



East Valley Reclamation Authority Meeting  
Tuesday, September 6, 2022 at 9:30 AM  
Valley Sanitary District Board Room  
45-500 Van Buren Street, Indio, CA 92201

Valley Sanitary District is open to the public and board meetings will be conducted in person. In addition to attending in person, members of the public may view and participate in meeting via the following:

Zoom link: <https://us06web.zoom.us/j/86303557468>

Meeting ID: 863 0355 7468

To address the EVRA Board of Directors during the virtual live session via zoom, please email the Clerk of the Board at [hgould@valley-sanitary.org](mailto:hgould@valley-sanitary.org) or, alternatively, during the specific agenda item or general comment period (i.e. non-agenda items), please use the "raise your hand" function in zoom in order to be recognized by the Clerk of the Board in order to provide comments in real time.

The Clerk of the Board will facilitate to the extent possible any email requests to provide oral testimony that are sent during the live meeting. Members of the public may provide Oral testimony in person or during the virtual live session and are limited to three minutes each. To address the Board in person please complete speaker request card located at in the Board Room and give it to the Clerk of the Board.

If you are unable to provide comments during the meeting, written public comments on agenda or non-agenda items may be submitted by email to the Clerk of the Board at [hgould@valley-sanitary.org](mailto:hgould@valley-sanitary.org). Written comments must be received by the Clerk of the Board no later than 8:00 a.m. on the day of the meeting.

Page

## 1. CALL TO ORDER

### 1.1. Roll Call

1.2. Pledge of Allegiance

2. PUBLIC COMMENT

*This is the time set aside for public comment on any item not appearing on the agenda. Please notify the Secretary in advance of the meeting if you wish to speak on a non-hearing item.*

3. CONSENT CALENDAR


*Consent calendar items are expected to be routine and noncontroversial, to be acted upon by the Board of Directors at one time, without discussion. If any Board member requests that an item be removed from the consent calendar, it will be removed so that it may be acted upon separately.*

- 3.1. Approve Minutes of June 29, 2022, Meeting 4 - 5  
[3.1 29 Jun 2022 EVRA Minutes.pdf](#) 

4. ADMINISTRATIVE ITEMS

- 4.1. Authorize the Valley Sanitary District General Manager to Execute a Professional Services Agreement with Todd Groundwater to Complete a Groundwater Model Under and Around Valley Sanitary District in an Amount Not to Exceed \$87,295 6 - 14

[4.1 Staff Report Todd Groundwater.pdf](#) 

[4.1 Attachment A Todd Groundwater Modeling Evaluation 14July2022.pdf](#) 

[4.1 Attachment B Todd Groundwater Modeling Proposal Costs by Task 14Jul2022.pdf](#) 


- 4.2. Authorize the Valley Sanitary District General Manager to Execute a Professional Services Agreement with Carollo Engineers, Inc. to Complete An Updated Comprehensive Recycled Water Master Plan in an Amount Not to Exceed \$368,583 15 - 23

[4.2 Staff Report Carollo Engineers Master Plan.pdf](#) 

[4.2 Attachment A Comprehensive Recycled Water Master Plan\\_Scope and Fee\\_08012022.pdf](#) 

- 4.3. Authorize the City of Indio City Manager to Execute a Professional Services Agreement with CA Consulting Services LLC to Provide Recycled Water Program Management Services in an Amount Not to Exceed \$368,583 24 - 33

[4.3 Staff Report CA Consulting.pdf](#) 

[4.3 Attachment A CA Consulting Proposal for EVRA 8-30-22.pdf](#) 

- 4.4. Adopt Resolution 2022-22 Determining That a Commercial Food Waste Diversion Program is an Appropriate Activity of the East Valley Reclamation Authority 34 - 42

[4.4 Staff Report Food Waste Program.pdf](#) 

[4.4 Attachment A Resolution No 2022-22.pdf](#) 

[4.4 Attachment B Why-Anaerobic-Digestion.pdf](#) 

## 5. GENERAL MANAGERS REPORTS

## 6. AUTHORITY BOARD MEMBER COMMENTS AND/OR QUESTIONS

## 7. ADJOURNMENT

Pursuant to the Brown Act, items may not be added to this agenda unless the Secretary to the Board has at least 72 hours advance notice prior to the time and date posted on this notice.

**UNOFFICIAL UNTIL APPROVED BY EAST VALLEY RECLAMATION AUTHORITY**  
EAST VALLEY RECLAMATION AUTHORITY

**REGULAR MEETING**  
**June 29, 2022**  
**MINUTES**

President Dennis Coleman called to order the Regular Meeting of the East Valley Reclamation Authority at 1:01 p.m. in the Valley Sanitary District Board Room located at 45-500 Van Buren Street, Indio, California.

**1. CALL TO ORDER**

1.1 Roll Call

Directors Present: President Dennis Coleman (*Valley Sanitary District*)  
Vice President Glenn Miller (*City of Indio*)  
Treasurer William Teague (*Valley Sanitary District*)

Directors Absent: Secretary Elaine Holmes (*City of Indio*)

Staff Present: Beverli Marshall – General Manager, *Valley Sanitary District*  
Reymundo Trejo – General Manager, *Indio Water Authority*  
Holly Gould – EVRA Clerk of the Board, *Valley Sanitary District*  
Ron Buchwald – Engineering Services Manager, *Valley Sanitary District*  
Brian Kinder – Manager of Finance & Customer Service, *Indio Water Authority*

1.2 Pledge of Allegiance

**2. PUBLIC COMMENT - NONE.**

**3. CONSENT CALENDAR**

3.1 Minutes of February 15, 2022 **Recommendation:** Approve

It was moved by Vice President Miller, seconded by President Coleman, and unanimously carried to **APPROVE** the Consent Calendar as submitted.

**4. ADMINISTRATIVE ITEMS**

4.1 Adopt Resolution 2022-21 Fiscal Year 2022-2023 Budget

Brian Kinder, Finance Manager, Indio Water Authority, presented the Fiscal Year 2022/23 (FY22/23) Budget. Mr. Kinder stated that the funding source for the FY22/23 Budget would be the unused fund balance. Staff recommended an expenditure balance of \$542,330. Most of the budget will be used complete the Hydrogeological Feasibility Study, which will roll over from 2022. After discussion by the Board, it was decided that both agencies continue to contribute \$200,000 in to the FY22/23 Budget for an expenditure balance of \$942,330.

It was moved by Treasurer Teague, seconded by Vice President Coleman, and unanimously

carried by roll call vote to **APPROVE** the adoption of Resolution 2022-21 of the East Valley Reclamation Authority Fiscal Year 2022/23 Budget and authorize expenditures and appropriations with an additional \$200,000 from each agency.

## **5. GENERAL MANAGERS' REPORT**

Beverli Marshall, General Manager, Valley Sanitary District, reported that Valley Sanitary District has applied for a planning grant with the State Revolving to determine the feasibility of recycled water to create a Recycled Water Master Plan. The District has also applied for earmark funds for the master plan and Senator Padilla has put it forward to the committee for review. Ms. Marshall also discussed Geoscience conducting an analysis on the clay layers to determine if bore testing is necessary in the storm channel. She also suggesting using EVRA funds to request Carollo to expand their study to include the feasibility of purple pipe. Ms. Marshall also suggested an RFP to expand on the hydraulic modeling of the subbasin to fine tune the data to find out where direct injection would be feasible. VSD is also applying for a WIFIA loan for it's Recycled Water Project, Phase 2, and Phase 3.

Reymundo Trejo, General Manager, Indio Water Authority, discussed the need to find out what the energy requirements would be for the Recycled Water Project. Mr. Trejo also reported that the City of Indio has adopted a resolution to enact Stage 2 of their Water Shortage Contingency Plan. The plan, which was enacted on June 1, 2022, is already in the second of six stages. He also reported about the draft Chromium 6 MCL. Based on the available technology that the state has approved it would cost the City just as much as the Recycled Water Project. To meet the state's draft MCL would be close to \$400 million. In the vent it does becomes a MCL the City will be focusing on a campaign to gain letters of support from local agencies. Mr. Trejo stated that he will keep the EVRA Board informed of any tangible actions that can be taken.

Beverli Marshall informed the Board that she had spoken to the City about food waste and potentially diverting some the waste to the District to be used for energy. This potential could be a joint project with the City by utilizing some of that waste for the District's digester. Ms. Marshall suggested the possibility of expanding EVRA's mission to be reuse in a boarder sense, not just recycled water.

## **6. AUTHORITY BOARD MEMBER COMMENTS AND/OR QUESTIONS**

Vice President Miller commented that EVRA moves full speed ahead with this project so we can start utilizing our own water. President Coleman stated that VSD recently authorized its General Manager to sign the First Supplement to the CV SNMP MOU which is to provide for the implementation of the completed SNMP Development Workplan. VSD also approved a contract with Townsend Public Affairs for state legislative advocacy services

## **7. ADJOURN**

There being no further business to discuss, the meeting **ADJOURNED** at 1:56 p.m.

**Holly Gould**  
**EVRA Clerk of the Board**  
**Approved:**



**East Valley Reclamation Authority  
Board of Directors Meeting  
45-500 Van Buren Street, Indio  
September 6, 2022**

**TO:** Board of Directors

**FROM:** Beverli A. Marshall, VSD General Manager  
Reymundo Trejo, IWA General Manager

**SUBJECT:** **Authorize the Valley Sanitary District General Manager to Execute a Professional Services Agreement with Todd Groundwater to Complete a Groundwater Model Under and Around Valley Sanitary District in an Amount Not to Exceed \$87,295**

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**Executive Summary**

The purpose of this report is to discuss the need for consulting services to perform the necessary analysis.

**Fiscal Impact**

The total cost of the contract is \$87,295 and is included in the adopted EVRA Budget for Fiscal Year 2022-23.

**Environmental Impact**

This project phase is for research, planning, and preliminary design services. The necessary California Environmental Quality Act (CEQA) steps will be addressed prior to any construction activities.

**Background**




The East Valley Reclamation Authority (EVRA) completed the necessary analysis to determine that a groundwater injection system at the VSD Water Reclamation Facility to recharge the Indio Subbasin is possible. To continue analyzing the viability of the project, a more micro-level analysis of the Subbasin is necessary. Todd Groundwater completed the Indio Groundwater Subbasin Alternative Plan and has access to the data to complete the analysis. This is a more efficient and cost-effective way to obtain the necessary report.

