City of Vallejo Automated Metering Infrastructure (AMI) Project - Phase I Meter Replacement, Funding Group II BOR-DO-21-F001

September 17, 2020

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1.1 Executive Summary

Date: September 14, 2020
Applicant Name: City of Vallejo Water Department
City, County, State: Vallejo, Solano California
Project Name: City of Vallejo Automated Metering Infrastructure (AMI) Project - Phase I
Funding Group: Group 2
Grant Funding Request: $2,000,000
Non-Federal Matching Funds: $3,494,558
Total Project Cost: $5,494,558
Est. Project Duration: 36 months
Estimated Completion Date: December 31, 2023
Located on a Federal Facility: No

Project Summary

The City of Vallejo (City, COV) Water Department (Water Department, Department) is a newly formed and separately funded Department as of 2015. The Water Department is responsible for providing high quality water to its 121,000 residents through approximately 38,000 active metered connections. The City's Water Department has identified advanced metering infrastructure (AMI) as the way forward to best manage water supply reliability for the City and reduce water consumption through higher water use efficiency. The Water Department has long anticipated converting to more efficient and updated technologies by replacing its existing, and aged, nutating disc meters with Advanced Metering Infrastructure (AMI) compatibility, which will update the Department's existing water metering system, increase water conservation through accurate and real-time meter readings, take advantage of leak detection technologies, educate customers on water use, and improve COV's management of its system. The City requests funding from the U.S. Bureau of Reclamation (Reclamation) through its 2020 WaterSMART Water and Energy Grant (WEEG) program to implement the "City of Vallejo Automated Metering Infrastructure (AMI) Phase I Meter Replacement Project" (Project). Phase I will kick-off the implementation, and serve as the foundation, of the Department's larger effort to begin installation of AMI compatible meters and related infrastructure throughout the City's service area to support the broader plan to convert the City to AMI infrastructure. **Phase I of the project will replace approximately 28,000 meters in the City.** The scope of the larger City of Vallejo AMI Project includes: 1) Installation of the AMI network and associated infrastructure components and retrofit of all meters to AMI-compatible meters, 2) a public outreach campaign to those targeted areas, 3) an enhanced marketing campaign city-wide, 4) process improvements and new software infrastructure for data collection and billing. The project in all phases, both separate

and in total, aligns with the objectives of Reclamations' WaterSmart WEEG Program, as it will result in quantifiable **water savings of 1,184 acre-feet per year**, and quantifiable **energy savings of 221,700 kilowatt-hours (kWh) per year**. AMI will provide the disadvantaged communities of Vallejo access to real-time flow consumption data that will allow for the early identification of water leaks, allowing customers to identify abnormal consumption patterns. This information in the hands of customers will empower them to make conservative consumption choices and provide them with the information to better control their usage. The Project is also intended to amplify public outreach and awareness initiatives between the City and its customers. The proposed project will be completed within 36 months and can start as soon as January 2021. The project is not located on a Federal facility.

1.2 Background Data

1.2.1 Source of Water Supply and Water Rights

The newly formed Water Department is responsible for managing all water supply within the City of Vallejo as well as supplying water to other communities outside of Vallejo proper. The City's water service area covers approximately 50 square miles (see Figure 1). Water services are also provided to unincorporated Solano County Neighborhoods adjacent to "Vallejo proper" (i.e., the neighborhoods of Home Acres, Sandy Beach, and Starr Subdivision), as well as the Vallejo Lakes Water System area (the area in the adjacent unincorporated western part of Solano County and southern Napa County, highlighted green on Figure 1), and several facilities near the Travis Air Force Base, in Fairfield, CA. The service area is approximately 31 square miles of land area and includes predominantly residential and commercial users. The unincorporated The grant is focused only on the Vallejo System within Vallejo proper. Areas outside of Vallejo proper, Vallejo Lakes Water System areas and Travis Air Force Base are not part of this grant application (See Figure 1).

The City of Vallejo uses surface water as its sole supply source; no groundwater sources are used. Recycled water generated during the treatment process is used in the water treatment plant to perform the following: process backwash, sludge handling decant, and filtrate water. The recycled water used for these processes is returned to a reclaim basin and subsequently introduced back into the headworks of the plant. The City obtains surface water from five water rights originating from four different sources. Surface water is conveyed to three treatment plants to serve customers in two different counties (Solano and Napa) and to an active military base (Travis Air Force Base). The four sources of surface water are:

A. State Water Project (SWP)/ Vallejo Permit Water (California (Sacramento) Bay Delta);
B. Solano Project Water (Lake Berryessa, U.S. Bureau of Reclamation);
C. Lakes Frey and Madigan(Green Valley, Vallejo Municipal); and
D. Lake Curry (Suisun Valley, Vallejo Municipal)

Solano Water Project. Solano Project Water is delivered from Lake Berryessa via the Putah South Canal to either Cordelia where it is pumped into Vallejo or the Travis WTP, or via Solano Irrigation District's distribution system to an intertie in Green Valley. The majority of Vallejo's Solano Project water entitlement is delivered to Fleming Hill WTP from USBR terminal reservoir via the Cordelia reservoir.

State Water Project. State Water Project water is delivered from Lake Oroville through the Sacramento River to the North Bay Aqueduct Pumping facility at Barker Slough where it is pumped to the DWR Forebay at Cordelia and then pumped to the Fleming Hill WTP.

Sacramento Delta Entitlement (Vallejo License Water). Delivery of this entitlement has been through the intake of the NBA facilities at Barker Slough, where it is pumped to the DWR Forebay at Cordelia and pumped to the Fleming Hill WTP. NBA water is also treated at the Travis WTP.

Lakes Frey, Madigan and Curry. Lakes Frey and Madigan are located in northern Solano County. The City owns both lakes and the surrounding watershed land. Water flows from Lake Madigan into Lake Frey and then into the Diversion Dam, from which the water continues to flow under gravity through a pipe into the Green Valley WTP located at the end of Green Valley Road. Lake Curry is currently being used for instream flow and anticipated to only be used for this purpose until such time when plans are in place for a conveyance system to deliver water to the City's Fleming Hill water treatment plant.

Table 1 Annual Entitlement under each right and/or contract

Urban	*AF*	*Source*	*Contract #*	*Availability period(s)*
USBR (Solano Project - Berryessa)	14,600	Lake Berryessa	14-06-200-4090	Subject to drought reductions
State Water Project/NBA	5,600	Sacramento River	160260	Subject to drought reductions
Vallejo License Water Sacramento Delta	22,800	Sacramento River	7848	Subject to drought reductions
Lake Curry	5,058	Lake Curry	5728	Equals safe yield
Lakes Madigan, Frey	600	Lakes Madigan, Frey	Pre-1914 rights	Equals safe yield
TOTAL	48,658			

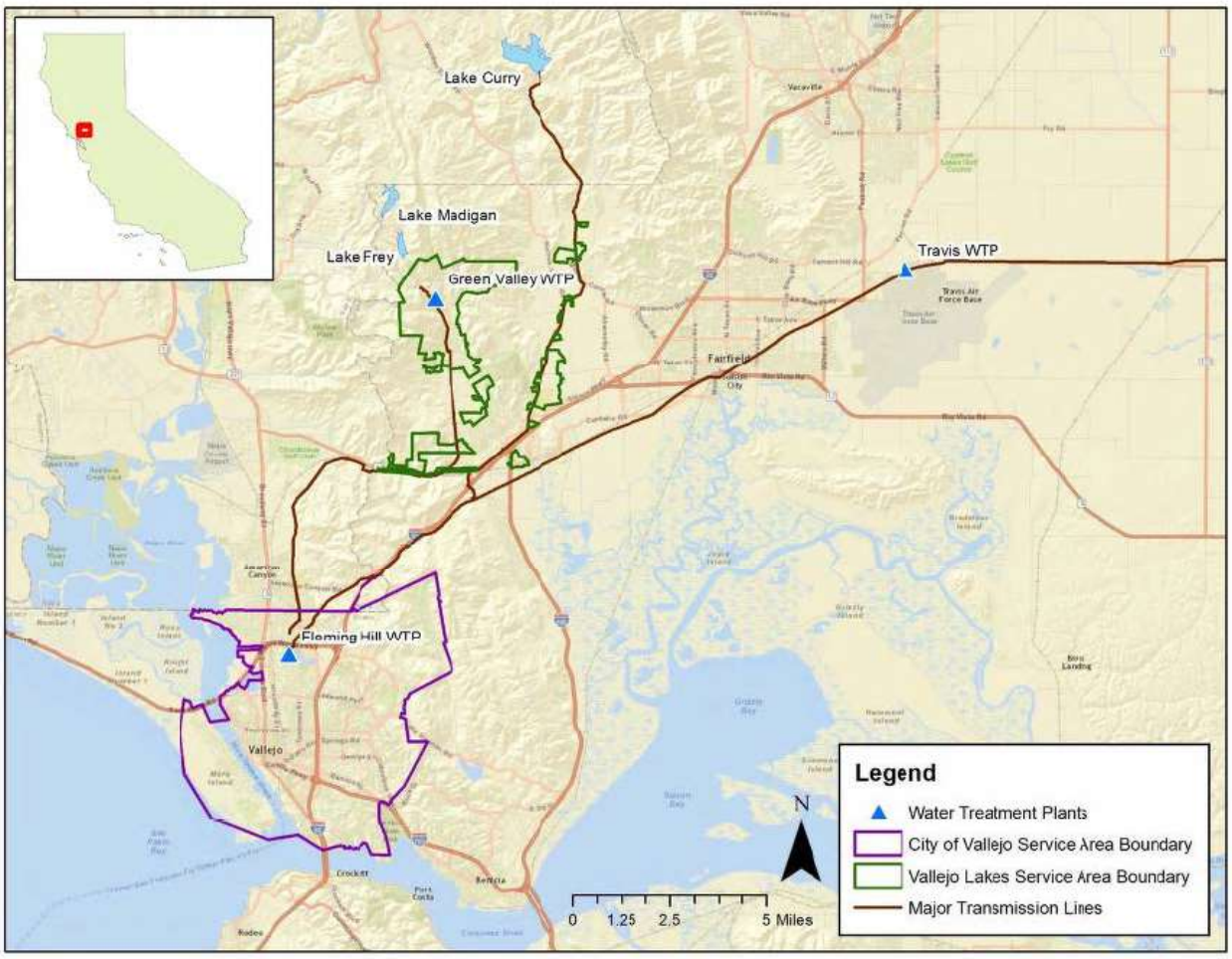
In 2019 the City used 2,786 MG from the Solano Project, which accounts for 48% of the supply for the City for that year.

1.2.2 Current Customers and Water Delivery System

The Water Department provides drinking water to approximately 121,000 customers in Vallejo (US Census 2019), and some customers in adjacent unincorporated areas and a limited number

of customers in the City of American Canyon and the City of Fairfield. The Department also provides drinking water treatment under contract to approximately 15,000 military and civilian personnel living and working on Travis Air Force Base. The Department's total drinking water responsibilities include three advanced and independently operated water treatment facilities, multiple pumping stations and reservoirs, and decades-old pipes. The majority of source water comes from Lake Berryessa and the North Bay Aqueduct, and is distributed to the three treatment plants through a network of pipelines and canals that span 28 miles in length.

Figure 1: City of Vallejo Water Systems



The City possesses its own water rights and points of diversion for supply and distribution to customers throughout Solano County, as well as purchases Reclamation water from the Solano Project and State Water Project off of the North Bay Aqueduct. Vallejo is also a member agency of the Solano County Water Agency (SCWA), who is the lead agency for distribution of water from the State Water Project (SWP) and the Solano Project. The transmission, treatment and subsequent distribution and metering of potable water to residential and commercial customers

is the responsibility of the Water Department. In 2019 the potable water consumption within the City was 12,372 acre feet (AF). **Table 2** shows potable water use by rate category in FY19.

Table 2: Potable Water Use within City of Vallejo System

Rate Category	Rate Class Name	Rate Class	Volume (AF)
Single Family	Residential Bi-Monthly	RB	6,839
	Residential Monthly	RM	
Multi-Family	Apartment Bi-Monthly	AB	1,835
	Apartment Monthly	AM	
	Trailer City Rate	T2	
	Trailer Park	TP	
Commercial / Institutional	Comm Bi-Monthly	BC	2,324
	Comm Monthly	CM	
	Bi-Monthly School	BS	
	Monthly School	MS	
	Church Bi-Monthly	GB	
	Church Monthly	GM	
	Fire Bi-Monthly	FB	
	Fire Monthly	FM	
	City Accounts	CT	
	American Cyn	AC*	
Landscape / Irrigation	Irrigation Bi-Monthlly	IB	1,368
	Irrigation Monthly	IM	
Other	Construction	CN	7
		Total Potable Water Units	**12,372**

Raw water is treated at the City's 42 million gallons per day (MGD) Fleming Hill Water Treatment Plant which discharges potable water directly into the City's distribution system. Potable water is supplied through approximately 475 miles of pipe ranging from two to 24-inches in diameter. There are 23 treated water reservoirs located in the City on the distribution system. There are four dams within the City limits, consisting of two raw water reservoirs and two treated water reservoirs. There are five raw water pump stations and 17 treated water pump stations that supply water to the 8 pressure zones to the various topographical areas within the City.

1.2.3 Current and Projected Water Demand

The City's 2015 Urban Water Management Plan (UWMP) (UWMP, 2016) includes the following projected water demands through the year 2040, by customer classification. The UWMP's projected estimate with the additional column of FY19 added are shown in **Table 3.** The 2015 UWMP includes demand projections that represented best estimates of population growth and water use for that time. In reality, water demands are slightly lower than were projected in the UWMP, and actual water losses are significantly higher than projected. Demand projections will be adjusted downward in the forthcoming 2020 UWMP Update and 2020 Water Master Plan.

Table 3: Actual and Projected Demands for Potable Water

Use Type	Actual Water Use (MG)	Projected Water Use (MG)				
	FY 19-20*	2020	2025	2030	2035	2040
Single-Family	2,166	2,591	2,515	2,428	2,365	2,281
Multi-Family	581	610	602	593	590	590
Commercial	308	835	806	770	738	707
Agricultural irrigation	230	584	571	547	518	485
Other	410	123	126	128	130	134
Losses	1,150	950	711	496	483	466
TOTAL (MG)**	5,049	5,693	5,331	4,962	4,824	4,663

**Calculated from Billed Consumption outputs on the calendar year time-step to match the time-step of the UWMP.*
*** Value is as reported in the 2019 Water Audit submitted to the State of California less the transfers.*

Vallejo used the AWWA Water Loss Audit Program for 2017-2019, as summarized in **Table 4**. The City's water supply averaged 14,491 acre-feet from all sources (imported surface water) from 2017 to 2019. All imported water is used for potable water. Water conserved by this project will reduce imported water from one or more of the City's surface water sources.

A further breakdown of the 2017-2019 Water Audit values in **Table 4** identifies the total water losses from customer metering inaccuracies alone is calculated to be approximately 5.39 percent. A further analysis concludes metering inaccuracies account for approximately 24% of water losses, supporting the decision to replace existing meters with newer equipment, and convert the system to AMI. Customer Metering Inaccuracies are calculated using the AWWA Water Audit software and require real data for verification.

Table 4: Water Loss Breakdown from 2017-2019 AWWA Water Audits

Summary of 2017-2019 Water Audit Water Loss Calculations							
Reporting Year	**Raw Water Supplied (AFY)**	**Water Losses (AFY)**	**Unauthorized Consumption (AFY)**	**Customer Metering Inaccuracies (AFY)**	**Systematic Data Handling Errors (AFY)**	**% Total Water Loss**	***% of Water Loss Due to Metering Inaccuracies***
2017	12,199.61	3,257.44	38.75	779.09	30.50	26.70%	*6.39%*
2018	15,778.53	3,664.48	39.32	767.55	30.05	23.22%	*4.86%*
2019*	15,494.98	3,529.44	38.74	761.30	29.80	22.78%	*4.91%*
Average	**14,491.04**	**3,483.78**	**38.94**	**769.31**	**30.12**	**24.23%**	***5.39%***

**The 2019 Water Audit has been reviewed and approved by a third party reviewer, but not submitted to the State at the time of this application.*

1.2.4 Existing Relationship with Reclamation

The City utilizes water from the Solano Project, a federal water project operated by the U.S. Bureau of Reclamation (Bureau) that stores water in Lake Berryessa for various agencies and users in the area, including the City of Vallejo. Solano Project water is delivered from Lake Berryessa via the Putah South Canal to the Bureau's Terminal Reservoir in Cordelia. Approximately 95 percent of the Solano Project water is pumped via the City's Cordelia pumping station, primarily to the Fleming Hill WTP. Approximately 5 percent of the Solano Project water is conveyed via Solano Irrigation District's distribution facilities to the Green Valley WTP. Approximately 98 MG/yr is delivered to the Travis WTP via the Beck Avenue Pump Station. The City has a water entitlement of 4,757 MG/yr of Solano Project water. SCWA is the managing wholesaler for Solano County agencies for purchase of Solano Project water.

1.2.5 Project Location

The City of Vallejo is located approximately 30 miles northeast of San Francisco at the southern end of Solano County. The City's water service areas are shown in **Figure 1** and encompasses the city limits, unincorporated Solano County Neighborhoods adjacent to the City "Vallejo proper" (i.e., the neighborhoods of Home Acres, Sandy Beach, and Starr Subdivision), as well as the Vallejo Lakes area (the area in the adjacent unincorporated western part of Solano County and southern Napa County). The service area includes predominantly residential and commercial users. Elevations in the existing service area range from approximately 0 feet above mean sea level to approximately 630 feet above mean sea level

The Project will focus on replacing the oldest meters within the 19-20 Water Main CIP locations (outlined in black and under construction at the time of this application) as well as the

disadvantaged communities (DACs) shown in **Figure 2** (next page). As can be seen on **Figure 2** below, the State of California dataset reveals there are several DACs within the city limits. **Table 6** summarizes the number of meters associated with DACs within the City.

1.2.6 Project Demographics

Vallejo has a high percentage and concentration of families living at or below the HUD Area Median Family Income (HAMFI). City reporting in their 2015-2019 HUD Consolidated Plan reveals that 20,485 households have HAMFI's lower than 100%. This represents 50.3% of the total households (40,465). See **Table 5** for the breakdown of household HAMFI.

Table 5: Households HAMFI

	0 30% HAMFI	>30 50% HAMFI	>50 80% HAMFI	>80 100% HAMFI	>100% HAMFI
Total Households *	6,200	4,290	5,905	4,090	19,980
Small Family Households *	2,305	1,630	2,345	1,865	10,080
Large Family Households *	470	355	915	600	2,690
Household contains at least one person 62-74 years of age	1,000	899	1,135	795	4,455
Household contains at least one-person age 75 or older	870	770	920	440	1,580
Households with one or more children 6 years old or younger *	1,675	910	1,195	895	2,310

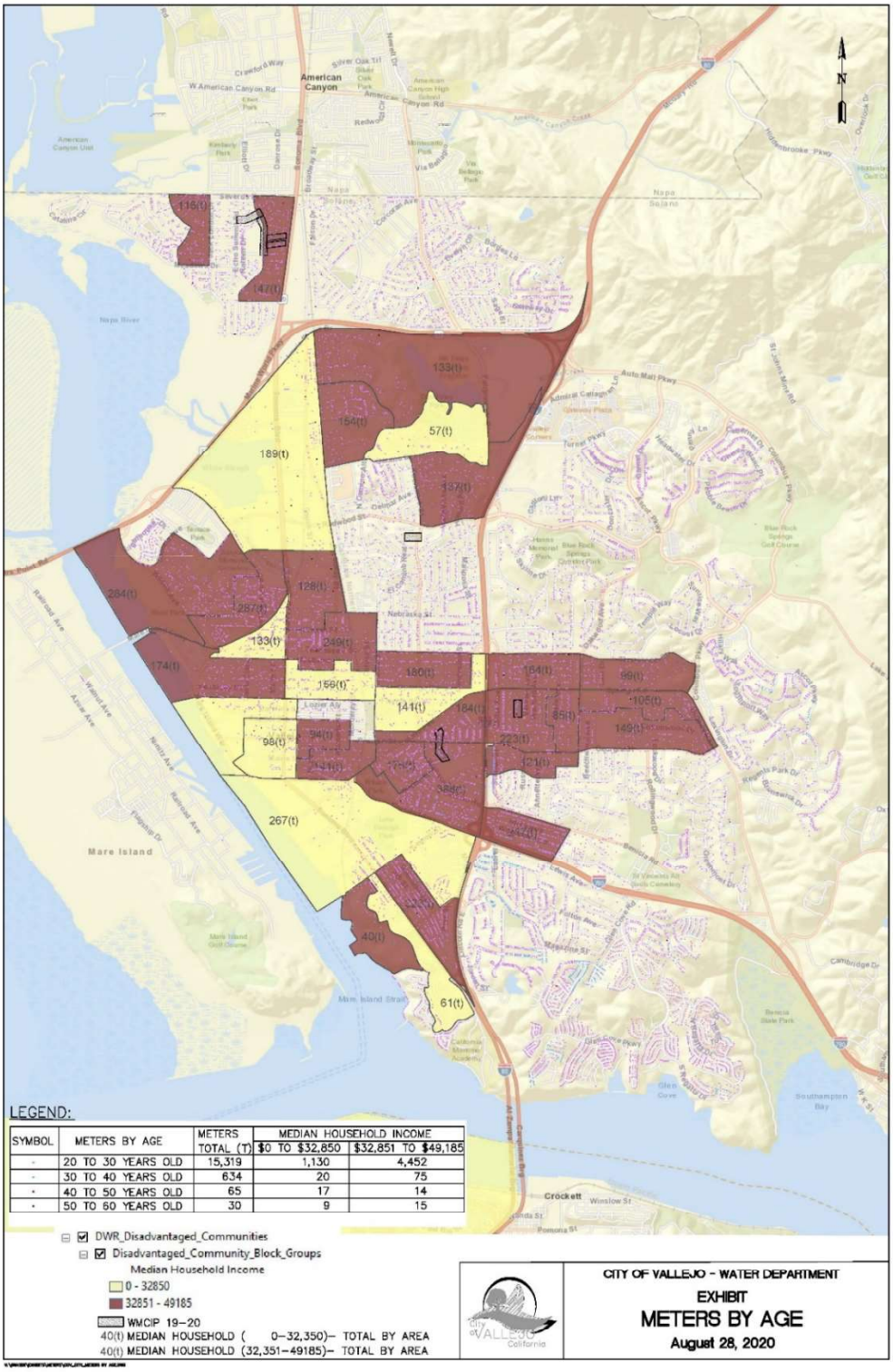
By state definition, a disadvantaged community (DAC) is a community whose median household income (MHI) is less than 80% than that of the statewide MHI. In 2017, the most recent data available, California's state MHI was $61,818, meaning that communities with an MHI of less than $49,454 are considered disadvantaged.

