RANCHO MURIETA COMMUNITY SERVICES DISTRICT

15160 JACKSON ROAD
RANCHO MURIETA, CA. 95683

BOARD GOAL WORKSHOP

January 13, 2016 at 2:00 p.m.

NOTICE IS HEREBY GIVEN that the Board of Directors of the Rancho Murieta Community Services District will hold a Special Meeting on January 13, 2016 at 2:00 p.m., at the Rancho Murieta Community Services District Board Room at 15160 Jackson Road, Rancho Murieta.

AGENDA

1. **Call to Order, Roll Call** - Determination of Quorum - President Pasek **(Roll Call)** 2:00

2. **Adopt Agenda** (Motion) 2:05

3. **Comments from the Public** 2:10

   The public shall have the opportunity to directly address the Board on any item of interest before or during the Board's consideration of that item. Public comment on items within the jurisdiction of the Board is welcome, subject to reasonable time limitations for each speaker.

   If you wish to address the Board at this time, as a courtesy, please state your name and address, and reserve your comments to no more than 3 minutes so that others may be allowed to speak. No action will be taken.

4. **Consider Approval of Water Smart Grant Application – Presentation by Kevin Kennedy, AECOM** (Discussion/Action) (Motion) *(45 min.)* 2:15

5. **Consider Adoption of Resolution R2016-01 Supporting Participation in the Bureau of Reclamation WaterSMART Grant Program** (Discussion/Action) (Motion) *(5 min.)* 3:00

6. **Consider Approval of Water Supply Assessment Contract Addendum** 3:05
   (Discussion/Action) (Motion) *(5 min.)*

7. **Goal Planning** *(Discussion)*
   - ❖ Review Last Year's Goals *(60 min.)* 3:10
   - ❖ Identify New Goals *(60 min.)* 4:10

8. **Director Comments/Suggestions**

9. **Adjournment** (Motion) 5:30

"In accordance with California Government Code Section 54957.5, any writing or document that is a public record, relates to an open session agenda item and is distributed less than 72 hours prior to a regular meeting, will be made available for public inspection in the District offices during normal business hours. If, however, the document is not distributed until the regular meeting to which it relates, then the document or writing will be made available to the public at the location of the meeting."

Note: This agenda is posted pursuant to the provisions of the Government Code commencing at Section 54950. The date of this posting is January 11, 2016. Posting locations are: 1) District Office; 2) Plaza Foods; 3) Rancho Murieta Association; 4) Murieta Village Association.

MEMORANDUM

Date: January 12, 2016

To: Board of Directors

From: Paul Siebensohn, Director of Field Operations

Subject: Consider Approval of Water Smart Grant Application

RECOMMENDED ACTION

Approve USBR funding application from AECOM for the WaterSMART: Water and Energy Efficiency Grants for FY 2016 in support of Phase 1 of the Recycled Water System Expansion Project.

BACKGROUND

The District and AECOM have been working since December 2015 to reduce and reorder the priority of the Recycled Water System Expansion Projects. Kevin Kennedy has attended the past few Board of Directors meetings to keep the Board updated and received the Board's input on the reordering of the proposed projects (for example moving the service of recycled water to Stonehouse Park up in the priority). The estimated cost of Phase 1 has also been substantially reduced to just over $4,000,000. The FY 16 WaterSMART grant has a maximum award amount of $1,000,000 per project and requires that the applicant provide a cost share of at least 50%. Our cost share is approximately 75% due to the limitation of the grant award.

The attached application is substantially similar to the Title XVI application that was submitted to the Board in December but subsequently pulled because it was discovered that we were not eligible for that particular Title XVI program. In reviewing the attached application, it is recommended that you focus on section 3.1 for detailed information on the Phase 1 projects. Section 3.2 identifies future phase projects that are not included in the grant funding request. Appendix B, Engineering Estimates, breaks down the estimated cost for each of the Phase 1 projects.

The application submittal deadline is January 20, 2016 by 4:00 p.m. Mountain Standard Time.

OMB Number: 4040-0004
Expiration Date: 8/31/2016

Application for Federal Assistance SF-424

* 1. Type of Submission:
- [ ] Preapplication
- [x] Application
- [ ] Changed/Corrected Application

* 2. Type of Application:
- [x] New
- [ ] Continuation
- [ ] Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received:

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: Rancho Murieta Community Services District

* b. Employer/Taxpayer Identification Number (EIN/TIN): 68-0000805

* c. Organizational DUNS: 1059184600000

d. Address:

* Street1: 15160 Jackson Road
Street2: PO Box 1050
* City: Rancho Murieta
County/Parish:
* State: CA: California
Province:
* Country: USA: UNITED STATES
* Zip / Postal Code: 956683-1050

e. Organizational Unit:

Department Name:

Division Name:

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:
* First Name: Thomas
Middle Name:
* Last Name: Guinn
Suffix:

Title: Project Manager

Organizational Affiliation: AECOM

* Telephone Number: (775) 722-5095
Fax Number: (916) 679-2900

* Email: tom.guinn@aecom.com

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

D: Special District Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

U.S Department of the Interior, Bureau of Reclamation

11. Catalog of Federal Domestic Assistance Number:

15.507

CFDA Title:

*** 12. Funding Opportunity Number:**

R16-FOA-DO-004

* Title:

WaterSMART: Water and Energy Efficiency Grants for FY 2016

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Rancho_Murieta-Sacramento_County-CA.pdf | Add Attachment | Delete Attachment | View Attachment

*** 15. Descriptive Title of Applicant's Project:**

The project consists of the expansion of the existing recycled water program to serve future residential developments, existing parks and commercial landscaping.

Attach supporting documents as specified in agency instructions.

Add Attachments | Delete Attachments | View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant: 7th

* b. Program/Project: 7th

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 09/01/2016

* b. End Date: 11/12/2018

18. Estimated Funding ($):

* a. Federal	983,408.88
* b. Applicant	3,114,128.12
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	4,097,537.00

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .

☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☒ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix:

* First Name: Darlene

Middle Name:

* Last Name: Gillum

Suffix:

* Title: RMCSD - General Manager

* Telephone Number: (916) 354-3709

Fax Number: (916) 314-3530

* Email: dgillum@ranchomurietacsd.com

* Signature of Authorized Representative:

* Date Signed: 01/13/2016

ASSURANCES - CONSTRUCTION PROGRAMS

OMB Number: 4040-0009
Expiration Date: 06/30/2014

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the Awarding Agency. Further, certain Federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant:, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will not dispose of, modify the use of, or change the terms of the real property title or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure non-discrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progressive reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards of merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681 1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29) U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statue(s) under which application for Federal assistance is being made; and (j) the requirements of any other nondiscrimination statue(s) which may apply to the application.

11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.

12. Will comply with the provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333) regarding labor standards for federally-assisted construction subagreements.

14. Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is $10,000 or more.

15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).

16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq).

18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."

19. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

20. Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE
	GENERAL MANAGER
APPLICANT ORGANIZATION	DATE SUBMITTED
RANCHO MURIETA COMMUNITY SERVICES DISTRICT	01/20/2016

RANCHO MURIETA COMMUNITY SERVICES DISTRICT

PHASE 1 RECYCLED WATER SYSTEM EXPANSION PROJECT

Applicant:
Rancho Murieta Community Services District
Attn: Darlene Gillum, General Manager
15160 Jackson Highway
Rancho Murieta, CA 95683
Email: dgillum@ranchomurietacsd.com
Telephone: (916) 354-3709
Fax: (916) 314-3530

Submitted By:
AECOM
Attn: Tom Guinn, Project Manager
1 East First Street 16th Floor
Reno, NV 89501
Email: tom.guinn@aecom.com
Telephone: (775) 870-4923
Fax: (916) 679-2900

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ACRONYMS AND OTHER ABBREVIATIONS

ac	Acre
AF	acre-foot or acre-feet
AFY	acre-foot per year
Basin Plan	Sacramento River and the San Joaquin River Basins
BOR	Bureau of Reclamation
CALFED (formerly)	California Bay-Delta Authority
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
Code	California Water Code
cfs	cubic feet per second
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CVRWQCB	Central Valley Regional Water Quality Control Board
Delta	Sacramento-San Joaquin Delta
DIP	ductile iron pipe
District	Rancho Murieta Community Services District
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
Ft	feet
Gpm	gallons per minute
In	inch
IWMP	Integrated Water Master Plan
MGD	million gallon per day
MRP	Master Reclamation Permit
Project	Recycled Water System Expansion Project
RV	recreational vehicle
RWQCB	Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition
Study	Title XVI Recycled Water Feasibility Study, Rancho Murieta Community Services District, dated June 2014
USFWS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
VFD	Variable Frequency Drives
WWRP	Wastewater Reclamation Plant
WTP	Water Treatment Plant

1 EXECUTIVE SUMMARY

On January 13, 2016, the Rancho Murieta Community Services District (District), located in the eastern portion of Sacramento County, California, elected to implement Phase 1 of the District's Recycled Water System Expansion Project (Project). Ultimately, the Project will offset potable water demands by approximately 370 acre-feet (AF) per year.

The Project consists of the expansion of the existing recycled water program to serve future residential developments, existing parks, common areas and other landscaping consistent with the District's recently adopted Waste Discharge Requirements (WDR)[1]. Project funds will be used to convert existing potable water irrigation systems serving the District's Office, Escuela Park, Stonehouse Park, and the North Main Gate Entrance to recycled water through the addition of recycled water transmission mains, interconnecting piping, storage tank, equalization basin potable water supplementation, booster pumping station, control (SCADA) system and condition assessment of existing forcemain and conversion to recycled water service. These items are applicable under Task A – Small-scale Water Recycling and Water Reuse projects.

The proposed Project is estimated to be three years in length with a completion date of November, 2018.

The Project is not located on a Federal facility.

2 BACKGROUND DATA

2.1 Introduction

2.1.1 District Service Area and Study Area Boundaries

The District was formed in 1982 to provide water supply conveyance, treatment, and distribution; wastewater collection, treatment, and reuse; as well as storm drainage capture, collection, disposal and flood control services for the community of Rancho Murieta. This community is located approximately 20 miles east of Sacramento on State Highway 16. The area served by the District is illustrated in Figure 1 and encompasses approximately 3,500 acres. Land uses within this service area include approximately 2,000 acres for single family residences, townhouses, apartments, duplexes and mobile homes. The District currently serves 2,604 metered connections comprised of 2,502 residential, 97 commercial and 5 park connections. At buildout, according to Sacramento County's approved Planned Unit Development Plan, the development of the District's service area potentially represents roughly 5,189 residential units.

[1] Order R5-2014-0149 - Waste Discharge Requirements and Master Recycling Permit for Rancho Murieta Community Services District Wastewater Treatment and Reclamation Plant, Sacramento County, CVRWQCB, December 4, 2014.

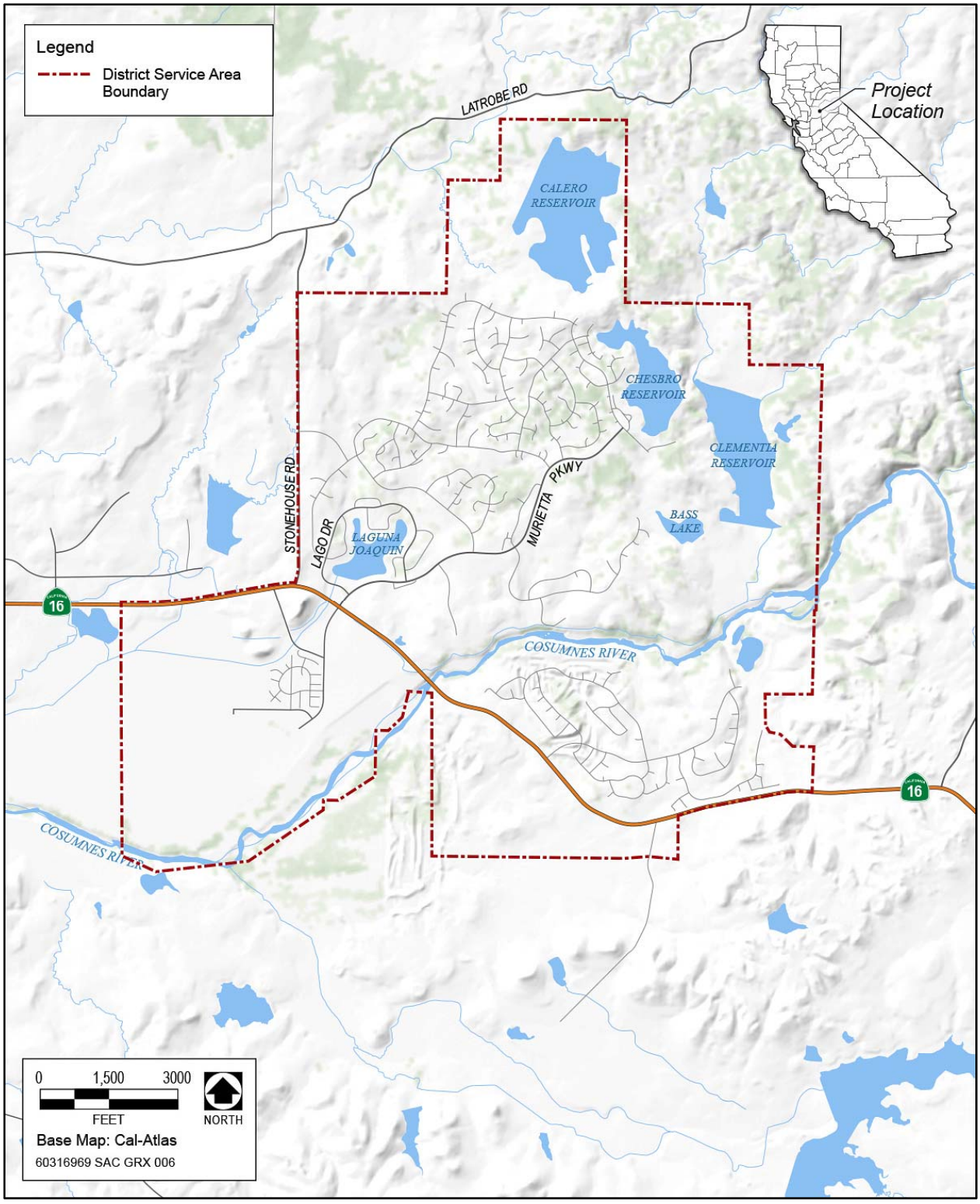

Figure 1. District Service Area and Study Area Boundary

2.1.2 Existing Wastewater Treatment and Recycled Water Systems

The existing Wastewater Reclamation Plant (WWRP) receives domestic wastewater and a relatively small amount of commercial wastewater from the community of Rancho Murieta as well as recreational vehicles (RVs) sewage from two RV dump stations. There are no industries or industrial activities that discharge wastewater to the WWRP.

Raw wastewater is pumped to the WWRP through three main pumping stations located throughout Rancho Murieta. The WWRP provides secondary and tertiary treatment suitable for the production of *Disinfected Tertiary Recycled Water* as defined by Title 22 of the California Code of Regulations. Treatment processes and their locations are shown in Figure 2.

The secondary wastewater treatment plant has an average dry weather permitted flow capacity of 1.55 million gallon per day (MGD) and a 3.0 MGD peak wet weather flow capacity. Secondary treatment takes place in a series of five clay-lined aerated facultative ponds (Aeration Ponds 1 through 5). Secondary effluent is stored in two clay-lined storage reservoirs (Reservoirs 1 and 2) with a combined storage capacity of approximately 747 AF prior to tertiary treatment and disinfection. Wastewater is stored in the reservoirs during the rainy season (typically between the months of October and March) until needed for irrigation of the golf courses during the dry season. Tertiary treatment and disinfection, typically operated from April through November, consists of two dissolved air floatation units, two rapid sand filters, a chlorine gas feed system, chlorine contact basin, and 6,600 linear feet of chlorine contact pipe installed in a concrete lined equalization basin. The design capacity of the tertiary treatment plant is 3.0 MGD and the disinfection system has a rated capacity of 2.3 MGD. After going through tertiary and disinfection facilities, the final effluent is stored in the equalization basin prior to reuse.

Disinfected tertiary treated wastewater is currently used to irrigate two 18-hole golf course properties, the North and South Golf Courses (250 acres combined area), operated by the Rancho Murieta Country Club. The locations of these golf courses are shown in Figure 3. The recycled water is pumped to the golf courses and stored in five unlined irrigation storage reservoirs (Lake Ten, Lake Eleven, Lake Sixteen, Lake Seventeen, and Bass Lake) situated around the golf courses prior to use. The two golf courses have a combined total annual irrigation demand of 550 acre feet (AF) during a typical year.

The District has over 25 years of experience as a recycled water producer and distributor. The proposed Project will be an expansion of the District's existing and successful recycled water program which serves the two existing golf courses located within the community.

Disinfected tertiary treated wastewater is also used to irrigate three separate pasture lands on the Van Vleck Ranch following wet seasons with above average levels of precipitation. Distribution and use of recycled water at the Van Vleck Ranch is managed by the District. The locations of Field 1 (49 acres (ac)), Field 2 (25 ac), and Field 3 (22 ac) are shown on Figure 3. The existing Van Vleck Ranch fields have a combined total annual irrigation demand of 215 AF during a typical year. An above ground spray irrigation system is used to discharge the recycled water onto these fields.

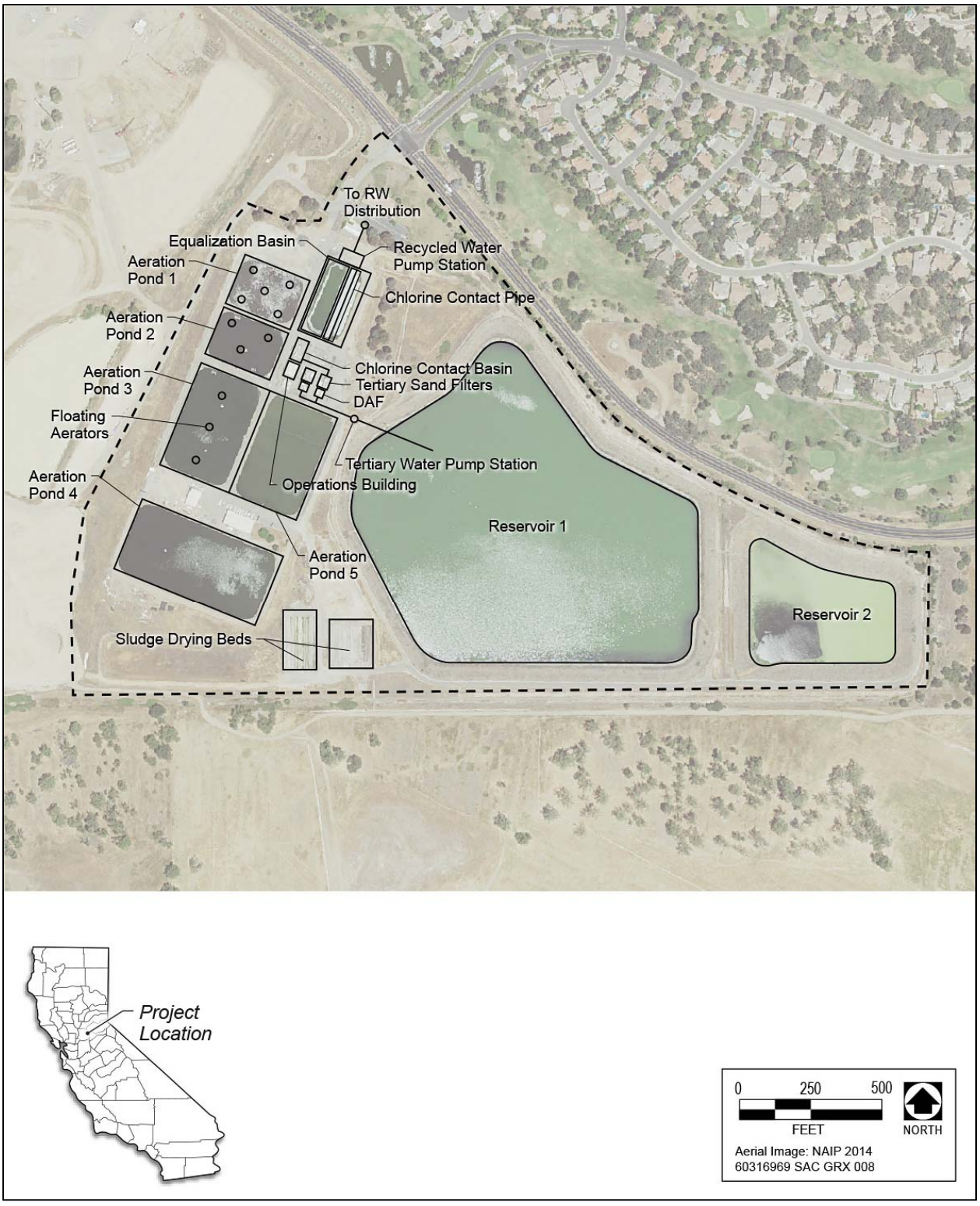

Figure 2. Existing WWRP Facilities

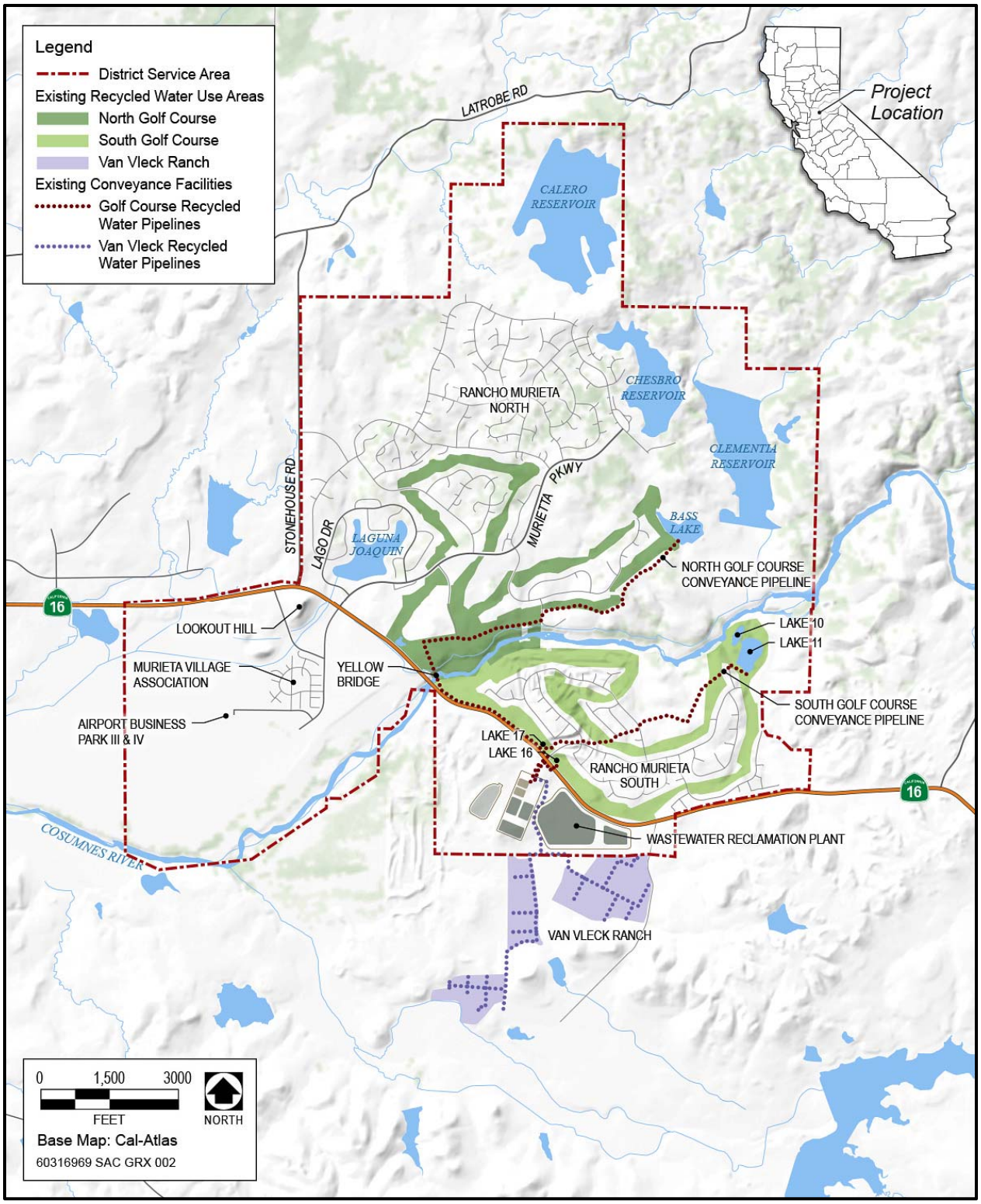

Figure 3. Existing Recycled Water Use Areas and Conveyance System

2.1.3 Project Background

A series of studies commissioned by the District, which culminated in the preparation of the Title XVI Recycled Water Feasibility Study[2], recommended the expansion of the existing recycled water system to serve select future residential developments[3], parks and other landscaping located throughout the District's service area. The selected residential developments were identified by ranking the developments against one another with respect to estimated service costs and selecting those deemed to be cost-effective. Service to these residential developments would be provided by expanding the existing recycled water system, including the North Golf Course conveyance system through the addition of recycled water transmission mains and service pipelines, storage tanks, and booster pumping stations. The Phase 1 portion of the Project focuses on providing the infrastructure needed to serve between 100 and 200 AFY (acre-foot per year) of recycled water along Rancho Murieta's western boundary.

