Brighton℠

500 South 4th Avenue Brighton, CO 80601

July 1, 2015

Mr. Kevin Reidy
Office of Water Conservation and Drought Planning
Colorado Water Conservation Board
1313 Sherman, Room 721
Denver, CO 80203

Re: Submittal of Water Conservation Planning Grant and Extension Request

Dear Mr. Reidy,

Attached is the City of Brighton's Water Conservation Planning Grant request prepared in accordance with the CWCB's "Guidelines for Financial Assistance to Covered Entities to Develop Water Conservation Plans". The City is also requesting an extension of our original deadline of August 10, 2015 to June 10, 2016. The grant assistance and the extension will allow Brighton to develop a more comprehensive plan, given the need for increasingly efficient water utilities and water resources management. The Water Conservation plan will be a means to improve our data collection and management programs, improve our operational efficiencies, and support more consciences customer water use.

Therefore we are requesting Water Efficiency Grant funding from the CWCB to support the development of a water conservation prepared following the guidelines set for by the CWCB and the applicable state statutes. Brighton will commit the resources that are needed to complete the proposed scope of work detailed in the application.

Thank you for consideration. If you have any questions, please contact me.

Sincerely,

Dawn M. Hessheimer
Water Resources Specialist

Cc: Curt Bauers, Director of Utilities
Tracy Bouvette, Sustainable Practices

Water Efficiency Grant Application
For Preparation of Water Conservation Plan Update

City of Brighton

Introduction

This water efficiency grant application has been prepared for the consideration of the Colorado Water Conservation Board (CWCB) and the Office of Water Conservation and Drought Planning by the City of Brighton, Colorado (hereafter the "City"). For the purposes of this grant application and in the advent of award, the execution of the proposed project, the City is the lead organization. Noteworthy is that the City will be conducting the Water Conservation Plan update to make current its existing plan with regarding to State regulations. To this point, this update will include an assessment of current water conservation measures and programs being implemented by the City, and make recommendations for both the continuation of successful programs and the initiation of new programs that fit with the needs of the City and its customers.

Organizational Background and Overview of Water Supply

The City of Brighton (hereafter the City) currently serves over 35,000 citizens as of the end of 2014 over a 27 square mile service area (See Figure 1). The City owns and operates 2 separate water systems (one potable and one non-potable), which utilize groundwater and surface water, respectively. The groundwater system is comprised of 11 production wells that feed 2 water treatment plants. The surface water system is compromised of 4 ditch systems. The focus of the water conservation plan update will be on the potable system; however, non-potable demand reductions may also be evaluated, dependant on data availability.

Groundwater produced from the 11 wells owned and operated by the City is pumped to one of two water treatment plants for filtration and disinfection prior to distribution. Groundwater production occurs from two separate tributary aquifer systems – the South Platte and the Beebe Draw. Studies conducted by the City in 2007 indicate that the sustainable annual yield of the current South Platte and Beebe Draw production wells is about 4,500 acre-feet per year and about 900 acre-feet per year, respectively.

