

Metropolitan Wastewater MANAGEMENT COMMISSION



partners in wastewater management

MEMORANDUM

DATE: October 1, 2020

TO: Metropolitan Wastewater Management Commission (MWMC)

FROM: Todd Miller, Environmental Services Supervisor
Barry Mays, Design and Construction Coordinator

SUBJECT: Award of Design Contract for Class A Disinfection Facilities (P80098)

**ACTION
REQUESTED:** Approve Resolution 20-01

ISSUE

At the January 2020 MWMC meeting, the Commission tabled Resolution 20-01 *In the Matter of Contract Award For Engineering Consulting Services, MWMC Project P80098 – Class A Disinfection Facilities*. Resolution 20-01 presented to the Commission would have authorized the MWMC Executive Officer to enter into an agreement for engineering services with Kennedy Jenks Consultants for a not-to-exceed (NTE) amount of \$1,643,000, with an additional contract amendment authority of 15%. The Commission requested staff return with the tabled resolution after re-evaluating the scope and cost of the project design and construction and following up on concerns related to project implementation. At the October 2020 MWMC meeting, staff will present project updates and a revised Resolution 20-01 for Commission consideration.

BACKGROUND

The January 2020 staff memo provided the background and discussion on the conceptual design recommendations for moving forward with the Class A Disinfection Facilities. These recommendations follow two decades of planning considerations, for community uses of recycled water and infrastructure development to facilitate offsite use of Class A recycled water. Based on feasibility studies and stakeholder input, staff identified the strategic need for demonstration projects to build community and end user comfort and familiarity with the MWMC's recycled water capabilities. The Class A Disinfection Facilities conceptual design is premised on smaller scale, but significant, volumes of recycled water uses with partners who have the capacity to scale up future use.

At the January 2020 MWMC meeting, staff presented recommendations to proceed with a contract with Kennedy Jenks for full design of Class A Disinfection Facilities. The design cost proposed by Kennedy Jenks spurred several questions from the Commission. Staff was directed to table the contract

recommendation pending further information on the following issues:

- Near-term opportunity potential for expanded recycled water use
- Certainty of demonstration partners' use of recycled water
- Value of recycled water for potential thermal load mitigation
- Status of permitting the demonstration projects
- Outside funding opportunities
- Project scalability to reduce initial costs and phase in over time
- Opportunities to reduce cost of design contract

DISCUSSION

The initial conceptual design planning effort was performed as an element of MWMC Project P80062 (Thermal Load Mitigation – Pre-Implementation). This will address technical questions that fell outside the scope of Project P80062, staff amended the Kennedy Jenks contract with initial design services for Class A Disinfection Facilities (under Project P80098) to prepare a pre-design report. This arrangement provided a means to evaluate design issues that could potentially impact the scalability and phasing of the Class A construction project without entering into the full design scope of services. In parallel with the technical re-evaluations and costing effort, staff has further information related to demonstration use and implementation. Key findings related to these updates are summarized below.

Recycled Water Demand and Storage

The initial peak demand for the demonstration uses amounts to 650,000 gallons per day (gpd; equivalent to 0.65 million gallons per day (MGD)). Kennedy Jenks based the minimum design flow on this demand. The high rate chlorine contact basin (HRCCB) provides a cost-effective means of recycled water storage with a capacity of nearly 1 million gallons. Storage capacity of at least peak daily demand is a standard design recommendation to ensure uninterrupted service. Full recycled water use with industrial aggregate partners could lead to additional demand of 2.5 MGD. Other identified potential users could add 0.5 MGD of demand, leading to 3.65 MGD of identified potential use.

Partner Commitments

The MWMC has received letters of intent from its three external demonstration partners to be ready users of the MWMC's Class A recycled water. To grow partnerships and community interest, staff will be launching a recycled water advisory network this fall. This effort will help build a coalition of community interests who are fully engaged with the MWMC's initial use and expansion of Class A recycled water.

Thermal Load Mitigation Value

Recycled water use may provide multiple water management benefits to the MWMC and the community. By reducing volume of daily discharge to the Willamette River, recycled water use can reduce the MWMC's total daily thermal load and help meet permit limits for temperature. Prior to the development of the MWMC's riparian shade credit program, recycled water use was anticipated to be the leading strategy for thermal load compliance. Recycled water remains an effective strategy to diversify compliance opportunities. The cost-benefit of recycled water for temperature compliance is based on several variables, the primary of which is the thermal value of each gallon of diverted effluent in kilocalories per day, which varies daily and seasonally. Recycled water is not expected to be cost-competitive with shading credits in the near-term, but may prove more valuable in the long-term and could be key for compliance under some seasonal conditions.

Permitting Status

Class A recycled water permitting is on a more certain trajectory given the MWMC's anticipated 2021 discharge permit renewal, and permitting alternatives remain available. Kennedy Jenks and staff have been in consultation with DEQ throughout the recycled water planning process to identify and address any potential permitting complexities. Staff expects to complete most permitting elements internally; however, the proposed Kennedy Jenks design contract includes optional assistance to provide full permitting services.

Funding Opportunities

With the status of the pre-design report and letters of intent from demonstration partners, the MWMC is well-situated to be application-ready for external funding sources. Given a review of current funding availability and eligibility, staff has identified federal and state funding opportunities that could support the MWMC's Class A recycled water design, construction, and implementation costs. Staff can pursue these funding opportunities in parallel with the design effort prior to construction.

Project Scalability and Phasing

Through the amended Kennedy Jenks design effort, the demonstration project premise was re-evaluated for opportunities to reduce the initial scale of the project and opportunities for phased implementation, with an eye towards reducing initial and total project costs. Ultimately, Kennedy Jenks concluded the initial design premise with additional UV disinfection facilities and HRCCB storage is the right approach to meet the project metrics. Some reduction in project scale was achieved through specifying two new lower capacity pumps to reduce the pumping rate at the tertiary filter units. This reduces the impact on the tertiary filter systems, improves operating conditions, and reduces the size of the initial UV lamp array from 1.3 MGD to 0.65 MGD needed for demonstration uses. Additional UV lamp installation and filter pumping reconfiguration can be phased in at a later time, achieving up to 1.3 MGD of production and 0.98 MG of storage. Additional storage can be phased in (but was not part of the initial design basis).

Design and Construction Cost

The MWMC 2020 procurement rules (formal process) for engineering consultant services is based on Qualification Based Selection (ORS 279C.110). The consultant pricing is negotiated only after the seven day protest period established by the written notice of intent to award the contract. The MWMC legal counsel has prepared P80098 direct appointment findings to contract design services with Kennedy Jenks (Attachment 3).

Kennedy Jenks's re-evaluation of the construction design and design concept from a 1.3 MGD to a 0.65 MGD system achieved some reduction in design costs. The design costs presented to the Commission in January 2020 was for a 1.3 MGD system for a total design cost of \$1,642,852. The revised project design is for a 0.65 MGD system for a total design cost of 1,503,813 with controlled optional tasks (a reduction in design costs of \$139,000).

The project design presented to the Commission in January 2020 for a 1.3 MGD system had an estimated construction cost of \$4,950,000. The revised project design is for a 0.65 MGD system at an estimated construction cost of \$4,470,000 (a reduction in construction cost of \$480,000).

ACTION REQUESTED

Staff requests approval of Resolution 20-01.

ATTACHMENTS

1. Attachment 1 – Resolution 20-01
2. Attachment 2 – Design Cost Comparison
3. Attachment 3 – Legal Findings Statement