**Recommendation**

Staff recommends that the Board of Directors authorize the VSD General Manager to

execute a professional services agreement with Todd Groundwater in an amount not to exceed \$87,295.

**JPA Member Review**

City of Indio	Reymundo Trejo, PE IWA General Manager	
Valley Sanitary District	Beverli A. Marshall, DBA General Manager	
Financial	Brian Kinder IWA Manager of Finance	

**Attachments**

Attachment A: Todd Groundwater Hydrogeologic and Modeling Proposal

Attachment B: Todd Groundwater Hydrogeologic and Modeling Costs by Task

July 14, 2022

## PROPOSAL

### TRANSMITTED VIA EMAIL

**To:** Beverli A. Marshall  
General Manager  
Valley Sanitary District  
[bmarshall@valley-sanitary.org](mailto:bmarshall@valley-sanitary.org)

**From:** Daniel Craig, PG, CHG, Senior Hydrogeologist  
Iris Priestaf, PhD, President

**Re:** **Proposal for GRRP Hydrogeologic and Groundwater Modeling Evaluations**

Todd Groundwater (Todd) is pleased to submit this proposal to evaluate groundwater conditions related to potential subsurface injection of treated recycled water (RW) at the Valley Sanitary District (VSD) facility in Indio, California. VSD, along with partner agency Indio Water Authority (IWA), collectively the East Valley Reclamation Authority (EVRA), is evaluating the feasibility of a Groundwater Replenishment-Reuse Project (GRRP) that would involve injection of RW at or near VSD's treatment plant at Van Buren Street in Indio. VSD would like to initiate a hydrogeologic evaluation that includes some of the technical studies required for GRRPs by the California State Water Resources Control Board's Division of Drinking Water (DDW) and the Regional Water Quality Control Board Colorado River Region (RWQCB). Should the project move further into the planning and permitting stages, a GRRP Engineering Report (ER) will be developed for submission to the DDW. The hydrogeologic studies and modeling simulations proposed herein are some of the required elements of the ER that will be needed for DDW permitting of the GRRP.

In accordance with our recent conversations, Todd proposes two tasks to support evaluation of the GRRP: a focused hydrogeologic evaluation of groundwater conditions at the site, and a local groundwater flow modeling evaluation of injection well operation and predicted subsurface flowpaths of the RW. A draft report documenting the evaluation findings also will be prepared.

The hydrogeologic evaluation will include review and documentation of local site geology and aquifer characteristics including thicknesses of aquifer and aquitard layers and aquifer permeability and storage properties, an inventory of known wells in the study area, mapping of groundwater levels and recent trends, and evaluation of general groundwater quality in the project area. The hydrogeologic information will subsequently be used in development of a local three-dimensional groundwater flow model of the site.



The local three-dimensional groundwater flow model will be constructed to simulate groundwater flow through the study area, and subsurface flowpaths and migration of the injected RW. The model will be constructed using the United States Geologic Survey MODFLOW code, a widely used and accepted numerical groundwater flow model. The local model will build upon the general features of the Indio Subbasin regional MODFLOW model, recently upgraded and updated as a part the Indio Groundwater Subbasin Alternative Plan Update (Alternative Plan). The regional model simulates subbasin-wide groundwater flow, simulates representative regional aquifer properties, and uses a relative coarse three-dimensional grid; as such it is not appropriate for simulation of local effects of RW injection. The proposed local model will use a finely discretized model grid, account for local aquifer conditions in Indio and Coachella that may not be sufficiently characterized in the regional model, and therefore will provide more-accurate predictions of RW injection and potential impacts. The local model will be calibrated to observed groundwater elevations and trends in the study area, then used to simulate preliminary injection well operations. Following baseline calibration, several model simulations of injection well operations will be conducted. Subsurface flowpaths to downgradient areas and production wells will be simulated, and preliminary estimates of RW retention times and contributions to wells will be provided.

Results of the evaluations will be documented in a draft report provided to VSD. Should the project move forward, an updated final report can be prepared at a later date.

Details of our scope of work, cost estimate and schedule are included in the following sections.

### **Task 1. Local Hydrogeologic Data Review**

To comply with DDW requirements for GRRPs and to support the groundwater modeling task, we will review and document pertinent hydrogeologic data in the vicinity of the project site. The local hydrogeologic study area for the GRRP evaluation will be determined after initial data review but is anticipated to include an area of several square miles, roughly between Avenue 44 in Indio and Avenues 48-50 in Coachella.

Through our recent work in support of the Alternative Plan, we have collated geologic information, construction and pumping rate information for local municipal and private water supply wells, and groundwater level and water quality data for wells in the study area. The initial evaluation will rely on this existing data, generally updated through 2019-2020. Selected hydrologic data from 2021 may be added to the evaluation if appropriate. We assume that VSD and IWA will provide relevant and recent information that may not be generally available.

The hydrogeologic information will be used to prepare the following hydrogeologic graphics and tables:

- A table listing all known municipal, private, and agricultural wells in the local study area, along with their location, construction details and recent measured or estimated pumping rates.

- Two vertical hydrogeologic cross sections, centered on the VSD property and oriented parallel and perpendicular to groundwater flow. The cross sections will illustrate the subsurface geology, presence of fault(s), and depths of wells. The cross sections will build upon the cross section included as Slide 5 in the April 2022 EVRA RW Project Update presentation, and account for the additional recent geophysical information collected at the site<sup>1</sup>.
- A plan-view groundwater elevation contour map showing recent groundwater elevations and groundwater flow directions.
- Hydrographs showing groundwater elevation trends in study area wells between 2010 and 2020.
- Maps of recent concentrations of nitrate and total dissolved solids (TDS) in groundwater, two constituents of particular concern to the RWQCB.
- Nitrate and TDS time-concentration plots for selected wells.

The local hydrogeologic data will be comprehensively evaluated, then used to develop representative inputs for the local groundwater model.

## **Task 2. Local Groundwater Flow Model and Initial RW Injection Simulations**

Using information obtained from the hydrogeologic data review, along with characteristics of the regional Indio Subbasin groundwater model, we will construct a calibrated local groundwater flow model that will be used to predict mixing of injected RW with groundwater and flow paths beneath and downgradient of injection well.

The model simulations will be designed to answer the following important questions for the GRRP:

1. What are groundwater flow directions and velocities in the project area?
2. How will injection of RW change the groundwater flow system?
3. How long will it take for injected RW to reach downgradient municipal and private production wells?
4. How would changes in injection well locations and injection rates affect subsurface flowpaths and potential impacts to downgradient wells.

The preliminary modeling results can be used to evaluate regulatory permitting strategies and preliminary design alternatives and operational criteria for the GRRP project.

The analysis will be conducted using the MODFLOW and MODPATH<sup>2</sup> models. The existing regional Indio Subbasin groundwater flow model also is constructed using MODFLOW, and input and flow simulation results from the regional model will be used to provide some

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<sup>1</sup> It is noted that the cross section included in the EVRA presentation is labeled B-B'; if additional cross-sections for the project area have already been developed it is possible that these can be used in the hydrogeologic evaluation and additional cross sections do not need to be constructed.

<sup>2</sup> MODPATH is a separate program that works in conjunction with MODFLOW to calculate flowpaths.

general input to a new local VSD site model. Useful regional model input includes model geometry and layering, aquifer hydraulic properties, and boundary conditions.

The proposed modeling approach is simulation of steady-state flow under representative current conditions (without GRRP injection), followed by simulations of alternative GRRP operations. The steady-state flow approach will utilize average representative recent groundwater flow and pumping conditions, such as average pumping rates of each well. If additional transient simulations of variable well pumping or injection rates over time are warranted, the MODFLOW model can be easily converted to transient at a later date.

The local model will simulate an area around the VSD site that includes nearby municipal and private groundwater supply wells. The model area and boundaries will be established after completion of the hydrogeologic data evaluation but is anticipated to extend at least 0.5 miles northwest (upgradient) of the VSD site to approximately 1 to 1.5 miles southeast (downgradient) of the site. In a cross-gradient direction, the model area will extend approximately 1 mile east and 1 mile west of the site. This approximate 4 square-mile area is known to include several dozen active and inactive municipal and private wells.

The number of MODFLOW model layers also will be determined after review of the hydrogeologic and well construction data. For example, the local model may have four layers, with the Layer 1 representing the shallow aquifer, Layer 2 representing the regional fine-grained aquitard layer, and Layers 3 and 4 representing the underlying deep aquifer. This layering would be consistent with the geologic interpretation provided on the cross section included as Slide 5 in the April 2022 RW Project Update presentation. Multiple deep aquifer layers may be warranted given that the injection will occur in the deep zone, and multiple layers provide better representation of horizontal and vertical flow within and between the aquifer zones and to production wells, which may be completed (screened) at different depths.

Aquifer properties, including hydraulic conductivity and thickness, will be defined for each model layer. The local fault mapped during the recent site geophysical surveys and its potential effects on groundwater flow will be accounted for in the model. The regional Indio Subbasin MODFLOW model also simulates four aquifer layers representing the shallow, intermediate, and deep aquifers, but does not subdivide the deep aquifer zone. Based on stratigraphic analysis and building on the existing conceptual and numerical models, we will develop representative aquifer characteristics for the VSD site area and construct appropriate model layers to represent local three-dimensional groundwater flow. Aquifer hydraulic property values (permeabilities, storage properties) will be translated from the regional model but may be slightly modified in order to best represent local aquifer conditions in Indio.

Appropriate flow model boundary conditions will be developed. It is anticipated that the local model will utilize specified heads for the lateral boundaries. Groundwater elevation measurements from monitoring wells near the local model boundaries along with simulated heads from the regional model will be used to develop boundary conditions. Recharge from

municipal and irrigation return flows and pumping from all known active production wells in the study area as determined in the Alternative Plan will be simulated in the local model.

In accordance with DDW requirements and standard groundwater modeling practice, the model will be calibrated to observed water levels under recent conditions. Calibration involves adjusting model input parameter values until the simulated groundwater elevations are closely-matched with measured elevations. This provides validity to the predictive model results. Calibration results will be documented.

Once calibrated, GRRP operation will be simulated using anticipated injection rates and locations. Working in conjunction with VSD staff, we will develop several initial scenarios (injection well location(s) and injection rate(s)). For costing purposes, we have assumed four (4) initial injection scenarios will be simulated. Groundwater level changes from injection operations will be simulated, and flow paths and travel times between the injection site(s) to downgradient wells will be calculated using MODPATH. Preliminary recommendations for injection location(s) and rate(s) will be developed accounting for potential impacts to downgradient wells.

