

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA

Item No. 6a

Date of Meeting September 27, 2011

DATE: September 20, 2011

TO: Tay Yoshitani, Chief Executive Officer

FROM: Dave Soike, Director, Aviation Facilities and Capital Program
Wayne Grotheer, Director, Aviation Capital Improvement Program

SUBJECT: Centralized Pre-Conditioned Air Project at Seattle-Tacoma International Airport
(CIP # C800238)

Amount of This Request: \$3,525,000 **Source of Funds:** Airport Development Fund
FAA-AIP, VALE Grants
and Revenue Bonds

Total Project Budget: \$44,125,000 **Est. State and Local Taxes:** \$2,972,000

Grants Available: \$21,912,679 **Est. Construction Jobs Generated:** 120

Net Cost to the Airport: \$22,212,321

ACTION REQUESTED:

Request Commission authorization to increase the project budget for the Centralized Pre-Conditioned Air Project at Seattle-Tacoma International Airport by \$3,525,000 to include \$1,610,000 for additional construction contingency, \$1,096,000 for additional Port project team support, \$419,000 for additional support by Port Construction Services and \$400,000 for additional Design team support; and authorization for the Chief Executive Officer to execute an amendment to the professional service agreement with Stantec Consulting in the amount of \$400,000 in accordance with Resolution No. 3605, as amended, Section 7.2.4.

SYNOPSIS:

The Pre-Conditioned Air (PC-Air) project is one of the most complex and invasive utility projects that the Airport has undertaken. It reaches through occupied areas to each of 73 gates. The design nature of a project of this type has added to the complexity because detailed design cannot occur in certain occupied, wall interior and ceiling areas until specialty subcontractors have investigated those areas and prepared detailed shop fabrication and installation drawings. As a result, additional construction costs in the amount of \$2,029,000 have been identified that were unknown at bid time. Those additional construction costs also drive additional necessary consulting and staff costs. Additional construction management and Port project team costs are estimated to be \$1,096,000. The Stantec professional service agreement amendment is estimated

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to be \$400,000. The new total project cost is \$44,125,000. The net cost to the Seattle-Tacoma International Airport is \$22,212,231, with the balance to be covered by a Federal Aviation Administration (FAA) Voluntary Airport Low Emission (VALE) Grant.

There are significant environmental and cost benefits associated with this project since the total amount of energy used to heat and cool aircraft will decrease. CO₂ emissions and other emissions could be reduced by more than 69,000 metric tons per year, which represents 2% of emissions from aircraft at the Airport, and is roughly equivalent to taking 13,500 cars off the road. Life-cycle costs, fuel consumption and ramp noise will also be reduced.

PROJECT STATEMENT AND OBJECTIVES:

Project Statement:

Construct the PC Air system, with an associated central plant including individual PC Air gate units at all passenger loading bridges.

Project Objectives:

Provide a PC Air System that will accomplish the following:

- Decrease the amount of energy used to heat and cool the aircraft.
- Significantly reduce the amount of CO₂ and other air emissions produced.
- Provide aircraft with cabin heating and cooling while eliminating the need for using the onboard APU, which consumes jet fuel.
- Minimize life-cycle costs.
- Minimize fuel consumption.
- Minimize ramp noise.

BACKGROUND:

The PC-Air project will provide heated and cooled air to aircraft at all 73 airport boarding gates. The system to provide this service includes:

- A new centralized PC-Air plant with 4 new chillers, 32 ice tanks and other equipment
- Several pumpsConnection to existing Centralized Plant equipment
- Approximately 10 miles of distribution pipe for chilled and heating water
- 73 PC-Air units, one at each gate, to transfer the heat or cooling from the water in the piping to the air flowing to the aircraft.

Retrofitting this quantity of equipment and piping in an already congested facility is a unique challenge. The challenges include:

- Constructing these improvements in many areas of the airport including the Central Plant, Central Terminal basement, ramp and roof levels of Satellites and concourses, and North and South utility tunnels.
- Obtaining access to the spaces to move material and resources into the construction areas.
- Avoiding or relocating utilities and equipment throughout the airport to facilitate the PC air piping. Existing utilities and equipment include electrical boxes, conduit and panels, ventilation ducts and fans, fire alarm systems, lights, etc.

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- Connecting to existing building structures to provide structural support for equipment and piping.

