

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA
ACTION ITEM

Item No. 4g
Date of Meeting February 23, 2016

DATE: February 16, 2016
TO: Ted Fick, Chief Executive Officer
FROM: David Soike, Director, Aviation Facilities and Capital Program
Wayne Grotheer, Director, Aviation Project Management Group
SUBJECT: Combined Communication and Command Center Power Supply System Improvement (CIP #C800107)

Amount of This Request:	\$2,219,238	Source of Funds:	Airport Development Fund and Revenue Bonds
Est. Total Project Cost:	\$4,555,238		
Est. State and Local Taxes:	\$254,000		

ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to advertise for bids, award and execute a major works construction contract for the Combined Communication and Command Center (C4) Power Supply System Improvements project at Seattle-Tacoma International Airport. This authorization is for \$2,219,238 for a total authorization of \$4,555,238.

SYNOPSIS

This project will replace the obsolete and failing C4 Uninterruptible Power Supply (UPS) System. The existing system is no longer supported by the manufacturer and replacements parts cannot be sourced. The C4 UPS system provides power to a variety of life-safety, security, and operationally critical applications. These include the 911 Center, the Airport Communications Center, and the 800MHz Radio System, which provides airport-wide communications for Port of Seattle Police, Fire Department, Maintenance, and Airport Operations. This project will replace end of life batteries, upsize the current UPS and batteries system by 50% to meet future demand, and add system power feed redundancy to increase reliability and maintainability. This project was included in the 2016-2020 capital budget and plan of finance.

BACKGROUND

The 911 Center requires a UPS system to maintain certification as an Association of Public-Safety Communication Officials (APCO) 911 Center. The existing C4 UPS power distribution system is obsolete, near full capacity, and functionally deficient. The system includes two battery banks and two UPSs to provide redundancy, but we have experienced failures in both UPSs and both battery banks due to the UPSs and batteries being beyond their useful lives.

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Recent tests revealed one of the existing battery banks was dead; it was replaced as an expense item (approximately \$200,000) to keep the system functional until the entire system can be replaced by this project. The existing batteries operate at a voltage that is not an industry standard; therefore, the replacement batteries may not be able to be incorporated into the system upgrade. The temporary replacement batteries will be surplus. The automatic power switching system does not function properly and cannot be corrected through repair. Critical parts are no longer available and crucial equipment suppliers have gone out of business. The system also lacks redundant power paths to allow portions of the system to be de-energized for maintenance and repair without affecting critical airport operations. This project corrects all the C4 UPS deficiencies and provides 50% more capacity to accommodate growth. Breakdowns for this system are becoming increasingly frequent.

PROJECT JUSTIFICATION AND DETAILS

Project Objectives

The project objective is to increase the reliability of the C4 UPS Power Distribution System by replacing obsolete equipment, eliminating single points of failure, and providing redundant power feeders. This project has been designed to be a highly reliable system to back-up critical life-safety, security, and business critical operations including the 911 Center, Airport Communications Center, and the 800 MHz Radio System.

Scope of Work

The scope of work for this project includes:

- Demolish and replace existing UPSs, paralleling cabinets, batteries, Automatic Transfer or Static Switches
- Provide wiring, testing, commissioning and associated equipment for a fully functional system with no single points of failure upstream of the power distribution units.
- Add Power Connection Box, Power Monitoring Equipment, Remote Monitoring, and Power System Filters.
- Provide rack mount automatic transfer switches or replace with static transfer switches (varies depending on final design); and
- Upgrade fire protection system.

Schedule

Project Notebook Approval:	4 th Quarter 2014
Commission Authorization for Design:	2 nd Quarter 2015
Design Start:	2 nd Quarter 2015
Design Completion:	1 st Quarter 2016
Commission Authorization for Construction:	1st Quarter 2016
Construction:	2nd Quarter 2016 through 2nd Quarter 2017

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FINANCIAL IMPLICATIONS

<i>Budget/Authorization Summary</i>	Capital	Expense	Total Project
Original Budget	\$2,052,000	\$0	\$2,052,000
Budget Increase (September 2014)	\$2,154,471	\$348,767	\$2,503,238
Revised Budget	\$4,206,471	\$348,767	\$4,555,238
Previous Authorizations (Original Scope)	\$1,987,233	\$348,767	\$2,336,000
Current request for authorization	\$2,219,238	\$0	\$2,219,238
Total Authorizations, including this request	\$4,206,471	\$348,767	\$4,555,238
Remaining budget to be authorized	0		0
Total Estimated Project Cost	\$4,206,471	\$348,767	\$4,555,238