The implementation of the Phase 1 portion of the Project will provide the following significant benefits:

- Reduce future Cosumnes River diversions, immediately offset potable water demands by 60 to 100 AFY, and immediately conserve surface water supplies. Overtime the Phase 1 infrastructure is projected to support a recycled water demand of between 100 and 150 AFY. Ultimately the Project will offset potable water demands by 370 AFY.
- Maximizes use of existing infrastructure.
- Help the District meet its 20x2020 Water Conservation Goals.
- Provide opportunities to serve other potential customers along the recycled water transmission pipeline alignment.
- Support regional water planning efforts.
- Providing a sustainable and long-term means for treated effluent disposal that is directly linked to strengthening the local economy.
- Increase water supply reliability.
- Reduce drought deficits and greenhouse gas emissions as well as the District's overall carbon footprint by minimizing potable water treatment requirements.
- Contribute to the statewide recycled water goals and demonstrate the District's willingness to manage its available resources in a responsible and progressive manner.
- Contribute to the recovery of the Central Sacramento County Groundwater Basin and Sacramento-San Joaquin Delta and Cosumnes River ecosystems.

2.1.4 Project Sponsors

The non-federal sponsor is defined as being the entity, or entities, that construct, own, operate, and maintain all or a portion of the recommended project to be funded in part by a Title XVI grant. The non-federal sponsor of the proposed Project[4] is the District.

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2 Title XVI Recycled Water Feasibility Study, Rancho Murieta Community Services District, June 2014.

3 The recommended developments for recycled water service are Murieta Gardens, Retreats, Residences of Murieta Hills, Industrial / Commercial / Residential, Apartments, Escuela, Terrace, Highlands, and River Canyon.

4 See Chapter 4 for a description of the proposed Recycled Water System Expansion Project.

2.2 Current and Projected Recycled Water Demands

Recycled water production and reuse is approved by the Central Valley Regional Water Quality Control Board (CVRWQCB).

In Rancho Murieta, existing water recycling is limited to irrigation of fairways and greens as well as filling the ponds of the two community golf courses.

Planned landscape irrigation and ancillary recycled water uses include the irrigation of parks; greenbelts; playgrounds; athletic fields; residential front and backyard landscaping; common areas; commercial, highway, and street landscaping; and dust control. Residential front and backyard irrigation use areas will be limited to the developments shown in Figure 4.

Future community developments are broken down into two phases. Phase 1 includes all the developments planned to be constructed within the 2016-2020 period. To meet Phase 1 recycled water needs, the necessary WWRP improvements and storage and conveyance expansions need to be operational by late 2018. Similarly, Phase 2 includes all the developments planned to be constructed within the 2020-2025 period. The locations of the developments included in each phase are shown in Figure 4.

To meet Phase 2 recycled water needs, the necessary WWRP improvements and storage and conveyance expansions need to be operational by 2021.

The existing and planned recycled water use areas as well as the estimated water recycling use for irrigation for these areas are summarized in Table 1.

The projected recycled water demands for a typical year (i.e., average levels of precipitation) are estimated to be the following:

- Existing Golf Courses (North and South) = 550[5] AFY
- Phase 1 Residential Developments = 165 AFY[6]
- Phase 2 Residential Developments = 249 AFY

At buildout, the projected recycled water production, based on projected wastewater generation and average levels of precipitation and evaporation, is estimated to be limited to 920 AFY which is roughly 45 AFY less than the sum of the three demands listed above (i.e., approximately 964 AFY). Of this amount, the North and South Golf Courses have the highest priority for recycled water service. The total combined disposal capacity (irrigation demand) of the existing and proposed recycled water use areas is 1,589 AFY. However, this total disposal need is only anticipated to occur following periods of unusually high levels of precipitation (e.g., system has to be designed to accommodate 100-yr level of annual precipitation).

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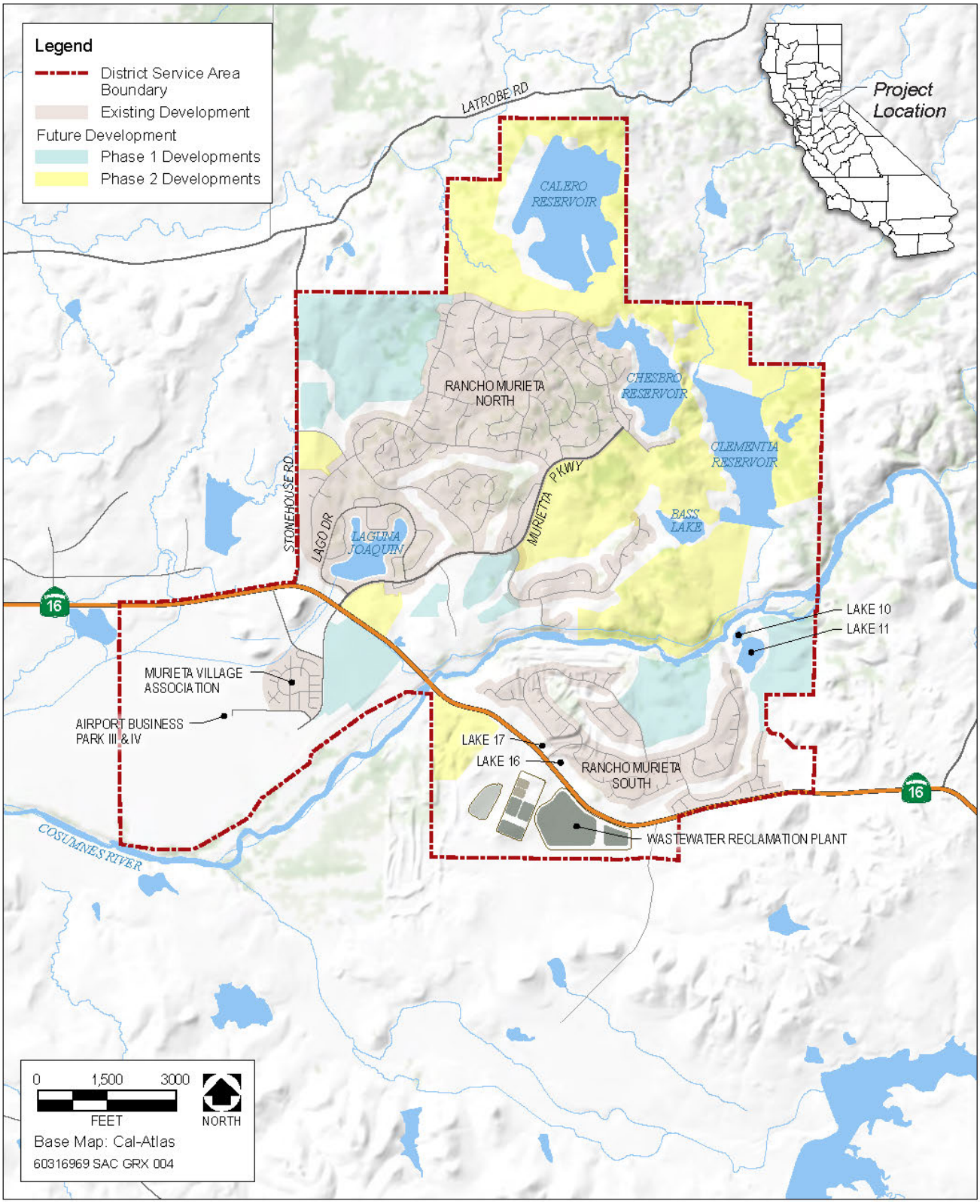
[5] District has been reviewing historic golf course demand records and may be negotiating a lower overall demand in light of the drought, golf course water conservation technological advancements, etc.

[6] This value includes recycled water service to Riverview and Lakeview developments. Service to Riverview and Lakeview has been eliminated due to higher costs and insufficient recycled water production. Demand does NOT include Escuela Park, District Office and North Gate Entrance conversions.



Source: AECOM 2015

Figure 4. Location of Planned Developments for Phase 1 and 2

Table 1. Summary of Existing and Proposed Recycled Water Use Areas and Associated Irrigation Demands

Name	Proposed Expanded Recycled Water Use Areas[1, 2]	
	Description	Estimated Annual Irrigation Demand[3] (AFY)
Existing Recycled Water Use Areas		
Rancho Murieta North Golf Course	18-hole golf course (~125 ac)	275
Rancho Murieta South Golf Course	18-hole golf course (~125 ac)	275
Van Vleck Ranch [4] (Field 1, Field 2, and Field 3)	Field 1 (49 ac), Field 2 (25 ac), Field 3 (22 ac)	215
Sub Total		**765**
Phase 1 Proposed Expanded Recycled Water Use Areas (~2016-2020)		
Lakeview	99 residential units	15.8
Murieta Gardens	99 residential units, 50 commercial units, 1-acre park	19.6
Residences of Murieta Hills	198 residential units	73.8
Retreats	84 residential units	18.8
Riverview	140 residential unit	22.4
Stonehouse Park	4-acre park (existing)	14.4
Sub Total		**165**
Phase 2 Proposed Expanded Recycled Water Use Areas (~2020-2025)		
Apartments	170 residential units	23.8
Escuela	40 residential units, 4-acre park	25.9
Highlands	110 residential units	42.1
Industrial/Commercial/ Residential	100 residential units, 125 commercial units	50.9
River Canyon	120 residential units	46.4
Terrace	177 residential units	59.9
Van Vleck Ranch	Field 4	410
Sub Total		**659**
Grand Total		1,589

Notes:

[1] Use of recycled water for residential developments will be time-phased into two project phases.

[2] Total irrigation demand does not include potential irrigation demand needs for the Estates of Lake Calero, Estates of Lake Chesbro, and Estates of Lake Clementia developments (~113 AFY). Recycled water service to these developments was not included due to higher estimated service costs.

[3] Irrigation demands are based on an average year rainfall year.

[4] Van Vleck Ranch only receives recycled water during exceptionally wet years (such as 100-year rainfall years) to meet CVRWQCB disposal requirements.

2.3 Wastewater Treatment, Storage, and Water Recycling

2.3.1 Existing Wastewater Treatment and Recycled Water Systems

The existing WWRP receives domestic wastewater and a relatively small amount of commercial wastewater from the community of Rancho Murieta as well as RV wastewater from two RV dump stations. There are no industries or industrial activities that discharge wastewater to the WWRP.

Raw wastewater is pumped to the WWRP through three main pumping stations located throughout Rancho Murieta. The WWRP provides secondary and tertiary treatment and disinfection. The treatment process systems are described below and their locations are shown in Figure 2.

The secondary wastewater treatment plant has an average dry weather permitted flow capacity of 1.55 MGD and a 3.0 MGD peak wet weather flow capacity. Secondary treatment takes place in a series of five clay-lined aerated facultative ponds (Aeration Ponds 1 through 4). Secondary effluent is stored in two clay-lined storage reservoirs (Reservoirs 1 and 2) with a combined storage capacity of approximately 747 AF prior to tertiary treatment and disinfection. Wastewater is stored in the reservoirs during the rainy season (typically between the months of October and March) until needed for irrigation of the golf courses during the dry season. Tertiary treatment and disinfection consists of two dissolved air floatation units, two rapid sand filters, a chlorine gas feed system, chlorine contact basin, and 6,600 linear feet of chlorine contact pipe installed in a concrete lined equalization basin. The design capacity of the tertiary treatment plant is 3.0 MGD and the disinfection system has a design capacity of 2.3 MGD. Disinfected tertiary treated wastewater is stored in the equalization basin prior to reuse. The tertiary treatment plant is typically operated from April through November.

Disinfected tertiary effluent is currently used to irrigate two 18-hole golf course properties (approximately 250 acres) operated by the Rancho Murieta Country Club. The recycled water is pumped to the golf course and stored in five unlined irrigation storage reservoirs (Lake Ten, Lake Eleven, Lake Sixteen, Lake Seventeen, and Bass Lake) situated around the golf courses prior to use. The location of the storage reservoirs is shown in Figure 3. The two golf courses have a combined total annual irrigation demand of 550 AF during a typical year.

The RWQCB requires the District to provide adequate disposal capacity (e.g., irrigation area) to accommodate both 100-year and average levels of precipitation. . This requirement results in more land being needed beyond that needed to accommodate average levels of rainfall. Therefore, some of this land will not receive recycled water during periods of annual average level of rainfall. To address this imbalance, District staff have elected to require developers to provide suitable land areas to accommodate average levels of precipitation within their developments or elsewhere within the District's service area in some cases; the difference in land requirements for 100-year and average levels of annual precipitation is to be accommodated at Van Vleck Ranch. Higher levels of precipitation (e.g., 100-year rainfall years) will require the use of the Van Vleck Ranch. The advantages of this approach are that (a) irrigation demands are based on average levels of rainfall as opposed to abnormally high levels, which (b) minimizes the need for potable water supplementation, and (c) minimize new developments land needs and costs while maximizing all of the District's available water resources.

3 TECHNICAL PROJECT DESCRIPTION

3.1 Proposed Improvements to Wastewater Treatment and Recycled Water Systems to provide Residential Irrigation

This application focuses on the improvements necessary to meet forecasted recycled water demands for Phase 1.

The improvements to the WWRP are illustrated in Figure 5. The following is a description of these improvements:

1. **Control System for Recycled Water Conveyance and Storage System:** A Supervisory Control and Data Acquisition (SCADA) system and telemetry to control delivery of water throughout the existing and proposed recycled water storage and conveyance system. This also includes installation of additional valves and actuators to manage conveyance and distribution of recycled water throughout the recycled water system.

2. **Installation of a Potable Water System Connection via an Air Gap to the Equalization Basin:** This improvement will provide the ability to supplement recycled water production with potable water to meet peak irrigation demands. This improvement is needed to maximize the use of recycled water within the community and will involve tapping into the existing 8-inch (in) potable water pipeline immediately north of the equalization basin, installing an extension to the equalization basin, and installing an 8-in air gap connection to deliver potable water to the equalization basin. The connection between the existing potable water pipeline and the air gap will be accomplished by installing approximately 20 feet (ft) of 8-in ductile iron pipe (DIP), valves, bends, etc.

3. **North Golf Course Pumping Station Improvements:** Currently this facility is configured to pump recycled water to either the North Golf Course or to the Van Vleck Ranch. The objective of this improvement is to provide independent pumping capabilities to the North Golf Course Transmission Main with sufficient firm capacity[7] to serve the North Golf Course, associated developments and community landscaping. This facility will be designed to deliver up to 2,100 gallons per minute (gpm) to the North Golf Course and proposed Lookout Hill Tank as well as other future developments and storage tanks. These new pumps will be powered by variable frequency drives to minimize energy use.

4. **Connection irrigation system of front yard of District's headquarters to recycled water system**: The irrigation system for the front yard of the District's headquarters will be isolated from the potable water system and connected to the North Golf Course Pumping Station recycled water transmission main. Cross connection tests will be used to verify that only the irrigation system is receiving recycled water and to ensure that potable water facilities are not connected to the recycled water system. Up to 200 ft of new 2-in PVC pipeline and associated appurtenances has been allocated for this effort.

[7] The firm pumping capacity is defined as a station's capacity with the largest pump out of service.

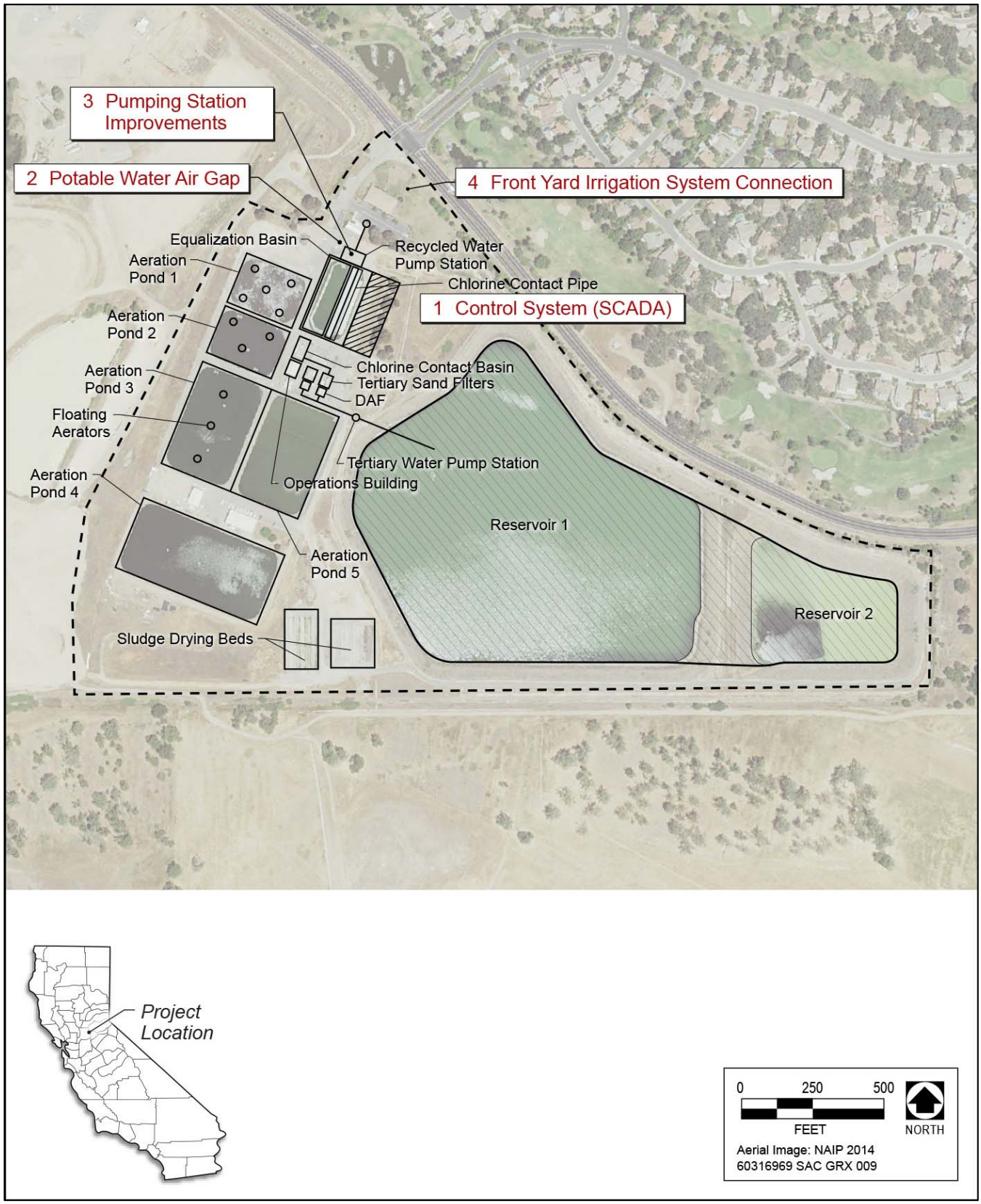


Figure 5. Proposed Phase 1 WWRP Improvements to Increase Recycled Water Production Capacity and Provide System Control

The improvements to the recycled water conveyance system are illustrated in Figure 6. The following is a description of these improvements:

5. **Northwest Recycled Water Booster Pumping Station and Transmission Main:** A new recycled water transmission main will be installed to deliver recycled water to Stonehouse and Escuela Parks and the North Gate Entrance areas to be irrigated with recycled water instead of potable water. This main will likely also serve recycled water to future developments located along the northwest portion of Jackson Highway and Stonehouse Road. This new transmission main will be connected to the existing 12-in North Golf Course conveyance pipeline immediately north of the Yellow Bridge. A 12-in highway undercrossing will be used to connect this pipeline to a recently constructed 12-in recycled water pipeline located along Legacy Lane (approximately 700 ft, PVC). Other improvements associated with the booster pumping station and this transmission main are described below:

    a. **Interconnecting Piping Between Lookout Hill Storage Tank and Booster Pumping Station:** The Legacy Lane pipeline will be continued northwest through the installation of a new 12-in pipeline which follows along Lone Pine Drive. This new pipeline will be used to feed recycled water to the new Lookout Hill Tank (approximately 2,000 ft, PVC) from the WWRP.

    In addition, a new 12-in pipeline will be installed to connect the new Lookout Hill Tank to the new Booster Pumping Station to be located at the Main Lift North Station site (approximately 1,500 ft, PVC).

    b. **Recycled Water Booster Pumping Station:** A new booster pumping station, with a firm capacity of approximately 1,000 gpm, is needed to deliver recycled water to Stonehouse and Escuela Parks and the North Gate Entrance irrigation areas. In the future, this station could also serve developments located in the northwest corner of the District's service area. This new pumping station will be located at the existing District's Main Lift North site and will house two new booster pumps. These new pumps will be powered by variable frequency drives to minimize energy use.

    c. **Interconnecting Piping Between Booster Pump Station and Existing Forcemain:** A new transmission forcemain will be installed to connect the new Booster Pumping Station to the existing 12-inch forcemain described below.

    d. **Condition Assessment and Rehabilitation of Existing 12-in Forcemain:** There is an existing 12-in forcemain (no longer in use) that parallels Stonehouse Road and crosses under Highway 16. This pipeline will be examined, rehabilitated and repurposed to serve as either (1) a recycled water transmission main or (2) a conduit for running a smaller diameter (e.g., 8 or 10-inch diameter pipeline) pipeline which would serve as the recycled water transmission main. A condition assessment of the 12-in existing sewer pipeline has been included in Phase 1 to evaluate which alternative is best for implementation.

6. **Escuela Park Conversion:** The irrigation system for existing Escuela Park will be isolated from the potable water system and connected to the Northwest Recycled Water Transmission Main. Cross connection test will be used to verify that only the irrigation system is receiving recycled water and to ensure that potable water facilities are not connected to the recycled water system. Up to 200 ft of new 4-in PVC pipeline and associated appurtenances has been allocated for this effort. Cross-connection testing is also included in this improvement.

