



Agenda Date: 6/6/2018
Agenda Placement: 8D

Napa Sanitation District Board Agenda Letter

TO: Honorable Board of Directors

FROM: Timothy Healy - General Manager
NS-Technical Services/Engineer

REPORT BY: Karl Ono, Associate Engineer - (707) 258-6013

SUBJECT: Award Task Order for the 66-inch Trunk Sewer Rehabilitation Project (CIP 19701) Condition Assessment Services

RECOMMENDATION

Authorize the Purchasing Agent to execute Task Order 1 with Woodard & Curran to provide engineering services to conduct a condition assessment and prioritization study for the 66-inch Trunk Sewer Rehabilitation Project (CIP 19701) in the amount of \$210,859.

EXECUTIVE SUMMARY

The 66-inch Trunk Sewer conveys over 90 percent of flow from the collection system to the Soscol Water Recycling Facility (SWRF). The trunk main is approximately three miles long and extends along the eastern bank of the Napa River from Imola Avenue to the SWRF. Observations from a partial closed-circuit television (CCTV) inspection conducted in 2017 indicated that the pipeline has deteriorated significantly since its previous inspection in 2012. Subsequent condition assessment work was performed via manhole entries and test pit excavations, which revealed that portions of the trunk sewer have experienced structural degradation.

In addition to the condition issues associated with the trunk sewer, its hydraulic capacity is also a concern. The 2007 Collection System Master Plan (CSMP) identified that the trunk requires a capacity upgrade in order to convey peak wet weather flows. Because peak flows are directly attributable to inflow and infiltration (I/I) during storm events, a strategy was put in place to reduce I/I upstream of the trunk sewer rather than increase its capacity. This strategy provides numerous additional benefits, including eliminating the need to add wet-weather capacity at the SWRF, rehabilitating and replacing aging assets throughout the collection system, and reducing the potential for overflows elsewhere in the system. To date, eight major I/I reduction projects have been completed. However, the peak flow reduction in the trunk sewer has not yet been confirmed with field measurements and projections for the impacts of future I/I reduction projects have not been modeled.

Any rehabilitation method that addresses the structural condition of the trunk would reduce its internal diameter, and thus, its hydraulic capacity. The potential impacts of such a reduction will need to be carefully considered, taking into account updated design flows and future projections. Therefore, a new CSMP, which was scheduled for FY 2019/20, is proposed to be developed currently with the condition assessment phase of this project. Hydraulic modeling analysis, accounting for updated peak flows and the capacity of the trunk in its rehabilitated state, will be conducted and the resulting level of service will be evaluated for acceptability. The purpose of the project is to determine the existing limits of structural deterioration and rehabilitate or repair portions of the trunk sewer at the highest risk of failure, while concurrently developing a more extensive replacement or rehabilitation project that will address long-term condition and hydraulic capacity issues.

Woodard and Curran will perform a condition assessment of the entire length of the trunk sewer. The condition assessment will consist of CCTV and sonar inspection, which will identify the limits and severity of structural deterioration and also measure volumes of sediment that will need to be removed in order to perform rehabilitation. Additionally, an analysis of the CCTV inspection footage will be conducted to prioritize future rehabilitation work.

In addition to performing a condition assessment on the 66-inch trunk sewer, Woodard & Curran will conduct a review of existing CCTV footage provided by NapaSan crews for a trunk sewer located north of the abandoned North Napa Pump Station [downtown skate park]. This 11,700' length of pipe is also unlined reinforced concrete pipe, ranging from 27-inches to 45-inches in diameter. A report will be provided summarizing their findings and prioritizing future rehabilitation and/or corrosion protection work. By including this review, NapaSan will have up-to-date condition assessment information for all of the remaining unlined reinforced concrete pipe in the collection system.

The design work for the 66-inch Trunk Sewer Rehabilitation Project will be conducted in three phases. The first phase is the condition assessment. Subsequent phases of work are dependent not only on the condition assessment results, but also the hydraulic modeling that will take place as part of the CSMP. Therefore, tasks to be completed under the second and third phases are optional. Preliminary Design, CEQA, and permitting are the second phase and could be started as soon as August 2018. Final design of the project and preparation of bid documents is the third phase and could be started as soon as September 2018, with construction potentially occurring in summer 2019.

FISCAL IMPACT

Is there a Fiscal Impact?	Yes
Is it currently budgeted?	Yes
Where is it budgeted?	The project is budgeted in the FY 2017/18 and proposed FY 18/19 budgets.
Is it Mandatory or Discretionary?	Discretionary
Discretionary Justification:	A condition assessment of the entire alignment of the trunk sewer is required in order to define the limits of near-term rehabilitation and proceed with hydraulic analysis and design. If any portions of the trunk are found to be in need of immediate repair, identifying them is critical to the schedule for such repairs.
Is the general fund affected?	Yes

Future fiscal impact:	Design work and subsequent construction will extend in to future fiscal years. Near-term rehabilitation work is in the Capital Improvement Plan for FY 2018-19, and long-term replacement of the southern half of the trunk is in the Capital Improvement Plan beginning in FY 2021-22. If hydraulic analysis concludes that a complete structural rehabilitation will allow for acceptable long-term performance, replacement will not be necessary, significantly decreasing lifecycle costs.
Consequences if not approved:	The limits of required structural rehabilitation will not be able to be determined. Near-term and long-term hydraulic impacts of rehabilitation will not be able to be accurately modeled. Design of a rehabilitation system will not be able to begin, and the risk of a failure along the trunk sewer will increase as deterioration continues to occur.
Additional Information:	None.

ENVIRONMENTAL IMPACT

None.

BACKGROUND AND DISCUSSION

District staff managed a competitive consultant selection and procurement process. A request for proposals seeking qualified engineering firms to provide professional engineering services for the condition assessment, planning, and design of the 66-inch Trunk Sewer Rehabilitation Project was sent to eight (8) firms and five (5) proposals were received by the District. Based on Staff review of the proposals, the top three (3) firms were invited to interview. Staff selected Woodard & Curran's team as the most qualified team to perform the required services.

The proposals were evaluated to determine the best firm to perform the condition assessment, preliminary design, and final design. This task order is only for the condition assessment. Subsequent task orders will be brought back to the Board in the future for contracting with Woodard & Curran for preliminary design and final design.

Recent inspection and condition assessment efforts have revealed that the 66-inch trunk sewer has degraded internally due to biogenic corrosion. Spot inspections conducted via manhole entries indicate that portions of the alignment are structurally deteriorated and are at a high risk of failure. The purpose of the project is to determine the limits of structural deterioration and rehabilitate or repair portions of the trunk sewer at the highest risk of failure, while concurrently developing a more extensive replacement or rehabilitation project that will address long-term condition and hydraulic capacity issues.

SUPPORTING DOCUMENTS

- A . Woodard & Curran Task Order 1
- B . Presentation Slides

Napa Sanitation District: Approve

Reviewed By: Timothy Healy