Note that once constructed and calibrated, the local model can be efficiently applied to simulate future injection alternatives, as the project is refined.

### **Task 3. Draft Report and Meetings**

Documentation of local hydrogeologic conditions and groundwater model construction and initial simulation results will be presented in a draft report. The report will contain the hydrogeologic cross sections, groundwater level and quality maps and charts, the table of local groundwater production wells and construction details. The report also will document the groundwater flow model construction, calibration, and results of the initial predictive simulations. Pertinent model input and output data, maps, and charts will be included. The report will also include recommendations on additional groundwater characterization and modeling tasks related to the GRRP.

We anticipate collaboration with VSD and IWA throughout the evaluation tasks, in order to provide a beneficial analysis and to assist you with this important phase of the GRRP. Four virtual meetings are proposed: a kick-off meeting to review project objectives and scope, a meeting to discuss the findings of the local hydrogeologic data review, a meeting to establish initial injection scenario alternatives for simulation, and a meeting following groundwater model construction to discuss the injection simulation results and the report.

### **PROJECT STAFFING**

Todd team members proposed for VSD's GRRP evaluation include:

Daniel Craig, Senior Hydrogeologist/Groundwater Modeler – Mr. Craig will manage the project and lead the hydrogeologic and groundwater model evaluations. Dan brings extensive expertise in hydrogeologic characterization, recycled water reuse evaluations, and application

of groundwater models, along with over a decade of working experience in Indio Subbasin on multiple projects, including CVWD’s Palm Desert Groundwater Replenishment Facility (GRF) feasibility study groundwater modeling project, WRP-10 solute transport modeling project, Thomas E. Levy GRF optimization study flow modeling project, and the Indio Subbasin 2022 Alternative Plan Update.

Arden Wells, Staff Geologist – Ms. Wells will assist with the hydrogeologic and groundwater model evaluations. Arden recently completed several components of the Alternative Plan including characterization of current groundwater conditions in the Indio Subbasin, has supervised installation of monitoring wells in Palm Desert and La Quinta, and is knowledgeable of groundwater flow and water quality conditions in the area.

Maureen Reilly, Senior Engineer/QC – Ms. Reilly will perform QC of the GRRP evaluations. Maureen has significant experience in groundwater management projects involving groundwater modeling, water quality analysis, monitoring, and data analysis. She brings extensive local knowledge, having worked on Indio subbasin projects including the 2022 Alternative Plan Update, Alternative Plan 2020-2022 Annual Reports, and CVWD Engineer’s Report.

**COST ESTIMATE**

The estimated costs by task are summarized below, and a breakdown of staff hours by task is included in the attached cost table.

Task	Total Cost
1. Hydrogeologic Data Review	\$21,379
2. Groundwater Modeling	\$45,341
3. Draft Report and Meetings	\$20,575
<b>Total Project Costs</b>	<b>\$87,295</b>

**SCHEDULE**

Todd Groundwater can begin this project upon receipt of a notice-to-proceed and anticipates that the project can be completed within an approximately 5-month timeframe (i.e., assuming a notice-to-proceed within two weeks, the completion of the draft report would be in December 2022).

We appreciate the opportunity to propose on this interesting project and stand ready to initiate the project on your approval. Please feel free to contact us with any questions or comments that you may have.

Attachment: Project Cost Estimate

# Project Cost Estimate

# Todd Groundwater

**Job Name:** Valley Sanitary District RW Injection GRRP  
**Tasks:** Local Hydrogeologic and Groundwater Modeling Evaluations  
**Date:** 7/14/2022

2022 Hourly Rates	Senior Engr/QC Reilly \$240	Senior Hydro Craig \$250	Staff Geo Wells \$155	GIS Analyst / Graphics \$130	Labor Hours	Total Todd Labor	2% Comm. Fee	Admin Costs \$120	Total Todd Costs
<b>1 - Local Hydrogeologic Evaluation</b>	2	24	80	16	122	\$ 20,960	\$ 419	\$ -	\$ 21,379
<b>2 – Local Groundwater Model Development and Initial Injection Simulations</b>	4	148	40	2	194	\$ 44,420	\$ 888	\$ 33	\$ 45,341
<b>3 – Draft Report and Meetings</b>	6	40	36	24	106	\$ 20,140	\$ 403	\$ 33	\$ 20,575
<b>Estimated Total Cost Tasks 1 through 3</b>	<b>12</b>	<b>212</b>	<b>156</b>	<b>42</b>	<b>422</b>	<b>\$ 85,520</b>	<b>\$ 1,710</b>	<b>\$ 65</b>	<b>\$ 87,295</b>



**East Valley Reclamation Authority  
Board of Directors Meeting  
45-500 Van Buren Street, Indio  
September 6, 2022**

**TO:** Board of Directors

**FROM:** Beverli A. Marshall, VSD General Manager  
Reymundo Trejo, IWA General Manager

**SUBJECT: Authorize the Valley Sanitary District General Manager to Execute a Professional Services Agreement with Carollo Engineers, Inc. to Complete An Updated Comprehensive Recycled Water Master Plan in an Amount Not to Exceed \$368,583**

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**Executive Summary**

The purpose of this report is to discuss the need for consulting services to perform the necessary analysis.

**Fiscal Impact**

The total cost of the contract is \$368,583 and is included in the adopted EVRA Budget for Fiscal Year 2022-23.

**Environmental Impact**

This project phase is for research, planning, and preliminary design services. The necessary California Environmental Quality Act (CEQA) steps will be addressed prior to any construction activities.

**Background**




The East Valley Reclamation Authority (EVRA) completed the necessary analysis to determine that a groundwater injection system at the VSD Water Reclamation Facility to recharge the Indio Subbasin is possible. To continue analyzing the viability of the project, as well as the feasibility of other recycled water projects, an updated Comprehensive Recycled Water Master Plan (RWMP) is needed. Given current and projected drought conditions, projects that were determined to be impractical in previous analysis need to be re-evaluated in preparation for the CEQA process. Carollo Engineers, Inc. completed a recycled water feasibility study for the City of Indio and is familiar with the geographical and economic conditions. Having them conduct the analysis is a more efficient and cost-

effective way to update the report.

**Recommendation**

Staff recommends that the Board of Directors authorize the VSD General Manager to execute a professional services agreement with Carollo Engineers, Inc. in an amount not to exceed \$368,583.

**JPA Member Review**

City of Indio	Reymundo Trejo IWA General Manager	
Valley Sanitary District	Beverli A. Marshall General Manager	
Financial	Brian Kinder IWA Manager of Finance	

**Attachments**

Attachment A: Carollo Engineers, Inc. RWMP Scope and Fee Schedule



**Comprehensive Recycled Water Master Plan (RWMP)  
for Valley Sanitary District (District)  
Scope of Work – (8/1/2022)**

**Task 1 – Project Management and Meetings**

**Task 1.1 – Project Administration**

Carollo will coordinate and manage the project, including internal project meetings with District staff at key milestones. Upon commencement of the project, Carollo will prepare and maintain a detailed project schedule. It is anticipated that the project shall be completed within eight months from the project start date. This task also includes the preparation of monthly invoices.

**Task 1.2 – Project Meetings**

This task includes a kickoff meeting and up to seven additional progress meetings with the Carollo and District project team (including representatives from IWA) that will occur approximately monthly but will be scheduled around key project milestones. It is assumed that all meetings will take place virtually using MS Teams or similar platform.

**Task 1.3 – Collaboration Meetings**

This task includes up to four total meetings with Geoscience and Todd Groundwater to coordinate concurrent efforts in groundwater and geotechnical modeling and analysis. It is assumed that all meetings will take place virtually using MS Teams or similar platform.

**Task 1 Deliverables:**

- Project schedule with updates, as-needed
- Monthly invoices (8)
- Meeting agendas and summaries (8)
- Ongoing action & decision item log

It is assumed that all deliverables, including meeting agendas, notes, schedules, report chapters, maps, etc. will be delivered in electronic format only unless specified differently.

**Task 2 – Non-Potable Reuse Analysis**

**Task 2.1 – NPR Data Gathering and Document Review**

Carollo will coordinate with District staff to collect and review relevant documents and data, including previous recycled water reports, GIS data, operational records, billing data, production records, water supply information, and other pertinent information related to the NPR analysis. This data gathering effort will be limited to data and documents that relate to the service area of Indio Water Authority (IWA).

Carollo will prepare a prioritized data collection list to track the status of various documents. Review of the data collection list will be a standing agenda item for all meetings/conference calls during the entire project.

## **Task 2.2 – Potential NPR Demand Analysis**

Our team will identify the top 20 potential recycled water customers within IWA's service area based on their potential estimated annual recycled water demand in afy. We will evaluate the historical billing records, land use map, specific plans, aerial maps, and previous planning documents. Customers will be categorized based on user type such as landscape irrigation and industrial user types. The existing and proposed federal and State regulatory requirements governing existing and future use and application of non-potable recycled water will be considered.

The historical potable water billing records will be used as a starting point to estimate the recycled water demands of potential customers. It is assumed that IWA to provide at least three years of monthly potable water billing data for all water accounts, including billing addresses and classifications. Based on customer type, a recycled water percentage will be applied to account for the approximate amount of potable water demand that can be converted to recycled water for each customer class. A customer table and map will be created with the potential recycled water customer data (typically 10 AFY or larger). Additional pickup customers (> 5 afy) will be identified using the geocoded irrigation accounts of historical billing data.

Carollo will use typical industry peaking factors for Minimum Day Demand (MinDD), Maximum Month Demand (MMD), and Maximum Day Demand (MDD) demand conditions by customer class to estimate existing, near-term, and long-term seasonal recycled water demands. Carollo will develop up to five (5) NPR alignment alternatives to serve identified potential customers.

## **Task 2.3 – NPR Treatment Analysis**

Carollo will evaluate the District's existing Water Reclamation Facility and its ongoing upgrades to recommend any additional upgrades needed to treat wastewater to meet Title 22 requirements for non-potable reuse. Carollo will develop AACE Class 5 (order of magnitude) cost estimates of upgrades needed to produce Title 22 recycled water.

