPs	$ 1,500	$ -	$ 1,500	$ 600	$ 900	$ 553	**$ 2,053**
2.5 Establish Implementation Plans	$ 4,200	$ -	$ 4,200	$ 1,680	$ 2,520	$ 553	**$ 4,753**
2.6 Draft Plans	$ 9,000		$ 9,000	$ 3,600	$ 5,400	$ 1,690	**$ 10,690**
Final Local Water Conservation Plan							
2.7 Public Comment, Comment Collection, and Develop Responses	$ 1,200	$ -	$ 1,200	$ 480	$ 720	$ 1,560	**$ 2,760**
2.8 Final Plans	$ 1,800	$ -	$ 1,800	$ 720	$ 1,080	$ 5,460	**$ 7,260**
SubTotal	$ 25,500	$ 3,400	$ 28,900	$ 11,560	$ 17,340	$ 13,748	$ 42,648
Task 3 Conduct 16 System-Wide Water Audits							
Conduct Audit and Assess Data							
3.1 Data request transmittal to participants	$ 600	$ -	$ 600	$ 240	$ 360	$ 1,560	**$ 2,160**
3.2 Schedule site visits	$ 1,200	$ -	$ 1,200	$ 480	$ 720	$ 2,080	**$ 3,280**
3.3 Conduct the audit	$ 5,400	$ 6,765	$ 12,165	$ 4,866	$ 7,299	$ 9,360	**$ 21,525**
3.4 Develop data assessments and evaluations	$ 6,400	$ -	$ 6,400	$ 2,560	$ 3,840	$ 1,040	**$ 7,440**
3.5 Organize data and calculations to summarize data	$ 2,400	$ -	$ 2,400	$ 960	$ 1,440	$ 1,040	**$ 3,440**
Develop White Paper for Each Project Participant							
3.6 White papers developed and circulated to each participant	$ 7,200	$ -	$ 7,200	$ 2,880	$ 4,320	$ 3,380	**$ 10,580**
3.7 Meet with participants and finalize white papers	$ 4,000	$ 4,533	$ 8,533	$ 3,413	$ 5,120	$ 3,380	**$ 11,913**
SubTotal	$ 27,200	$ 11,298	$ 38,498	$ 15,399	$ 23,099	$ 21,840	$ 60,338
Task 4							
Project Administration							
4.1 Track budgets, schedules, & deliverables	$ 400	$ -	$ 400	$ 160	$ 240	$ 520	$ 920
4.2 Prepare periodic progress reports for Reclamation and CWCB	$ 400	$ -	$ 400	$ 160	$ 240	$ 390	$ 790
SubTotal	**$ 800**	**$ -**	**$ 800**	**$ 320**	**$ 480**	**$ 910**	**$ 1,710**
					$ 800		$ 1,710
Total Project Cost	**$ 64,850**	**$ 18,298**	**$ 83,148**	**$ 33,259**	**$ 49,889**	**$ 42,348**	**$ 125,496**

Project Total	$	125,496
Project Request		
USBR	$	33,259
Match		
CWCB	$	49,889
Proj. Partners	$	42,348
subtotal	$	92,237

73%