

STAFF REPORT

DATE: April 24, 2017
TO: Natural Resources Commission
FROM: Richard Tsai, Environmental Resources Manager
SUBJECT: Solid Waste Cost of Service and Rate Design Study Proposal Review

Recommendations

- Request feedback from NRC on Scope of Services submitted by Clements Environmental Corporation
- Support staff recommendation to:
 1. Finalize scope of services with Clements Environmental Corporation
 2. Recommend City Council approve Agreement with Clements Environmental Corporation to perform the Organics Processing Facility Feasibility Analysis Study

Background and Analysis

The City prepared a Request for Proposals (RFP) on Organics Processing Feasibility Analysis, which received input and comments from the Natural Resources Commission zero waste subcommittee and the Utility Rate Advisory Commission. On March 28, 2017 when the RFP closed, the City received four proposals for this project and Public Works Department's Environmental Resources Division staff ranked the proposals by the following criteria: project team experience and qualifications, scope of services, and cost. To ensure qualification based selection, the cost of each proposal was reviewed after the other criteria have been ranked.

Clements Environmental Corporation provided clear and detailed tasks and sub-tasks within the scope of work (attached). Clements Environmental Corporation understands the objective of this analysis is to help the City assess options for processing organic materials at Yolo County Central Landfill versus construction of a new organics facility owned and operated by the City. Clements Environmental proposes to provide a ranking of the most environmental and economically preferred technology should the analysis result in the City looking to build their own site and also have experience with permitting and development of constructing a new organics facility.

Overall, Clements Environmental Corporation's proposal meets the demands of the request and their referenced projects are relevant to the scope of the analysis Davis wishes to pursue.

Attachment

Clements Environmental Corporation proposal – Section 3 Scope of Services

SECTION 3 SCOPE OF SERVICES

We understand that the objective of this study is to support the City of Davis in assessing options for processing organic materials at a currently available site (the Yolo County Central Landfill - YCCL) vs. construction of a new organics facility on City-owned property at either the WWTP or the Old Davis landfill. If an organics facility were to be built at a City owned facility, we will provide a ranking of the most environmentally and economically preferred technology for that site.

3.1 ITEMIZED TASK LIST

Below are the tasks required to complete the Scope of Services.

TASK 1: Participated in Kick-Off Meeting/Monthly Meetings

The Clements team will participate in a kick-off meeting with City staff to introduce project participants, and clarify and align on project goals, schedule, and scope of work. Ongoing communication with City Staff and third parties will be conducted via telephone and email.

The Clements team proposes monthly update meetings to ensure the project stays on schedule and budget. Brief update reports will be prepared and delivered to the City prior to the monthly update meetings.

TASK 2 – Gather Data and Compile Information

The Clements Team will gather pertinent information on the local organics infrastructure and proposed facilities including:

- The current system for managing organics
 - Review of hauler, pre-processing facility, composting facility, and end market products and users
- Quantities and composition of organic material currently being collected and anticipated in the future
 - Review City tonnage reports and other solid waste data
 - Analyze projected local population growth and trends
- The Yolo County AD project at YCCL landfill
- The sites at the WWTP and Old Davis Landfill
 - WWTP Digester Specifications
 - Available Excess Capacity
 - Ideal Percent Solids Range

- Utility Demands
 - Size
 - Construction Constraints

TASK 3 – Assess Feasibility of YCCL AD Project

The Clements Team will evaluate the future YCCL AD project by completing these tasks:

- Review Project Basis
 - Capacity
 - Feedstocks
 - Technology
 - Operator
- Review Project Status (design, permitting, schedule)
- Review Economics
 - Pro forma
 - Tipping Fee
- Review Deal Points for City Participation

Task 4 – Assess Feasibility of City Project at WWTP or Old Davis Landfill

The Clements team has completed numerous technical evaluations and feasibility assessments for organics processing systems including composting, AD, and innovative renewable energy projects such as gasification and production of low carbon fuels.

For this task, the Clements Environmental team will conduct the following work:

Sub-Task 4.1: Technical Assessment

The Clements team has expert knowledge regarding several existing and new technologies for organics processing including composting, co-composting, anaerobic digestion, and co-digestion. We will use this knowledge to determine the most viable system to be operated at the City of Davis WWTP or old Davis landfill.

Sub-Task 4.1.1 – Feedstock Study

The Clements team will evaluate the available feedstock supply chains for the City of Davis project including identifying type, quantity, and source. Clements will determine the appropriate mixture of local feedstocks and range of amendment options to ensure a high-quality end product. These feedstocks may include: greenwaste, foodwaste, greenwaste mixed with foodwaste, manures, biosolids, and other organics.

