



DATE: March 26, 2024

TO: Mayor and City Council

FROM: Director of Public Works

SUBJECT: Adopt a Resolution Authorizing the City Manager to Execute a Professional Services Agreement with Carollo Engineers for Construction Management for the Water Resource Recovery Facility (WRRF) Improvements - Phase II Project, Project Nos. 07749, 07760 and 07786, in an Amount Not-to-Exceed \$949,625

RECOMMENDATION

That Council adopts a resolution (Attachment II) authorizing the City Manager to execute a professional services agreement (PSA) with Carollo Engineers in an amount not-to-exceed \$949,625 for preconstruction construction management work for the WRRF Improvements - Phase II Projects, Project Nos. 07749, 07760 and 07786.

SUMMARY

The Water Resource Recovery Facility (WRRF, formerly WPCF) treats an average flow of approximately eleven million gallons per day (MGD) and meets current regulatory requirements for discharge of treated effluent to the deep waters of the San Francisco Bay. However, the current draft of the Regional Water Quality Control Board watershed permit, which is scheduled for adoption and planned to go into effect in August 2024, requires a 50% reduction in nutrients by 2034. In preparation to meet the new requirements, design is underway on improvements with three separate construction bid packages planned for advertisement between late 2024 and late 2025. The proposed improvements include a new administration and laboratory building, relocated primary effluent equalization tanks, a new biological nutrient removal (BNR) process, a new grit removal facility, modifications to the existing solids contact tank, demolition of the functionally obsolete existing west trickling filter, and construction of related ancillary facilities including pump stations, new aeration blower facilities, new process piping, and electrical infrastructure to support the new facilities. Due to the size, complexity, and specialized nature of the proposed improvements, staff recommend third party construction management services for the project, and requests that Council award the first phase of a contract for Construction Management services to Carollo Engineers.

BACKGROUND

The WRRF core infrastructure was originally constructed in 1952 to treat wastewater flows from the City's residents and businesses prior to discharge into the San Francisco Bay. Over the years, the WRRF has undergone several major upgrades to meet more stringent discharge requirements, as well as increasing capacity as the City's population and industry have grown. The WRRF now treats an average flow of approximately eleven million gallons per day (MGD) and meets current regulatory requirements for discharge of treated effluent to the deep waters of the San Francisco Bay (Bay). The existing treatment process, however, does not significantly remove nutrients from the wastewater flows.

Regulatory Requirements for Nutrient Reduction in Discharges to the Bay

Continued nutrient loading in the Bay is a growing concern for the Bay Area water quality community. Recent data indicate an increase in algae biomass in many areas of the estuary, suggesting that the Bay's resilience to the effects of nutrients may be declining due to a variety of contributing factors. These include natural oceanic oscillations that bring in colder waters to the Bay resulting in a reduction in the Bay's clam population that feeds on algae. In addition, decreases in sediment inflows from mining operations and cleaner wastewater discharges have resulted in increased light penetration in the waters of the Bay, further contributing to algae growth. In the summers of both 2022 and 2023, harmful algal blooms occurred in the bay.

In response to growing concerns about nutrients and their impacts on the Bay, in May 2019, the San Francisco Bay Regional Water Quality Control Board (Water Board) announced upcoming regulatory requirements limiting discharge of nutrients (nitrogen) to the Bay. Currently 37 publicly owned treatment works discharge treated effluent to the Bay, representing about 2/3 of the annual nitrogen loads to the Bay. In February of 2024, the Regional Water Quality Control Board released the Draft version of the 3rd Nutrients Watershed Permit. As currently written, this permit would require the East Bay Dischargers Authority (of which the City of Hayward is a member) to reduce nutrients by 50% by 2034. It is anticipated that Hayward's share of the reduction would be 50%. Previously, under the 2nd Nutrients Watershed Permit, the City anticipated being required to reduce nutrients by 30%. However, because of the harmful algal blooms of the past two summers, and based on preliminary feedback from the Water Board, the design had been progressing to be able to pivot to the more stringent 50% reduction requirement. Project costs presented in the December 12, 2023¹ council report requesting approval for authorizing the City Manager to apply for a Water Infrastructure Finance and Innovation Act (WIFIA) Loan anticipated the Water Board's direction and ultimate decision to require a 50% load reduction.

