

**PORT OF SEATTLE**  
**MEMORANDUM**

**COMMISSION AGENDA**  
**ACTION ITEM**

**Item No.** 4f  
**Date of Meeting** July 1, 2014

**DATE:** June 23, 2014  
**TO:** Tay Yoshitani, Chief Executive Officer  
**FROM:** David Soike, Director, Aviation Facilities and Capital Program  
Wayne Grotheer, Director, Aviation Project Management Group  
**SUBJECT:** Feeder 101 Taps Replacement (CIP #C800234)/Fire Station Electrical Upgrade (CIP #800479)

<b>Amount of This Request:</b>	\$3,929,000	<b>Source of Funds:</b>	Airport Development Fund
<b>Est. Total Project Cost:</b>	\$4,775,000		
<b>Est. State and Local Taxes:</b>	\$261,000		

**ACTION REQUESTED**

Request Commission authorization for the Chief Executive Officer to (1) transfer budget and combine the Feeder 101 Taps Replacement Project (CIP #C800234) with the Fire Station Electrical Upgrade Project (CIP #C800479) into a single CIP; and (2) advertise, award, and execute a major public works contract for the combined project. The amount of this request is \$3,929,400 of a total estimated project of \$4,775,000.

**SYNOPSIS**

The Feeder 101 Taps Replacement Project will replace components of the electrical system that feeds power to the north end of the Airport that includes cargo warehouse, aircraft areas, and Airport maintenance areas. Feeder 101 is the main feeder cable that supplies electric power to the various facilities along Air Cargo Road. There are 13 taps (the connection to the main feeder and the service cable that serves each facility) that have reached or passed their useful life. The taps must be replaced to ensure the feeders can supply electrical power in a reliable manner. The Feeder 101 Taps Replacement project also removes and replaces the existing unit substation at Air Cargo 4 (Port of Seattle Maintenance Facility) which is approximately 40 years old. This existing feeder tap and the unit substation have passed their useful lives and must be replaced to maintain a safe, dependable power system.

The Fire Station Electrical Upgrade Project upgrades an aging electrical infrastructure. The existing system is over 40 years old and at capacity. In order to maintain a reliable and adequate source of power for current as well as future needs, the power service to the station must be renewed and replaced. This project would install a new service, switchgear, and an emergency generator.

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The Feeder 101 Taps Replacement Project and the Fire Station Electrical Upgrade Project include similar scope items. Combining the projects into a single construction contract will allow for cost savings. The current estimate for the Feeder 101 Taps portion of the combined project is \$362,300 less than originally estimated, whereas the Fire Station portion has increased by \$398,700. The net result is an increase of \$36,400 for the combined projects. Potential savings due to shared overhead, possible lower equipment costs, and economy of scale bidding could result in a reduction of the overall cost of the project. However, possible savings cannot be accurately quantified at this time. In addition, a single CIP generally allows for easier internal tracking and reporting on the combined project.

Both projects are included in the 2014-2018 capital budget and plan of finance.

### **BACKGROUND**

When Feeder 101 was replaced by a previous project a decade ago, the existing medium voltage feeder taps were left for future replacement. The remaining taps are in excess of 40 years old and have passed their useful life. The projected life of the existing feeder taps is approximately 30 years. The taps must be replaced to maintain a reliable and safe system. New taps will have a projected life of 30 years. The Port Maintenance Building is served by Feeder 101. The feeder tap will be replaced as part of this project; however, the unit substation is over 40 years old. The projected life of the original equipment is 40 years. Replacement parts are no longer available for the unit. A failure of any of the components will shut down power to the building. A replacement unit can take up to 18 months to be delivered. Replacing the unit on a predetermined schedule will save downtime and be less costly. The new equipment will have a projected life of 40 years. The new unit substation (transformer and switchgear) will not fit in the existing Port Maintenance Building electrical room due to current code requirements. The transformer will be removed from the building's electrical room and replaced with a new, outdoor, pad-mounted 1000/1500 kVA transformer. New 480V switchgear will be placed in the existing electric room. This allows the installation of equipment per current code. This also allows staff to properly phase construction to minimize the use of temporary measures and down times.

The source of electrical power to the Fire Station is provided through a 300 kilovolt amps (kVA) 120/208 volt (V) transformer and switchgear. The existing equipment is a decade beyond its predicted life, is loaded to its capacity, and therefore has caused circuit breaker outages at the Fire Department.

The existing 120/208V transformer and switchgear will be replaced with equipment with an increased capacity and a new generator will be added. The new generator will serve the entire facility enabling the Fire Station to be fully operational during an emergency and will allow for the addition of future loads. This project will also add 480V power to meet current and future electrical upgrades as well as provide for a future Fire Station Heating, Ventilation, Air Conditioning (HVAC) project to address HVAC deficiencies.

