



**COMMISSION
AGENDA MEMORANDUM**

Item No.

8f

ACTION ITEM

Date of Meeting

November 14, 2023

DATE: November 7, 2023

TO: Stephen P. Metruck, Executive Director

FROM: Keri Stephens, Director, Aviation Facilities & Capital Programs
Eileen Francisco, Director, Aviation Project Management Group

SUBJECT: Tyee Pond Effluent Pipe Replacement (C801173)

Amount of this request: \$2,275,000

Total estimated project cost: \$2,900,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to take all steps necessary to complete the Tyee Pond Effluent Pipe Replacement project at Seattle-Tacoma International Airport (SEA). This request is in the amount of \$2,275,000 for a total authorization of \$2,900,000.

EXECUTIVE SUMMARY

The Tyee Pond stormwater pond and its control structures are a regional detention facility that the Port of Seattle owns, maintains, and operates. This detention facility is regulated by the Department of Ecology (DOE) Dam Safety Program. The downstream effluent pipe is over 30 years old and shows signs of damage and deterioration. The pipe must be replaced to ensure that the detention facility and downstream effluent pipe can function as designed for the next 50 years. Emergency repairs have already been needed and DOE issued a requirement for a permanent repair to be completed by 2025.

JUSTIFICATION

This project will support the following Century Agenda goals to be the greenest and most energy-efficient port in North America by meeting or exceeding agency requirements for stormwater leaving Port-owned or operated facilities.

In December 2021, a pipe assessment was completed that examined the existing pipe downstream of the repaired section (approximately 382 linear feet). The Pipe Assessment Report noted joint separation, deformation, and corrosion in the downstream pipe and recommended replacing the entire pipe. If the pipe completely fails, the hydraulics of Des Moines Creek will be affected impacting the downstream salmon bearing creek habitat. In the worst-case scenario, with the detention facility at full capacity, the pipe failure can result in the failure of the Tyee

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Pond embankment sending several thousand gallons of stormwater towards downstream residents adjacent to Des Moines Creek in an uncontrolled fashion.

Diversity in Contracting

The design of this project utilized an existing indefinite delivery indefinite quantity (IDIQ) contract that has an established WMBE commitment of 10%. The project team will work with Diversity in Contracting establish the WMBE goal for the major works construction contract.

DETAILS

Tyee Pond is located south of SEA and is located on the east fork of Des Moines Creek flowing south from Bow Lake. The pond has a capacity of 19.7 acre-ft and is therefore regulated by DOE Dam Safety program. The pond and effluent pipe were originally constructed in the late 1980’s. In 2020, emergency repairs were made to a small section of the pipe (approximately 32 linear feet) that was leaking and causing sinkholes to appear on the pond embankment above the pipe. DOE accepted the interim repairs but required a permanent repair by 2025.

During project definition the project scope was revised to reflect the actual shorter pipe length, and a full pipe replacement instead of relining using the cured-in-place pipe method. These changes resulted in \$251,000 in project savings.

The project has completed the environmental permitting requirements with DOE and the U.S. Army Corps of Engineers. This has led to additional regulatory requirements that has increased the project cost by \$360,000 and delayed construction to the 2024 fish window.

Scope of Work

The project will replace the entire downstream effluent pipe with a 72-inch diameter reinforced concrete pipe. In addition, two manhole structures will be added to the northern section of the pipe to provide energy dissipation.

Schedule

Construction start	2024 Quarter 2
In-use date	2024 Quarter 4

Cost Breakdown

	This Request	Total Project
Design	\$0	\$625,000
Construction	\$2,275,000	\$2,275,000
Total	\$2,275,000	\$2,900,000

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ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – No Improvements

Cost Implications: \$0

Pros:

- (1) Requires no capital investment.

Cons:

- (1) Does not address integrity of Tyee Pond dam required by DOE to perform permanent repairs by 2025.
- (2) Does not address long-term viability of the storm water infrastructure.
- (3) Potential to damage downstream salmon bearing creek habitat and residents (and trigger fines).

This is not the recommended alternative.

Alternative 2 – Utilize the bypass system.

Cost Implications: \$702,000

Pros:

- (1) Requires less capital investment.

Cons:

- (1) Does not address integrity of Tyee Pond dam required by DOE to perform permanent repairs by 2025.
- (2) Does not address long-term viability of the storm water infrastructure.
- (3) Potential to damage downstream salmon bearing creek habitat and residents (and trigger fines).

This is not the recommended alternative.

Alternative 3 – Replace the effluent pipe.

Cost Implications: \$2,900,000

Pros:

- (1) Permanent solution ensuring Tyee Pond dam integrity.
- (2) Offers maximum stormwater flow control from the Tyee Pond.
- (3) Doesn't adversely impact flow to downstream salmon bearing creek.
- (4) Fulfills DOE Dam safety regulatory obligations.

Cons:

- (1) Requires greater capital investment.

This is the recommended alternative.

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FINANCIAL IMPLICATIONS

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$2,791,000	\$0	\$2,791,000
Previous changes – net	(\$251,000)	\$0	(\$251,000)
Current change	\$360,000	\$0	\$360,000
Revised estimate	\$2,900,000	\$0	\$2,900,000
AUTHORIZATION			
Previous authorizations	\$625,000	\$0	\$625,000
Current request for authorization	\$2,275,000	\$0	\$2,275,000
Total authorizations, including this request	\$2,900,000	\$0	\$2,900,000
Remaining amount to be authorized	\$0	\$0	\$0

Annual Budget Status and Source of Funds

This project CIP #801173 was included in the 2023-2027 capital budget and plan of finance as a budget of \$2,540,000. A budget increase of \$360,000 was transferred from the Aeronautical Allowance (CIP #800753) resulting in a zero-net change to the Aviation capital budget. The funding sources for this project will be the Airport Development Fund (ADF) and revenue bonds.

Financial Analysis and Summary

Project cost for analysis	\$2,900,000.
Business Unit (BU)	Airfield Movement Area.
Effect on business performance (NOI after depreciation)	NOI after depreciation will increase due to inclusion of capital (and operating) costs in airline rate base.
IRR/NPV (if relevant)	N/A.
CPE Impact	\$0.01 in 2025.

Future Revenues and Expenses (Total cost of ownership)

Operations and maintenance costs are anticipated to be minimal. The pipe will be video inspected once every 3-5 years.

ATTACHMENTS TO THIS REQUEST

- (1) Presentation.

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

April 26, 2022 – The Commission authorized an additional \$390,000 for design.