Table 6: Number of Meters within the City of Vallejo's Disadvantaged Communities

Number of Meters within Vallejo's Disadvantaged Communities			
Age Range	**MHI 1**	**MHI 2**	**Total**
20-30 Years	1,130	4,452	5,582
30-40 Years	20	75	95
40-50 Years	17	14	31
50-60 Years	9	15	24
Total	1,176	4,556	**5,732**

MHI 1 = Households with an income range of: $0-$32,850
MHI 2 = Households with an income range of: $32,851 - $49,185

Figure 2: Project Location and Demographics



1.3 Technical Project Description

1.3.1 Project Description

The Project will kick-off the implementation of the Department's larger effort to upgrade and replace the City's existing infrastructure by replacing 28,000 residential meters with AMI compatible meters. The Water Department is intent on replacing its existing meters to support the Automated Metering Infrastructure (AMI) Project which will update City's existing water system, increase water conservation through accurate and real-time meter readings, take advantage of leak detection technologies, educate customers on water use, and improve the Water Department's management of the system.

The Project Scope includes replacing 28,000 residential (sized 5/8 in. to 3/4 in.) meters within the City with AMI compatible meters. This is approximately 73% of the small meters within the City. Meters targeted for replacement will be prioritized by proximity to existing Water Main CIP Project Areas, proximity to a known DAC, and age. **Table 7** lists the age and quantity of smart meters that will be installed as part of this project, **Table 8** lists the number of small meters by age within DACs.

Table 7: Meters <= 2-inches by Age and Size

Meters 2 Inches and Smaller						
Meter Age	5/8 in.	3/4 in.	1 in.	1 in.	2 in.	TOTAL
<1970	10	0	2	0	0	12
1970-1980	92	5	0	3	1	101
1980-1990	512	5	4	9	1	531
1990-2000	11,058	1,499	656	147	123	13,483
2000-2010	10,956	2,133	1,927	177	203	15,396
2010-2020	4,891	2,469	733	193	229	8,515
Total No. of Meters	**27,519**	**6,111**	**3,322**	**529**	**557**	**38,038**

Table 8: Number of Meters within a DAC

Number of Meters within Vallejo's Disadvantaged Communities			
Age Range	**MHI 1**	**MHI 2**	**Total**
20-30 Years	1,130	4,452	5,582
30-40 Years	20	75	95
40-50 Years	17	14	31
50-60 Years	9	15	24
Total	1,176	4,556	**5,732**

MHI 1 = Households with an income range of: $0-$32,850

MHI 2 = Households with an income range of: $32,851 - $49,185

Table 9 lists the size and quantity of small and large meters in the system that require upgrades as part of the larger replacement project. All meters within the system will require replacement or retrofitting for AMI compatibility.

Table 9: Number of Meters within the City Limits to be Replaced for AMI Conversion

Meter Size	Number of Meters to Replace Sizes 5/8 inch to 8 inch
5/8 in.	27,519
3/4 in	6,111
1 in.	3,322
1 1/2 in.	529
2 in.	557
3 in.	53
4 in.	28
6 in.	55
8 in.	1
Total	38,175

1.3.2 Project Activities

1.3.2.1 Project Administration

The Project will be administered by the Water Department under the direction of Water Director Mike Malone. Mr. Malone has served in this capacity since April 2017. He is directly responsible for 120 staff members who operate and maintain Vallejo's multi-billion dollar drinking water treatment and water distribution system assets.

Previously, Mr. Malone has worked through the ranks as Operations Manager, Water Distribution Superintendent and Plant Services Division Manager for the City of Sacramento where he led successful efforts to implement automated meter reading technologies and sustainable water rate increases.

The other members of the Vallejo project management team for this project include:

- Beth Schoenberger - Water Operations Manager
- Mark Quady - Water Engineering Manager
- Melissa Cansdale - Associate Engineer

1.3.2.2 Design/Engineering/Environmental/Permitting

Staff has reviewed the Project and determined that it is Class 1 categorically exempt from the California Environmental Quality Act ("CEQA") pursuant to section 15301 of Title 19 of the

California Code of Regulations as it consists of the repair and maintenance of existing public or private structures.

1.3.2.3 Develop RFP

As part of the larger Meter Replacement Project the City will contract with a vendor for the purposes of writing a Request for Proposals (RFP). Contracting with this vendor will start in November and the RFP will be released in January of 2021. Grant funding will not be utilized on this task.

1.3.2.4 Construction Contracting and Implementation

Utilizing existing contracts, meters will be purchased. An RFP will be issued and a competitive bid process will be conducted to procure contract(s) for an AMI vendor(s) that will be responsible for providing a fully-automated, two-way AMI system, associated equipment, and installation services. Grant funding will go toward purchasing meters and installation services only.

1.4 Evaluation Criteria

1.4.1 Evaluation Criterion A – Quantifiable Water Savings

The water saved from the proposed Phase I Project would decrease the amount of water used by **1,184 acre-feet** annually.

The water being saved from the proposed Project would decrease the amount of water that Vallejo purchases from the Solano Project and the State Water Project. The water conserved from this project will not be diverted from Lake Berryessa (the Solano Project) or the Delta and its tributaries. The proposed Project is considered a municipal metering project according to the WaterSmart WEEG FOA and includes additional supporting water use efficiency elements. Water savings from the Project will be achieved by replacing meters at customer properties with newer meters. Project implementation will be used to be further develop and support AMI infrastructure within the City, and by replacing existing pipe with upgraded materials.

As the foundation of the larger Automated Metering Infrastructure (AMI) Project, the Project would see a percentage of the calculated volume of water from the perspective of the implementation of an AMI network. The City of Vallejo used a total of 12,372 AF of potable water in 2019 for residential, commercial and industrial uses as seen in **Table 2**. According to a 2016 paper in the *Journal of Environmental Management* by Fielding et al., which explores the impact of customer-specific water use information on consumption patterns, daily consumption data from smart water meters can reduce water consumption by an average of 9%. Additionally, a 2014 pilot study by East Bay Municipal Utility District (EBMUD) found a 5-50% in water savings due to the implementation of its customer portal in association with its AMI conversion. A report by the *Water Research Foundation* (DeOreo et al.) found that leaks account for 13% of all

residential indoor water consumption across the U.S. For the calculations below, the 13% value was utilized in the calculations as it correlates to meter testing results for the City.

*Drinking Water Consumption of **12,372 AFY x 13%** Reduction due to AMI = **1,608** AFY Reduction in Water Usage. **28,000 meters** is 74% of the system, therefore **74% x 1,608 AFY = 1,184 AFY**.*

Actual water savings will be verified by comparing historical data for water usage prior to implementation of the AMI meters system.

Energy Savings by Reducing Water System Electrical Usage
The Fleming Hill Water Treatment Plant (FHWTP) received 15,495 acre-feet for treatment in 2019. The estimated energy consumption for 2019 was 2,901,387 kWh; yielding a value of 187 kWh/AF. Water savings were calculated to be approximately 187 kWh/AF x 1,184 AF = 221,700 kWh energy savings, an estimated $68,727 in cost savings.

1.4.2 Evaluation Criterion B – Water Supply Reliability

Will the project address a specific water reliability concern? Please explain and provide detail of the specific issue(s) in the area that is impacting water reliability, such as shortages due to drought, increased demand, or reduced deliveries.

Northern California has experienced several significant droughts and water shortages since the 1970s, which has resulted in significant decreases in water usage. Severe drought conditions in California led to a State of Emergency declaration by the Governor in January 2014. In April 2015, the Governor followed up with Executive Order B-29-15 which mandated the State Water Resources Control Board (SWRCB) impose water use restrictions to achieve a state-wide 25% reduction in potable water usage through February 2016. With this mandate, every water utility in the state was ordered to reduce water usage by a percentage relative to 2013 levels.

On November 10, 2009, the state legislature passed the Water Conservation Bill of 2009 (also referred to as Senate Bill (SB) X7-7) as a water conservation component to the Sacramento-San Joaquin River Delta (Delta) legislative package. The bill seeks a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020.

Given the challenges facing water utilities in California due to the drought, state regulations around conservation, the Water Department has made conservation a priority in all its operation. This project will support water conservation efforts made by the City and ensure reliability during times of drought and help prepare for projected increases in water demands.

Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?

The City was an early adopter of conservation measures during the early stages of the drought. While this was a responsible action, which has delivered the desired results, the same level of success may be difficult to maintain moving forward. Conservation measures applied were rebates for landscaping efficiency, drought tolerant landscaping, high efficiency toilets and appliances, etc. Typically, water utilities see conservation taper off as water use reaches a level of daily necessity, and thus further reductions beyond the initial progress are difficult to achieve. Therefore, the Water Department wants to take advantage of the AMI technology for water leak detection to conserve water.

Conserved water will help supplement the City's finite surface water supplies from Lake Berryessa (Solano Project), and from the Sacramento River Delta as delivered through the North Bay Aqueduct (NBA).

Describe how the project will address the water reliability concern? In your response, please address where the conserved water will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.

The City obtains its raw water supply from Solano County Water Agency (SCWA). SCWA is the lead agency managing the watersheds serving its members. Vallejo, like other members rely on the same watersheds to supply water to their customers. Therefore, every conservation step will not only help Vallejo, but it will benefit the whole region by offsetting surface withdrawals and groundwater pumping, and it will help the state-wide initiative by lowering the import rate. Implementation of AMI allows the Water Department to detect and address water leaks in the system in an efficient and timely manner to prevent water waste. It will also help conserve water by allowing customers and the City to monitor water usage consumption and alert customers if there is excessive usage.

Provide a description of the mechanism that will be used, if necessary, to put the conserved water to the intended use.

No additional mechanisms will be necessary. The conserved water will be used to supplement the surface water supply from the Sacramento River Delta and Lake Berryessa and reduce the need to purchase imported water.

Indicate the quantity of conserved water that will be used for the intended purpose.

The Water Departments estimates with implementation of the proposed project an annual average savings of about 1,184 acre-feet per year will be achieved because of this project.

Will the project make water available to achieve multiple benefits or to benefit multiple water users? Consider the following: Will the project benefit multiple sectors and/or users (e.g., agriculture, municipal and industrial, environmental, recreation, or others)?

The proposed project will benefit all the industries with largest water meters, commercial, apartment complexes by adopting the AMI technologies. Where currently the high bill reports only flag those that have meter readings equal to two times expected usage over a billing period of 2 months. Thus only the most excessive leaks are flagged and those meters flagged have been leaking for a minimum of 60 days. When AMI is fully implemented, owners will be able to follow their water usage patterns on hourly basis, making informed decisions on usage and conservation with the incentive of having lower bills. Reduction of water waste and the energy expended for its production will result in water and energy efficiency and benefit the environment.

The decrease in withdrawals from the Delta region benefit many users beyond the City limits. The delta region is subject to salt water intrusion which when compounded with drought conditions threatens the ecosystem and all of its users including agriculture, delta smelt, migratory birds, and amphibious species.

Will the project benefit species (e.g., federally threatened, or endangered, a federally recognized candidate species, a state listed species, or a species of particular recreational, or economic importance)? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project.

While the project does not directly quantify a benefit to species, the delta is habitat for delta smelt, salmon, red-legged frog, and migratory birds, the environmental benefits gained by decreased freshwater withdrawals on the delta waterway ecosystem, energy and water conservation, reduction of greenhouse gas emissions will benefit not only the City of Vallejo but the region in general.

Will the project benefit a larger initiative to address water reliability?

As mentioned above, Vallejo was one of the first agencies to adopt the State and MWD's call for conservation and achieved impressive results. The goal for VWD is to continue to meet or exceed the statewide conservation targets and enhance the prior strategies deployed for water conservation. Implementation of AMI provides a more targeted approach to conservation program and allows an effective partnership with the customers by increasing transparency of

information for internal and external use and gain better insight into water pricing options that support conservation are desired outcomes of this effort.

Will the project benefit Indian tribes?
No. The City's service area does not include any tribal lands.

Will the project benefit rural or economically disadvantaged communities?
Yes, all meters within the service area will be updated, including all economically disadvantaged communities within the service area. This project will support reliability of water supplies, which will minimize needs to increase water rates to all customers, including economically disadvantaged communities, when water shortages occur.

Describe how the project will help to achieve these multiple benefits. In your response, please address where the conserved water will go and where it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.
This project will increase water supply reliability by allowing the City and customers within the service area to efficiently manage and monitor water usage through an interactive web portal. The AMI system will streamline water conservation management efforts to support the reliability of the City's water supply. Implementation of leak detection technologies will also help preserve the City's valuable water supply by ensuring that water leakages are identified and addressed immediately.

Does the project promote and encourage collaboration among parties in a way that helps increase the reliability of the water supply?
Yes, this project is the first step to a full conversion to AMI, which will involve implementation of an interactive web portal where customers can view their water consumption data, water conservation tips, and associated water pricing. This tool will increase customer awareness of water usage and facilitate communications between the City and its customers, thereby encouraging collaboration to increase water conservation. This collaboration will reduce dependency on expensive imported water from Lake Berryessa (Solano Project) and from the Sacramento River Delta as delivered through the North Bay Aqueduct (NBA). and, in turn, increase reliability of the City's current water supplies and provide additional water supply to other users in the Sacramento River Delta, and those who share Solano Project supplies.

Is there widespread support for the project?
Yes, AMI technologies have proven to be an effective metering system for various cities. The Water Department has utilized a strong campaign by introducing water conservation and its

various elements. Vallejo has also received multiple letters of support that are listed in **Appendix B.**

What is the significance of the collaboration/support?
This project directly affects water customers within the service area because it will allow them to view their water usage and receive alerts and notifications through an interactive web portal. In addition, the City can use this tool to help educate the public on water conservation issues.

Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?
An integral part of the City's full AMI implementation is deployment of the Meter Data Management System (MDMS). MDMS provides a deeper level of meter data analytics because it can deliver granular data at more regular intervals that the Water Department can use to act with greater intelligence and run more efficiently. Additionally, this increased efficiency will allow the Water Department to focus resources on programs that support water and energy conservation, proactive customer service, and operational strategies through data- supported analysis. Implementation of AMI allows the customers as well as the City, to monitor water usage, system leaks, and water waste. Therefore, this project will be able to streamline future water conservation measures and policies in the City, as well as improve the ability to address any leaks immediately when they are detected to prevent water waste. Water conservation efforts offset the need to purchase expensive imported water or the need to develop costly new local groundwater or recycled water supplies.

Will the project help to prevent a water-related crisis or conflict? Is there frequently tension or litigation over water in the basin?
This project is not planned to prevent any water-related crises or conflicts.

Describe the roles of any partners in the process. Please attach any relevant supporting documents.
Not Applicable

Will the project address water supply reliability in other ways not described above?
No.

1.4.3 Evaluation Criterion C – Implementing Hydropower
Not Applicable

1.4.4 Evaluation Criterion D – Complementing On-Farm Irrigation Improvements
Not Applicable

1.4.5 Evaluation Criterion E – Department of the Interior Priorities

The Vallejo Water Department although recently formed as a separate department within the City has a history of 100 years of stewardship and water policy established with water pioneers such as Anthony Chabot. This project will leverage the AMI technologies to significantly improve the measurement and management of the City's resources that will bring direct benefit and value for its customers. Implementation of advanced smart meter technologies that provide water-consumption data in real time and allows for remote meter-reading from a central location through a radio- frequency based fixed communications network. This technology can help the City streamline water conservation and water supply management measures and adapt to changes in the environment.

In January 2016, City Ordinance No. 1718 N.C. (2d) was enacted to ensure compliance with Section 2 of Article X of the California Constitution which specifies that the right to use water is limited to the amount reasonably required for the beneficial use. This ordinance promotes the planning, design, and implementation of water efficient landscaping as both standalone projects and components of larger developments. This ordinance also establishes a maximum applied water allowance to help ensure efficient and effective water use. This ordinance will help reduce water usage City-wide as new development takes place. In addition to the ordinance, Chapter 11 of the City's Municipal Code contains prohibitions on the waste of water (11.54). City Ordinance No. 1718 N.C. (2d) and the referenced section of the City's Municipal Code are included in **Appendix E**.

This project will involve significant energy savings that can help meet environment and economic needs. The energy savings will be realized in all aspects of the operation including vehicle miles traveled, reduction in processing and distribution of water and less dependence on purchased imported water supplies and its conveyance.

Restoring trust with local communities is the cornerstone of a successful AMI project. The hourly water consumption data collected from the Ami project will be a valuable asset to support transparency in how the Department operates and provide an opportunity for the education of our customers. The Department can use the data to educate the community on how water use in Vallejo compares to other areas in the region, support discussions about conservation techniques, and will who customers their investment in their infrastructure helps conserve water and timely leak identification.

The water savings from this project, and the future Automated Metering Infrastructure (AMI) Project, will alleviate the amount of water the City currently utilizes from the Solano Project and

the Delta. This will be helpful in reducing administrative and regulatory burdens on the public. Ultimately, water saved would then be available for the South of Delta diverters, namely agriculture in the Central Valley.

The Phase I project will assist the City in modernizing the existing infrastructure, as well as serve as the foundational step in the Automated Metering Infrastructure (AMI) Project. Implementation of AMI will modernize the City's aging water infrastructure by replacing antiquated manual-read meters, as well as aging meter boxes and lids. This project embraces advanced smart meter technologies and, consequently, modernizes City procedures.

This AMI project highlights construction of infrastructure by replacing aging, manual read meters with advanced smart meters. The new advanced meters will decrease cyclical maintenance requirements by automating and updating the metering system so that water leaks and system discrepancies can be identified and addressed immediately. This project will also defer annual meter replacement and meter maintenance spending for faulty meters by installing new AMI ready meters with long- term warranties.

The Project will reduce water use within the municipal boundary. This water savings will enable other water users in the region to have access to precious and valued water supplies that the City would have access to by virtue of the water rights established for the City to use State Water Project (SWP)/ Vallejo Permit Water (California (Sacramento) Bay Delta), or Solano Project Water (Lake Berryessa, U.S. Bureau of Reclamation. The Water Department works closely with the SCWA to facilitate the transfer water to other cities and agricultural districts in Solano County from the Federal Solano Project and the North Bay Aqueduct of the Water Project. Our project will enable this facilitate additional use of these water supplies that will benefit both ecological resources and our community.

The Project will result in improvement in water supply and water quality by reducing the incidence of infiltration and inflow due to leaks, and lowering the unaccounted for water loss due to metering inaccuracies. The reliance on state of the art water meters will also support the City's efforts to provide a real-time and accurate accounting of water usage which will in turn provide valuable information in preparing the Urban Water Management Plan that is required under the California Urban Water Management Planning Act.

