



**COMMISSION  
AGENDA MEMORANDUM**

**Item No.** 81

**ACTION ITEM**

**Date of Meeting** July 23, 2024

**DATE:** July 12, 2024

**TO:** Stephen P. Metruck, Executive Director

**FROM:** Eileen Francisco, Director, Aviation Project Management  
Sarah Cox, Director, Aviation Environmental & Sustainability

**SUBJECT: Industrial Wastewater Treatment Plant (IWTP) Enhancements – CIP# C801234 Pre-Construction Services**

**Amount of this request:** \$6,500,000

**Total estimated project cost:** \$200,000,000 -  
\$300,000,000

**ACTION REQUESTED**

Request Commission authorization for the Executive Director to (1) advertise and execute a General Contractor, Construction Manager (GC/CM) construction contract and authorize pre-construction services for CIP# C801234. The amount being requested under this authorization is \$6,500,000 for a total project authorization of \$20,135,000.

**EXECUTIVE SUMMARY**

This project will install a pre-treatment system and upgrade the existing systems at the IWTP to ensure compliance with future King County Department of Natural Resources Industrial Waste Discharge permit limits.

The airport’s IWTP manages and treats stormwater associated with industrial activities from aircraft fueling and maintenance operations as well as wastewater from other airport related operations such as aircraft deicing. Stormwater runoff with low Biochemical Oxygen Demand (BOD) discharges to the Puget Sound under conditions of National Pollutant Discharge Elimination Systems (NPDES) permit. Stormwater runoff with high BOD discharges to King County South Treatment Plant for secondary treatment under King County Department of Natural Resources Permit. The primary source of high BOD is aircraft deicer runoff. Effective in 2026 permit cycle, the King County BOD permit limits will be restricted to a level that will require an on-site pre-treatment system at the Seattle–Tacoma International Airport (SEA).

The amount of this request is \$6,500,000 to procure GC/CM and support pre-construction services. The project has procured a design team to develop the design and staff will return to

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the Commission following the completion of design work; at this time staff will provide an updated project cost estimate and request construction authorization. The total estimated project cost is currently \$200,000,000 - \$300,000,000.

**JUSTIFICATION**

Since 2007, the IWTP has discharged industrial wastewater runoff containing aircraft deicers to the King County Wastewater Treatment System for secondary treatment. Through each permit cycle, King County has restricted discharges because under sustained heavy deicer loads, the performance of the County's treatment plant has been disrupted by the Port's discharges.

Over the past seven years, the Port has evaluated technologies and methods to reduce impacts to the King County treatment plant. This evaluation included a comprehensive assessment of deicing source control, storage, and treatment technologies. This assessment resulted in measures to reduce the amount of aircraft deicer applied and implemented operational efficiencies. For example, most of the aircraft deicer applicators switched to an application technology reducing the amount of deicer applied. This source reduction reduces the amount of future storage needed.

Under the terms of the July 2021 Industrial Waste Discharge (IWD) permit, the Port is required to implement infrastructure and operational modifications to comply with future discharge limits. The previous BOD mass loading limit of 60,000 lb./day will be reduced to 15,000 lb./day maximum and 12,000 lb./day on a monthly average basis in the 2026 permit cycle, with interim limits imposed in the current permit cycle. The IWTP modifications needed to comply with these reduced limits include significant additions to the system for storage and pretreatment of IWS stormwater containing spent aircraft deicing fluid. The 2021 IWD permit also includes a compliance schedule over the next five years to reflect progress toward implementation of measures to meet future reduced effluent limitations.

While the Port has developed a preliminary design of the pretreatment and storage systems, some elements of the design scope present risks to overall cost and schedule (phasing, controls architecture, storage requirements, seasonal modeling, etc.). The requested authorization will provide for GC/CM pre-construction services, helping to keep the project on the approved compliance schedule with King County.

***Diversity in Contracting***

Project team is working with the Diversity in Contracting Department to establish appropriate WMBE aspirational goals for this GC/CM project.

