COUNCIL AGENDA: 10/24/23
FILE:
ITEM:

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: HONORABLE MAYOR AND CITY COUNCIL

FROM: Kerrie Romanow

SUBJECT: SEE BELOW

DATE: September 22, 2023

Approved

Date 10/5/23

SUBJECT: BIOSOLIDS PUBLIC-PRIVATE PARTNERSHIP FACILITY STATUS REPORT

RECOMMENDATION

Accept the status report on the proposed biosolids public-private partnership facility at the San José-Santa Clara Regional Wastewater Facility.

SUMMARY AND OUTCOME

The Dewatered Biosolids Management Strategy for the San José-Santa Clara Regional Wastewater Facility (RWF), which was approved by City Council in June 2021, consists of the procurement of transportation and beneficial use service agreements in the short-term, development of a public-private partnership (P3) facility that further processes the RWF's dewatered biosolids in the long-term, and support efforts that facilitate the permitting or increase the use of biosolids on local natural and working lands on an on-going basis. After the award of the initial three service agreements, staff began planning and evaluating the feasibility of developing a P3 facility at the RWF. Based on market sounding of potential technology providers, infrastructure developers, and infrastructure investors conducted earlier this year, there is significant private-sector interest in establishing a P3 to develop a facility that produces a commercial Class A biosolids-based fertilizer. A subsequent financial analysis using two of the proposed technological solutions as proxies showed the City's cost (i.e., tipping fee) associated with a P3 facility could be comparable to the future rates associated with the dewatered biosolids transportation and beneficial use service agreements awarded in December 2022.

This report provides an update on staff's efforts to implement a biosolids P3 facility at the RWF.

BACKGROUND

At the RWF, anaerobically digested sludge (biosolids) is currently pumped to open-air lagoons where it stabilizes for approximately three and a half years before it is dried by the sun in open-air drying beds for approximately six months. Each fall, the sundried biosolids are hauled to the adjacent Newby Island landfill and used as alternative daily cover. Upon construction completion of the Digested Sludge Dewatering Facility, which is anticipated in 2025, Class B biosolids will be pumped from the RWF's main operational area across Zanker Road where enclosed mechanical equipment (centrifuges) will remove some water to reduce the weight and volume of the material. Changes in the current process were first envisioned as part of the Plant Master Plan, which was adopted in 2013 and recommended a variety of improvements at the RWF including process changes affecting biosolids, and then confirmed as part of the Biosolids Transition Strategy approved in 2015.[1]

Subsequently, the Dewatered Biosolids Management Strategy, which built upon the recommendations of the Plant Master Plan, Biosolids Transition Strategy, and a 2019 biosolids disposition market assessment, was approved by City Council in June 2021.[2] The Dewatered Biosolids Management Strategy consists of the procurement of transportation and beneficial use service agreements in the short-term, development of a P3 facility that further processes the RWF's dewatered biosolids in the long-term, and supporting efforts that facilitate the permitting or increase the use of biosolids on local natural and working lands on an on-going basis. Procurement of the short-term service agreements was completed in December 2022, when City Council awarded agreements to Denali Water Solutions, LLC, Synagro West, LLC, and Lystek International Limited. [3] The three agreements have an initial term of June 30, 2029 and options to extend through June 30, 2033. All three agreements allow the service rates to be adjusted annually based on changes in the consumer and diesel fuel price indices.

After the award of the three agreements, staff began planning and evaluating the feasibility of developing a P3 facility at the RWF. This memorandum provides an update on recent market sounding and financial analysis for the P3 facility, and staff's next steps.

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[1] The memorandum that recommended approval of the Biosolids Transition Strategy can be accessed at https://sanjose.granicus.com/MetaViewer.php?view_id=&event_id=732&meta_id=516437.
[2] The memorandum that recommended approval of the Dewatered Biosolids Management Strategy can be accessed at https://sanjose.legistar.com/View.ashx?M=F&ID=9441134&GUID=94F73A21-B7D9-4880-B26E-51DF098D7360.
[3] The memorandum that recommended award of the dewatered biosolids transportation and beneficial use service agreements can be accessed at https://sanjose.legistar.com/View.ashx?M=F&ID=11489699&GUID=481F7F6A-9420-4A63-B9E0-27E2A87305B1.