## **Task 2.4 – NPR Hydraulic Model**

Carollo will update IWA's existing recycled water system model by converting it to Innovyze's InfoWater hydraulic water distribution modeling software. Up to five distribution system configurations will be modeled to determine pipeline and pumping sizing and storage needs. It is assumed that IWA can provide the latest hydraulic model and that no calibration is needed for the recycled water hydraulic model. The results will be reviewed to confirm that they are reasonable. Carollo will develop a NPR Model User Manual that discusses model components (ArcGIS and Info software connectivity, etc.) and capabilities (simulation and creation of new scenarios).

## **Task 2.5 – NPR System Options**

Based on the list of potential recycled water customers identified in Task 2.2, Carollo will model and size the system expansions of the five potential alignment alternatives identified in Task 2.2. System requirements, including transmission mains, pumping, and storage, will be included. The unit cost of up to five NPR alignment alternatives (expressed in \$/acre-foot and including treatment and distribution costs) will be developed for comparison against other recycled water options. Based on the

analysis results, Carollo will identify an optimized configuration for the most cost-effective potential NPR system expansions within IWA's service area.

### **Task 2.6 – NPR Analysis Chapter**

Carollo will develop Chapter 2 of the RWMP (NPR Analysis) of the RWMP that documents the potential NPR customer analysis, NPR treatment analysis, NPR hydraulic model development, and development and evaluation of NPR system options.

#### **Task 2 Deliverables:**

- Data request list and continuous updates of the data request list
- Carollo will provide a NPR Model User Manual discussing model components (ArcGIS and Info software connectivity, etc.) and capabilities (simulation and creation of new scenarios) of the model.
- Carollo will provide an updated NPR system InfoWater model to the District at the end of the project.
- Draft CRWMP Chapter 2 (NPR Analysis)

### **Task 3 – Indirect Potable Reuse Analysis**

#### **Task 3.1 – IPR Data Gathering and Document Review**

Carollo will coordinate with District staff to collect and review relevant documents and data, including previous recycled water reports, GIS data, operational records, and other pertinent information related to the IPR analysis.

Carollo will prepare a prioritized data collection list to track the status of various documents. Review of the data collection list will be a standing agenda item for all meetings/conference calls during the entire project.

#### **Task 3.2 – IPR Treatment Analysis**

Carollo will evaluate the District's existing Water Reclamation Facility and its ongoing upgrades to recommend additional upgrades needed to treat wastewater to achieve the desired water quality needed for IPR via groundwater injection.

Carollo will examine District ADWF (Average Dry Weather Flow) and PWWF (Peak Wet Weather Flow) under current flows and load conditions for the past 5 calendar years (2017 through 2021). Future flow projections for 2030 will be developed based on anticipated septic to sewer conversions and projected changes in potable use. It is assumed that District provides pertinent data for these projections in excel format. This flow and load analysis will require an understanding of institutional/commercial flows within the District sewershed to allow for accurate future flow and load estimations. The flow evaluation will result in selection of one current ADWF and one future ADWF for water reuse options, as well as providing important information on flow relevant to other aspects of this project.

Carollo will examine the District NPDES permit, existing water quality data, supplemental data from other sites where appropriate, and document which parameters (if any) represent a potential NPDES permit challenge based upon the use of advanced treatment on the District effluent. Examining

the available and future flow and potential NPDES concerns will result in conclusions of an appropriate advanced treated water flow for both current and future conditions. As part of the analysis, Carollo will outline RO concentrate management options, which will be included in the cost analysis (below).

Carollo will develop recycled water treatment trains for IPR projects, examining both Reverse Osmosis (RO) based and non-RO based purification, and the resulting regulatory and implementation challenges. Development of recycled water treatment options will include preparing simple process schematics and establishing design criteria and preliminary sizing, conceptual site plans, an AACE Class 5 (order of magnitude) capital cost estimate, and operation and maintenance costs.

In addition to treatment upgrades needed at the WRP, additional wellhead treatment is likely required at extraction well sites due to Chromium-6 contamination in local groundwater. Carollo will prepare a AACE Class 5 (order of magnitude) cost estimate for adding this treatment to existing or new wells.

### **Task 3.3 – IPR Infrastructure Analysis**

Carollo will evaluate two potential IPR concepts: IPR with groundwater injection and extraction and IPR with Aquifer Storage Recovery (which is a variation of a standard groundwater injection project). A total of up to four (4) IPR alternatives will be evaluated. It is assumed that IPR options assessed in the RWCMP are limited to groundwater injection and ASR and do not include surface water augmentation due to the absence of appropriate surface water reservoirs for this purpose. It is also assumed that surface spreading for groundwater percolation will not be included due to the findings of previous analyses that this option is not feasible due to soil and aquifer conditions (presence of clay layer prohibiting recharge of the underlying aquifer).

Carollo will utilize information provided by Todd Groundwater regarding the recommended location of groundwater injection wells to determine transmission infrastructure needed, including pipelines and pump stations, to transmit treated effluent from the WRF to the groundwater injection site. Carollo will determine infrastructure needs for the IPR via ASR option. The infrastructure analysis will include preliminary infrastructure sizing and alignments to produce an AACE Class 5 (order of magnitude) capital cost estimate.

### **Task 3.4 – IPR Analysis Chapter**

Carollo will develop Chapter 3 of the RWMP (IPR Analysis) of the RWMP that documents the IPR treatment and infrastructure analyses.

## **Task 4 – Direct Potable Reuse Analysis**

### **Task 4.1 – DPR Data Gathering and Document Review**

Carollo will coordinate with District staff to collect and review relevant documents and data, including previous recycled water reports, GIS data, operational records, and other pertinent information related to the DPR analysis.

Carollo will prepare a prioritized data collection list to track the status of various documents. Review of the data collection list will be a standing agenda item for all meetings/conference calls during the entire project.

#### **Task 4.2 – DPR Treatment Analysis**

Carollo will use the flow and discharge analysis completed for Task 3.1 as the basis for this analysis. Carollo will develop recycled water treatment trains for DPR projects. Development of recycled water treatment options will include preparing simple process schematics and establishing design criteria and preliminary sizing, conceptual site plans, an AACE Class 5 (order of magnitude) capital cost estimate, and operation and maintenance costs. DPR will only be RO-based treatment and thus includes RO concentrate management.

Since there currently is not a water treatment facility located in the District’s service area, implementation of DPR would require the construction of a water treatment plant and blending with existing local supply (i.e. groundwater). It is assumed that IWA will provide details on the location and cost estimate of the WTP, which was planned in previous efforts. Costs will be escalated to reflect the current ENR index..

#### **Task 4.3 – DPR Analysis Chapter**

Carollo will develop Chapter 4 of the RWMP (DPR Analysis) of the RWMP that documents the DPR analysis.

#### **Task 5 – Capital Improvement Plan**

##### **Task 5.1 – Prioritization of Recycled Water Options**

Carollo will compare the NPR, IPR, and DPR options developed in Tasks 2 through 4 based on unit cost (\$ per acre-foot) and other implementation considerations including: Comparison of NPR vs IPR vs DPR based on cost and other implementation considerations, including:

- Environmental concerns including potential impacts to the Salton Sea and other impediments that may come up during the CEQA phase
- Institutional arrangements needed with IWA or others
- Regulatory timing and uncertainty surrounding DPR
- Additional treatment costs for Chromium-6 removal for IPR options

The alternatives analysis will be used to recommend and prioritize one or more of the NPR, IPR, and DPR projects.

##### **Task 5.2 – Implementation Roadmap**

Based on the project recommendation developed in Task 5.1, Carollo will develop an implementation roadmap to lay out the next steps that the District should take to implement the recommended recycled water project. Next steps are expected to include funding applications, environmental review (CEQA), facility design, and construction. The suggested timing and phasing of each step will be included in the implementation roadmap.

**Task 5.3 – Capital Improvement Plan**

Carollo will organize the components of the recommended project(s) into a CIP that includes estimated costs and recommended timing for each component. The detailed CIP will have a planning horizon of year 2030, while long-term recommendations will be allocated to the period beyond 2030 (e.g. 2050).

**Task 5.4 – CIP Chapter**

Carollo will develop Chapter 5 (Project Prioritization and CIP) of the RWMP that documents the recycled water alternatives analysis, project recommendation and prioritization, implementation roadmap, and CIP.

**Task 6 – Comprehensive Recycled Water Master Plan Report****Task 6.1 –Introduction and Executive Summary**

Carollo will prepare Chapter 1 of the RWMP (Introduction), which will include sections on project background, purpose, and study area. Following the completion of Tasks 2 through 5, Carollo will prepare an Executive Summary for the RWMP.

**Task 6.2 – Final Report**

Chapters 2 through 5 will be prepared as part of Tasks 2 through 5. It is assumed that chapters will be submitted as MS Word files to the District upon completion of each task and the District will review each chapter within a two-week period and return comments to Carollo consolidated into one MS Word file in track changes. Carollo will address and incorporate District comments. A meeting will be held during this process to make sure that the comments are interpreted and addressed appropriately. Upon completion of addressing the District's comments, Carollo will format, compile and submit the Final RWMP.

Carollo will submit all draft and final report chapters in electronic format (PDF and docx) and deliver a compiled final report with bookmarks in PDF format. Additionally, ten (10) copies final report will be submitted in hard copy format.

