

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

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

**Item No.** 4f  
**Date of Meeting** September 22, 2015

**DATE:** September 15, 2015  
**TO:** Ted Fick, Chief Executive Officer  
**FROM:** Dave Soike, Director, Aviation Facilities and Capital Programs  
Wayne Grotheer, Director, Aviation Project Management Group  
**SUBJECT:** Concourse C New Power Center (CIP #C800724)

<b>Amount of This Request:</b>	\$1,900,000	<b>Source of Funds:</b>	2015 Revenue Bonds and Future Bonds
<b>Est. Total Project Cost:</b>	\$10,500,000		
<b>Est. State and Local Taxes:</b>	\$650,000		

**ACTION REQUESTED**

Request Commission authorization for the Chief Executive Officer to (1) execute a design contract and prepare design and construction bid documents for the Concourse C new power center project at Seattle-Tacoma International Airport and (2) authorize the use of Port crews for preliminary work in support of this project. The total value of this request is \$1,900,000 of an estimated total project cost of \$10,500,000.

**SYNOPSIS**

This project will install a new power center and new electrical distribution panels in Concourse C near the C10/12 gates in a new electrical room. The project will rectify three current problems in Concourse C.

- First, the existing Power Center on Concourse C is close to maximum capacity. We will need additional capacity on Concourse C in order to support future projects that include electrified equipment.
- Second, the Fire Zones in Concourse C will be restored by re-feeding existing equipment from the new Power Center. This will provide a safer environment for emergency responders in the event of a fire.
- Third, obsolete equipment on Concourse C will be replaced with new, serviceable equipment. Some existing equipment is no longer maintainable (no spare parts) and is also not expandable to allow for power for new projects.

This improvement will not be adversely affected by future development recommended as part of the Sustainable Airport Master Plan (SAMP). This project has been approved by the airlines.

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### **BACKGROUND**

The existing Concourse C power center is nearly at capacity and does not have adequate remaining reserve capacity for projected future electrical power loads on Concourse C. The existing electrical distribution on Concourse C is not in compliance with fire zones defined by the Port Fire Department. This could result in delays and complications in responding to a fire. In addition, some of the distribution equipment at the end of Concourse C is outdated and obsolete. There are no parts available to repair the equipment in the event of a failure, and as the equipment approaches end of life, the likelihood of failure increases.

This project will install a new power center in the North end of Concourse C. This will support future projects on Concourse C including increased utilization and deployment of 400Hz Aircraft ground power, Pre-Conditioned Air, Electric Ground Service Equipment (eGSE) charging stations, future airline tenant utilization of mezzanine space, increased operational needs including ramp level hold rooms, and new retail and dining needs to meet growing traveler demand.

Existing distribution equipment will be re-fed from the new Power Center, thus re-establishing the Fire Zones. The purpose of the fire zones is to have all electrified equipment within a zone fed from a single source within that zone. Currently several distribution panels are fed from the C1 building. This project will remove the feeds from the C1 Power Center and re-route them to the new Power Center (which will also free up capacity on the C1 power center for the Baggage Optimization Project and for future C1 building expansion.) This will create a new fire zone for all power derived from the Concourse C new power center providing a means to readily isolate all normal electrical power and therefore minimize a hazardous condition for the Fire Department in the event of a fire in this fire zone.

The existing electrical distribution equipment at the North end of Concourse C is also near rated capacity and some of the equipment is obsolete. This project will add new distribution equipment and will replace the obsolete equipment. The obsolete equipment is of particular worry because parts are no longer manufactured and if there is a failure with this equipment, we could face an extended power outage as we scramble to find alternate sources of power for the equipment and tenants it serves. The new distribution equipment will provide electrical infrastructure to support new projects at the north end of Concourse C. Finally, electrical loads at the North end of Concourse C that are currently fed from the C1 power center will be re-fed from the Concourse C new power center. The fire zones are established such that all electrified equipment within a fire zone is fed by a source within that same zone, allowing the fire department to shut off power to everything in the zone at one location.

This project was submitted to the airlines for a majority-in-interest vote. The project was approved.

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### **PROJECT JUSTIFICATION AND DETAILS**

Outages and associated flight delays have already occurred as a result of inadequate power capacity. Concourse C is near maximum capacity for electrical power. This can result in reduced asset life and power outages due to overloaded equipment, causing a disruption in operations. Additionally, the Airport will be unable to implement any project on Concourse C that will require the installation of new equipment with electrical requirements because no power will be available.

Staff expects that the existing Concourse C power center will not be able to meet operational requirements within the next three years. Electrical installations of this type typically take two years to complete and that is our project schedule. This project will install a new power center that will allow the Airport to provide reliable electrical power on the north end of Concourse C and meet current and future electrical power needs for this area.

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

This project has three main objectives:

- Ensure adequate power capacity on Concourse C.
- Prevent equipment failures and extended unplanned outages.
- Rectify the fire zones to allow for increased safety in the event of a fire.

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

- Install a new 5000A rated power center in a new electrical room on the north end of Concourse C. Install two (2) 1600A distribution panels, two 75kVA transformers and two (2) 225A rated branch circuit panels. Provide HVAC for new electrical room.
- Replace two (2) 600A tenant distribution panels in the 41D electrical room.
- Refeed three (3) existing electrical panels in the 41D electrical room from the new power center.
- Install electrical required metering for new distribution feeders and panels, per Port standards and per State of Washington energy code requirements.
- Replace/upgrade existing lighting and fire sprinkler systems in new electrical room.
- Combine with eGSE project power centers if economical to do so.

