

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA

Item No. 6d

ACTION ITEM

Date of Meeting December 11, 2012

DATE: December 3, 2012

TO: Tay Yoshitani, Chief Executive Officer

FROM: David Soike, Director, Aviation Facilities and Capital Program
Wayne Grotheer, Director, Aviation Project Management Group

SUBJECT: Vertical Conveyance Modernization, Aero Phase 2 Project at Seattle-Tacoma International Airport (CIP #C800375)

Amount of This Request: \$ 2,796,000 **Source of Funds:** Existing revenue bonds and future revenue bonds

Est. State and Local Taxes: \$ 1,021,000 **Est. Jobs Created:** TBD

Est. Total Project Cost: \$19,223,000

ACTION REQUESTED:

Request Commission authorization for the Chief Executive Officer to prepare full design documents for the Vertical Conveyance Modernization Project, Aero Phase 2 Project (CIP #C800375) at Seattle-Tacoma International Airport in an amount not to exceed \$2,796,000. The total project cost is \$19,223,000.

SYNOPSIS:

The Airport has a large number of elevators and escalators, the majority of which are beyond their useful lives. This project will replace three elevators in the central part of the Airport terminal that are nearly 50 years old and are not compliant with current safety codes and require periodic custom-manufacture of obsolete parts. Twelve aging escalators will also be modernized to improve reliability, allow reversibility for ease of maintenance while still allowing service for travelers via adjacent units, provide energy efficiency, and enable computer connectivity for monitoring purposes.

This is one of five projects in a program aimed at modernizing vertical conveyance at the Airport. The design work for this Vertical Conveyance Modernization Aero Phase 2 project will be accomplished within an existing indefinite delivery, indefinite quantity (IDIQ) design contract whose ordering period extends through May 2014. This project was included in the 2013 – 2017 capital budget and plan of finance. The original budget for this project has been reduced because two new elevators at the South Satellite will be completed separately, but there is no change in the Aviation capital budget because funding has been shifted to the other project.

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BACKGROUND:

The overall Airport-wide Vertical Conveyance System Upgrade Program has been broken into five individual projects:

Project Title	Description	Status
1. Terminal Escalator Modernization Plan	Refurbish/Replace 42 existing escalators and install 2 new escalators.	Under construction.
2. Two New Freight Elevators at Central Terminal	Design and construct two new freight elevators outside CTE to support movement of goods from basement to mezzanine.	Design complete, ready to bid.
3. Vertical Conveyance Modernization, Aero Phase 1	Design and construct two new elevators at South Satellite, and modernization of 8 existing elevators, and installation of hydraulic oil cooling packages to 11 existing hydraulic elevators.	Design 30% complete, on all work elements except two new elevators at SSAT.
4. Vertical Conveyance Modernization, Aero Phase 2	Design and construction of modernization of three elevators and twelve escalators	Project Notebook approved, requested design authorization.
5. Vertical Conveyance Modernization, Non-Aero Phase 1	Design and construction of modernization of 10 elevators in parking garage, B-Bank and C-Bank.	Project Notebook complete, review and approval process underway.

This project, Aero Phase 2, will incorporate complete modernization upgrades for three existing traction elevators and 12 escalators. The elevators included in this project were installed in 1964. The new motors and controls will be more efficient and meet current energy codes, resulting in energy savings. The project will also add electronic monitoring to all new machines. The follow-on project (Non-Aero Phase 1 - \$8,828,000) will modernize an additional 10 elevators. After all of the above projects are completed, 19 escalators and 34 elevators will remain within the terminal that have not been upgraded; however, they are all less than 20 years old and have expected remaining service lives of five years or more.

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The three existing elevators are over 40 years old, well beyond their useful life of 25 years. They provide service to the Port of Seattle Police Department. Due to their age and technology, the controls, drives, and door actuators of these elevators have become uneconomical to maintain. Repair parts are difficult to obtain and sometimes are only available through local custom manufacture, which is expensive and has a long lead time.

The existing escalators are likewise approaching the end of their useful life. Escalators NS-1 through NS-4 (located at the North Satellite) and C-1 through C-4 (located at the west end of Concourse C) were initially installed in 1970 when the Satellite Transit System (STS) was installed. The four escalators serving the Concourse C STS station will be widened from 24 inches to 32 inches. All of these eight escalators were modified and upgraded in 1990-1991. The 600 series escalators, serving Sky Bridge #6 were installed in 1992. They are all at least 20 years old and nearing the end of their useful service life and are not capable of being connected to the monitoring system. Further, they are experiencing heavier traffic due to the Rental Car Busing passenger station on the lower drive.