Our project will expand capacity in the Sacramento Bay Delta by freeing up water that will not be used by the City. The City will, however, retain its water rights to access water supplies granted to it by both the US BOR and the State Water Project.

1.4.6 Evaluation Criterion F – Implementation and Results

1.4.6.1 Project Planning

Vallejo maintains numerous planning documents addressing water shortages, water management strategies, and water conservation goals, including the following:

1. 2015 Urban Water Management Plan (UWMP)
2. 2015 Water Master Plan
3. Water Meter Repair and Replacement Program
4. Section 11.54 of the City of Vallejo Municipal Code: Wasteful Water Use Prohibition Ordinance
5. Section 16.71 of the City of Vallejo Municipal Code: Water Efficient Landscape Requirements
6. Section 16.74.030 of the City of Vallejo Municipal Code: Water Conservation Guidelines

1.4.6.2 Performance Measures

VWD proposes to use the following performance measures to quantify the benefits of the AMI Installation/Pipeline replacement system upon completion of the project:

Performance Measure No. 1: Quantifiable Water Savings

The Water Department is required to conduct a water audit and produce an annual report. These reports will serve as the baseline for quantifying water savings. Detailed records of system improvements will be documented in a Project file. These records will be analyzed routinely with a summary analysis entered as a component of future water audit reports. A Final Project Implementation Report will be submitted to Reclamation to verify post- Project benefits. The post-project benefit objective for Performance Measure No. 1. is 1,184 acre-feet of potable water saved annually through implementation of the project.

Performance Measure No. 2: Improved Water Management

The Final Project Implementation Report will contain a section entitled Improved Water Management. A portion of the project journal will be dedicated to documenting general management improvements. This information will similarly be included in the annual audit report.

Performance Measure No. 3: Implementing Energy Efficiency in Water Management

The Final Project Implementation Report will contain a section entitled Increased Energy Efficiency in Water Management. This will be achieved by comparison of billing from pre-project installation for water production and distribution cost due to reduction in demand. Other energy savings such as those in cost of vehicle usage and fuel costs will also be calculated.

1.4.6.3 Readiness to Proceed

The Project is ready for implementation. Contracts are in place for the supply of meters totaling $1,700,000 (**Appendix C**) for the supply of meters to the City. The City has funding available and encumbered for this purpose. The Water Department has engaged in starting the project prior to grant award, however external labor contracts are required to start. As described above, the Water Department will engage a consultant to write the RFP to contract with the most qualified vendor to provide all the required equipment. The Water Department will also hire Consultant Project Manager that will be overseeing the implementation of the replacement project and is ready to start on installation of the proposed meters.

All preliminary and assessment work for this project has been completed. The Water Department will retain a known consultant to prepare the RFP and strategic roadmap for the larger AMI implementation. The City has also identified the AMI system and the required equipment and will be publishing the RFP in January of 2021.

Vallejo City Council members are fully supportive of this project and there are no administrative actions or new policies required.

CEQA process for this project will be completed upon the publication of the RFP in January of 2021. The Draft Notice of Exemption is included in **Appendix D**.

Table 10 below shows the anticipated Project Schedule:

Table 10: Project Schedule

Contract with RFP Vendor	October -November 2020
Write RFP	November - December 2020
Release RFP for Construction Contract	January - February 2021
Construction Contract Approval	March - May 2021
Construction Implementation	May 2021 - June 2025
Phase I – Meter Replacement	***May 2021 – Dec 2023***
Phase II AMI - AMI Conversion	*Dec 2023 - June 2025*

1.4.6.3.1 Project Activities

Project Administration

Project administration for the grant includes all activities required to oversee, manage and report on the Project.

Design/Engineering/Environmental/Permitting

Staff has reviewed the Project and determined that it is Class 1 categorically exempt from the California Environmental Quality Act ("CEQA") pursuant to section 15301 of Title 19 of the California Code of Regulations as it consists of the repair and maintenance of existing public or private structures.

Develop RFP

As part of the larger Meter Replacement Project the City will contract with a vendor for the purposes of writing a Request for Proposals (RFP). Contracting with this vendor will start in November and the RFP will be released in January of 2021.

Construction Contracting

An RFP will be issued and a competitive bid process will be conducted to procure contract(s) for an AMI vendor(s) that will be responsible for providing a fully-automated, two-way AMI system, associated equipment, and installation services.

Construction Implementation

Implementation of installation of meters will begin as soon as contracting and purchase order requisitions are complete. Contracting is estimated to occur before April of 2021.

1.4.7 Evaluation Criterion G – Nexus to Reclamation Projects

Is the proposed project connected to Reclamation project activities? If so, how? Please consider the following: Does the applicant receive Reclamation project water?

One of the City's primary water sources is the Solano Project (Lake Berryessa). Any water savings exhibited by this project will directly affect the amount of water diverted from the Solano Project for the City's use. The City participates in regional-wide planning efforts through SCWA, is an active member of the California water community, and continually coordinates with neighboring communities and water agencies regarding water-planning activities.

Reclamation's WaterSMART Program focuses in part on the uses of technology to balance future water supply and demand needs throughout California and the western United States. The proposed Project demonstrates the opportunities for water and energy conservation through remote sensing, state-of-the-art software, and systems integration.

Is the project on Reclamation project lands or involving Reclamation facilities?

The Project focuses on municipal water delivery and distribution and does not directly involve Reclamation project lands or facilities.

Is the project in the same basin as a Reclamation project or activity?

The Project is not located in the same basin, however the City receives water from Reclamation's Solano Project (Lake Berryessa) and distributes Solano Project water within the Project area.

Will the proposed work contribute water to a basin where a Reclamation project is located?

Yes, the project will contribute a calculated water savings of 2,310 acre-feet per year to the Solano Project.

Will the project benefit any tribe(s)?

The City is uncertain of any tribal relationships that Reclamation has with Solano County at this time. The Project may help Reclamation meet trust responsibilities to Tribes by demonstrating improvements in stewardship of water supplies through water savings.

1.4.8 Evaluation Criterion H – Additional Non-Federal Funding

The City of Vallejo will provide 64% of the project budget, as enumerated in **Table 11.**

Table 11: Breakdown of Funding Source

Funding Source	Percent of Project	Funding Amount
Non Federal Entities		
City of Vallejo*	64%	$3,494,558
Other Federal Entities		
N/A	0.0%	
Requested Reclamation Funding	36%	$2,000,000
Total Project Funding	**100.0%**	**$5,494,558**

**Council Approved Cost-Match*

2 Project Budget

2.1 Funding Plan & Letters of Commitment

The City of Vallejo will provide the non-Reclamation share of project costs utilizing funding already approved and in place. Phase I of the Automated Metering Infrastructure (AMI) Phase I Meter Replacement Project has been previously referenced in the City's 5-Year Capital Improvement Program as simply the Meter Replacement Project – WT7098. The project has evolved based on the vision of the Water Department and the title of this phase has been changed to more accurately reflect the true intentions of the project as the first step to a full system-wide conversion to AMI.

As part of the Budgeting Process in the City, the City Council must review and approve the Capital Improvement Program (CIP) as well as the proposed budgets for each project in the program. Part of approval is confirming the funding is in place for the proposed project. The Meter Replacement Project has been included as Project No. WT7098. As can be seen in the excerpts from the City's CIP Book that are included in **Appendix C**, funding for the project through Fiscal Year 20-21 has been confirmed and approved. The 5-Year CIP for the Water Department was approved. The total amount of approved funding through FY 24-25 is listed in **Table 12**, although FY24-25 would not apply to this project as it is outside the project timeframe, it would still assist in funding the overall Automated Metering Infrastructure (AMI) Project.

Table 12: Approved Funding for Meter Replacement Implementation

Fiscal Year	Status	Approved Funding
FY 19-20	Remaining Balance from Prior Years - Available	$954,080
FY 20-21	Approved – Available	$600,000
FY 21-22	Approved – Available	$600,000
FY 22-23	Projected	$600,000
FY 23-24	Projected	$600,000
FY 24-25	Projected	$600,000
Total Project Cost Projected to 2025		**$3,954,080**

The Water Department has recently raised rates and is pursuing obtaining through the sale of bonds to begin implementation of the planned conversion to AMI city-wide, as well as fund other improvement projects. City Council approved the resolution (attached in **Appendix A)** for $3,500,000.

The City of Vallejo will provide the non-reclamation share of the Project costs. The cost breakdown is shown in **Table 13**. The anticipated cost for the Project exceeds the approved budget and the projections in place. The Water Department is currently seeking Bond Funding to help fund the city-wide Automated Metering Infrastructure (AMI) Project as well as several other large and expensive capital improvement projects for the City. The Bond Funding is not guaranteed, therefore the cost-match for Phase I provided below is for funds the City has in-hand, approved and encumbered.

2.2 Budget Proposal

The proposed budget breakdown by funding source for the Project is provided in **Table 11**. The proposed budget for the Project is provided in **Table 13**. Support documentation for the meter pricing and installation pricing is available in **Appendix C**.

Table 13: Budget Proposal for Phase I

Budget Item Description	Computation $/Unit	Quantity	Quantity Type	Total Cost
Salaries and Wage				
N/A	0	0		$0
Fringe Benefits				
N/A	0	0		$0
Travel				
N/A	0	0		$0
Equipment				
N/A	0	0		$0
Supplies and Materials				
5/8"-3/4" iPerl Sensus Meter	$91	28,000	EA	$2,548,000
Contractual/Construction				
Installation Services, Project Management (Bid)	$2,946,558	1	LS	$2,946,558
Third Party Contributions				
N/A	$0	0		$0
Environmental and Regulatory Costs				
N/A	$0	0		$0
Other				
N/A	$0	0		$0
Total Direct Costs				**$5,494,558**
Indirect Cost				
N/A	$0	$0		$0
TOTAL ESTIMATED PROJECT COSTS				**$5,494,558**

The following table (**Table 14**) breaks down the proposed meter installation project by the proposal that was received. The initial bid was for the replacement of 27,000 meters over a 23-month time-frame. This project is for 28,000 meters, thus the slight increase from the proposal that was received (**Attachment C**).

Table 14: Meter Installation Cost Breakdown

Resource Based Budgetary Pricing Option: METERS < 2-IN ONLY

Field Services	Term	Quantity	Unit Price*	Extended Price (2021)
Pre-Deployment Services				
Planning, Mobilization, WOMS Setup, CIS Integration		1	69,610.49	69,610.49
Deployment Services				
Field Operations Manager Fee (Monthly)	23	1	19,078.69	438,809.87
Project Delivery Manager Fee (Monthly)	23	1	2,678.00	61,594.00
Field Supervisor Fee (Monthly)	23	1	18,481.29	425,069.67
Data & Dispatch Manager Fee (Monthly)	23	0.25	4,686.50	26,947.38
Call Center Services Fee (Monthly)	23	1	1,545.00	35,535.00
Inventory Manager Fee - Local (Monthly)	23	1	10,462.74	240,643.02
Residential Installation Technician Fee - Local (Monthly)	23	4	11,658.57	1,072,588.44
Residential Installation Technician Fee - Traveler (Monthly)	23	1	15,774.45	362,812.35
Warehouse Fee (Monthly)	25	1	4,796.71	119,917.75
Print & Mail Introductory Postcard or Letter, 1 per Account		28,000	1.22	34,031.20
Print & Deliver Door Hanger for Completed and Uncompleted Visits		28,000	0.27	7,498.40
Break Budget (Cost + %)		1	51,500.00	51,500.00
Estimated Project Total				2,946,557.57

*3% Applied at the Unit Price to accommodate statement in bid. Beginning 1/1/21, and each subsequent year, pricing is subject to an annual 3% increase in all unit and T&M rates.

2.3 Budget Narrative

Salaries and Wages
The Project is not requesting funds for salaries and wages.

Fringe Benefits
The Project is not requesting funds for fringe benefits.

Travel
The Project is not requesting funds for travel.

Equipment
The Project requesting funding for the purchase of the meters. The contract for meters has been approved and signed (Attached in **Appendix C**). This contract only covers a portion of the meter funding. This contract only covers a portion of the meter funding. Budget estimates for this item included in this proposal are from independent pricing inputs and based on the contract that has been signed.

Supplies and Materials
The Project is not requesting funds for supplies and materials.

Contractual/Construction
The vast majority of the requested budget is contractual and construction costs for the Project. The contract for meters has been approved and signed (Attached in **Appendix C**). The City is currently contracting with a consultant to develop the RFP for the implementation of the larger AMI project. The RFP will seek an entire turnkey system, inclusive of all necessary materials and systems needed for implementation of the AMI system. Budget estimates for this item included in this proposal are from independent pricing inputs provided by the receipt of a proposal for the installation of meters.

Third Party Contributions
The Project is not requesting third party in-kind contributions.

Environmental and Regulatory Compliance Costs
The Project is not requesting funds for environmental and regulatory compliance costs.

Other Expenses
The Project is not requesting funds for other expenses.

Indirect Costs
The Project is not requesting funds for indirect costs.

Total Costs
The total cost of the proposed project is $5,493,074. Proposed funding sources for the Project include the City and Reclamation. The City is requesting $2,000,000 from Reclamation to fund the project. This request represents 34% of the total project cost. No other federal funding has been requested or received for the project.

3 Environmental & Cultural Resources Compliance

The Project has been evaluated for both CEQA and NEPA compliance and it has been determined that Phase I of the project only requires a Notice of Exemption for CEQA. A Notice of Exemption, the draft is attached as **Appendix D**, will be filed for this project as it falls under the categorical exemptions identified by the State Resources Agency as defined in the CEQA Guidelines (14 CCR Section 15300-15331).

Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

The project will consist of replacing existing water service meters in residential areas. It is not expected to involve earth-disturbing work or otherwise affect the surrounding environment as there will not be any excavation, only replacement of existing meters and meter vault covers.

Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area?

There are no known species listed as a Federal threatened or endangered species in the project area.

Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have.

No. This project only involves meter and water pipeline replacement and will not have any impacts on wetlands or surface water bodies. In fact, this project will allow the City to detect

system leaks and monitor water consumption data, which can then be used to support water quality efforts.

When was the water delivery system constructed?

The City of Vallejo relied on a combination of groundwater and imported surface water until the late 1860s when, in 1868, the Vallejo City Water Company began to build a water system that served as the foundation for today's infrastructure. The Water Department has been diligently upgrading potable water infrastructure to provide safe and reliable potable water to the City's customers.

Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

The proposed project will not result in any modification of individual features of an irrigation system such as headgates, canals, or flumes. Only residential customer water meters fall within the service area.

Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

There are no buildings, structures, or features in the proposed project area that are listed or eligible for listing on the National Register of Historic Places within this project area.

Are there any known archeological sites in the proposed project area?

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

Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

No. In fact, the proposed project will have a highly positive effect on all residents of the City of Vallejo and its surrounding areas including low income, disadvantaged and minority populations. The project will aid in water conservation measures and thereby decrease dependence on water

imported from the State Water Project (SWP). This strategy can help limit water rate increases during shortages.

Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

No, the project will not have any impacts on sacred sites or tribal lands as there are not sacred sites or tribal lands within the City of Vallejo.

Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

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

4 Required Permits or Approvals

No permits or approvals are required to implement the project.

5 Letters of Project Support

Letters of Support are located in **Appendix B**

6 Official Resolution

City Council approved resolution No. 20-107 N.C. on August 25, 2020. It is attached in **Appendix A.**

7 Automated System for Payment (ASAP) Registration

The City of Vallejo has an active account in the ASAP registration system with current information. The City will maintain an active ASAP account during the period of any federal assistance agreement.

8 System for Award Management (SAM) Registration

The City of Vallejo is registered in the SAM and will maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal awarding agency. The City's DUNS is 076561000.

9 Disclosure of Lobbying Activities

The City has completed and executed Standard Form LLL (SF-LLL) the "Disclosure of Lobbying Activities" form, online during the submittal of this application.

10 References

Berger, M.A., Hans, L., Picsopo, K. and Sohn, S.D. "Exploring the Energy Benefit of Advance Water Metering" Ernest Orlando Lawrence Berkeley National Laboratory. August 2016.

City of Vallejo, 2016. 2015 Urban Water Management Plan.

City of Vallejo, 2016. Water Master Plan Update.

DeOreo, W.B., P. Mayer, B. Dziegielewski, J. Kiefer. "Residential End Uses of Water, Version 2: Executive Report." Water Research Foundation. April 2016.

East Bay Municipal Utility District, 2013. Evaluation of East Bay Municipal Utility District's Pilot of WaterSmart Home Water Reports.

East Bay Municipal Utility District. "Advanced Metering Infrastructure (AMI) Pilot Studies Update." November 25, 2014

Fielding, K.S., A. Spinks, S. Russell, R. McCrea, R. Stewart, J. Gardner. "An experimental test of voluntary strategies to promote urban water demand management." Journal of Environmental Management, Vol. 114, pp. 343–351. January 2013.

Godwin, A. 2011. Advanced Metering Infrastructure: Drivers and Benefits in the Water Industry. *Water World.* Volume. 10, Issue 8. August 1, 2011.

Ritchie, E. "AMI Success Stories: Leveraging technology for savings and efficiency." Water Efficiency, Vol. 10, No. 4, pp. 13-21. June 2015.

Appendices

Appendix A – Official Resolution
Appendix B – Letters of Support
Appendix C – Budget Support Documents
Appendix D – Draft Notice of Exemption
Appendix E – Municipal Code Excerpts
Appendix F – Completed SF Forms

Appendix A – Official Resolution

RESOLUTION NO. 20-107 N.C.

AUTHORIZING THE CITY MANAGER TO ENTER INTO A GRANT AGREEMENT WITH THE US BUREAU OF RECLAMATION FOR FUNDING OPPORTUNITY BOR-DO-21-F001

WHEREAS, the City of Vallejo (the "City") desires to finance a portion of the costs of implementing the City of Vallejo Water Main and Small Meter Replacement Program (the "Project"), to improve water conservation and meter reading efficiency and

WHEREAS, the City intends to finance the cost of the Project or portions of the Project with monies provided by the US BOR WaterSMART Water and Energy Efficiency Grant, administered by the Bureau of Reclamation (BOR), and

WHEREAS, as part of the US BOR WaterSMART Water and Energy Efficiency Grant, the City's Water Enterprise Fund will be required to provide a minimum match of 50% of the total project cost, and

WHEREAS, the City intends to provide a greater than 50% match ($3.5M) for increasing the City's chances of receiving $2M of grant funds, for a total project cost of $5.5M.

NOW, THEREFORE, BE IT RESOLVED that the City Manager is hereby authorized and directed to sign and file, for and on behalf of the City, the US BOR WaterSMART Water and Energy Efficiency Funding Opportunity BOR-DO-21-F001 for funding $2M toward a $5.5M project cost.

BE IT FURTHER RESOLVED that the City Manager, is authorized to certify that the City has and will comply with the financial requirement that the City provide matching funding for the Project and will comply with the legal obligations associated with the receipt of WaterSMART grant financial assistance.

BE IT FURTHER RESOLVED that the Water Director has reviewed and supports the application to be submitted.

BE IT FURTHER RESOLVED that the City's Water Enterprise Fund has the capability to provide the matching funds and/or in-kind contributions specified in the grant.

BE IT FURTHER RESOLVED that the City will work with BOR to meet established deadlines for entering into a grant or cooperative agreement.

BE IT FURTHER RESOLVED that this Resolution shall be effective upon its adoption.

Adopted by the City Council of the City of Vallejo at a regular meeting held on August 25, 2020 with the following vote:

AYES:	Mayor Sampayan, Vice Mayor Sunga, Councilmembers Brown, Dew, McConnell, Miessner, and Verder-Aliga
NOES:	None
ABSENT:	None
ABSTAIN:	None

DocuSigned by:
Mayor Bob Sampayan
0710C603418DF454...
BOB SAMPAYAN, MAYOR

ATTEST:

DocuSigned by:
Dawn G. Abrahamson
1499DDA6605D425...
DAWN G. ABRAHAMSON, CITY CLERK

Appendix B – Letters of Support

STATE CAPITOL, ROOM 4032
SACRAMENTO, CA 95814
TEL (916) 651-4003
FAX (916) 651-4903

California State Senate

BILL DODD

SENATOR, THIRD DISTRICT

CHAIR: SENATE GOVERNMENTAL ORGANIZATION COMMITTEE

COMMITTEES
BUSINESS, PROFESSIONS & ECONOMIC DEVELOPMENT
ENERGY, UTILITIES & COMMUNICATION
INSURANCE
TRANSPORTATION
JOINT COMMITTEE
EMERGENCY MANAGEMENT
SELECT COMMITTEE
CALIFORNIA'S WINE INDUSTRY
CO-CHAIR

The Honorable Brenda Burman
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

September 15, 2020

Subject: Vallejo, California Grant application for the U.S. Department of the Interior (DOI) for *WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2021* (Funding Opportunity Announcement [FOA] BOR-DO21-F001)

Dear Commissioner Burman:

As the Legislators representing the City of Vallejo, California, we are writing to express our support for Vallejo's application to the U.S. Department of the Interior (DOI) for *WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2021* (Funding Opportunity Announcement [FOA] BOR-DO21-F001). This project allows the City of Vallejo to better manage precious water and fiscal resources efficiently, improve accountability and transparency in governance, and provides an important contribution to the region's climate adaptation and mitigation efforts.