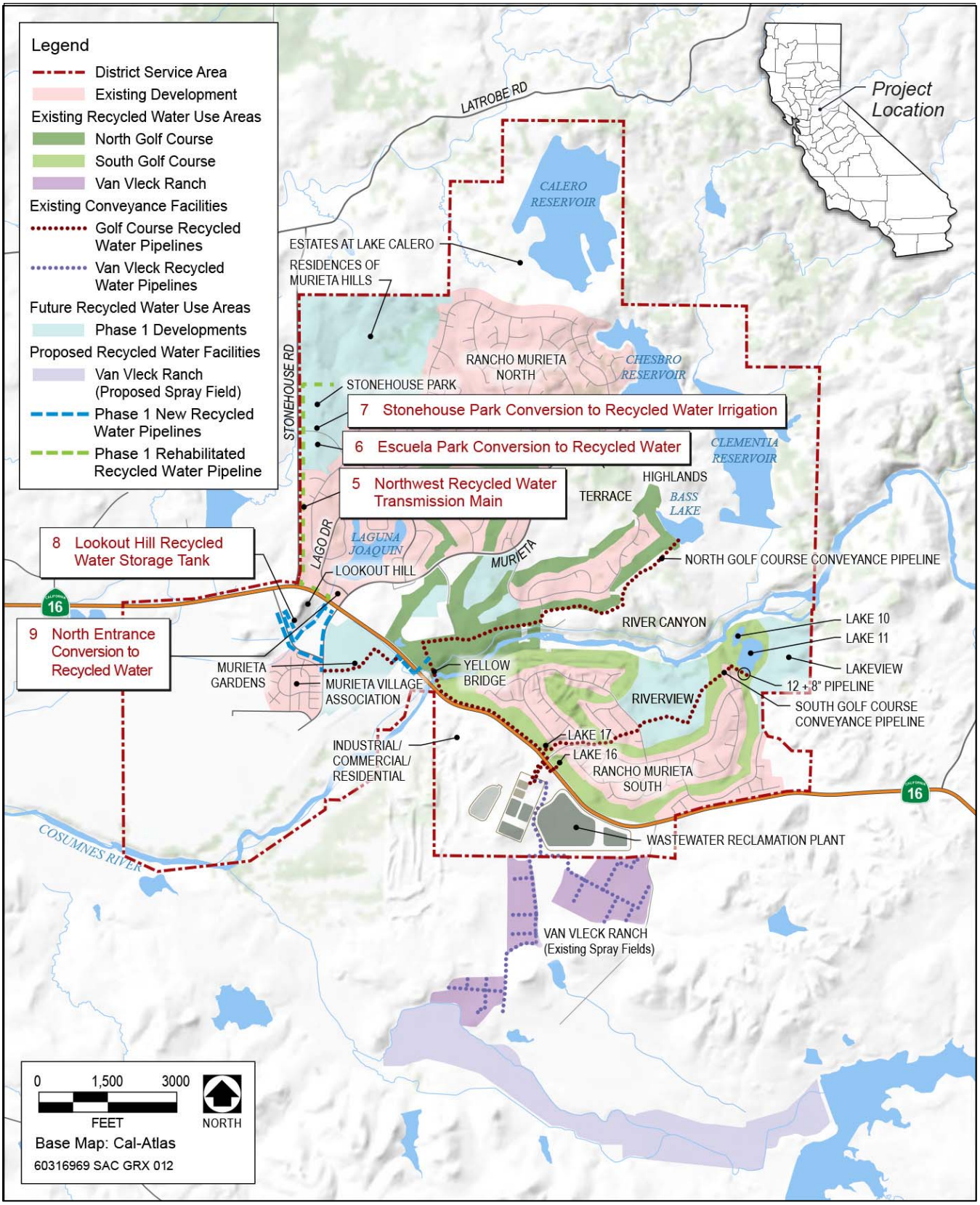


Figure 6. Proposed Recycled Water Use Conveyance System Improvements for Phase 1

7. **Stonehouse Park Conversion**: The irrigation system for existing Stonehouse Park will be isolated from the potable water system and connected to the Northwest Recycled Water Transmission Main. Cross connection test will be used to verify that only the irrigation system is receiving recycled water and to ensure that potable water facilities are not connected to the recycled water system. Up to 200 ft of new 4-in PVC pipeline and associated appurtenances has been allocated for this effort. Cross-connection testing is also included in this improvement.

8. **Lookout Hill Recycled Water Storage Tank:** Recycled water storage is required to supplement recycled water production capacities needed to satisfy peak irrigation demands. It is recommended that a total capacity of 200,000 gallons be provided to satisfy Phase 1 demands.

   The existing tank will be demolished and a new tank made of bolted panels with powder coated finish will be erected in its place or next to the existing tank. The preliminary external dimensions of this tank are approximately 40 ft diameter by 25 ft height.

9. **North Gate Entrance Park Conversion**: The irrigation system for existing North Gate Entrance area will be isolated from the potable water system and connected to the Northwest Recycled Water Transmission Main. Cross connection test will be used to verify that only the irrigation system is receiving recycled water and to ensure that potable water facilities are not connected to the recycled water system. Up to 200 ft of new 4-in PVC pipeline and associated appurtenances has been allocated for this effort. Cross-connection testing is also included in this improvement.

3.2 Future Phases of Improvements to Wastewater Treatment and Recycled Water Systems to provide Residential Irrigation

Future phases include, but are not limited to the following major improvements.

- **Disinfection Facilities Upgrade:** Currently the disinfection facilities have a rated capacity of 2.3 MGD, which requires the use of potable water supplementation during peak irrigation demands and limits recycled water production capabilities at the WWRP. These facilities will be upgraded to provide a rated capacity of 3.0 MGD in accordance with Title 22 requirements[8]. To this end, a new concrete chlorine contact basin will be constructed next to the existing equalization basin.

  The new chlorine contact basin will provide approximately 200,000 gallons of additional active volume and will include three passes following a serpentine configuration. The preliminary dimensions of this basin are:

Total Length	=	120 feet (ft)
Width	=	30 ft
Depth	=	8 ft (Surface Water Depth) + 2 ft (Freeboard) = 10 ft

  The water surface water elevation of this basin will approximately match the elevation of the existing chlorine contact basin.

[8] For chlorine disinfection and *Disinfected Tertiary Recycled Water* production, Title 22 requires a minimum CT of 450 mg-min/L and 90-minute (minimum) modal contact time.

This improvement also includes the removal and disposal of the chlorine contact piping inside the equalization basin.

- **Rehabilitation of Existing Conveyance Systems to North Golf Courses:** The conveyance pipeline that serve the North Golf Course represent the backbone of the existing recycled water system and will be used to convey recycled water to other areas. These pipelines have been in service for over 25 years. It is necessary to conduct a condition assessment of these conveyance systems to determine rehabilitation needs and ensure future performance and continued, uninterrupted service.

- **Bass Lake Recycled Water Storage Tanks:** Recycled water storage is required to supplement recycled water production capacities needed to satisfy Phase 2 peak irrigation demands. At this time, it has been recommended that a total capacity of 500,000 gallons be provided to satisfy Phase 2 demands. However, the size of this tank should be revisited after Phase 1 recycled water demands have been refined and/or better quantified once Phase 1 recycled water demands have occurred.

- **Seasonal Storage Reservoir:** Additional storage for secondary treated effluent is required to serve future Phase 2 developments. This need could potentially be met through expansion of the existing reservoir or through the addition of a second reservoir.

3.3 Implementation Schedule

The implementation schedule for the improvements included in Phase 1 is provided in Appendix A. Construction of the improvements for both the Phase 1 WWRP and Recycled Water Conveyance System Improvements will be performed and substantially complete (operational) by November 2018, after a punch list and closeout period, all improvements are expected to be accepted by the District's Board of Directors by February 2019.

4 EVALUATION CRITERIA

4.1 Evaluation Criterion A: Water Conservation

4.1.1 Quantifiable Water Savings

Describe the amount of water saved.

The ultimate project will offset potable water demands by approximately 370 AFY by expanding the existing North Golf Course Conveyance System through the addition of recycled water transmission mains and service pipelines, storage tanks, and booster pumping; condition assessment of the existing recycled water system; disinfection facility upgrades; and seasonal storage expansion. The completed Project will serve future residential developments, existing parks and commercial landscaping.

The 370 AFY of water conserved was calculated by deriving expected future development water demands (Table 2) and analyzing the difference between current conditions and future conditions for Total Firm Supply. Table 3 provides a summary of current and project water demands.

Table 2. Existing and Projected Number of Connections at Buildout

Conditions/Development Phase	Residential Units	Commercial Units	Parks	Total
Current Conditions	2,502	97	5	**2,604**
Infill	44			**44**
Planned Development [a]	1,648	50	2	**1,700**
Total	**4,194**	**147**	**7**	**4,348**

[a] Planned developments include: Lakeview, Murieta Gardens, Residences of Murieta Hills, Retreats, Apartments, Escuela, Estates of Calero, Estates of Chesbro, Estates of Clementia, Highlands, Industrial/Commercial/Residential, River Canyon and Terrace

Table 3. Current and Projected Water Demands

Sources of Supply	Current Conditions (AFY)		Future (Buildout Conditions (AFY)	
	Normal Supply	Drought Supply	Normal Supply	Drought Supply
River Diversion (Potable Supply)	6,370	1,680	6,370	1,680
River Diversion (Golf Course)	95	95	0	0
Recycled Water [a]	455	455	920	920
Total Firm Supply	**6,920**	**2,230**	**7,290**	**2,600**
Conservation Savings (SB7 Compliance)	0	0	910	910
Voluntary/Mandatory Rationing	0	0	0	1,320
Total Planned Supply	**6,920**	**2,230**	**8,200**	**4,830**
Water Demands				
Residential and Non-Residential	1,905	1,905	3,660	3,660
Unaccounted for Water	715	715	890	890
Golf Course	550	465 [b]	550	465 [b]
Total Estimated Demand	**3,170**	**3,085**	**5,100**	**5,015**

[a] Assumes the beneficial reuse (e.g., potable water offset) of the District's treated effluent/recycled water.
[b] Golf course irrigation practices will be modified during extreme dry years to reduce demands by 15 to 18 percent as described in the Delivery and Use of Recycled Water at the Rancho Murieta Country Club (May 2010).

The Phase 1 portion of the Project focuses on providing the infrastructure needed to serve between 100 and 200 AFY of recycled water along Rancho Murieta's western boundary. Immediate offset of potable water demands are estimated to be between 60 and 100 AFY.

- *What is the applicant's average annual acre-feet of water supply?*

The Districts average annual acre-feet of water supply is 6,920 acre feet (AF) during a normal year and 2,230 AF during a drought year.

In regards to irrigation demand, the North and South Golf Courses have a combined total annual irrigation demand of 550 AFY during a typical year and 465 AFY during a drought year.

Alternatively, the Districts' non-irrigation demand is 1,620 AFY during normal and drought conditions.

- *Where is the water that will be conserved currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground, etc.)?*

The current water that will ultimately be conserved is currently conveyed to the District's Water Treatment Plant (WTP) via irrigation ditches and piping, treated, and distributed to the District's residential and commercial users.

It is estimated that the proposed Project will reduce annual Cosumnes River diversions by approximately 450 AFY under both normal and drought conditions.

The District's potable water supply consists of seasonal diversions from the Cosumnes River that are normally diverted to and stored in three surface storage reservoirs (Calero, Chesbro, and Clementia). These three reservoirs have an estimated total combined storage volume of 5,132 acre-foot (AF) with flashboards, of which 4,723 AF is considered to be usable for domestic and commercial potable water purposes. The District's water rights permit 16762 (State of California Water Right Permit No. 16762), includes the following stipulations:

a. Surface water can be diverted from the Cosumnes River into the District's storage reservoirs between November 1 and May 31. This diversion season coincides with the critical rainfall period as well as the period in which over bank flooding is most likely to occur.

b. Diversions are limited as follows:

   i. No water may be diverted when river flows are less than 70 cubic feet per second (cfs).

   ii. For river flows between 70 and 175 cfs, a maximum diversion rate of 6 cfs is allowed provided this diversion does not reduce downstream flow below 70 cfs.

   iii. When river flows exceed 175 cfs, diversion of up to 46 cfs is allowed for direct use plus an additional 3,900 AF for storage as follows:

      1) 1,250 AF to Chesbro Reservoir.
      2) 2,610 AF to Calero Reservoir.
      3) 850 AF to Clementia Reservoir.
      4) 40 AF to South Golf Course Lake 10.

   iv. The combined amount of items 2, 3, and 4 cannot exceed 2,650 AFY.

   v. The total amount of water taken from the Cosumnes River cannot exceed 6,368 AFY from October 1 to September 30.

Taking into account the allowable storages (Item iii. above) for the Calero and Clementia Reservoirs, and South Golf Course Lake 10, the Cosumnes River diversions would be reduced by 17%.

- *Where will the conserved water go?*

The 450 AFY of conserved water will remain within it natural system, being the Cosumnes River.

Small-scale Water Recycling and Water Reuse: *Small-scale projects that reclaim and reuse wastewaters or naturally impaired groundwater and surface water to offset existing uses. Applicants proposing small-scale water recycling and reuse projects should address the following:*

(a) How have current uses been determined? Please provide all relevant calculations, assumptions, and supporting data.

The District meters all current users. The District records and publishes monthly water consumption records for the District (See Appendix E for current fiscal year 2015-16).

(b) Explain in detail how the proposed project will result directly in offsetting current uses, including how the water will be delivered to customers.

The Project will provide the following significant benefits by offsetting current uses:

- Reduce future Cosumnes River diversions, immediately offset potable water demands by 60 to 100 AFY, and immediately conserve surface water supplies. Over time, the Phase 1 infrastructure is projected to support a recycled water demand of between 100 and 150 AFY. Ultimately the Project will offset potable water demands by 370 AFY.
- Maximizes use of existing infrastructure.
- Help the District meet its 20x2020 Water Conservation Goals,
- Provide opportunities to serve other potential customers along the recycled water transmission pipeline alignment,
- Support regional water planning efforts,
- Providing a sustainable and long-term means for treated effluent disposal that is directly linked to strengthening the local economy,
- Increase water supply reliability,
- Reduce drought deficits and greenhouse gas emissions as well as the District's overall carbon footprint by minimizing potable water treatment requirements,
- Contribute to the statewide recycled water goals and demonstrate the District's willingness to manage its available resources in a responsible and progressive manner, and
- Contribute to the recovery of the Central Sacramento County Groundwater Basin and Sacramento-San Joaquin Delta and Cosumnes River ecosystems.

Water will be delivered to the District's customers:

- Through improvements of the existing golf course system;
- Via the proposed projects as part of this application;
- By means of future projects that will meet ultimate buildout.

Projects have been planned in phases to provide the most cost-effective means to residents and the District.

4.1.2 Percentage of Total Supply

Provide the percentage of total water supply conserved: *State the applicant's total average annual water supply in acre-feet. Please use the following formula:*

Estimated Amount of Water Conserved /Average Annual Water Supply

The estimated amount of water conserved is 450 AFY; the average annual water supply is 6,920 AF, for 6.5% of water supply conserved annually.

4.2 Evaluation Criterion B: energy-water nexus

4.2.1 Implementing Renewable Energy Projects Related to Water Management and Delivery

The District has proactively coordinated the installation of two solar panel fields in anticipation of this Project. The solar panel fields will be in place prior to the Project being completed and are intended to facilitate the operation of the WWRP and the District's WTP. SolarCity will install two solar power arrays on District-owned property for the generation of solar power. These solar power facilities will be located at the District Wastewater Treatment Facility and the District WTP.

The Wastewater Treatment Facility solar array installation will be adjacent to the Wastewater Treatment Facility and is estimated to be approximately 2.5 – 3.0 acres in size. The solar array will produce approximately 1.2 kWh a year.

The solar array installation at the WTP is estimated to be approximately 1.5 – 2.0 acres in size and will produce approximately 0.58 kWh per year.

Refer to Appendix F for SolarCity data summary.

Describe any other benefits of the renewable energy project. *Please describe and provide sufficient detail on any additional benefits expected to result from the renewable energy project, including:*

The solar array will reduce the amount of energy required to treat potable water and wastewater. Indirectly, the energy supplier will deliver less energy to the District, thus reducing the environmental impact in regards to hydro-power generation.

The District's water system does not generate power directly; however, due to the reduction in diversion, downstream power generators flow capacity will be increased by 450 AFY.

4.2.2 Increasing Energy Efficiency in Water Management

Describe any energy efficiencies that are expected to result from implementation of the water conservation or water management project *(e.g., reduced pumping).*

- *Please provide sufficient detail supporting the calculation of any energy savings expected to result from water conservation improvements.*

The District assumes wastewater treatment power costs would be incurred whether the Project is constructed or not. In 2014, the District spent $106,703.65 in power costs for 139 million gallons (MG) of Secondary Treatment and 132 MG of Tertiary Treatment (see Appendix D). Taking annual costs into consideration, the District spends approximately $767.65 per 1 MG ($106,703.65 / 139 MG) to treat Secondary, and an additional $40.71 (($106,703.65 / 132 MG) - $767.65) per 1 MG for Tertiary Treatment.

No energy savings will be seen for the wastewater treatment; however, energy savings will be realized with the treatment of surface water. In 2014, the District spent $70,370 in power costs to treat 622.208 MG of surface water (see Appendix D). Taking annual costs into consideration, the District spends

approximately $113.10 per 1 MG in power costs to treat surface water. The Project will offset potable water demands by approximately 370 AFY (120.565 MG), thus reducing energy consumption by approximately $13,635 per year ($113.10 * 120.56487 MG).

Overall power saving for the District would be approximately **$13,635 per year**.

Pump stations will have Variable Frequency Drives (VFD) installed. Centrifugal loads offer the greatest potential for energy savings by using VFDs to control speed. Energy consumption in centrifugal fan and pump applications follows the affinity laws, which means that flow is proportional to speed, pressure is proportional to the square of speed, and horsepower is proportional to the cube of speed. That means if an application only needs 80 percent flow, the fan or pump will run at 80 percent of rated speed and only requires 50 percent of rated power. In other words, reducing speed by 20 percent requires only 50 percent of the power.

- *Please describe the current pumping requirements and the types of pumps (e.g., size) currently being used. How would the proposed project impact the current pumping requirements?*

A new booster pumping station, with a firm capacity of approximately 1,000 gpm, is needed to deliver recycled water to Stonehouse and Escuela Parks and the North Gate Entrance irrigation areas. In the future, this station could also serve developments located in the northwest corner of the District's service area. This new pumping station will be located at the existing District's Main Lift North site and will house two new booster pumps. These new pumps will be powered by VFD to minimize energy use.

4.3 Evaluation Criterion C: Benefits to Endangered Species

For projects that will directly benefit federally-recognized candidate species, please include the following elements:

- *What is the relationship of the species to water supply?*
- *What is the extent to which the proposed project would reduce the likelihood of listing or would otherwise improve the status of the species?*

For projects that will directly accelerate the recovery of threatened or endangered species or address designated critical habitats, please include the following elements:

(1) How is the species adversely affected by a Reclamation project?

(2) Is the species subject to a recovery plan or conservation plan under the ESA?

(3) What is the extent to which the proposed project would reduce the likelihood of listing or would otherwise improve the status of the species?

A formal Initial Study/Mitigated Negative Declaration was prepared for the Project in June 2014. A defined biological study area was delineated in locations that would be affected permanently or temporarily by the construction of new facilities (e.g., pipelines, pump stations, storage facilities), including Van Vleck Ranch proposed Spray Field 4.

Sensitive Biological Resources were assessed with the following resources: a preliminary list of special-status species with potential to occur in and near the project site was compiled based on searches of the

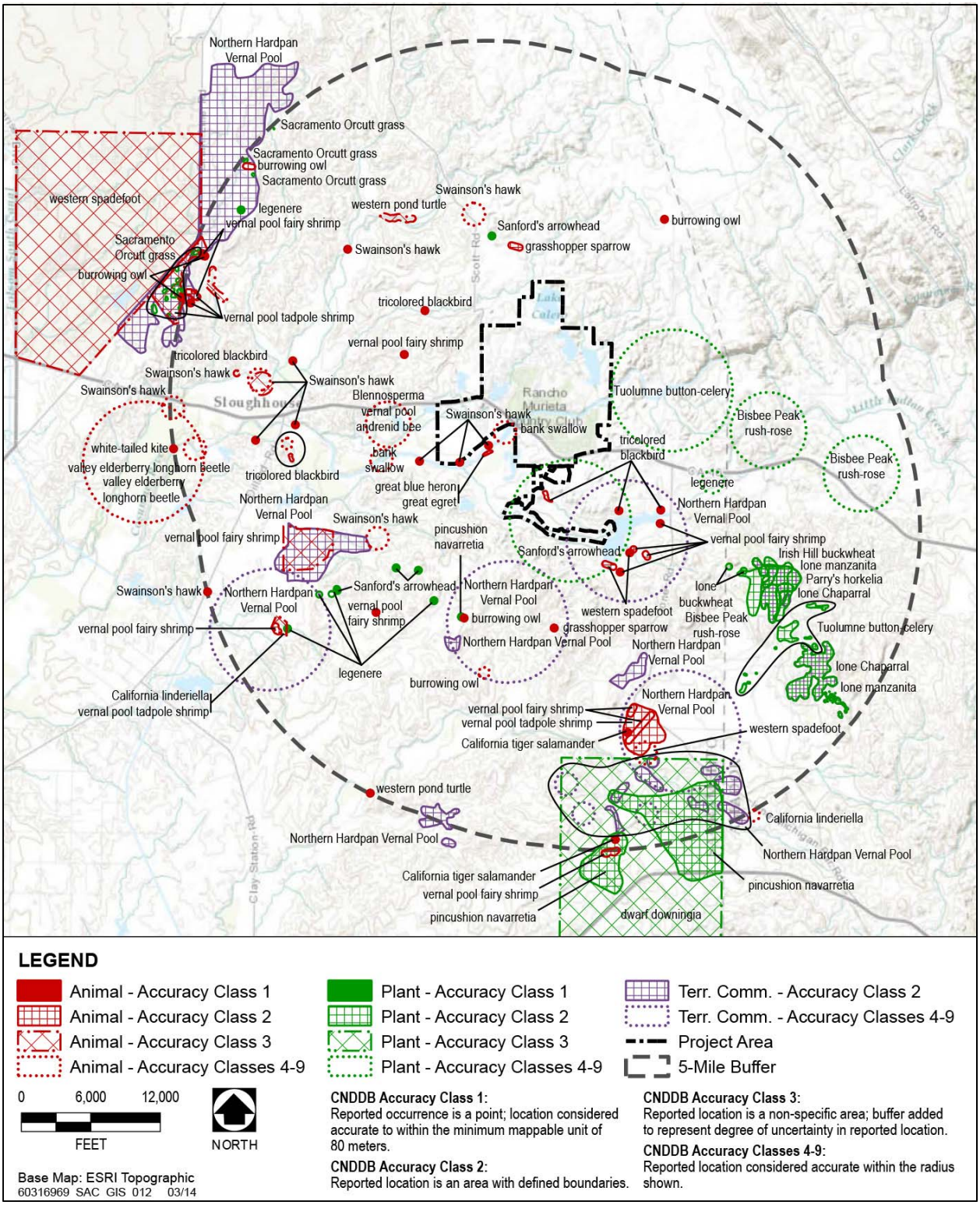
California Natural Diversity Database (CNDDB), the California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Plants of California, and U.S. Fish and Wildlife Service (USFWS) federally listed species.

The CNDDB inventory was searched within a 5-mile radius of the project site for biological resources, including plant and wildlife occurrences. The CNDDB contains only those records that have been reported to California Department of Fish and Wildlife, and additional species occurrences may exist in the Project site vicinity. Searches of CNPS plant records were conducted for the Folsom SE and Carbondale U.S. Geological Survey (USGS) 7.5-minute quadrangles and their eight adjacent quadrangles, including: Clarksville, Shingle Springs, Latrobe, Irish Hill, Ione, Goose Creek, Clay, Sloughhouse, Buffalo Creek, and Folsom. A list of USFWS federally listed species that occur in or may be affected by projects in the USGS 7.5-minute Folsom SE and Carbondale quadrangles was also generated for this analysis. Previous environmental documents prepared for the District were also reviewed (e.g., RMCSD 2007, County of Sacramento Department of Environmental Review and Assessment 2007, RMCSD 2014). These resources were used to analyze the likelihood of occurrence for these species, are shown on Figure 7, and are summarized in the following sections.