The North Satellite, Concourse C, and sky bridge no. 6 (600-series) escalators in this project are no longer capable of being reversed in direction in order to meet flow demand when other units are out of service, as can be done with the new escalators for sky bridges nos. 2-5. This inability to reverse the direction of individual escalators also makes it much more difficult to perform regular maintenance during normal hours of work. Conversely, it is possible to perform maintenance on the newest sky bridge escalators no matter what time of day. It goes virtually unnoticed as we can control the direction of the escalators to best accommodate the traveling public. Reversibility is a valuable operational aspect to allow future maintenance work in a busy passenger terminal. Reversibility will be built into the modernized escalators.

Elevator #	Location	Action	Year Installed	Year Modified
MT-3	Public elevator to the Police Department stops at ramp, ticketing, and floors 2, 3, and 4.	Modernize	1964	1985
MT-4	Police Service Elevator, stops at ramp, ticketing, and floors 2, 3, and 4.	Modernize	1964	1985
MT-5	Police Service Elevator, stops at ramp, ticketing, and floors 2, 3, and 4.	Modernize	1964	1985

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Escalator #	Location	Action	Year Installed	Year Modified
C-1 thru C-4	Concourse C, ticketing to STS Station	Widen tread from 24” to 32” Modernize	1970	1991
601, 602, 611, 612	North end of main terminal, serving Sky Bridge #6	Modernize	1992	N/A
NS-1 thru NS-4	North Satellite, STS to Concourse	Modernize	1970	1990

PROJECT JUSTIFICATION:

The work planned under this project represents a critical component in the improvement of the vertical conveyance system throughout the Airport. This project will provide complete modernization of the three elevators and 12 escalators listed above.

Project Objectives:

- Improve overall system reliability and performance by providing efficient microprocessor logic for elevator dispatch and individual motor control.
- Replace old components to ensure 20+ years of reliable service without the need for additional investments besides normal maintenance costs.
- Provide firefighters’ operation to comply with current life/safety code requirements.
- Upgrade existing car and hoist way door equipment to provide safe and reliable operation.
- Upgrade elevator car and corridor pushbuttons and signal fixtures to comply with current requirements of the Americans with Disabilities Act (ADA).
- Upgrade existing building conditions to comply with current national, state and city elevator safety codes and building code requirements.
- Remove regulated materials (asbestos fireproofing) in the elevator shafts and the escalator pits.
- Work with building officials to accommodate code-required upgrades to structural seismic and shaft wall fire rating performance criteria.
- Provide components that reduce overall energy consumption.
- New escalators will have “sleep mode” operation added to them, further saving energy.
- Connect to the existing Port elevator/escalator electronic monitoring system for quick response in case of failure.
- Improve reliability of elevators and escalators to handle current and future passenger loads.
- Improve passenger travel at North Satellite and Main Terminal by installing new ADA-compliant fixtures and signage. Reversibility will be built into the modernized escalators.

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PROJECT SCOPE OF WORK AND SCHEDULE:

Scope of Work:

Develop infrastructure to modernize three existing elevators and 12 escalators. Infrastructure development will, at a minimum, include:

1. Site preparation for installation of elevators and escalators.
2. Removal of regulated materials as required.
3. Installation of electrical power and control systems.
4. Installation of communication system.
5. Installation of elevator and escalator system monitoring equipment.
6. Installation and revisions to fire sprinkler systems.
7. Structural, electrical, and mechanical revisions to the base building.
8. Commissioning of elevator and escalator systems.
9. Testing of installed elevator and escalator systems.
10. Closeout of completed project.

Schedule:

- Authorize Design December 2012
- Complete Design November 2013
- Authorize and Advertise Construction Contract November 2013
- Construction Start April 2014
- Construction Complete December 2015

FINANCIAL IMPLICATIONS:

<i>Budget/Authorization Summary:</i>	Capital	Expense	Total Project
Original Budget	\$19,734,000	\$1,323,000	\$21,057,000
Budget Increase (Decrease)	\$(1,824,000)	0	\$(1,824,000)
Revised Budget	\$17,910,000	\$1,323,000	\$19,233,000
Previous Authorizations	\$0	\$0	\$0
Current request for authorization	\$2,796,000	\$0	\$2,796,000
Total Authorizations, including this request	\$2,796,000	\$0	\$2,796,000
Remaining budget to be authorized	\$15,114,000	\$1,323,000	\$16,437,000
Total Estimated Project Cost	\$17,910,000	\$1,323,000	\$19,233,000