ANALYSIS

Market Sounding

As part of the development of the Dewatered Biosolids Management Strategy, staff had primarily envisioned the P3 facility as a facility that could manage at least 50% of the RWF's dewatered biosolids and produce a Class A biosolids-based fertilizer (e.g., in liquid, pellet, or granular form). Staff also considered requiring the private partner to be fully responsible for marketing, selling, and distributing the fertilizer product; requiring operations to be fully enclosed to comply with the RWF's regulatory requirements, odor goal, and odor fence line; and requiring robust contingency plans should issues arise during the facility's operation. Staff had not elaborated much beyond that until late 2022 nor formally gauged the private sector's interest in developing such facility. With the help of a consultant, Arup US, Inc. (Arup), staff further defined the objectives, technical requirements, and risks associated with the P3 facility. Using that information, Arup issued a Request for Information in February 2023 to understand the market's interest in delivering the project as envisioned by the City.

Ten companies responded to the Request for Information and all expressing significant interest in partnering with the City. Most respondents stated they were comfortable with the City's technical requirements and the City's desired risk allocation. The respondents were a mix of technology providers, infrastructure developers, and infrastructure investors. The technologies proposed for the P3 facility included, but were not limited to, thermal hydrolysis, thermal drying, greenhouse drying, and pyrolysis. In general, 130,000 wet tons of biosolids per year was considered an appropriate size; however, some respondents proposed a larger capacity for greater economies of scale. For reference, it is estimated the RWF will produce 95,000 to 122,000 wet tons of mechanically dewatered biosolids per year from 2025 through 2033. Respondents estimated construction costs for a facility with a capacity of 130,000 wet tons per year could range from $20 million to $150 million depending on the technology to be used by such a facility. Furthermore, respondents expressed willingness to finance the development/construction costs of the P3 facility.

Respondents estimated needing 18 to 36 months to construct and start up the P3 facility. Respondents also proposed a minimum operating term of 20 years, but preferred a longer term such as 25 or 30 years.

Financial Analysis

Using information from the market sounding and its own experience, Arup conducted a financial analysis to estimate the potential cost (i.e., tipping fee) to the City associated with a P3 facility capable of handling 110,000 wet tons of biosolids per year and in operation for 20 years. Arup used two well-known biosolids processing technologies as proxies—thermal drying and thermal hydrolysis—to estimate the P3 facility's capital, operations, and maintenance costs for the financial analysis. The financial analysis included modeling cash flows that assumed the P3 facility was privately financed using a market-standard financial structure and return profile. Arup also estimated the future rates of the existing dewatered biosolids transportation and

beneficial use service agreements for comparison against the proxy tipping fees. Each tipping fee represented the rate the City would be charged for every ton processed by the P3 facility and would cover the capital, operations, and maintenance (including asset renewal), and financing expenses (including debt service) borne by the private partner. The resulting estimated tipping fees ranged widely because the two technologies had significantly different estimated capital, operations, and maintenance costs, but one tipping fee was within range of the estimated future rates for the existing dewatered biosolids transportation and beneficial use service agreements.

Arup also conducted a sensitivity analysis and determined the estimated tipping fees were most sensitive to assumptions around the P3 facility's capacity, construction costs, and term/duration. The estimated tipping fees were more competitive with the estimated future rates for the existing dewatered biosolids transportation and beneficial use service agreements if the proxy P3 facilities had a capacity larger than the RWF's annual dewatered biosolids production and a longer term. A 25- or 30- year term would allow financing costs to be amortized over a longer period, resulting in lower annual revenue requirements and, consequently, a lower tipping fee for the City. It is also important to note that, to be conservative, the estimated tipping fees did not account for any revenue from the sale of the fertilizer products. Sales revenue would contribute toward the annual revenue requirement and, consequently, also lower the tipping fee for the City.

Next Steps

Staff is proceeding with the implementation of a P3 facility at the RWF based on the positive market sounding and financial analysis results. The Fiscal Year 2023-2024 Operating Budget includes $1.15 million in non-personal funding for feasibility planning, legal, and environmental review. As such, staff is onboarding consultants to evaluate certain sites at the RWF, determine environmental requirements, and support the City in the selection of a private partner.

