



**COMMISSION
AGENDA MEMORANDUM**

Item No. 6i

ACTION ITEM

Date of Meeting January 22, 2019

DATE: January 14, 2019

TO: Stephen P. Metruck, Executive Director

FROM: Jeffrey Brown, Director Aviation Facilities and Capital Programs
Wayne Grotheer, Director Aviation Project Management

SUBJECT: Industrial Wastewater Glycol Management Improvements (CIP #C800655)

Amount of this request: \$1,132,000

Total estimated project cost: \$2,274,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to (1) increase the Industrial Wastewater Glycol Management project budget by \$1,132,000; (2) prepare design and construction bid documents for the Industrial Wastewater System Segregation Meters project at Seattle-Tacoma International Airport; and (3) advertise and award a major works construction contract. The amount of this request is \$1,132,000. The total estimated project cost is \$2,274,000.

EXECUTIVE SUMMARY

The purpose of this capital project is to reduce the amount of wastewater sent to sewage treatment plants and to ensure that the Seattle-Tacoma International Airport remains in compliance with its National Pollution Discharge Elimination Systems (NPDES) wastewater discharge permit. This project will install two Total Organic Carbon (TOC) analyzers into the existing Industrial Wastewater System (IWS) conveyance system serving the ramp areas of the south half of the airport. These analyzers measure the TOC of wastewater and that data is correlated to Biochemical Oxygen Demand (BOD) of wastewater. High BOD in the airport's wastewater systems is largely the result of Glycol used during deicing activities of aircraft and aircraft fueling operations.

These two new TOC analyzers will provide data that the Airport Industrial Wastewater Treatment Plant (IWTP) operators will use to manage wastewater treatment and reduce the amount of wastewater sent via sanitary sewers to Valley View Sewer District and King County South Wastewater Treatment Plants.

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This project was included in the 2019 – 2023 capital budget with an estimated cost of \$1,142,000. The project budget has been increased due to the need for a major works construction contract to complete the work.

JUSTIFICATION

Since 2006 the IWTP has discharged three times as much wastewater for treatment through Valley View Sewer District sanitary sewers and King County South Wastewater Treatment Plant as the design engineers with Kennedy Jenks Consulting predicted in 2002. The Airport has contracts with Valley View Sewer District and King County South Wastewater Treatment Plant for 36 million gallons of wastewater treatment discharge per year. The Airport has averaged over 125 million gallons of wastewater treatment discharge per year since 2007. The additional 89 million gallons per year above the 2003 prediction has cost the Port approximately \$1,250,000 per year in fees paid to Valley View Sewer District and King County.

This project will reduce the volume of wastewater sent to Valley View Sewer District and to the King County South Wastewater Treatment Plants and thus reduce the fees paid by the Airport for wastewater treatment by an estimated range of \$200,000 to \$300,000 per year. This project will help ensure the Airport meets the new King County Discharge permit restrictions and the Port of Seattle remains in compliance with our commitment to the All Known Available and Reasonable methods of Treatment (AKART) initiative. This project will also ensure the Port of Seattle remains in compliance with its National Pollution Discharge Elimination Systems (NPDES) permit.

DETAILS

The airport uses three primary lagoons for wastewater segregation.

Lagoon No. 1: Has a storage capacity for 1.5 million gallons of high and low BOD wastewater due to operational limitations resulting from a lack of IWTP influent TOC meters. This project corrects this condition.

Lagoon No. 2: Has a storage capacity for 3.5 million gallons of high BOD (dirty) wastewater that must be discharged to King County for treatment.

Lagoon No. 3: Has a storage capacity for 76 million gallons of low BOD (clean) wastewater that can be discharged directly to the Puget Sound.

Since the IWTP does not currently have influent TOC meters the BOD level of incoming wastewater is largely unknown and as such must be sent to Lagoon No. 1 for BOD measurement, processing, storage and if required after BOD measurement on to King County for treatment. The existing TOC meters at the discharge outlets of Lagoon No. 1 provide the IWTP operators with the information they need to determine the BOD levels of the wastewater. This operational scenario is inefficient due to all the incoming wastewater being mixed together

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in Lagoon No. 1 which does not provide effective segregation of high and low BOD wastewater. Per the Port of Seattle NPDES permit, wastewater with a high BOD must be discharged to a Wastewater Treatment Facility. Wastewater with a low BOD can be discharged directly to Puget Sound.

This project will reduce the volume of wastewater sent to Valley View Sewer District’s sanitary sewer system and the King County South Wastewater Treatment Plants by segregating the wastewater prior to its storage in Lagoon No. 1. The fees paid by the Port of Seattle to treat wastewater will be reduced and the Airport IWTP operations will be improved.

