

Department of the Interior, Policy & Administration
U.S. Bureau of Reclamation
Water SMART Grants: Small Scale Water
Efficiency Projects for FY 2018
BOR-DO-18-F009

Installation of Water Metering Devices
in the City of Orland's Parks

City of Orland, Glenn County California
815 Fourth Street
Orland CA 95963

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Executive Summary

July 6, 2018

City of Orland, Glenn County, State of California

Project Summary: The City of Orland desires to increase water supply reliability through the metering of their six (6) municipal parks and other landscaped areas. A total of twelve (12) meters, with backflow devices, will need to be installed by 2025. According to the Engineer's Meter and Water Loss Management System Report prepared in 2014 for the system, just by installing water meters at the City parks water use efficiency can be increased by 80% saving an estimated 19 million gallons per year.

This project will commence August 2019 and end in approximately eight (8) months.

The project is not located on a Federal facility.

Background Data

Public Water System Number 1110001 serves the City of Orland and consists of seven wells. The wells are identified as Central Street Well, Lely Park Well, Woodward Avenue Well, Corporation Yard Well, Suisun Street Well, Roosevelt Avenue Well and Eva Well. The wells are distributed throughout the city and range in depth from 150 feet to 410 feet. The wells produce between 350 and 1,090 gallons per minute each, and are automatically regulated by the water level in the elevated water storage tank. In 2017 approximately 653 million gallons were produced. The water system is operated at 50 to 65 pounds per square inch (psi) pressure under normal demand. The seven wells are capable of producing 5,130 gallons per minute (gpm) at 55 psi system pressure. Under maximum demand conditions, the wells will produce approximately 6,510 gpm at 25 psi system pressure.

A Water System Capacity Study was completed in 2011 and based on data at that time, a total of 2,817 active water service connections provided water to a city population of 7,501 persons. This data indicates an occupancy factor of 2.66 persons per water service connection. Assuming an occupancy factor of 2.66 persons per water service connection, and depending upon the actual growth rate, Orland will have between 3,950 and 4,615 active water service connections by the year 2028.

If the “High” growth rate is assumed, the total number of active water service connections in the year 2028 will be approximately 4,615. Based upon our calculations, the maximum daily demand in the year 2028 will be approximately 7,110 gallons per minute (gpm). The existing source capacity of approximately 5,130 gpm will have to be increased by 1,980 gpm to meet Orland’s maximum daily demand under the “High” growth rate scenario, and an additional 1,500 gpm should be planned in the capacity upgrades to address coincident fire flow demand. As new development occurs during the planning period, new wells will be a requirement and should be the responsibility of the proposed development. Since 2011, Eva Drive Well has been constructed and is on-line. This well is expected to produce between 1,000 gpm and 1,250 gpm but there will still be a need for two additional wells to be implemented by the year 2028.

The city’s water distribution system consists of approximately 34 miles of pipeline ranging in size from 4-inch diameter to 10-inch diameter. A network of 14-inch diameter water mains is planned to connect all of the wells, with 10-inch, 8-inch and 6-inch diameter distribution piping throughout the city.

There are 417 public fire hydrants distributed throughout the city and a total of 14 private fire hydrants located at the fairgrounds, high school and Glenn County Public Works corporation yard.

The city has one elevated water storage tank with a capacity of 80,000 gallons. The steel storage tank is located adjacent to an alley west of Fifth Street between Walker Street and Swift Street. The elevation of the tank maintains the water system pressure between 43 psi and 54 psi under gravity conditions.

