COUNCIL AGENDA: 1/9/24
FILE: 24-67012
ITEM: 6.2

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

Memorandum

TO: HONORABLE MAYOR AND CITY COUNCIL

FROM: Kerrie Romanow

SUBJECT: SEE BELOW

DATE: November 29, 2023

Approved Jennifer A. Maguire

Date 12/4/23

SUBJECT: AMENDMENT TO THE MASTER CONSULTANT AGREEMENT WITH KENNEDY/JENKS CONSULTANTS, INC., FOR ENGINEERING SERVICES FOR THE 7760 – FACILITY WIDE WATER SYSTEMS IMPROVEMENTS PROJECT

RECOMMENDATION

Approve the Second Amendment to the Master Consultant Agreement with Kennedy/Jenks Consultants, Inc., for engineering services for the Facility Wide Water Systems Improvements project at the San José-Santa Clara Regional Wastewater Facility, increasing the amount of compensation by $3,000,000, for a total agreement amount not to exceed $8,370,000; and extending the term of agreement from December 31, 2025 to December 31, 2027.

SUMMARY AND OUTCOME

City Council approval of the Second Amendment to the Master Consultant Agreement (Agreement) with Kennedy/Jenks Consultants, Inc. (K/J) will provide engineering services for construction and post construction services necessary to successfully complete the Facility Wide Water Systems Improvements project (Project).

BACKGROUND

The San José-Santa Clara Regional Wastewater Facility (RWF) has over 300,000 linear feet of piping, 160,000 linear feet of which are water distribution pipes of the RWF water systems (see **Attachment** – Project Location Map). These pipes provide potable water (1W system), utility water and process water (2W and 3W systems) to support continuous critical operations as well as providing water to fire hydrants for fire protection (4W system). The water systems were constructed over time with various RWF expansions and need rehabilitation and upgrades due to performance issues, age, and corrosion. The Project will rehabilitate and upgrade the four water systems to improve reliability for water supplied to existing and future facilities within the RWF.

Original Project Scope and Agreement
The original scope of the Project, identified during the RWF Capital Improvement Program's validation process in late 2013, was developed based on a 2007 cursory-level condition assessment report and additional needs identified by RWF staff. A planning-level construction cost estimate of $9,500,000 included the scope shown in Table 1.

Table 1 – Planning-level Scope of Work and Cost Estimate (2013)

Water System	**1W (Potable)**	**2W/3W System (Process)**	**4W System (Fire)**
Original Scope	• Upgrade 1W pipeline system	• Upgrade 2W pipeline system • Upgrade 3W pipeline system • Replace 3W pumps • Install 3W pump VFDs	• Upgrade 4W pipeline system • Upgrade 4W pump room
Cost Estimate	$2,100,000	$3,230,000	$4,170,000

On September 20, 2016, the City Council approved an Agreement with K/J, in the amount of $2,100,000, to provide engineering services for the Project. This compensation represented approximately 22% of the estimated construction cost, which staff considered to be within industry standard for design-bid-build projects.

Project Scope and Agreement – Conceptual Design Changes
In June 2018, K/J completed a desktop condition assessment and hydraulic modeling of the four water systems that identified significantly greater improvements than originally assumed were necessary to meet future water demands, meet current health and safety regulations, and reduce operational risks associated with aging infrastructure. K/J developed and analyzed various alternatives and completed a conceptual design for the selected alternative in June 2020. The conceptual-level construction cost estimate was revised to $34,100,000, compared to the planning level estimate of $9,500,000. Table 2 summarizes the major scope modifications and revised cost estimate for the water systems:

Table 2 – Scope Modifications and Revised Cost Estimate (2020)

Water System	**1W (Potable)**	**2W/3W System (Process)**	**4W System (Fire)**
Major Scope Changes	• Additional pipe replacement • Combined 1W/4W Airgap tank • Pump station • Hydropneumatic tanks	• Additional pipe replacement • New high-pressure pump station • New high-pressure loop • Hydropneumatic tanks • Monitoring instrumentation	• Additional pipe installation • Additional connections • Relocated pump station
Cost Estimate	$4,300,000	$22,100,000	$7,700,000

On June 8, 2021, the City Council approved the first amendment to the Agreement, which increased the maximum compensation by $3,270,000 for a total amount not to exceed $5,370,000 to complete detailed design, bid, and award and engineering services during construction/post construction. The first amendment also extended the Agreement term to reflect the additional effort required to complete the hydraulic model, condition assessment, and the conceptual design phase. The revised Agreement amount represented 15.7% of the revised estimated construction cost, which staff considered to be within industry standard for design-bid-build projects.