Special-Status Plants

Twenty-three plant species were identified in the searches described above. Fourteen of these species have specific habitat requirements which are not present in the defined biological study area (e.g., specific soil types) and/or have restricted ranges that are outside the biological study area (e.g., El Dorado County, Pine Hill). There are nine plant species that are known or have the potential to occur in the Project vicinity (5-mile radius of the Project site). These are: Dwarf downingia (*Downingia pusilla),* Tuolomne button-celery (*Eryngium pinnatisectum),* Boggs Lake hedge hyssop (*Gratiola heterosepala),* Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii),* Greene's legenere (*Legenere limosa),* Pincushion navarretia (*Navarretia meyersii* ssp. *Meyersii),* Slender Orcutt grass (*Orcuttia tenuis),* Sacramento Orcutt grass (*Orcuttia viscida),* and Sanford's arrowhead (*Sagittaria sanfordii).*

Specifically, there is suitable habitat in the defined biological study area for two special-status plant species: Sanford's arrowhead, which is found in shallow freshwater marshes and swamps and slow-moving drainages; and Tuolomne button-celery, which is found in mesic areas in cismontane woodland, lower montane coniferous forest, vernal pools and swales, and intermittent streams. The Tuolomne button-celery occurrence is from 1941 and the exact location is unknown. The canal (commonly referred to as the CIA Ditch) and Arkansas Creek in the biological study area could support Sanford's arrowhead, and several occurrences have been recorded within 5 miles of the biological study area, including one at an unknown location on Van Vleck Ranch.



Source: CNDDB 2014

Figure 7. 2014 CNDDB Search Results

The above plants species habitats include mesic sites, lake margins, or vernal pools. With the application of recycled water on the proposed residential and commercial landscape areas; and increased recycled water availability for the surrounding ranch areas, the above species may have a higher likelihood of becoming established, reproducing, and thriving. Specifically, with one Sanford's arrowhead existing at a ranch (Van Vleck Ranch) within close proximity to the District, it is possible that this plant may reproduce with a reliable supply of water since suitable habitat is present. The Sanford arrowhead is ranked by California Rare Plant as 1B2, meaning: Plant species considered rare or endangered in California and elsewhere (but not legally protected under the federal or California Endangered Species Acts); and fairly endangered in California (20-80% of occurrences are threatened and/or have a moderate degree and immediacy of threat).

Special-Status Wildlife

Twenty-one wildlife species were identified in the searches and are known or have the potential to occur in the Project vicinity (5-mile radius of the Project site). Of these, nine have some potential to occur in the defined biological study area (locations that would be affected permanently or temporarily by the construction of new facilities including Van Vleck Ranch: western pond turtle (*Emys marmorata)*, valley elderberry longhorn beetle (*Desmocerus californicus dimorphus)*, California tiger salamander (*Ambystoma californiense)*, white-tailed kite (*Elanus leucurus)*, Swainson's hawk (*Buteo swainsonii)*, tricolored blackbird (*Agelaius tricolor)*, northern harrier (*Circus cyaneus)*, loggerhead shrike (*Lanius ludovidianus)*, and grasshopper sparrow (*Ammodramus savannarum)*.

Bass Lake provides suitable foraging and breeding habitat for western pond turtle. With the addition of recycled water being added to Bass Lake, the water is directly supporting suitable foraging and breeding habitat for western pond turtle.

Valley elderberry longhorn beetle could be present in the elderberry shrubs within and near the riparian vegetation adjacent to the canal near Murieta Gardens along SR 16. Areas which could drain into the canal will not receive recycled water for irrigation.

California tiger salamander upland habitat is present in the vicinity of the defined biological study area extending south from the boundary of Van Vleck Ranch within 1.24 miles of the nearest known occurrence. The nearest record for California tiger salamander is approximately 3.1 miles south of Van Vleck Ranch, and this species has been known to travel as much as 1.24 miles from breeding habitat to utilize upland refugia (USFWS 2003). Thus, the tiger salamanders at the known location could potentially utilize the habitat adjacent to Van Vleck Ranch. The application of increased recycled water at Van Vleck Ranch may support California tiger salamander upland habitat.

Swainson's hawk and white-tailed kite could nest in any of the large riparian trees in the defined biological study area along the Cosumnes River or at the Van Vleck Ranch, and could use the annual grassland and irrigated pastures for foraging. The nearest known Swainson's hawk CNDDB occurrence is approximately 0.8 miles to the southwest of the biological study area along the Cosumnes River. The nearest known white-tailed kite CNDDB occurrence is approximately 5 miles west of the biological study area on the Cosumnes River near Sloughhouse. The proposed application of additional recycled water onto Van Vleck Ranch directly encourages riparian habitat growth and foraging opportunities for Swainson's hawk and white-tailed kite.

The defined biological study area provides foraging habitat for tricolored blackbird, northern harrier, loggerhead shrike, and grasshopper sparrow, primarily at Van Vleck Ranch and its vicinity. The application of additional recycled water at Van Vleck Ranch would support foraging habitat for these species.

The remaining 12 of the 21 species identified in the database searches are not expected to occur within defined biological study area but occur within a 5-mile radius of the Project site. Four fish species were identified in the USFWS search—Delta smelt (*Hypomesus transpacificus*), Central Valley steelhead (*Oncorhynchus mykiss*), Sacramento spring-run chinook salmon (*Oncorhynchus tshawytscha*), and Sacramento winter-run chinook salmon (*Oncorhynchus tshawytscha*). The proposed Project will reduce annual Cosumnes River diversions by approximately 450 AFY under both normal and drought conditions; the 450 AFY water usage reductions will be a direct benefit to the four fish species listed above.

Suitable habitat is not present in the defined biological study area for the other eight remaining species: Conservancy fairy shrimp, vernal pool tadpole shrimp, vernal pool fairy shrimp, California red-legged frog, western spadefoot, giant garter snake, burrowing owl, bank swallow. However, the reduction of 450 AFY of surface water diversions from the Cosumnes River may benefit the following species:

- The bank swallow who forages along river banks and breeds in vertical caves and sand banks;
- The giant garter snake that is found along waterways; and,
- The California red-legged frog who breeds in aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons.

Species Recovery and Conservation Plans

The giant garter snake has a species recovery plan, titled: *Revised Draft Recovery Plan for the Giant Garter Snake; Notice of Availability*, dated December 22, 2015.

The California red-legged frog has a species recovery plan, titled: *Recovery Plan for the California Red-legged Frog*, dated May 28, 2002.

The following species are presented in a recovery plan titled: *Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes*, dated November 26, 1996: Delta smelt, Sacramento spring-run chinook salmon, and Sacramento winter-run chinook salmon.

The following species are presented in a recovery plan, titled: *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*, dated March 7, 2006: vernal pool fairy shrimp, vernal pool tadpole shrimp, Conservancy fairy shrimp, western spadefoot, Sacramento Orcutt grass, Slender Orcutt grass, Ahart's dwarf rush, and Boggs Lake hedge hyssop.

The following species are presented in a habitat conservation plan titled: *Habitat Conservation Plan for South Sacramento County, California*, dated November 4, 2013: Valley elderberry longhorn beetle, Vernal pool fairy shrimp, Vernal pool tadpole shrimp, California tiger salamander, central California distinct population segment, Western spadefoot, Giant garter snake, Western pond turtle, Loggerhead shrike, Northern harrier, Tricolored blackbird, Swainson's hawk, white-tailed kite, Sanford's arrowhead,

Dwarf downingia, Boggs Lake hedge hyssop, Ahart's dwarf rush, Greene's legenere, Pincushion navarretia, Slender Orcutt grass, and Sacramento Orcutt grass.

The Valley elderberry longhorn beetle has a species recovery plan titled: *Valley Elderberry Longhorn Beetle Recovery Plan*, dated June 28, 1984.

The California Tiger Salamander has two draft recovery plans in place for Santa Barbara County and Santa Rosa Plain, titled: *Draft Recovery Plan for the Santa Barbara County Distinct Population Segment of the California Tiger Salamander*, dated April 24, 2015, and *Draft Recovery Plan for Four Species of the Santa Rosa Plain; Notice of Availability*, dated December 11, 2014, respectively.

4.4 Evaluation Criterion D: Water Marketing

Briefly describe any water marketing elements included in the proposed project. Include the following elements:

- *Estimated amount of water to be marketed*

The Project will immediately offset potable water demands by 60 to 100 AFY. Ultimately the Project will offset potable water demands by 370 AFY.

- *A detailed description of the mechanism through which water will be marketed (e.g., individual sale, contribution to an existing market, the creation of a new water market, or construction of a recharge facility)*

Approximately 370 AFY of potable water will be available to supply downstream entity demands.

- *Number of users, types of water use, etc. in the water market*

The completed Project will serve irrigation needs for future residential developments, existing parks and commercial landscaping. The future planned development and infill projects a total 1,692 residential units, of which 1,142 residential units (65 to 70 percent), will have recycled water for irrigation purposes. Two parks will be irrigated with recycled water, and 50 commercial units landscaping will be irrigated with recycled water.

- *A description of any legal issues pertaining to water marketing (e.g., restrictions under Reclamation law or contracts, individual project authorities, or State water laws)*

There are no legal issues, below is a discussion of the regulations, codes, requirements, agreements, and policies that the District is abiding with.

4.4.1 Water Rights

In many recycled water programs, decreased or eliminated effluent discharge to waterways has the potential to affect the water rights of downstream users. In this Project, however, the District does not discharge effluent or plan to do so in the future. Therefore, the Project will not adversely affect water rights of downstream water users and there are no unresolved water rights issues potentially resulting from the implementation of the Project. In addition, the District has rights to all of the wastewater conveyed to and treated at the WWRP.

The District and some potential recipients of recycled water may be concerned that decreased use of their existing surface water supplies may jeopardize their surface water diversion rights. Past legal investigations into this issue have shown, however, that shifting from surface water to recycled water will not create the potential to lose the initial surface water right.

California Water Code Section 1010 asserts that no claim of water right (riparian, pre-1914 appropriative, post-1914 appropriative) will be reduced or lost as a result of the use of recycled water. The use of recycled water in lieu of surface water is equivalent to maintaining that right and will be a beneficial use. Section 1010 states:

> *"(a) (1) The cessation of, or reduction in, the use of water under any existing right regardless of the basis of right, as the result of the use of recycled water, desalinated water, or water polluted by waste to a degree which unreasonably affects the water for other beneficial uses, is deemed equivalent to, and for purposes of maintaining any right shall be construed to constitute, a reasonable beneficial use of water to the extent and in the amount that the recycled, desalinated, or polluted water is being used not exceeding, however, the amount of such reduction.*
>
> *(2) No lapse, reduction, or loss of any existing right shall occur under a cessation of, or reduction in, the use of water pursuant to this subdivision, and, to the extent and in the amount that recycled, desalinated, or polluted water is used in lieu of water appropriated pursuant to Chapter 6 (commencing with Section 1375) of Part 2, the board shall not reduce the appropriation authorized in the user's permit." (California Water Code §1010(a))*
>
> *California Water Code Section 13551 establishes that potable water shall not be used for nonpotable uses if suitable recycled water is available. The use of recycled water constitutes beneficial use under any existing water right. Section 13551 states,*
>
> *" A person or public agency, including a state agency, city, county, city and county, district, or any other political subdivision of the state, shall not use water from any source of quality suitable for potable domestic use for nonpotable uses, including cemeteries, golf courses, parks, highway landscaped areas, and industrial and irrigation uses if suitable recycled water is available as provided in Section 13550; however, any use of recycled water in lieu of water suitable for potable domestic use shall, to the extent of the recycled water so used, be deemed to constitute a reasonable beneficial use of that water and the use of recycled water shall not cause any loss or diminution of any existing water right." (California Water Code §13551)*

4.4.2 Regulatory Requirements

Several State and Federal agencies have regulatory power over projects that affect water quality and sources of supply. Implementation of the Project will require coordination with such agencies, as well as with county and private agencies. Other than consultation with the Regional Water Quality Control Board (RWQCB), California Department of Public Health (CDPH), and the Rancho Murieta Country Club, no other consultation has occurred between the District and federal, state, regional, and local authorities during the development of the Title XVI Recycled Water Feasibility Study, Rancho Murieta Community Services District, dated June 2014. Prior to Project implementation, consultation with the appropriate agency or agencies will be made, as deemed necessary. The Project will meet all federal,

state, and local requirements. The use of recycled water is permitted by a master reclamation permit issued by the RWQCB.

Most, if not all, of the pipelines envisioned for the Project are proposed to be constructed within public roads or right-of-ways. Modifications and improvements to the WWRP as well as expansion of the seasonal storage facilities are proposed to be constructed within the current treatment plant area. Additional pump stations and storage tanks would be proposed to be sited such as not to disturb habitat or other area that could adversely impact endangered species, wetland, waters of the United States, etc. as described in federal, state, regional or local authority requirements.

4.4.3 Title 22 California Code of Regulations

According to Title 22 of the California Code of Regulations, recycled water can be used for landscape irrigation (residential and non-residential), wetlands, restricted and unrestricted recreational impoundments, landscape impoundments, toilet flushing, and industrial and construction applications. As described previously, all recycled water produced by the WWRP will be treated to the highest standard – *Disinfected Tertiary Recycled Water* as defined by Title 22. Treatment to this standard has been, and will continue to be, readily achieved using the existing WWRP.

In addition to defining recycled water quality requirements, Title 22 also sets requirements specific to dual plumbed recycled water systems, sampling and analysis, engineering report preparation, design and reliability, operations, and the protection of potable water systems.

California Water Code

Division 7 of the California Water Code is designated the Porter-Cologne Water Quality Control Act, which includes the permitting of wastewater treatment plants and water recycling facilities, as well as other water quality-related provisions. The Porter-Cologne Water Quality Control Act established the State Water Resources Control Board and each Regional Water Quality Control Board as the principal State agencies with primary responsibilities for coordinating and controlling water quality and water rights in California. The Porter-Cologne Act is the primary implementation tool for California's responsibilities to regulate pollutant discharge as established under the Clean Water Act.

Division 7, Chapter 7.5 of the California Water Code (Code), also known as the Water Recycling Act of 1991, recognizes the interest to develop water recycling facilities to supplement existing surface water and groundwater supplies in order to meet the State's future water needs. The Code authorizes each regional board, after consulting with and receiving recommendations from the California Department of Public Health, to set requirements which may be placed on the entity reclaiming water, the user, or both, for water that will be used as recycled water. The Code establishes reporting and permitting requirements for the regional boards, which must work collaboratively with the CDPH. Additionally, it generally defines conditions under which recycled water may be used. The conditions for use include:

- If the source of recycled water is of adequate quality, which is determined by CDPH criteria, and does not harm plants, wildlife, and the public health;
- If recycled water may be furnished at a reasonable cost to the user; and
- If the use of recycled water will not adversely affect water rights.

Waste Discharge Requirements

The RWQCB is assigned with the protection, coordination, and control of water quality within the Sacramento region and, therefore, is responsible for the issuance and enforcement of requirements given to producers, distributors, and users of recycled water. The RWQCB issues Waste Discharge Requirements (WDRs) for activities which can affect groundwater quality, including recycled water discharges. In addition, Water Reclamation Requirements (WRRs) can also be issued to place conditions on recycled water use. Regional Water Quality Control Boards may issue Master Reclamation Permits (MRPs) in lieu of individual WRRs for projects involving multiple users. These MRPs are issued to a producer or distributor, or both, of recycled water and combine the WDRs and WRRs.

In December 4, 2014, the District adopted WDRs per Order R5-2014-0149 - Waste Discharge Requirements and Master Recycling Permit for Rancho Murieta Community Services District Wastewater Treatment and Reclamation Plant, Sacramento County, CVRWQCB.

Interagency Agreements

The Project will serve customers within the District's service area. Customers will be served through the use of the existing recycled water conveyance system, a portion of which is owned and operated by the Rancho Murieta Country Club. Therefore, an interagency agreement between the District and the Rancho Murieta Country Club will be required.

Recycled Water Policy

In July 2011, the District's Board adopted the Recycled Water Policy. This policy requires the following:

- Future use of recycled water, wherever economically and physically feasible, as determined by the District's Board, for non-domestic purposes when such water is of adequate quality and quantity, available at a reasonable cost, not detrimental to public health, and not injurious to plant life, fish, and wildlife. The type of use is defined by Title 22 of the California Code of regulations. In general, the lands subject to mandatory recycled water use are defined as undeveloped parcels within the existing Service Area.

- Irrigation of existing parks, roadway median, and commercial landscaping areas may be converted to recycled water wherever economically and physically feasible, as determined by the District's Board. As previously described, it is recommended that recycled water irrigation of existing roadway medians and commercial landscaping be determined on a case by case basis once the recommended residential developments for service, and the general alignment of their associated recycled water conveyance system, have been identified.

- *Estimated duration of the water market*

The duration of the water market is estimated to be in perpetuity.

4.5 Evaluation Criterion E: Other Contributions to Water Supply Sustainability

4.5.1 Addressing Adaptation Strategies in a WaterSMART Basin Study

- *Identify the specific WaterSMART Basin Study where this adaptation strategy was developed. Describe in detail the adaptation strategy that will be implemented through this WaterSMART Grant project and how the proposed WaterSMART Grant project would help implement the adaptation strategy.*

The Water Quality Control Plan for the Sacramento River and the San Joaquin River Basins, Fourth Edition (Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin and incorporates plans and policies adopted by the State Water Resources Control Board. The Basin Plan encourages water recycling as a means to conserve and reduce demands on ground and surface water supplies; postpone, or eliminate costly investments for the development of new sources of water supply; enhance water supply reliability during drought; and reduce or eliminate treated effluent surface water discharges.

The Sacramento-San Joaquin Delta (Delta) faces multiple challenges related to ecosystem health, water quality, climate change, and water supply reliability. In late 2008, the Governor of California proposed a comprehensive water plan to address long-term water supply needs. The Project is directly and consistently aligned with the actions needed to (1) deal with California's dwindling water supply, (2) aggressively promote water programs that stretch California's available potable water supplies, and (3) contribute to the long-term recovery of the Central Basin and Delta and Cosumnes River ecosystems.

The Cosumnes River watershed is located within the Sacramento-San Joaquin Basin. This particular watershed has been a major focus of conservation efforts and has been identified as a priority for ecosystem protection and restoration by the California Bay-Delta Authority (formerly CALFED), the USFWS Anadromous Fish Recovery Program, and Sacramento County (as part of the Sacramento County General Plan). The Cosumnes River channel and its associated floodplain are major sources of recharge for the Central Basin. The Central Basin has experienced declining groundwater levels which have adversely affected the river's fishery, (e.g., salmon), wildlife, recreational, and aesthetic values.

Although the Cosumnes River can be considered relatively small with respect to its length (approximately 80 miles) and watershed area (approximately 1,265 square miles), it is far more important than its size would indicate given that:

- This particular river is the only remaining unregulated river (e.g., no major dams) on the western slope of the Sierra Nevada Mountain Range which allows frequent and regular winter and spring over bank flooding which fosters the growth of native riparian vegetation and helps to sustain wildlife dependent on these riparian habitats.
- This particular river flows through and supports one of the biologically richest regions in California's Central Valley before merging with the Mokelumne River, and
- This particular river recharges the Central Basin and contributes a significant amount of water to the Sacramento-San Joaquin Delta.

The District's proposed recycled water system expansion would:

- Immediately offset potable water demands by 60 to 100 AFY, and immediately conserve surface water supplies. Overtime the Phase 1 infrastructure is projected to support a recycled water demand of between 100 and 150 AFY. Ultimately the Project will offset potable water demands by 370 AFY.
- Maximizes use of existing infrastructure.
- Reduce future Cosumnes River diversions by 450 AFY,
- Help the District meet the 20x2020 Water Conservation Goals,
- Provide opportunities to serve other potential users along the recycled water transmission pipeline alignment,
- Support regional water planning efforts,
- Provide a sustainable and long-term means for treated effluent disposal that is directly linked to strengthening the local economy,
- Increase water supply reliability and reduce drought deficits,
- Reduce greenhouse gas emissions as well as the District's overall carbon footprint due to reduced potable water diversions and treatment requirements,
- Contribute to the statewide recycled water goals and demonstrate the District's willingness to manage its available resources in a responsible and progressive manner, and
- Contribute to the recovery of the Central Basin and Delta and Cosumnes River ecosystems.

Describe how the adaptation strategy and proposed WaterSMART Grant project will address the imbalance between water supply and demand identified by the Basin Study.

The proposed Project has estimated that the Project will reduce annual Cosumnes River diversions by approximately 450 AFY under both normal and drought conditions.

- *Identify the applicant's level of involvement in the Basin Study (e.g., cost-share partner, participating stakeholder, etc.).*

The District is committed to abiding by the Basin Plan, but has not participated as a cost-share partner, participating stakeholder, etc.

- *Describe whether the project will result in further collaboration among Basin Study partners.*

District staff have met with the local development community and regulatory agencies (e.g., CVRWQCB and CDPH) to (1) describe the proposed expanded recycled water program; (2) identify data and information (e.g., development timelines, phasing, parcel sizes, water supply needs, etc.) pertaining to the specific developments anticipated in the future (3) identify and discuss specific items which may be problematic from the standpoints of development and regulatory compliance, and (4) discuss potential methods for reducing costs.

With regard to public acceptance, it is the District's impression that the Project has been well received by the community. Moreover, in addition to having a drought proof water supply for irrigation, it is anticipated that future recycled water customers will save money as recycled water rates are typically priced at about 80 to 90% of potable water rates.

At this time, further collaboration among Basin Plan partners is not scheduled; however, the District is willing to continue collaboration as needed.

4.5.2 Expediting Future On-Farm Irrigation Improvements

Not applicable for this Project.

4.5.3 Other Water Supply Sustainability Benefits

- • *Will the project make water available to alleviate water supply shortages resulting from drought?*

The District owns and operates the WWRP which provides wastewater treatment and disposal/recycled water services for the entire Project area. Raw wastewater sources processed as recycled water are residential homes and commercial facilities such as stores and restaurants which serve the community.

The WWRP consists of a secondary wastewater treatment facility and a tertiary treatment plant. Wastewater undergoing secondary treatment is stored in two storage reservoirs before undergoing tertiary treatment during the dry season. The tertiary treatment plant produces treated effluent meeting Title 22 requirements for Disinfected Tertiary Recycled Water. Currently, the WWRP currently processes and delivers approximately 455 AFY of recycled water. Following the completion of the Project and once development is established, the WWRP will be able to process and deliver approximately 920 AFY of recycled water.

The wastewater sources mentioned above will continue to produce wastewater independent of meteorological conditions, thus the production of recycled water from wastewater is more consistent and reliable then surface water diversion.

Additionally, the WWRP is generally operated each year from April through November. During the winter, secondary treated effluent is stored in the WWRP's two storage reservoirs which have a total capacity of 756 AF.

- *Explain in detail the existing or recent drought conditions in the project area. Describe the impacts that are occurring now or are expected to occur as a result of drought conditions.*

The area has experienced drought conditions on and off for many years. Drought was prominent from 2007-2009, and on January 17, 2014 a State of Emergency was proclaimed by Governor Brown. If the ongoing drought continues and becomes more severe, the Cosumnes River could have a flow of less than 70 cfs during the District's permitted diversion season. If this occurs, per the District's Water Right Permit 16762, the District is not allowed to divert water when Cosumnes River flows are less than 70 cfs.

- *Describe the severity and duration of drought conditions in the project area.*

The area has experienced drought conditions on and off for many years. Drought was prominent from 2007-2009, and on January 17, 2014 a State of Emergency was proclaimed by Governor Brown.

- *Describe how the water source that is the focus of this project (river, aquifer, or other source of supply) is impacted by drought.*

The Cosumnes River is directly impacted by drought (i.e., prolonged period of abnormally low rainfall); its source of water is from rain falling onto its surrounding landscapes (northern Sierra Nevada mountain range) and thus Cosumnes River flows are directly impacted by the rain and annual levels of

precipitation. The District's Water Right Permit 16762 does not allow the District to divert water when Cosumnes River flows are less than 70 cfs.