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If authorized, the Feeder 101 Taps Replacement project will be combined with the Fire Station Electrical Upgrade project into one construction contract with one CIP. Both projects have similar medium voltage equipment requirements and are tied to Feeder 101. The projects require a medium voltage contractor, they replace and/or upgrade the existing electrical service to a building, and they both replace feeder taps along feeder 101 along Air Cargo Road. Combining the projects may provide an advantage of potential cost efficiencies.

The Feeder 101 Taps Replacement Project was previously authorized for design by Commission on January 22, 2013. The Fire Station Electrical Upgrade Project was authorized for design by Commission on May 14, 2013.

### **PROJECT JUSTIFICATION AND DETAILS**

The existing feeder taps, the Port Maintenance unit substation, and the Fire Station electrical service are all past their projected lives. The equipment is no longer reliable or safe and must be replaced.

Replacing the electrical equipment in a controlled manner will save the Port potentially long downtimes as well as controlling costs.

#### ***Project Objectives:***

- Replace the existing taps and feeders along Air Cargo Road.
- Replace the existing electrical service to the Port Maintenance Building.
- Replace the existing electrical service to the Fire Station.
- Provide a safe reliable system with a life of at least 30 years.
- Minimize downtime and disruption to tenants.
- Complete project on time and within budget.

#### ***Scope of Work:***

The Scope of Work includes the following elements:

- Port Crews support access to electrical rooms and vaults.
- Port Crews support utility shut-downs.
- Port Crews will manage any incidental regulated materials management.
- Demolition of existing feeder taps and electrical service equipment.
- Install new feeder taps to the facilities along Air Cargo Road
  - Replace the feeders with a projected life of at least 30 years.
- Install a new electrical service for the Port Maintenance Building:
  - Replace the existing transformer and switchgear.
  - Replace the unit substation.
  - Replace the displaced parking spaces.
- Install a new electrical service for the Fire Station:
  - Replace the existing transformer.

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- Add 480V power, and add a backup generator for the Fire Station.
- Replace the displaced parking spaces.
- Make provisions for temporary power during construction.
- Coordinate electrical shut-downs with the tenants on Air Cargo Road.

### ***Schedule:***

- Commission Authorization to Advertise for Construction – July 1, 2014
- Start Construction – October 2014
- Construction Complete – May 2015

## **FINANCIAL IMPLICATIONS**

### ***Feeder 101 Taps Replacement***

#### ***Budget/Authorization Summary***

	Capital	Expense	Total Project
Original Budget	\$1,000,000	\$0	\$1,000,000
Previous Budget Increase	\$1,646,000	\$60,000	\$1,706,000
Current Budget Increase/Decrease	(\$302,300)	(\$60,000)	(\$362,300)
Current Revised Budget	2,343,700	\$0	2,343,700
Previous Authorizations	\$500,000	\$0	\$500,000
Current request for authorization	\$1,843,700	\$0	\$1,843,700
Total Authorizations, including this request	\$2,343,700	\$0	\$2,343,700
Remaining budget to be authorized	\$0	\$0	\$0
Total Estimated Project Costs	\$2,343,700	\$0	\$2,343,700

### ***Fire Station Electrical Upgrade***

#### ***Budget/Authorization Summary***

	Capital	Expense	Total Project
Original Budget	\$2,033,000	\$0	\$2,033,000
Previous Budget Increase	\$0	\$0	\$0
Current Budget Increase/Decrease	\$398,700	\$0	\$398,700
Current Revised Budget	\$2,431,700	\$0	\$2,431,700
Previous Authorizations	\$346,000	\$0	\$346,000
Current request for authorization	\$2,085,700	\$0	\$2,085,700
Total Authorizations, including this request	\$2,431,700	\$0	\$2,431,700
Remaining budget to be authorized	\$0	\$0	\$0
Total Estimated Project Cost	\$2,432,000	\$0	\$2,432,000

### ***Feeder 101 Taps Replacement/Fire Station Electrical (combined)***

#### ***Budget/Authorization Summary***

	Capital	Expense	Total Project
Original Budget	\$3,033,000	\$0	\$3,033,000
Previous Budget Increase	\$1,646,000	\$60,000	\$1,706,000
Current Budget Increase/Decrease	\$96,400	(\$60,000)	\$36,400
Current Revised Budget	\$4,775,400	\$0	\$4,775,400