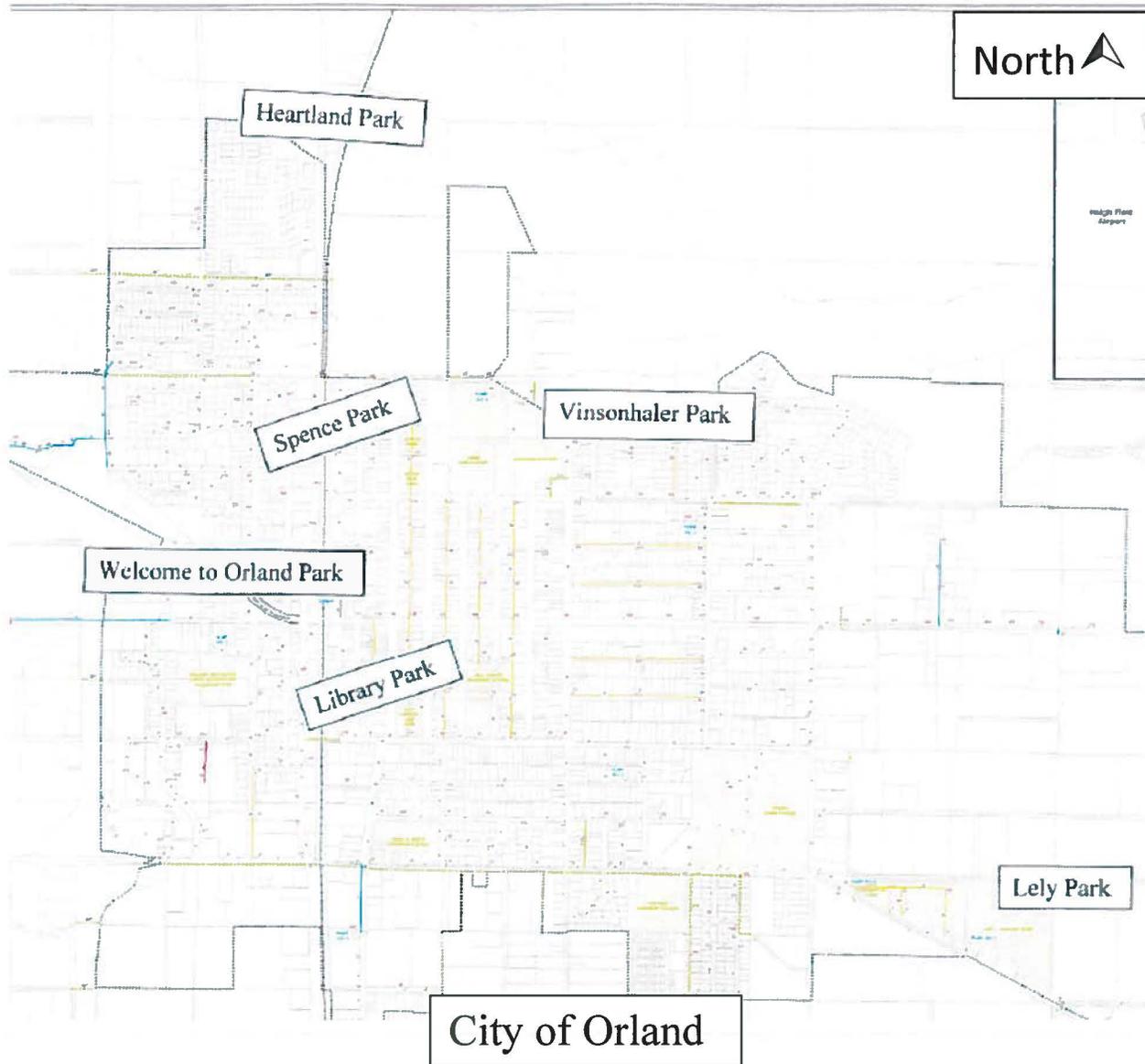
The City has 2,828 active water services as of 2017, providing water to a City population of 7,932 persons.

The city worked with the USBR when a portion of Lateral 40 at Papst Avenue and Bryant Street was undergrounded (2014) and is working with USBR local staff on a recreation trail from the Linwood subdivision to Lely Park. In managing conservation of its resources, USBR's local operating unit sends excess water to the City of Orland's storm drainage retention basin where it recharges the aquifer.

Project Location

The installation of water meters, Orland Glenn County, will be in Vinsonhaler, Spence, Heartland, Library, Lely and Welcome to Orland Parks.

39.747771 Latitude -122.194059 Longitude



Technical Project Description

The City of Orland desires to increase water supply reliability through the metering of their six (6) municipal parks and other landscaped areas. A total of twelve (12) meters, with backflow devices will need to be installed by 2025.