**DETAILS**

Requested funds will be used to develop/support:

- GC/CM support to prepare design and construction documents from 30% to issue for construction
- Pre-construction work packages
- GC/CM pre-construction services

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This commission action will provide for GC/CM contract execution and pre-construction support services through the duration of the design.

***Scope of Work***

- (1) Provide General Contractor support through project design site development plan.
- (2) Upgrades to existing IWTP systems (dissolved air flotation systems, pumps, controls, etc.).
- (3) Pre-treatment flow diversion and influent system.
- (4) Storage systems to facilitate pre-treatment.
- (5) BOD treatment system (aerated gravel beds, oil-water separators, drainage, etc.).
- (6) Effluent discharge systems.
- (7) Pumps and systems.
- (8) New support systems (controls building, power supply, controls, HVAC).

The Scope of Work will also include a phasing plan and detailed cost estimates.

***Schedule***

The current project schedule shows an in-use date between Q4 2026 - Q2 2027. The dates shown below are based on conservative assumptions in procurement, permitting, and construction. Options to further compress the schedule will be evaluated during the planning phase to ensure that discharge to the King County South Treatment Plant complies with anticipated 2026 BOD permit levels.

***Activity***

Design start	2024 Quarter 3
Commission construction authorization	2025 Quarter 2
Construction start	2026 Quarter 3
In-use date	2028 Quarter 4

***Cost Breakdown***

	This Request	Total Project
Design	\$6,500,000	TBD in 30% Design
Construction	0	TBD in 30% Design
<b>Total</b>	<b>\$20,135,000</b>	<b>\$200M-\$300M</b>

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**ALTERNATIVES AND IMPLICATIONS CONSIDERED**

**Alternative 1** – Delay or defer the project while continuing discussions to review requirements and project timelines.

Cost Implications: BOD levels would exceed permit allowances and likely result in significant fines indefinitely. The Port would not be in compliance with Wastewater Discharge Permit and potentially NPDES permit.

Pros:

- (1) Capital investment deferred at this time.

Cons:

- (1) Failure to meet King County permit levels for the new permit cycle will leave limited options for managing de-icing runoff at SEA. High BOD wastewater at the IWTP will not be able to discharge to the King County South Treatment Plant.
- (2) In order to comply with reduced limits, the IWTP current storage is not sufficient and could result in overflow of untreated water into adjacent receiving waters.
- (3) High risk of violating King County and NPDES permit requirements. Increased risk of King County restricting or ceasing discharges during high-risk operational periods.
- (4) Staff have evaluated other treatment options locally and regionally outside of discharging to King County and did not identify feasible options.

This is not the recommended alternative.

**Alternative 2** – Do not proceed with this project.

Cost Implications: Approximately \$2,500,000 would need to be expensed. BOD levels would exceed permit allowances and likely result in significant fines indefinitely. The Port would not be in compliance with Wastewater Discharge Permit and NPDES Permit.

Pros:

- (1) No capital investment required at this time.

Cons:

- (2) Failure to meet King County permit levels for the new permit cycle will leave limited options for managing de-icing runoff at SEA. High BOD wastewater at the IWTP will not be able to discharge to the King County South Treatment Plant.
- (3) In order to comply with reduced limits, the IWTP current storage is not sufficient and could result in overflow of untreated water into adjacent receiving waters.
- (4) High risk of violating King County and NPDES permit requirements. Increased risk of King County restricting or ceasing discharges during high-risk operational periods.
- (5) Staff have evaluated other treatment options locally and regionally outside of discharging to King County and did not identify feasible options.

This is not the recommended alternative.

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**Alternative 3** – Provide Pre-Construction Service and support project design development.

Cost Implications: \$6,500,000 in this authorization for Pre-construction Service. \$13,635,000 was previously authorized to support 30% design development. Total project wide authorization is \$20,135,000.

