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REPORT TO COUNCIL

To: Mayor Wheeler
Commissioner Eudaly
Commissioner Fish
Commissioner Fritz
Commissioner Hardesty

From: Michael Stuhr, P.E.

Subject: Bull Run Treatment Project Annual Report

Date: June 26, 2019

This Annual Report is designed to inform City Council of progress over the past year on the Bull Run Treatment Project (PWB Project W02229). The report contains an Executive Summary as well as activities and progress by quarter and the coming fiscal year's activities and progress.

Executive Summary

Since the initiation of the Bull Run Filtration Project (Project) in fall 2017, the Portland Water Bureau (PWB) filtration Project Team has been involved in the Planning Phase of this Project, which is anticipated to take three years (2017-2020). Planning has included traditional planning activities such as developing more detailed scope, schedule, and budget—but has also included more project specific activities such as preparing for a pilot study, working on outreach and communications, performing site (geotechnical) investigations, and establishing technical advisory teams (TACs).

Outreach & Communications

Outreach and community engagement for the Project has been guided by a Communications Framework document that provides a strategic approach to keeping PWB customers and other stakeholders informed about and engaged with, the project. The framework was most recently updated in May 2019. Preliminary public opinion research included four customer focus groups and one telephone survey completed in 2019.

PWB is committed to keeping the community and neighbors informed and involved throughout the project. PWB held a community forum on November 8, 2018, in which attendees learned more about the project and early decisions, asked questions, and provided feedback to PWB. The Project Team has been working with

neighbors and others on a good neighbor plan that will ensure that neighbors’ concerns are considered through the life of design and construction—and beyond into ongoing operations.

To date, outreach has included mailers, an e-newsletter, door hangers, information sessions, project videos for use on social media, an updated project website, “backyard” visits, and other outreach events.

Geotechnical Investigations

Over the past year, the Project Team has initiated multiple geotechnical investigations. This has included performing Environmental Site Assessments (ESA) and a Geologic Hazard Report. These reports and evaluations are helping PWB better understand geotechnical characteristics and risks and allowing the geotechnical TAC to make advisory recommendations to the Project Team.

Pilot Study

Over the last year, the Project Team has been working to implement a Pilot Study at Headworks to better understand how various treatment processes will work with granular media filtration. During this time, the team has written a Pilot Study Plan; ordered, received, and installed the pilot equipment; and begun training staff on how to use the pilot equipment. Starting in June, staff will begin yearlong testing of various treatment processes and their efficacy to understand what specific treatment process will work best with Bull Run source water quality characteristics.

Technical Advisory Committees (TAC)

Due to the complexity of implementing filtration, the Project Team has established two TACs. The first TAC is comprised of respected industry experts in the fields of water quality, treatment processes, and treatment project delivery, and have been a valuable advisory resource throughout the planning phase. The second TAC is comprised of geotechnical experts to advise the Project Team on potential geotechnical concerns, as well as recommend mitigation techniques.



Figure 1: PWB staff outside a newly installed pilot equipment enclosure.

Project Background

In August 2017, the Portland City Council voted to build a water filtration treatment facility to meet the treatment requirements for *Cryptosporidium*. This means that the Portland Water Bureau (PWB) is responsible for construction of a new filtration treatment system on the Bull Run Supply to be compliant with federal regulations. On December 18, 2017 the Oregon Health Authority-Drinking Water Services (OHA) and the Portland Water Bureau (PWB) signed a bilateral compliance agreement that laid out a schedule for construction of a new filtration treatment system on the Bull Run Supply by September 30, 2027.

The approved filtration schedule includes three primary phases – Planning, Design, and Construction. It will take approximately 10 years until the treatment facility is operational.

Key dates in the compliance schedule include:

- November 30, 2020: Submit pilot results and preliminary planning to OHA
- October 31, 2022: Submit final construction plans and construction schedule
- September 30, 2027: Water being served meets all surface water and *Cryptosporidium* treatment requirements

The compliance schedule requires an aggressive planning, design, and construction schedule. A strategic sequencing of tasks will be required to ensure worker safety, cost-effective operations, and that the Bull Run Filtration Project (Project) is constructed and on-line by the compliance date above. The project budget in the Capital Improvement Program (CIP) is \$500 million.

Current Phase - Planning

Following the August 2017 City Council approval, the Bull Run Filtration Project (Project) was initiated in fall 2017. To meet the aggressive schedule, PWB immediately began the Planning Phase of this Project, which is anticipated to take three years (2017-2020) and consists of the following tasks:

- Pre-Planning: Identify project variables, risks, and challenges. Conduct studies and analysis to inform decisions.
- Planning: Work with the consultant program manager to confirm primary project components and evaluate ways to mitigate project risk.
- Pre-Design: Conduct work to narrow project scope and parameters.

Pre-Planning has been completed and occurred primarily in 2018. During this work, four key topics related to filtration of the water supply were addressed: procurement method, capacity of the treatment plant, location of the treatment plant, and filtration technology. PWB evaluated these topics and recommended four preferred alternatives best suited for Portland's drinking water.

