

Recycled Water Feasibility Study Request for Proposals



RFP Closes September 27, 2019 @ Noon

Overview

This joint recycled water feasibility study will be the first co-sponsored feasibility study between Diablo Water District (DWD) and Ironhouse Sanitary District (ISD). The study will explore and analyze the potential reuse of recycled water projects in their nearly coterminous service areas. Both parties desire to find a beneficial reuse of the recycled water that is created by ISD. In evaluating options, benefits/costs to both DWD and ISD will be estimated independently and jointly to find a solution effective for both agencies.

The study is 50% funded by State Water Resources Control Board (SWRCB) funding and 50% local cost share, equally split between DWD and ISD. The study scope has been approved by the SWRCB and the resulting study must address all items identified.

Timing

Milestones	Dates
Issue RFP	September 3, 2019
Last Day for Clarification Questions	September 20, 2019
RFP Closes at Noon	September 27, 2019
Staff Review	October 1-4, 2019
Contract Award	October 2019
Project Start	November 2019
Project Completion	April 2020

Scope of Services Requested

- See Attachment 1

RFP Contents

1. A summary of the consultant's understanding of the project as a whole and the unique capabilities to perform the services required. The summary shall establish that the consultant understands the objectives and work requirements and the consultant's ability to satisfy those objectives and requirements.
2. The consultant's implementation plan with a project schedule including a list of tasks and any additional field investigation or exploratory work to be performed and proposed deliverables.
3. The consultant's experience and history in performing this type of work on similar projects, including the consultant's ability to provide prioritized project recommendations.
4. A brief description of the consultant's firm (firm size, financial stability, capacity and resources) as well as the proposed local organization structure shall be included.
5. A statement of qualifications and experience for each licensed individual or certified individual proposed to perform responsible portions of the work. Firms must be able to provide sufficient staffing, with qualified individuals throughout the contract.

6. Consultant fee schedule for the duration of the project, including 2019/20 loaded rates for key staff, proposed level of effort (in hours and cost) for each major task and total cost.

Contact Information

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Deadline for Submission

Proposals must be received (not postmarked) by **September 27, 2019 at Noon.**

USPS: Diablo Water District, Attn: Recycled Water RFP, PO Box 127, Oakley, CA 94561
Parcel: Diablo Water District, Attn: Recycled Water RFP, 87 Carol Lane, Oakley, CA 94561

Attachment 1 - Study Scope
Diablo Water District / Ironhouse Sanitary District
Recycled Water Feasibility Study

Proposed study outline

This study will leverage many existing reports and studies previously performed by both Districts. Existing reports and studies include:

- Diablo Water District
 - 2015 Urban Water Management Plan
 - 2019 Water Facilities Master Plan (will be available late 2019)
 - AB 3030 Ground Water Management Plan
- Ironhouse Sanitary District
 - 2015 Recycled Water Feasibility Study
- City of Oakley
 - 2020 General Plan
 - Relevant Specific Area Plans

Based on these existing reports the following items will be updated and compiled into the new feasibility study:

- Service area maps of both Districts
- Wastewater treatment schematic--existing and proposed
- Contra Costa Water District (wholesaler) service area map
- Boundary map of Diablo Groundwater Sustainability Agency and adjacent GSAs
- Regional and local vicinity map
- Detailed map and GIS shape file of study area boundaries
- Topographic map
- Other relevant local City/agency boundaries
- Maps of streams and waterways receiving waste discharges.
- Present and projected land use maps and trends
- Maps of all identified recycled water facilities alternatives
 - Showing locations of potential customers and approximate pipeline routes
- Hydrologic maps featuring:
 - Ground water basins including quantities extracted by all users, natural and artificial recharge, losses by evapotranspiration, inflow and outflow of basins, and safe yield or overdraft
 - Water quality - ground water and surface water.
- Population projections of study area
- Beneficial uses of receiving waters and degree of use, portion of flow that is effluent
- Water supply characteristics and facilities:
 - Description of all wholesale and retail entities
 - All sources of water for study area and major facilities, their costs (fixed and variable), and customer prices

- Capacities of present facilities, existing flows, estimated years when capacities to be reached for major components (water treatment plants, major transmission and storage facilities)
- Ground water management and recharge
- Water use trends and future demands, prices and costs
- Quality of water supplies
- Sources for additional water and plans for new facilities (for both for DWD and CCWD)
- Wastewater characteristics and facilities:
 - Description of entities
 - Description of major facilities, including capacities, present flows, plans for new facilities, description of treatment processes, design criteria
 - Water quality of effluent and any seasonal variation
 - Additional facilities needed to comply with waste discharge requirements
 - Sources of industrial or other problem constituents and control measures
 - Existing recycling, including users, quantities, contractual and pricing arrangements
 - Existing rights to use of treated effluent after discharge
 - Wastewater flow variations - hourly and seasonal
 - Treatment Requirements for Discharge and Reuse
 - Required water qualities for potential uses
 - Required health-related water qualities or treatment requirements for potential uses, operational and on-site requirements (such as backflow prevention, buffer zones)
 - Wastewater discharge requirements, anticipated changes in requirements
 - Water quality-related requirements of the RWQCB to protect surface or ground water from problems resulting from recycled water use

