CITY OF PALO ALTO

Wastewater Treatment Fund CIP Update – Project Status

WQ-14002 New Laboratory and Environmental Services Building

The scope per the LRFP for this project was to relocate staff and equipment from existing RWQCP buildings and move them into a new Operations Center workspace for technical, lab, pretreatment, and operations staff. The project was estimated in the LRFP to cost $18M in 2015 dollars ($27M when escalated to 2026 dollars). An architect was hired in early 2019 to complete a full design for an Operations Center. However, in 2019, an early construction cost estimate for total project cost was $52 million (2026 dollars), much higher than anticipated in the LRFP. The ensuing design fee increase request from the architect and the substantially increased overall total project cost led staff to release the architect from the contract at a point where the work completed was still useful for later planning and design efforts. The need to restart efforts on Plant workspaces, while unfortunate, has enabled staff to strategize new opportunities before resoliciting for design services. The consensus strategy from staff is to have a consultant perform an advanced planning analysis and include alternative opportunities to a singular, new workspace building at the Plant, including: remodeling current operations and/or administration buildings; procurement possibilities for supplemental real estate; office lease options; and a full design for a new building including (a) a lab-only building, (b) a technical services building for lab, pretreatment, and technical staff, or (c) an operations center for lab, pretreatment, technical, and operational staff. Staff will include a workspace planning task in the upcoming Long Range Facilities Plan Update.

WQ-14003 Primary Sedimentation Tank Rehabilitation & Equipment Room Electrical Upgrades

The Project rehabilitates four concrete primary sedimentation tanks and their ancillary systems to extend their useful life for at least another 30 years. The scope of work includes the following for all four tanks: repair cracked and spalling concrete on the tank's floors, walls, and covers; apply a new protective coating to the tank walls, ceilings, and covers; upgrade primary sedimentation tank area lighting with LED light fixtures; replace hatch and drainage covers on the tanks' deck; install a flight and chain monitoring system for the primary sludge raking mechanisms; and replace and relocate aging motor control centers (i.e., electrical power distribution equipment) to a new pre-engineered building outside and adjacent to the sludge pump room. Construction is expected to be completed in December 2023.

WQ-16002 Headworks Facility

The new Headworks Facility will replace the existing influent junction box, and two raw sewage pump stations built in 1956 and 1972, respectively. The Headworks will consist of new preliminary treatment equipment (barscreens, grit removal, and odor control) coupled with a raw sewage lift pump station, discharging into a new pressurized pipe "force main" between the lift station and the primary sedimentation tanks influent channel. The existing primary influent channel will be repaired and recoated. The existing influent junction box and septage delivery

station will be upgraded or integrated into the new Headworks. All new equipment will be provided with new electrical power distribution, backup power, instrumentation, and controls. The project is on the list of major CIP projects outlined in the LRFP. Staff issued an RFP in April 2023 and will return to the City Council in fall 2023 for approval a professional design services contract. Staff will also apply for a state SRF loan to finance the design and construction costs of the project.

WQ-19000 Outfall Line Construction

The RWQCP has one 54-inch diameter outfall line to convey treated effluent from the RWQCP to the Bay, traversing the Palo Alto Airport property. The existing outfall pipe was installed in 1964. The LRFP identified the need for a new outfall due to insufficient capacity in the existing outfall due to sea level rise impacts, high level king tides, wet-weather events, and generally insufficient flow capacity in the existing pipe.

A number of issues related to approvals from regulatory bodies (e.g., State Lands Commission and the Federal Aviation Administration) require significant redesign work for the outfall project. Kennedy Jenks completed design on the outfall pipeline in September 2020. All permits were obtained, except from the Federal Aviation Administration (FAA). In parallel with the Outfall Pipeline project design, Public Works Department staff had been working with regional and federal agencies on a new elevated flood protection levee, protecting low-lying areas including the airport and the RWQCP. Reconciliation of these issues requires redesign of the outfall. In addition, some project permit applications need to be re-filed. Design and re-permitting are anticipated to take an estimated two years, followed by construction. Construction of the Outfall project is estimated to be completed by December 31, 2027, with engineering services during construction scheduled to be completed by the same date.

WQ-19001 Secondary Treatment Upgrades

Upgrading the secondary treatment process (biological process) to a process that removes harmful nitrogen will be accomplished by creating anoxic and aerated zones in existing aeration basins. The project will improve final water quality, ensure the Plant continues to meet effluent discharge permit limits, and allow for ultimate decommissioning of the aging biotrickling filters and other aging equipment. The project includes new air blowers; air diffusers in aerobic zones; anoxic zone pulsed air equipment; membrane aerated biofilm reactor cassettes; slide and sluice gates and valves to isolate and throttle flows; instruments such as flowmeters and oxygen probes; power distribution equipment including a standby diesel generator and power transfer equipment; and return activated sludge piping and pumping. The $193 million project is the largest project for the Plant capital program. Construction by Anderson Pacific Engineering Contractors is ongoing, and completion is expected in December 2027.