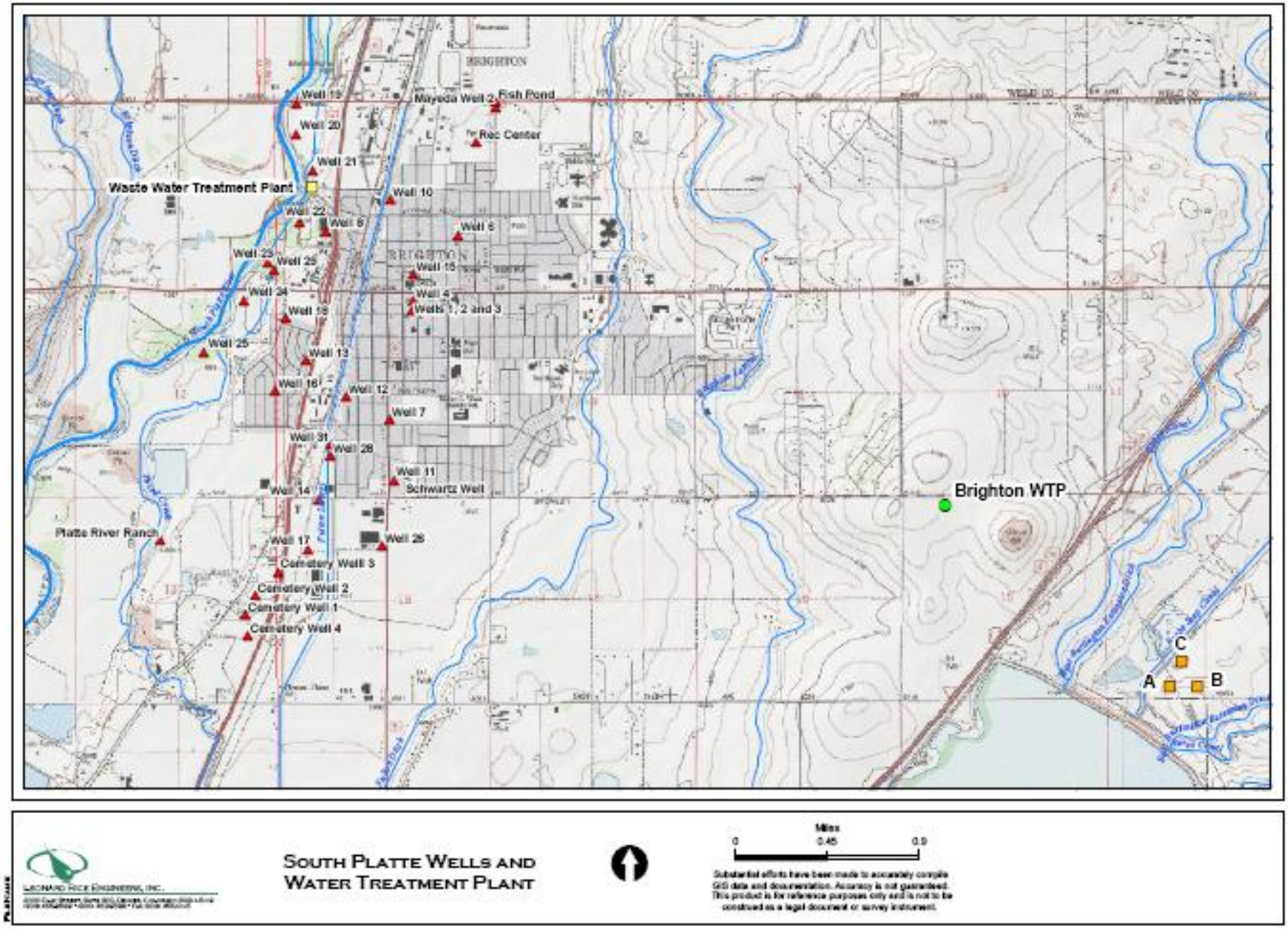

Figure 1 – Brighton Service Area and Well Fields

Groundwater produced by the City from the South Platte and Beebe Draw alluvium is considered tributary groundwater and must therefore be augmented to offset depletions that occur out of priority. In general, the City is allowed return flow credits for about 95% of wintertime use of the tributary groundwater, since most, if not all, of the treated water used by the community during this time is returned to river through the local wastewater treatment plant where it is treated and ultimately discharged back into the South Platte. Summertime treated water use on the other hand has a consumptive component related to outdoor irrigation water use which evaporates or is taken up by plant material. The City is therefore required to augment tributary groundwater that is consumed during the year by using ditch water that the City has acquired.

The City operates two water treatment plants for purposes of creating potable supply from the tributary groundwater wells. One treatment facility used reverse osmosis (RO) to treat the raw water produced from the South Platte wells; whereas the Beebe Draw well water is treated using a green sand filtration system. Both treatment systems generate waste streams associated with typical water treatment operations. The RO system generates reject which contains the salts, metals and other unwanted chemicals, separate from the potable permeate. In 2013, the reject was about 20% of the well water feed. The green sand water treatment facility requires regular filter back washing to maintain filter efficiency and effectiveness. Back wash water in 2013 required about 8% of the production of the Beebe Wells.

Both the RO reject and the green sand filter back wash are returned to the river via the City's storm water system such that the City receives return flow credits for these waste streams.

Table 1 presents a summary of the potable water system water production and use (shown as total water sold) over the last 5 years. As indicated in Table 1, the City's total annual water use (as production) from 2010 through 2014 averaged approximately 1.744 billion gallons annually (or about 5,350 acre-feet); it is therefore a "covered entity" as defined in CRS 37-60-126.