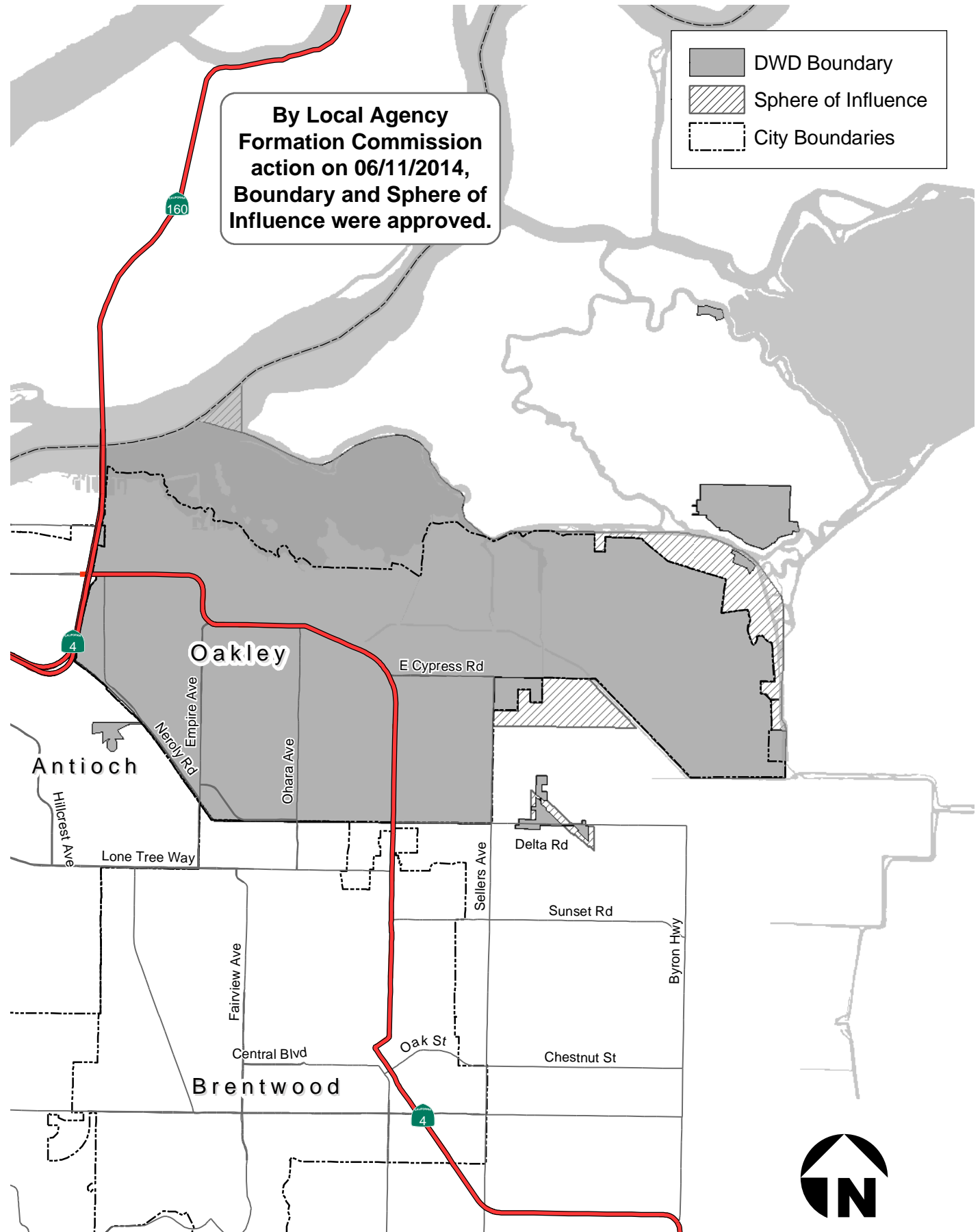
Previous reports contain portions of the required scope items below. However, there will need to be larger updates and new analysis to include: Diablo Water District's perspective, new potential projects including both indirect and direct potable reuse.

- Recycled Water Market
 - Description of market assessment procedures
 - Descriptions of all users or categories of potential users, including type of use, expected annual recycled water use, peak use, estimated internal capital investment required (on-site conversion costs), needed water cost savings, desire to use recycled water, date of possible initial use of recycled water, present and future source of water and quantity of use, quality and reliability needs, and wastewater disposal methods
 - Summary tables of potential users and related data
 - Definition of logical service area based on results of market assessment
- Project Alternative Analysis
 - Planning and design assumptions:
 - Delivery and system pressure criteria
 - Peak delivery criteria
 - Storage criteria
 - Cost basis: cost index, discount rate, useful lives, etc.