This fall, a consultant will conduct a preliminary environmental assessment of an area immediately north and east of the Digested Sludge Dewatering Facility being considered for the P3 facility. (See **Attachment** - Biosolids P3 Facility Potential Site Area.) The assessment will identify constraints, environmental permit requirements, and help staff determine the California Environmental Quality Act (CEQA) documentation required for the P3 facility prior to entering into any agreement with the private partner. Depending on the type of documentation required, it may take six to 13 months to complete the CEQA process for the P3 facility.

Staff is in the process of procuring a consultant that will provide support during the procurement of the private partner, particularly during the development and negotiation of the partnership's commercial terms and structure. The consultant will act as a P3 advisor, like an owner's advisor on design-build projects, and guide staff through the alternative delivery method the City ultimately chooses. Staff is considering delivering the P3 facility using a design-build-finance-operate-maintain method or design-build-operate-maintain method as they best align with the City's desired risk allocation. For example, a design-build-finance-operate-maintain delivery would allocate design, construction, financing, cost, schedule, technological, maintenance, and operational risks to the private sector. The design-build-operate-maintain method offers a similar

risk allocation, but the City would retain risks associated with revenues and potential funding gaps if the City secured financing for the P3 facility.

In addition to selecting a delivery method, the City will need to make decisions that are critical to determining the size and capacity of the P3 facility, including the percentage of the RWF's annual dewatered biosolids to be committed to the P3 facility and if the P3 facility will be allowed to receive and process sludge/biosolids from other wastewater facilities or exclusively manage the RWF's dewatered biosolids. To make such decisions, the City will need to consider a number of variables, including finance mechanisms for the P3 facility, greenhouse gas emissions and traffic impacts associated with the delivery of other sludges/biosolids, as well the revenue potential from host fees and the resulting impact and benefit to the RWF's tipping fee.

Staff, with the help of consultants, will continue to evaluate these matters and come back with a final recommendation on the P3 facility's size and capacity in the future, once more details on actual cost proposals are available from prospective partners. Staff anticipates issuing a Request for Qualifications in mid-2024 and a Request for Proposals by early 2025 as part of a two-step procurement process with the goal of selecting a private partner and potentially executing an agreement before the end of 2025 so that the P3 facility can be operational well before the term end of the existing dewatered biosolids transportation and beneficial use service agreements.

Policy Alternatives

Alternative #1: Delay the implementation of the P3 facility a few years until the rates associated with the dewatered biosolids transportation and beneficial use services exceed a certain amount.
Pro: The City may receive proposals from companies with newer technologies.
Con: Companies that previously expressed interest might lose interest in partnering with the City and/or develop facilities elsewhere.
Reason for not recommending: Postponing the implementation of the P3 facility will likely result in higher capital costs and, consequently, higher rates (e.g., tipping fees) for the City. Postponing the implementation of the P3 facility might also require the City to extend the term of the existing dewatered biosolids transportation and beneficial use service agreements and/or procure new ones that could have significantly higher rates.

EVALUATION AND FOLLOW-UP

Staff plans to return to the Treatment Plant Advisory Committee and City Council in early 2024 with a recommendation to award a consultant agreement for P3 advisor services.

COORDINATION

This memorandum has been coordinated with the City Attorney's Office, City Manager's Budget Office, and the Planning, Building, and Code Enforcement Department.

PUBLIC OUTREACH

This memorandum will be posted on the City's Council Agenda website for the October 24, 2023 City Council meeting.

COMMISSION RECOMMENDATION AND INPUT

This item is scheduled to be heard at the October 12, 2023 Treatment Plant Advisory Committee meeting. A supplemental memorandum with the committee's recommendation will be included on the amended October 24, 2023 City Council meeting agenda.

CEQA

Not a Project, File No. PP17-009, Staff Reports, Assessments, Annual Reports, and Informational Memos that involve no approvals of any City action.

PUBLIC SUBSIDY REPORTING

This item does not include a public subsidy as defined in section 53083 or 53083.1 of the California Government Code or the City's Open Government Resolution.

/s/
KERRIE ROMANOW
Director, Environmental Services

For questions, please contact Mariana Chavez-Vazquez, Assistant Director, at mariana.chavez-vazquez@sanjoseca.gov or (408) 535-8550.