- *Provide a detailed explanation of how the proposed WaterSMART Grant project will improve the reliability of water supplies during times of drought.*

The District owns and operates the WWRP which provides wastewater treatment and disposal/recycled water services for the entire Project area. Raw wastewater sources processed as recycled water are residential homes and commercial facilities such as stores and restaurants which serve the community.

The WWRP consists of a secondary wastewater treatment facility and a tertiary treatment plant. Wastewater undergoing secondary treatment is stored in two storage reservoirs before undergoing tertiary treatment during the dry season. The tertiary treatment plant produces treated effluent meeting Title 22 requirements for Disinfected Tertiary Recycled Water. Currently, the WWRP currently processes and delivers approximately 455 AFY of recycled water. Following the completion of the Project and once development is established, the WWRP will be able to process and deliver approximately 920 AFY of recycled water.

The wastewater sources mentioned above will continue to produce wastewater independent of meteorological conditions, thus the production of recycled water from wastewater is more consistent and reliable than surface water diversion.

Additionally, the WWRP is generally operated each year from April through November. During the winter, secondary treated effluent is stored in the WWRP's two storage reservoirs which have a total capacity of 756 AF.

- *Will the project make water available to address a specific concern? For example: Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g., population growth)?*

The District has anticipated population growth and is planning for this growth accordingly. The Project is proposing to use recycled water for the irrigation of parks; greenbelts; playgrounds; athletic fields; residential front and backyard landscaping; common areas; commercial, highway, and street landscaping; and dust control.

- *Describe how the water source that is the focus of this project (river, aquifer, or other source of supply) is impacted by climate variation.*

The District's water source is from the Cosumnes River, the Cosumnes River watershed is within the Sacramento-San Joaquin Basin. The Cosumnes River is directly impacted by climatic variation (i.e., prolonged period of abnormally low rainfall); its source of water is from rain falling onto its surrounding landscapes (northern Sierra Nevada mountain range) and thus Cosumnes River flows are directly impacted by the rain and annual levels of precipitation.

- *Will the project help to address an issue that could potentially result in an interruption to the water supply if unresolved?*

The project may help a water supply issue through the process of reducing Cosumnes River surface water diversions, and offsetting potable demands through the implementation of the Project.

- *Will the project make additional water available for Indian tribes?*

No, since no Indian tribes are currently served by the District.

- *Will the project make water available for rural or economically disadvantaged communities?*

Yes, the Project directly serves a rural community.

The Office of Environmental Health Hazard Assessment prepared the California Communities Environmental Health Screening Tool (CalEnviroScreen) which identified disadvantaged communities within California[9]. Per CalEnviroScreen, the Rancho Murieta CalEnviroScreen Score is 26-30% with the highest score being 91% to 100%[10]. The higher percentile indicates a higher relative burden. Based on this information, there are no economically disadvantaged communities within the District's service area.

- *Does the project promote and encourage collaboration among parties?*

Yes, the District has hosted informational workshops which were open to the public. In addition, District staff have met with the local development community and regulatory agencies (e.g., CVRWQCB and CDPH) to (1) describe the proposed expanded recycled water program; (2) identify data and information (e.g., development timelines, phasing, parcel sizes, water supply needs, etc.) pertaining to the specific developments anticipated in the future (3) identify and discuss specific items which may be problematic from the standpoints of development and regulatory compliance, and (4) discuss potential methods for reducing costs.

- *Is there widespread support for the project?*

Yes, it appears that there is widespread support for the project. For example, in December 4, 2014, the District adopted WDRs per Order R5-2014-0149 - Waste Discharge Requirements and Master Recycling Permit for Rancho Murieta Community Services District Wastewater Treatment and Reclamation Plant, Sacramento County, CVRWQCB.

- *What is the significance of the collaboration/support?*

The significance of the collaboration/support is that the District is committed to their customers and is interested in building a project that is supported by their users.

- *Will the project help to prevent a water-related crisis or conflict?*

The project has the ability to help prevent a water-related crisis/conflict through the reduction of 450 AFY of water being diverted from the Cosumnes River.

- *Is there frequently tension or litigation over water in the basin?*

Yes, there is frequent tension and ongoing litigation over water in the Sacramento-San Joaquin Delta. According to the Water Education Foundation's website (http://www.watereducation.org/aquapedia/sacramento-san-joaquin-delta-litigation, accessed January 6,

[9] http://oehha.ca.gov/ej/ces2.html

[10] http://oehha.maps.arcgis.com/apps/Viewer/index.html?appid=112d915348834263ab8ecd5c6da67f68

2016): “For more than 30 years the Sacramento-San Joaquin Delta has been embroiled in continuing controversy over the struggle to restore the faltering ecosystem while maintaining its role as the hub of the state’s water supply.”

- *Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?*

Yes, it is very possible that once the community understands the commitment that the District has made to reduce 450 AFY of water from the Cosumnes River that they may be encouraged to reduce their personal and/or commercial irrigation consumptions, resulting in future water conservation efforts.

- *Will the project increase awareness of water and/or energy conservation and efficiency efforts?*

Yes, it is anticipated that the implementation of the Project promotes awareness of water conservation through the reduction of 450 AFY of water from the Cosumnes River and through the potable water demands being offset by approximately 370 AFY.

- *Will the project serve as an example of water and/or energy conservation and efficiency within a community?*

Yes, the Project should definitely serve as an example of water conservation within the community through the reduction of 450 AFY of water from the Cosumnes River and through the potable water demands being offset by approximately 370 AFY.

- *Will the project increase the capability of future water conservation or energy efficiency efforts for use by others?*

Ideally once the community understands the commitment that the District has made to reduce 450 AFY of water from the Cosumnes River, they would be encouraged to reduce their personal and/or commercial irrigation consumptions, resulting in future water conservation efforts.

- *Does the project integrate water and energy components?*

Yes, energy components are integrated into the Project. The District has proactively coordinated the installation of two solar panel fields in anticipation of this Project. The solar panel fields will be in place prior to the Project being completed and are intended to facilitate the operation of the WWRP and the District’s WTP. SolarCity will install two (2) solar power arrays on District-owned property for the generation of solar power. These solar power facilities will be located at the District Wastewater Treatment Facility and the District WTP.

The Wastewater Treatment Facility solar array installation will be adjacent to the Wastewater Treatment Facility and is estimated to be approximately 2.5 – 3.0 acres in size. The solar array will produce approximately 1.2 kWh a year.

The solar array installation at the WTP is estimated to be approximately 1.5 – 2.0 acres in size and will produce approximately 0.58 kWh per year.

4.6 Evaluation Criterion F: Implementation and Results

4.6.1 Project Planning

Does the project have a Water Conservation Plan, System Optimization Review (SOR), and/or district or geographic area drought contingency plans in place? Does the project relate/have a nexus to an adaptation strategy developed as part of a WaterSMART Basin Study)?

Provide the following information regarding project planning:

(1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Basin Study, drought contingency plan, or other planning efforts done to determine the priority of this project in relation to other potential projects.

The Project integrates an Integrated Water Master Plan (IWMP) that was initiated in 2005 to address the projected drought deficits, improve storage reservoir aesthetics, and identify methods to encourage reductions in residential potable water demands. A total of ten strategies/components were identified to alleviate drought deficits, including the following three which dealt specifically with treated effluent disposal/expanded recycled water use:

- Expand recycled water program to offset potable water demands based on serving existing and future urban demands (residential, commercial, parks, common area irrigation)
- Exchange treated effluent/recycled water for groundwater
- Recharge local aquifer with recycled water

Workshops, open to the public, were held as part of the Project to review preliminary findings and results and to identify and describe potential components and strategies that could achieve the project goals.

The IWMP Update was completed in 2010 and addressed changes in state legislation regarding water use targets and greenhouse gas emissions, federal and state guidance regarding recycled water use, and water supply reliability risks associated with climate change. The primary outcome of these studies was the recognition of the benefits (e.g., reduced costs and environmental impacts and improved storage reservoir aesthetics) recycled water provided when used to offset potable water demands within the community as compared to irrigation of agricultural lands located outside of the District's service area.

(2) Describe how the project conforms to and meets the goals of any applicable planning efforts, and identify any aspect of the project that implements a feature of an existing water plan(s).

The implementation of the Project is directly conforming and meeting the treated effluent disposal/expanded recycled water use goals of the IWMP.

4.6.2 Readiness to Proceed

Describe the implementation plan of the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

Please explain any permits that will be required, along with the process for obtaining such permits. Identify and describe any engineering or design work performed specifically in support of the proposed project.

Implementation Plan

The Project consists of expanding an existing recycled water system within the District's boundaries (and within the easement to the Van Vleck Ranch field 4) only. All improvements associated with the Project are either in District Right-of-ways and easements, and/or are on District property that has been previously approved for environmental compliance. The District will abide by California State Environmental Protection Agency (EPA) requirements and regulations for construction activities and submit each improvement plan to the EPA for Storm Water Prevention Pollution review and approval; however, it is anticipated that each component of the Project will receive a Notice of Exemption.

The environmental compliance activities and anticipated construction schedule is located in Appendix A, Recycled System Expansion Implementation Schedule.

Permits

The District has sole jurisdiction related to potable water supply and wastewater treatment within the Project area. Both the District and the Rancho Murieta Country Club have jurisdiction related to the existing use of recycled water within the Project area. For the Project, the District has sole jurisdiction related to the use of recycled water for front and backyard irrigation of future residential units within its service area as well as the potential irrigation of existing parks, roadway medians and commercial landscaping. The use of recycled water has been permitted by a MRP issued by the RWQCB. The MRP was attained by submitting a Title 22 Engineering Report and a Report of Waste Discharge. The District prepared a Title 22 Engineering Report and Report of Waste Discharge and submitted these documents prior to the end of 2013 to the CDPH and RWQCB for approval. These documents were approved and the District was granted a MRP in December 2014.[11]

The District's Engineer of Record will be required to submit, and have approved, District Encroachment and/or grading permits prior to any construction activities being conducted. Air quality and pollution control permits during construction activities will be required to be obtained by the contractor prior to commencing any work.

Other than consultation with the RWQCB, CDPH, and the Rancho Murieta Country Club, no other consultation has occurred between the District and federal, state, regional, and local authorities. Prior to Project implementation, consultation with the appropriate agency or agencies will be made, as deemed necessary.

Environmental compliance with the California Environmental Quality Act will be required prior to construction to evaluate the environmental impacts associated with the improvements. Compliance with the National Environmental Policy Act will be required for the Project to receive federal funding or other federal approvals. Neither of these efforts has been initiated. However, an environmental

[11] Order R5-2014-0149 – Waste Discharge Requirements and Master Reclamation Permit for Rancho Murieta Community Services District. Wastewater Treatment and Reclamation Plan, Sacramento County, CVRWQCB, December 4, 2014.

constraints analysis will be completed within the next phases to gain a preliminary understanding of impacts associated with the Project. The required environmental compliance documents will be initiated after facility planning and in conjunction with pre-design. To facilitate implementation of proposed improvements, a programmatic Environmental Impact Report (EIR) will be considered as an initial step. Communication with regulatory agencies (e.g., RWQCB and CDPH) will continue during all subsequent phases.

When the District is ready to move forward with the Project, it will prepare a checklist to document the evaluation of the proposed activity and would use the checklist to determine the appropriate type of tiered environmental review document. If significant impacts are anticipated, then an EIR would be prepared; if less-than-significant effects are expected to occur, a Negative Declaration would be prepared. In either case, the EIR or Negative Declaration will be completed before the completion of detailed design so that the Project can be modified to address environmental impacts and considerations.

Numerous federal, state and local permits will also be required for implementation. The required permits will be identified during the preparation of the pre-design report and environmental compliance documents. A permitting strategy will be developed to minimize project delays and potential mitigation costs.

The Project will meet all federal, state, and local requirements. The schedule of the Project, including permits, is located in Appendix A (Recycled Water System Expansion Implementation Schedule).

4.6.3 Performance Measures

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved, marketed, or better managed, or energy saved).

The District meters existing potable water and reclaimed water use of each customer, production at the wastewater treatment plant, production at the potable water treatment plant, and supply at each source (river diversion). The District records and publishes monthly water consumption records for the District (see Appendix E for current fiscal year 2015-16). All future customers will be required to have meters installed prior to utilizing potable and/or reclaimed water, thus providing the District the ability to report water saving, record reduced diversion, and track demand and supply trends; providing a more efficient treatment and delivery system in regards to water use and energy expanded for treatment.

4.6.4 Reasonableness of Costs

Please include information related to the total project cost, annual acre-feet conserved, energy capacity, or other project benefits and the expected life of the improvement(s).

For all projects involving physical improvements, specify the expected life of the improvement in number of years and *provide support for the expectation (e.g., manufacturer's guarantee, industry accepted life-expectancy, description of corrosion mitigation for ferrous pipe and fittings, etc.). Failure to provide this information may result in a reduced score for this section.*

The life expectancy for the project will be approximately 70 years (See Appendix C – Service Live (Reference American Water Works Association – West Medium & Small, PVC)

4.7 Evaluation Criterion G: Additional Non-Federal Funding

*Up to **4 points** may be awarded to proposals that provide non-Federal funding in excess of 50 percent of the project costs. State the percentage of non-Federal funding provided.*

The District will fund approximately 76% of the total project cost.

4.8 Evaluation Criterion H: Connection to Reclamation Project Activities

*Up to **4 points** may be awarded if the proposed project is in a basin with connections to Reclamation project activities. No points will be awarded for proposals without connection to a Reclamation project or Reclamation activity.*

(1) How is the proposed project connected to Reclamation project activities?

(2) Does the applicant receive Reclamation project water?

(3) Is the project on Reclamation project lands or involving Reclamation facilities?

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

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

(6) Will the project help Reclamation meet trust responsibilities to Tribes?

The following was pulled from the Bureau of Reclamation web page (http://www.usbr.gov/mp/SSJBasinStudy/) for reference:

The Sacramento and San Joaquin Basins Study is a partnership between Reclamation, California Department of Water Resources, California Partnership for the San Joaquin Valley, Stockton East Water District, El Dorado County Water Agency, and the Madera County Resources Management Agency. The Friant Water Authority and the Mountain Counties Water Resources Association have recently joined in the Basins Study process. This stakeholder involvement in the Study will assist in identifying mitigation or adaptation strategies to address negative impacts of climate change.

The Study will assess potential climate change impacts to the Basins' water supplies and demands and will specifically evaluate potential changes to agriculture and urban water supplies, flood control, hydroelectric power generation, recreation, fisheries, wildlife and wildlife habitats, water quality, and water-dependent ecological systems.

The Study encompasses the entire Central Valley of California with an area of more than 22,500 square miles from the Tehachapi Range in the South to the Klamath Mountains in the north. The Study area includes three major basins which are the Sacramento on the north, the San Joaquin in the central portion, and the Tulare Lake Basin on the south. A portion of the Trinity River Basin in Northern California is also included, due to exports of water from the Trinity River to the Central Valley Project.

5 PERFORMANCE MEASURES

The District meters existing potable water and reclaimed water use of each customer, production at the wastewater treatment plant, production at the potable water treatment plant and supply at each source (river diversion). The District records and publishes monthly water consumption records for the District (see Appendix E for current fiscal year 2015-16). All future customers will be required to have meters installed prior to utilizing potable and/or reclaimed water, thus providing the District the ability to report water saving, record reduced diversion, and track demand and supply trends; providing a more efficient treatment and delivery system in regards to water use and energy expanded for treatment.

6 ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

6.1 Will the Project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)?

Improvements associated with the Project are either in District Right-of-ways and easements, and/or are on District property that has been previously approved for environmental compliance.

- Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area.

Construction would include activities such as site preparation, grading, excavation, and site restoration and would have relatively short-term, temporary impacts. The extent of impact to the air, water, and/or animal habitat would vary with project components (e.g., treatment plant upgrades, pipelines, storage tanks, and pump stations). Because the proposed improvements lie within the WWRP, District Right-of-ways and easements, and along roadways, the impacts are anticipated to be minimal.

- Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

Project construction impacts will be consistent with those of any construction project and are anticipated to include short-term impacts to hydrology and water quality, biological resources, land use, traffic and transportation, air quality, noise, utilities, and temporary access to existing facilities within the community. Environmental permits such as air quality and pollution control permits during construction activities will be required to be obtained by the contractor prior to commencing any work. These permits will have required best management practices to minimize impacts to the surrounding environment.

6.2 Are you aware of any species listed, or proposed to be listed as a federal endangered or threatened species, or designated critical habitat in the project area? If so, how would they be affected by activities associated with the proposed project activities?

Since improvements associated with the Project are either in District Right-of-ways and easements, and/or are on District property that has been previously approved for environmental compliance there should be no species listed or proposed to be listed as a Federal endangered or threatened species or designated Critical Habitat affected.

6.3 Are there wetlands or other surface waters inside the project boundaries that potentially fall under Federal Clean Water Act jurisdiction as "waters of the United States?" If so, please describe and estimate any impacts the Project Activities may have.

Improvements associated with the Project are either in District Right-of-ways and easements, and/or are on District property that has been previously approved for environmental compliance. Waters of the United States are present within the project boundaries, however, no wetlands or surface waters are proposed to be impacted.

6.4 When Was the Water Delivery System Constructed

The District's first water treatment plant (Plant 1) was constructed in 1975. Plant components and processes include a drum screen, flash mixing, flocculation and sedimentation, traveling bridge filtration, chlorine disinfection, and booster pumps. The second water treatment plant (Plant 2) was constructed in 1988 and has similar components and processes as Plant 1.

In 1995, both Plants 1 and 2 were retrofitted to meet the Surface Water Treatment Rule. Since then, the plants have generally operated well and provide approximately 3.2 MGD of total combined capacity. According to the District's Annual Water Report to the California Department of Public Health, the maximum day demand in 2009 was estimated to be 3.4 MGD. However, since that time, demands appear to have been reduced due to the economic downturn and water conservation programs initiated by the District.

The District recently initiated the use of polyaluminum chloride to address taste and odor concerns. Prior to this recent change, there have been no concerns regarding the quality of water currently produced at either of the water treatment plants. However, to ensure adequate potable water supply for development, the District initiated the Phase 3 Water Treatment Plant Expansion Project in 2015. Components associated with this expansion project include raw water improvements and expanding the capacity of Plant 1 to provide a future firm capacity of 6.0 MGD through phased membrane additions. Once completed in early 2016, this improvement project will provide adequate capacity to serve the community through buildout.

6.5 Will the 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

No modifications or effects to individual features of any existing irrigation systems are anticipated for Phase 1 improvements.

6.6 Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the national register of historic places

Improvements associated with the Project are either in District Right-of-ways and easements, and/or are on District property that has been previously approved for environmental compliance. There are no known buildings, structures, or features within the Project limits that are proposed to be impacted.

6.7 Are there any known archeological sites in the project activities area?

Improvements associated with the Project are either in District Right-of-ways and easements, and/or are on District property that has been previously approved for environmental compliance. Due to the previously approved environmental compliance and the aboveground improvements, there should be no impacts to archeological sites.

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

It is not anticipated that the Project will have a disproportionately high and adverse effect on low income or minority populations.

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

It is not anticipated that the Project will limit access to and ceremonial use of Indian sacred sites or result in impacts on tribal lands.

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

Improvements associated with the Project are either in District Right-of-ways and easements, and/or are on District. The proposed improvements will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species.

7 REQUIRED PERMITS OR APPROVALS

Environmental compliance with the California Environmental Quality Act will be required prior to construction to evaluate the environmental impacts associated with the improvements. Compliance with the National Environmental Policy Act will be required for the Project to receive federal funding or other federal approvals. Neither of these efforts has been initiated. However, an environmental constraints analysis will be completed within the next phases to gain a preliminary understanding of impacts associated with the Project. The required environmental compliance documents will be initiated after facility planning and in conjunction with pre-design. To facilitate implementation of proposed improvements, a programmatic EIR will be considered as an initial step. Communication with regulatory agencies (e.g., RWQCB and CDPH) will continue during all subsequent phases.

When the District is ready to move forward with the Project, it will prepare a checklist to document the evaluation of the proposed activity and would use the checklist to determine the appropriate type of tiered environmental review document. If significant impacts are anticipated, then an EIR would be prepared; if less-than-significant effects are expected to occur, a Negative Declaration would be prepared. In either case, the EIR or Negative Declaration will be completed before the completion of detailed design so that the Project can be modified to address environmental impacts and considerations.

Numerous federal, state and local permits will also be required for implementation. The required permits will be identified during the preparation of the pre-design report and environmental compliance

documents. A permitting strategy will be developed to minimize project delays and potential mitigation costs.

8 OFFICIAL RESOLUTION

Refer to Appendix H - Rancho Murieta Community Services District Resolution.

9 PROJECT BUDGET

9.1 Funding Plan and Letters of Commitment

The Project will not be funded through any source other than the District. Due to this, Letters of Commitment are not being provided with this application.

The Project will be funded by the District through developer fees (Water Supply Augmentation fees), developer contributions, and WaterSMART: Water and Energy Efficiency Grants for FY2016 funding. The WaterSMART: Water and Energy Efficiency Grants for FY2016 funding request will not exceed $1,000,000. The District will pay the remaining project cost through established developer fees (Water Supply Augmentation fees). The District has no funding limitations for the Project at this time. The on-going operation and maintenance of the Project will be funded by a user rate structure to be developed by the District. Future replacement costs of the project infrastructure will be addressed through the collection of replacement reserve fees, which will be incorporated in a user monthly base rate.

AECOM Technical Services, Inc. has completed the planning documents (Title XVI Recycled Water Feasibility Study, Funding Application and Documentation and Implementation Plan). Consultant fees to date total $160,873.

The District utilized $33,168.50 of Federal funding (Financial Assistance Agreement No. 12AC20051) to supplement the preparation of the preliminary study titled: Title XVI Recycled Water Feasibility Study, Rancho Murieta Community Services District, dated June 2014 (Study).

The purposes of the Study were to (1) determine which particular future residential developments are the most cost-effective for recycled water service, (2) determine whether expansion of the existing recycled water program is cost-effective when compared to the “No Project” alternative, and (3) develop a feasibility study that satisfies the provisions of Public Law 102-575 sections 1603(b) and 1604(c) so that additional Title XVI grant funding can be requested from the Bureau of Reclamation.

No additional funding requests have been applied for.

9.1.1 Description of Expenditures Planned Through September 2018

Prepared Title XVI Recycled Water Feasibility Study	$ 86,418
Prepare Funding Application and Documentation	$ 24,084
Prepare Implementation Plan	$ 50,371
Project Construction	$ 3,137,247
Administrative Fees	$ 160,506
Regulatory (CEQA)	$ 55,578

Engineering & Construction Management	$ 417,993
Contingency Soft Costs	$ 165,340

Table 4. Summary of non-Federal and Federal funding sources

Funding Sources	Funding Amount
Non-Federal Entities	
Rancho Murieta Community Services District	$3,114,128
Non-Federal Subtotal:	$3,114,128
Other Federal Entities	$ 0
None	
Other Federal Subtotal:	$ 0
Requested Reclamation Funding:	$ 983,409
Total Project Funding:	$ 4,097,537

Table 5. Funding Group II funding request Funding Group II request

	Year 1 (FY 2016/2017)	Year 2 (FY 2017/2018)	Year 3 (FY 2018/2019)
Funding requested	$ 335,878	$ 1,333,504	$ 2,428,155

The planning documents (Title XVI Recycled Water Feasibility Study, Funding Application and Documentation and Implementation Plan) have been completed to-date, totaling $160,873. The Project is expected to be completed prior to November 2018, thus all funding will be utilized by then.

9.2 Budget Proposal

In addition to Appendix G – Form SF-424C, Budget Information – Construction Programs, unit costs of Phase I of the Project are provided in Appendix B – Engineering Estimates.