¹ <https://hayward.legistar.com/LegislationDetail.aspx?ID=6448360&GUID=CB5A4ECF-8AF0-49B8-B838-81002AFE119D&Options=&Search=>

Project Planning

In 2018, the City hired Black and Veatch to prepare a Facilities Plan to address long term infrastructure needs at the WRRF. The Facilities Plan, completed in 2020, identified improvements needed to meet anticipated regulatory requirements and guide the WRRF infrastructure needs for the next 25 years. Notable recommendations from the facilities plan include new biological nutrient removal (BNR) basins, a new grit removal facility, a new final clarifier, and a new administration and laboratory building. Also required to facilitate construction of the BNR basins would be the relocation of the existing primary effluent equalization basin, which is currently located in the area planned for the BNR facilities.

In July of 2022, the City hired Brown and Caldwell to begin design of the key facilities identified in the Facilities Plan. This is being designed as three separate bid packages, which are described below.

Proposed Projects

The City intends to award three separate construction contracts for work related to biological nutrient removal, which are covered by this construction management contract.

1. WRRF New Administration Building and Laboratory – Project 612-07786: The existing Administration Building was originally constructed in 1970 and subsequently expanded in 1994 to accommodate increased laboratory space requirements. Since it was last modified, the WRRF has seen increased staffing levels due to increasing regulatory requirements, and consequently the existing facilities can no longer efficiently accommodate the space needs and functional requirements of daily operations. The project includes construction of a 22,000 square foot two-story administration/operations/laboratory building. This project is currently nearing the 100% design stage and is scheduled to bid in the fall of 2024. Construction is anticipated to last 24 months.
2. New Primary Effluent Equalization Tanks – Project No. 612-07749: The purpose of the Primary Effluent Equalization Basin (EQ Basin) is to store primary effluent when wet weather flows exceed the secondary treatment capacity at the plant. Currently, flows are automatically diverted to the existing EQ Basin when flows exceed the plant capacity. Most of the secondary treatment improvements identified in the Facilities Plan are sited in the location currently occupied by the existing EQ Basin. Therefore, the EQ Basin must be relocated to make room for the new treatment facilities. This project includes 2 new 1.5-million-gallon tanks, for a total storage of 3 million gallons. The EQ Basins would be utilized when plant flows exceed 45 million gallons per day, as needed to allow downstream treatment basins to be taken offline for maintenance, and diurnally if desired to minimize variances in flow through the secondary treatment process to improve treated effluent water quality. Construction is anticipated to last 27 months.

3. Phase II Improvements – Project No. 612-07760: The Phase II Improvements Project would implement the required nutrient removal infrastructure. This would include new BNR basins, a new final clarifier, a new grit removal facility, rehabilitation of the two existing final clarifiers, demolition of the existing west trickling filter, and related ancillary facilities including pump stations, new aeration blower facilities, new process piping, and electrical infrastructure to support the new facilities. Construction is anticipated to last 42 months.

The total estimated construction cost for the entire project including the Administration Building, Primary Effluent Equalization Tanks, and the Phase II Project is estimated to be \$245 million with a range of \$189 to \$360 million reflecting a range of accuracy in the estimate based on the design level of completion. A cost breakdown is summarized in Table 1. Note that the costs reflected in Table 1 are updated from the December 12, 2023 staff report which estimated the project cost to be \$239 million with a range of \$173 to \$350 million. Costs are updated for the Administration Building and Primary Effluent Equalization Facility Projects reflecting an increased level of detail in the design packages of 90% and 60% complete, respectively.

The upcoming regulatory requirement and cost of implementing BNR facilities is not unique to the City. Other agencies are also implementing similar improvements including the City of Palo Alto (construction cost of \$193 million), City of Sunnyvale (construction cost of \$278 million), and Union Sanitary District (planning level cost \$482 million for their secondary treatment upgrades).