<i>Project Cost Breakdown</i>	This Request	Total Project
Design	\$498,238	\$1,330,238
Construction	\$1,721,000	\$2,971,000
Sales Tax	\$0	\$254,000
Total	\$2,219,238	\$4,555,238

Budget Status and Source of Funds

This project, C800107, was included in the 2016-2020 capital budget and plan of finance at an estimated cost of \$4,555,238. This project previously received project-wide authorization in 2007. The C4 UPS System was redesigned at that time, but a decision was made to delay moving forward with construction due to budget constraints resulting from an economic downturn. It has been determined that only 30% of the previous design work is now usable. Consequently, \$348,767 was written off to expense in 2014. The amount needed to complete the design is estimated to be an additional \$498,238. Given the amount of time that has passed since the original authorization in 2007, staff is returning to Commission to seek authorization to proceed with design and construction. The funding sources include the Airport Development Fund and revenue bonds.

Staff is returning to request the construction authorization needed to complete the project.

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Financial Analysis and Summary

CIP Category	Renewal/Enhancement
Project Type	Renewal & Replacement
Risk adjusted discount rate	N/A
Key risk factors	N/A
Project cost for analysis	\$4,555,238
Business Unit (BU)	Admin (costs allocated to all cost centers)
Effect on business performance	NOI after depreciation will decrease
IRR/NPV	N/A
CPE Impact	\$.01 in 2017

Lifecycle Cost and Savings

The replacement of the existing Uninterruptable Power System will decrease the risk of unforeseen failures of obsolete equipment that can impact critical operations at the Airport; however, the replacement will not appreciably decrease the number of preventative maintenance activities performed on the system. Weekly UPS testing is required for 911 certification.

STRATEGIES AND OBJECTIVES

This project supports the Port's Century Agenda Objective of meeting the region's air transportation needs at Sea-Tac Airport for the next 25 years. Maintaining our existing assets and infrastructure is necessary to meeting this objective.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

1. Status Quo - Do not proceed with the project at this time. Delay replacement as long as possible.

Cost Estimate: \$0 capital cost in 2016, but increased maintenance expense in near term (approximately \$50k per year) and \$4.5 million plus escalation to replace system in future.

Pros:

- Defers capital cost to future.

Cons:

- The existing system is no longer supported by the manufacturer and replacements parts cannot be sourced.
- Port of Seattle may not meet National Fire Protection Association (NFPA) requirements for uninterruptable power supply to back up critical life/safety equipment and functions.
- The current design may be expensed at a cost of approximately \$800,000.
- Port could lose its 911 certification and would no longer meet inter-local governmental agreements.

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- Port and surrounding communities could be left without emergency communications services.

This is not the recommended alternative due to the risks identified.

2. Replace obsolete equipment in kind without upsizing or reconfiguring the system to provide redundancy.

Cost: \$4,064,000

Pros:

- Saves \$491,000 in construction costs.

Cons:

- The current design would be expensed at a cost of approximately \$800,000.
- Contrary to previous commission direction to provided added capacity for growth and system redundancy.
- Lacks capacity growth for future equipment additions.
- Less reliable, maintainable and does not eliminate single points of failure.
 - Failure would take a minimum of several hours and up to several months to correct. Port and surrounding areas left without emergency communications until corrected.

This is not the recommended alternative.

3. Upsize and replace equipment in kind, without reconfiguring the system to provide redundancy.

Cost: \$4,147,000

Pros:

- Saves \$408,000 in construction costs
- Similar to Alternative 2 above, but this option upsizes the system to meet future demands.

Cons:

- The current design would be expensed at a cost of approximately \$800,000.
- Contrary to previous Commission direction to add system redundancy.
- Less reliable, maintainable and does not eliminate single points of failure
 - Failure would take a minimum of several hours and up to several months to correct. Port and surrounding areas left without emergency communications until corrected.

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This is not the recommended alternative.

4. Redesign system and increase reliability by replacing obsolete equipment, increasing capacity by upsizing equipment, and providing redundancy.

Cost: \$4,555,238

Pros:

- Construction bid documents are complete
- Redundant system capable of supporting emergency communications for existing and future critical airport functions in the event of power outage or equipment failure.

Cons:

- Originally the most expensive project alternative; however, since the design is now complete, this is the lowest time and cost alternative that meets Port and NFPA requirements.

This is the recommended alternative.

ATTACHMENTS TO THIS REQUEST

- None.

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- April 1, 2015 - Commission authorized \$832,000 of a total estimated project cost of \$4,555,238 (CIP #C800107).
- June 28, 2007 - Commission authorized design, advertisement, award, and construction of the C4 UPS system for \$2,336,000.