Pros:

- (1) Provides GC/CM input during design development.
- (2) Implementation of a pre-treatment facility on-site at SEA will allow continued discharge to the King County South Treatment Plant.
- (3) King County Department of Natural Resources requires submittal of the Draft Design Documents (60%) by September 30, 2025 and the Final Design Documents (100%) by March 20, 2026. This approach will allow the Port to meet the current permit schedule. Note that while King County has approved these project milestone dates via the Final Engineering Report. The effective date in the 2026 permit cycle is under discussion with King County Industrial Waste Program.

Cons:

- (1) Capital investment is required to develop Design documents (current total project estimate is \$200M - \$300M).

***This is the recommended alternative.***

**FINANCIAL IMPLICATIONS**

Following a third-party cost estimate, as part of the 30% Design, the project will update the revised estimate for total project cost.

***Cost Estimate/Authorization Summary***

	Capital	Expense	Total
<b>COST ESTIMATE</b>			
Original estimate	\$127,000,000	\$0	\$127,000,000
Transfer from IWTP Controls	\$10,600,000	\$0	\$10,600,000
Current Budget Estimate	\$137,600,000	\$0	\$137,600,000
Revised estimate	TBD	\$0	\$200,000,000
			-
			\$300,000,000
<b>AUTHORIZATION</b>			
Previous authorizations	\$13,635,000	\$0	\$13,635,000
Current request for authorization	\$6,500,000	\$0	\$6,500,000
Total authorizations, including this request	\$20,135,000	\$0	\$20,135,000
Remaining amount to be authorized	TBD	\$0	TBD

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***Annual Budget Status and Source of Funds***

This project, CIP C801234, was included in the 2024-2028 capital budget and plan of finance with a budget of \$137,600,000. Note that the initial cost of C801234 was set at \$100,000,000 for a new pretreatment system; this value was set before the system scale required to meet the King County permit limits was understood. This was combined with \$37,600,000 from projects C801123 and C801122, which were intended to upgrade mechanical and controls systems at the existing IWTP. The current budget of \$137,600,000 does not account for the overall complexity of a project of this magnitude.

The cost is estimated to be within a range of \$200 - \$300 million. This cost is based on estimates developed from the preliminary design, and the wide range is a result of large uncertainty in the capability of the existing storage capacity of the system to meet pretreatment requirements. These uncertainties will be evaluated in the 30% Design to allow for final decision-making by project stakeholders. The funding sources would include the Airport Development Fund and revenue bonds. Most of the project costs would be recovered through airlines rates. The Majority-In-Interest ballot would be submitted to the airlines for approval in late 2024, once the 30% Design and cost estimate has been developed.

***Financial Analysis and Summary***

Project cost for analysis	\$200,000,000 - \$300,000,000
Business Unit (BU)	Airfield Apron 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	\$0.63 - \$0.95 in 2029

***Future Revenues and Expenses (Total cost of ownership)***

Aviation Operations and Maintenance have reviewed the preliminary design of the system, and meetings have been held with leadership from each group to discuss expected additional costs of ownership. The preliminary design documentation includes a summary of expected additional operators needed to support the system, as well as additional maintenance and spare part requirements. A full evaluation of the future expenses will be provided with the completed Project Notebook.

**ATTACHMENTS TO THIS REQUEST**

- (1) Presentation

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**PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

September 26, 2023 (item 8b) – The Commission authorized the Executive Director to (1) advertise and execute a project specific contract for Architecture and Engineering (A&E) services, (2) develop a project notebook document and progress the overall design to 30%, (3) utilize port crews for enabling work related to the Industrial Wastewater Treatment Plant (IWTP) project at Seattle-Tacoma International Airport. The amount being requested under this authorization was \$11,500,000.

December 14, 2021 (Item 8I) – The Commission authorized execution of a contract for Architecture and Engineering (A&E) services to complete planning and preliminary design for the Industrial Wastewater Treatment Plant (IWTP) Program (CIP C801234). The amount of this request was \$2,000,000.