**Fee Proposal for:  
Valley Sanitary District  
Comprehensive Recycled Water  
Master Plan**

		Carollo Engineers Staff									Total Labor Hours	Labor Fee	Other Direct Cost	TOTAL PROJECT FEE
		Principal-in-Charge, Jeff Thornbury	Treatment Lead, Andy Salvesson	Project Manager, Inge Wiersema	Technical Advisor, Matt Huang	Project Engineer, Rachel Duncan & Warren Greco	Hydraulic Modeling, Ryan Hejka	Project Support, Renjie Nate Li & Madison Rasmus	GIS Analysis and Mapping, Jackie Silber	Administrative Staff Various				
Task No.	Task Description													
<b>1</b>	<b>Project Management</b>	<b>4</b>	<b>8</b>	<b>24</b>	<b>8</b>	<b>32</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>\$ 34,400</b>	<b>\$ 2,059</b>	<b>\$ 36,459</b>
1.1	Project Management (8 months)	4	0	16	0	16	0	0	0	8	44	\$ 10,700	\$ 629	\$ 11,329
1.2	Kickoff Meeting and Monthly Progress Meetings (8)	0	8	16	8	24	0	16	0	0	72	\$ 17,000	\$ 1,030	\$ 18,030
1.3	Collaboration Meetings (4)	4	0	8	0	8	0	8	0	0	28	\$ 6,700	\$ 400	\$ 7,100
<b>2</b>	<b>Non-Potable Resuse Analysis</b>	<b>2</b>	<b>18</b>	<b>22</b>	<b>16</b>	<b>108</b>	<b>38</b>	<b>164</b>	<b>26</b>	<b>4</b>	<b>398</b>	<b>\$ 77,150</b>	<b>\$ 5,691</b>	<b>\$ 82,841</b>
2.1	NPR Data Gathering and Document Review	0	0	0	2	4	4	4	2	0	16	\$ 3,100	\$ 229	\$ 3,329
2.2	Potential NPR Demand Analysis	0	0	6	0	16	0	40	8	0	70	\$ 12,750	\$ 1,001	\$ 13,751
2.3	NPR Treatment Analysis	0	16	4	0	24	0	16	0	0	60	\$ 13,700	\$ 858	\$ 14,558
2.4	NPR Hydraulic Model	0	0	0	4	8	16	40	0	0	68	\$ 11,800	\$ 972	\$ 12,772
2.5	NPR System Options	0	0	8	8	24	16	40	16	0	112	\$ 21,800	\$ 1,602	\$ 23,402
2.6	NPR Analysis Chapter	2	2	4	2	32	2	24	0	4	72	\$ 14,000	\$ 1,030	\$ 15,030
<b>3</b>	<b>Indirect Potable Reuse Analysis</b>	<b>2</b>	<b>30</b>	<b>12</b>	<b>24</b>	<b>120</b>	<b>18</b>	<b>132</b>	<b>22</b>	<b>4</b>	<b>364</b>	<b>\$ 72,600</b>	<b>\$ 5,205</b>	<b>\$ 77,805</b>
3.1	IPR Data Gathering and Document Review	0	0	0	8	4	0	16	2	0	30	\$ 5,600	\$ 429	\$ 6,029
3.2	IPR Treatment Analysis	0	24	2	0	36	0	56	0	0	118	\$ 24,050	\$ 1,687	\$ 25,737
3.3	IPR Infrastructure Analysis	0	0	8	16	48	16	40	16	0	144	\$ 28,600	\$ 2,059	\$ 30,659
3.4	IPR Analysis Chapter	2	6	2	0	32	2	20	4	4	72	\$ 14,350	\$ 1,030	\$ 15,380
<b>4</b>	<b>Direct Potable Resuse Analysis</b>	<b>2</b>	<b>46</b>	<b>4</b>	<b>8</b>	<b>92</b>	<b>0</b>	<b>132</b>	<b>6</b>	<b>4</b>	<b>294</b>	<b>\$ 58,800</b>	<b>\$ 4,204</b>	<b>\$ 63,004</b>
4.1	DPR Data Gathering and Document Review	0	0	0	8	4	0	16	1	0	29	\$ 5,400	\$ 415	\$ 5,815
4.2	DPR Treatment Analysis	0	40	2	0	72	0	100	4	0	218	\$ 43,850	\$ 3,117	\$ 46,967
4.4	DPR Analysis Chapter	2	6	2	0	16	0	16	1	4	47	\$ 9,550	\$ 672	\$ 10,222
<b>5</b>	<b>Capital Improvement Plan</b>	<b>2</b>	<b>18</b>	<b>28</b>	<b>36</b>	<b>96</b>	<b>2</b>	<b>72</b>	<b>18</b>	<b>6</b>	<b>278</b>	<b>\$ 59,350</b>	<b>\$ 3,975</b>	<b>\$ 63,325</b>
5.1	Prioritization of Recycled Water Options	0	8	8	16	40	0	24	0	0	96	\$ 20,800	\$ 1,373	\$ 22,173
5.2	Implementation Roadmap	0	8	8	0	16	0	24	0	2	58	\$ 12,250	\$ 829	\$ 13,079
5.3	Capital Improvement Plan	0	0	8	16	24	0	16	16	0	80	\$ 17,000	\$ 1,144	\$ 18,144
5.4	CIP Chapter	2	2	4	4	16	2	8	2	4	44	\$ 9,300	\$ 629	\$ 9,929
<b>6</b>	<b>Comprehensive Recycled Water Master Plan Report</b>	<b>4</b>	<b>12</b>	<b>20</b>	<b>8</b>	<b>64</b>	<b>8</b>	<b>60</b>	<b>10</b>	<b>18</b>	<b>204</b>	<b>\$ 41,350</b>	<b>\$ 3,797</b>	<b>\$ 45,147</b>
6.1	Introduction and Executive Summary	2	4	4	0	24	0	12	2	2	50	\$ 10,500	\$ 715	\$ 11,215
6.2	Final Report (PDF & 5 hard copies)	2	8	16	8	40	8	48	8	16	154	\$ 30,850	\$ 3,082	\$ 33,932
	<b>TOTAL</b>	<b>16</b>	<b>132</b>	<b>110</b>	<b>100</b>	<b>512</b>	<b>66</b>	<b>584</b>	<b>82</b>	<b>36</b>	<b>1638</b>	<b>\$ 343,650</b>	<b>\$ 24,933</b>	<b>\$ 368,583</b>



**East Valley Reclamation Authority  
Board of Directors Meeting  
45-500 Van Buren Street, Indio  
September 6, 2022**

**TO:** Board of Directors

**FROM:** Beverli A. Marshall, VSD General Manager  
Reymundo Trejo, IWA General Manager

**SUBJECT: Authorize the Indio City Manager to Execute a Professional Services Agreement with CA Consulting Services, LLC to Provide Recycled Water Program Management Services in an Amount not to Exceed \$80,000**

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**Executive Summary**

The purpose of this report is to discuss the need for engineering support services related to the Recycled Water Project.

**Fiscal Impact**

The total cost of the contract is \$80,000 and sufficient funds are included in the adopted EVRA Budget for Fiscal Year 2022-23.

**Environmental Impact**

This project phase is for research, planning, and preliminary design services. The necessary California Environmental Quality Act (CEQA) steps will be addressed prior to any construction activities.

**Background**

The East Valley Reclamation Authority (EVRA) completed the necessary analysis to determine that a groundwater injection system at the VSD Water Reclamation Facility to recharge the Indio Subbasin is possible.

The EVRA Board recently adopted the FY 2022-23 budget of nearly \$950,000 to develop a comprehensive recycled water master plan, develop a groundwater model, research grant funding opportunities, and develop local recycled water customers. The EVRA staff will require highly qualified professional engineering resources to support this effort. The Indio Water Authority recently solicited proposals for technical advisory



and engineering program management services. A panel of local public agencies evaluated the proposals and ranked CA Consulting Services, LLC as the highest ranked firm to provide as-needed Technical Engineering and Program Management services. Based on the recent solicitation, together with the highly qualified recycled water experts, the EVRA staff requested a scope and budget to support recycled water program management support services.

CA Consulting Services, LLC submitted a scope of work and cost proposal of \$80,000 and a term of 18 months. The dedicated Recycled Water Program Manager at the firm is Mr. Thomas Holliman. Mr. Holliman is a licensed professional engineer with over 40 years of recycled water program management experience. Mr. Holliman was responsible for developing the recycled water program at the Irvine Ranch Water District, the City of Oxnard, the Inland Empire Utilities Agency, the City of Ontario, the City of Long Beach, and the City of Pomona.



The scope of services is listed below:

1. Provide monthly communications and program management support
2. Perform the technical review of a recycled water master plan analysis to be prepared by Carollo Engineers scheduled for award on September 6, 2022. This master plan will include direct distribution of recycled water through a purple pipe system, and an Indirect Potable Reuse (IPR) project).
3. Provide a technical review of a groundwater model for a potential IPR project that will be developed by Todd Groundwater, through a contract scheduled for award on September 6, 2022.
4. Support EVRA team with discussions with local tribes, as needed.
5. Support cross connection shut-down testing, as necessary.
6. Review the retrofit requirements for potentially converting the Eagle Falls Golf Course to recycled water irrigation.
7. Reviewing and assisting in pursuing grant funding opportunities.
8. Provide Recycled Water On-Site Supervisor Training as required for new use sites.
9. Other support as needed.

**Recommendation**

Staff recommends that the Board of Directors authorize the Indio City Manager to execute a professional services agreement with CA Consulting Services LLC in an amount not to exceed \$80,000.

**JPA Member Review**

City of Indio	Reymundo Trejo, PE IWA General Manager	
Valley Sanitary District	Beverli A. Marshall, DBA General Manager	

Financial	Brian Kinder IWA Manager of Finance	
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**Attachments**

Attachment A: CA Consulting Services LLC Scope and Fee Proposal

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**August 30, 2022**

Mr. Reymundo Trejo, PE  
General Manager  
Indio Water Authority  
83101 Avenue 45  
Indio, CA 92201

Beverli A. Marshall  
General Manager  
Valley Sanitary District  
45500 Van Buren St  
Indio, CA 92201

**SUBJECT:** Letter Proposal for Technical Advisor/Project Manager for EVRA Recycled Water Program

Dear Mr. Trejo, and Ms. Marshall,

CA Consulting, LLC is pleased to provide this letter as our proposal to provide a Technical Advisor/Project Manager to support EVRA (East Valley Reclamation Authority – Valley Sanitary District (VSD) and Indio Water Authority (IWA) in their development of a recycled water program for the Indio Water Authority/Valley Sanitary District service area. We have provided a brief summary of proposed services and our proposed Technical Advisor/Project Manager (TA/PM). CA Consulting, LLC is uniquely qualified for this assignment, and recently completed a competitive solicitation with the IWA for as-needed Technical Advisory Services for the Engineering department, and followed a competitive section process applicable to this assignment. We have an office in Palm Desert, Highland, and Azusa, CA.

### ***Understanding***

It is our understanding that the EVRA is currently working to develop a program utilize recycled water produced by VSD for beneficial uses in the IWA service area, including groundwater recharge, golf course landscape irrigation, and other potential beneficial uses. In order to achieve these objectives EVRA is seeking an experienced TA/PM to join the team. The TA/PM is expected to provide the services listed below:

1. Provide monthly communications and program management support
2. Perform the technical review of a recycled water master plan analysis to be prepared by Carollo Engineers scheduled for award on September 6, 2022. This master plan will include direct distribution of recycled water through a purple pipe system, and an Indirect Potable Reuse (IPR) project).



