



**COMMISSION
AGENDA MEMORANDUM**

Item No. 8e

ACTION ITEM

Date of Meeting February 9, 2021

DATE: January 29, 2021

TO: Stephen P. Metruck, Executive Director

FROM: Eileen Francisco, Interim Director Aviation Facilities and Capital Programs
Wayne Grotheer, Director Aviation Project Management

SUBJECT: Budget Increase Request Industrial Wastewater System Segregation Meters (CIP #C800655)

Amount of this request: \$1,615,000

Total estimated project cost: \$3,889,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to increase the project budget for the Industrial Wastewater System (IWS) Segregation Meters project at Seattle-Tacoma International Airport (Airport). The amount of this request is \$1,615,000 for a revised total estimated project cost of \$3,889,000.

EXECUTIVE SUMMARY

This project will install four Total Organic Carbon (TOC) analyzers in the Industrial Wastewater System conveyance serving the Airfield and Terminal Areas of the Airport. These new TOC analyzers will provide operational data for the Port of Seattle Industrial Wastewater Treatment Plant (IWTP). Plant operations will use the TOC analyzer data to manage wastewater treatment and reduce the discharge of wastewater sent to Valley View Sewer District sanitary sewers and King County South Wastewater Treatment Plant.

Additional budget is requested to support the installation of two additional (total of four) TOC analyzers, as well as a new concrete encased duct bank for TOC analyzer power and control connectivity. Prior Commission action on January 22, 2019, authorized the installation and necessary budget for only two TOC meters and did not provide for a concrete encased duct bank.

JUSTIFICATION

The Airport's IWS TOC analyzer project one of a series of projects that King Country Industrial Waste Program approved in order to comply with the future effluent limits to King County South Treatment Plant and remain in compliance with King County Industrial Waste Permit and State National Pollutant Discharge Elimination System (NPDES) Permit.

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The two additional TOC analyzers are necessary for data precision and the effective segregation of influent. The concrete encased duct bank has been deemed necessary to ensure aircraft operations and that subsequent high pavement loading will not damage below grade cabling.

The 2016 King County permit required the Port to identify measures to meet future reduced effluent limitations. This IWS Segregation Meters project is the first of a series of approved capital program improvements to improve IWTP efficiency and comply with the 2025 reduced effluent limitations.

Diversity in Contracting

The Woman and Minority Business Enterprise (WMBE) aspirational goal is 10% for the construction project. Along with the establishment of the goal, Diversity in Contracting staff will be outreaching to WMBE firms to inform them of the upcoming opportunities within this procurement.

DETAILS

The IWS manages the Airport's stormwater associated with industrial activities from aircraft fueling, aircraft deicing, and maintenance operations. The IWS includes collection and conveyance, runoff storage, and the Industrial Wastewater Treatment Plant. The IWTP is highly effective in treating fuel-related stormwater pollutants. However, the plant is not capable of reducing the high Biochemical Oxygen Demand (BOD) caused by aircraft deicing operations.

Runoff with BOD concentrations below those found to impact receiving water quality can be discharged directly to Puget Sound after treatment for fuel-related contamination under the Airport's NPDES permit. High BOD runoff must be pumped to the King County South Treatment Plant via the Valley View Sewer District for secondary treatment and discharge. The IWTP's discharges to King County are performed under a separate Industrial Waste Discharge Permit issued by the King County Department of Natural Resources.

The installation of the four in-line TOC meters will allow the IWTP operators to continuously monitor influent water quality and effectively segregate high BOD runoff. Using the information provided by the influent TOC analyzers allows the plant operators to separate high BOD water into two lagoons (4-million-gallon capacity) and low BOD water into one much larger lagoon (76-million-gallon capacity). This project will efficiently reduce the waste water volumes discharged to Valley View Sewer District and to the King County South Treatment Plant by segregating the wastewater prior to lagoon storage.

The existing influent TOC detection system has been abandoned due to technology, accessibility and maintainability issues. TOC is not currently measured until after influent water enters one of the high BOD lagoons 1 (1.5-million-gallon capacity) and is processed through the IWTP. Because the BOD is not measured until after it enters the lagoon this leads to inefficiencies by significant

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dilution and increases the volume of wastewater captured and sent to Valley View Sewer District sanitary sewers and to the King County South Treatment Plant.