ATTACHMENT: Biosolids P3 Facility Potential Site Area

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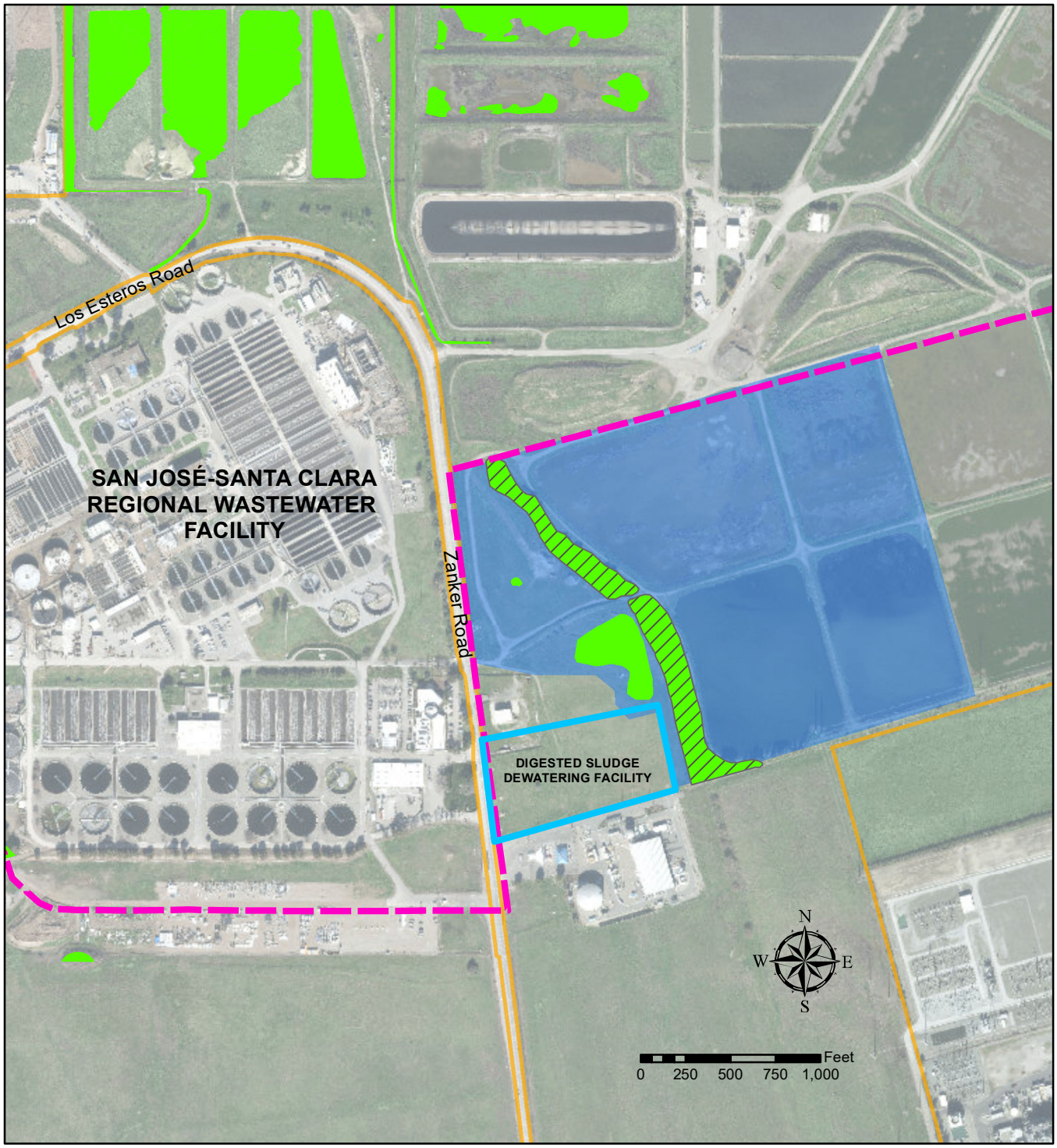

P3 Facility Area
Digested Sludge Dewatering Facility
RWF Property
Habitat Plan Permit Area
Riparian Areas
Potential Wetlands\Waters

San José-Santa Clara
Regional Wastewater Facility