9.3 Budget narrative

The Project will be funded by the District through developer fees (Water Supply Augmentation fees), developer contributions, and WaterSMART: Water and Energy Efficiency Grants for FY2016 funding. The WaterSMART: Water and Energy Efficiency Grants for FY2016 funding request will not exceed $1,000,000. The District will pay the remaining project cost through established developer fees (Water Supply Augmentation fees) and developer contributions. The District has no funding limitations for the Project at this time. The on-going operation and maintenance of the Project will be funded by a user rate structure to be developed by the District. Future replacement costs of the project infrastructure will be

addressed through the collection of replacement reserve fees, which will be incorporated in a user monthly base rate.

The District will follow Federal Funding requirements and advertise the Project to obtain a consultant as the Program Manager. AECOM Technical Services, Inc. has completed the planning documents (Title XVI Recycled Water Feasibility Study, Funding Application and Documentation and Implementation Plan). Consultant fees to date total $160,873.

The Project will comply with California competitive bid requirements and thus will be awarded to the lowest bidder. Consequently, the Engineering Estimates (Appendix B) identify the total costs of the Project; including labor rates (direct and fringe), contractor hours, travel costs, equipment, materials and supplies as part of the overall unit costs. Additionally, the engineers estimates takes into account percentages of total construction costs for the following: Administrative Fees (10%), Regulatory (CEQA) Compliance (2.5%), Engineering and Construction Management (17.5%) and Contingency – Soft Costs (10%).

Once the contract is awarded to the lowest bidder, the District will direct the Contractor (as part of the Contractors Scope of Work) to submit Semi-annual and Final reports as required by the Bureau of Reclamation (BOR). Each report will comply with BOR requirements and contain key personnel by name and title. All positions will list salaries and wages, estimated hours or percent of time, and rate of compensation. The labor rates will identify the direct labor rate separate from the fringe rate. All labor rates and hours will be allocated to specific tasks proposed by the Contractor.

9.4 Budget form

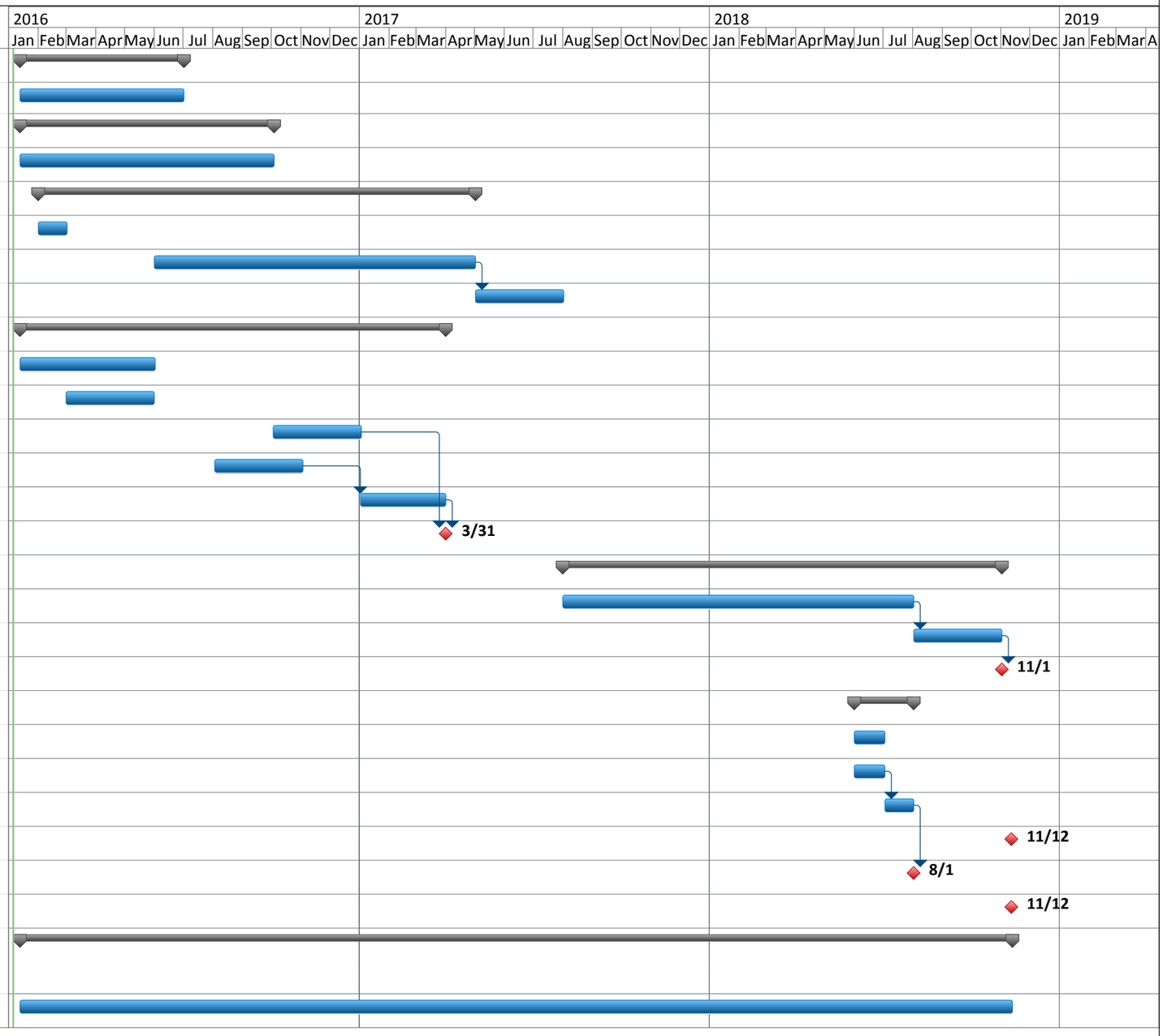
See Appendix G, Form SF-424C, Budget Information—Construction Programs.

APPENDIX A

Recycled Water System Expansion Implementation Schedule

RMCSD PHASE I IMPLEMENTATION PLAN

Task Name	Duration	Start	Finish
Public Outreach	**123 days**	**Wed 1/13/16**	**Fri 7/1/16**
RMCC	**123 days**	**Wed 1/13/16**	**Fri 7/1/16**
Environmental (CEQA/NEPA)	**189 days**	**Wed 1/13/16**	**Mon 10/3/16**
CEQA/NEPA Phase 1 Project	189 days	Wed 1/13/16	Mon 10/3/16
Design	**326 days**	**Mon 2/1/16**	**Mon 5/1/17**
CEQA/NEPA Phase I Project Definition	22 days	Mon 2/1/16	Tue 3/1/16
Phase I Project	239 days	Wed 6/1/16	Mon 5/1/17
Advertisement & Bidding	66 days	Tue 5/2/17	Tue 8/1/17
Regulatory (Capacity) Compliance	**318 days**	**Wed 1/13/16**	**Fri 3/31/17**
Developer Response (Preliminary and Final)	101 days	Wed 1/13/16	Wed 6/1/16
Capacity Certification Letters	66 days	Tue 3/1/16	Tue 5/31/16
Capacity Increase Report	66 days	Mon 10/3/16	Mon 1/2/17
Operations and Maintenance (O&M) Manual	66 days	Wed 8/3/16	Wed 11/2/16
RWQCB Negotiations	65 days	Mon 1/2/17	Fri 3/31/17
Increased Capacity	0 days	Fri 3/31/17	Fri 3/31/17
Construction	**328 days**	**Tue 8/1/17**	**Thu 11/1/18**
Phase 1 Project	262 days	Tue 8/1/17	Wed 8/1/18
Phase 1 Project - Substantial Completion	66 days	Thu 8/2/18	Thu 11/1/18
Phase 1 Project - Completion	0 days	Thu 11/1/18	Thu 11/1/18
Startup and Testing	**44 days**	**Fri 6/1/18**	**Wed 8/1/18**
Inspection and Testing - Development Systems	22 days	Fri 6/1/18	Mon 7/2/18
Inspection and Testing - Phase 1 Project Improvements	22 days	Fri 6/1/18	Mon 7/2/18
Inspection and Testing - Phase 1 System	22 days	Tue 7/3/18	Wed 8/1/18
Recycled Water System	**0 days**	**Mon 11/12/18**	**Mon 11/12/18**
Phase 1 Delivery Online	0 days	Wed 8/1/18	Wed 8/1/18
Grant Deadline	0 days	Mon 11/12/18	Mon 11/12/18
Funding Pursuits (Management and Ongoing Communication)	**739 days**	**Wed 1/13/16**	**Mon 11/12/18**
Water and Energy Efficiency Grants	739 days	Wed 1/13/16	Mon 11/12/18



Task Milestone Summary

Rancho Murieta Community Services District
Serving the community for over 30 years.

AECOM

APPENDIX B

Engineering Estimates

Project:	Rancho Murieta Title XVI Implementation Plan	**Date:**	1/6/2016
Job Number:	60273784	**Developed By:**	J. Gabriel Perigault
Improvement:	1. Control System for Recycled Water Conveyance and Storage System	**Checked By:**	Kevin Kennedy
Path:	\\s019nas02.us.ie.urs\Water\Rancho Murieta Projects\60446041_RMCSD Recycled Water Project\Cost Data		

Specification Section/Description	**Quantity**	**Units**	**Unit Cost**	**Subtotal**	**Total**
Division 1 - General Requirements					$16,160
Mobilization (5%)	3%	LS	77,000	$3,850	
Bid, Bonds, and Insurance (3%)	3%	LS	77,000	$2,310	
Submittals	1	EA	5,000	$5,000	
O&M Manuals	1	EA	5,000	$5,000	
Division 2 - Site Work		NOT USED			$0
Division 3 - Concrete		NOT USED			$0
Division 4 - Masonry		NOT USED			$0
Division 5 - Metals		NOT USED			$0
Division 6 - Wood and Plastics		NOT USED			$0
Division 7 - Thermal and Mositure Protection		NOT USED			$0
Division 8 - Doors and Windows		NOT USED			$0
Division 9 - Finishes		NOT USED			$0
Division 10 - Specialties		NOT USED			$0
Division 11 - Equipment		NOT USED			$0
Division 12 - Furnishings		NOT USED			$0
Division 13 - Special Construction		NOT USED			$0
Division 14 - Conveying Systems		NOT USED			$0
Division 15 - Mechanical					$17,000
Motorized Valves (Allocation)	2	EA	8,500	$17,000	
Division 16 - Electrical and Instrumentation					$60,000
Electrical	5	EA	7,000	$35,000	
SCADA and Instrumentation	5	EA	5,000	$25,000	

Subtotal (Includes Overhead & Profit)	$135,535
Midpoint to Construction (5%)	$6,777
Contingency - Construction Costs (10%)	$13,554
Estimate of Probable Construction Costs	**$155,865**
Administrative Fees (5%)	$7,793
Regulatory (CEQA) Compliance (0%)	$0
Engineering and Construction Management (15%)	$27,276
Contingency - Soft Costs (5%)	$7,793
Grand Total	**$198,728**

Project:	Rancho Murieta Title XVI Implementation Plan	**Date:**	1/6/2016
Job Number:	60446041	**Developed By:**	J. Gabriel Perigault
Improvement:	2. Installation of a Potable Water System Connection Via an Air Gap to the Equalization Basin	**Checked By:**	Kevin Kennedy
Path:	\\s019nas02.us.ie.urs\Water\Rancho Murieta Projects\60446041_RMCSD Recycled Water Project\Cost Data		

Specification Section/Description	Quantity	Units	Unit Cost	Subtotal	Total
Division 1 - General Requirements					$3,904
Mobilization (5%)	5%	LS	$11,295	$565	
Bid, Bonds, and Insurance (3%)	3%	LS	$11,295	$339	
Submittals (includes cross-connection test)	5	EA	$500	$2,500	
O&M Manuals	1	EA	$500	$500	
Division 2 - Site Work					$6,295
Offsite Hauling (30 miles) and Disposal	10	CY	$20	$200	
8-inch DIP	15	LF	$93	$1,395	
8" Air Gap Assembly	1	LS	$1,200	$1,200	
8" BF Valve	1	EA	$1,500	$1,500	
Miscellanous DIP Fittings	1	LS	$2,000	$2,000	
Division 3 - Concrete					$5,000
Demolition and Pavement Patching	1	LS	$5,000	$5,000	
Division 4 - Masonry		NOT USED			$0
Division 5 - Metals		NOT USED			$0
Division 6 - Wood and Plastics		NOT USED			$0
Division 7 - Thermal and Mositure Protection		NOT USED			$0
Division 8 - Doors and Windows		NOT USED			$0
Division 9 - Finishes		NOT USED			$0
Division 10 - Specialties		NOT USED			$0
Division 11 - Equipment		NOT USED			$0
Division 12 - Furnishings		NOT USED			$0
Division 13 - Special Construction		NOT USED			$0
Division 15 - Mechanical		NOT USED			$0
Division 16 - Electrical and Instrumentation		NOT USED			$0

Subtotal (Includes Overhead & Profit)	$15,199
Midpoint to Construction (5%)	$760
Contingency - Construction Costs (25%)	$3,800
Estimate of Probable Construction Costs	**$19,758**
Administrative Fees (0%)	$0
Regulatory (CEQA) Compliance (2.5%)	$0
Engineering and Construction Management (17.5%)	$3,458
Contingency - Soft Costs (10%)	$1,976
Grand Total	**$25,192**

Project:	Rancho Murieta Title XVI Implementation Plan	**Date:**	1/6/2016
Job Number:	60446041	**Developed By:**	J. Gabriel Perigault
Improvement:	3. Pumping Station Improvement - North Golf Course Pumping Station (2,100 gpm)	**Checked By:**	Kevin Kennedy
Path:	\\s019nas02.us.ie.urs\Water\Rancho Murieta Projects\60446041_RMCSD Recycled Water Project\Cost Data		

Specification Section/Description		**Quantity**	**Units**	**Unit Cost**	**Subtotal**	**Total**
Division 1 - General Requirements						$80,800
Mobilization (5%)		5%	LS	$385,000	$19,250	
Bid, Bonds, and Insurance (3%)		3%	LS	$385,000	$11,550	
Submittals		5	EA	$5,000	$25,000	
O&M Manuals		5	EA	$5,000	$25,000	
Division 2 - Site Work						$5,161
Offsite Hauling (30 miles) and Disposal		91	CY	$20	$1,818	
Trenching		5	CY	$13	$63	
Confined Backfill and Compaction		1	LS	$1,000	$1,000	
Aggregate Base		1	LS	$1,000	$1,000	
Repaving		40	SY	$32	$1,280	
Division 3 - Concrete						$35,000
Miscellaneous Concrete		1	LS	$35,000	$35,000	
Division 4 - Masonry			NOT USED			$0
Division 5 - Metals			NOT USED			$0
Division 6 - Wood and Plastics			NOT USED			$0
Division 7 - Thermal and Mositure Protection			NOT USED			$0
Division 8 - Doors and Windows			NOT USED			$0
Division 9 - Finishes			NOT USED			$0
Division 10 - Specialties			NOT USED			$0
Division 11 - Equipment						$210,000
	1	2	EA	$95,000	$190,000	
Valves and Apputernances		1	LS	$20,000	$20,000	
Division 12 - Furnishings			NOT USED			$0
Division 13 - Special Construction			NOT USED			$0
Division 14 - Conveying Systems			NOT USED			$0
Division 15 - Mechanical						$100,000
Miscellaneous Piping		1	LS	$100,000	$100,000	
Division 16 - Electrical and Instrumentation						$40,000
Electrical		25%	EA	$25,000	$25,000	
Instrumentation and Controls		15%	EA	$15,000	$15,000	

Subtotal (Includes Overhead & Profit)	$470,961
Midpoint to Construction (5%)	$23,548
Contingency - Construction Costs (20%)	$94,192
Estimate of Probable Construction Costs	**$588,701**
Administrative Fees (5%)	$29,435
Regulatory (CEQA) Compliance (2.5%)	$0
Engineering and Construction Management (17.5%)	$103,023
Contingency - Soft Costs (5%)	$29,435
Grand Total	**$750,593**

Project:	Rancho Murieta Title XVI Implementation Plan	**Date:**	1/6/2016
Job Number:	60446041	**Developed By:**	J. Gabriel Perigault
Improvement:	4. Connection Irrigation System of Front Yard of District's headquarters to Recycled Water System	**Checked By:**	Kevin Kennedy
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Specification Section/Description	Quantity	Units	Unit Cost	Subtotal	Total
Division 1 - General Requirements					$3,480
Mobilization (5%)	5%	LS	$18,500	$925	
Bid, Bonds, and Insurance (3%)	3%	LS	$18,500	$555	
Submittals (includes cross-connection test)	3	EA	$500	$1,500	
O&M Manuals	1	EA	$500	$500	
Division 2 - Site Work					$13,500
Offsite Hauling (30 miles) and Disposal	10	CY	$50	$500	
2-inch PVC pipeline	200	LF	$60	$12,000	
Miscellanous PVC Fittings	1	LS	$1,000	$1,000	
Division 3 - Concrete					$5,000
Demolition and Pavement Patching	1	LS	$5,000	$5,000	
Division 4 - Masonry		NOT USED			$0
Division 5 - Metals		NOT USED			$0
Division 6 - Wood and Plastics		NOT USED			$0
Division 7 - Thermal and Mositure Protection		NOT USED			$0
Division 8 - Doors and Windows		NOT USED			$0
Division 9 - Finishes		NOT USED			$0
Division 10 - Specialties		NOT USED			$0
Division 11 - Equipment		NOT USED			$0
Division 12 - Furnishings		NOT USED			$0
Division 13 - Special Construction		NOT USED			$0
Division 14 - Conveying Systems		NOT USED			$0
Division 15 - Mechanical		NOT USED			$0
Division 16 - Electrical and Instrumentation		NOT USED			$0

Subtotal (Includes Overhead & Profit)	$21,980
Midpoint to Construction (5%)	$1,099
Contingency - Construction Costs (15%)	$5,495
Estimate of Probable Construction Costs	**$28,574**
Administrative Fees (0%)	$0
Regulatory (CEQA) Compliance (2.5%)	$0
Engineering and Construction Management (17.5%)	$5,000
Contingency - Soft Costs (10%)	$2,857
Grand Total	**$36,432**

Project:	Rancho Murieta Title XVI Implementation Plan	**Date:**	1/6/2016
Job Number:	60273784	**Developed By:**	J. Gabriel Perigault
Improvement:	5.1. Northwest Recycled Water Transmission Main	**Checked By:**	Kevin Kennedy

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Specification Section/Description	Quantity	Units	Unit Cost	Subtotal	Total
Division 1 - General Requirements					$117,477
Mobilization (5%)	5%	LS	$1,030,960	$51,548	
Bid, Bonds, and Insurance (3%)	3%	LS	$1,030,960	$30,929	
Submittals	5	EA	$5,000	$25,000	
O&M Manuals	2	EA	$5,000	$10,000	
Division 2 - Site Work					$1,030,960
Conditions Assessment	1	LS	$25,000	$25,000	
Rehab of Existing Pipeline Along Stonehouse Road (Allocati	1,080	LF	$212	$228,960	
12-inch PVC pipeline	3,500	LF	$212	$742,000	
10-inch PVC pipeline		LF	$180	$0	
Valves and Appurtenances	1	LS	$35,000	$35,000	
Division 3 - Concrete		NOT USED			$0
Division 4 - Masonry		NOT USED			$0
Division 5 - Metals		NOT USED			$0
Division 6 - Wood and Plastics		NOT USED			$0
Division 7 - Thermal and Mositure Protection		NOT USED			$0
Division 8 - Doors and Windows		NOT USED			$0
Division 9 - Finishes		NOT USED			$0
Division 10 - Specialties		NOT USED			$0
Division 11 - Equipment		NOT USED			$0
Division 12 - Furnishings		NOT USED			$0
Division 13 - Special Construction		NOT USED			$0
Division 14 - Conveying Systems		NOT USED			$0
Division 15 - Mechanical		NOT USED			$0
Division 16 - Electrical and Instrumentation		NOT USED			$0

Subtotal (Includes Overhead & Profit)	$1,148,437
Midpoint to Construction (5%)	$57,422
Contingency - Construction Costs (25%)	$287,109
Estimate of Probable Construction Costs	**$1,492,968**
Administrative Fees (5%)	$74,648
Regulatory (CEQA) Compliance (2.5%)	$37,324
Engineering and Construction Management (12.5%)	$186,621
Contingency - Soft Costs (5%)	$74,648
Grand Total	**$1,866,210**

Project:	Rancho Murieta Title XVI Implementation Plan	**Date:**	1/6/2016
Job Number:	60446041	**Developed By:**	J. Gabriel Perigault
Improvement:	5.2. Recycled Water Booster Pumping Station	**Checked By:**	Kevin Kennedy

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Specification Section/Description	Quantity	Units	Unit Cost	Subtotal	Total
Division 1 - General Requirements					$45,500
Mobilization (5%)	5%	LS	$193,750	$9,688	
Bid, Bonds, and Insurance (3%)	3%	LS	$193,750	$5,813	
Submittals	5	EA	$5,000	$25,000	
O&M Manuals	1	EA	$5,000	$5,000	
Division 2 - Site Work					$5,000
Site Preparation	1	LS	$5,000	$5,000	
Division 3 - Concrete					$35,000
Miscellaneous Concrete (slab, access)	1	LS	$35,000	$35,000	
Division 4 - Masonry		NOT USED			$0
Division 5 - Metals		NOT USED			$0
Division 6 - Wood and Plastics		NOT USED			$0
Division 7 - Thermal and Mositure Protection		NOT USED			$0
Division 8 - Doors and Windows		NOT USED			$0
Division 9 - Finishes		NOT USED			$0
Division 10 - Specialties		NOT USED			$0
Division 11 - Equipment					$107,500
Pumps (~ 1,000 gpm)	2	LS	$43,750	$87,500	
Valves and Apputernances	1	LS	$20,000	$20,000	
Division 12 - Furnishings		NOT USED			$0
Division 13 - Special Construction		NOT USED			$0
Division 14 - Conveying Systems		NOT USED			$0
Division 15 - Mechanical					$20,000
Miscellaneous Piping and Apputernances	1	LS	$20,000	$20,000	
Division 16 - Electrical and Instrumentation					$26,250
Electrical (20% of Pump Costs)	15%	LS	$87,500	$13,125	
Instrumentation and Controls (15% of Pumping Station)	15%	LS	$87,500	$13,125	
			Subtotal (Includes Overhead & Profit)		$239,250
			Midpoint to Construction (5%)		$11,963
			Contingency - Construction Costs (20%)		$47,850
			Estimate of Probable Construction Costs		**$299,063**
			Administrative Fees (5%)		$14,953
			Regulatory (CEQA) Compliance (2.5%)		$7,477
			Engineering and Construction Management (12.5%)		$37,383
			Contingency - Soft Costs (5%)		$14,953
			Grand Total		**$373,828**

Project:	Rancho Murieta Title XVI Implementation Plan	**Date:**	1/6/2016
Job Number:	60446041	**Developed By:**	J. Gabriel Perigault
Improvement:	6. Escuela Park Conversion to Recycled Water Irrigation	**Checked By:**	Kevin Kennedy

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Specification Section/Description	Quantity	Units	Unit Cost	Subtotal	Total
Division 1 - General Requirements					$5,080
5. (Mobilization (5%)	5%	LS	$26,000	$1,300	
Bid, Bonds, and Insurance (3%)	3%	LS	$26,000	$780	
Submittals (includes cross-connection test)	5	EA	$500	$2,500	
O&M Manuals	1	EA	$500	$500	
Division 2 - Site Work					$21,000
4-inch PVC pipeline	200	LF	$100	$20,000	
Miscellanous PVC Fittings	1	LS	$1,000	$1,000	
Division 3 - Concrete					$5,000
Demolition and Pavement Patching	1	LS	$5,000	$5,000	
Division 4 - Masonry		NOT USED			$0
Division 5 - Metals		NOT USED			$0
Division 6 - Wood and Plastics		NOT USED			$0
Division 7 - Thermal and Mositure Protection		NOT USED			$0
Division 8 - Doors and Windows		NOT USED			$0
Division 9 - Finishes		NOT USED			$0
Division 10 - Specialties		NOT USED			$0
Division 11 - Equipment		NOT USED			$0
Division 12 - Furnishings		NOT USED			$0
Division 13 - Special Construction		NOT USED			$0
Division 14 - Conveying Systems		NOT USED			$0
Division 15 - Mechanical		NOT USED			$0
Division 16 - Electrical and Instrumentation		NOT USED			$0