According to the Meter and Water Loss Management System Report prepared in 2014 for the system, installing water meters at the City parks will enable better management of irrigation controls. Metering water production will increase efficiency from 60% to 80%, potentially saving an estimated 19 million gallons per year and \$10,000 in annual production costs.

The larger parks have multiple connections to the nearby water mains, complicating the installation of the meters.

Evaluation Criteria

Project Benefits

A water audit was prepared for the City of Orland's water system in 2013 by MC Engineering, Inc. This audit estimated the water loss and associated lost revenues within a water system based on the total amount of water supplied to the distribution system and the total amount of water consumed throughout the system.

While reviewing unbilled and unmetered consumption, an evapotranspiration calculation was developed to estimate the amount of water needed to irrigate the city parks. This evapotranspiration calculation assumed an efficiency of 60%. The audit reported that increased efficiency in the City's irrigation controls could increase the overall irrigation efficiency of the parks to 80% and save an estimated 19MGY. The City can also anticipate a monetary savings of \$10,000 in production costs.

Planning Efforts Supporting the Project

The City of Orland desires to increase water supply reliability through the metering of their six (6) municipal parks and other landscaped areas.

In July 2014 a Water Shortage Contingency & Conservation Plan (with four stages) was adopted by the City Council to support municipal water system resources and to address consistency with the State's imposition of water usage reduction regulations. Parks and other public landscaping were noted in the Plan. Orland advanced to Stage 2 (reduce irrigation) during a large part of the State's declared drought. Stage 2 imposed certain conservation regulations on water use.

Since 2016, as part of the City of Orland's Objectives for projects and capital outlays, installing water meters at City parks has been listed as a priority. These Objectives are presented to City Council, staff members and the community for their review and comments. Annually the list is placed on the City website and adopted as part of the fiscal year budget.

Project Implementation

The City of Orland Public Works Department will be installing the meters. Approximately four (4) employees will be utilized on the project.

Scheduling of the project will commence as soon as funds are awarded and available. According to the Public Works Director, it will take approximately 850 man hours to install the meters. All meters will be installed four months after the work begins.

No permits will be required.

No engineering or design work needs to be performed. The meters will go in existing areas where there are tie-ins to the City distribution system.

No new policies or administrative actions will be required to implement the project. The City Council adopted a funded projects and capital outlays list in June 2018 that shows installation of water meters at parks as a priority.

No environmental compliance estimate was developed since it was not applicable to the project.

Nexus to Reclamation

Orland is a landowner within the Orland Unit Water Users Association project and thus pays an annual Operations and Maintenance expense on 19.5 acres and is allotted approximately three a/f of water per year. The City's allotment is used to recharge the storm drain retention basin during the summer months.

Water for the OUWUA project comes from Black Butte Dam through the Stony Creek Diversion. The Dam, located eight miles west of Orland, was constructed by the US Army Corps of Engineers and is operated by the U.S. Bureau of Reclamation.

The City's wells draw from an aquifer that obtains recharge from a number of sources. The greatest amount of natural recharge occurs in the Stony Creek area, with additional recharge coming from deep percolation of agriculturally applied water and normal surface percolation following rains. The City's three retention basins and its waste-water treatment process add to the recharge.

The project will not directly benefit tribes. No statistics have been gathered but anyone living and visiting the Orland community will benefit from parks that are well maintained year around. All Orland residents are public water customers who will benefit from a more efficiently operated irrigation system.

Department of the Interior Priorities

1. Creating a conservation stewardship legacy second only to Teddy Roosevelt:

a. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment.

A water audit was prepared for the City of Orland's Water system for 2013 using AWWA water audit software that was developed through an international coalition between AWWA and the International Water Authority (IWA). The AWWA spreadsheet tool has been created to generate objective criteria to compare and evaluate a water system's performance and efficiency based on certain universally accepted performance indicators. The water audit estimates the water loss and associated lost revenues within a water system based on the total amount of water supplied to the distribution system (system input volume or SIV) and the total amount of water consumed throughout the system (Authorized Consumption).

3. Restoring trust with local communities.

a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands.

b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes and local communities.