<i>Project Cost Breakdown:</i>	This Request	Total Project
Construction	\$0	\$13,615,000
Construction Management and Contract Administration	\$100,000	\$1,795,000
Design	\$1,632,000	\$1,632,000
Project Management and other soft costs	\$1,034,000	\$1,034,000
Permitting	\$30,000	\$136,000
State & Local Taxes (estimated)	\$0	\$1,021,000
Total	\$2,796,000	\$19,233,000

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Budget Status and Source of Funds:

This project (CIP #C800375) was included in the 2013-2017 capital budget and plan of finance. The budget was reduced due to the elimination of two new elevators at the South Satellite that have been added to the scope of the phase 1 project (CIP #C800251). The budget reduction was transferred to C800404 Aeronautical Allowance resulting in no net change in the total Aviation capital budget.

Expense funds will be used for the RMM Abatement major construction contract, and for supporting/monitoring work to be performed by Port Construction Services. The 2013 operating budget includes \$740,000 for RMM expense with the remainder to be included in the 2014 budget.

The sources of funds for the capital portion of this project include existing 2010 revenue bonds and future revenue bonds. As discussed at the plan of finance briefing on October 23, 2012, the Port plans to issue revenue bonds in 2013 or 2014 to fund a number of projects in the 2013 – 2017 capital budget.

Financial Analysis and Summary:

CIP Category	Renewal/Enhancement
Project Type	Infrastructure Upgrade
Risk adjusted discount rate	N/A
Key risk factors	N/A
Project cost for analysis	\$19,233,000
Business Unit (BU)	Terminal Cost Center
Effect on business performance	NOI after depreciation will increase
IRR/NPV	N/A
CPE Impact	\$0.07 in 2016; however, no change from business plan forecast as this project was included.

Lifecycle Cost and Savings:

From a financial analysis perspective, the Port will not incur increased Operation and Maintenance (O&M) expense-related costs for these modernized elevators and escalators. These O&M costs are the expenses related to required staffing, tools and supplies, and the requirement for ongoing maintenance and periodic component renewal, as well as energy use. However, these are normal O&M costs, which are expected to be offset to some degree by lower energy costs. The Port will spend less maintenance funds on emergency and/or urgent repairs to existing vertical conveyance equipment.

This project is in alignment with the Port's goal of improving the long-term sustainability of its facilities and operations. This project has a generally positive effect on the environment to the extent that modernized elevators will reduce Airport reliance on less energy efficient vertical conveyance alternatives and will allow more efficient movement of passengers.

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STRATEGIC OBJECTIVES:

This project contributes to accommodating the Port's Century Agenda Goal to "Meet the region's air transportation needs at Sea-Tac Airport for the next 25 years." The project provides enhanced capacity and flexibility in critical terminal vertical circulation infrastructure, complementing the Terminal Escalator Modernization Project (44 escalators) that is currently underway and the Vertical Conveyance Modernization Aero Phase 1 project that is currently in design.

ENVIRONMENTAL SUSTAINABILITY:

This project demonstrates environmental sustainability by improving existing Port assets, better utilizing existing resources, and reducing energy consumption. The project is in alignment with the Port's goal of improving the long-term sustainability of its facilities and operations.

BUSINESS PLAN OBJECTIVES:

This project supports the Aviation Division's strategic goal of operating a world-class international airport by anticipating and meeting the needs of our tenants, passengers, and the region's economy. The anticipated growth in domestic enplanements, particularly Alaska Air Group, will require additional greater reliability in elevating less mobile passengers from underground train station to the Concourse C plane level. And more reliable customer service will be provided with new, and in some cases wider, escalators from the train stations to plane levels.

ALTERNATIVES CONSIDERED AND THEIR IMPLICATIONS:

Alternative 1: Do Nothing. This alternative results in continued customer service disruptions and increased maintenance costs. Many parts are no longer available and have to be custom manufactured, where possible. At some point in time, even custom fabricated replacement parts will not be available, and the elevators and escalators will have to be modernized using maintenance funds, all at a greater cost than proceeding with a designed and competitively bid modernization project. This is not the recommended alternative.

Alternative 2: Upgrade elevators and escalators as requested. The age and their obsolete technology require these elevators and escalators to be modernized to current standards. **This is the recommended alternative.**

OTHER DOCUMENTS ASSOCIATED WITH THIS REQUEST:

Attachment A - Map showing location of elevators and escalators in this project

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS:

None.