Sub-Task 4.1.2 – Finished Compost Quality

The Clements team offers regulatory expertise and operational experience in meeting local and State compost standards, including physical contaminants, metal concentrations, and weed free. For example, we have worked closely with Tierra Verde Industries in successfully certifying certain of their compost products as “organic”.

Sub-Task 4.1.3 – Capital, Operation, and Maintenance Costs

Based on the concept plan developed in the following task, the Clements team, led by SVM on this task, will develop cost estimates for design, construction, equipment purchase, and other ancillary items. These estimates will include several options so that City staff can assess the benefits vs. cost of various options. An estimated cost per ton will also be calculated to provide another essential point of comparison. These cost estimates will be broken out into line items and where applicable include unit costs so the impact of larger or smaller modifications can be easily calculated.

Sub-Task 4.1.4 – Design

Clements will prepare a concept level site plan detailed enough for discussion purposes for the preferred option(s). The Clements team has decades of experience in site design for these types of facilities. A site plan of this nature typically includes an office/employee breakroom/building, traffic circulation (ingress and egress), unloading and loading areas, and composting, or preferred technology, operational area.

Sub-Task 4.1.5 – Environmental Control Mechanisms

The Clements team will draw from their lengthy experience in designing these facilities to satisfy local and state regulations to identify appropriate mechanisms to control leachate/runoff, emissions, and odors. We will also identify opportunities to lower and capture greenhouse gas (GHG) emissions through advanced technology, operational controls, or management practices.

Sub-Task 4.1.6 – Heat and Energy Recovery

If the most strategic organics processing system generates heat and/or energy, the team will evaluate the system’s abilities to recover this heat and/or energy for beneficial use. For example, potential uses for biogas production include conversion into CNG and/or electricity. We will identify system-specific opportunities based on the findings of the technical assessment.

Sub-Task 4.1.7 – Finished Product Uses

The Clements team will identify potential end uses of any compost, leachate, supernatant, digestate, biogas, or other end of process materials. End uses may include: for compost and its products - field application, sale to nurseries, sale to other soil products companies; for biogas conversion to electricity via engine generators, or conversion to CNG fuel or pipeline quality gas.

Sub-Task 4.2: Site Assessment

The Clements team will choose the best technology for each site. Example, composting at the Old Davis Landfill and co-digestion at the WWTP.

Sub-Task 4.2.1 – Location Analysis

Clements has completed siting feasibility studies for numerous solid waste and recycling facilities, and in addition has successfully permitted several in these recommended locations. Over the decades of siting and developing these facilities, Clements has determined key screening criteria for site location evaluations, including, but not limited to: size, zoning, floodplains, environmental justice, access, and utility availability. The Clements team will evaluate these and other factors to determine the most strategic location for an organics processing facility on City-owned land.

Sub-Task 4.2.2 – Determine Environmental and Financial Impacts

Clements will review and summarize current policies, programs, facilities, and rate structure as applicable to the project. The team will obtain the latest information on recycling and diversion from the City, as well as cost data to assess how this facility can be incorporated into the City's current policies and programs. Specifically, we will identify the potential environmental and financial impacts that the City and surrounding community will incur due to the construction and on-going operation and maintenance of this project.

Sub-Task 4.2.3 – Identify Costs, Manpower, and Equipment Requirements

After the selection of preferred options for a project on City-owned land, we will develop an organics-facility-operations financial proforma. The proforma will present all of the projected costs of site development, rolling stock (material management equipment), as well as the ongoing costs associated with facility staffing and operations.

TASK 5 – Perform Products Market Assessment

The Clements team has lengthy experience in evaluating and securing markets for organics processing facilities finished product (i.e. compost, digestate, etc.). Led on this task by Diversion

Strategies, we will outline the feasibility of marketing, selling, and distributing each end product. This market assessment will identify potential outlets, uses, and pricing.

If the project produces biogas, then the Clements team will evaluate the opportunities and economics of utilizing the biogas for heat and/or energy.

TASK 6 – Assess Feasibility of Other Local AD and Other Diversion Options

The Clements team has working knowledge of other local AD and diversion options which may be a viable option for the City. We will briefly highlight the advantages, or disadvantages of the nearest potential options for the City to easily determine if other diversion options fit the needs of the City. These other local projects include for example, the AD project at UC Davis, and the AD projects in Sacramento.

TASK 7 – Prepare Draft Report and Final Report

Sub-Task 7.1 – Prepare Draft Report

A draft report will be prepared incorporating all the analysis performed. The draft report will be submitted to City Staff for review and commentary.

Sub-Task 7.2 – Resolve any Outstanding Issues

We will address and resolve issues about the Draft Report raised by City Staff and elected officials, and make appropriate edits to respond to comments and questions.

Sub-Task 7.3 – Prepare Final Report and Presentation to Commissions

The team will revise and finalize the report based upon City Staff review and input. Clements will also prepare and deliver a presentation to the Commissions on the findings of this report.