Also shown in Table 1 is the City's non-revenue water, calculated as the difference between total water produced and total water sold. Non-revenue water has varied from over 100 million gallons in 2010 to more than an order of magnitude less in 2012. On average, non-revenue water over the past five years has been about 3.2% of production. Although the City reports water loss to the state engineer annually in fulfillment of Paragraph 39 of the 2000CW202 decree, the City has not utilized the American Water Works Association M-36

best management practice methodologies. Future water conservation planning will include an assessment of non-revenue water and real and apparent water loss as part of the planning effort.

Table 1
Summary of Water Production, Water Sold and Non-Revenue Water
(in thousands of gallons)

	Total Treated Water Production	Total Water Sold	Non-Revenue Water	Population Served[1]	System Wide Per Capita Water Use (gpcd[2])
2010	1,788,940	1,677,428	111,512	33,544	146
2011	1,722,089	1,695,942	26,147	33,710	140
2012	1,951,260	1,947,344	5,568	33,878	158
2013	1,610,138	1,541,354	68,785	35,031	126
2014	1,647,878	1,584,289	63,589	35,367	128

[1] – Population represents total population in the City's service area at the end of the calendar year.
[2] – gpcd – gallons per capita per day

Brighton experienced rapid population growth through much of the early part of the century. According to the 2000 census, the population in the City's service area was 20,905 people. The 2010 census showed a population of 33,354. Most of this 60% increase occurred prior to 2007. Since 2010, the population grew another 5%, with the current population topping 35,350, such that population in 2020 is estimated to be about 41,580.

Per capita water use, calculated based on system wide water use, not just residential water use, decreased by about 13% from 2010 to 2014. Some of this may relate to changes in ambient weather conditions; however, the City has been implementing substantial water conservation programs since 2008 (the date of its last water conservation planning effort) which have increased local water use efficiency, as has the impact of new construction which tends to use less water per capita than the older construction within Brighton.

SWSI Water Planning Nexus

The City is a member of both the Metro and South Platte River Round Tables, since the City is situated in both geographies in Adams County. The City shares in the water supply gap that is identified for the South Platte River in SWSI. Although the City began receiving treated water from the City of Westminster in the amount of 1.8 MGD in 2010, as indicated

by various SWSI studies, currently identified projects and processes do not fulfill all of the City's future water supply needs.

Ongoing Water Conservation and the City's Planning Approach

Water conservation planning and implementation by the City has progressed through a number of stages in recent years. This occurred in part due the preparation and implementation of the City's 2008 Water Conservation Plan, which helped to focus the local water conservation programs on customer demand management and more efficient City facility uses. As part of the implementation of the City's approved Water Conservation Plan, CWCB provided grant funding to support water audits and retrofitting of Brighton commercial and municipal facilities. As a result of this grant, the City upgraded its municipal building's toilets and faucet aerators, and showerheads and faucet aerators in its swimming pool, as well as installed dozens of high efficiency showerheads and faucet aerators in various commercial buildings. In addition, one elderly care facility received high efficiency toilets for installation in common areas.

Since then, the City has focused on implementing various customer wise water use incentives that have evolved based on customer interest, funding availability and effectiveness of the program.

Currently the City's biggest water conservation project has been the WaterSmart pilot program. The City received a CWCB grant to track water use for 4,000 residential accounts and send bi-monthly reports on customer's water usage, offering suggestions for improved water use efficiency based the household specific water use data. The proposed Plan update will include an assessment of the effectiveness of this program. The City also has been funding the following programs:

- Garden-in-the-Box has been funded for each of the last three years to support the use of native and Xeric landscapes.
- Center for ReSource Conservation was contracted to conduct two water conservation seminars for customers in each of the past three years.
- Low flow toilet and HE washing machine rebate programs have been conducted since 2007, with the exception of 2011.
- Educational outreach events are sponsored including the City's EcoFair, Culturefest, and other K-12 programs.

Noteworthy is that the City new adopted rates for customers with irrigation accounts in 2015 which included significant increases in per thousand gallon water costs. Residential rates begin at $2.65 per thousand gallons and increase to $4.46 per thousand if use is greater than 3,000 gallons in a month. Inclining block rates for the City continue up to $6.05 per thousand for use greater than 40,000 gallons per month. Irrigation rates for commercial, industrial, schools, mixed use and municipal customers is currently set at $8.10 per thousand gallons to encourage more efficient water use by the City's largest outdoor users.