The City's project, outlined in its application, consists of replacing water meters with remote reading capabilities and ultimately combining these real-time reads with a customer portal, capable of notifying customers of water use anomalies, high usage and suspected leaks. In addition, the remote reading capabilities negate the need to physically send staff to take a meter reading, reducing Greenhouse Gas Emissions, and allowing staff to be re-deployed to focus on customer-service and data tracking improvements instead. This will save the City time and money, as well as contribute to water efficiency and data-driven customer accountability. We recognize the valuable role this project can play in using water wisely and reducing the City's carbon footprint.

As you are well aware, California faces many water supply challenges and climate change impacts due to drought, population growth, legal and environmental constraints. For this reason, it is imperative that agencies such as the City of Vallejo implement programs that ensure water supplies are utilized efficiently, judiciously and with the most current technology available.

We ask that you please give this grant application your full and fair consideration. Should you have any questions, please contact our district offices.

Sincerely,

Bill Dodd
Senator, District 3

Timothy S. Grayson
Assemblymember, District 14

VACAVILLE OFFICE: 555 MASON STREET, SUITE 275, VACAVILLE, CA 95688 • TEL (707) 454-3808 FAX (707) 454-3811
NAPA OFFICE: 2721 NAPA VALLEY CORPORATE DRIVE, NAPA, CA 94558 • TEL (707) 224-1990 FAX (707) 224-1992
VALLEJO OFFICE: 420 VIRGINIA STREET, SUITE 1-C, VALLEJO, CA 94590 • TEL (707) 551-2389 FAX (707) 551-2390
SONOMA COUNTY OFFICE: 50 D STREET, SUITE 300, SANTA ROSA, CA 95404 • TEL (707) 576-2093 FAX (707) 576-2095

SOLANO COUNTY WATER AGENCY

September 14, 2020

The Honorable Brenda Burman
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

Dear Commissioner Burman:

I am writing to express support for the City of Vallejo's application for WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2021 from the U.S. Department of the Interior. As the wholesale water supplier for Solano County, California, the Agency strongly endorses Vallejo's proposed Advanced Metering Infrastructure (AMI) proposal that would allow the City to better manage precious water and financial resources, improve accountability and transparency in governance, and contribute to the region's climate adaptation and mitigation efforts.

As you are well aware, California faces many water supply challenges due to environmental impacts such as drought and climate change, population growth, as well as legal constraints. For this reason, it is vital for water agencies such as the City of Vallejo to implement programs that ensure water supplies are managed efficiently and judiciously, and to engage the public in conservation through available technological options. The City's project, outlined in its application, consists of replacing water meters with remote-reading meters that allow analysis and posting of real-time meter reads to a new customer portal. Through the portal, customers monitor their usage in real-time, receive updates on water use anomalies, high usage, and suspected leaks, and become actively engaged in conservation.

In addition to providing customers timely read data through online access, the capability to remotely read meters means that City staff no longer need to physically travel throughout the system to read meters. Remote meter reading reduces Greenhouse Gas Emissions, and allows staff to be re-deployed to focus on customer-service and data-tracking instead. This will save the City time and money, as well as contribute to water efficiency and data-driven customer accountability for conservation. The Solano County Water Agency recognizes the valuable role this project plays in applying technology and community engagement, to support wise stewardship of our precious water resources as well as to reduce the City's carbon footprint. I strongly support the City of Vallejo's proposed AMI project.

810 Vaca Valley Parkway, Suite 203
Vacaville, CA 95688
(707) 451-6090
Fax (707) 451-6099
Scwa2.com

SOLANO WATER
BE GREEN, SAVE BLUE

Please accept my recommendation for full and fair consideration, as permitted under law, of the City of Vallejo's application for DOI WaterSMART Water and Energy Efficiency funding ([FOA] BOR-DO21-F001). If you have any questions, please contact me at rsanford@scwa2.com or (707) 455-1100.

Sincerely,

Roland Sanford
General Manager

September 15, 2020

The Honorable Brenda Burman
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

Dear Commissioner Burman:

The Vallejo Chamber of Commerce is writing to express our support for the City of Vallejo's California's application to the U.S. Department of the Interior for the WaterSMART Water and Energy Efficiency Grant. This project will help the City of Vallejo manage our precious water and fiscal resources more efficiently, improve accountability and transparency in governance, and provide an important contribution to the region's climate adaptation and mitigation efforts.

The City's project outlined in its application consists of replacing water meters with remote reading capabilities and ultimately combining these real-time reads with a customer portal, capable of notifying customers of water use anomalies, high usage and suspected leaks. In addition, the remote reading capabilities negate the need to physically send staff to take a meter reading, reducing Greenhouse Gas Emissions, and allowing staff to be re-deployed to focus on customer-service and data tracking improvements instead. This will save Vallejo time and money, as well as contribute to water efficiency and data-driven customer accountability.

Vallejo businesses will benefit from this project as well as water usage and demand periods will be more efficiently tracked, which allows us to better manage our use of this precious resource. The Vallejo Chamber of Commerce recognizes the valuable role this project plays in using water wisely and reducing Vallejo's carbon footprint, and strongly supports this approach.

Please accept our recommendation for full and fair consideration, as permitted under law, of the City of Vallejo's application for DOI WaterSMART Water and Energy Efficiency funding. If you have any questions, please contact me at: James@VallejoChamber.com.

Sincerely,

James Cooper
President/CEO

Appendix C – Budget Support Documents

SUPPLIES AND EQUIPMENT PURCHASE AGREEMENT

This Supplies and Equipment Purchase Agreement ("Agreement") is made at Vallejo, California, dated for reference this 9th day of April, 2020, by and between the City of Vallejo, a municipal corporation ("City"), and Sensus USA dba Sensus Metering Systems, Inc., a Delaware corporation, hereinafter referred to as "Vendor," who agree as follows:

1. **Products.** Subject to the terms and conditions set forth in this Agreement, Vendor shall provide the City products as specified (but not limited to) in Exhibit A, entitled "Supplies and Equipment."

2. **Payment.** City shall pay Vendor for materials rendered pursuant to this Agreement at the times and in the manner set forth in Exhibit B, entitled "Price." The payments specified in Exhibit B shall be the only payments to be made to Vendor for materials rendered pursuant to this Agreement.

3. **Facilities and Equipment.** Vendor shall, at its sole cost and expense, furnish all facilities and equipment which may be required for furnishing products pursuant to this Agreement.

4. **Indemnification.** Vendor shall indemnify, hold harmless, and defend City, its officers, officials, directors, employees, agents, volunteers and affiliates and each of them from any and all claims, demands, causes of action, damages, costs, expenses, actual attorney's fees, Vendor's fees, expert fees, losses or liability, in law or in equity, of every kind and nature whatsoever arising out of or in connection with Vendor's operations, or any subcontractor's operations, to be performed under this agreement for Vendor's tort negligence including active or passive, or strict negligence, including but not limited to personal injury including, but not limited to bodily injury, emotional injury, sickness or disease, or death to persons and/or damage to property of anyone, including loss of use thereof, caused or alleged to be caused by any act or omission of Vendor, or any subcontractor, or anyone directly or indirectly employed by any of them or anyone for the full period of time allowed by the law, regardless to any limitation by insurance, with the exception of the sole negligence or willful misconduct of the City.

The provisions of this section shall survive the expiration or termination of this Agreement.

5. **Insurance Requirements.** Vendor agrees to comply with all of the Insurance Requirements set forth in Exhibit C, entitled "Insurance Requirements." Failure to maintain required insurance at all times shall constitute a default and material breach.

I:\Water Plant\Meters_Purchase Agreement Sensus.docx

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year shown below the name of each of the parties.

SENSUS USA dba SENSUS METERING SYSTEMS
a Delaware Corporation

By: Tim Harriger
Tim Harriger
Vice President Sales - NA Water

DATE: Apr 9, 2020

Vallejo Business License No.

(City Seal)

CITY OF VALLEJO,
a municipal corporation

DocuSigned by:
By: Greg Nyhoff
C45D8DE223824B1...
Greg Nyhoff
City Manager

DATE: 5/14/2020

ATTEST:

DocuSigned by:
By: Dawn G. Abrahamson
1289DDA6695D425...
Dawn Abrahamson
City Clerk

APPROVED AS TO CONTENT:

DocuSigned by:
Mike Malone
17F458EA3344440...
Mike Malone
Water Director

APPROVED AS TO FORM:

DocuSigned by:
Randy Risner
5852E87D44224CC...
Claudia Quintana
City Attorney

APPROVED AS TO INSURANCE:

DocuSigned by:
Erika Leahy
B8C81B520998400...
Erika Leahy
Risk Manager

I:\Water Plant\Meters_Purchase Agreement Sensus.docx

ATTACHMENT 1 TO EXHIBIT A

CITY OF VALLEJO
WATER DEPARTMENT

BID WORKSHEET (CONT)
METERS & SUPPLIES

Approximate meter quantities*:

Water Meters 3/4"short to 2 " PD	
Size	*Number of meters*
3/4" short	33,630
1"	3,330
1.5"	530
2"	558

ITEM 1 of Technical Specifications: REGISTERS

No.:	Quantity	Description	Unit Price	Extension
1.	1	Registers	$47.55	$47.55
		TOTAL		$ 47.55

ITEM 2 of Technical Specifications: METERS (Positive Displacement)

No.:	Quantity	Description	Unit Price	Extension
1.	27000	5/8" / 3/4" (SRII) 2/48 7.5LL	$91.00	$2,457,000.00
2.	6000	3/4" (SRII) 9"LL	$91.00	$546,000.00
3.	3330	1" (SRII)	$132.00	$439,560.00
4.	530	1 1/2" (OMNI R2)	$308.00	$163,240.00
5.	558	2" (OMNI R2)	$408.00	$227,664.00
		TOTAL		$ 3,833,464.00

ITEM 3 of Technical Specifications: METERS (Turbine Meters)

No.:	Quantity	Description	Unit Price	Extension
1.	20	1 1/2" (OMNI T2)	$341.00	$6,820.00
2.	20	2" (OMNI T2)	$378.00	$7,560.00
		TOTAL		$ 14,380.00

ITEM 4 of Technical Specifications: METERS (Solid State)

No.:	Quantity	Description	Unit Price	Extension
1.	1	3/4" (Short) (IPERL)	$91.00	$91.00
2.	1	1" (IPERL)	$127.00	$127.00
3.	1	1 1/2" (Hydroverse)	$3,588.00	$3,588.00
4.	1	2" (Hydroverse)	$3,726.00	$3,726.00
		TOTAL		$ $7,532.00

*We will consider replacing 10% of total meters with solid state meters.

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CITY OF VALLEJO
WATER DEPARTMENT

BID WORKSHEET SIGNATURE PAGE

Total bid amount per Bid Worksheet (all Groups) is $ 3,855,423.55 .

Pricing shall remain constant until June 30th of the fiscal year 2021.

A percentage price increase shall be allowed for subsequent fiscal years for the Agreement duration, *if necessary*. Notwithstanding the anticipated price increases provided, in the event of a price decline, the benefit of such lower prices shall be immediately extended to the City of Vallejo.

Provide anticipated percentage price increase* for future fiscal years of this potential three and one-half (3 ½) year Agreement.

FY 2019-20: __0%__ (1/2 year) **FY 2020-21: __0%__**

FY 2021-22: 2% **FY 2022-23: 2%**

***Bidders must provide anticipated percentage increase in order to accurately assess total bid amount / Agreement evaluation. Bidders not providing this detail will be considered non-responsive and will not be considered for award.**

COMPANY NAME	Sensus USA, Inc.
ADDRESS	450 N Gallatin Ave
CITY, STATE, ZIP CODE	Uniontown, PA 15401
TELEPHONE NUMBER	(800) 638-3748
FAX NUMBER	(800) 888-2403
EMAIL ADDRESS	h2oquote@xyleminc.com
NAME & TITLE OF BIDDER	Tim Harriger - VP of Sales - North America
SIGNATURE	Tim Harriger
DATE	10/15/19

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EXHIBIT B

Compensation

1. **Vendor's Compensation.** City agrees to pay Vendor, at the price(s) specified in Attachment 1 to Exhibit A, as follows:

a) March 1, 2020 through June 30, 2021: a total amount not to exceed One Million Forty-Five Thousand Dollars and 00/100 ($1,045,000);
b) July 1, 2021 through June 30, 2022 (if extension exercised): a total amount not to exceed Two Hundred Eighty-Five Thousand Dollars and 00/100 ($285,000); and
c) July 1, 2022 through June 30, 2023 (if extension exercised): a total amount not to exceed Two Hundred Eighty-Five Thousand Dollars and 00/100 ($285,000).

Total not-to-exceed contract amount (with extensions) is One Million Six Hundred Fifteen Thousand Dollars and 00/100 ($1,615,000).

2. **Invoicing**. Invoices must be submitted in triplicate, itemized as to quantity, part number, and description. In addition, invoices must show the name of the department, division, or section to which the material was delivered, and the City of Vallejo Purchase Order Number.

All delivery tickets must have a description of the commodity delivered. Mail invoices to the accounts payable section of the department and to the address, as noted on individual purchase orders. Delivery tickets and packing slips will contain the same information as the invoice. All pack slips and delivery tickets must include the receiving employee signature and printed name.

All prices shall be F.O.B. destination, address 111 Amador Street, City of Vallejo.

3. **Payment.** Payment is due thirty (30) days after the City has approved the invoice or after the City has accepted the goods, whichever occurs later.

Request for payment shall be sent to:

Oscar Alcantar, Distribution Superintendent
Water Department, City of Vallejo
111 Amador Street
Vallejo, CA 94590

SUPPLIES AND EQUIPMENT PURCHASE AGREEMENT

This Supplies and Equipment Purchase Agreement ("Agreement") is made at Vallejo, California, dated for reference this 10th day of March, 2020, by and between the City of Vallejo, a municipal corporation ("City"), and Kamstrup Water Metering, LLC, a Georgia limited liability company, hereinafter referred to as "Vendor," who agree as follows:

1. **Products.** Subject to the terms and conditions set forth in this Agreement, Vendor shall provide the City products as specified (but not limited to) in Exhibit A, entitled "Supplies and Equipment."

2. **Payment.** City shall pay Vendor for materials rendered pursuant to this Agreement at the times and in the manner set forth in Exhibit B, entitled "Price." The payments specified in Exhibit B shall be the only payments to be made to Vendor for materials rendered pursuant to this Agreement.

3. **Facilities and Equipment.** Vendor shall, at its sole cost and expense, furnish all facilities and equipment which may be required for furnishing products pursuant to this Agreement.

4. **Indemnification.** Vendor shall indemnify, hold harmless, and defend City, its officers, officials, directors, employees, agents, volunteers and affiliates and each of them from any and all claims, demands, causes of action, damages, costs, expenses, actual attorney's fees, Vendor's fees, expert fees, losses or liability, in law or in equity, of every kind and nature whatsoever arising out of or in connection with Vendor's operations, or any subcontractor's operations, to be performed under this agreement for Vendor's tort negligence including active or passive, or strict negligence, including but not limited to personal injury including, but not limited to bodily injury, emotional injury, sickness or disease, or death to persons and/or damage to property of anyone, including loss of use thereof, caused or alleged to be caused by any act or omission of Vendor, or any subcontractor, or anyone directly or indirectly employed by any of them or anyone for the full period of time allowed by the law, regardless to any limitation by insurance, with the exception of the sole negligence or willful misconduct of the City.

The provisions of this section shall survive the expiration or termination of this Agreement.

5. **Insurance Requirements.** Vendor agrees to comply with all of the Insurance Requirements set forth in Exhibit C, entitled "Insurance Requirements." Failure to maintain required insurance at all times shall constitute a default and material breach.

6. **Accident Reports.** Vendor shall immediately report (as soon as feasible, but not more than 24 hours) to the City Risk Manager any accident or other occurrence causing injury to persons or property during the performance of this Agreement. The report shall be made in writing and shall include, at a minimum: (a) the names, addresses, and

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year shown below the name of each of the parties.

KAMSTRUP WATER METERING, LLC
a limited liability company

By: _____
Tommy Braxton
VP Sales, US

DATE: 3/10/20

_____
Vallejo Business License No.

CITY OF VALLEJO,
a municipal corporation

By: _____
Greg Nyhoff
City Manager

DATE: 3-18-2020

ATTEST:

By: _____
Dawn Abrahamson
City Clerk

(City Seal)

APPROVED AS TO CONTENT:

_____
Mike Malone
Water Director

APPROVED AS TO FORM:

_____
Claudia Quintana
City Attorney

APPROVED AS TO INSURANCE:

_____
Erika Leahy
Risk Manager

ATTACHMENT 1 TO EXHIBIT A

CITY OF VALLEJO
WATER DEPARTMENT

BID WORKSHEET (CONT)
METERS & SUPPLIES

Approximate meter quantities*:

3/4" short	33,630
1"	3,330
1.5"	530
2"	558

ITEM 1 of Technical Specifications: REGISTERS

No.:	Quantity	Description	Unit Price	Extension
1.		Registers	No bid	
		TOTAL		$ No bid

ITEM 2 of Technical Specifications: METERS (Positive Displacement)

No.:	Quantity	Description	Unit Price	Extension
1.		5/8" / 3/4"	No bid	
2.		3/4"	No bid	
3.		1"	No bid	
4.		1 1/2"	No bid	
5.		2"	No bid	
		TOTAL		$ No bid

ITEM 3 of Technical Specifications: METERS (Turbine Meters)

No.:	Quantity	Description	Unit Price	Extension
1.		1 1/2"	No bid	
2.		2"		
		TOTAL		$ No bid

ITEM 4 of Technical Specifications: METERS (Solid State)

No.:	Quantity	Description	Unit Price	Extension
1.	33,630	3/4" (Short)	$135.00	$4,540,050.00
2.	3,330	1"	$218.42	$727,338.60
3.	530	1 1/2"	$516.00	$273,480.00
4.	558	2"	$684.00	$381,672.00
		TOTAL		$ 5,922,540.60
Option 5	1	Qty -as needed 3/4" x 9"L with 5' Nicor cable	$145.00	

*We will consider replacing 10% of total meters with solid state meters

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BID WORKSHEET SIGNATURE PAGE

Total bid amount per Bid Worksheet (all Groups) is $ 5,922,540.60

Pricing shall remain constant until June 30th of the fiscal year 2021.

A percentage price increase shall be allowed for subsequent fiscal years for the Agreement duration, *if necessary*. Notwithstanding the anticipated price increases provided, in the event of a price decline, the benefit of such lower prices shall be immediately extended to the City of Vallejo.

Provide anticipated percentage price increase* for future fiscal years of this potential three and one-half (3 ½) year Agreement

FY 2019-20: 0% (1/2 year) FY 2020-21: 0%

FY 2021-22: 2.5% FY 2022-23: 2.5%

*Bidders must provide anticipated percentage increase in order to accurately assess total bid amount / Agreement evaluation. Bidders not providing this detail will be considered non-responsive and will not be considered for award.

COMPANY NAME	Kamstrup Water Metering, LLC
ADDRESS	245 Riverside Park Drive, Suite 110
CITY, STATE, ZIP CODE	Roswell, Georgia 30076
TELEPHONE NUMBER	(404) 804-4624
FAX NUMBER	(678) 387-3602
EMAIL ADDRESS	jst@kamstrup.com
NAME & TITLE OF BIDDER	Jacqueline Stevens - Bid Manager
SIGNATURE	
DATE	October 11, 2019

23

EXHIBIT B

Compensation

1. **Vendor's Compensation.** City agrees to pay Vendor, at the price(s) specified in Attachment 1 to Exhibit A, as follows:

a) January 1, 2020 through June 30, 2021: a total amount not to exceed Fifty-Five Thousand Dollars and 00/100 ($55,000);
b) July 1, 2021 through June 30, 2022 (if extension exercised): a total amount not to exceed Fifteen Thousand Dollars and 00/100 ($15,000); and
c) July 1, 2022 through June 30, 2023 (if extension exercised): a total amount not to exceed Fifteen Thousand Dollars and 00/100 ($15,000).

Total not-to-exceed contract amount (with extensions) is Eighty-Five Thousand Dollars and 00/100 ($85,000).

2. **Invoicing.** Invoices must be submitted in triplicate, itemized as to quantity, part number, and description. In addition, invoices must show the name of the department, division, or section to which the material was delivered, and the City of Vallejo Purchase Order Number.