DISCUSSION

The main goal of the Phase II Project is to construct improvements necessary for nutrient removal in compliance with the Water Board's 3rd Nutrient Watershed Permit. During Construction, Carollo will work directly with the selected contractor to provide construction oversight and ensure the project remains on schedule and meets best practices.

Construction Management Scope of Services

At this time, staff is recommending award of Phase 1, which includes various preconstruction tasks. These tasks can help the City to identify potential cost savings, minimize the potential for change orders and claims, and plan ahead to ensure the WRRF remains operational throughout construction.

Phase 1 includes preconstruction work which includes the following tasks

- Development of Construction Management procedures and risk registers for each of the three projects.
- Develop programmatic schedule comparing all 3 packages with each other and other concurrent projects at the WRRF to ensure that the WRRF can remain operational at all times, and that construction projects do not adversely impact each other.
- Biddability and Constructability review for the 60% Design for the Phase II Project. The Consultant will review the design for the Phase II improvements at the 60% level

to identify potential ambiguities and risks for the project to minimize the chance for changes and disputes.

- Biddability and Constructability review for the 100% Design for the Administration Building and Laboratory. The Consultant will review the design for the Administration Building and Laboratory at the 100% level to identify potential ambiguities and risks for the project to minimize the chance for changes and disputes.
- 90% Design review of the Phase II Project.
- Review of design consultant's cost estimates.
- Perform contractor outreach and develop contractor prequalification documents.
- Staffing study to determine the project's long-term impacts on required staffing levels for the WRRF.
- Bidding services for all 3 packages include attendance at pre-bid meetings, communicating the provisions of the Community Workforce Agreement to prospective bidders, determining responsiveness of bidders, and responding to any bid protests.
- Value Engineering for the Phase II Project: Identify potential cost savings for the Phase II project.

Phase 1 also includes an optional task, to be performed only if authorized by City staff:

- Constructability review of the final clarifiers rehabilitation.

Phases 2 through 4, to be awarded at future Council Meetings, would include construction management for each project.

Consultant Selection

On November 8, 2023, staff publicly issued a request for proposals on the City's OpenGov platform. On December 19, 2023, the City received three proposals from 1) Black & Veatch; 2) Carollo Engineers; and 3) CDM Smith. Staff evaluated the three proposals using defined criteria, such as experience of the project team, experience with similar successful projects, knowledge and technical expertise, responsiveness to the scope of work, innovative ideas and approach, and appropriateness of level of effort given the project scope.

While each of the three teams are highly qualified for the project with outstanding qualifications and experience on similar projects, in staff's view, Carollo Engineers' proposed project team, qualifications, and responsiveness to the City's scope of work was ranked as the best team to meet the City's needs. Carollo Engineers achieved a higher rating in the selection criteria by demonstrating a clear understanding of project challenges and solutions and proposing a knowledgeable and experienced project team that has worked together on similar projects for other agencies in the bay area. Carollo Engineers has completed several key projects for the City including the 2019 Headworks Bar Screens Project and the 2013 Cogeneration Systems Upgrade. Carollo also prepared a peer review of the WRRF Facilities Plan and is familiar with the proposed project. Carollo is also currently the construction management firm for similar improvements for the City of Palo Alto. As part of Carollo's team, Kitchell CEM, is proposed as the Construction Manager for the Administration Building and Laboratory. Kitchell has previously served as construction manager on several City projects, including Fire Station 6.

Staff have reviewed the proposed scope of work and have negotiated a final scope of work and fee of \$19,705,937 which includes a contingency of 6%. This fee will be broken out into four phases:

1. Phase 1 consists of preconstruction work for all 3 proposed bid packages. Including optional services, the total fee for this task is not to exceed \$949,625.
2. Phase 2 consists of Construction Management for the Administration Building Project, with an anticipated construction period of 24 months. The total fee for this task is not to exceed \$3,428,409 and, and will be awarded concurrently with the construction contract for this package.
3. Phase 3 consists of Construction Management for the Primary Effluent Equalization Facility, with an anticipated construction period of 27 months. The total fee for this task is not to exceed \$3,400,815 and will be awarded concurrently with the construction contract for this package.
4. Phase 4 consists of Construction Management for the Phase 2 Improvements Project, with an anticipated construction period of 42 months. The total fee for this task is not to exceed \$11,927,088 and will be awarded concurrently with the construction contract for this package.