Scope of Work

Develop a design and award a construction contract that will install two new TOC analyzers in locations that will enable the IWTP operators to efficiently and accurately measure and segregate the low and high BOD wastewater.

Diversity in Contracting

Per the elements within the Scope of Work, project staff is engaging the Diversity in Contracting (DC) Department to help establish woman and minority business enterprise (WMBE) aspirational goals. Along with the establishment of the goal, DC staff will be outreaching to those WMBE firms to inform them of the upcoming opportunities within this procurement.

This effort is in support of Resolution 3737 to affirmatively aspire to increase WMBE participation on Port procurements.

Schedule

Due to the nature of this project all work must be completed during the dry summer season.

Design start	1 st Quarter 2019
Commission construction authorization	1 st Quarter 2019
Construction start	2 nd Quarter 2019
In-use date	3 rd Quarter 2019

Cost Breakdown

	This Request	Total Project
Design	\$152,000	\$559,000
Construction	\$980,000	\$1,675,000
Total	\$1,132,000	\$2,274,000

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ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Do not install two new TOC meters

Cost Implications: The IWTP will continue to mix Low and High BOD wastewater in Lagoon No. 1 and discharge that wastewater for treatment at an average cost of \$1,250,000 per year

Pros:

- (1) No Capital costs required

Cons:

- (1) The IWTP will continue to mix Low and High BOD wastewater in Lagoon No. 1 and discharge that wastewater for treatment at an average annual cost of \$1,250,000.
- (2) The Port of Seattle could be at risk of not complying with our National Pollution Discharge Elimination Systems (NPDES) permit.
- (3) The Port of Seattle could be at risk of not following the King County Discharge permit restrictions.
- (4) The Port of Seattle could be at risk of not remaining in compliance with our commitment to the All Known Available and Reasonable methods of Treatment (AKART) initiative.

This is not the recommended alternative.

Alternative 2 – Design, construct and install two new Total Organic Carbon analyzers

Cost Implications: Capital investment of \$2,242,000 and an expense cost of \$32,000 for total project cost of \$2,274,000

Pros:

- (1) The IWTP operators will be able to segregate Low and High BOD wastewater prior to storage in the Lagoon system and discharge only wastewater that requires treatment to the Valley View Sewer District and King County South Wastewater Treatment Plant and thus reducing the annual fees paid by an estimated range of \$200,000 to \$300,000 per year for the Port of Seattle for wastewater treatment.
- (2) The Port of Seattle will remain in compliance with our National Pollution Discharge Elimination Systems (NPDES) permit.
- (3) The Port of Seattle will remain in compliance with the King County Discharge permit restrictions.
- (4) The Port of Seattle will remain in compliance with our commitment to the All Known Available and Reasonable methods of Treatment (AKART) initiative.

Cons:

- (1) Requires a capital investment of \$2,242,000 and an expense cost of \$32,000 for a total project cost of \$2,274,000.

This is the recommended alternative.

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FINANCIAL IMPLICATIONS

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$900,000	\$0	\$900,000
Previous cost increase	242,000		\$242,000
Estimated increase	\$1,100,000	\$32,000	\$1,132,000
Revised estimate	\$2,242,000	\$32,000	\$2,274,000
AUTHORIZATION			
Previous authorizations	\$1,142,000	\$0	\$1,142,000
Current request for authorization	\$1,100,000	\$32,000	\$1,132,000
Total authorizations, including this request	\$2,242,000	\$32,000	\$2,274,000
Remaining amount to be authorized	\$0	\$0	\$0

Annual Budget Status and Source of Funds This project (CIP #C800655) was included in the 2019 – 2023 capital budget and plan of finance as a business plan prospective project with a total budget of \$1,142,000. The budget increase is due to the project scope of work cannot be performed with internal work force and small works contracting capability. 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 will be the Airport Development Fund and future revenue bonds.

Financial Analysis and Summary

Project cost for analysis	\$2,242,000
Business Unit (BU)	Industrial Waste System Utility
Effect on business performance (NOI after depreciation)	NOI after depreciation will increase
IRR/NPV (if relevant)	N/A
CPE Impact	\$0.01 in 2020 and a reduction in fees would result in CPE savings of \$0.01 resulting in net zero CPE impact

Future Revenues and Expenses (Total cost of ownership)

The estimated annual fee reduction is a range between \$200,000 to \$300,000 per year after this project is completed.

ATTACHMENTS TO THIS REQUEST

- (1) Diagram of proposed project location & IWTP Lagoon overview

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PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

June 27, 2017 – Commission authorized the design and construction via Port crews and small works contracting to construct of this project for an estimated project cost of \$1,142,000.