All delivery tickets must have a description of the commodity delivered. Mail invoices to the accounts payable section of the department and to the address, as noted on individual purchase orders. Delivery tickets and packing slips will contain the same information as the invoice. All pack slips and delivery tickets must include the receiving employee signature and printed name.

All prices shall be F.O.B. destination, address 111 Amador Street, City of Vallejo.

3. **Payment.** Payment is due thirty (30) days after the City has approved the invoice or after the City has accepted the goods, whichever occurs later.

Request for payment shall be sent to:

Oscar Alcantar, Distribution Superintendent
Water Department, City of Vallejo
111 Amador Street
Vallejo, CA 94590

4. **Accounting Records of Vendor.** Vendor shall maintain for three (3) years after completion of all materials hereunder, all records under this Agreement, including, but not limited to, records of Vendor's direct salary costs for all Materials and Additional Materials performed under this Agreement and records of Vendor's

Budgetary Proposal for

AMI Water Meter Installation

City of Vallejo, CA

Submitted: December 5, 2019

Avetta Certified Contractor

Utility Partners of America
7600 Pelham Rd
Greenville, SC 29615
phone 864-269-2302
fax 864-269-2305
email proposals@utilitypartners.com

Utility Partners of America

Resource Based Budgetary Pricing Option (24 Month Term)

Field Services	Term	Quantity	Unit Price	Extended Price
Pre-Deployment Services				
Planning, Mobilization, WOMS Setup, CIS Integration		1	67,583.00	67,583.00
Deployment Services				
Field Operations Manager Fee (Monthly)	23	1	18,523.00	426,029.00
Project Delivery Manager Fee (Monthly)	23	1	2,600.00	59,800.00
Data & Dispatch Manager Fee (Monthly)	23	0.25	4,550.00	26,162.50
Call Center Services Fee (Monthly)	23	1	1,500.00	34,500.00
Inventory Manager Fee - Local (Monthly)	23	1	10,158.00	233,634.00
Residential Installation Technician Fee - Local (Monthly)	23	4	11,319.00	1,041,348.00
Residential Installation Technician Fee - Traveler (Monthly)	23	1	15,315.00	352,245.00
Warehouse Fee (Monthly)	25	1	4,657.00	116,425.00
Print & Mail Introductory Postcard or Letter, 1 per Account		27,000	1.18	31,860.00
Print & Deliver Door Hanger for Completed and Uncompleted Visits		27,000	0.26	7,020.00
Break Budget (Cost + %)		1	50,000.00	50,000.00
			Estimated Project Total	**2,446,606.50**

Note: The quantity of each resource, billable months, and total contract dollar amount provided above are for estimate purposes only. The estimates are based on the requested Scope of Work and a non-binding daily production estimate of 12 residential water meter replacements per field tech per 8-hour day. UPA will invoice at the daily/monthly rates provided, based on the actual number of on-site resources provided by UPA during the invoice period, until the work is complete.

Mare Island Causeway Bridge

City of VALLEJO California

Proposed Capital Improvement Program | FY 20-21

Introduction

The City of Vallejo's 5-Year Capital Improvement Program (CIP) is a multi-year planning tool for budgeting and managing the City of Vallejo's (City's) growth and development, as well as maintaining existing infrastructure. It supports the implementation of the community's goals and objectives and encourages discussion of the City's long-range vision. The CIP is developed by City staff and is adopted by the City Council each year as a guide for prioritization of various projects to accomplish Council goals.

The CIP is updated regularly to reflect changing needs, funding availability, and to remove projects that have been completed. Therefore, the City's priorities and needs can be reevaluated during each subsequent year. Thus, it is important to understand that the City Council is appropriating funds for current year projects only and is not committed to doing any projects beyond the first year. The projects in the next four years are presented to show the City Council's current priorities. As the community's goals change to reflect current issues and concerns, so will the direction of the CIP since it is intended to meet the service and infrastructure needs of the community.

The CIP for Fiscal Year (FY) 2020/2021 through FY 2024/2025 contains 101 Projects in four major project categories. The FY 2020/2021 Capital Budget is $9,666,756 and the estimated five year total for FY 2020/2021 through FY 2024/2025 with any remaining balance from prior years is $132,347,770. Using the 5-Year Summary, it is possible to see which of the funding sources have sufficient funds to support this 5-Year CIP and where shortfalls are projected.

Project Categories

The projects included in the FY2020/2021 – FY 2024/2025 CIP have been organized into four categories. These categories include the following:

Downtown / Waterfront Development	This section includes economic development projects in the downtown and waterfront areas.
Facilities	The section includes improvements, rehabilitation, or new construction of City-owned buildings.
Infrastructure	This section includes street rehabilitation and construction, as well as medians, striping, curb & gutter, street lighting, and traffic signals. It also includes Marina rehabilitation activities, such as, seawall repairs and dredging.
Water	This section includes water system improvements that have been identified as major maintenance or rehabilitation, including, water distribution line replacements, meter upgrades or treatment plant improvements.

Projects by Category

#	Project #	Project Title	Fund	Budget Amounts from Prior Years	Remaining Balance from Previous Years	FY 2020-21	Estimated FY 2021-22
50	PW9417	Traffic Calming Toolbox	203-TIMF	$ 100,000	$ 100,000	$ -	$ -
51	PW9701	Admiral Callaghan Widening	203-TIMF	$ 400,000	$ 400,000	$ -	$ -
			208-Northgate	$ 91,978	$ 91,978	$ -	$ -
52	PW9703	Springs Road Pavement Rehabilitation	226-RMRA/SB1	$ -	$ -	$ 900,000	$ -
53	PW9704	Tennessee Street Pavement Rehabilitation	226-RMRA/SB1	$ -	$ -	$ 900,000	$ -
54	PW9705	ADA Curb Ramps	201-Capital Outlay	$ -	$ -	$ 5,000	$ -
55	PW9729	Sacramento Street Road Diet	221-Grants	$ -	$ -	$ 681,000	$ -
56	PW9730	Citywide Road Diet Study	203-TIMF	$ 50,000	$ 42,913	$ 50,000	$ 50,000
57	PW9731	Redwod Street Road Diet	203-TIMF	$ -	$ -	$ 125,000	$ -
58	PW9735	HSIP 5 Pedestrian Crossing Improvements	203-TIMF	$ 50,000	$ 38,670	$ -	$ -
			221-Grants	$ 246,000	$ 246,000	$ -	$ -
59	PW9736	HSIP 6 Intersection Improvements	203-TIMF	$ 200,000	$ 189,547	$ -	$ -
			221-Grants	$ 1,305,800	$ 1,305,800	$ -	$ -
60	PW9737	Marina Vista Improvements	201-Capital Outlay	$ 50,000	$ 50,000	$ -	$ -
			226-RMRA/SB1	$ 150,000	$ 150,000	$ -	$ -
61	PW9738	Capitol Street Improvements	226-RMRA/SB1	$ 726,981	$ 711,087	$ -	$ -
62	PW9747	ATP SR2S Vallejo & Benicia	201-Capital Outlay	$ 1,008,440	$ 888,715	$ -	$ -
			219-Traffic Congest Reli	$ 169,317	$ -	$ -	$ -
			221-Grants	$ 3,211,592	$ 2,402,937	$ -	$ -
63	PW9787	Glen Cove Street Improvements (321)	201-Capital Outlay	$ 992,790	$ 868,880	$ -	$ -
64	PW9788	Fairgrounds Drive Improvements (316)	201-Capital Outlay	$ 1,437,404	$ 843,465	$ -	$ -
65	PW9967	Hiddenbrooke Overpass Study	211-Hiddenbrooke	$ 976,000	$ 115,062	$ -	$ -
		Infrastructure: Transportation TOTAL		**$ 20,174,738**	**$ 11,705,951**	**$ 3,511,000**	**$ 3,800,000**
		Water					
66	PW9401	Lake Chabot Dam Improvement	201-Capital Outlay	$ 75,000	$ -	$ -	$ -
			404-City Water Sys	$ 175,000	$ 100,000	$ -	$ -
67	WT040	Pressure Regulatory Study & System Replacment	404-City Water Sys	$ 50,000	$ 50,000	$ -	$ -
68	WT7031	Lakes Facilities Renovations	411-Lake Water Sys	$ 746,103	$ 260,958	$ -	$ -
69	WT7065	Cordelia Unit No. 3 Emergency	404-City Water Sys	$ 2,252,603	$ 2,085,000	$ -	$ -
70	WT7068	Fleming Hill Filter Media Replacement	404-City Water Sys	$ 1,758,138	$ 1,300,000	$ -	$ -
71	WT7071	STA Caltrans Pipe Replacement	404-City Water Sys	$ 1,000,000	$ 989,422	$ -	$ 800,000
72	WT7073	Sacramento Bridge Waterline	404-City Water Sys	$ 100,000	$ 100,000	$ -	$ -
73	WT7074	Grid Pump Conversion Project	404-City Water Sys	$ 6,118,000	$ 403,744	$ -	$ 525,000
74	WT7083	Lake Curry Valve & Pipe Repair/Replace	404-City Water Sys	$ 453,251	$ -	$ -	$ 100,000
75	WT7086	Distribution System SCADA Renovation	404-City Water Sys	$ 1,130,901	$ 396,967	$ -	$ -
76	WT7089	Distribution Sampling Sampling Stations	404-City Water Sys	$ 170,000	$ 238	$ -	$ -
77	WT7092	Fleming Hill Chemical System Replacement	404-City Water Sys	$ 597,000	$ 363,929	$ -	$ 200,000
78	WT7093	Floc & Sed Basin Conv Replacment	404-City Water Sys	$ 3,172,000	$ 1,376,874	$ 1,400,000	$ 600,000
79	WT7096	Lake Curry Dam Improvement Project	404-City Water Sys	$ 1,457,700	$ 793,068	$ -	$ 1,000,000
80	WT7097	Swing Check Valve Replacement	404-City Water Sys	$ 113,000	$ 63,721	$ -	$ 150,000
81	WT7098	Meter Replacement Project	404-City Water Sys	$ 1,262,084	$ 954,080	$ 600,000	$ 600,000
82	WT7100	Lake Frey Dam Improvement	411-Lake Water Sys	$ 460,000	$ 173,890	$ -	$ 400,000
83	WT7101	Lake Madigan Dam Improvement	411-Lake Water Sys	$ 220,000	$ 24,880	$ -	$ 100,000
84	WT7102	Travis WTP Improvement Project	410-Travis Water Sys	$ 478,780	$ 478,780	$ -	$ -
85	WT7104	Green Valley Diversion Dam Repairs	411-Lake Water Sys	$ 350,000	$ 350,000	$ -	$ -
86	WT7105	Green Valley WTP Corrosion Control	411-Lake Water Sys	$ 250,000	$ 200,540	$ -	$ -
87	WT7106	Seiebe and Rockville Tank Replacement	411-Lake Water Sys	$ 350,000	$ 350,000	$ -	$ 1,700,000
88	WT7107	MI Tank Disinf. By-Product Destruction	404-City Water Sys	$ 200,000	$ 200,000	$ -	$ -
89	WT7108	New Capital Zone Pump Station	404-City Water Sys	$ 200,000	$ 200,000	$ -	$ 1,200,000
90	WT7109	New ERP Project (HTE Replacement)	404-City Water Sys	$ 280,000	$ 280,000	$ 280,000	$ 280,000
			410-Travis Water Sys	$ 35,000	$ 35,000	$ 35,000	$ 35,000
			411-Lake Water Sys	$ 35,000	$ 35,000	$ 35,000	$ 35,000
91	WT7110	Pump Station Equipment Renovation	404-City Water Sys	$ 100,000	$ 100,000	$ -	$ -
92	WT7111	Water Main Replacement FY19-20	404-City Water Sys	$ 1,500,000	$ 1,500,000	$ -	$ -
93	WT7112	Jameson Pump #7 VFD	404-City Water Sys	$ 315,000	$ 315,000	$ -	$ -
94	WT7113	Portable Emergency Generators	404-City Water Sys	$ 600,000	$ 88,216	$ -	$ -
95	WT7115	MI Booster Pump Station	404-City Water Sys	$ 100,000	$ 100,000	$ -	$ -
96	WT7116	Water Main Replacement FY20-21	404-City Water Sys	$ -	$ -	$ 2,000,000	$ -
97	WT7117	Gordon Valley Water Main Rehab/Replacement	411-Lake Water Sys	$ -	$ -	$ 500,000	$ 500,000
98	WTR7113	Water Main Replacement FY21-22	404-City Water Sys	$ -	$ -	$ -	$ 2,500,000
99	WTR7114	Water Main Replacement FY22-23	404-City Water Sys	$ -	$ -	$ -	$ -
100	WTR7115	Water Main Replacement FY23-24	404-City Water Sys	$ -	$ -	$ -	$ -
101	WTR7116	Water Main Replacement FY24-25	404-City Water Sys	$ -	$ -	$ -	$ -
		Water Total		**$ 26,104,560**	**$ 13,669,307**	**$ 4,850,000**	**$ 10,725,000**
		GRAND TOTAL		**$ 98,854,902**	**$ 40,381,014**	**$ 9,666,756**	**$ 16,000,000**

Projects by Category

#	Estimated FY 2022-2023	Estimated FY 2023-24	Estimated FY 2024-2025	Estimated 4-Year Total	5-Year Total	Proj Total Over Next 5yrs w/remaining balance	Status	Notes
50	$ -	$ -	$ -	$ -	$ -	$ 100,000	Active	
51	$ -	$ -	$ -	$ -	$ -	$ 491,978	Active	
	$ -	$ -	$ -	$ -	$ -			
52	$ -	$ -	$ -	$ -	$ 900,000	$ 900,000	New Funding	
53	$ -	$ -	$ -	$ -	$ 900,000	$ 900,000	New Funding	
54	$ -	$ -	$ -	$ -	$ 5,000	$ 5,000	New Funding	
55	$ -	$ -	$ -	$ -	$ 681,000	$ 681,000	New Funding	
56	$ -	$ -	$ -	$ 50,000	$ 100,000	$ 142,913	New Funding	
57	$ -	$ -	$ -	$ -	$ 125,000	$ 125,000	New Funding	
58	$ -	$ -	$ -	$ -	$ -	$ 284,670	Active	
	$ -	$ -	$ -	$ -	$ -			
59	$ -	$ -	$ -	$ -	$ -	$ 1,495,347	Active	
	$ -	$ -	$ -	$ -	$ -			
60	$ -	$ -	$ -	$ -	$ -	$ 200,000	Active	
	$ -	$ -	$ -	$ -	$ -			
61	$ -	$ -	$ -	$ -	$ -	$ 711,087	Active	
62	$ -	$ -	$ -	$ -	$ -			
	$ -	$ -	$ -	$ -	$ -	$ 3,291,652	Active	
	$ -	$ -	$ -	$ -	$ -			
63	$ -	$ -	$ -	$ -	$ -	$ 868,880	Active	
64	$ -	$ -	$ -	$ -	$ -	$ 843,465	Active	
65	$ -	$ -	$ -	$ -	$ -	$ 115,062	Active	
	$ 3,650,000	**$ 3,650,000**	**$ 3,650,000**	**$ 14,750,000**	**$ 18,261,000**	**$ 29,966,951**		
		Water						
66	$ -	$ -	$ -	$ -	$ -	$ 100,000	New Funding	
	$ -	$ -	$ -	$ -	$ -			
67	$ -	$ -	$ -	$ -	$ -	$ 50,000	Active	
68	$ -	$ -	$ -	$ -	$ -	$ 260,958	Active	
69	$ -	$ -	$ -	$ -	$ -	$ 2,085,000	Active	
70	$ -	$ -	$ -	$ -	$ -	$ 1,300,000	Active	
71	$ 400,000	$ 400,000	$ 400,000	$ 2,000,000	$ 2,000,000	$ 2,989,422	Active	
72	$ -	$ -	$ -	$ -	$ -	$ 100,000	Active	
73	$ 350,000	$ -	$ -	$ 875,000	$ 875,000	$ 1,278,744	Active	
74	$ -	$ -	$ -	$ 100,000	$ 100,000	$ 100,000	Active	
75	$ -	$ -	$ -	$ -	$ -	$ 396,967	Active	
76	$ -	$ -	$ -	$ -	$ -	$ 238	Active	
77	$ 100,000	$ -	$ -	$ 300,000	$ 300,000	$ 663,929	Active	
78	$ 1,000,000	$ -	$ -	$ 1,600,000	$ 3,000,000	$ 4,376,874	New Funding	
79	$ 500,000	$ 500,000	$ 500,000	$ 2,500,000	$ 2,500,000	$ 3,293,068	Active	
80	$ 75,000	$ 75,000	$ 75,000	$ 375,000	$ 375,000	$ 438,721	Active	
81	$ 600,000	$ 600,000	$ 600,000	$ 2,400,000	$ 3,000,000	$ 3,954,080	New Funding	
82	$ 100,000	$ -	$ -	$ 500,000	$ 500,000	$ 673,890	Active	
83	$ -	$ -	$ -	$ 100,000	$ 100,000	$ 124,880	Active	
84	$ -	$ -	$ -	$ -	$ -	$ 478,780	Active	
85	$ -	$ -	$ -	$ -	$ -	$ 350,000	Active	
86	$ -	$ -	$ -	$ -	$ -	$ 200,540	Active	
87	$ 1,450,000	$ -	$ -	$ 3,150,000	$ 3,150,000	$ 3,500,000	Active	
88	$ -	$ -	$ -	$ -	$ -	$ 200,000	Active	
89	$ 600,000	$ -	$ -	$ 1,800,000	$ 1,800,000	$ 2,000,000	Active	
90	$ 280,000	$ 280,000	$ 280,000	$ 1,120,000	$ 1,400,000			
	$ 35,000	$ 35,000	$ 35,000	$ 140,000	$ 175,000	$ 2,100,000	New Funding	
	$ 35,000	$ 35,000	$ 35,000	$ 140,000	$ 175,000			
91	$ -	$ -	$ -	$ -	$ -	$ 100,000	Active	
92	$ -	$ -	$ -	$ -	$ -	$ 1,500,000	Active	
93	$ -	$ -	$ -	$ -	$ -	$ 315,000	Active	
94	$ -	$ -	$ -	$ -	$ -	$ 88,216	Active	
95	$ -	$ -	$ -	$ -	$ -	$ 100,000	Active	
96	$ -	$ -	$ -	$ -	$ 2,000,000	$ 2,000,000	New Funding	
97	$ 500,000	$ 500,000	$ 500,000	$ 2,000,000	$ 2,500,000	$ 2,500,000	New Funding	
98	$ -	$ -	$ -	$ 2,500,000	$ 2,500,000	$ 2,500,000	Future	
99	$ 3,000,000	$ -	$ -	$ 3,000,000	$ 3,000,000	$ 3,000,000	Future	
100	$ -	$ 4,500,000	$ -	$ 4,500,000	$ 4,500,000	$ 4,500,000	Future	
101	$ -	$ -	$ 6,000,000	$ 6,000,000	$ 6,000,000	$ 6,000,000	Future	
	$ 9,025,000	**$ 6,925,000**	**$ 8,425,000**	**$ 35,100,000**	**$ 39,950,000**	**$ 53,619,307**		
	$ 14,025,000	**$ 11,900,000**	**$ 40,375,000**	**$ 82,300,000**	**$ 91,966,756**	**$ 132,347,770**		**GRAND TOTAL**

Capital Plan

20-21 *thru* 24-25

City of Vallejo, California

Project # WT7098
Project Name Meter Replacement Project

Type Improvement
Useful Life
Category Water

Department Water Department
Contact Water Director
Priority 3. FY19-20: Improve Technology

Status New Funding
Total Project Cost: $8,524,168

Description

Replace water meters and meter reading technology. Total project budget estimated at $13M to $18M. Financing TBD - currently exploring options.

Justification

Majority of existing water meters are old and inaccurate. Replacing meters will increase revenue, and installing advanced metering infrastructure (AMI) will increase conservation and save water.