The total construction cost is estimated to be \$254 million with an estimated range varying between \$189 million to \$360 million based on the stage of design completeness and class of estimate as described in Table 1. The fee for the total construction management services including contingency is 7.3% of the estimated total construction cost for all three projects, which is reasonable given the scope of work and the nature of complicated retrofit projects.

Staff is requesting preconstruction services be awarded in the amount of \$949,625. Although staff is requesting for award of preliminary design at this time, Carollo will also provide construction management services for each of the three projects. Staff will return to Council as each construction contract is awarded to award the corresponding construction management fee for each project, optional task items and contingency, with an ultimate not to exceed contract amount of \$19,705,937. This ultimate not to exceed contract amount is based on the currently anticipated construction schedule and may be subject to change if the construction scheduled is delayed.

ECONOMIC IMPACT

The total estimated construction cost for the project at the planning stage was estimated to be between \$125 and \$169 million. The costs have been further adjusted during the design effort that is currently underway. The current estimated construction cost for the project is now estimated to be between \$189 and \$360 million (see summary of construction costs presented in Table 1). It is anticipated that these improvements will substantially impact, resulting in doubling of the current rates over the next ten years, sewer service rates and sewer connection fees. However, the extent to which rates will need to be adjusted cannot be determined with certainty at this point.

| Table 1 - Estimated Construction Cost⁽¹⁾⁽²⁾ | |
|--|---|
| Project Element | Estimated Construction Cost |
| New Grit Facility | \$ 22.9 million Range \$16 - \$34 million |
| New Primary Equalization (PE EQ) Tanks | \$28.8 million Range \$25 - \$35 million |
| Nutrient Upgrades | \$134.1 million Range \$94 - 201 million |
| Existing Final Clarifiers Retrofits | \$26.8 million Range 19 - 40 million |
| New Administration Building and Laboratory | \$34.8 million Range \$31 - \$40 million |
| Site Waste Pump Station (SWPS) Improvements | \$1.5 million Range 1.0 to 2.2 million |
| 3W System Upgrades | \$4.7 million Range 3.2 to 7.0 million |
| Total Estimated Construction Cost | \$254 million Range \$189 to \$360 million |
| <p>Notes:</p> <p>(1) Soft costs including design, engineering services during construction, construction management, inspection, materials testing, etc. are not included in the above costs.</p> <p>(2) Range reflects the accuracy of the estimate based on the level of design at the preliminary design stage (Class 4) with a typical level of accuracy between -30% to +50%. The PE EQ Tanks is slightly more refined (Class 4) with a typical level of accuracy between -15% and +20%. The Administration Building and Laboratory estimate is more refined (Class 2) with a typical level of accuracy between -15% to +20%.</p> | |

FISCAL IMPACT

Staff is requesting approval for professional services related to the preconstruction phase only at this time in the amount of \$949,625. The total not-to-exceed professional services contract amount will be \$19,705,937, and staff will return to Council for authorization at a later time. This is a multi-year contract that covers construction management through the completion of construction including startup assistance and training. This project is anticipated to take five years to complete.

The funding for this contract will be allocated from the Sewer Improvement Fund, 612-07660 (WRRF Phase II Improvement Project), 612-07749 (New Primary EQ Basin), and 612-07786 (WRRF New Administration Building & Lab Project). A total of \$4.6 million is available in FY 2024 to cover the cost of this contract. Upon award of each construction contract, staff will return to Council to Authorize the corresponding phase of this construction management services contract.