The city communicates with USBR local staff and Orland Unit Water Users Association staff whenever a proposed project that affects their operations is in the design stage. All

City Council and Commissions agendas are posted to the City's web site, facebook page and available in hard copy at City Hall.

5. Modernizing our infrastructure.

c. Prioritize DOI infrastructure needs to highlight:

3. Deferred maintenance

City of Orland needs to meter their parks' water consumption but budget constraints and insufficient manpower have deferred this project.

PROJECT BUDGET

Funding Plan & Letters of Commitment

In the City's 2018-2019 Budget, a total of \$125,000 from the Water Enterprise Fund was committed for the installation of water meters in city parks.

Budget Narrative

Janet Wackerman, Accounting Manager, will be the program manager and the one responsible for completing and submitting all required financial reports. She has implemented many grants for the City of Orland since 1993. She has estimated it will take approximately 20 hours at \$32.21 per hour, to complete the required financial reports.

Arnie Romero, Lead Foreman, will be the project manager. Three parks maintenance crew members will work on the installation of the meters. Mr. Romero will oversee the work at a base wage of \$29.75 per hour for 160 hours. The parks maintenance crew will excavate and install the meters at a base wage of 22.34 and 18.22 (2) per hour for 230 hours each. Each crew member is able to operate a backhoe, mini-excavator, dump truck and Vac Con.

Ms. Wackerman's fringe benefits total \$372.60.

Mr. Romero's fringe benefits total \$3,341.92. The three crew members have fringe benefits of \$4,399.63 and \$1,277.72 (2). Fringe benefits include, health, dental, vision and life insurance, and CalPERS.

There will be no travel costs.

City intends to use their own equipment for the purposes of the project. The proposed usage rates were compiled by Ed Vonasek, Public Works Director, using vehicle rental costs vs actual cost divided use over lifespan of vehicle.

The supplies and materials needed for the installation of the meters were estimated from past experience.

The City contracts with a backflow device specialist to inspect over 110 devices on the water system. His contract states all devices are inspected at a flat rate of \$45 per device, additional charges for repairs. As the devices installed will be new, the flat rate was used for budgeting purposes.

No environmental and regulatory compliance costs are anticipated. If needed, the City Planner can file a Notice of Exemption with the County of Glenn at a cost of \$345 (three hours at \$115 per hour).

There are no indirect costs listed on the Budget.

Total Federal Costs - \$75,000; Total Non-Federal Costs - \$63,558.19

BUDGET PROPOSAL FOR CITY OF ORLAND

Installation of Water Metering Devices in the City of Orland's Parks

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
Salaries and Wages				
Romero	29.75	160	hours	\$4,760.00
Paillon	22.34	230	hours	\$5,138.20
Punzo	18.22	230	hours	\$4,190.60
Swinhart	18.22	230	hours	\$4,190.60
Wackerman	32.21	20	hours	\$644.20
Fringe Benefits				
Full-Time Employees	12.26	870	hours	\$10,669.59
Travel				
None				\$0.00
Equipment				
Backhoe	30	80	hours	\$2,880.00
Mini-Excavator	36	120	hours	\$4,320.00
Dump truck	36	80	hours	\$2,880.00
Vac Con	100	80	hours	\$8,000.00
Supplies and Materials				
Meters	4,500.00	12		\$54,000.00
Backflow devices	3,000.00	12		\$36,000.00
Contractual/Construction				
Contract Inspector for testing	45	12	per device	\$540.00
Environmental	115	3	hours	\$345.00
Other				
None				\$0.00
TOTAL DIRECT COSTS				\$138,558.19
Indirect Costs				
None				\$0.00
TOTAL ESTIMATED PROJECT COSTS				\$138,558.19

Date of report: July 24, 2018

Environmental and Cultural Resources Compliance

The proposed project will not impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat). An amount of excavation will be needed to expose tie-ins for the meters. Per meter there will be a total of three (3) yards of soil that will be disturbed and then put back in place once the meter is installed.

There are no species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area. All parks have city approved trees, bushes and grass.

There are no wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States?”

The City’s water delivery system was constructed in 1912. As the town’s population has increased, more laterals and mains have been added.

The proposed project will not result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes).

There are no buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places.

