



**COMMISSION
AGENDA MEMORANDUM**

Item No. 6c

ACTION ITEM

Date of Meeting January 22, 2019

DATE: January 14, 2019

TO: Stephen P. Metruck, Executive Director

FROM: Wayne Grotheer, Director, Aviation Project Management Group

SUBJECT: Emergency Backup Water Supply (CIP #C800493)

Amount of this request: \$2,614,000

Total estimated project cost: \$2,739,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to (1) prepare design and construction bid documents for the Emergency Backup Water Supply project at Seattle-Tacoma International Airport; (2) advertise and award a major works construction contract; and (3) use Port of Seattle crews and small works contracts to perform construction work if required. The amount of this request is \$2,614,000. The total estimated project cost is \$2,739,000.

EXECUTIVE SUMMARY

This project will develop the Tye Golf Course well into an emergency backup water supply for potable use and fire protection utilizing the Port's existing water distribution system. The Sea-Tac Airport Water System has no backup water supply as called for by the State Department of Health (DOH) for potable use and fire protection.

The Seattle-Tacoma International Airport is currently supplied with domestic and fire protection water by Seattle Public Utilities (SPU) via a single source. The Airport owns and operates a two million gallon reservoir that can provide water for domestic use for up to three days, but if a water outage from SPU is extended beyond two to three days, airport operations would be critically impacted.

The scope of this project will replace the existing well building with a new water treatment facility at the same location to handle up to 350 gallons per minute of instantaneous water flow. This facility will utilize the existing wellhead (well and pump), a manganese filtration system, a chlorination system, a clear well, and a booster pump system. Water produced by the treatment facility will be transmitted to the existing water distribution system. The addition of this needed treatment system, not contemplated in the original cost estimate, adds \$2,239,000 to the project budget of \$500,000 that is included in the 2019-2023 capital budget.

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JUSTIFICATION

Currently, all of the domestic and fire water needs for Airport are met by purchasing water from SPU. In the event of disaster, water to the airport could be curtailed or shut off altogether. The Airport has no backup for potable and fire water other than the supply from SPU. Backup is available for almost all other utilities. The Airport has a two million gallon reservoir that can provide domestic water supply for up to three days, but at the risk of using all the water required for fire reserve. As a vital regional asset in the event of a disaster, it is important that the Airport has adequate water supply to operate in case of emergency.

Our vulnerability was pointed out by DOH in a June 13, 2013, report. The DOH engineer recommended that we should "...consider conducting an evaluation of the pros and cons associated with developing (our) existing well(s) as an emergency supply option in the event of loss or service from Seattle."

The project would upgrade the existing Tyee Golf Course well and pumping system to add filtration, chlorination, an emergency generator, a new building, and piping as required to augment the SeaTac Airport Water System. The facilities would be designed and constructed primarily for emergency purposes. The necessary change of use water right has been obtained for this well from the Washington State Department of Ecology. Once the system is installed and approved by DOH, the well can be tested and activated as an emergency supply within three days of an outage of the SPU system (about the time at which our reservoir would be depleted). The amount of water available would be approximately half of the normal usage, but still enough to supply priority uses and maintain critical operations.

DETAILS

This project will construct a water treatment facility at the existing Tyee Golf Course wellhead. The existing Tyee Golf Course well building will be demolished. This new facility will provide an emergency backup water supply for the airport water system and will be treated for manganese to eliminate potential staining of plumbing fixtures. Treated water will be provided to the existing Port distribution system via a new water main extension to the existing airport piping system; filter backwash water will be disposed to the nearby sewer utility.

Scope of Work

The project will include the following work items:

- (1) Demolition and removal of existing Well House and associated surface improvements;
- (2) Construction of new well house, treatment system and pumping equipment;
- (3) Construction of new improvements including sewer discharge, driveway, treatment pad and instrumentation;
- (4) Construction of new water transmission line with connection to existing Port infrastructure.

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Schedule

Activity

Design start	1 st Quarter 2019
Commission construction authorization	1 st Quarter 2020
Construction start	2 nd Quarter 2020
In-use date	3 rd Quarter 2021

Cost Breakdown

	This Request	Total Project
Design	\$736,000	\$861,000
Construction	\$1,878,000	\$1,878,000
Total	\$2,614,000	\$2,739,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Do not proceed with the project.

Cost Implications: An estimated \$75,000 in costs to date would need to be expensed if this project is canceled.

Pros:

- (1) Does not require capital investment.
- (2) Does not involve any shutdown of current facilities.

Cons:

- (1) This option will not reduce the risk involved with the lack of a backup water system for the Airport.
- (2) In the event of a regional incident which damages the current water supply infrastructure provided by Seattle Public Utilities, the Airport would be without water for an extended period of time, halting airport operations during a time of critical need.

This is not the recommended alternative.

Alternative 2 – Design and construction of a basic water supply system (without water treatment) consisting of only the well, pump and transmission line.

Cost Implications: \$500,000

Pros:

- (1) Would provide nominal water backup capacity in the event of a disruption to the existing SPU water source.
- (2) Construction would involve very little disruption to the activity of the existing system.
- (3) Very low on-going maintenance cost since no filters to clean or replace, and no chlorine to keep on-site.
- (4) Water Treatment Plant Operator (WTPO) certification not required to operate this system.

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Cons:

- (1) Upon operation the system would introduce manganese and other potentially harmful substances into the Airport’s distribution system. Even low-levels of manganese (0.05 mg/L) will lead to staining of the water and those facilities in contact with the water.

This is not the recommended alternative.

Alternative 3 – Design and construction of a new water supply and treatment system consisting of the well, pump, chlorination tank, manganese filter and transmission line.

Cost Implications: \$2,739,000

Pros:

- (1) Eliminates the risk involved with a solitary water supply to the airport.
- (2) In the event of a regional incident which damages the current water supply infrastructure provided by SPU, the Airport could continue to operate during a time of critical need.
- (3) Construction would not involve disruption to the existing system.
- (4) Would not introduce manganese and other potentially harmful substances into the Airport’s distribution system.

Cons:

- (1) Requires WTPO certification to operate and maintain.
- (2) Requires on-site storage of hazardous chemical (sodium hypochlorite which is the active ingredient in household bleach).

This is the recommended alternative.

FINANCIAL IMPLICATIONS

Cost Estimate/Authorization Summary

	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$500,000	\$0	\$500,000
Previous changes – net	0	0	0
Current change	\$2,239,000	0	\$2,239,000
Revised estimate	\$2,739,000	0	\$2,739,000
AUTHORIZATION			
Previous authorizations	\$125,000	0	\$125,000
Current request for authorization	\$2,614,000	0	\$2,614,000
Total authorizations, including this request	\$2,739,000	0	\$2,739,000
Remaining amount to be authorized	\$0	\$0	\$0

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Annual Budget Status and Source of Funds

This project (CIP #C800493) was included in the 2019 – 2023 capital budget and plan of finance as a business plan prospective project with a total budget of \$500,000. The budget increase is due to the need to scope for a water treatment system. The increase of \$2,239,000 was transferred from the Aeronautical Allowance C800753, resulting in no net change to 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	\$2,739,000
Business Unit (BU)	Terminal Building
Effect on business performance (NOI after depreciation)	NOI after depreciation will increase
IRR/NPV (if relevant)	N/A
CPE Impact	\$0.01 in 2022

Future Revenues and Expenses (Total cost of ownership)

This water production system is not expected to significantly increase future maintenance costs.

ATTACHMENTS TO THIS REQUEST

- (1) Presentation slides
- (2) June 18, 2013 letter from the DOH

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

None