The Contract addresses the majority of these issues; however, some were not identified until means of access was discussed with the contractor and the contractor submitted detailed shop and installation drawings.

Total estimated cost of change orders is \$4,050,000. Current construction contract contingency is \$2,450,000. We are requesting authorization of \$1,600,000 for the difference between our total estimate of change orders and the current contingency, so that the contingency is sufficient for all currently anticipated change orders. Staff will return to Commission at a later date for specific construction contract change order authorizations when required by Resolution 3605.

The change orders include the following elements:

- Access challenges--\$600,000 – The majority of this increase is for access to the North and South Satellite utility tunnels, where access limitations do not allow pipe lengths as long as assumed in the Engineers Estimate.
- Field conditions; i.e., Piping conflicts and interferences--\$1,500,000 - During the preparation of detailed drawings, the contractor identified additional interferences and conflicts with existing utilities and equipment.
- Building and Electrical Code required revisions--\$450,000 - To qualify the project for the VALE FAA Grant, the project was bid before the building permit was approved. The permit review generated some changes to the project requirements due to Code and to correct electrical power issues.
- Potential Contract disputes--\$450,000 - During the process of reviewing contract required submittals it has become apparent that the Port and Contractor disagree about some areas of work. These issues will be resolved through contract negotiations
- Contract Scope changes --\$700,000 – There have been changes to airport facilities and to Port technical requirements since contract documents were completed and contract was awarded.

Miscellaneous change orders for scope omissions and field conditions discovered during construction--\$350,000 Additionally, Port Construction Services (PCS) is supporting this project by relocating tenants and removing and reinstalling covers and panels for piping installation. The original project estimate for this work was \$331,000. To support alternate routing of concourse piping additional work is required. The revised cost of this work is estimated to cost \$750,000, an increase of \$419,000.

Additional design team support is needed for project changes and unanticipated field conditions. This increased cost is estimated to be \$400,000 (\$50,000 for scope changes and \$350,000 for additional construction support. The initial contract with Stantec Engineers was for \$2,011,564 (\$ 1,608,911 for design and \$402,653 for construction support). Total current contract value following amendments to date is \$2,579,257 (\$1,176, 591 for design and \$402,666 for construction support). Staff is negotiating the fee with Stantec and will finalize the amendment for execution once this request is approved. Pending negotiations, this will increase total contract value to \$3,129,257. The Period of Performance for the Service Agreement will not change.

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The above list of items requires additional support from Construction Management, Project Management, and other staff members of the Port's project team. The supports include estimating costs of potential change orders, negotiating, preparing change order documents, and contract administration. Estimated additional costs for this support are \$1,096,000.

PROJECT SCOPE OF WORK AND SCHEDULE:

Scope of Work:

This project would involve the Port contracting to install utility infrastructure improvements ensuring long-term stable, useable site conditions.

Schedule:

The following is a list of key milestone dates for the Centralized Pre-Conditioned Air Project:

- Start Preliminary Design Feb 2009
- Complete Design Apr 2010
- Seek approval from Commission to advertise May 2010
- Award Contract Sept 2010
- Construction Notice to Proceed Nov 2010
- Anticipated Project Completion Dec 2012

FINANCIAL IMPLICATIONS:

Budget/Authorization Summary

Original Budget	\$ 40,600,000
Budget Increase	\$ 3,525,000
Budget Transfers	\$ 0
Revised Budget	\$ 44,125,000
Previous Authorizations	\$ 40,600,000
Current request for Authorization	\$ 3,525,000
Total Authorizations, including this request	\$ 44,125,000
Remaining Budget to be Authorized	\$ 0

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<u>Project Cost Breakdown</u>	<u>This Request</u>	<u>Total Project</u>
Capital		
Construction	\$1,853,000	\$ 33,091,000
Sales Tax	\$ 176,000	\$ 3,066,000
Outside Professional Services	\$ 400,000	\$ 3,309,000
Aviation PMG & Other Soft Costs	\$1,096,000	\$ 4,069,000
Sub-total Capital Project Costs	\$ 3,525,000	\$ 43,535,000
Environmental Remediation Liability		
Construction		\$ 290,000
Environmental & Other Soft Costs		\$ 218,000
Sales Tax		\$ 82,000
Sub-total Environmental Remediation Liability		\$ 590,000
Project Costs		
Total Project Costs		\$44,125,000

Source of Funds

This project (CIP # 800238) is included in the 2011-2015 capital budget and plan of finance. The funding plan is predicated upon the Port receiving \$21.9 million in VALE program grants, with the remaining costs funded with Airport Development Fund, 2010 revenue bonds, and revenue bonds to be issued in 2012. This project was reviewed by the airline representatives and approved through a Majority-In-Interest vote in June 2008.