There are no known archeological sites in the proposed project area.

The proposed project will not have a disproportionately high and adverse effect on low income or minority populations.

The proposed project will not limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands.

The proposed project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area.

Required Permits or Approvals

All work will be conducted on City of Orland property. No permits or approvals are required.

Letters of Project Support

From: Crenshaw, Reese@Waterboards

Sent: Monday, July 09, 2018 8:12 AM

To: Janet Wackerman <jwackerman@cityoforland.com>; Burgess, Michael T@Waterboards <Michael.Burgess@waterboards.ca.gov>

Subject: RE: Meter requirements

That's my understanding.

Mike, didn't you pull all the regulations together on this – can you share? thanks

WATER CODE – WAT

DIVISION 1. GENERAL STATE POWERS OVER WATER [100 - 540]

(Division 1 enacted by Stats. 1943, Ch. 368.)

CHAPTER 8. Water Measurement [500 - 537.5]

(Chapter 8 added by Stats. 1991, Ch. 407, Sec. 2.)

ARTICLE 3.5. Metered Service [525 - 529.7]

(Article 3.5 heading added by Stats. 2004, Ch. 884, Sec. 4.)

527.

(a) An urban water supplier that is not subject to Section 526 shall do both of the following:

(1) Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.

(2) (A) Charge each customer that has a service connection for which a water meter has been installed based on the actual volume of deliveries as measured by the water meter, beginning on or before January 1, 2010.

(B) Notwithstanding subparagraph (A), in order to provide customers with experience in volume-based water service charges, an urban water supplier that is subject to this subdivision may delay, for one annual seasonal cycle of water use, the use of meter-based charges for service connections that are being converted from non-volume-based billing to volume-based billing.

(b) A water purveyor, including an urban water supplier, may recover the cost of providing services related to the purchase, installation, and operation of a water meter from rates, fees, or charges.

(Amended by Stats. 2005, Ch. 22, Sec. 207. Effective January 1, 2006.)

Resolution No. 2018-14
for the
WaterSMART Grants: Small-Scale Water Efficiency Projects for fiscal year
2018

WHEREAS, the City Council has the authority to construct, operate and maintain the City of Orland water system; and

WHEREAS, the City Council has until January 1, 2025 to install meters on all municipal owned properties; and

WHEREAS, the Department of the Interior, Bureau of Reclamation has funding available for projects that conserve and use water more efficiently; and

WHEREAS, the City Council has reviewed and supports the application submitted; and

WHEREAS, the City Council has determined that the City has the capability to provide the amount of funding specified in the funding plan; and

WHEREAS, the City Council and City staff will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement; and

BE IT FURTHER RESOLVED, that the City Manager, or designee, of said City of Orland is hereby authorized and directed to cause the necessary data to be prepared and application to be signed and filed with the Department of the Interior, Bureau of Reclamation.

Passed and adopted at a regular meeting of the City Council of the City of Orland on the 16th day of July, 2018.

AYES: Councilmembers Hoffman, Edwards, Paschall, Roundy and Mayor Gee

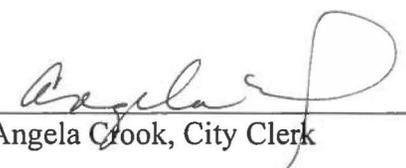
NOES: None

ABSENT: None



Charles Gee, Mayor

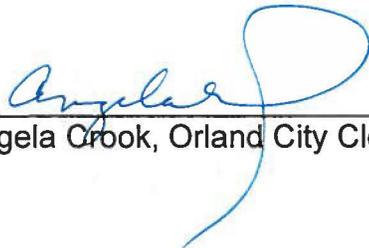
Attest:



Angela Crook, City Clerk

I, ANGELA CROOK, CITY CLERK, of the CITY OF ORLAND, hereby certify that the attached is a true and correct copy of a Resolution duly made by the City Council at a regular meeting of said City Council, at Orland, California, on the 16th day of July, 2018, the original of which is on file in my office and duly and regularly entered in the official records of proceedings of the City Council of the CITY OF ORLAND.

Dated: 7/17/18



Angela Crook, Orland City Clerk