



**COMMISSION  
AGENDA MEMORANDUM**

**Item No.** 8f

**ACTION ITEM**

**Date of Meeting** June 9, 2026

**DATE:** May 28, 2026

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

**FROM:** Keri Stephens, Director, Aviation Facilities and Capital Programs  
Eileen Francisco, Director, Aviation Project Management

**SUBJECT: VFD Replacement Phase 3 (CIP# 802004) – Design Authorization**

**Amount of this request:** \$5,050,000

**Total estimated project cost:** \$15,100,000

**ACTION REQUESTED**

Request Commission authorization for the Executive Director to (1) prepare design, procurement, and construction bid documents for the Variable Frequency Drives (VFD) Replacement Phase 3 project; (2) utilize Port of Seattle crews to support design and pre-construction activities. The amount of this request is \$5,050,000 for a total estimated project cost not to exceed \$15,100,000.

**EXECUTIVE SUMMARY**

Variable Frequency Drives (VFD) are a motor control device that, for this application, modulate the Heating, Ventilation, and Air Conditioning (HVAC) fans, pumps, etc. allowing for better occupancy comfort. VFD Replacement Phase 3 project has identified 125 critical VFDs across the airport facilities that need to be replaced at an urgent priority since they are beyond their useful lives and prone to failure. These are old and obsolete VFDs with no replacement parts available and no longer supported by the manufacturer. Failure of a VFD will cause HVAC or plumbing systems to become non-operational, resulting in loss of proper ventilation, air flow, temperature, water flow, an increase in energy consumption, and poor passenger comfort.

**JUSTIFICATION**

Sporadic VFD failures have occurred in the past and since replacement parts are no longer provided by the manufacturer, shops need to search for parts to keep VFDs operational. Preventing VFD failure will avoid manual HVAC control that leads to poor passenger comfort and increased energy consumption. VFD failure can also lead to security issues since building

Meeting Date: June 9, 2026

pressurization affects door operation. The new VFDs will save electricity and natural gas by modulating motor speeds to meet real-time demands.

This multi-phase renewal project is currently underway. Following the 2020 completion of Phase 1 (47 VFDs), Phase 2 (68 VFDs) is on track for Q3 2026, with Phase 3 concluding in Q4 2028, for a total of 240 VFDs replaced. This initiative replaces legacy equipment with energy-efficient systems that will integrate with the existing building automation system, improve efficiency, reduce emissions and energy use, improve reliance and maintainability, and ensure occupant comfort.

***Diversity in Contracting***

The design services will be completed using an existing IDIQ contract (Casne Engineering – P00322216) that was established in 2025 which has a 18% WMBE participation utilization commitment.

**DETAILS**

***Scope of Work***

The project will be replacing 125 failing VFDs that are beyond their useful lives and are subject to failure. These VFDs are located at multiple locations at SEA: Central Terminal, Airport Office Building, and Concourse A.

The key elements of project’s scope include, but are not limited to, the following:

- (1) Identification and replacement of the VFDs based on their useful life and other design criteria depending on VFDs schedule and phasing through the SEA facility.
- (2) Design for interfacing with Port’s Direct Digital Control (DDC) system.
- (3) Provide required design documents for the VFD installation, wiring, testing, commissioning, and associated equipment for a fully functional system.
- (4) Salvage components from these existing VFDs and add those to Port’s spare parts inventory for use in other obsolete VFDs.

***Schedule***

*Activity*

Design start	2026 Quarter 3
Commission construction authorization	2027 Quarter 2
Construction start	2027 Quarter 3
In-use date	2028 Quarter 4

Meeting Date: June 9, 2026

<b>Cost Breakdown</b>	<b>This Request</b>	<b>Total Project</b>
Design	\$5,050,000	\$6,359,000
Construction	0	\$8,741,000
<b>Total</b>	<b>\$5,050,000</b>	<b>\$15,100,000</b>

**ALTERNATIVES AND IMPLICATIONS CONSIDERED**

**Alternative 1** – Status Quo. Do not proceed with the project.

Cost Implications: Expenses incurred on notebook development - \$400,000

Pros:

- (1) Delays or defers capital investment.

Cons:

- (1) Obsolete VFDs are no longer supported by the manufacturer.
- (2) Heating, cooling, and ventilation systems can become inoperable during VFD failures resulting in poor thermal comfort and indoor air quality.
- (3) Inventory for spare parts will be depleted.
- (4) Aviation Maintenance resources will be pulled from other projects and day-to-day duties to address the failing equipment.

This is not the recommended alternative.

**Alternative 2** – Replace the remaining 125 Robicon VFDs.

Cost Implications: Capital investment of \$15,100,000

Pros:

- (1) Eliminates the risk of failure for 125 obsolete drives that lack manufacturer support.
- (2) Reduces the need for emergency, high-cost repairs and prevents sporadic failures that threaten operations.
- (3) New units minimize “wear and tear” on HVAC fans and pumps through smoother “soft” starts.
- (4) Finalizes a multi-phase project (Phase 1 complete, Phase 2 in construction), leading to a reliable, up-to-date system.

Cons:

- (1) Requires capital funding.
- (2) Replacement activities, even if phased, can cause temporary outages in HVAC operations during installation.

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

**FINANCIAL IMPLICATIONS**

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
<b>COST ESTIMATE</b>			
Original estimate	\$15,100,000	\$0	\$15,100,000
Current change	(106,000)	\$106,000	0
Revised estimate	\$14,994,000	\$106,000	\$15,100,000
<b>AUTHORIZATION</b>			
Previous authorizations	\$950,000	0	\$950,000
Current request for authorization	\$5,050,000	0	\$5,050,000
Total authorizations, including this request	\$6,000,000	0	\$6,000,000
Remaining amount to be authorized	\$8,994,000	\$106,000	\$9,100,000

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

The Variable Frequency Drives (VFD) Replacement Phase 3 C802004 was included in the 2026-2030 capital budget and plan of finance with a budget of \$15,100,000. The funding source includes Airport Development Fund (ADF) and revenue bonds.

***Financial Analysis and Summary***

Project cost for analysis	\$15,100,000
Business Unit (BU)	Terminal Building
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	\$0.03 in 2029

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

As a result of this project, Aviation Maintenance may see a decrease in preventative maintenance support.

**ADDITIONAL BACKGROUND**

Phase 1: Completed 2020 (47 VFDs)

Phase 2: Ongoing (68 VFDs, Q3-2026 completion)

Phase 3: Finalization expected Q4-2028 (125 VFDs)

Integration: Full integration into existing DDC building automation system

Meeting Date: June 9, 2026

**ATTACHMENTS TO THIS REQUEST**

- (1) Presentation slides

**PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

5/23/2017 (CIP# C800801) Variable Frequency Drive Renewal and Replacement – Design

9/25/2018 (CIP# C800801) Variable Frequency Drive Renewal and Replacement -  
Construction

6/27/2026 (CIP# C800979) Variable Frequency Drives (VFD) Replacement Phase 2 – Design

12/10/2026 (CIP# C800978) Variable Frequency Drives (VFD) Replacement Phase 2 -  
Construction