Given these recent occurrences, updating the City's water conservation plan will hinge on continued improvements to its data collection and organization efforts, improvements to its water loss control and leak mitigation programs, and its management of water resources within the constraints and practicalities of being a shallow groundwater user in the South Platte River basin below Denver.

The water conservation plan will be prepared using the State's Water Efficiency Plan Guidance Document and the related Water Conservation Plan Template, to the extent that these references are relevant to the City given its size, nature of its service population (i.e., economic status of the City's service area), and geography (i.e., low in the watershed). Finally, the updated water conservation plan is anticipated to be a living document that is used to guide and direct the real time allocation of resources related to the improvements of local water use efficiency for the management of City infrastructure and customer demands.

The specific components of the proposed scope of work for updating the City's water conservation plan will include the following:

- Updating the profile of the existing water supply system
- Updating the characterization of current and future water demands including the characterization of non-revenue water and real water loss
- Developing water conservation goals that are consistent with the needs of the City and the available resources
- Integrating updated planning and water efficiency benefits and goals with future water supply needs
- Identifying, evaluating and selecting new and/or continued water conservation programs including assessing current programs for effectiveness and customer interest

- Developing the implementation and monitoring plan to support tracking costs and benefits related to selected water conservation and water efficiency programs

A detailed scope of work, described task by task, as well as the proposed project budget and schedule are provided in Attachment A.

Contact Information

The official contact information for the team is as follows:

Ms. Dawn Hessheimer
Water Resources Specialist
City of Brighton, Utilities Department
500 S. 4th Avenue
Brighton, Colorado 80601
Telephone: 303.655.2127
Fax: 303.655.2065
Email: dhessheimer@brightonco.gov

Roles and Responsibilities

Dawn Hessheimer is the Water Resource Specialist for the City of Brighton and will serve as the Project Coordinator. Ms. Hessheimer has been an employee for the Utilities/Public Works division of the City for over thirty years. She has been involved with all aspects of the utility from water and wastewater production, water resource acquisition and development, utility permit fee administration, water conservation plan development and utility billing monitoring. She will be responsible for gathering information for monitoring the success of program and coordinate communications between staff and citizens groups. Ms. Hessheimer is responsible for the City's water conservation program and she plans and staffs the booth in the annual Culturefest event providing products and information to citizens regarding the City's water conservation efforts. She will be responsible for duties of the Project Manager, and supervise all efforts of the Project Team.

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 will serve as the project consultant developing and assessing data, evaluating water conservation activities and developing the local water conservation plan. Mr. Bouvette has over 30 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 in over two dozen local water conservation planning efforts in Colorado.

Water Conservation Goals

The City of Brighton expects to experience continued development in the area, associated with both new residential and commercial construction. The City's treatment facilities and water rights have limitations such that future water conservation programs will seek to balance capital investment with demand reduction – with respect to both water loss and customer use. Demand management will evaluate programs that impact summertime peak daily water needs, as well as monthly and annual total usage as a way to stretch the ability of current infrastructure to provide for the community's water needs.

Specific programs and best management practices (BMPs) that the City intends to include in the Plan update includes:

- Linking recent drought management planning with updated water conservation planning;
- Evaluating current water loss management programs, as well as data collection and management associated with the City's current BMPs;
- Assessing current and past water conservation measures and programs for cost effectiveness and total water savings; and
- Identifying and to the extent appropriate incorporating a combination of past and new BMPS into the updated Plan.

In addition, the City will integrate water conservation efforts into their ongoing water resources management efforts with water rate assessments and capital budgeting.

As mention above, the City will use the State's Water Efficiency Plan Guidance Document and the related Water Conservation Plan Template, to the extent that these references are relevant to the City. The City also intends to utilize the Southeastern Colorado Water Conservancy District BMP Tool Box, which was developed under funding from the CWCB, to frame and assess potential water conservation measures and programs. Using this framework, the City will evaluate measures and programs that exist within each of the five

areas of water utility operations – system wide management, water production and treatment, water distribution, water delivery to customers and customer water use.

The potential goals for future water conservation within the City will include:

- Continuing to reduce per capita residential water use by 10% on average over the next ten years;
- Reduce per connection summertime peak water use, especially as it relates to outdoor and other seasonal uses, by 15% over the next ten years ; and
- Reduce non-revenue water by between 25 and 35% percent over the next ten years.

Combined, achieving these goals would approximately offset the increased demand associated with 10% growth, or reduce 2025 demands by about 530 AF.