Expenditures	Prior	20-21	21-22	22-23	23-24	24-25	Future	Total
Construction			1,800,000			1,792,571		3,592,571
Expenditures	308,004	361,509						669,513
Total	**308,004**	**361,509**	**1,800,000**			**1,792,571**		**4,262,084**

Funding Sources	Prior	20-21	21-22	22-23	23-24	24-25	Future	Total
404-City Water Systems	1,262,084	600,000	600,000	600,000	600,000	600,000		4,262,084
Total	**1,262,084**	**600,000**	**600,000**	**600,000**	**600,000**	**600,000**		**4,262,084**

APPENDIX TAB

Source	#	Prior Years	20-21	21-22	22-23	23-24	24-25	5-Yr. Total	Future Years	Total
201-Capital Outlay Total:		*10,086,433*	*889,000*	*2,425,000*	*2,275,000*	*2,250,000*	*2,225,000*	*10,064,000*	*0*	*20,150,433*
203-Transportation Impact Mitigatio										
Citywide Road Diet Study	PW9730	*50,000*	50,000	50,000	0	0	0	*100,000*	*0*	150,000
Redwood Street Road Diet	PW9731	*0*	125,000	0	0	0	0	*125,000*	*0*	125,000
3-Transportation Impact Mitigation Total:		*50,000*	*175,000*	*50,000*	*0*	*0*	*0*	*225,000*	*0*	*275,000*
219-Traffic Congestion Relief										
Streets/Pavement Maintenance & Rehabilitation	PWC109	*400,000*	350,000	350,000	350,000	350,000	350,000	*1,750,000*	*0*	2,150,000
219-Traffic Congestion Relief Total:		*400,000*	*350,000*	*350,000*	*350,000*	*350,000*	*350,000*	*1,750,000*	*0*	*2,150,000*
221-Grant & Contributions										
Sacramento Street Road Diet	PW9729	*0*	681,000	0	0	0	0	*681,000*	*0*	681,000
221-Grant & Contributions Total:		*0*	*681,000*	*0*	*0*	*0*	*0*	*681,000*	*0*	*681,000*
226-Road Maint Rehab Act / Senate B										
Springs Road Pavement Rehabilitation	PW9703	*0*	900,000	0	0	0	0	*900,000*	*0*	900,000
Tennessee Pavement Rehabilitation	PW9704	*0*	900,000	0	0	0	0	*900,000*	*0*	900,000
Streets/Pavement Maintenance & Rehabilitation	PWC109	*2,198,661*	0	2,200,000	2,200,000	2,200,000	2,200,000	*8,800,000*	*0*	10,998,661
aint Rehab Act / Senate Bill 1 (SB1) Total:		*2,198,661*	*1,800,000*	*2,200,000*	*2,200,000*	*2,200,000*	*2,200,000*	*10,600,000*	*0*	*12,798,661*
404-City Water Systems										
Asset Management	PW9402	*425,000*	0	150,000	75,000	75,000	75,000	*375,000*	*0*	800,000
STA and Caltrans Pipe Replacement	WT7071	*1,000,000*	0	800,000	400,000	400,000	400,000	*2,000,000*	*0*	3,000,000
Trans-Vallejo Pipeline and Grid Pumps	WT7074	*6,118,000*	0	525,000	350,000	0	0	*875,000*	*0*	6,993,000
Lake Curry Valve & Pipe Repair/Replace	WT7083	*453,251*	0	100,000	0	0	0	*100,000*	*0*	553,251
Fleming Hill Chemical System Replacement	WT7092	*597,100*	0	200,000	100,000	0	0	*300,000*	*0*	897,100
Flocculation & Sedimentation Basin Conv./Replace	WT7093	*3,172,000*	1,400,000	600,000	1,000,000	0	0	*3,000,000*	*0*	6,172,000
Lake Curry Dam Improvement Project	WT7096	*1,457,700*	0	1,000,000	500,000	500,000	500,000	*2,500,000*	*0*	3,957,700
Swing Check Valve Replacement	WT7097	*113,000*	0	150,000	75,000	75,000	75,000	*375,000*	*0*	488,000
Meter Replacement Project	WT7098	*1,262,084*	600,000	600,000	600,000	600,000	600,000	*3,000,000*	*0*	4,262,084
New Capitol Zone Pump Station	WT7108	*200,000*	0	1,200,000	600,000	0	0	*1,800,000*	*0*	2,000,000
New ERP Project (HTE Replacement)	WT7109	*280,000*	280,000	280,000	280,000	280,000	280,000	*1,400,000*	*0*	1,680,000

Appendix
Fund Description

The City's finances are structured in a variety of funds, which are the basic accounting and reporting entities in governmental accounting. The funds in this list are identified as potential funding sources for capital improvement projects.

Fund #	CAFR Fund name	Fund Type	Responsible Department/Division
001-003	General Fund	General Fund	Various
101	Community Development Block Grant	Special Revenue	Housing and Community Development
107	Mare Island Base	Capital Project	Economic Development
112	Mare Island CFD	Special Revenue	Economic Development
133	State Gas Tax	Special Revenue	Public Works
134	State Lands	Special Revenue	Public Works
135	Solid Waste Disposal	Special Revenue	Public Works
137	Neighborhood Parks	Capital Project	Public Works
138	Hiddenbrooke Community Services District	Special Revenue	Public Works
147	NLP Nuisance & Abatement	Special Revenue	City Attorney
161-188	Landscape Maintenance Districts	Special Revenue	Public Works
201	Capital Outlay	Capital Project	Public Works
203	Transportation Impact Mitigation	Capital Project	Public Works
204	Bridge Construction	Capital Project	Public Works
208	Northgate Fee & Benefit District	Capital Project	Public Works
211	Hiddenbrooke Overpass	Capital Project	Public Works
219	Traffic Congestion Relief	Capital Project	Public Works
221	Capital Grants and Contributions	Capital Project	Public Works
222	Vallejo Station	Capital Project	Public Works
223	Long Term Maintenance	Capital Project	Public Works
224	Columbus Parkway Improvements	Capital Project	Public Works
226	Road Maintenance / Rehab Act	Capital Project	Public Works
227	Waterfront History Park	Capital Project	Public Works
401-412	Water	Enterprise	
415	Marina	Enterprise	Public Works
431	Vallejo Station Parking	Enterprise	Public Works

existing Hiddenbrooke overpass over I-80 East and West bound.

219-Traffic Congestion Relief

TRAFFIC CONGESTION RELIEF FUND (GAS TAX) #219 accounts for street maintenance and capital expenditures to be paid from State proposition 42 allocations.

221-Grant & Contributions

CAPITAL GRANT & CONTRIBUTIONS FUND #221 accounts for capital project expenditures to b reimbursed by granting agencies, developers, and other third parties.

222-Vallejo Station Parking Structur

VALLEJO STATION CAPITAL PROJECTS FUND #222 accounts for grants received to support construction of a new Transit Center and related parking structure in downtown Vallejo.

223-Long Term Maintenance

LONG-TERM MAINTENANCE FUND #223 accounts for revenues received from cell tower leases for use on long term repairs and maintenance expenditures.

224-Columbus Parkway Improvemen

COLUMBUS PARKWAY IMPROVEMENT FUND #224 accounts for monies received from a developer for the Columbus Parkway widening project.

226-Road Maint Rehab Act / Senate

SENATE BILL 1 (SB1) / ROAD MAINTENANCE REHABILITATION ACT (RMRA) FUND #226 accounts for street maintenance and capital projects to be paid from Senate Bill 1 allocation.

227-Waterfront History Park

WATERFRONT HISTORY PARK FUND #227 accounts for monies for the planning, development, and construction of the Waterfront History Park Project and other activites that further the goals of the project.

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PRISE SYSTEMS FUND #404 accounts for the projection and distribution of water to residents and n the City.

410-Travis Water Systems

TRAVIS WATER ENTERPRISE SYSTEMS FUND #410 accounts for the projection and distribution of water to residents and businesses located within the Travis Water System.

411-Lake Water Systems

Lakes WATER ENTERPRISE SYSTEMS FUND #411 accounts for the projection and distribution of water to residents and businesses located within the Lakes Water System.

415-Marina

MARINA ENTERPRISE FUND #415 accounts for monies paid by Marina berthers and used for the operations, improvement,

Appendix D – Draft Notice of Exemption

Print Form

Notice of Exemption

Appendix E

To: Office of Planning and Research
P.O. Box 3044, Room 113
Sacramento, CA 95812-3044

County Clerk
County of: Solano
675 Texas St., Suite 6500
Fairfield, CA 94533-6342

From: (Public Agency): City of Vallejo - Water
202 Fleming Hill Rd
Vallejo, CA 94589
(Address)

Project Title: Vallejo Meter Replacement Project No. WT-7098

Project Applicant: Vallejo Meter Replacement Project No. WT-7098

Project Location - Specific:
City of Vallejo

Project Location - City: Vallejo Project Location - County: Solano

Description of Nature, Purpose and Beneficiaries of Project:
Replace approximately 28,000 (28,000) water meters with AMI compatible water meters.

Name of Public Agency Approving Project: City of Vallejo

Name of Person or Agency Carrying Out Project: City of Vallejo

Exempt Status: **(check one):**

- ☐ Ministerial (Sec. 21080(b)(1); 15268);
- ☐ Declared Emergency (Sec. 21080(b)(3); 15269(a));
- ☐ Emergency Project (Sec. 21080(b)(4); 15269(b)(c));
- ☒ Categorical Exemption. State type and section number: Class 2, Section 15302 (c)
- ☐ Statutory Exemptions. State code number:

Reasons why project is exempt:
Replacement of existing utility systems and involving negligible expansion of capacity. This project replaces water meters of a public owned utility system that is currently in use. The project is not growth inducing because it involves no expansion of capacity. The project site is not situated in an environmentally sensitive area.

Lead Agency
Contact Person: Melissa Cansdale Area Code/Telephone/Extension: 707-553-7223

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a Notice of Exemption been filed by the public agency approving the project? ☐ Yes ☐ No

Signature: _____ Date: _____ Title: Associate Engineer

☒ Signed by Lead Agency ☐ Signed by Applicant

Authority cited: Sections 21083 and 21110, Public Resources Code.
Reference: Sections 21108, 21152, and 21152.1, Public Resources Code.

Date Received for filing at OPR: _____

Appendix E – Municipal Code Excerpts

Vallejo, CA
Code of Ordinances

‹ 11.48.183 - Removal of Lakes Water System upgrade surcharge.

Title 12 - BUILDINGS AND CONSTRUCTION ›

II. - Miscellaneous Water Regulations

Chapter 11.52 - WATER WELLS

Sections:

11.52.010 - Use for drinking—Using after notice to close.

It is unlawful for any person, firm or corporation to maintain or use any well for the purpose of drawing therefrom any water intended for drinking purposes without first obtaining from the board of health a permit so to do; or to use any well after notice from the board of health to close or fill it.

(Ord. 96 N.S. § 1, 1912.)

11.52.020 - Pollution—Notice to close.

Whenever it appears to the satisfaction of the board of health that any well, the water of which is used for domestic purposes, has come polluted, or in anywise rendered unsafe for domestic or drinking purposes, or has become otherwise prejudicial to health or dangerous to life, the board of health shall give to the owner or his agent, lessee, tenant or other person in charge of such well, written notice to close and to fill it within a time to be specified in such notice. If such notice is not complied with, the board of health shall cause such well to be closed and filled up at the cost and expense of the owner thereof.

(Ord. 96 N.S. § 2, 1912.)

Chapter 11.53 - WELL REGULATION AND MONITORING

Sections:

11.53.010 - County code adopted—Violations, penalties and inspections.

That certain document entitled Ordinance 1348 adopted by the Solano County board of supervisors to regulate the construction, reconstruction, destruction and inactivation of water, cathodic protection, and monitoring wells is adopted by the city of Vallejo and incorporated herein as though set forth in full

and is made a part of this chapter except for the additions, revisions and omissions as set forth below. A copy of said county ordinance is on file in the office of the public works director of the city. The city authorizes the Solano County Department of Environmental Management, Division of Environmental Health, or any successor agency to undertake the inspections and other activities encompassed within said ordinance and to enforce the provisions of the ordinance codified in this chapter within the corporate limits of the city.

(Ord. 1077 N.C.(2d) § 2 (part), 1990.)

11.53.020 - Fees.

Those fees and charges established by the Solano County board of supervisors in County Resolution 89-179 relating to Ordinance 1348 and modified hereafter by said board from time to time are likewise adopted and incorporated herein as though set forth in full. Said fees and charges shall apply to any person, firm or corporation subject to the provisions of this chapter.

(Ord. 1077 N.C.(2d) § 2 (part), 1990.)

11.53.030 - Amendments.

Ordinance 1346, as adopted and incorporated herein is amended as follows:

A. The definition of "person" found in Section 13.10.101 is amended to read as follows:

Person shall mean any individual, firm, partnership, general corporation, association or governmental entity. "Governmental entity," as used herein, shall not include the City of Vallejo, an irrigation district, nor any local agency exempt from the application of the Ordinance pursuant to state law, and shall include the United States to the extent authorized by federal law.

B. The third full sentence of Section 13.10-104(a) **Well sites** is amended to read as follows, and in all other respects said section remains the same:

Water wells may be located in public utility easements, provided that written permission is obtained from the utility.

(Ord. 1077 N.C.(2d) § 2 (part), 1990.)

Chapter 11.54 - WASTEFUL WATER USE PROHIBITION ORDINANCE

Sections:

11.54.010 - Purpose and intent.

The purpose of this chapter is to ensure that the water supply of the city of Vallejo is put to maximum beneficial use and that waste or unreasonable use or unreasonable method of use be prevented.

(Ord. 1567 N.C.(2d) § 1 (part), 2006.)

11.54.020 - Short title.

This chapter shall be known and cited as the Wasteful Water Use Prohibition Ordinance.

(Ord. 1567 N.C.(2d) § 1 (part), 2006.)

11.54.030 - Regulations and restrictions on water use.

A. To prevent the waste and unreasonable use of water and to promote water conservation, each of the following actions is prohibited, except where necessary to address an immediate health and safety need or to comply with the term or condition in a permit issued by a state or federal agency:

1. The application of potable water to outdoor landscapes in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures;
2. The use of a hose that dispenses potable water to wash a motor vehicle, except where the hose is fitted with a shut-off nozzle or device attached to it that causes it to cease dispensing water immediately when not in use;
3. The application of potable water to driveways and sidewalks;
4. The use of potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system;
5. The application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall;
6. The serving of drinking water other than upon request in eating or drinking establishments, including but not limited to restaurants, hotels, cafés, cafeterias, bars, or other public places where food or drink are served and/or purchased;
7. The irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development as adopted by the city;
8. Allowing potable water to escape from breaks within the customer's plumbing system for more than thirty-six hours after the customer is notified or discovers the break.
9. The use of potable water for construction, compaction, dust control, street or

parking lot sweeping, or building wash down where nonpotable or recycled water is available in sufficient quantities.

10. The use of single-pass cooling systems;
11. The use of nonrecirculating systems in new conveyor car wash facilities.

B. To promote water conservation, operators of hotels and motels shall provide guests with the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.

(Ord. 1567 N.C.(2d) § 1 (part), 2006.; Ord. No. 1768 N.C. (2d), § 1, 7-25-2017)

11.54.040 - Water efficient landscaping.

Landscaping shall be installed and maintained in accordance with Section 16.74.030 Water Conservation Guidelines and Chapter 16.71 Water Efficient Landscape Regulations of the Vallejo Municipal Code.

(Ord. No. 1634 N.C.(2d), § 1, 3-23-2010)

11.54.050 - Reserved.

11.54.060 - Enforcement and penalties.

Violations of any provision of Section 11.54.030 shall be enforced as follows:

A. For a first violation, the customer shall receive a notice of violation.
B. For a second violation, the customer shall receive an administrative citation with a fine of two hundred dollars.
C. For a third violation, the customer shall receive an administrative citation with a fine of five hundred dollars.
D. Administrative citations shall be issued pursuant to Chapter 1.15.

(Ord. No. 1708 N.C. (2d), § 1, 5-12-2015; Ord. No. 1768 N.C. (2d), § 3, 7-25-2017)

Chapter 11.56 - WATER POLLUTION

Sections:

11.56.010 - Unlawful.

It is unlawful for any person to put or place in or on, or to allow to run into or on, any public reservoir of water, or the bank, border or margin thereof, or into any water pipe, aqueduct, conduit, canal, stream, tank, or excavation therewith connected, any animal, vegetable; or mineral substance; or to do, perform, or commit any act or thing which will pollute the purity and wholesomeness of any water intended for human consumption. Nothing contained in this section shall prohibit any officer or employee of the city acting within the course and scope of this employment, or any person, firm, or corporation acting with express authorization of the city of Vallejo from introducing any substance into the public water supply deemed essential by the city to maintain or preserve such water supply.

(Ord. 144 N.C.(2d) § 1, 1973.)

Chapter 11.60 - RESERVOIR KEEPERS

Sections:

11.60.010 - Designation.

The city manager shall have the authority to designate certain employees to be reservoir keepers.

(Ord. 317 N.C.(2d) § 1 (part), 1976.)

11.60.020 - Duties.

While they are on duty on reservoir property owned and operated by the city, in addition to other duties which may be specified by the water department, reservoir keepers shall have the duty to enforce all statutes of the state and/or ordinances of the county in which the reservoir is located relating to trespass, vandalism, and water pollution.

(Ord. 317 N.C.(2d) § 1(part), 1976.)

11.60.030 - Powers.

A reservoir keeper may arrest a person without a warrant whenever he has reasonable cause to believe that the person to be arrested has committed a misdemeanor in his presence which is in violation of a statute or ordinance which the keeper has the duty to enforce. If the person arrested does not demand to be taken before a magistrate, the reservoir keeper shall prepare a written notice to appear and release the person on his promise to appear, as prescribed by Chapter 5C (commencing with Section 853.6) of the Penal Code. Reservoir keepers shall have any other power granted by Section 836.5 of the Penal Code, or successive legislation, and shall be immune from civil liability as specified in that Penal Code section.

(Ord. 317 N.C.(2d) § 1 (part), 1976.)

11.60.040 - Identification.

The city manager may authorize reservoir keepers to carry such badges, shields, or other identification, and to wear such uniforms as he shall from time to time consider to be appropriate.

(Ord. 317 N.C.(2d) § 1(part), 1976.)

11.60.050 - Other powers.

Nothing in this chapter shall prevent a reservoir keeper from making a citizen's arrest for violation of any statute or ordinance which is beyond his designated duty to enforce.

(Ord. 317 N.C.(2d) § 1 (part), 1976.)

TITLE 11 **FOOTNOTES**

1. For statutory provisions pertaining to municipal operation and/or regulation of the city's water supply, see Gov. Code § 38730 et seq.
2. For statutory provisions regarding the power of cities to prescribe, revise, and collect charges for the water furnished by it, see Gov. Cod § 54344.
3. For statutory provisions defining water wells, see Water Code § 13710.
4. For statutory provisions pertaining to poisoning of springs, wells or reservoirs of water, see Pen. Code § 347. For statutory provisions regarding pollution of water supply, see Health & Safe. Code §§ 4450—4461.
5. Former Section 11.48.005, Annual adjustment of water rates, previously codified herein and containing portions of Ordinance No. 1379 N.C.(2d) was repealed in its entirety by Ordinance No. 1435 N.C.(2nd).
6. Former Section 11.48.015, Multiple unit water rates, previously codified herein and containing portions of Ordinance No. 374 N.C.(2d) was repealed in its entirety by Ordinance No. 1435 N.C.(2nd).
7. Former Section 11.48.030, outside water rates, previously codified herein and containing portions of Ordinance Nos. 324, N.C. 26 N.C., 374 N.C.(2d), 537 N.C. (2d), 748 N.C. (2d), 805 N.C.(2d), 875 N.C.(2d), 1203 N.C.(2d), 1211 N.C.(2d), 1379 N.C.(2d), 1435 N.C.(2d) and 1542 N.C.(2d) was repealed in its entirety by Ordinance No. 1619 N.C.(2d).
8. Former Section 11.48.090, Service charges—Outside customer accounts, previously codified herein and containing portions of Ordinance Nos. 324 N.C., 84 N.C.(2d), 195 N.C. (2d), 374 N.C.(2d), 806 N.C.(2d), 1211 N.C.(2d), 1434 N.C.(2d) and 1542 N.C.(2d) was repealed in its entirety by Ordinance No. 1619 N.C.(2d).
9. Ord. No. 1768 N.C. (2d), § 2, adopted July 25, 2017, repealed § 11.54.050, which pertained to drought restrictions and derived from Ord. No. 1708 N.C. (2d), § 1, 5-12-2015.

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< 16.70.090 - Design standards applicable to required landscaping.

Chapter 16.72 - PERFORMANCE STANDARDS REGULATIONS >

Chapter 16.71 - WATER EFFICIENT LANDSCAPE REQUIREMENTS

16.71.010 - Title and purpose.

The purpose of these provisions is to maintain consistency with Section 2 of Article X of the California Constitution which specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use. These provisions promote the values and benefits of landscaping

practices that integrate and go beyond the conservation and efficient use of water; establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitated projects by encouraging the use of a watershed approach that requires cross-sector collaboration of industry, government and property owners to achieve the many benefits possible; establish provisions for water management practices and water waste prevention for existing landscapes; use water efficiently without waste by setting a maximum applied water allowance as an upper limit for water use and reduce water use to the lowest practical amount; promote the benefits of consistent landscape ordinances with neighboring local and regional agencies; encourage use of economic incentives that promote the efficient use of water, such as implementing a tiered-rate structure; and encourage cooperation between the city of Vallejo and local agencies to implement and enforce these regulations.