3. Provide a technical review of a groundwater model for a potential IPR project that will be developed by Todd Groundwater, through a contract scheduled for award on September 6, 2022.
4. Support EVRA team with discussions with local tribes, as needed.
5. Support cross connection shut-down testing, if necessary.
6. Review the retrofit requirements for potentially converting the Eagle Falls Golf Course to recycled water irrigation.
7. Reviewing and assisting in pursuing grant funding opportunities.
8. Provide Recycled Water On-Site Supervisor Training as required for new use sites.
9. Other support as needed.

### ***Proposed TA/PM***

We are proposing Mr. Thomas R. Holliman, PE, QSD/QSP, Env SP to provide this important support to EVRA. Mr. Holliman has over forty (40) years of professional experience in the planning, design, and operations of major recycled water, potable water, and sewer facilities throughout Southern California, with a value more than \$2 billion in construction costs. Mr. Holliman is a recognized expert in California for recycled water/ non-potable systems. He formerly served as the Interim Engineering and Interim Operations Manager for IWA (2005-2008), Director of Engineering and Planning/Chief Engineer for the Long Beach Water Department, Assistant General Manager/District Engineer for the Water Replenishment District of Southern California, Principal Engineer for the Irvine Ranch Water District, District Engineer for the San Geronio Pass Water Agency, and Engineering Manager for the East Valley Water District. A summary of his professional work in recycled water includes:

Some of his key recycled water projects include;

- *Project Manager -Recycled Water Implementation Road Map, Beaumont Cherry Valley Water District, Beaumont, CA*
- *Project Manager - Onsite Recycled Water Treatment Plant and Distribution System Study, Arrowbear Park County Water District, Arrowbear, CA*
- *Project Manager - Santa Ana Recycled Water Master Plan, Santa Ana, CA*
- *Project Manager - Recycled Water System Management and Development, Castaic Lake Water Agency, Santa Clara, CA*
- *Project Manager - GREAT Project, Phase IB, City of Oxnard, CA – Teamed with Carollo Engineers to develop recycled water customers and identify retrofit requirements for end users.*
- *Project Manager - Recycled Water Feasibility Study, City of Lompoc, CA*
- *Project Manager - Recycled Water System Coordination, Inland Empire Utilities Agency, Chino, CA – Customer development and retrofit construction, cross connection testing, and permitting support.*



- *Project Manager - East Pomona Recycled Water Feasibility Study, City of Pomona, CA*
- *Project Manager - Citizen Business Bank Arena Hockey Rink Recycled Water Conversion, City of Ontario, CA. This project received the WaterReuse Special Project Award, 2015 – Use of Recycled Water for Making Hockey Ice at Citizens Business Bank Arena, Ontario, CA.*
- *Project Manager - THUMS Oil Islands Recycled Water Ground Injection Project, Long Beach Water Department, Long Beach, CA. This project was the winner of a 1996 WaterReuse Association Special Award of Merit, and the California Water Awareness Program, 1997 Water Efficiency Award, Industrial Division.*
- *Project Manager - Dual Plumbed High-Rise Recycled Water Project, Irvine Ranch Water District, Irvine, CA. The WaterReuse Association awarded Special Project of the Year to this project in 1992.*

Mr. Holliman's unique combination of public and private sector engineering experience includes managing Engineering and Operations division of multiple special districts and cities. He is adept in working within public water agencies as both manager and staff, developing long range capital improvement plans, preparing City Council and Water Commission staff reports, and making presentations to civic and professional groups.

His professional registrations include Professional Civil Engineer, California; AWWA Cross Connection Control Program Specialist; USC Cross Connection Control Program Specialist; Qualified SWPPP Developer (QSD) and Practitioner (QSP); and an Envision SP. He is also an adjunct instructor at San Bernardino Valley College where he teaches a course in cross connection control.

### Scope of Services

1. Monthly Communications and program management support. This work will include providing a monthly report on the activities of the project including major actions and potential issues.
2. Technical review of recycle water master plan analysis by Carollo (schedule for award Sep 6th, includes direct purple pipe and an IPR project). CAC will participate in the development of the master plan by conducting a kick-off meeting with Carollo, attending periodic status meetings, reviewing deliverables, and proving comments and recommendations on change orders if necessary.
3. Technical review of a groundwater model for potential IPR project by Todd Groundwater (scheduled for award Sep 6th). CAC will participate in the development of the groundwater model by conducting a kick-off meeting with Todd Groundwater, attending periodic status meetings, reviewing deliverables, and proving comments and recommendations on change orders, if necessary.



4. Support EVRA team with Tribe discussions as needed – the TA/PM will attend meetings as requested, provide technical support to discussions as requested.
5. Support cross connection shut-down test if necessary – as a certified cross connection control program specialist our TA/PM has the certifications, experience, and equipment to provide cross connection testing as required.
6. Review retrofit requirements for potential Golf Course conversion – the TA/PM will meet with golf course staff to review the golf course opportunities for recycled water retrofits. Each site will be assessed to determine the amount of recycled water which can be used at the site and the cost to retrofit the golf course.
7. Review Grant Funding opportunities – the TA/PM will monitor grant funding opportunities to determine if projects in the EVRA target areas qualify. If they do, the TA/PM will provide the EVRA with an overview of the grant, potential amounts, and support the grant application process as needed.
8. Provide Recycled Water on-site supervisor training – the TA/PM will provide onsite supervisor training and provide certificates for attendees.
9. Other as needed support – the TA/PM will provide other support as needed for the successful implementation of the recycled water program.

#### BUDGET AND TERM:

Because the scope of work is variable it is difficult to establish a firm cost for the support. Based on the range of services expected, we recommend that an initial overall budget of **\$80,000** be established for an estimated duration of **18 months**. Our Senior Program Manager will be billed a rate of \$225/hour. We estimate approximately 20 hours of support per month, allowing approximately 18 months of service under this letter proposal estimate. We are prepared to report directly to IWA's Engineering Manager.

We are excited about the opportunity to support the EVRA as part of the team and are available to start immediately upon authorization. If there is any other information you require, please let us know. If you have any questions, please contact me directly at (626) 391-3503, or by email at [acastellanos@caconsultservices.com](mailto:acastellanos@caconsultservices.com).

Sincerely,

A handwritten signature in blue ink, appearing to read 'Angel Castellanos', is written over a light blue horizontal line.

Angel Castellanos  
President

## Thomas Holliman, PE

### Technical Advisor/Program Manager



#### Summary

Thomas Holliman has more than 40 years of experience in recycled water planning, design, construction, and operations. He developed the first color-coding system for reclaimed and nonpotable systems and coordinated the creation of purple plastic pipe. He was a Principal Author and Team Leader for the development of the "Manual of Practice on How to Develop a New Water Reuse Program, WaterReuse Association, 2009."

Mr. Holliman has received several WaterReuse Awards, including the WaterReuse Special Project Award, 2015 – Use of Recycled Water for Making Hockey Ice at Citizens Business Bank Arena, Ontario, CA, the WaterReuse Association Special Award of Merit, the California Water Awareness Program, 1997 Water Efficiency Award, Industrial Division for the use of Recycled Water for Ground Subsidence in Long Beach, CA, and the WaterReuse Association California Section Special Project of the Year of this project in 1992 for the first use of Recycled Water for Toilet and Urinal Flushing in a Highrise Office Tower.

Mr. Holliman has previously served as Assistant General Manager/District Engineer for the Water Replenishment District of Southern California (WRD), Director of Engineering and Planning/Chief Engineer for the Long Beach Water Department, and Engineering and Operations Manager for the East Valley Water District, Highland, CA, and Principal Engineer for the Irvine Ranch Water District. Mr. Holliman is also an Adjunct Instructor of Cross Connection Control at San Bernardino Valley Community College.

#### Education

- BS, Civil Engineering, University of Southern California
- MBA, Business Administration, University of California, Irvine

#### Licenses

- Professional Engineer (Civil), CA # C33108
- AWWA/USC Cross Connection Control Program Specialist
- Qualified QSD/QSP
- Envision SP

#### Years of Experience

- 40

#### Relevant Project Experience

##### Project Manager

##### **Recycled Water Implementation Road Map, Beaumont Cherry Valley Water District, Beaumont, CA**

The project consists of developing a full program implementation plan to convert 300 existing non-potable water customers to recycled wastewater from the City of Beaumont treatment plant by March 2021. The road map includes identifying regulatory requirements, a public outreach plan framework, recycled water rate framework, and construction cost estimate for both offsite and onsite construction. The final element is an overall program implementation schedule.

##### Project Manager

##### **Onsite Recycled Water Treatment Plant and Distribution System Study, Arrowbear Park County Water District, Arrowbear, CA**

The project consisted of evaluating the feasibility of the District to design and construct a package reclamation plant and disconnect from the Running Springs Water District. The study identified potential flows into the treatment plant, potential uses of the final effluent, stream discharge options, regulatory requirements, and distribution pipeline and pump station costs.

##### Project Manager

##### **Santa Ana Recycled Water Master Plan, Santa Ana, CA**

This project included the development of a recycled water feasibility study to identify additional potential uses of nonpotable (recycled) water in the City of Santa Ana. The study established screening criteria for each of the City's 22 user classes and then analyzed over 43,000 connections for potential conversion. Over 450 users were identified. Based on this information, a hydraulic model was developed to identify the pipelines, pump stations, and reservoirs needed to meet the demand. The report also included source water quality identification, regulatory requirements, projected design and construction costs, and funding opportunities.

**Project Manager**

**Recycled Water System Management and Development, Castaic Lake Water Agency, Santa Clara, CA**

Mr. Holliman completed multiple recycled water program assignments for the Castaic Lake Water Agency, including a *Recycled Water Program Implementation Guidelines Engineering Road Map* to assist CLWA in the implementation of new water reuse projects. A *Recycled Water Pre-Conversion Evaluation Project* included preparing a pre-conversion feasibility study for four major retrofit sites. Finally, the work included a *Recycled Water Master Plan Update* that included identifying the total potential recycled water demand through multiple potential landscaping, park, and school conversions. Recycled water system alternatives were produced using all previous information that would develop a distribution system that would deliver recycled water to the various use sites with the most cost-effective way.