Project Scope and Agreement – Detailed Design Changes
In October 2021, K/J began to prepare construction bid documents for the Project and support the City during the bid and award period. This phase included preparation of detailed design packages (60%, 90%, 100%) along with review and design development of various elements of the Project based on updates to the hydraulic model, information gathered from the subsurface exploratory trenching project, and various site investigations performed during conceptual and preliminary design that had confirmed significant hydraulic deficiencies and additional degradation of pipe condition from age and highly corrosive soils than had been previously identified. The construction cost estimate, based on the detailed design, was revised to $48,416,000. Table 3 summarizes the major scope modifications and revised cost estimate for the water systems:

Table 3 – Scope Modifications and Revised Cost Estimate (2023)

Water System	**1W (Potable)**	**2W/3W System (Process)**	**4W System (Fire)**
Major Scope Changes	• Design development of a separate 1W air gap tank • Addition of a process air gap tank • Design development of 1W/4W pump station and addition of process tanks • Design development of hydropneumatic tanks • Including a 1W loop system	• High-pressure pump station design modifications • Design modifications and additions to the high-pressure loop system modifications to accommodate bypass and temporary shutdowns • Additional pipe replacement based on subsurface investigations • Design development of hydropneumatic tanks • Addition of flow monitoring systems (magmeters) • Rehabilitation of the Filter Influent Pump Station north wetwell • Connecting to the South Bay Water Recycling system to provide backup for 3W system. • Addition of 2W/3W interconnections at several locations for redundancy	• Design development of a separate 4W air gap tank • Co-located 1W/4W pump station building • Design development of 1W/4W pump station
Cost Estimate	$7,298,000	$26,399,000	$14,719,000

ANALYSIS

The most significant factors that have contributed to the exhaustion of funds are discussed below:

1. Modifications to the 1W/4W pump station and tank design: The design of the 1W/4W pump station and source tank was modified due to concerns regarding the size of the water tank and a potential lack of chlorine residual in the 1W system piping. As a result, the single, large 1W/4W tank was split into two separate, smaller 1W and 4W tanks to facilitate more frequent operation of the 1W system and mitigate water aging. The pump station and layout changes required an extended period of multi-disciplinary design development and coordination by K/J, which resulted in the inclusion of additional drawings and specifications.

2. Updates to the programmatic design guidelines: During the design of the Project, the City issued updates to the programmatic design guidelines, including revisions to the instrumentation and controls system guidelines. The intent of the updates was to standardize design elements related to limit switches, level indicators, distributed control system panels, and network architecture across all RWF projects. These changes required additional effort by K/J in the form of additional meetings and design reviews, along with redrafting single line diagrams and updating design specifications and control strategies.

3. Designing around buried utility conflicts: K/J completed extensive potholing efforts and reviewed existing utility records to identify potential utility conflicts. This common practice during design reduces risk of unforeseen conditions and minimizes the need to use construction contingency. The potholing identified many subsurface utility interferences and resulted in changes to previously designed pipeline alignments. As a result, new pipelines were designed to be routed around existing utilities or completely new pipeline routes were chosen to minimize subsurface interference.

4. Design of redundant piping to ensure operational reliability during planned shutdowns: A majority of the processes in the RWF depend on a reliable, continuous supply of water. As the design progressed, it became apparent that certain sections of pipeline could not be replaced without taking them out of service and installing temporary bypass systems to keep critical processes in operation. This approach would have resulted in the Project installing numerous temporary pump stations to continue to supply water to critical processes while aging pipeline sections were removed and replaced. The design was modified such that the Project does not remove critical pipelines in service until a replacement pipeline has been installed up to the point of the connection, thus minimizing the shutdown period. These changes required additional effort by K/J in the form of additional meetings, design reviews,

site investigations, and redrafting drawings to show new pipelines and connection to the existing system.