The project is currently in the Planning task of the Planning Phase. This task includes preparing for a pilot study, beginning project definition, and developing the Project Management Plan and project controls.

Progress During the Past Year

JULY - SEPTEMBER 2018

- The Project Team evaluated and discussed the four decisions-to-be-made at a series of workshop sessions between January and June 2018. Three consultants were hired to assist in gathering and understanding relevant information for these decisions: Barney & Worth (community outreach), HDR (procurement, location, and capacity), and Jacobs (decision framework and filtration technology). With this information, PWB made recommendations for each topic and summarized the evaluations in technical memorandums. These four recommendations are referred to as the preferred alternatives.
- PWB participated in a City Council work session August 14, 2018 to present on the four preferred alternatives to get council feedback.
- On August 29, 2018 City Council approved two ordinances; 1) Ordinance authorizing a PTE contract for Program Management and Support Services; 2) Ordinance authorizing exemption from the competitive bid requirements to use an alternative contracting method.
- PWB began contract negotiations with Brown and Caldwell (BC) for the Program Management and Support Services.
- The Project Team and BC began preliminary planning for the pilot study. This work expands on the treatment technology selected in the filtration technology decision workshop. The pilot study will evaluate specific treatment processes and technologies, including pre-treatment and post-treatment, using Bull Run water. The study will be used to determine an optimized treatment process for the Bull Run.
- PWB continued work on the Design Services RFP.

OCTOBER - DECEMBER 2018

- Finalized Pre-planning work and began Project Definition work. This includes preliminary project characterization such as, but not limited to, initial site plan, treatment processes, and performing a geotechnical baseline study. Preparation included holding workshops and meetings on various treatment processes to educate the Project Team on industry practices, evaluate process options and alternatives, and listen to technical advisor and consultant recommendations.
- Finalized and executed a contract with BC for the Program Management and Support Services.
- Continued planning for the pilot study and developing the pilot study plan. Purchased the pilot equipment and received shop drawings for review.
- Held a Community Water Forum on November 8, 2018 to discuss Bull Run Treatment Projects and hear community feedback.
- Submitted a Resolution to Council to document the remaining three recommended alternatives. On December 12, 2018 City Council authorized PWB's recommended alternatives for filtration site, capacity, and technology (alternative procurement was previously authorized).
- Finalized work on the Design Services RFP.
- Began to set up project controls and initiate standards to be used throughout the life of the project. This includes identifying CAD, communications, specifications, and QA/QC standards.

JANUARY - MARCH 2019

- Continued planning for the pilot study and developing the pilot study plan.
- Obtained permits for installation of the pilot treatment plant.
- Continued Project Definition work.
- Continued holding workshops and meetings.
- Began drafting the Program Management Plan.
- Continued to set up project controls and standards.
- Advertised the Design Services RFP in January and February. Began reviewing proposals in March.
- Began developing site access plans and coordinating with property owners in advance of preliminary geotechnical work.
- Began preparing ordinance documents for City Council consideration of the Design Services contract.
- Began drafting the CM/GC RFP for the water treatment facility.

APRIL - JUNE 2019

- The pilot equipment was delivered in early May.
- Began the pilot study in May.
- Evaluated Design Services RFP proposals in April and issued a Notice of Intent to Award in May. Started contract negotiations. Prepared ordinance documents for City Council consideration of the associated contract.
- Began preliminary geotechnical work, including borings. Geotechnical work also included desktop evaluations and formation of the Geotechnical Technical Advisory Committee (TAC) to assist as needed with geotechnical related decisions.
- Began receiving draft technical memorandums (TMs) from consultants documenting their desktop studies and field investigations. This included a Water Treatment Plant (WTP) Site Phase II Environmental Site Assessment (ESA) TM, Geological Hazard TM, Archeological Survey TM, and Cultural Assessment TM.
- Began drafting the Environmental Protection Agency's (EPA) Water Infrastructure Finance and Innovation Act (WIFIA) Letter of Interest (LOI) funding request. The 2019 LOI includes three related projects for which up to 49% of project costs could be eligible for a low-interest loan, if PWB is asked to apply.
- Continued writing the Program Management Plan.
- Began drafting the Project Definition Report. Goal is to have report outlined and some parts drafted by summer 2019.

Progress Anticipated in the Coming Year

JULY - SEPTEMBER 2019

- Continue piloting treatment processes.
- Submit the WIFIA LOI to EPA by July 5.
- Continue to refine the draft Project Definition Report and get start getting designer input.

- Continue Design Services RFP negotiations. Finalize and execute a contract with the successful Design Services RFP proposer. Present to City Council. Issue Notice to Proceed.
- Advertise the CM/GC RFP for the water treatment facility.
- Review and evaluate the CM/GC RFP proposals. Award contract by September.