**Project Manager**

**GREAT Project, Phase IB, City of Oxnard, CA**

Mr. Holliman provided full technical and administrative support for the onsite recycled water conversions for the City of Oxnard's Groundwater Recovery Enhancement and Treatment (GREAT) Program. This work consisted of identifying commercial/industrial, landscape irrigation, schools, parks, and golf course irrigation conversion opportunities. After identifying the users, Mr. Holliman conducted user interviews, mapped all the use sites, and developed a Master Engineer's Report for all the landscape irrigation sites and individual reports for the schools, River Park Development, and the River Ridge Golf Course. Conversion plans were developed for all the parks and schools adjacent to the recycled water pipelines.

**Project Manager**

**Recycled Water Feasibility Study, City of Lompoc, CA**

Mr. Holliman developed a recycled water feasibility study to determine where there are opportunities for recycled water use by the City. The report determined existing barriers for implementing a recycled water system and provided a cost/benefit analysis. The study identified pertinent regulatory requirements, provided a market assessment of potential customers and demand estimates, analyzed recycled water supply availability and quality, prepared system alternatives, included cost/benefits for each option, and provided recommendations and further analysis needs.

**Project Manager**

**Recycled Water System Coordination, Inland Empire Utilities Agency, Chino, CA**

As Recycled Water Coordinator/Program Manager for the implementation of IEUA's Three Year Recycled Water Business Plan, Mr. Holliman's responsibilities included identifying recycled water customers, developing site specific conversion plans, preparing engineer's reports, onsite recycled water supervisor training, interfacing with member agency staff, developing conversion cost estimates, and monitoring recycled water demand.

**Project Manager**

**East Pomona Recycled Water Feasibility Study, City of Pomona, CA**

Mr. Holliman prepared a recycled water retrofit feasibility study for eastern Pomona. This work included identifying all potential recycled water customers, developing alternative facility alignments, creating a hydraulic model of the proposed recycled water system, developing the preferred alternatives, preparing cost estimates for each alternative and combining all the information into a comprehensive report with recommendations.

**Project Manager**

**Citizen Business Bank Arena Hockey Rink Recycled Water Conversion, City of Ontario, CA**

Mr. Holliman prepared a recycled water retrofit Engineer's Report and secured Health Department approval for the first use of recycled water for ice production at a professional hockey rink. This project received the **WaterReuse Special Project Award, 2015 – Use of Recycled Water for Making Hockey Ice at Citizens Business Bank Arena, Ontario, CA.**



**Project Manager**

***THUMS Oil Islands Recycled Water Ground Injection Project, Long Beach Water Department, Long Beach, CA***

Mr. Holliman managed the THUMS reclaimed water project that was the first known use of reclaimed water for groundwater injection for subsidence control in the offshore oil fields in the world. This project was the winner of a **1996 WateReuse Association Special Award of Merit**, and the **California Water Awareness Program, 1997 Water Efficiency Award, industrial Division**.

**Project Manager**

***Dual Plumbed High-Rise Recycled Water Project, Irvine Ranch Water District, Irvine, CA***

Mr. Holliman managed the development of the first high-rise office tower to use reclaimed water for flushing toilets and urinals from a municipal reclaimed water supply in the United States. This included the development of installation criteria, master program documentation, and amendments to the District's Rules and Regulations. The **WateReuse Associations awarded Special Project of the Year of this project in 1992**.



**East Valley Reclamation Authority  
Board of Directors Meeting  
45-500 Van Buren Street, Indio  
September 6, 2022**

**TO:** Board of Directors

**FROM:** Beverli A. Marshall, VSD General Manager  
Reymundo Trejo, IWA General Manager

**SUBJECT: Adopt Resolution No. 2022-22 Determining That a Commercial Food Waste Diversion Program is an Appropriate Activity of the East Valley Reclamation Authority**

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**Executive Summary**

The purpose of this report is to discuss adding a commercial food waste diversion program to the operations of the Authority.

**Fiscal Impact**

There is not fiscal impact at this time.

**Environmental Impact**

This project phase is for research, planning, and preliminary design services. The necessary California Environmental Quality Act (CEQA) steps will be addressed prior to any construction activities.

**Background**

The East Valley Reclamation Authority (EVRA) is a joint powers authority was established in 2013 with powers and operational activities identified in the Joint Exercise of Powers Agreement (JEPA). The JEPA defines the Operations of EVRA as “the tertiary or enhanced treatment of water supplied to the Authority by VSD to be delivered to IWA for its use, **and such other activities as the Board may determine from time to time** (emphasis added).

In response to Senate Bill (SB) 1383, which went into effect January 2022, requires restaurants and residents dispose of food waste separately from regular trash so it can be recycled as organic waste. The City approved its Sustainability Plan and 2022 Annual Work Plan with identifying as Goal 3 Zero Waste, which includes supporting the business community by working with restaurants to develop a food waste diversion

program. VSD adopted its 2020 Strategic Plan identifying Objective 2.1: Increase recycling and reuse of resources and byproducts and Objective 6.2: Increase regional collaboration.

The United States Environmental Protection Agency has identified anaerobic digestion (Attachment B) at wastewater treatment facilities is an beneficial solution to:



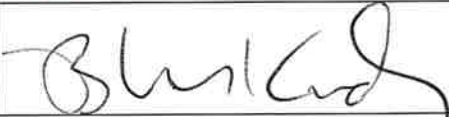
1. reduce greenhouse gas emissions by capturing the methane produce by food waste destruction process;
2. produce a renewable biogas that can reduce energy costs at the treatment facility; and
3. reduce the cost of hauling food waste to landfill sites that are often a significant distance from the origination point.

The expansion of EVRA’s operational activities to include a food waste diversion program is an efficient vehicle to enable the City and VSD to discuss the viability of a joint program for mutual benefit.

**Recommendation**

Staff recommends that the Board of Directors adopt Resolution No. 2022-22 determining that a commercial food waste diversion program is an appropriate activity of the East Valley Reclamation Authority.

**JPA Member Review**

City of Indio	Reymundo Trejo, PE IWA General Manager	
Valley Sanitary District	Beverli A. Marshall, DBA General Manager	
Financial	Brian Kinder IWA Manager of Finance	

**Attachments**

- Attachment A: Resolution No. 2022-22
- Attachment B: EPA: Benefits of Anaerobic Digestion of Food Waste At Wastewater Treatment Facilities

## RESOLUTION NO. 2022-22

### RESOLUTION OF THE BOARD OF DIRECTORS OF THE EAST VALLEY RECLAMATION AUTHORITY DETERMINING THAT A COMMERCIAL FOOD WASTE DIVERSION PROGRAM IS AN APPROPRIATE ACTIVITY OF THE EAST VALLEY RECLAMATION AUTHORITY

Whereas, the East Valley Reclamation Authority (“EVRA” or “Authority”) is a joint powers authority duly organized and existing under and pursuant to Articles 1 through 4 (commencing with § 6500), Chapter 5, Division 7, Title 1 of the California Government Code (the “Act”) pursuant to that certain Joint Exercise of Powers Agreement, dated as of November 18, 2013, (the “JEPA”), by and between the City of Indio (“City”) and the Valley Sanitary District (“VSD”); and

Whereas, the JEPA defines the Operations of EVRA as “the tertiary or enhanced treatment of water supplied to the Authority by VSD to be delivered to IWA for its use, **and such other activities as the Board may determine from time to time** (emphasis added); and

Whereas, in September 2016, Senate Bill (SB) 1383 was signed into law requiring that restaurants and residents dispose of food waste separately from regular trash so it can be recycled as organic waste. The regulations went into effect January 2022; and

Whereas, the City approved its Sustainability Plan and 2022 Annual Work Plan with identifying as Goal 3 Zero Waste, which includes supporting the business community by working with restaurants to develop a food waste diversion program; and

Whereas, the District adopted its 2020 Strategic Plan identifying Objective 2.1: Increase recycling and reuse of resources and byproducts and Objective 6.2: Increase regional collaboration; and

Whereas, the United States Environmental Protection Agency has identified anaerobic digestion at wastewater treatment facilities as an ideal solution to:

1. reduce greenhouse gas emissions by capturing the methane produce by food waste destruction process;
2. produce a renewable biogas that can reduce energy costs at the treatment facility; and
3. reduce the cost of hauling food waste to landfill sites that are often a significant distance from the origination point.

**Therefore, the Board of Directors of the East Valley Reclamation Authority hereby resolves that:**

1. the development of a commercial food waste diversion program is of mutual benefit to the JPA Members, and

2. the Board determines a commercial food waste program is an activity to be included as part of the Authority's Operations.

**PASSED, APPROVED, and ADOPTED** this 6<sup>th</sup> day of September 2022, by the following roll call vote:

AYES:

NAYS:

ABSENT:

ABSTAIN:

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Dennis Coleman, Board President

**ATTEST:**

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Holly Gould (Valley Sanitary District)  
EVRA Secretary



## The Benefits of Anaerobic Digestion of Food Waste At Wastewater Treatment Facilities

### Why Anaerobic Digestion?

Anaerobic digestion occurs naturally, in the absence of oxygen, as bacteria break down organic materials and produce biogas. The process reduces the amount of material and produces biogas, which can be used as an energy source.

This technology is commonly used throughout the United States to break down sewage sludge at wastewater treatment facilities. In the past few years, there has been a movement to start adding food waste to anaerobic digesters already in place at wastewater treatment facilities.

The anaerobic digestion of food waste has many benefits, including:

- **Climate Change Mitigation** – Food waste in landfills generates methane, a potent greenhouse gas. Diverting food waste from landfills to wastewater treatment facilities allows for the capture of the methane, which can be used as an energy source. In addition to decreased methane emissions at landfills, there are greenhouse gas emissions reductions due to the energy offsets provided by using an on-site, renewable source of energy.
- **Economic Benefits** – Wastewater treatment facilities can expect to see cost savings from incorporating food waste into anaerobic digesters. These include reduced energy costs due to production of on-site power and tipping fee for accepting the food waste.
- **Diversion Opportunities** – Most municipalities are investing in ways to divert materials from landfills. This is usually due to reduced landfill space and/or recycling goals. Wastewater treatment facilities offer the opportunity to divert large amounts of food waste, one of the largest waste streams still going to landfills.

### Why Food Waste?

Food waste is the second largest category of municipal solid waste (MSW) sent to landfills in the United States, accounting for approximately 18% of the waste stream. Over 30 million tons of food waste is sent to landfills each year. Of the less than 3% of food waste currently being diverted from landfills, most of it is being composted to produce a fertilizer.