5. Development of a detailed construction sequencing plan: The project team facilitated multiple discussions between K/J and Operations and Maintenance staff to help develop a highly detailed construction sequencing plan, which was incorporated into the project specifications. The plan included details on project constraints to ensure Operations and Maintenance staff were provided with continuous water supply to operate various processes throughout the plant (e.g., pumps, digester cooling water) while simultaneously accommodating major shutdowns during the construction phase. This detailed effort was necessary due to the complex nature of the construction work to be performed in a tight timeframe.

6. Rehabilitation of the Filter Influent Pump Station wetwell: A prior condition assessment found that the north wetwell of the pump station was in disrepair. Since this wetwell is planned to be drained as part of this Project to install pipe penetrations, it was deemed prudent to rehabilitate the concrete surface of the wetwell and remove grit deposition in the wetwell at the same time.

7. Other design elements included: addition of magmeters to monitor water usage across the RWF, adding interties at various locations to ensure system redundancy, connecting to the South Bay Water Recycling system for the purpose of providing backup water to the RWF during shutdowns, addition of washdown stations for digesters and aeration basins, and including location, size, depth, and orientation of subsurface exploratory trenches in congested areas for the contractor to excavate and investigate prior to pipeline installation.

Considering the changes to the scope described above and due to the multi-disciplinary effort required to complete the design, the effort required by K/J to prepare construction bid documents for the Project was significantly more than originally assumed during the development of prior agreements. Staff held a series of meetings with K/J over several months to further refine changes to the scope, schedule, and budget. Subsequently, the compensation for the detailed design was increased, from $1,843,000 to $2,939,700, to accommodate changes to the design, leaving only $245,000 remaining for the engineering services during construction.

As a result, this second amendment increases the maximum compensation of the Agreement by $3,000,000 for a total amount not to exceed $8,370,000 to complete the engineering services during construction and post construction. The amount represents 17.2% of the estimated construction cost of $48,416,000, which staff considers to be within industry standard for design-bid-build projects. Engineering services during construction services provided by K/J include reviewing and responding to construction requests for information, clarifying plans and specifications, assisting the City with reviewing contractor change order requests, reviewing technical submittals, coordinating with external subconsultants, conducting regular construction update meetings, performing regular construction observations, assisting with startup and

commissioning, preparing record drawings, updating the water system hydraulic model, and associated project management.

The Project was advertised for bid on May 31, 2023 and bids were opened on August 24, 2023. The low bid, submitted by Ranger Pipelines, was $59,490,760 compared to the Engineer's Estimate of $48,416,000. Pending City Council approval on January 9, 2024, construction Notice to Proceed is anticipated to be issued in February 2024 with substantial completion anticipated in December 2026.

This second amendment also extends the term of the Agreement to reflect the new duration of construction. The new end date for the Agreement is December 31, 2027.

Policy Alternatives

Alternative #1: Direct City staff to complete the additional scope of work utilizing in-house resources.
Pros: None
Cons: Staff does not have the capacity or expertise to complete the required work. Responses to contractor requests for information, design clarifications, submittals, and change orders requires in-depth engineering expertise spanning multiple engineering disciplines (e.g., civil, structural, mechanical, electrical, process, instrumentation and control. Use of City staff will result in additional delays to the Project, impacting cost and schedule, and subsequently creating delays to other pending capital projects. In addition, if City staff assumed design responsibility, it would release the consultant from its liability as engineer-of-record.
Reason for not recommending: The complexity of this Project requires the use of specialized expertise and experience in the planning, design, construction, and management of water distribution systems. City staff does not have the required expertise and experience to provide engineering services for construction and post construction necessary to successfully complete this Project.