OCTOBER - DECEMBER 2019

- Continue piloting treatment processes.
- PWB anticipates a WIFIA response from EPA around November 1. If not selected, PWB may request a debriefing. If selected to apply, PWB would initiate the application process.
- Perform initial permitting design review.
- Continue to refine the draft Project Definition Report and get designer input.
- Begin negotiations with the successful CM/GC RFP proposer and prepare ordinance documents for City Council consideration of the associated contract.

JANUARY - MARCH 2020

- Continue piloting treatment processes.
- Continue WIFIA application process, if selected.
- Continue initial permitting design review.
- Begin 30% WTP design.
- Continue to refine the draft Project Definition Report and get designer input.
- Finalize and execute a contract with the successful CM/GC RFP proposer. Present PTE Services of associated contract to City Council. Issue Notice to Proceed.

APRIL - JUNE 2020

- Continue piloting treatment processes.
- Continue and finalize WIFIA application process, if selected.
- Continue initial permitting design review.
- Continue to refine the draft Project Definition Report and get designer input
- Continue 30% WTP design.
- PWB anticipates that the treatment facility designer will be under contract and will participate in the development of the Project Definition.

JULY - SEPTEMBER 2020

- Perform intermediate permitting design review.
- Begin 60% WTP design.
- Prepare to submit pilot results and preliminary planning to OHA in November.

Budget

The project budget in the Capital Improvement Program (CIP) is \$500 million. End of Fiscal Year spending is estimated to be approximately \$2,160,000 over plan as the Project Team authorized activities identified in the management reserve for development of a flushing program, preparation of the WIFIA LOI, additional pilot startup efforts, and development of a NEPA plan. The Project Team will reallocate funds from the Project's management reserve (funds previously set aside for work as resource needs became better defined).

Table 1: Bull Run Filtration Project budget to date.

	<i>Total Budget</i>	<i>YTD Spending</i>	<i>Estimated EOFY Spending</i>
FY 2017-18	\$910,000	\$933,242	\$933,242
FY 2018-19	\$7,342,000	\$8,080,000	\$9,500,000

Schedule

The Project has been consistently tracking with the Bull Run Treatment Program schedule maintained by the Project Team and the Program Manager. This includes tracking +/- 30 days of the task due dates identified in PWB's project reporting software (Workfront). The Project is currently on schedule.

Moving forward, the master program schedule will also be maintained in Primavera P6 scheduling software, which is suited for complex projects. A baseline version has been created representing planned work for the filtration project. As monthly invoices are submitted, consultants (designers, the Program Management firm [BC]) and later the CM/GC contractor will provide updated schedules reflecting actual work completed to-date.

Project Controls Cubed (PC3), the scheduling subcontractor, will then analyze the master program schedule, reporting variances from planned. Corrective or preventative action may then be taken, managing changes and minimizing risk. For example, this could include schedule compression or the addition of resources to maintain the current plan.

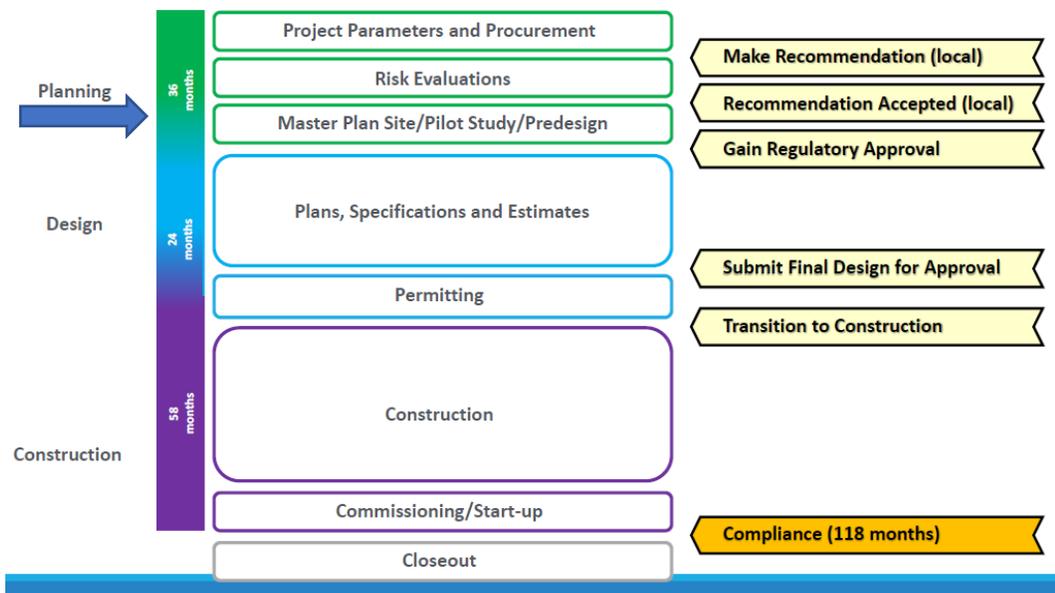


Figure 2: Estimated 10-Year filtration timeline. The blue arrow marks the project’s progress at the EOFY.