Subtotal (Includes Overhead & Profit)	$31,080
Midpoint to Construction (5%)	$1,554
Contingency - Construction Costs (25%)	$7,770
Estimate of Probable Construction Costs	**$40,404**
Administrative Fees (10%)	$4,040
Regulatory (CEQA) Compliance (0%)	$0
Engineering and Construction Management (10%)	$4,040
Contingency - Soft Costs (10%)	$4,040
Grand Total	**$52,525**

Project:	Rancho Murieta Title XVI Implementation Plan	**Date:**	1/6/2016
Job Number:	60446041	**Developed By:**	J. Gabriel Perigault
Improvement:	7. Stonehouse Park Conversion to Recycled Water Irrigation	**Checked By:**	Kevin Kennedy

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Specification Section/Description	Quantity	Units	Unit Cost	Subtotal	Total
Division 1 - General Requirements					$5,080
5. (Mobilization (5%)	5%	LS	$26,000	$1,300	
Bid, Bonds, and Insurance (3%)	3%	LS	$26,000	$780	
Submittals (includes cross-connection test)	5	EA	$500	$2,500	
O&M Manuals	1	EA	$500	$500	
Division 2 - Site Work					$21,000
4-inch PVC pipeline	200	LF	$100	$20,000	
Miscellanous PVC Fittings	1	LS	$1,000	$1,000	
Division 3 - Concrete					$5,000
Demolition and Pavement Patching	1	LS	$5,000	$5,000	
Division 4 - Masonry		NOT USED			$0
Division 5 - Metals		NOT USED			$0
Division 6 - Wood and Plastics		NOT USED			$0
Division 7 - Thermal and Mositure Protection		NOT USED			$0
Division 8 - Doors and Windows		NOT USED			$0
Division 9 - Finishes		NOT USED			$0
Division 10 - Specialties		NOT USED			$0
Division 11 - Equipment		NOT USED			$0
Division 12 - Furnishings		NOT USED			$0
Division 13 - Special Construction		NOT USED			$0
Division 14 - Conveying Systems		NOT USED			$0
Division 15 - Mechanical		NOT USED			$0
Division 16 - Electrical and Instrumentation		NOT USED			$0

Subtotal (Includes Overhead & Profit)	$31,080
Midpoint to Construction (5%)	$1,554
Contingency - Construction Costs (25%)	$7,770
Estimate of Probable Construction Costs	**$40,404**
Administrative Fees (10%)	$4,040
Regulatory (CEQA) Compliance (0%)	$0
Engineering and Construction Management (10%)	$4,040
Contingency - Soft Costs (10%)	$4,040
Grand Total	**$52,525**

Project:	Rancho Murieta Title XVI Implementation Plan	**Date:**	1/6/2016
Job Number:	60273784	**Developed By:**	J. Gabriel Perigault
Improvement:	8. Lookout Hill Recycled Water Storage Tank	**Checked By:**	Kevin Kennedy

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Specification Section/Description	Quantity	Units	Unit Cost	Subtotal	Total
Division 1 - General Requirements					$24,564
Mobilization (7% not including tank)	5%	LS	$182,056	$9,103	
Bid, Bonds, and Insurance (3% not incl. new tank)	3%	LS	$182,056	$5,462	
Submittals	1	LS	$5,000	$5,000	
O&M Manuals	1	LS	$5,000	$5,000	
Division 2 - Site Work					$85,332
Exiting Tank Demolition	1	LS	$35,400	$35,400	
Existing Tank Foundation Demolition	1257	LF	$30	$37,071	
Offsite Hauling (30 miles) and Disposal	119	CY	$50	$5,927	
Excavation	352	CY	$13	$4,400	
Backfill and Compaction	225	CY	$8	$1,689	
Aggregate Base	56	CY	$15	$845	
Miscellaneous Piping and apputernances	1	LS	$20,000	$20,000	
Division 3 - Concrete					$51,724
Tank Base/Foundation	31	CY	$1,350	$41,724	
Miscellaneous Concrete	1	LS	$10,000	$10,000	
Division 4 - Masonry		NOT USED			$0
Division 5 - Metals		NOT USED			$0
Division 6 - Wood and Plastics		NOT USED			$0
Division 7 - Thermal and Mositure Protection		NOT USED			$0
Division 8 - Doors and Windows		NOT USED			$0
Division 9 - Finishes		NOT USED			$0
Division 10 - Specialties					$125,000
New Tank (200,000 gallons, includes installation)	1	EA	$125,000	$125,000	
Division 11 - Equipment		NOT USED			$0
Division 12 - Furnishings		NOT USED			$0
Division 13 - Special Construction		NOT USED			$0
Division 14 - Conveying Systems		NOT USED			$0
Division 15 - Mechanical					$20,000
12-inch Motorized Butterfly Valve	2	EA	$10,000	$20,000	
Division 16 - Electrical and Instrumentation					$25,000
Electrical	1	LS	$10,000	$10,000	
Instrumentation and Controls (Sensors/Telemetry)	1	LS	$15,000	$15,000	

Subtotal	$331,621
Midpoint to Construction (5%)	$16,581
Contingency - Construction Costs (25%)	$82,905
Estimate of Probable Construction Costs (Rounded)	**$431,107**
Administrative Fees (5%)	$21,555
Regulatory (CEQA) Compliance (2.5%)	$10,778
Engineering and Construction Management (10%)	$43,111
Contingency - Soft Costs (5%)	$21,555
Grand Total (Rounded)	**$528,106**

Project:	Rancho Murieta Title XVI Implementation Plan	**Date:**	1/6/2016
Job Number:	60446041	**Developed By:**	J. Gabriel Perigault
Improvement:	9. North Gate Entrance Conversion to Recycled Water Irrigation	**Checked By:**	Kevin Kennedy

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Specification Section/Description	Quantity	Units	Unit Cost	Subtotal	Total
Division 1 - General Requirements					$5,080
5. (Mobilization (5%)	5%	LS	$26,000	$1,300	
Bid, Bonds, and Insurance (3%)	3%	LS	$26,000	$780	
Submittals (includes cross-connection test)	5	EA	$500	$2,500	
O&M Manuals	1	EA	$500	$500	
Division 2 - Site Work					$21,000
4-inch PVC pipeline	200	LF	$100	$20,000	
Miscellanous PVC Fittings	1	LS	$1,000	$1,000	
Division 3 - Concrete					$5,000
Demolition and Pavement Patching	1	LS	$5,000	$5,000	
Division 4 - Masonry		NOT USED			$0
Division 5 - Metals		NOT USED			$0
Division 6 - Wood and Plastics		NOT USED			$0
Division 7 - Thermal and Mositure Protection		NOT USED			$0
Division 8 - Doors and Windows		NOT USED			$0
Division 9 - Finishes		NOT USED			$0
Division 10 - Specialties		NOT USED			$0
Division 11 - Equipment		NOT USED			$0
Division 12 - Furnishings		NOT USED			$0
Division 13 - Special Construction		NOT USED			$0
Division 14 - Conveying Systems		NOT USED			$0
Division 15 - Mechanical		NOT USED			$0
Division 16 - Electrical and Instrumentation		NOT USED			$0

Subtotal (Includes Overhead & Profit)	$31,080
Midpoint to Construction (5%)	$1,554
Contingency - Construction Costs (25%)	$7,770
Estimate of Probable Construction Costs	**$40,404**
Administrative Fees (10%)	$4,040
Regulatory (CEQA) Compliance (0%)	$0
Engineering and Construction Management (10%)	$4,040
Contingency - Soft Costs (10%)	$4,040
Grand Total	**$52,525**

APPENDIX C

Service Live (Reference American Water Works Association – West Medium & Small, PVC)

projections of demographic trends allowed the development of infrastructure need profiles for growth through 2050 in each of the regions and utility size categories (for the latter purpose, city size was used as a proxy for utility size).

The study generally assumes that utilities continue efforts to manage the number of main breaks that occur per mile of pipe rather than absorb increases in pipe failures. That is, the study assumes utilities will strive to maintain current levels of service rather than allow increasing water service outages. We assume that each utility's objective is to make these investments at the optimal time for maintaining current service levels and to avoid replacing pipes while the repairs are still cost-effective. Ideally, pipe replacement occurs at the end of a pipe's "useful life"; that is, the point in time when replacement or rehabilitation becomes less expensive in going forward than the costs of numerous unscheduled breaks and associated emergency repairs.

With this data in hand and using the assumptions above, we projected the "typical" useful service life of the pipes in our inventory using the "Nessie Model"™. The model embodies pipe failure probability distributions based on many utilities' current operating experiences, coupled with insights from extensive research and professional experiences with typical pipe conditions at different ages and sizes, according to pipe material. The analysis used seven different types of pipe in three diameters and addressed pipe inventories dating back to 1870. Estimated typical service lives of pipes are

Figure 5: Average Estimated Service Lives by Pipe Materials (average years of service)

Derived Current Service Lives (Years)	CI	CICL (LSL)	CICL (SSL)	DI (LSL)	DI (SSL)	AC (LSL)	AC (SSL)	PVC	Steel	Conc & PCCP
Northeast Large	130	120	100	110	50	80	80	100	100	100
Midwest Large	125	120	85	110	50	100	85	55	80	105
South Large	110	100	100	105	55	100	80	55	70	105
West Large	115	100	75	110	60	105	75	70	95	75
Northeast Medium & Small	115	120	100	110	55	100	85	100	100	100
Midwest Medium & Small	125	120	85	110	50	70	70	55	80	105
South Medium & Small	105	100	100	105	55	100	80	55	70	105
West Medium & Small	105	100	75	110	60	105	75	70	95	75
Northeast Very Small	115	120	100	120	60	100	85	100	100	100
Midwest Very Small	135	120	85	110	60	80	75	55	80	105
South Very Small	130	110	100	105	55	100	80	55	70	105
West Very Small	130	100	75	110	60	105	65	70	95	75

LSL indicates a relatively long service life for the material resulting from some combination of benign ground conditions and evolved laying practices etc.
SSL indicates a relatively short service life for the material resulting from some combination of harsh ground conditions and early laying practices, etc.

APPENDIX D

District Plant Operations Costs

Rancho Murietta Community Services District
Wastewater Treatment Plant Operations Costs - 2014

	January	February	March	April	May	June	July	August	September	October	November	December	Totals	
Secondary Inflow MG	10.693	11.527	13.393	12.310	11.320	10.892	11.303	11.143	10.713	10.635	10.521	14.909	139	MG
Tertiary Production MG	0.000	0.000	0.000	0.000	0.000	22.679	35.285	39.739	26.340	8.202			132	MG
Total Chlorine used in lbs						4,473	5,906	6,901	3,770	1,500			22,550	lbs
Alum in lbs						42,019	45,966	62,309	40457	14,172			204,923	lbs
Total Sodium Hydroxide in lbs						3,026	1,538	0	0	508			5,072	lbs
Electrical Per Month ($)	10,471	10,119	8,972	8,043	8,986	11,570	13,096	14,027	10,777	8,352	8,412	7,550	$120,375	Secondary + T

Calculated Costs

	January	February	March	April	May	June	July	August	September	October	November	December	Chemical	
Chlorine $	$0	$0	$0	$0	$0	$1,566	$2,067	$2,415	$1,320	$525	$0	$0	$7,892.50	Chlorine
Alum $	$0	$0	$0	$0	$0	$1,979	$2,165	$2,935	$1,906	$668	$0	$0	$9,651.87	Alum
Sodium Hydroxide 50% $	$0	$0	$0	$0	$0	$903	$459	$0	$0	$152	$0	$0	$1,513.61	Sodium Hydro
												Total	$19,057.99	Chemical
												Cost per MG	$144.11	Chemical

General Ledger Data

	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Wages - ST & D	9,670.44	5,971.44	5,389.75	8,492.39	14,509.50	17,917.42	5,575.69	18,102.13	6,992.07	9,618.12	8,697.42	9,921.92	120,858.29
Employers Cost - ST&D	4,987.78	3,617.71	3,677.79	5,916.95	4,046.45	6,292.39	5,016.21	7,266.33	4,174.00	4,995.24	4,022.86	5,438.88	59,452.59
Purchased Power - ST&D	9,797.83	9,815.15	9,469.12	8,325.84	7,353.48	8,181.45	2,729.47	12,257.38	13,273.87	10,117.86	7,720.91	7,661.29	106,703.65
Supplies - ST&D	0.00	0.00	0.00	0.00	0.00	2,484.00	0.00	772.47	0.00	0.00	0.00	0.00	3,256.47
Equipment Rental - ST&D	0.00	0.00	0.00	7,087.40	3,027.31	0.00	0.00	264.60	793.80	0.00	0.00	0.00	11,173.11
Maintenance/Repairs - ST&D	1,500.38	2,927.99	1,512.29	7,937.31	17,042.99	7,325.94	2,632.79	2,569.45	13,113.11	14.90	1,321.92	5,126.91	63,025.98
Chemicals - ST & D	616.56	0.00	0.00	0.00	9,236.68	277.16	15,106.66	5,852.42	10,870.50	0.00	0.00	0.00	41,959.98
Lab Tests - ST&D	2,409.40	2,280.64	2,580.34	950.60	4,287.92	4,058.60	3,611.30	8,712.06	7,198.10	7,800.24	3,685.78	4,462.92	52,037.90
Sludge Removal - ST&D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9,572.01	0.00	9,572.01
Miscellaneous - ST&D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total per Month	28,982.39	24,612.93	22,629.29	38,710.49	59,504.33	46,536.96	34,672.12	55,796.84	56,415.45	32,546.36	35,020.90	32,611.92	

Total	468,039.98
Cost per MG Secondary Influent	3,358.55
Cost per MG Tertiary Treated	3,539.19

Rancho Murieta Community Services District
Water Treatment Plant Operations Costs - 2014

Pounds of Chemical

	January		February		March		April		May		June		July		August		September		October		November		December		Total
Treatment Plant	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	Pounds
Million Gallons Processed	27.809	0.000	18.195	0.000	21.483	0.000	15.999	11.350	20.391	27.240	22.425	37.790	26.423	39.620	24.428	36.840	8.506	40.780	0.000	42.540	0.000	29.010	0.000	171.379	622.208
Chlorine	602	0	438	0	555	0	467	306	677	771	827	1,177	1,002	1,284	826	1,064	291	1,161	0	1,072	0	686	0	494	13,700
Alum	15,235	0	9,993	0	11,816	0	8,825	6,444	11,272	15,101	12,374	20,986	14,580	22,078	13,650	20,705	4,866	23,184	0	23,907	0	16,146	0	11,335	262,497
Polymer	463	0	306	0	363	0	271	182	349	463	382	634	449	658	416	611	140	675	0	698	0	475	0	336	7,871
Zinc Phosphate	439	0	487	0	340	0	254	179	320	423	348	553	408	585	377	163	138	599	0	625	0	406	0	260	6,904
Activated Carbon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sodium Hydroxide 50%	6,434	0	4,281	0	5,462	0	2,518	1,770	3,136	4,755	3,692	7,107	4,231	7,051	3,912	6,735	1,242	6,829	0	2,883	0	2,049	0	1,746	75,833
Potassium Permanganate	127	0	86	0	102	0	94	51	126	121	129	164	141	175	130	163	52	180	0	190	0	130	0	94	2,255
lectrical (calculated on flow)																									
otal Electrical Per Month ($)		$4,571.11		$3,848.75		$3,984.34		$5,707.62		$7,754.79		$8,324.98		$7,701.04		$8,138.78		$6,194.29		$5,281.69		$4,586.80		$4,275.60	$70,370

Total Calculated Costs

	January		February		March		April		May		June		July		August		September		October		November		December		
Treatment Plant	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	
Million Gallons Processed	27.809	0.000	18.195	0.000	21.483	0.000	15.999	11.350	20.391	27.240	22.425	37.790	26.423	39.620	24.428	36.840	8.506	40.780	0.000	42.540	0.000	29.010	0.000	171.379	622.208
Chlorine $	$169	$0	$123	$0	$155	$0	$131	$86	$190	$216	$232	$330	$281	$360	$231	$298	$81	$325	$0	$300	$0	$192	$0	$138	$3,836
Alum $	$1,813	$0	$1,189	$0	$1,406	$0	$1,050	$767	$1,341	$1,797	$1,473	$2,497	$1,735	$2,627	$1,624	$2,464	$579	$2,759	$0	$2,845	$0	$1,921	$0	$1,349	$31,237
Polymer $	$537	$0	$355	$0	$421	$0	$314	$211	$405	$537	$443	$735	$521	$763	$483	$709	$162	$783	$0	$810	$0	$551	$0	$390	$9,130
Zinc Phosphate $	$378	$0	$419	$0	$292	$0	$218	$154	$275	$364	$299	$476	$351	$503	$324	$140	$119	$515	$0	$538	$0	$349	$0	$224	$5,937
Activated Carbon $	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sodium Hydroxide 50% $	$1,920	$0	$1,278	$0	$1,630	$0	$751	$528	$936	$1,419	$1,102	$2,121	$1,263	$2,104	$1,167	$2,010	$371	$2,038	$0	$860	$0	$611	$0	$521	$22,630
Potassium Permanganate $	$475	$0	$322	$0	$381	$0	$352	$191	$471	$453	$482	$613	$527	$655	$486	$610	$194	$673	$0	$711	$0	$486	$0	$352	$8,434
lectrical (calculated on flow)	$4,571	$0	$3,849	$0	$3,984	$0	$3,339	$2,369	$3,320	$4,435	$3,100	$5,225	$3,081	$4,620	$3,245	$4,894	$1,069	$5,125	$0	$5,282	$0	$4,587	$0	$4,276	$70,370
																								Total	$151,575
																								Cost per MG	$244

Plant 1 Calculated Costs

	January		February		March		April		May		June		July		August		September		October		November		December		
Treatment Plant	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	
Million Gallons Processed	27.809		18.195		21.483		15.999		20.391		22.425		26.423		24.428		8.506		0.000		0.000		0.000		185.659
Chlorine $	$169		$123		$155		$131		$190		$232		$281		$231		$81		$0		$0		$0		$1,592
Alum $	$1,813		$1,189		$1,406		$1,050		$1,341		$1,473		$1,735		$1,624		$579		$0		$0		$0		$12,211
Polymer $	$537		$355		$421		$314		$405		$443		$521		$483		$162		$0		$0		$0		$3,641
Zinc Phosphate $	$378		$419		$292		$218		$275		$299		$351		$324		$119		$0		$0		$0		$2,675
Activated Carbon $	$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0
Sodium Hydroxide 50% $	$1,920		$1,278		$1,630		$751		$936		$1,102		$1,263		$1,167		$371		$0		$0		$0		$10,417
Potassium Permanganate $	$475		$322		$381		$352		$471		$482		$527		$486		$194		$0		$0		$0		$3,691
lectrical (calculated on flow)	$4,571		$3,849		$3,984		$3,339		$3,320		$3,100		$3,081		$3,245		$1,069		$0		$0		$0		$29,558
																								Total	$63,786
																								Cost per MG	$344

Plant 2 Calculated Costs

	January		February		March		April		May		June		July		August		September		October		November		December		
Treatment Plant	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	
Million Gallons Processed		0.000		0.000		0.000		11.350		27.240		37.790		39.620		36.840		40.780		42.540		29.010		171.379	436.549
Chlorine $		$0		$0		$0		$86		$216		$330		$360		$298		$325		$300		$192		$138	$2,244
Alum $		$0		$0		$0		$767		$1,797		$2,497		$2,627		$2,464		$2,759		$2,845		$1,921		$1,349	$19,026
Polymer $		$0		$0		$0		$211		$537		$735		$763		$709		$783		$810		$551		$390	$5,489
Zinc Phosphate $		$0		$0		$0		$154		$364		$476		$503		$140		$515		$538		$349		$224	$3,262
Activated Carbon $		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0		$0	$0
Sodium Hydroxide 50% $		$0		$0		$0		$528		$1,419		$2,121		$2,104		$2,010		$2,038		$860		$611		$521	$12,213
Potassium Permanganate $		$0		$0		$0		$191		$453		$613		$655		$610		$673		$711		$486		$352	$4,742
lectrical (calculated on flow)		$0		$0		$0		$2,369		$4,435		$5,225		$4,620		$4,894		$5,125		$5,282		$4,587		$4,276	$40,811
																								Total	$87,788
																								Cost per MG	$201

APPENDIX E

Month by Month Residential Water Consumption, Fiscal Year 2015-16

RANCHO MURIETA COMMUNITY SERVICES DISTRICT
MONTH BY MONTH RESIDENTIAL WATER CONSUMPTION

FISCAL YEAR 2015-16

RESIDENTIAL TOTALS		JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
TOTAL # RESIDENTIAL WATER CUSTOMERS		2,517	2,517	2,517	2,517	2,517	2,518	-	-	-	-	-	-
WEIGHTED AVG. RESIDENTIAL USAGE IN CU. FT.	1,518	1,854	2,068	1,873	1,475	1,156	682						
WEIGHTED AVG. RESIDENTIAL USAGE IN GPD	378	462	516	467	368	288	170						
WEIGHTED AVG. RESIDENTIAL PLANNING USAGE-GPD	583												
same period last year		2,513	2,514	2,514	2,515	2,516	2,516	2,515	2,516	2,517	2,516	2,517	2,517
% Increase from same period last year		0.2%	0.1%	0.1%	0.1%	0.0%	0.1%						

RESIDENTIAL *CIRCLE LOTS (CIR)*	MONTHLY AVERAGE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
# OF WATER CUSTOMERS	444	444	444	444	444	444	445						
AVG MONTHLY WATER USAGE IN CU. FT.	1,789	2,202	2,459	2,230	1,733	1,336	774						
AVG WATER USAGE IN GPD	446	549	613	556	432	333	193						
AVG WATER BILL IN DOLLARS	$ 65.14	$ 71.46	$ 75.39	$ 71.89	$ 64.28	$ 58.20	$ 49.61						
COTTAGE LOTS (COT)													
# OF WATER CUSTOMERS	275	275	275	275	275	275	275						
AVG MONTHLY WATER USAGE IN CU. FT.	1,423	1,701	1,893	1,769	1,396	1,099	682						
AVG WATER USAGE IN GPD	355	424	472	441	348	274	170						
AVG WATER BILL IN DOLLARS	$ 59.54	$ 63.79	$ 66.73	$ 64.83	$ 59.12	$ 54.58	$ 48.20						
ESTATE LOTS>12,000 sq. ft. (EST1)													
# OF WATER CUSTOMERS	736	736	736	736	736	736	736						
AVG MONTHLY WATER USAGE IN CU. FT.	2,253	2,755	3,072	2,771	2,214	1,725	983						
AVG WATER USAGE IN GPD	562	687	766	691	552	430	245						
AVG WATER BILL IN DOLLARS	$ 72.25	$ 79.93	$ 84.77	$ 80.17	$ 71.64	$ 64.16	$ 52.80						
ESTATE LOTS<12,000 sq. ft. (EST2)													
# OF WATER CUSTOMERS	559	559	559	559	559	559	559						
AVG MONTHLY WATER USAGE IN CU. FT.	1,383	1,596	1,833	1,664	1,311	1,147	746						
AVG WATER USAGE IN GPD	345	398	457	415	327	286	186						
AVG WATER BILL IN DOLLARS	$ 58.93	$ 62.19	$ 65.81	$ 63.24	$ 57.84	$ 55.32	$ 49.18						
HALFPLEX LOTS (HPLX)													
# OF WATER CUSTOMERS	58	58	58	58	58	58	58						
AVG MONTHLY WATER USAGE IN CU. FT.	1,015	1,179	1,324	1,203	975	878	533						
AVG WATER USAGE IN GPD	253	294	330	300	243	219	133						
AVG WATER BILL IN DOLLARS	$ 53.31	$ 55.81	$ 58.02	$ 56.18	$ 52.68	$ 51.21	$ 45.93						