Water Efficiency Grant Request

The City is requesting $23,640 in CWCB Water Efficiency Grant funds to fund the proposed project. The City will contribute $ 8,760 in cash and in-kind services[1] (in the form of staff hours and expenses) to match the Grant funding to complete the scope of work. The total cost to complete the proposed project is $ 32,400, with a total match proposed as 27% of the project. A detailed description of the scope of work, and proposed project budget and schedule is presented in Attachment A.

[1] Estimated to be $2,760 in cash and $6,000 in in-kind contributions.

Attachment A
Detailed Scope of Work, and Proposed Project Budget and Schedule

Detailed Scope of Work

The scope of work presented below involves the development of one updated water conservation plan for the City of Brighton. The detailed description of the proposed tasks to develop the updated water conservation plan is provided below.

1.0 Draft Local Water Conservation Plan

Purpose

This task relates to the drafting of one individual local water conservation plan for the City. Generally, the plan will follow the water conservation planning methodologies recommended by both the CWCB and state statute. The Plan will also utilize the Southeastern Colorado Water Conservancy District BMP Tool Box to develop the framework for program identification, evaluation and selection.

In general, the scope will focus on collecting relevant data, explaining the framework for the water conservation plan (e.g., the plan will present current water production and demand data, identify future demands, characterize current and future infrastructure improvements, etc.), defining the water conservation goals, and selecting water conservation measures and programs that will attempt to achieve the goals stated for the City. The plan will also present the implementation tasks that the City will conduct to move the water conservation programs forward, including listing data collection, monitoring, and verification efforts.

Since this Plan is an update of an older Water Conservation Plan, it will also contain an assessment of past measures and program that the City has implemented to evaluate the effectiveness and public interest in each.

Tasks

1.1 Data Collection and Assessment – collect information from the City to update and supplement the data that has already been provided to the State as part of this application, including information on water production, customer water use, meters, billing, non-revenue water, population served, and expected future water demand;

infrastructure needs and best management practices related to water loss management; water rates; and current water conservation activities. An assessment will be performed organizing and summarizing the data in conjunction with the guidelines provided by the CWCB for this task. One key area of assessment will be in the current water loss accounting methodology to identify potential improvements that may be suggested using the American Water Works Association's M-36 Manual on Water Loss. Included in the assessment will be summaries and evaluations of:

- 1.1.1 Water supply system characteristics
- 1.1.2 Systematic data management related to tracking production, distribution and customer water use
- 1.1.3 Trends in non-revenue water and water loss, both real and apparent
- 1.1.4 Current trends in customer water use demand, including per capita water use
- 1.1.5 Projected future customer demands by customer category and total water production
- 1.1.6 City's capital improvement program related to water system improvements

1.2 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 City of Brighton. This portion of the water conservation planning effort will appraise the City's needs related to investing in and integrating ongoing operations with water conservation related program[2]. An assessment of local conservation programs and potential objectives will be included in this part of the water conservation plan, as appropriate.

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

1.4 Water Conservation Program Evaluations and Selection – based on the water conservation goals of the City, candidate water conservation programs will be evaluated for applicability and effectiveness. The evaluations will assess the costs and potential benefits of implementing any specific program and/or practice to:

[2] Water Conservation related programs include all those contained within the Southeastern Colorado Water Conservancy District BMP Tool Box found online at www.secwcd.org/BMPToolBox. Relevant programs may include those that relate to system wide management of the water supply system, water production and treatment, water distribution, customer water use metering, and/or customer water use and demand management.

- Reduce system and/or customer water demands,
- Improve data collection and management to help inform future conservation efforts,
- Adjust and set water rates,
- Coordinate programs with other organizations with shared interests (especially with respect to educational and outreach programs), and
- Integrate water conservation programs with other water utility business operations.

Candidate water conservation programs will be selected based on cost and benefit, as well as the interests of the City Council and staff, to the extent reasonable.

1.5 Implementation Plan – the implementation plan contained in the City's water conservation plan will include the following:

1.5.1 Implementation schedule - identify significant implementation actions, and challenges that may impact the implementation of the selected conservation measures.

1.5.2 Customer engagement - Describe how to involve and engage the City's customers in the implementation process, to the extent necessary.

1.5.3 Monitoring and evaluation processes - describe how water conservation will be measured and verified for effectiveness, and what the role of the City, as well as the District, will have during monitoring and reporting efforts.

1.5.4 Updating and revising the plan - describe when and how the Plan will be updated, in part, based on the state statute.