#### ***Schedule***

Start Design	4 <sup>th</sup> Quarter 2015
Complete Design	1 <sup>st</sup> Quarter 2016
Commission Authorization for Construction	1 <sup>st</sup> Quarter 2016
Advertise for Construction	1 <sup>st</sup> Quarter 2016
Substantial Construction Complete	4 <sup>th</sup> Quarter 2017

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### **FINANCIAL IMPLICATIONS**

<b><i>Budget/Authorization Summary</i></b>	<b>Capital</b>	<b>Expense</b>	<b>Total Project</b>
Original Budget	\$9,850,000	\$250,000	\$10,100,000
Budget Increase/(Decrease)	\$595,000	(\$195,000)	\$400,000
Revised Budget	\$10,445,000	\$55,000	\$10,500,000
Previous Authorizations	\$75,000	\$0	\$75,000
Current request for authorization	\$1,900,000	\$0	\$1,900,000
Total Authorizations, including this request	\$1,975,000	\$0	\$1,975,000
Remaining budget to be authorized	\$8,470,000	\$55,000	\$8,525,000
Total Estimated Project Cost	\$10,445,000	\$55,000	\$10,500,000

<b><i>Project Cost Breakdown</i></b>	<b>This Request</b>	<b>Total Project</b>
Design Phase	\$1,900,000	\$1,900,000
Construction Phase	\$0	\$7,950,000
State Taxes	\$0	\$650,000
Total	\$1,900,000	\$10,500,000

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

The expense portion of the budget is for regulated materials management costs. This project (CIP #C800724) was included in the 2015-2019 capital and budget and plan of finance with a budget of \$9,850,000. The budget increase of \$595,000 is a result of increasing the capacity of the power center from 3200A to 5000A, of adding metering costs and adding commissioning cost into the project budget. This will be transferred from the Aeronautical Allowance CIP (C800404) resulting in no net change to the Airport's capital budget. The funding source for this project will include 2015 revenue bonds and future bonds.

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

<b>CIP Category</b>	Renewal/Enhancement
<b>Project Type</b>	Infrastructure Upgrade
<b>Risk adjusted discount rate</b>	N/A
<b>Key risk factors</b>	N/A
<b>Project cost for analysis</b>	\$10,500,000
<b>Business Unit (BU)</b>	Terminal Building
<b>Effect on business performance</b>	NOI after depreciation will increase
<b>IRR/NPV</b>	N/A
<b>CPE Impact</b>	\$.04 increase in 2018

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

This project will increase electrical power capacity for Concourse C, increase availability of electrical power for future loads, reduce power outages, improve the electrical system reliability

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and will not appreciably increase the number of preventative maintenance activities performed on the electrical system.

## **STRATEGIES AND OBJECTIVES**

The project supports the Port's Century Agenda objective of meeting the region's air transportation needs at Sea-Tac International Airport for the next 25 years by increasing electrical capacity and improving electrical safety. It also supports the Airport's strategic goal of operating a world-class international airport by ensuring enhanced utility reliability.

This project is not adversely affected by the Airport's Sustainable Airport Master Plan.

## **ALTERNATIVES AND IMPLICATIONS CONSIDERED**

**Alternative 1)** – Maintain the status quo. Do nothing.

Capital cost: \$0

### **Pros:**

- No additional capital cost.

### **Cons:**

- This alternative does not provide electrical power for capacity growth of Concourse C.
- If no action is taken, the existing power center will operate at maximum electrical power capacity, increasing the risk of system overloading and power outages.

This is **not** the recommended alternative.

**Alternative 2)** Expand capacity of existing Concourse C Power Center. This would involve replacing the existing 3200A rated Power Center with a new 5000A rated Power Center.

Capital cost: \$10,500,000.

### **Pros:**

- None

### **Cons:**

- Existing room is too small to accommodate larger Power Center. The existing room would need to be expanded or a new room created. This option was evaluated in 2005 when existing switchgear was replaced.
- Provides 1800A additional capacity, which may not be adequate for future growth. If C1 loads are transferred to re-establish fire zone, additional capacity is reduced to 800A.
- Distribution equipment at north end of Concourse C is still close to capacity. New distribution equipment will still need to be added, including new electrical room to house new equipment. Existing electrical room at Concourse C north is full.

This is **not** the recommended alternative.

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**Alternative 3)** – Install a smaller power center and do not upgrade obsolete equipment.

Capital cost: \$9,000,000.

**Pros:**

- We would realize some cost savings with a smaller power center, and there would be savings in not replacing the outdated distribution equipment.
- This alternative will provide short term electrical capacity for the North end of Concourse C.

**Cons:**

- This alternative does not provide electrical power for long term capacity growth of Concourse C.
- The cost savings for a smaller non-Port standard commercial grade power center are nominal.
- We would likely realize Arc Flash safety requirements and face power capacity issues on Concourse C in the next few years.
- We will also be unable to accommodate tenants if existing tenant spaces desire to change usage and have greater power requirements.
- If the obsolete distribution panels are not replaced, we risk equipment failure and unplanned outages.

This is **not** the recommended alternative.

**Alternative 4)** – Install a new power center in Concourse C. This will meet the current needs of the Airport and allow for future growth on Concourse C.

Capital cost: \$10,500,000.

**Pros:**

- This alternative will provide the best solution in providing additional electrical power capacity for future growth on all of Concourse C.
- This alternative will provide the following:
  - Capacity for future growth on all of Concourse C.
  - A robust and reliable distribution system on Concourse C.
  - Infrastructure to support future tenant projects and airline utilization equipment at the north end of Concourse C.
  - Re-establish the fire zones and eliminate a hazardous situation in the event of an emergency.

**Cons:**

- Large capital project required to build out this new electrical infrastructure facility.
- Most expensive option.

**This is the recommended alternative.**

## **ATTACHMENTS TO THIS REQUEST**

- Presentation slides.

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## **PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

- None