Landscapes that are planned, designed, installed, managed and maintained with the watershed based approach can improve California's environmental conditions and provide benefits and realize sustainability goals. Such landscapes will make the urban environment resilient in the face of climatic extremes. Consistent with the legislative findings and purpose of the regulations, conditions in the urban setting will be improved by:

1. Creating conditions to support life in the soil by reducing compaction, incorporating organic matter that increases water retention, and promoting productive plant growth that leads to more carbon storage, oxygen production, shade, habitat and esthetic benefits
2. Minimizing energy use by reducing irrigation water requirements, reducing reliance on petroleum based fertilizers and pesticides, and planting climate appropriate shade trees in urban areas.
3. Conserving water by capturing and reusing rainwater and graywater wherever possible and selecting climate appropriate plants that need minimal supplemental water after establishment.
4. Protecting air and water quality by reducing power equipment use and landfill disposal trips, electing recycled and locally sourced materials, and using compost, mulch and efficient irrigation equipment to prevent erosion.
5. Protecting existing habitat and creating new habitat by choosing local native plants, climate adapted non-natives and avoiding invasive plants. Utilizing integrated pest management with least toxic methods as the first course of action.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65593, Government Code. Reference: Sections 65591, 65593, 65596, Government Code.)

16.71.020 - Applicability.

A. After January 1, 2016 and consistent with the Executive Order No. B-29-15, these regulations shall apply to all of the following landscape projects:

1. New construction projects with an aggregate landscape area equal to or greater than five hundred square feet requiring a building or landscape permit, plan check or design review;
2. Rehabilitated landscape projects with an aggregated landscape area equal to or greater than two thousand, five hundred square feet requiring a building or landscape permit, plan check, or design review;
3. Existing landscapes limited to Sections 16.71.059, 16.71.061, and 16.71.062; and
4. Cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 16.71.044, 16.71.050 and 16.71.052; and existing cemeteries are limited to Sections 16.71.059, 16.71.061 and 16.71.062.

B. Any project with an aggregate landscape area of two thousand, five hundred square feet or less may comply with the performance requirements of in these regulations or conform to the prescriptive measures contained in Appendix D.

C. For projects using treated or untreated graywater or rainwater captured on site, any lot or parcel within the project that has less than two thousand, five hundred square feet of landscape and meets the lot or parcel's landscape water requirement (Estimated Total Water Use) entirely with treated or untreated graywater or through stored rainwater captured on site is subject only to Appendix D section (5).

D. These regulations do not apply to:

1. Registered local, state or federal historical sites;
2. Ecological restoration projects that do not require a permanent irrigation system;
3. Mined-land reclamation projects that do not require a permanent irrigation system; or
4. Existing plant collections, as part of botanical gardens and arboretums open to the public.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.030 - Definitions.

In addition to the definitions contained in the Vallejo Municipal Code, the following terms, for the purposes of this chapter, shall have the meaning set forth below:

A. "Applied water" means the portion of water supplied by the irrigation system to the land

B. "Automatic irrigation controller" means timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers are able to self-adjust and schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.

C. "Backflow prevention device" means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

D. "Certificate of completion" means the document required under Section 16.71.049.

E. "Certified irrigation designer" means a person certified to design irrigation systems by an accredited academic institution, a professional trade organization or other program such as the U.S. Environmental Protection Agency's Water Sense Irrigation Designer Certification program and Irrigation Association's Certified Irrigation Designer program.

F. "Certified landscape irrigation auditor" means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the U.S. Environmental Protection Agency's Water Sense Irrigation Auditor Certification program and Irrigation Association's Certified Landscape Irrigation Auditor program.

G. "Check valve" or "anti-drain valve" means a valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.

H. "Common interest developments" means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.

I. "Compost" means the safe and stable product of controlled biologic decomposition of organic materials that is beneficial to plant growth.

J. "Conversion factor (0.62)" means the number that converts acre-inches per acre per year to gallons per square foot per year.

K. "Distribution uniformity" means the measure of the uniformity of irrigation water over a defined area.

L. "Drip irrigation" means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

M. "Ecological restoration project" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

N. "Effective precipitation" or "usable rainfall" (Eppt) means the portion of total precipitation becomes available for plant growth.

O. "Emitter" means a drip irrigation emission device that delivers water slowly from the system to the soil.

P. "Established landscape" means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.

Q. "Establishment period of the plants" means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth. Native habitat mitigation areas and trees may need three to five years for establishment.

R. "Estimated total water use" (ETWU) means the total water used for the landscape as described in Section 16.71.044.

S. "ET adjustment factor" (ETAF) means a factor of 0.55 for residential areas and 0.45 for non-residential areas, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape. The ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0. The ETAF for existing non-rehabilitated landscapes is 0.8.

T. "Evapotranspiration rate" means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

U. "Flow rate" means the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.

V. "Flow sensor" means an inline device installed at the supply point of the irrigation system that produces a repeatable signal proportional to flow rate. Flow sensors must be connected to an automatic irrigation controller, or flow monitor capable of receiving flow signals and operating master valves. This combination flow sensor/controller may also function as a landscape water meter or submeter.

W. "Friable" means a soil condition that is easily crumbled or loosely compacted down to a minimum depth per planting material requirements, whereby the root structure of newly planted material will be allowed to spread unimpeded.

X. "Fuel Modification Plan Guideline" means guidelines from a local fire authority to assist residents and businesses that are developing land or building structures in a fire hazard severity zone.

Y. "Graywater" means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy

bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. "Graywater" includes but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers. Health and Safety Code Section 17922.12.

Z. "Hardscapes" means any durable material (pervious and non-pervious).

AA. "Hydrozone" means a portion of the landscaped area having plants with similar water needs and rooting depth. A hydrozone may be irrigated or non-irrigated.

BB. "Infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).

CC. "Invasive plant species" means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.

DD. "Irrigation audit" means an in-depth evaluation of the performance of an irrigation system conducted by a certified landscape irrigation auditor. An irrigation audit includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule. The audit must be conducted in a manner consistent with the irrigation Association's Landscape Irrigation Auditor Certification program or other U.S. Environmental Protection Agency "Watersense" labeled auditing program.

EE. "Irrigation efficiency" (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The irrigation efficiency for purposes of this chapter is 0.75 for overhead spray devices and 0.81 for drip systems.

FF. "Irrigation survey" means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test, and written recommendations to improve performance of the irrigation system.

GG. "Irrigation water use analysis" means an analysis of water use data based on meter readings and billing data.

HH. "Landscape architect" means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.

II. "Landscape area" means all the planting areas, turf areas, and water features in a

landscape design plan subject to the maximum applied water allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).

JJ. "Landscape contractor" means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

KK. "Landscape documentation package" means the documents required under Section 16.71.043.

LL. "Landscape project" means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 16.71.020.

MM. "Landscape water meter" means an inline device installed at the irrigation supply point that measures the flow of water into the irrigation system and is connected to a totalizer to record water use.

NN. "Lateral line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.

OO. "Local water purveyor" is referred to as the water division in this chapter.

PP. "Low volume irrigation" means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

QQ. "Main line" means the pressurized pipeline that delivers water from the water source to the valve or outlet.

RR. "Master shut-off valve" is an automatic valve installed at the irrigation supply point which controls water flow into the irrigation system. When this valve is closed, water will not be supplied to the irrigation system. A master valve will greatly reduce any water loss due to a leaky station valve.

SS. "Maximum applied water allowance" (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 16.71.044. It is based upon the area's reference evapotranspiration, the ET adjustment factor, and the size of the landscape area. The estimated total water use shall not exceed the maximum applied water allowance. Special landscape areas, including recreation areas, areas permanently and solely dedicated to edible plants such as

orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0. MAWA = (ETo) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)].

TT. "Median" is an area between opposing lanes of traffic that may be unplanted or planted with trees, shrubs, perennials, and ornamental grasses.

UU. "Microclimate" means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.

VV. "Mined-land reclamation projects" means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

WW. "Mulch" means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, or decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

XX. "New construction" means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.

YY. "Non-residential landscape" means landscapes in commercial, institutional, industrial and public settings that may have areas designated for recreation or public assembly. It also includes portions of common areas of common interest developments with designated recreational areas.

ZZ. "Operating pressure" means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

AAA. "Overhead sprinkler irrigation systems" or "overhead spray irrigation systems" means systems that deliver water through the air (e.g., spray heads and rotors).

BBB. "Overspray" means the irrigation water which is delivered beyond the target area.

CCC. "Parkway"means the area between a sidewalk and the curb or traffic lane. It may be planted or unplanted, and with or without pedestrian egress.

DDD. "Permit" means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.

EEE. "Pervious" means any surface or material that allows the passage of water through the material and into the underlying soil.

FFF. "Plant factor" or "plant water use factor" is a factor, when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor range for very low water use plants is 0 to 0.1, the plant factor range for low water use plants is 0.1 to 0.3, the plant factor range for moderate water use

plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this chapter are derived from the publication "Water Use Classification of Landscape Species". Plant factors may also be obtained from horticultural researchers from academic institutions or professional associations as approved by the California Department of Water Resources (DWR).

GGG. "Project applicant" means the individual or entity submitting a Landscape Documentation Package required under Section 16.71.043, to request a permit, plan check, or design review from the City of Vallejo. A project applicant may be the property owner or his or her designee.

HHH. "Rain sensor" or "rain sensing shutoff device" means a component which automatically suspends an irrigation event when it rains.

III. "Record drawing" or "as-builts" means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.

JJJ. "Recreational area" means areas, excluding private single family residential areas designated for active play, recreation or public assembly in parks, sports fields, picnic grounds, amphitheaters or golf course tees, fairways, roughs, surrounds and greens.

KKK. "Recycled water", "reclaimed water", or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for nonpotable uses such as landscape irrigation and water features. This water is not intended for human consumption.

LLL. "Reference evapotranspiration" or "ETo" means a standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month, or year as represented in Appendix A, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered. Reference evapotranspiration is used as the basis of determining the maximum applied water allowance so that regional differences in climate can be accommodated.

MMM. "Regional Water Efficient Landscape Ordinance" means a local Ordinance adopted by two or more local agencies, water suppliers and other stakeholders for implementing a consistent set of landscape provisions throughout a geographical region. Regional ordinances are strongly encouraged to provide a consistent framework for the landscape industry and applicants to adhere to.

NNN. "Rehabilitated landscape" means any re-landscaping project that requires a permit, plan check, or design review, meets the requirements of Section 16.71.020, and the

modified landscape area is equal to or greater than two thousand five hundred square feet.

OOO. "Residential landscape" means landscapes surrounding single or multi-family homes.

PPP. "Runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.

QQQ. "Soil moisture sensing device" or "soil moisture sensor" means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.

RRR. "Soil texture" means the classification of soil based on its percentage of sand, silt, and clay.

SSS. "Special Landscape Area" (SLA) means an area of the landscape dedicated solely to edible plants, recreational areas, areas irrigated with recycled water, or water features using recycled water.

TTT. "Sprinkler head" or "spray head" means a device which delivers water through a nozzle.

UUU. "Static water pressure" means the pipeline or municipal water supply pressure when water is not flowing.

VVV. "Station" means an area served by one valve or by a set of valves that operate simultaneously.

WWW. "Swing joint" means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.

XXX. "Submeter" means a metering device to measure water applied to the landscape that is installed after the primary utility water meter.

YYY. "Turf" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermuda grass, Kikuyu grass, Seashore Paspalum, St. Augustine grass, Zoysia grass, and Buffalo grass are warm-season grasses.

ZZZ. "Valve" means a device used to control the flow of water in the irrigation system.

AAAA. "Water conserving plant species" means a plant species identified as having a very low or low plant factor.

BBBB. "Water feature" means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains,

artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.

CCCC. "Watering window" means the time of day irrigation is allowed.

DDDD. "WUCOLS" means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, and the Department of Water Resources 2014.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Sections 65592, 65596, Government Code.)

16.71.040 Provisions - for new construction or rehabilitated landscapes.

A. The City Manager may designate by mutual agreement, another agency, such as a water purveyor, to implement some or all of the requirements contained in this chapter. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this chapter.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.041 - Compliance with landscape documentation package.

A. Prior to construction, the planning division shall:
   1. Provide the project applicant with these regulations and procedures for permits, plan checks, or design reviews;
   2. Review the landscape documentation package submitted by the project applicant;
   3. Approve or deny the landscape documentation package;
   4. Approve the plan check or design review for the project applicant; and
   5. Upon approval of the landscape documentation package, submit a copy of the water efficient landscape worksheet to the water division.

B. Prior to construction, the project applicant shall:
   1. Submit a landscape documentation package to the planning division;

C. Upon approval of the landscape documentation package by the planning division, the project applicant shall:

1. Receive approval of the plan check or design review and record the date of the permit in the certificate of completion;
2. Submit a copy of the approved landscape documentation package along with the record drawings, and any other information to the property owner or his/her designee; and
3. Submit a copy of the water efficient landscape worksheet to the water division.

(Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.042 - Penalties.

Landscaping that is installed, constructed, altered, enlarged, converted, moved or maintained contrary to these regulations is a violation of the Vallejo Municipal Code and subject to enforcement action by the city which may be result in a citation and imposition of a fine as established a city council resolution or any other legal remedy.

(Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.043 - Elements of the landscape documentation package.

A. The landscape documentation package shall include the following six elements:
   1. Project information:
      a. Date;
      b. Project applicant;
      c. Project address [if available, parcel and/or lot number(s)];
      d. Total landscape area (square feet);
      e. Project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed);
      f. Water supply type (e.g., potable, recycled, well) and identify the water division if the applicant is not served by a private well;
      g. Checklist of all documents in landscape documentation package;
      h. Project contacts to include contact information for the project applicant and property owner;
      i. Applicant signature and date with statement, "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package".

2. Water efficient landscape worksheet:
    a. Hydrozone information table;
    b. Water budget calculations:
        i. Maximum applied water allowance (MAWA);
        ii. Estimated total water use (ETWU).
3. Soil management report.
4. Landscape design plan.
5. Irrigation design plan in compliance with the planning division and/or public works landscape maintenance recommended standards.
6. Grading design plan.

(Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.044 - Water efficient landscape worksheet.

A. A project applicant shall complete the Water Efficient Landscape Worksheet in Appendix B which contains information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydrozone. Calculations are then made to show that the evapotranspiration adjustment factor (ETAF) for the landscape project does not exceed a factor of 0.55 for residential areas and 0.45 for non-residential areas, exclusive of Special Landscape Areas. The ETAF for a landscape project is based on the plant factors and irrigation methods selected. The Maximum Applied Water Allowance is calculated based on the maximum ETAF allowed (0.55 for residential areas and 0.45 for non-residential areas) and expressed as annual gallons required. The Estimated Total Water Use (ETWU) is calculated based on the plants used and irrigation method selected for the landscape design. ETWU must be below the MAWA.
    1. In calculating the maximum applied water allowance and estimated total water use, a project applicant shall use the ETo values from the Reference Evapotranspiration Table in Appendix A. For Vallejo, use data from other cities in Solano County.

B. Water budget calculations shall adhere to the following requirements:
    1. The plant factor used shall be from WUCOLS or from horticultural researchers with academic institutions or professional associations as approved by the California Department of Water Resources (DWR). The plant factor ranges from 0 to 0.1 for very low water using plants, 0.1 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
    2. All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.

3. All special landscape areas shall be identified and their water use calculated as shown in ETAF for new and existing (non-rehabilitated) special landscape areas shall not exceed 1.
4. ETAF for special landscape areas shall not exceed 1.0.

C. Maximum applied water allowance. The maximum applied water allowance shall be calculated using the equation:

MAWA = (ETo) (0.62) [(0.7 × LA) + (0.3 × SLA)] Where:

MAWA = Maximum Applied Water Allowance (gallons per year)

ETo = Reference Evapotranspiration (inches per year)

0.62 = Conversion Factor (to gallons)

0.7 = ET Adjustment Factor (ETAF)

LA = Landscape Area including SLA (square feet)

0.3 = Additional Water Allowance for SLA

SLA = Special Landscape Area (square feet)

Examples of how to use this calculation are provided in Appendix A.I.

D. Estimated Total Water Use. The estimated total water use shall be calculated using the equation below. The sum of the estimated total water use calculated for all hydrozones shall not exceed MAWA.

ETWU =	(ETo)(0.62)	(PF×HA	+SLA)
		IE	

Where:

ETWU = Estimated Total Water Use per year (gallons)

Eto = Reference Evapotranspiration (inches)

PF = Plant Factor from WUCOLS (see Section 16.71.030)

HA = Hydrozone Area [high, medium, and low water use areas] (square feet)

SLA = Special Landscape Area (square feet)

0.62 = Conversion Factor

IE = Irrigation Efficiency (minimum 0.71)

Examples of how to use this calculation are provided in Appendix A.I.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.045 - Soil Management Report.

A. In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, or his/her designee, as follows:

1. Submit soil samples to a laboratory for analysis and recommendations.
    a. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
    b. The soil analysis shall include:
        i. Soil texture;
        ii. Infiltration rate determined by laboratory test or soil texture infiltration rate table;
        iii. pH;
        iv. Total soluble salts;
        v. Sodium;
        vi. Percent organic matter; and
        vii. Recommendations.
    c. In projects with multiple landscape installations (i.e. production home developments) a soil sampling rate of one in seven lots or approximately fifteen percent will satisfy this requirement. Large landscape projects shall sample at a rate equivalent to one in seven lots.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.046 - Landscape Design Plan.

A. For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the landscape documentation package.

1. Plant material.
    a. Any plant not within a "required landscaped area," may be selected for the

landscape, providing the estimated total water use in the landscape area does not exceed the maximum applied water allowance. Plants to be located within a required landscaped area must be of a drought tolerant variety. Methods to achieve water efficiency shall include one or more of the following:

i. Protection and preservation of native species and natural vegetation;

ii. Selection of water-conserving plant, tree and turf species, especially local native plants;

iii. Selection of plants based on local climate suitability, disease and pest resistance;

iv. Selection of street trees based on city of Vallejo approved street tree list and size at maturity as appropriate for the planting area;

v. Selection of plants from local and regional landscape program plant lists.

vi. Selection of plants from local Modification Plan Guidelines.

b. Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use, as specified in Section 16.71.044(A)(c)(ii).

c. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. Methods to achieve water efficiency shall include one or more of the following:

i. Use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;

ii. Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure (e.g., buildings, sidewalks, power lines); and

iii. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.

iv. Turf is not allowed on slopes greater than twenty-five percent where the toe of the slope is adjacent to an impermeable hardscape and where twenty-five percent means one foot of vertical elevation change for every four feet of horizontal length (rise divided by run x 100 = slope percent).

d. Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure [e.g. buildings, sidewalks, power lines]; allow for adequate soil volume for healthy root growth and

e. High water use plants, characterized by a plant factor of 0.7 to 1.0, are prohibited ir

f. A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b). Avoid fire-prone plant materials and highly flammable mulches. Refer to the local Fuel Modification Plan guidelines.

g. The use of invasive plant species such as those listed by the California Invasive Plant Council shall not be permitted.

h. The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

2. Water features.

   a. Recirculating water systems shall be used for water features.

   b. Where available, recycled water shall be used as a source for decorative water features.

   c. Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.

   d. Pool and spa covers are highly recommended.

3. Soil Preparation, mulch and amendments.

   a. Prior to the planting of any materials, compacted soils shall be transformed to a friable condition. On engineered slopes, only amended planting holes need meet this requirement.

   b. Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 16.71.054).

   c. For landscape installations, compost at a rate of a minimum of four cubic yards per one thousand square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than six percent organic matter in the top six inches of soil are exempt from adding compost and tilling.

   d. A minimum three inch layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated. To provide habitat for beneficial insects and other wildlife, up to five percent of the landscape area may be left without mulch. Designated insect habitat must be included in the landscape design plan as such.

e. Stabilizing mulching products shall be used on slopes that meet current engineering

f. The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.

g. Organic mulch materials made from recycled or post-consumer shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available. Organic mulches are not required where prohibited by local Fuel Modification Plan Guidelines or other applicable local ordinances.