Scope of Work

Install four Total Organic Carbon analyzers into the Industrial Wastewater System that will sample wastewater prior to lagoon storage.

- (1) Purpose, segregation of High and Low Biochemical Oxygen Demand (BOD/Aircraft Deicer).
- (2) Regulatory Requirement ensures the Port fulfills the King County Industrial Waste Permit.
- (3) Ensure the Port remains in compliance with the NPDES Permit.

Schedule

Activity

Commission design authorization	2017 Q2
Design start	2019 Q1
Commission construction authorization	2019 Q1
Construction start	2021 Q2
In-use date	2021 Q4

Cost Breakdown

	This Request	Total Project
Design	\$442,000	\$972,000
Construction	\$1,173,000	\$2,917,000
Total	\$1,615,000	\$3,889,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Do not install four new TOC Meters

Cost Implications: \$450,000 in capital costs spent to date would need to be expensed.

Pros:

- (1) No further capital costs required.

Cons:

- (1) The Port of Seattle would not be in compliance with King County Industrial and Washington Department of Ecology permits.

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- (2) IWTP will continue to mix low and high BOD wastewater and discharge that wastewater for treatment at a higher cost to Port of Seattle.
- (3) Does not ensure the Port of Seattle meets King County Discharge Permit restrictions and the Port will not be in alignment with the All Known Available and Reasonable Methods of Treatment initiative.

This is not the recommended alternative.

Alternative 2 – Install four new TOC analyzers

Cost Implications: \$3,857,000 in capital is required.

Pros:

- (1) The IWTP will be able to segregate high and low BOD wastewater and minimize the discharged wastewater that requires treatment to Valley View Sewer District sanitary sewers and King County South Wastewater Treatment Plant.
- (2) The Port of Seattle remains in compliance with King County and Washington Department of Ecology permits.
- (3) The Port of Seattle meets King County Discharge Permit restrictions and is in alignment with the All Known Available Reasonable Methods of Treatment initiative.

Cons:

- (1) Requires a capital investment of \$3,857,000.

This is the recommended alternative.

FINANCIAL IMPLICATIONS

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$900,000	\$0	\$900,000
Previous changes – net	\$1,342,000	\$32,000	\$1,374,000
Current change	\$1,615,000	0	\$1,615,000
Revised estimate	\$3,857,000	\$32,000	\$3,889,000
AUTHORIZATION			
Previous authorizations	\$2,242,000	\$32,000	\$2,274,000
Current request for authorization	\$1,615,000	\$0	\$1,615,000
Total authorizations, including this request	\$3,857,000	\$32,000	\$3,889,000
Remaining amount to be authorized	\$0	\$0	\$0

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Annual Budget Status and Source of Funds

This project (CIP #C800655) was included in the 2021 – 2025 capital budget and plan of finance as a business plan prospective project with a total budget of \$2,242,000. The budget increase is due to support the installation of two additional (total of four) TOC analyzers as well as a new concrete encased duct bank for TOC analyzer power and control connectivity. The budget was transferred from the Aeronautical Allowance C800753, resulting in no net change in the Aviation capital budget. The funding source for this project is revenue bonds.

Financial Analysis and Summary

Project cost for analysis	\$3,857,000
Business Unit (BU)	Industrial Waste System Utility
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	\$.02in 2022

Future Revenues and Expenses (Total cost of ownership)

Installing these TOC meters will reduce the risk of mixing high BOD wastewater to Lagoon 3. When Lagoon 3 results into high BOD wastewater, additional sewer charges can reach up to \$400,000. Although without adequate lagoon capacities, there will always be a risk of mixing high BOD wastewater at Lagoon 3. The long-term costs will be minimized by incorporating newer more energy efficient equipment and components that meet the Ports mechanical and electrical design standards for operational costs and optimum energy utilization. Maintainability will be improved by installation of equipment with a useful life span of 20-30 years.

ATTACHMENTS TO THIS

- (1) Presentation slides

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- January 22, 2019 The Commission authorized a budget increase of \$1,132,000 for the design and construction for an estimated total cost of \$2,274,000.
- June 27, 2017 The Commission authorized design and construction for an estimated cost of \$1,142,000.