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Previous Authorizations	\$846,000	\$0	\$846,000
Current request for authorization	\$3,929,400	\$0	\$3,929,400
Total Authorizations, including this request	\$4,775,400	\$0	\$4,775,400
Remaining budget to be authorized	\$0	\$0	\$0
Total Estimated Project Cost	\$4,775,400	\$0	\$4,775,400

### ***Project Cost Breakdown***

This Request

Total Project

Design Phase	\$0	\$846,000
Construction Phase	\$3,668,400	\$3,668,400
State & Local Taxes	\$261,000	\$261,000
	\$3,929,400	\$4,775,400

### ***Budget Status and Source of Funds***

The Feeder 101 Taps Replacement Project, CIP #C800234 and the Fire Station Electrical Upgrade CIP #C800479 are both included in the 2014-2018 capital budget and plan of finance with a combined budget of \$4,739,000. Certain project costs will be tracked separately for transparency to be eventually applied to the utility and terminal business cost centers. The budget increase is \$36,400. The budget increase is due to escalation in prices for electrical equipment. This increase will be transferred from the Aeronautical Allowance CIP (C800404) resulting in no net change to the Airport capital budget. The funding sources are Airport Development Fund (ADF) and future bond proceeds. The Port anticipates issuing revenue bonds in late 2014 or early 2015 to fund multiple projects.

### ***Financial Analysis and Summary***

<b>CIP Category</b>	Renewal/Enhancement
<b>Project Type</b>	Airport Infrastructure
<b>Risk adjusted discount rate</b>	N/A
<b>Key risk factors</b>	N/A
<b>Project cost for analysis</b>	\$4,775,000
<b>Business Unit (BU)</b>	\$2.343 million for Electrical Utility  \$2.432 million Fire (primarily allocated to Airfield Movement Area)
<b>Effect on business performance</b>	NOI after depreciation will increase due to cost recovery of investments.
<b>IRR/NPV</b>	N/A
<b>CPE Impact</b>	\$.01 increase in 2015, but no change to business plan forecast.

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### ***Lifecycle Cost and Savings***

The Feeder 101 Taps Replacement Project replaces existing electrical infrastructure. Operational costs will remain the same and are factored into existing Aviation Maintenance budgets.

The Fire Station Electrical Upgrade Project replaces existing electrical infrastructure with a higher capacity. The potential for higher electrical use is included to meet long-term Fire Department needs. Maintenance trouble calls will decrease. Estimated Operating costs for the additional infrastructure upgrades are estimated to be \$36,500 per year.

## **STRATEGIES AND OBJECTIVES**

The Feeder 101 Taps Replacement Project will support our Century Agenda Strategic Objective to triple air cargo volume by ensuring that the infrastructure is reliable and up to date.

The Fire Station Electrical Upgrade Project will support the Century Agenda objective of meeting the region's air transportation needs at Sea-Tac Airport for the next 25 years. In order to support existing operations, and further growth, the Airport must maintain critical assets such as the Fire Station.

## **TRIPLE BOTTOM LINE**

### ***Economic Development***

The combined projects will support the economy by providing our customers with a reliable power system and continuing to provide service to the community with the facilities located along Air Cargo Road.

### ***Environmental Responsibility***

The combined projects will support the environment by recycling the majority of the materials to be removed and by installing new more efficient electrical equipment.

### ***Community Benefits***

The projects will also support the Ports commitment to support social responsibility through by continuing to provide small business opportunities and job creation.

## **ALTERNATIVES AND IMPLICATIONS CONSIDERED**

**Alternative 1)** – Leave the equipment in place. The equipment would be replaced as it fails. This alternative represents the biggest risk to the Port due to potential loss of operations and impact to cargo airlines, as well as the potential to shut down Fire Station operations. This is not the recommended alternative.

**Alternative 2)** – Replace the feeders, the unit substation, and add protective bollards associated with the Feeder 101 Taps Replacement project and the feeder, the unit substation, and add standby power associated with the Fire Station Electrical Upgrade project on separate contracts.

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This can be accomplished; however, this will increase the costs to the Port and to the contractor. This will also lengthen the schedule, which increases the risk to the Port. This is not the recommended alternative.

**Alternative 3)** – Replace the feeders, the unit substation, and add protective bollards associated with the Feeder 101 Taps Replacement project and the feeder, the unit substation, and add standby power associated with the Fire Station Electrical Upgrade project under a single contract with one CIP. **This is the recommended alternative.**

## **ATTACHMENTS TO THIS REQUEST**

- Overall Site Plan
- Comparison of Scope

## **PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

- May 14, 2013 – Authorized Design for the Fire Station Electrical Upgrade Project.
- January 22, 2013 – Authorized Design for the Feeder 101 Taps Replacement Project.