Staff recently submitted a Letter of Intent to submit an application for Water Infrastructure Financing and Innovation Act (WIFIA) and intends to submit a formal application in summer of 2024. A WIFIA loan could fund 49% of the total project costs, including previously incurred costs such as design. WIFIA's interest rate is currently around 4.3%. Staff is also considering applying for a State Revolving Fund (SRF) loan, however the funding for this program has been very limited in recent years. The remainder of the project would primarily be funded through tax exempt municipal bonds, which are not yet issued. As the design progresses, the estimated project cost is expected to be adjusted, especially as construction costs become better defined in the future as the design is more complete. Staff continue to seek grants as well. Budget adjustments will be brought forward to Council through the annual budget approval process.

STRATEGIC ROADMAP

This agenda item supports the various goals of Council's Strategic Roadmap. The WRRF Improvements Phase II Project will address infrastructure needs and improvements to increase the reliability of the City's treatment plant, and construct process improvements to meet more stringent nutrient limits in accordance with upcoming regulatory requirements, while supporting the goals of the City Council. Specifically, this item relates to the implementation of the following projects:

Confront Climate Crises & Champion Environmental Justice.

Mitigate Climate Crisis Impacts through Resilient Design and Community Engagement
Project C14b: Implement Shoreline Master Plan, including mitigating sea level rise in the industrial corridor through building requirements and outreach

Invest in Infrastructure.

Invest in Water Supplies, Sanitation Infrastructure & Storm Sewers
Project N19: Update Water Pollution Control Facility Phase II Plan

SUSTAINABILITY FEATURES

The WRRF Improvement Project Phase II will help maintain and improve the biology and health of the San Francisco Bay which is vital for the region and the State. The Phase II Project will also satisfy the nutrient removal requirements specified in the 3rd Watershed Permit to reduce nitrogen loads to the Bay.

The effects and risks of rising sea water levels have been reviewed and will be incorporated into the design of the new facilities.

The Administration Building and Laboratory will be reviewed by the Building Division for conformance with State and local requirements related to sustainability (i.e., California Building Code, California Energy Code, etc.) which require a minimal level of energy efficiency, resource conservation, material recycling, etc. In addition, the building will be designed and

constructed to meet Leadership in Energy and Environmental Design (LEED) standards for a Silver Certification, or better. The Administration Building and Laboratory will also include a 75kW solar array in the parking lot to generate renewable energy.

PUBLIC CONTACT

As part of the funding process, an environmental study (CEQA and/or Initial Study and Mitigated Negative Declaration) will be posted for public review and comment. In addition, a public hearing will be held to review the environmental study.

There is currently a web site hosted on the City’s website that posts periodic updates throughout the multi-year duration of the project. This will continue.

NEXT STEPS

If Council approves, staff will finalize a PSA with Carollo Engineers that authorizes the preconstruction services, followed by issuing a Notice to Proceed. Staff will return to Council for approval of the items listed below.

The following schedule has been developed for this project:

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|--|----------------|
| Award of Professional Services Agreement – Approval for Authorization of Preconstruction Services for the Phase II Project | March 26, 2024 |
| Approval of Environmental Study – CEQA IS/MND | June 2024 |
| Approval of Plans and Specifications and Call for Bids for the Administration Building | September 2024 |
| Approval of Plans and Specifications and Call for Bids for the Primary Effluent Equalization Facility Project | September 2024 |
| Award of Construction Contract and Construction Management Services for the Administration Building Project | November 2024 |
| Award of Construction Contract and Construction Management Services for the Primary Effluent Equalization Facility Project | November 2024 |
| Execute WIFIA Loan | January 2025 |
| Approval of Plans and Specifications and Call for Bids for the Improvements Project – Phase II | April 2025 |
| Award of Construction Contract and Construction Management Services for the Improvements Project - Phase II | August 2025 |
| Primary Effluent Equalization Facility Project Construction Completion | July 2026 |
| Administration Building Project Construction Completion | October 2026 |
| Improvements – Phase II Project Construction Completion | January 2029 |

Prepared by: Kyle Carbert, Senior Utilities Engineer

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Recommended by: Alex Ameri, Director of Public Works

Approved by:



Kelly McAdoo, City Manager