1.5.5 Funding strategy for the plan – identify potential funding needs and options related to the selected implementation efforts.

1.6 Draft Plan - compile and format information, data and other content into the Draft Plan for review and comment by City staff. Once staff comments have been received, produce adequate copies for public, City Council, state and other stakeholder review.

Deliverables

The project team will develop the Draft Plan for the City.

2.0 Final Local Water Conservation Plan

Purpose

Conduct and coordinate public review, and revise the Draft Plan based on comments and finalize for City Council approval.

Tasks

2.1 Support public noticing and state review – Provide guidance and support to the City as it advertizes for and receives public input during the required 60-day public comment period. Also coordinate the initial plan review by the CWCB.

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

2.3 Develop Final Plan – finalize the Plan based on comments received and the prepared comment responses, and produce for City Council approval.

Deliverables

The project team will develop the Final Plan including a comment response document for City Council adoption.

3.0 Project Meetings and Administration

Purpose

These tasks involve meeting with the planning entities, developing progress reports for the CWCB and preparing project invoices.

Tasks

3.1 Coordination meetings – conduct three (3) project coordination meetings with the City to: i) kick off the planning effort; ii) discuss Plan develop, key assumptions, selection of candidate water conservation measures, and implementation strategies; and iii) review the proposed Plan recommendations and implementation program prior to the completion of the Draft Plan.

3.2 Progress Reporting – prepare CWCB project progress reports at 50% and 75% complete to update the CWCB on project progress, successes, challenges and potential changes to scope, schedule and/or budget, as appropriate.

3.3 Project Invoicing – prepare project invoices on a monthly basis and support the grant project administrator in reporting and invoicing the CWCB as the project progresses.

Deliverables

The project team will prepare for and attend meetings, prepare project progress reports and prepare project invoices.

Project Budget and Schedule

The proposed project budget and schedule are attached as Table A-1 and Figure A-1, respectively.

Table A-1
Proposed Project Budget
City of Brighton Water Conservation Planning Grant Application

Task	Bouvette Hours	Bouvette Cost	Bouvette Expenses	City of Brighton Hours	City of Brighton Cost	Total Cost	CWCB Grant Request
Draft Water Conservation Plan		$120			$75		
1.1 Data Collection and Assessment	42	$ 5,040	$ 1,250	16	$ 1,200	$ 7,490	$ 5,040
1.2 Develop Framework for Plan	12	$ 1,440	$ -	6	$ 450	$ 1,890	$ 1,440
1.3 Develop Water Conservation Goals	8	$ 960	$ -	2	$ 150	$ 1,110	$ 960
1.4 Evaluate and Select Water Conservation Programs	36	$ 4,320	$ -	2	$ 150	$ 4,470	$ 4,320
1.5 Develop Implementation Plan	16	$ 1,920	$ -	2	$ 150	$ 2,070	$ 1,920
1.6 Prepare Draft Plan	48	$ 5,760	$ 25	8	$ 600	$ 6,385	$ 5,760
	162	$ 19,440	$ 1,275	36	$ 2,700	$ 23,415	$ 19,440
Final Water Conservation Plan							
2.1 Support Public Comment Process	2	$ 240	$ -	8	$ 600	$ 840	$ 240
2.2 Gather Public Comments and Respond	3	$ 360	$ -	4	$ 300	$ 660	$ 360
2.3 Prepare Final Plan	4	$ 480	$ 25	4	$ 300	$ 805	$ 480
	9	$ 1,080	$ 25	16	$ 1,200	$ 2,305	$ 1,080
Project Meetings and Administration							
3.1 Coordination Meetings	16	$ 1,920	$ 1,460	20	$ 1,500	$ 4,880	$ 1,920
3.2 Prepare Progress Reports	4	$ 480	$ -	4	$ 300	$ 780	$ 480
3.3 Prepare Invoices/Track Costs	6	$ 720	$ -	4	$ 300	$ 1,020	$ 720
	26	$ 3,120	$ 1,460	28	$ 2,100	$ 6,680	$ 3,120
Project Totals	**197**	**$ 23,640**	**$ 2,760**	**80**	**$ 6,000**		
			$ 26,400		**$ 6,000**	**$ 32,400**	**$ 23,640**
				cash	**$ 2,760**		
					Match %	**27.0%**	

Figure A-1
Proposed Project Schedule
City of Brighton Water Conservation Planning Grant Application