MURIETA VILLAGE LOTS (MV)		JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
# OF WATER CUSTOMERS	189	189	189	189	189	189	189						
AVG MONTHLY WATER USAGE IN CU. FT.	412	429	505	501	389	361	289						
AVG WATER USAGE IN GPD	103	107	126	125	97	90	72						
AVG WATER BILL IN DOLLARS	$ 44.08	$ 44.34	$ 45.50	$ 45.44	$ 43.72	$ 43.29	$ 42.19						
TOWNHOUSE LOTS (TWN)													
# OF WATER CUSTOMERS	218	218	218	218	218	218	218						
AVG MONTHLY WATER USAGE IN CU. FT.	551	570	682	610	505	501	441						
AVG WATER USAGE IN GPD	138	142	170	152	126	125	110						
AVG WATER BILL IN DOLLARS	$ 46.21	$ 46.48	$ 48.20	$ 47.10	$ 45.50	$ 45.44	$ 44.52						
VILLA LOTS (VIL)													
# OF WATER CUSTOMERS	38	38	38	38	38	38	38						
AVG MONTHLY WATER USAGE IN CU. FT.	328	281	325	313	305	369	373						
AVG WATER USAGE IN GPD	82	70	81	78	76	92	93						
AVG WATER BILL IN DOLLARS	$ 42.78	$ 42.07	$ 42.74	$ 42.56	$ 42.43	$ 43.42	$ 43.48						
COMMERCIAL													
SMALL USERS (CSM)													
# OF WATER CUSTOMERS	30	30	30	30	30	30	30						
AVG MONTHLY WATER USAGE IN CU. FT.	912	1,015	1,003	975	1,035	782	666						
AVG WATER USAGE IN GPD	228	253	250	243	258	195	166						
AVG WATER BILL IN DOLLARS	$ 51.73	$ 53.30	$ 53.11	$ 52.68	$ 53.60	$ 49.74	$ 47.96						
IRRIGATION USERS (CIRR)													
# OF WATER CUSTOMERS	39	38	39	39	39	39	38						
AVG MONTHLY WATER USAGE IN CU. FT.	8,304	10,512	15,421	9,469	8,960	4,295	1,167						
AVG WATER USAGE IN GPD	2,071	2,621	3,845	2,361	2,234	1,071	291						
AVG WATER BILL IN DOLLARS	$ 164.82	$ 198.60	$ 273.71	$ 182.65	$ 174.86	$ 103.49	$ 55.63						
LARGE USERS (CLG)													
# OF WATER CUSTOMERS	11	11	11	11	11	11	11						
AVG MONTHLY WATER USAGE IN CU. FT.	25,726	28,283	33,273	34,520	27,826	19,480	10,973						
AVG WATER USAGE IN GPD	6,414	7,052	8,296	8,607	6,938	4,857	2,736						
AVG WATER BILL IN DOLLARS	$ 431.38	$ 470.51	$ 546.84	$ 565.93	$ 463.51	$ 335.81	$ 205.66						
PARKS (PARK)													
# OF WATER CUSTOMERS	5	5	5	5	5	5	5						
AVG MONTHLY WATER USAGE IN CU. FT.	29,493	61,680	80,920	27,602	5,398	1,079	281						
AVG WATER USAGE IN GPD	7,354	15,379	20,176	6,882	1,346	269	70						
AVG WATER BILL IN DOLLARS	$ 489.02	$ 981.48	$ 1,275.84	$ 460.07	$ 120.37	$ 54.28	$ 42.07						

All lots are counted in number of customers, water usage and water dollars even if they had zero usage for the month (irrigation meters, new customers, etc.)

APPENDIX F

SolarCity Data Summary

MEMORANDUM

Date: July 8, 2015

To: Board of Directors

From: Improvements Committee Staff

Subject: Consider Entering into Negotiations with SolarCity for the Purchase of Solar Power, Presentation by Michael Carpol, SolarCity

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RECOMMENDED ACTION

Approve District staff and General Counsel to enter into negotiations with SolarCity for the purchase of solar power.

BACKGROUND

District staff met with Solar City on several occasions to discuss purchasing electricity generated from solar power to offset electricity used from SMUD. Solar City has evaluated the Waste Water Recovery Plant and the Water Treatment Plant for potential use of solar power. Their evaluation projects that over a 20 year period the District could potentially save $1.8m to $1.9m in electricity costs. Michael Carpol, Project Development Manager, with SolarCity presented their proposal to the Improvements Committee on July 1, 2015 and will present to the full Board at the July 15, 2015 Board meeting.

The arrangement between the District and SolarCity will be a Power Purchase Agreement (PPA). Under the PPA, Solar City installs, maintains and owns the solar project and the District purchases the solar power from SolarCity. The system would be designed to generate enough electricity to offset approximately ninety percent (90%) of our electricity demand. There are no upfront costs as costs are rolled into the per kilowatt hour (kWh) fee and they guarantee 100% of the production. This is a 20-year term agreement that assumes a 2.5% per year SMUD utility increase and a 0.5% per year solar panel output degradation (assumptions used in calculating projected savings). At the end of the 20-year term, the District can purchase the system at fair market value, renew the contract for up to two (2) 5-year increments, or have the system removed at no cost to the District.

The proposal is attached for your review. The difference in the two PPA rates summaries (one showing a 20 year savings of $1,133,690 and one showing a 20 year savings of $1,027,515) for the Waste Water Treatment Plant is due to whether or not the main electrical panel at the Wastewater Reclamation Plant needs to be upgraded and, if it does, if the cost of the upgrade is rolled into the contract or the District pays for the upgrade out of pocket.

SolarCity

Rancho Murrieta Community Service District

Waste Water Treatment Plant - No Main Panel Upgrade
15160 Jackson Rd, Sloughhouse, CA 95683
System Size: 577.2 kW DC

SOLAR PPA SAVINGS OVER TIME

Budgetary Proposal, pricing to be confirmed with engineering audit.

Price valid until 08/07/15

Year	Utility Costs without Solar	kWh Purchased*	PPA Cost per kWh	PPA Payments with Solar*	Sales Tax on PPA Payments	Utility Bill with Solar PPA	Total Electricity Costs	Net Savings*
1	$118,588	927,560	0.079	$73,277	--	$22,651	$95,928	**$22,660**
2	$121,553	922,923	$0.079	$72,911	--	$23,318	$96,229	**$25,323**
3	$124,592	918,308	$0.079	$72,546	--	$24,004	$96,551	**$28,041**
4	$127,706	913,716	$0.079	$72,184	--	$24,710	$96,893	**$30,813**
5	$130,899	909,148	$0.079	$71,823	--	$25,434	$97,257	**$33,642**
6	$134,171	904,602	$0.079	$71,464	--	$26,180	$97,643	**$36,528**
7	$137,526	900,079	$0.079	$71,106	--	$26,946	$98,052	**$39,474**
8	$140,964	895,579	$0.079	$70,751	--	$27,733	$98,484	**$42,480**
9	$144,488	891,101	$0.079	$70,397	--	$28,542	$98,939	**$45,549**
10	$148,100	886,645	$0.079	$70,045	--	$29,374	$99,419	**$48,681**
11	$151,803	882,212	$0.079	$69,695	--	$30,229	$99,924	**$51,879**
12	$155,598	877,801	$0.079	$69,346	--	$31,108	$100,454	**$55,144**
13	$159,488	873,412	$0.079	$69,000	--	$32,011	$101,010	**$58,477**
14	$163,475	869,045	$0.079	$68,655	--	$32,939	$101,594	**$61,881**
15	$167,562	864,700	$0.079	$68,311	--	$33,893	$102,204	**$65,357**
16	$171,751	860,376	$0.079	$67,970	--	$34,874	$102,843	**$68,907**
17	$176,045	856,074	$0.079	$67,630	--	$35,881	$103,511	**$72,534**
18	$180,446	851,794	$0.079	$67,292	--	$36,917	$104,208	**$76,237**
19	$184,957	847,535	$0.079	$66,955	--	$37,981	$104,936	**$80,021**
20	$189,581	843,297	$0.079	$66,620	--	$39,074	$105,695	**$83,886**
Total								**$1,027,515**

* Values are estimated

Note: Sales tax on PPA payments is displayed separately. PPA rate is shown without assumed sales tax.

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WWTP Project Summary

- **577.2 kW DC**
  - Produces 927,560 kWh Year 1
  - Offset ~91% of Energy
  - Offset ~81% of Bill
- **PPA Summary**
  - $0.073 / kWh
  - 0% escalation
  - $28,225 savings year 1
  - 24% cost reduction
  - $1,133,690 savings over 20 years
- **PPA Summary + 50k allowance for main panel upgrade**
  - $0.079 / kWh
  - 0% escalation
  - $22,660 savings year 1
  - 19% cost reduction
  - $1,027,515 savings over 20 years

- **Assumptions**
  - 2.5% Utility Escalation Rate
  - 0.00% PPA Escalation Rate
  - 0.5% Module Degradation
  - Prevailing wage rates
  - Excludes: Structural Upgrades or Electrical Upgrades

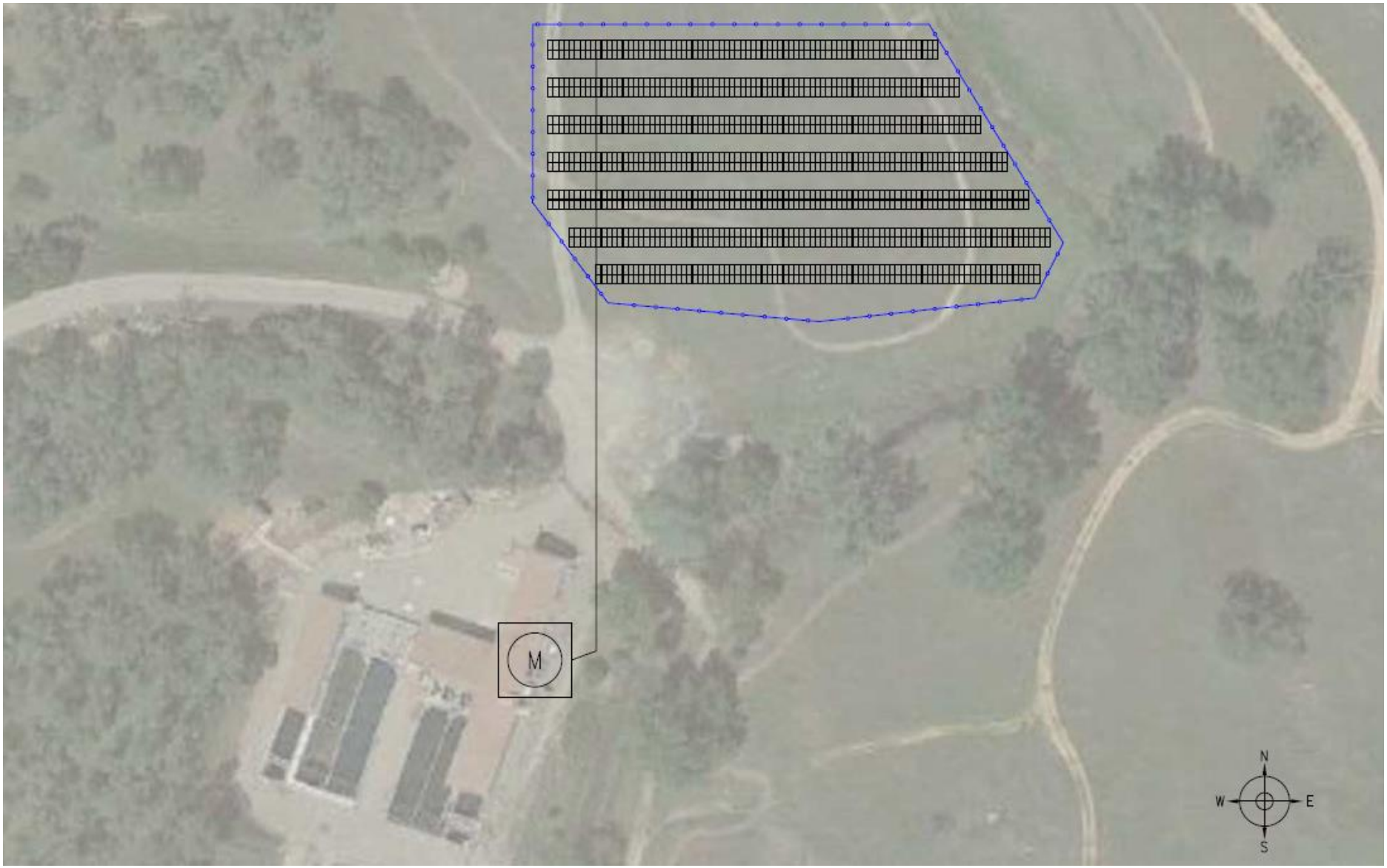
WWTP Solar Project Layout

WTP Project Summary

- **318.0 kW DC**
  - Produces 519,294 kWh Year 1
  - Offset ~90% of Energy
  - Offset ~70% of Bill
- **PPA Summary**
  - $0.077 / kWh
  - 0% escalation
  - $13,827 savings year 1
  - 18% cost reduction
  - $587,174 savings over 20 years

- **Assumptions**
  - 2.5% Utility Escalation Rate
  - 0.00% PPA Escalation Rate
  - 0.5% Module Degradation
  - Prevailing wage rates
  - Excludes: Structural Upgrades or Electrical Upgrades

WTP Solar Project Layout



APPENDIX G

Form SF-424C, Budget Information—Construction Programs

OMB Number: 4040-0008
Expiration Date: 06/30/2014

BUDGET INFORMATION - Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	$ 160,506.00	$	$ 160,506.00
2. Land, structures, rights-of-way, appraisals, etc.	$ 55,578.00	$	$ 55,578.00
3. Relocation expenses and payments	$	$	$
4. Architectural and engineering fees	$ 238,853.00	$	$ 238,853.00
5. Other architectural and engineering fees	$ 160,873.00	$	$ 160,873.00
6. Project inspection fees	$ 179,140.00	$	$ 179,140.00
7. Site work	$	$	$
8. Demolition and removal	$	$	$
9. Construction	$ 3,137,247.00	$	$ 3,137,247.00
10. Equipment	$	$	$
11. Miscellaneous	$	$	$
12. SUBTOTAL *(sum of lines 1-11)*	$ 3,932,197.00	$	$ 3,932,197.00
13. Contingencies	$ 165,340.00	$	$ 165,340.00
14. SUBTOTAL	$ 4,097,537.00	$	$ 4,097,537.00
15. Project (program) income	$	$	$
16. TOTAL PROJECT COSTS *(subtract #15 from #14)*	$ 4,097,537.00	$	$ 4,097,537.00

FEDERAL FUNDING

17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter the resulting Federal share.	Enter eligible costs from line 16c Multiply X 24 %	$ 983,408.88

APPENDIX H

Rancho Murieta Community Services District Resolution

MEMORANDUM

Date: January 12, 2016

To: Board of Directors

From: Darlene J. Gillum, General Manager

Subject: Adopt Resolution R2016-01, Supporting Participation in the Bureau of Reclamation WaterSMART Grant Program

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RECOMMENDED ACTION

Adopt District Resolution R2016-01, supporting the District's participation in the Bureau of Reclamation WaterSMART: Water and Energy Efficiency Grants for FY 2016 – R16-FOA-DO-004.

BACKGROUND

The Bureau of Reclamation is now accepting applications for development of feasibility studies under the WaterSmart Water and Energy Efficiency Grants for FY 2016. This resolution authorizes the District to apply for a grant to help cover costs for Phase 1 of the Recycled Water System Expansion Project.

RESOLUTION R2016-01

A RESOLUTION OF THE RANCHO MURIETA COMMUNITY SERVICES DISTRICT SUPPORTING PARTICIPATION IN THE BUREAU OF RECLAMATION WATERSMART: WATER AND ENERGY EFFICIENCY GRANTS FOR FY 2016– FOA R16-FOA-DO-004

WHEREAS, the Board of Directors of the Rancho Murieta Community Services District (District) deems it to be in the best interests of the District to participate in the WaterSMART Grant Program; and

NOW, THEREOFRE, BE IT RESOLVED THAT:

1. The District has reviewed and supports a proposal for the WaterSMART Water and Energy Efficiency Grants FY 2016;
2. The District is capable of providing the amount of funding and/or in-kind contributions specified in the funding plan for the PHASE 1 RECYCLED WATER SYSTEM EXPANSION PROJECT, as specified in the funding plan;
3. If selected for a WaterSMART Grant, the District will work with the Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement; and
4. The General Manager is authorized to execute all necessary forms on behalf of the Rancho Murieta Community Services District.

PASSED AND ADOPTED this 13th day of January 2016, to be effective immediately, by the following roll call vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Gerald Pasek, President of the Board
Rancho Murieta Community Services District

(Seal)

Attest:

_____
Suzanne Lindenfeld, District Secretary

MEMORANDUM

Date: January 12, 2016

To: Board of Directors

From: Darlene J. Gillum, General Manager

Subject: Consider Approval of the Water Supply Assessment Contract Addendum

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RECOMMENDED ACTION

Approve the proposal from Maddaus Water Management for a Task Order 16-02 for continued support of the Water Supply Assessment (WSA) for Rancho Murieta North Project, in an amount not to exceed $26,764, contingent upon receipt of Developer deposit to cover the cost of the proposed work.

BACKGROUND

At the December 18, 2015 Board meeting, the Board of Directors requested an additional meeting, a Public Workshop, in early January 2016 to review in more detail the findings of the WSA and subsequently addressing additional public comment at the January 20, 2016 Board meeting. In addition, it is anticipated that additional technical support will be required from Maddaus Water Management related to the Peer Review of the WSA, response to comments during the CEQA process, and attendance at additional District meetings and at the County Board of Supervisors meeting(s). The previous Task Order 16-01 did not include this follow-on support. In addition, the budget of Task Order 16-01 has been fully expended.

This Task Order includes time and materials for work performed outside of Task Order 16-01 that was required to be performed in preparation of the Public Workshop. This work was verbally approved by the District's General Manager and accounts for approximately $4,000 of task 1 in Task Order 16-02.

DRAFT

RMCSD –TASK ORDER 16-02

Technical Assistance for Water Supply Assessment

January 7, 2016

Conflicts of Interest

Pursuant to Section 18 of the Rancho Murieta Community Services District Master Services Consulting Agreement, Maddaus Water Management Inc. stipulates that corporately or individually, its firm, its employees and subcontractors have no known financial interest in either the success or failure of any project which is, or may be, dependent on the results of the MWM's work product prepared pursuant to this agreement and task order. Specific to this project, MWM has no known financial interests in Rancho Murieta Properties, LLC, Murieta Lakeside Properties, LLC, and Murieta Highlands, LLC. Founding owners of the Developer are Carol Anderson Ward, John M. Sullivan, and Thomas S. DeRegt (DeRegt Investment Holdings, LLC).

Scope of Work

Maddaus Water Management (MWM) staff, principally Lisa Maddaus, Michelle Maddaus, and Tess Kretschmann will assist RMCSD in review and comment period of a Water Supply Assessment including the following tasks:

Task 1. Respond to RMCSD Board Requests

The Rancho Murieta North project is large enough to require a Water Supply Assessment. RMCSD was required to lead the WSA preparation based on a request by Sacramento County for project applicants' CEQA analysis. A project analysis for the WSA was prepared by MWM under RMCSD Task Order 16-01 completed in December 2015. The WSA was based on previously completed work for RMCSD for the Integrated Water Resources Plan (IWRP) that was not updated after a review of demand trends compared to prior planning assumptions (i.e., dry year supply conditions).

At the December 18, 2015 Board Meeting, the RMCSD requested an additional meeting, a Public Workshop, in early January 2016 to review in more detail the findings of the WSA and subsequently addressing additional public comment at the January 20, 2016 Board meeting. This task includes time and materials for work performed outside of Task Order 16.01 that was required to be performed in preparation of the Public Workshop. This work was verbally approved by the RMCSD General Manager and accounts for approximately 50% of this task's budget. In addition, this task is to support MWM attendance at the two additional Staff and/or Board meetings through submission of the WSA to Sacramento County by the end of January 30, 2016.

MWM assumes one brief Power Point summary presentation may be prepared and/or reviewed by MWM staff at RMCSD direction. MWM also assumes for Task 1 that no new analysis (e.g., no addition of newly generated tables or appendices) and only text editing of the WSA is required. A contingency for this task order has been included in the event that this task or other tasks require additional analysis.

Task 2. Address County Peer Review Comments

MWM will work with the RMCSD or through RMCSD for County requested response to technical peer review comments up to the available budget. This task is assumed to support the CEQA process to be completed in 2016. This task includes up to one edit on the MWM Technical Memorandum (dated December 11, 2015) and resubmission of the WSA document to RMCSD for review and comment prior to an update/response being sent to the County.

Task 3. Respond to CEQA Inquires or Comments

MWM will work with the RMCSD or through RMCSD for County requested response to public comments on the draft Environmental Impact Report up to the available budget. This task supports the CEQA process to be completed in 2016.

Task 4. Contingency to Support Additional Technical Analysis

This task is to support additional technical analysis associated with potential changes to the Tentative Project details and map provided in October 2015 or requested changes to assumptions for the water supply planning purposes. It is assumed that changes to the document would require an update and be resubmitted to RMCSD for final review and comment. Given that requested changes by the project applicant, the public, County or RMCSD is unknown at this time, MWM assumes that this task is limited by the budget availability.

Task 5. Project Management and Meetings

Prepare and attend up to three in person meetings (approximately 2 hours in length) for one MWM staff member. It is assumed these meetings will be held at the RMCSD office or at the County Administrative Office and that at minimum one meeting will be required to attend the hearing of the County Supervisors. These meetings are assumed to take place after the submission of the document to the County in January 2016.

Estimated Fee

Maddaus Water Management proposes to conduct this work on a time and materials basis not to exceed $26,764.00. The tasks will be done as efficiently as possible and may be done for less than the total stated hours up to the allowable budget. MWM will be conducting the work as directed by RMCSD staff as to the level of effort on each item. Results will be provided for each Task before proceeding to the next task unless otherwise directed by RMCSD staff.

The terms and conditions of this agreement are provided in Attachment A. An estimated proposed fee is presented in Table 1.

Table 1 – Proposed Rate Schedule

Task	Title	Michelle Maddaus $185/hr	Lisa Maddaus $190/hr	Tess Kretschmann $130/hr	Total Budget
	Project Role	Technical Review	Technical Analysis	Analysis	
1	RMCSD Board Requests	4	30	12	$8,000
2	Address County Review Comments	4	16	16	$5,860
3	Respond to CEQA Comments	4	24	24	$8,420
4	Project Management / Meetings		16	4	$3,560
	Total Hours and Labor Cost	12	86	56	$25,840
	APC & ODCs (Mileage at cost)				$924
	Total Estimate				$26,764

The staff, roles, hourly rate for each staff person and estimated hours is presented in Table 1. Internal charges for phone, fax, copies and computers will be billed as an Associated Project Cost (APC) at a charge of $6 per labor hour (which is added to the labor rates shown in Table 1). Other direct costs (ODCs) including mileage, outside printing charges, and related direct job costs will be billed at actual cost based on RMCSD approval. All rates are subject to a 3% increase starting on January 1st of each year.

Schedule

The work will be completed at RMCSD staff direction and assumed to be complete within twelve months of authorization to proceed.

Contact Information

The Project Manager, Lisa Maddaus, may be contacted via phone at (916) 730-1456 or email at lisa@maddauswater.com.

MADDAUS WATER MANAGEMENT, INC.	RANCHO MURIETA CSD
Signature _____	Signature _____
Date _____	Date _____
Lisa Maddaus Partner and Chief Financial Officer	Darlene J. Gillum General Manager

Attachment A: Master Services Agreement