WQ-19002 Plant Repair, Retrofit, and Equipment Replacement

Using ongoing, recurring funding from partner agencies, minor capital improvement projects are financed and constructed. They are reimbursed based on the annual operating share of the budget (about 35% for Palo Alto). These smaller projects are designed by consultants or in-house staff. Current projects include the design of Phase 1 of 72-Inch Joint Intercepting Sewer

Rehabilitation Project and construction of Phase 1 of the 12kV Medium Voltage Electrical Power Distribution Loop Rehabilitation Project (aka, 12kV Loop Rehabilitation). The phase 1 design of the 72-Inch Joint Intercepting Sewer Rehabilitation Project is scheduled to be completed in fall 2023. The 12kV Loop Rehabililtation Project will replace buried underground electrical cable, switches, and a primary metering cabinet inside the RWQCP. Construction of this project ($6.7 million) began in December 2022 and is scheduled to be completed in June 2025. The project requires specialized construction and inspection of medium voltage equipment.

WQ-19003 Advanced Water Purification System (aka, Local Salt Removal Facility)

The project improves the quality of the RWQCP's recycled water used for irrigation and other purposes. The project is an advanced treatment system, initially sized for 1.125 million gallons per day, and potentially expandable to 2.25 million gallons per day of purified water. The improved water quality from the system will be blended with the recycled water on a one-to-one basis, providing a maximum capacity of 4.5 million gallons per day. In March 2021, Council approved the project's design services contract with Black & Veatch (SR# 11782[1]). Construction is expected to be completed in 2026.

The cost estimate of the Local Salt Removal Facility at 90% design is $56 million, which is significantly higher than that of the preliminary design in 2017 ($22 million). Project funding is expected to come from several sources. External funding sources include the $16 million from the 2019 Agreement with Valley Water (SR# 10627[2]). The City also applied for and has received confirmation of a federal $12.8 million US Bureau of Reclamation grant to cover a portion of the project's design and construction costs above and beyond the $16 million Valley Water contribution. The remaining funding requirement of $27.4 million will be paid by a State SRF loan. Staff is preparing to return to Council to describe the financing of expenses associated with the Local Salt Removal Facility, the various funding sources available, and fiscal impacts.

WQ-22001 Horizontal Levee Pilot

The Horizontal Levee Pilot will construct a berm and horizontal levee along a portion of existing, poor-quality upland habitat adjacent to Harbor Road. The horizontal levee will be planted with various native plants to restore diverse transitional habitats including freshwater marsh, wet meadow, and riparian scrub. The vegetated horizontal levee will provide wave attenuation as well as sea level rise adaptation space for the adjacent marsh and refugia habitat for key species such as the Salt Marsh Harvest Mouse. The Project will install an underground pipeline to transport treated wastewater along Embarcadero and Harbor Roads to the horizontal levee for irrigation of the native plants. On-going monitoring and community science opportunities are currently being planned to ensure data obtained from this permanent pilot is available for use in the larger flood control levee projects for Palo Alto as well as regionally. Most project costs have

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[1] Palo Alto City Council, March 8, 2021; Agenda Item #3; SR# 11782. https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/agendas-minutes/city-council-agendas-minutes/2021/03-08-21-ccm-agenda.pdf

[2] Palo Alto Council, November 18, 2019, Agenda Item 17 https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/agendas-minutes/city-council-agendas-minutes/00-archive/2019/11-18-2019-ccm.pdf

been paid for by grants obtained by the San Francisco Estuary Partnership with a minimal match required from the Wastewater Treatment Enterprise Fund. Construction is currently planned for summer 2024 into early 2025.

WQ-24000 72-Inch Joint Intercepting Sewer Rehabilitation (Phase 1)

The 72-inch joint intercepting sewer measuring 8,964 linear feet was built in 1970 to convey flows from Mountain View, Los Altos, Los Altos Hills, and Palo Alto to the Plant. The 2,364 linear feet of pipeline nearest the Plant is 72-inch diameter reinforced concrete pipe, 25 feet below ground, severely corroded, and needs immediate rehabilitation. This section of the pipeline will be rehabilitated as part of Phase 1 of the 72-Inch Joint Intercepting Sewer Rehabilitation Project. The City's engineering consultant performed alternative analysis on different pipeline rehabilitation methods. Cured in place pipe (CIPP) was determined to be the most cost-effective rehabilitation method to strengthen the sewer pipe structurally and minimize site disturbance, as there is no open cut trench with CIPP. The Utilities Department also uses CIPP lining on city sanitary sewers. This project will involve inspection, cleaning, CIPP lining, and bypass pumping. The project will require up to 5 months of field construction and up to 16 weeks of sewage bypassing. Staff have been coordinating with Community Services Department staff throughout design to minimize natural habitat disturbance and communicate with park visitors. The project construction cost is approximately $6 million and will be repaid by partner agencies on a pay-as-you-go agreement. Staff will return to Council in about fall 2023 for approval of the construction contract and an Addendum No. 12 with Mountain View and Los Altos settling on terms for project financing. Construction will be in spring and summer 2024 using a specialty contractor in large diameter CIPP lining.