EVALUATION AND FOLLOW-UP

No follow-up action with the City Council is expected at this time. Quarterly progress reports of the RWF Capital Improvement Program will be submitted to the Treatment Plant Advisory Committee and posted on the City's website.

COST SUMMARY/IMPLICATIONS

1. AMOUNT OF RECOMMENDATION: $3,000,000

2. COST ELEMENTS OF AGREEMENT/CONTRACT (COMPARED TO ORIGINAL AGREEMENT):

	Original	First Amendment	Proposed Second Amendment	Total
Alternatives Analysis	$570,000	$57,000	$0	$627,000
Conceptual and Preliminary Design	$370,000	$1,103,000	$0	$1,473,000
Detailed Design	$560,000	$1,283,000	$1,096,700	$2,939,700
Bid and Award Services	$50,000	$44,000	($8,700)	$85,300
Engineering Services During Construction	$475,000	$858,000	$1,912,000	$3,245,000
State Revolving Fund Assistance	$75,000	($75,000)	$0	$0
TOTAL AGREEMENT AMOUNT	**$2,100,000**	**$3,270,000**	**$3,000,000**	**$8,370,000**

3. SOURCE OF FUNDING: 512 – San José-Santa Clara Treatment Plant Capital Fund.

4. FISCAL IMPACT: The Project will have no additional impact on the San José-Santa Clara Treatment Plant Operating Fund (Fund 513) or the General Fund.

5. PROJECT COST ALLOCATION: In accordance with the recommendations set forth in the Capital Project Cost Allocations Technical Memorandum (Carollo Engineers, March 2016), this Project is allocated between the four billable parameters relative to the rolling weighted average distribution of all RWF assets.

BUDGET REFERENCE

The table below identifies the fund and appropriations to fund the contract recommended as part of this memorandum and remaining project costs, including project delivery, construction, and contingency costs.

Fund #	Appn #	Appn Name	Total Appn	Amount for Amendment	2023-2024 Adopted Capital Budget Page	Last Budget Action (Date, Ord. No.)
512	7679	Facility Wide Water Systems Improvements	$64,349,000	$3,000,000	276	10/17/2023 Ord. No. 30966

COORDINATION

This Project and memorandum have been coordinated with the City Attorney's Office, the City Manager's Budget Office, the Finance Department, the Fire Department, and the Department of Planning, Building, and Code Enforcement.

PUBLIC OUTREACH

This memorandum will be posted on the City's Council Agenda website for the January 9, 2024 City Council Meeting.

COMMISSION RECOMMENDATION/INPUT

This item is scheduled to be heard at the December 14, 2023 Treatment Plant Advisory Committee meeting. A supplemental memorandum with the committee's recommendation will be included in the January 9, 2024 City Council amended agenda.

CEQA

Not a Project, File No. PP17-002, Consultant services for design, study, inspection, or other professional services with no commitment to future action; and Addendum to the Environmental Impact Report for the San José/Santa Clara Water Pollution Control Plant Master Plan (SCH# 201105274), Facility-wide Water Systems Improvement Project, File No. ER20-209.

The Plant Master Plan Environmental Impact Report was adopted by the City Council in November 2013. The report evaluated potential environmental impacts and provided applicable mitigation to reduce impacts. Since the completion of the Environmental Impact Report, the City has further refined necessary improvements to the RWF's water distribution system as part of the Facility-wide Water Systems Improvements Project. Given that the City proposed these changes following the Environmental Impact Report adoption, an initial study and addendum to the report was completed to meet CEQA requirements. The City's Planning, Building and Code Enforcement Department finalized the CEQA Addendum and Mitigation Monitoring Reporting Program in March 2023. The reporting program was prepared to ensure compliance with the mitigation measures during project implementation, some of these include protection of sensitive species and avoidance of nearby wetlands.

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 Department

For questions, please contact Mariana Chavez-Vazquez, Assistant Director, Environmental Services Department at (408) 535-8550

Attachment: Project Location Map

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY
Environmental Services Department
200 East Santa Clara Street
San Jose, CA 95113

San José-Santa Clara Regional Wastewater Facility

Attachment - Project Location Map