- Planning period
- Water Recycling Alternatives to be evaluated:
 - Treatment alternatives: alternative levels of treatment, alternative unit processes to achieve a given level of treatment
 - Pipeline route alternatives
 - Alternative markets: based on different levels of treatment
 - Geographical areas
 - Alternative storage locations
 - Marginal analysis for selected alternative for certain categories of users or certain geographic areas, varying storage, pump rates, and pipeline diameters
 - Use of water blending during peak irrigation months
 - Non-recycled water alternatives: discussion of other potentially viable new sources of water
 - Water conservation/reduction analysis
 - Implementation
 - Pollution control alternatives (if applicable) needed to comply with waste discharge requirements, and possible allocation of costs between recycling and pollution control
 - Information supplied for each alternative to include, but not be limited to:
 - Cost tables for each alternative with breakdown of costs by total capital (without grants), O&M, unit processes, and with equivalent annual cost and per acre-foot cost
 - Lists of potential users assumed for each alternative
 - Economic analysis per SWRCB guidance document
 - Cost benefit analysis for both Districts
 - Energy analysis for each alternative, including direct and construction energy
 - Water quality impacts: effect on receiving water by removing or reducing discharge of effluent, including effect on beneficial uses resulting from reduced flow.
 - Groundwater impacts (quality & quantity)
 - Comparison of above alternatives and recommendation of specific alternative
 - Recommended Project
 - Description of all proposed facilities and basis for selection
 - Preliminary design criteria and refined pipeline routes
 - Cost estimate based on time of construction
 - List of all potential users, quantity of recycled water use, peak demand, and commitments obtained
 - Reliability of facilities as compared to user requirements
 - Implementation plan:
 - Coordination with water suppliers, determination of recycled water supplier and needed agreements or ordinances
 - Ability and timing of users to join system and make on-site investments
 - Tentative water recycling requirements of RWQCB
 - Commitments from potential users
 - Water rights impact
 - Permits, right-of-way, design, construction
 - Detailed schedule
 - Operational plan:
 - Responsible agency, people, equipment, monitoring, irrigation scheduling, etc.

- Ongoing O&M costs
- Power
- Chemicals
- Additional staff
- Construction financing plan and revenue program
 - Sources and timing of funds for design and construction
 - Pricing policy for recycled water
 - Costs that can be allocated to water pollution control
 - Annual projection of:
 - Water prices for each user or category of users
 - Recycled water used by each user
 - Annual costs (required revenue) of recycling project
 - Allocation of costs to users
- Unit costs to serve each user or category of users
- Unit price of recycled water for each user or category of users
 - Sensitivity analysis assuming portion of potential users fail to use recycled water
 - Sunk costs and indebtedness.

Attachment 2 – DWD Service Area



Source: Contra Costa County Department of Conservation and Development, GIS Group, 2014

W:\REPORTS\DWD\Urban Water Management Plan_March 2016\Graphics\Figure 2-1 DWD District Boundary and SOI.ai 04/11/16 JJT

Figure 2-1
DWD Service Area and Sphere of Influence

Attachment 3 – ISD Treatment Process and Map



District at a Glance

The District's Water Recycling Facility became operational in 2011.

WATER RECYCLING FACILITY (WRF)

Function: Wastewater collection, treatment and recycling services

Service area: City of Oakley and unincorporated Contra Costa County including Bethel Island

Population: Approximately 44,000

Facility Design Capacity: 4.3 million gallons per day (MGD) average daily flow;
8.6 MGD maximum wet weather flow

Current Average Daily Flow: 2.52 MGD

Plant Type: Advanced treatment Membrane Bioreactor process

Process: Preliminary treatment through mechanical screens and vortex grit removal; secondary process through biological treatment; tertiary treatment through ultraviolet (UV) disinfection

Regulatory Permits: The District operates the WRF in compliance with the Waste Discharge Requirements (WDR R5-2013-0010) issued by the California Regional Water Quality Control Regional Board, Central Valley Region. In

addition, the District has obtained a National Pollutant Discharge Elimination System permit (Order R5-2008-0057, NPDES CA0085260) to regulate discharges of tertiary disinfected effluent to the San Joaquin River.

Recycled water disposal: Land application on Jersey Island for agriculture and discharge to the San Joaquin River.

Energy Efficiency: A significant amount of electricity is required to operate the Water Recycling Facility. The District leases a 1.1 megawatt (MW) solar power system to offset the load purchased from the electrical grid.

COLLECTION SYSTEM

Areas of Responsibility: Sanitary sewer collection system and associated lift stations

Size of Collection System: 119 miles gravity sewers; 15.9 miles force mains

Number of Lift Stations: 32

Number of service connections: 15,800 (EDU)

Age of collection system:

- 0-10 years: 15%
- 10-50 years: 65%
- 50-100 years: 20%
- Over 100 years: 0%

District Service Area

ISD is bounded by the San Joaquin River to the north, the Delta Diablo Sanitation District to the west, the City of Brentwood to the south and

unincorporated area in the Holland Tract to the east.

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