There are many reasons to divert food waste from landfills, including:

- **Waste Diversion Goals** - Many states and local governments currently have mandated diversion goals. Aggressive recycling is one way that many communities are trying to meet diversion goals. However, organic waste- namely food scraps and yard waste- still makes up the

Municipal Solid Waste Sent to Landfill, 2007

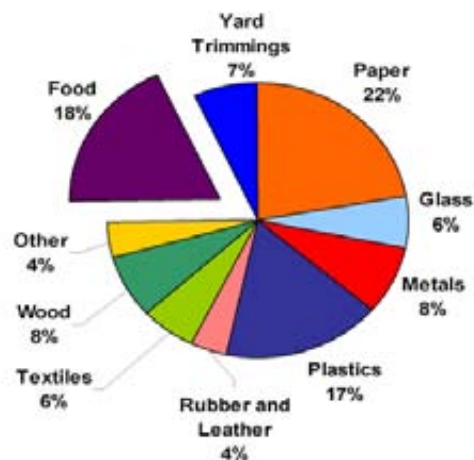


Figure 1. 2007 U.S. Waste Characterization showing materials disposed in landfills.

largest percentage of what is still being landfilled, and is often left out of recycling programs.

- **Easily Biodegradable** – Food waste is highly biodegradable and has a much higher volatile solids destruction rate (86-90%) than biosolids. This means that even though additional material is added to the digesters, the end residual will only increase by a small amount.
- **Renewable Energy Generation** – Arguably, the most important reason that food waste should be anaerobically digested is for capturing the energy content. Unlike biosolids and animal manures, post consumer food scraps have had no means of prior energy capture. In fact, in a study done by [East Bay Municipal Utility District](#) it was revealed that food waste has up to three times as much energy potential as biosolids.

**Food waste has THREE TIMES the methane production potential as biosolids!**

- Cattle manure= 25m<sup>3</sup> gas/ton
- Biosolids= 120 m<sup>3</sup> gas/ton
- **Food waste= 376 m<sup>3</sup> gas/ton**

As energy prices continue to climb and our nation looks towards renewable energy generation and energy independence, capturing the energy from food waste becomes more important.

When facilities start digesting food waste, the increased energy production allows them to offset the amount of energy they are using and potentially sell excess energy back to the grid.

## Why Wastewater Treatment Facilities?

Wastewater treatment facilities are an ideal place to increase the diversion of food waste.

- **Existing Infrastructure** – Many wastewater treatment facilities in Region 9 and across the country use anaerobic digesters to reduce the volume of the biosolids before they are taken off site. The anaerobic digesters produce biogas which is either flared or used on-site as an energy source. Therefore, the energy capturing infrastructure is already in place at many facilities.
- **Existing Expertise** – Wastewater treatment facilities already have the on-site expertise and years of experience dealing with anaerobic digesters; vessels that are difficult to operate without thorough knowledge.
- **Located in Urban Areas** – Wastewater treatment facilities are often located in dense, urban areas, where compost facilities are not. It makes logical sense for a highly populated area to ship organic waste to a nearby anaerobic digester where the energy content is recovered and the volume reduced. The residual can then be trucked to compost facilities, which are typically located farther from urban areas.

Parameter	Units	Food Waste Digestion				Municipal Wastewater Solids Digestion
		15-day MCRT		10-day MCRT		15-day MCRT
		Meso	Thermo	Meso	Thermo	Meso <sup>(1)</sup>
VS (as percent of TS), Feed	%	86.3	87	89.9	90.6	77
VS Loading, Feed	lb/ft <sup>3</sup> -day	0.28	0.29	0.53	0.54	0.2 <sup>(2)</sup>
COD Loading, Feed	lb/ft <sup>3</sup> -day	0.55	0.57	1.09	1.11	0.06-0.3 <sup>(3)</sup>
VSD	%	73.8	80.8	76.4	82.4	38-57% <sup>(4)</sup>
Methane (CH <sub>4</sub> ) Content	%	64	67	59	60	63
Methane Production Rate, Avg (Range)	ft <sup>3</sup> /lb TS applied	13,300 (9,800–17,000) <sup>(5)</sup>		9,500 (6,600–14,400) <sup>(5)</sup>		10,000 (7,500–12,600)
	ft <sup>3</sup> per day/ 1,000 ft <sup>3</sup> digester volume	2,300 (1,100–3,200)		2,600 (1,800–3,800)		750 (550–930)
Residuals (Mass of Biosolids Produced) as a Percent of Feed Applied.	%	36	30	31	26	56-70
Notes:						
1. Based on data from previous EBMUD bench-scale pilot study. Digesters were fed thickened waste activated sludge and screened primary sludge.						
2. Maximum recommended loading rate, WEF MOP 8.						
3. Maximum recommended loading rate, M&E, 4th Edition.						
4. EPA 503 Regulations minimum is 38%. Typical average is 57% from EBMUD bench-scale pilot study.						
5. Data combined for mesophilic and thermophilic digesters.						

**Figure 2.** Summary of Parameters Comparing Anaerobic Food Waste Digestion to Anaerobic Municipal Wastewater Solids Digestion. (VS= Volatile Solids, TS = Total Solids, COD = Chemical Oxygen Demand, VSD= Volatile Solids Destruction)

## How do I Make the Investment?

While many local governments and municipalities may be interested in processing food waste in anaerobic digesters at treatment facilities, they may feel that the cost is a limiting factor. However, there are many things to remember before immediately discounting this technology based on cost.

**Payback period:** Although the initial costs may be large, the digestion of food waste can be quite lucrative and the payback period can be less than three years depending on the existing infrastructure at the wastewater plant.

When a facility accepts food waste at a plant, they can charge the waste hauler a tipping fee for accepting the material. In addition, there is a significant amount of money that will be saved in energy avoidance due to methane production. The excess energy can be sold back to the grid for profit.



### **Funding Mechanisms:**

While the short payback period may be an incentive for treatment facilities to invest in this technology, that doesn't necessarily mean that the up-front money is available.

For specific information on grants and funding opportunities, please see the Region 9 Water Sustainable Infrastructure funding page at <http://www.epa.gov/region9/waterinfrastructure/>

- **Federal and State Sources** can provide financial assistance. The federal government provides grants, loans, and rebates. California agencies also provide grants, loans, rebates, renewable credits, and stand-by rates for energy conservation practices. Local utility districts may provide private sources of funding.

- **Performance contracting** is one way to pay for the infrastructure upgrades needed to implement anaerobic digestion at a wastewater treatment facility.

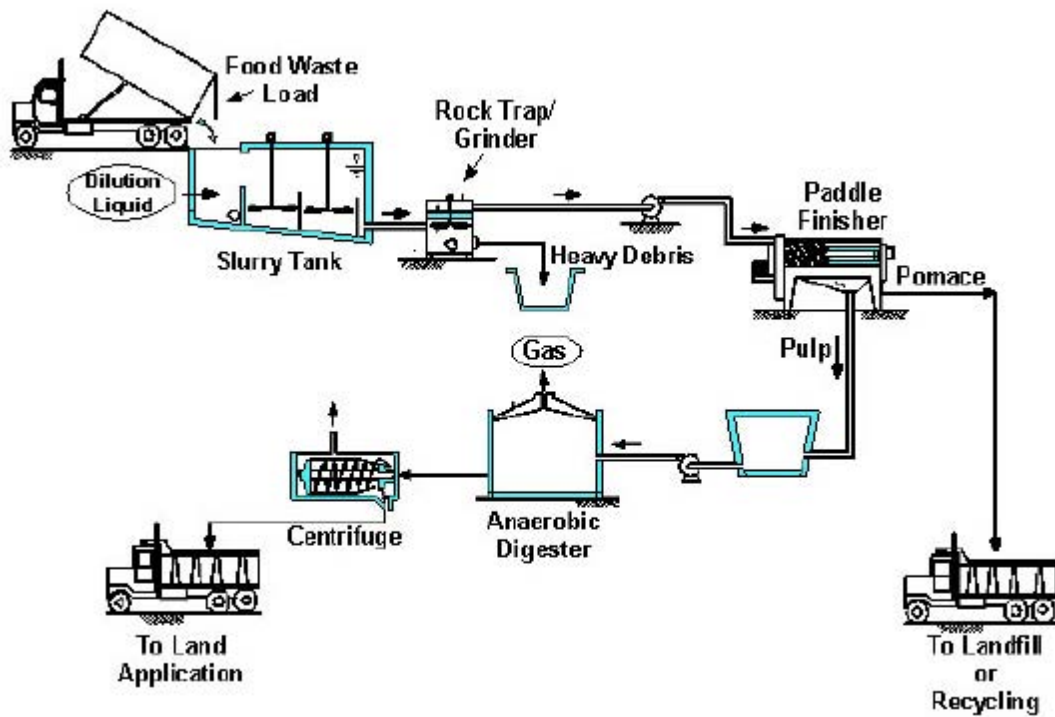


**Figure 3.** This post-consumer food waste will produce energy and a soil amendment when anaerobically digested and then composted.

Performance contracting begins with a company hired to work with a locality or municipality. The company studies the potential energy savings of a particular investment, in this case the excess methane that will be produced during the anaerobic digestion of food waste. The performance contractor then provides the upfront capital needed to invest in the new infrastructure and installation costs. They are paid back with the energy savings of the municipality. The locality will start to gain the energy income after the contractor has been paid back.

- **Grants** are another option to secure funding for implementing new infrastructure. Many state and local organizations are looking for new ways to promote renewable energy sources. Although applying for and receiving grants can be a long and arduous process, grants are the ultimate source of funding as they do not have to be paid back. However, some grants do require the awarded organization to provide a match in funding.

- **Other Funding Sources:** If your situation does not allow for performance contracting and seeking grants has been an unsuccessful venture, there are still ways to secure funding. Consider options such as; loans, venture capitalist money, research and development budgets, and state funds promoting renewable energy sources. In addition, consider conducting an economic analysis that would compute the payback period and cost savings for your specific situation. When presented to local officials, a private board, etc. they may be more willing to invest in the technology when they see the financial potential.



**Figure 4:** The East Bay Municipal Utility District Food Waste Treatment Process. The process accepts ground food waste, removes contaminants through a series of steps and ultimately anaerobically digests a clean, homogenous, and rich in energy food waste mixture.