Financial Analysis Summary:

CIP Category	New/Enhancement
Project Type	Infrastructure
Risk adjusted Discount rate	10%
Key risk factors	<ul style="list-style-type: none">• Realizations of savings due to lower jet fuel usage• Grant funding
Project cost for analysis	\$22,212,321 (Excludes VALE grant funded portion)
Business Unit (BU)	Terminal cost center

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Effect on business performance	NOI after depreciation will decrease due to recognizing depreciation on the full cost yet recovering capital costs for the non Vale funded portion only.
IRR/NPV	NPV range of net savings to airlines: \$ 5 million to \$ 30 million. (calculated in 2010)
CPE Impact	CPE will increase by \$.16 in 2013; however, this cost will be more than offset by decreased airline operating costs. This project was included in our business plan forecast so there is no change.

ECONOMIC IMPACTS AND BUSINESS PLAN OBJECTIVES:

From a financial analysis perspective, the positive net present value for this project is based on viewing the Airport and airlines together, as the Port will incur capital and operating costs, while the airlines will realize the cost savings. The extent of the savings is dependent on: 1) the price of jet fuel 2) the number of days per year the system is actually used, and 3) the number of carriers that use the system rather than their own POU system. The Airport will incur increased Operations and Maintenance costs of about \$800,000 per year. In addition, the Port will incur annual debt service costs of about \$1.2 million per year. The financial analysis assumes \$2/gallon for the price of jet fuel (recent prices have ranged from ~\$1.50 to ~\$3.50), PCA System use during summer only (17 weeks) and it assumes Alaska Airlines and Southwest Airlines continue to use their POU systems. These conservative assumptions generate a positive NPV of \$5 million and generate net savings to the airlines from the first year of operations. The savings increase each year, making this a financially sound project.

STRATEGIC OBJECTIVES:

The PC Air project supports the following Port strategies:

Ensure Airport Vitality:

This project will provide a cost effective and efficient heating and cooling system for aircraft parked at the gates. It will have a positive effect on the airline's operating costs by reducing fuel consumption through reduced APU operation.

ENVIRONMENTAL SUSTAINABILITY AND COMMUNITY BENEFITS:

There are significant air quality improvements achieved by installing a centralized pre-conditioned air system. CO2 emissions and other emissions could be reduced by more than 69,000 metric tons per year, which represents 2% of emissions from aircraft at the Airport, and is roughly equivalent to taking 13,500 cars off the road. Airport noise will also be reduced.

ALTERNATIVES CONSIDERED AND THEIR IMPLICATIONS:

- Alternative 1 – Reduce Project Scope to Current Approved Funding. To reduce the project scope by \$3,525,000 would require removing PC-Air installation for Concourse D and the North Satellite. This change would reduce funding recovery from the VALE phase II grant

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by \$3.6 million and still incur significant costs for Port staff to negotiate changes to the existing contract. This is not the recommended alternative.

- Alternative 2 –This alternative is to have the engineering consultant use the contractor’s proposed piping layout to revise the design. This will remove much of the piping from the roof, eliminate concourse utility shutdowns, and minimize change orders from interferences and obstructions. **This is the recommended alternative.**

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS:

- On January 13, 2009, the Commission authorized procurement and execution of service agreements with consultants to perform design; to prepare contract documents; and perform contract administration for the Pre-Conditioned Air project at Seattle-Tacoma International Airport in the amount of \$3,770,000.
- On May 11, 2010, the Commission authorized staff to advertise for bids, apply a Project Labor Agreement (PLA) and authorize Port Construction Services to perform pre-construction work, including moving tenants, for Phase I and Phase II of the Centralized Pre-Conditioned Air (PC Air) Project (CIP # C800238) at Seattle-Tacoma International Airport (Airport) and execute a construction contract. This authorization was for \$36,830,000. The estimated total project cost is \$40,600,000.
- On May 24, 2011, Commission authorized execution of a \$400,000 amendment to the professional service agreement with Stantec Consulting. Total project funding authorization remained at \$40,600,000.