B. The landscape design plan, at a minimum, shall:

1. Delineate and label each hydrozone by number, letter, or other method;
2. Identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
3. Identify recreational areas;
4. Identify areas permanently and solely dedicated to edible plants;
5. Identify areas irrigated with recycled water;
6. Identify type of mulch and application depth;
7. Identify soil amendments, type, and quantity;
8. Identify type and surface area of water features;
9. Identify hardscapes (pervious and non-pervious);
10. Identify location, and installation details, and twenty-four hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Project applicants shall refer to the Public Works Department or regional Water Quality Control Board for information on any applicable stormwater technical requirements. Stormwater best management practices are encouraged in the landscape design plan and are provided in Section 16.71.055.
11. Identify any applicable rain harvesting or catchment technologies as discussed in Section 16.71.055 and their twenty-four hour retention or infiltration capacity;
12. Identify any applicable graywater discharge piping, system components and area(s) of distribution;
13. Contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan"; and
14. Bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business

and Professions Code, Section 832.27 of Title 6 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code.)

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code and Section 1351, Civil Code.)

16.71.047 - Irrigation Design Plan.

A. This section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. For the efficient use of water, an irrigation system shall meet the planning division and/or public works recommended standards and all the requirements listed in this section as well as manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design criteria shall be submitted as part of the landscape documentation package.

1. System.

   a. Landscape water meters, defined as either a dedicated water service meter or private submeter, shall be installed for all non-residential irrigated landscapes of one thousand square feet but not more than five thousand square feet (the level at which Water Code 535 applies) and residential irrigated landscapes of five thousand square feet or greater. A landscape water meter may be either:

      i. A customer service meter dedicated to landscape use provided by the water division; or

      ii. A privately owned meter or submeter.

   b. Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems.

   c. If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

   d. Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather, or during rain.

   e. Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall

be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.

f. Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to Chapter 11.38 of this code for additional backflow prevention requirements.

g. Flow sensors that detect high flow conditions created by system damage or malfunction are required for all on non-residential landscapes and residential landscapes of five thousand square feet or larger.

h. Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.

i. The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

j. Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

k. The design of the irrigation system shall conform to the hydrozones of the landscape design plan.

l. The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 16.71.044 regarding the maximum applied water allowance.

m. All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers'/International Code Council's (ASABE/ICC) 802-2014" Landscape Irrigation Sprinkler and Emitter Standard. All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.

n. It is highly recommended that the project applicant inquire with the water division about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.

o. In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.

p. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.

q. Head to head coverage is recommended. However, sprinkler spacing shall be desig highest possible distribution uniformity using the manufacturer's recommendation

r. Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to hardscapes or in high traffic areas of turfgrass.

s. Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.

t. Areas less than ten feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.

u. Overhead irrigation shall not be permitted within twenty-four inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:

   i. The landscape area is adjacent to permeable surfacing and no runoff occurs; or

   ii. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or

   iii. The irrigation designer specifies an alternative design or technology, as part of the landscape documentation package and clearly demonstrates strict adherence to irrigation system design criteria in Section 16.71.047 A(1)(l). Prevention of overspray and runoff must be confirmed during the irrigation audit.

v. Slopes greater than twenty-five percent shall not be irrigated with an irrigation system with an application rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the landscape documentation package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

2. Hydrozone.

   a. Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.

   b. Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.

   c. Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf to facilitate the appropriate irrigation of trees. The

mature size and extent of the root zone shall be considered when designing irrigation for the tree.

d. Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:
   i. Plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
   ii. The plant factor of the higher water using plant is used for calculations.
e. Individual hydrozones that mix high and low water use plants shall not be permitted.
f. On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table (see Appendix B, Section A). This table can also assist with the irrigation audit and programming the controller.

B. The irrigation design plan, at a minimum, shall contain:
   1. Location and size of separate water meters for landscape;
   2. Location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices;
   3. Static water pressure at the point of connection to the public water supply;
   4. Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
   5. Recycled water irrigation systems as specified in Section 16.71.054;
   6. The following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan"; and
   7. The signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code.)

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.048 - Grading design plan.

A. For the efficient use of water, grading of a project site shall be designed to minimize soil erosi runoff, and water waste. A grading plan shall be submitted as part of the landscape document package. A comprehensive grading plan prepared by a civil engineer for other permits satisfie requirement.

1. The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including:
    a. Height of graded slopes;
    b. Drainage patterns;
    c. Pad elevations;
    d. Finish grade; and
    e. Stormwater retention improvements, if applicable.
2. To prevent excessive erosion and runoff, it is highly recommended that project applicants:
    a. Grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;
    b. Avoid disruption of natural drainage patterns and undisturbed soil; and
    c. Avoid soil compaction in landscape areas.
3. The grading design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan" and shall bear the signature of a licensed professional as authorized by law.

(Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.049 - Certificate of completion.

A. The certificate of completion (see Appendix C for a sample certificate) shall include the following six elements:

1. Project information sheet that contains:
    a. Date;
    b. Project name;
    c. Project applicant name, telephone, and mailing address;
    d. Project address and location; and
    e. property owner name, telephone, and mailing address;
2. Certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed landscape contractor that the landscape

project has been installed per the approved landscape documentation package;

a. Where there have been significant changes made in the field during construction, these "as-built" or record drawings shall be included with the certification;

b. A diagram of the irrigation plan showing hydrozones shall be kept with the irrigation controller for subsequent management purposes.

3. Irrigation scheduling parameters used to set the controller (see Section 16.71.050);
4. Landscape and irrigation maintenance schedule (see Section 16.71.051);
5. Irrigation audit report (see Section 16.71.052); and
6. Soil analysis report, if not submitted with landscape documentation package, and documentation verifying implementation of soil report recommendations (see Section 16.71.045).

B. The project applicant shall:

1. Submit the signed certificate of completion to the planning division for review;
2. Ensure that copies of the approved certificate of completion are submitted to the water division and property owner or his or her designee.

C. Prior to building permit issuance, the planning division shall:

1. Receive the signed certificate of completion from the project applicant;
2. Approve or deny the certificate of completion. If the certificate of completion is denied, the planning division shall provide information to the project applicant regarding reapplication, appeal, or other assistance.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.050 - Irrigation scheduling.

A. For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:

1. Irrigation scheduling shall be regulated by automatic irrigation controllers.
2. Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. If allowable hours of irrigation differ from the water division, the stricter of the two shall apply. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
3. For implementation of the irrigation schedule, particular attention must be paid to

irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the estimated total water use. Total annual applied water shall be less than or equal to maximum applied water allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.

[B.] 1. Parameters used to set the automatic controller shall be developed and submitted for each of the following:

a. The plant establishment period;

b. The established landscape; and

c. Temporarily irrigated areas.

2. Each irrigation schedule shall consider for each station all of the following that apply:

a. Irrigation interval (days between irrigation);

b. Irrigation run times (hours or minutes per irrigation event to avoid runoff);

c. Number of cycle starts required for each irrigation event to avoid runoff;

d. Amount of applied water scheduled to be applied on a monthly basis;

e. Application rate setting;

f. Root depth setting;

g. Plant type setting;

h. Soil type;

i. Slope factor setting;

j. Shade factor setting; and

k. Irrigation uniformity or efficiency setting.

(Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.051 - Landscape and irrigation maintenance schedule.

A. Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the certificate of completion.

B. A regular maintenance schedule shall include, but not be limited to, routine inspection; auditing, adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; topdressing with compost, replenishing mulch; fertilizing; pruning;

weeding in all landscape areas, and removing obstructions to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

C. Repair of all irrigation equipment shall be done with the originally installed components or their equivalents or with components with greater efficiency.

D. A project applicant is encouraged to implement established landscape industry sustainable Best Practices for all landscape maintenance activities.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.052 - Irrigation audit, irrigation survey, and irrigation water use analysis.

A. All landscape irrigation audits shall be conducted by a city designated irrigation auditor or a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape.

B. In large projects or projects with multiple landscape installation (i.e. production home developments) an auditing rate of one in seven lots or approximately fifteen percent will satisfy this requirement.

C. For new construction and rehabilitated landscape projects installed after January 1, 2016, as described in Section 16.71.020:

1. The project applicant shall submit an irrigation audit report with the certificate of completion to the planning division that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule; including configuring irrigation controllers with application rate, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming;

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.053 - Irrigation efficiency.

A. For the purpose of determining estimated total water use, average irrigation efficiency is assumed to be 0.75 for overhead spray devices and 0.81 for drip system devices.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.054 - Recycled water.

A. The installation of recycled water irrigation systems shall allow for the current and future use of recycled water.

B. All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and state laws.

C. Landscapes using recycled water are considered special landscape areas. The ET adjustment factor for new and existing (non-rehabilitated) special landscape areas shall not exceed 1.0.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.055 - Graywater Systems.

A. Graywater systems promote the efficient use of water and are encouraged to assist in on-site landscape irrigation. All graywater systems shall conform to the California Plumbing Code (this 24, Part 5, Chapter 16) and any applicable local ordinance standards. Refer to 16.71.010 for the applicability of this chapter to landscape areas less than two-thousand five-hundred square feet with the Estimated Total Water Use met entirely by graywater.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.

16.71.056 - Stormwater management and rainwater retention.

A. Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site rainwater retention and infiltration are encouraged.

B. Project applicants shall be referred to the Public Works Department and Section 12.41 for information on any applicable stormwater technical requirements.

C. All planted landscape areas are required to have friable soil to maximize water retention and infiltration. Refer to 16.71.047(A)(3).

D. It is strongly recommended that landscape areas be designed for capture and infiltration capacity that is sufficient to prevent runoff from impervious surfaces (i.e. roof and paved areas) from either: (1) the one inch twenty-four hour rain event or (2) the eighty-fifth percentile, twenty-four hour rain event, and/or additional capacity as required by any applicable local, regional, state or federal regulation.

E. It is recommended that stormwater projects incorporate any of the following elements to

improve on-site stormwater and dry weather runoff capture and use:

1. Grade impervious surfaces, such as driveways, during construction to drain to vegetated areas.
2. Minimize the area of impervious surfaces such as paved areas, roof and concrete driveways.
3. Incorporate pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.
4. Direct runoff from paved surfaces and roof areas into planting beds or landscaped areas to maximize site water capture and reuse.
5. Incorporate rain gardens, cisterns, and other rain harvesting or catchment systems.
6. Incorporate infiltration beds, swales, basins and drywells to capture stormwater and dry weather runoff and increase percolation into the soil.
7. Consider constructed wetlands and retention ponds that retain water, equalize excess flow, and filter pollutants.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.057 - Public education.

A. Publications. Education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation, management and maintenance that save water is encouraged in the community.
   1. The water division shall provide information to owners of permitted renovations and new, single-family residential homes regarding the design, installation, management, and maintenance of water efficient landscapes based on a water budget.

B. Model Homes. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this chapter.
   1. Signs shall be used to identify the model as an example of a water efficient landscape featuring elements such as hydrozones, irrigation equipment, and others that contribute to the overall water efficient theme. Signage shall include information about the site water use as designed per this chapter; specify who designed and installed the water efficient landscape; and demonstrate low water use approaches to landscaping such as using native plants, graywater systems, and rainwater catchment systems.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016)

16.71.058 - Environmental review.

All projects must comply with the California Environmental Quality Act (CEQA), as appropriate.

(Ord. No. 1634 N.C.(2d), § 4, 3-23-2010; Ord. No. 1718 N.C.(2d), § 2, 2-9-2016)

State Law reference— (Section 21082, Public Resources Code. Reference: Sections 21080, 21082, Public Resources Code.)

16.71.059 - Provisions for existing landscapes.

The city manager shall designate the planning division, public works department, water division, or any other agency as deemed appropriate to implement some or all of the requirements contained in this chapter.

(Ord. No. 1718 N.C.(2d), § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.060 - Reserved.

16.71.061 - Irrigation audit,

irrigation survey, and irrigation water use analysis.

A. This section shall apply to all existing landscapes that were installed before January 1, 2016, and are over one acre in size.
    1. For all landscapes in Section 16.71.061(A) that have a water meter, the water division shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys, and irrigation audits to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the maximum applied water allowance for existing landscapes. The maximum applied water allowance for existing landscapes shall be calculated as: MAWA = (0.8) (ETo)(LA)(0.62).
    2. For all landscapes in Section 16.71.061(A) that do not have a meter, the water division shall administer programs that may include, but not be limited to, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.
B. All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

(Ord. No. 1718 N.C.(2d), § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.062 - Water waste prevention.

A. The water division shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff from leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures. Penalties for violation of these prohibitions may be established and administered to the project applicant.

B. Restrictions regarding overspray and runoff may be modified if:

1. The landscape area is adjacent to permeable surfacing and no runoff occurs; or
2. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.

(Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65594, Government Code. Reference: Section 65596, Government Code.)

16.71.070 - Effective precipitation.

A. The city may consider effective precipitation (twenty-five percent of annual precipitation) in tracking water use and may use the following equation to calculate maximum applied water allowance:

MAWA= (ETo - ToEppt) (0.5) [(0.7 × LA) + (0.3 × SLA)] for residential areas.

MAWA= (ETo - Eppt) (0.62) [0.45 x LA) + (0.55 x SLA)] for non-residential uses.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016; Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

State Law reference— (Section 65595, Government Code. Reference: Section 65596, Government Code.)

16.71.080 - Appendices.

Appendices for this chapter shall be maintained by the planning division under separate cover.

(Ord. No. 1634 N.C.(2d), § 4, 3-23-2010)

16.71.090 - Reporting.

A. The city planning division shall report on implementation and enforcement by December 31, 2015. Subsequently, reporting will be due by January 31st of each year. Reports shall be submitted to the Department of Water Resources. Reports should be submitted as follows.

B. The city planning division shall address the following:

1. State whether the city is adopting a single-agency ordinance or a regional agency alliance and the date of adoption or anticipated date adoption.
2. Define the reporting period. The reporting period shall commence on December 3, 2015 and end on December 28, 2015. In subsequent years, the reporting will be for the calendar year.
3. State if using a locally modified Water Efficient Landscape Ordinance (WELO) or the Model WELO. If using a locally modified WELO, how is it different than MWELO, and are there any exemptions specified?
4. State the entity responsible for implementing the regulations of this chapter.
5. State number and types of projects subject to the regulations during the specified reporting period.
6. State the total area (in square feet or acres) subject to the regulations over the reporting period, if available.
7. Provide the number of new housing starts, new commercial projects, and landscape retrofits during the reporting period.
8. Describe the procedure for review of projects subject to the regulations of this chapter.
9. Describe actions taken to verify compliance. Is a plan check performed; if so, by what entity? Is a site inspection performed; if so, by what entity? Is a post-installation audit required; if so, by whom?
10. Describe enforcement measures.
11. Explain challenges to implementing and enforcing the regulations of this chapter.
12. Describe educational and other needs to properly apply the regulations of this chapter.

(Ord. No. 1718 N.C.(2d) , § 2, 2-9-2016)

State Law reference— (Authority cited: Section 655595, Government Code. Reference: Section 65596, Government Code.)

‹ 16.70.090 - Design standards applicable to required landscaping.

Chapter 16.72 - PERFORMANCE STANDARDS REGULATIONS ›

Vallejo, CA
Code of Ordinances

‹ 16.72.100 - Humidity, heat, cold, and glare performance standards.

Chapter 16.75 - SITE DEVELOPMENT STANDARDS ›

Chapter 16.74 - ENERGY AND WATER CONSERVATION REGULATIONS

16.74.010 - Title and purpose.

The provisions of Section 16.74.010 through Section 16.74.040, inclusive, shall be known as the "energy and water conservation regulations." The purpose of these provisions is to encourage the conservation of depletable energy resources and water resources, and to facilitate the utilization of alternative, nondepletable energy resources, including solar and wind energy.

(Ord. 611 N.C.(2d) § 1, 1981: Ord. 558 N.C.(2d) § 2 (part), 1980.)

16.74.020 - Energy conservation guidelines.

A. Circulation and Transportation.

1. Subdivisions, planned unit developments, and large-scale commercial developments shall be designed to encourage energy conserving transportation practices while discouraging unnecessary automobile use. Applications for site development plan approval of these developments shall include pedestrian and bicycle circulation systems which are orderly, well-maintained, and convenient to use.
2. Developments including civic, commercial and industrial use types shall provide bicycle racks for the use of their employees and the persons they serve.

B. Efficient Use of Solar Energy.

1. Subdivision and residential planned unit developments shall be designed so that dwelling units are oriented to the south to permit maximum exposure to the winter sun for solar heating. When necessary in order to achieve a southerly orientation for individual dwelling units, the development services director, upon application for minor conditional use permit as provided by Chapter 16.82, may waive minimum yard requirements.
2. Buildings, landscaping, vegetation, fences, and other solar screens should be located and sited to the minimum extent possible so that they do not preclude or discourage the use of solar energy on adjacent properties and buildings. Where necessary, the development services director may require submission of a map showing shadows cast by solar screens, including landscaping and vegetation at maturity, for twelve noon (Solar Time) on December 21st.
3. Exterior clothes drying facilities shall not be prohibited in subdivisions and shall be provided in apartment house and condominium developments.
4. Exterior active and passive solar energy collectors and ancillary equipment shall not be prohibited in subdivisions, apartment houses, and condominiums.

C. Functional Landscaping.

1. All parking areas shall be planted to afford a maximum amount of shaded area during the summer months.

(Ord. 1368 N.C.(2d) § 18, 1996: Ord. 558 N.C.(2d) § 2 (part), 1980.)

16.74.030 - Water conservation guidelines.

All vegetation and landscaping required by the zoning regulations shall employ drought resistant species.

(Ord. 558 N.C.(2d) § 2 (part), 1980.)

16.74.040 - Wind energy guidelines.

The intent of this section is to regulate the placement of and access to wind energy conservation systems for the purposes of protecting the health and safety of individuals on adjacent properties as well as the general public. A wind energy conservation system (WECS) is any mechanism designed for the purpose of converting wind energy into electrical or mechanical power.

A. Permit Required. A minor conditional use permit shall be required for all wind-energy conservation systems of less than five hundred square feet of rotor area (twenty-five-foot diameter). WECS's exceeding five hundred square feet of rotor area shall require a major conditional use permit as a major impact service and utility and shall be subject to conditions placed on the permit and not the provisions of this section.

B. Performance Standards. The WECS shall not exceed the noise and vibration standards described in Chapter 16.72 of this title. The WECS shall be operated so that no harmful interference with radio and/or television broadcasting or reception is caused. A WECS shall not be installed in any location along the major axis of an existing microwave communications link where the operation of the WECS is likely to produce an unacceptable level of electromagnetic interference unless the applicant provides sufficient evidence indicating that the degree of interference will not disrupt the communications link. The WECS shall be located in accordance with guidelines of the Federal Aviation Administration.

C. Dimensions of WECS. The maximum allowable hub height shall be one hundred feet. The lowest reach of the rotor shall be seventy-five feet from the ground unless it can be demonstrated by the applicant that a lower height would not subject the rotor to excessive turbulence. In no case shall the rotor be less than fifteen feet from the ground. Tower-climbing apparatus shall be no lower than twelve feet from the ground.

D. Setbacks. The WECS shall be set back a minimum distance of 1.25 times the maximum height reached by any part of the WECS to any property line, and a minimum of ten feet from any other structure on the property. A three-hundred-foot setback shall be maintained from any district which does not permit a WECS.

Setbacks determined by height may be waived when appropriate easements are secured from adjacent property owners or other acceptable mitigation is approved by the development services director.

E. Safety. At least one sign shall be posted at the base of the tower warning of high voltage. The generator, alternator or service entrance shall also be posted with the following information: (1) maximum power input (kw), rated voltage (volts) and rated current; (2) normal and emergency shutdown procedures; and (3) the maximum wind speed the WECS in automatic unattended operation can sustain without damage to structural components or loss of the ability to function normally. The WECS shall be designed with both manual and automatic overspeed controls to limit the speed of blade rotation below the design limits of the rotor.

F. Design Considerations. All electric lines serving the WECS shall be installed underground. Guyed towers shall be within a six-foot fence of sufficient radius to enclose all guy cables.

G. Utility Company Notification. The Pacific Gas and Electric Company shall be notified in writing in accordance with procedures established by the California Public Utilities Commission of any proposed interconnection with that company's grid prior to installing said interconnection.

H. Maintenance. The tower and generating unit shall be kept in good repair. The WECS shall be deemed abandoned if not in continuous use except for maintenance and repairs. Upon the determination of abandonment, said system and tower shall be removed within thirty days of written notice to the applicant and property owner as shown on the latest tax rolls and subject to the appeals procedure as described in Chapter 16.102 of this Title 16.

I. Subject to the provisions of this chapter, a WECS shall be permitted in Resource Conservation, Rural Residential, Professional Office, Linear Commercial, Pedestrian Shopping and Service, Waterfront Shopping and Service, Freeway Shopping and Service and Intensive Use districts.

(Ord. 1368 N.C.(2d) § 18, 1996: Ord. 714 N.C.(2d) § 1, 1983: Ord. 611 N.C.(2d) § 2, 1981.)

‹ 16.72.100 - Humidity, heat, cold, and glare performance standards.

Chapter 16.75 - SITE DEVELOPMENT STANDARDS ›