

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

**COMMISSION AGENDA**

**Item No.** 6b

**ACTION ITEM**

**Date of Meeting** October 2, 2012

**DATE:** September 24, 2012

**TO:** Tay Yoshitani, Chief Executive Officer

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

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

**Amount of This Request:** \$2,000,000      **Source of Funds:** Airport Development Fund,  
FAA-AIP VALE Grants and  
Existing Revenue Bonds

**Est. State and Local Taxes:** \$2,980,000      **Est. Construction Jobs Generated:** 120

**Total Project Cost:** \$46,125,000

**ACTION REQUESTED:**

Request Commission authorization to increase the project budget for the Centralized Pre-Conditioned Air Project at Seattle-Tacoma International Airport by \$2,000,000 to include \$1,250,000 for additional construction contingency; \$250,000 for additional design team support; and \$500,000 for additional support by Port Maintenance and Port Construction Services. In accordance with RCW 53.19.060, this memorandum constitutes notification to the Commission that the amended amount of this contract exceeds 50 percent of the original not-to-exceed contract value.

**SYNOPSIS:**

The Pre-Conditioned Air (PC-Air) project will allow flight crews to turn off aircraft auxiliary power units (APUs) and plug in to the Airport infrastructure to receive both heated and cooled air.

The 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 (installing 10 miles of piping). The nature of this project has added 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, change orders have increased the contract construction cost from the bid of \$27,013,400 to \$31,366,201. As of the end of August, the Port has issued \$4,352,801 in change orders to this contract. These costs were funded from the existing project construction contingency budget. \$1,250,000 of this request is needed to replenish the construction contingency to address the existing open

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contractor cost trends. Additional funding may be requested if needed once staff has resolved the \$3,000,000 in disputed contractor claims.

The additional construction costs also drive additional necessary consulting and Port costs. Additional Port Construction Services (PCS) and Port Maintenance crew costs are estimated to be \$500,000. PCS and Maintenance departments support the project by removing and reinstalling concourse wall and soffit panels for equipment and piping installation, supporting utility shutdowns for necessary connections to existing systems and confirming proper operation of jet bridges after PC-Air equipment installations are complete.

The \$250,000 amendment to the existing Service Agreement with Stantec Engineers Inc. will provide the additional design service. As this amendment will exceed 50% of the original value of the Service Agreement, per the requirements of RCW 53.19.060, a memorandum is on file at the Port's Bid Desk indicating the Port's intention to amend Professional Services Agreement P-00316148 via Amendment No. 9.

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. CO<sub>2</sub> 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. Lifecycle costs, fuel consumption, and ramp noise will also be reduced, which benefits both the Airport and airlines.

The new total project cost is \$46,125,000. Of this, \$21.2 million will continue to be funded by a Federal Aviation Administration (FAA) Voluntary Airport Low Emission (VALE) Grant. The budget increase will be funded by reprogramming existing bond proceeds to this project.

### **BACKGROUND:**

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

- A new centralized PC-Air plant with four new chillers, 32 ice tanks, and other equipment
- Several pipe connections 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 fluid in the piping to the air flowing into the aircraft

Retrofitting this quantity of equipment and piping in an already congested facility creates a number of challenges:

- 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 documents address the majority of these issues; however, some were not identified until the means of access for installation was discussed with the contractor and the contractor submitted detailed shop and installation drawings.

### ***Construction Contingency***

1. Construction contract contingency	\$4,849,940
2. Current cost of executed change orders as of the end of August is	<u>\$4,352,801</u>
3. Construction contingency balance (line 1 minus line 2)	\$ 497,139
4. The estimated cost of change orders under negotiation	\$1,147,199

Current request:

5. Additional funding needed for existing change order entitlement(line 3 minus line 4)	\$650,060
6. Additional funding requested for construction contingency	<u>\$600,000</u>
Total contingency funding request	\$1,250,000*

\*rounded down to nearest \$1000.

Staff may return to Commission at a later date for specific construction contract change order authorizations and potentially additional budget authorizations when required by Resolution No. 3605, as amended.

Additionally, there are contract disputes of approximately \$3,000,000. These are issues where the Port has found no entitlement and will be resolved through the Port's dispute resolution process. Staff may return to Commission at a later date concerning resolution of these items.

### ***Summary of executed Change Orders:***

- Access challenges—approximately \$964,201 – The majority of this increase is for access to the North and South Satellite utility tunnels and routing piping from the Central Plant in the Central Terminal basement to roof of Concourse C and D.
- Field conditions; i.e., piping conflicts and interferences--approximately \$2,995,000 - During the preparation of detailed drawings, the contractor identified additional interferences and conflicts with existing utilities and equipment.
- Building and Electrical Code required revisions—approximately \$92,600 - 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 comply with the Building and Electrical Codes.
- Contract Scope changes –approximately \$301,000 – There have been changes to Airport facilities and to Port technical requirements since contract documents were completed and the contract was awarded.

### ***Port Construction Services and Maintenance Support***

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

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work was \$331,000. In September 2011, with the known additional work, the estimated cost increased to \$750,000. Since then, additional work at the tenant storage area and Concourses C and D to provide access for pipe support and piping installation has increased the estimated cost to \$1,050,000. To support installation of concourse piping, this additional work is required.

Maintenance crew support is needed to complete this project work. Maintenance is providing unanticipated support:

- At each of the 73 gates to install equipment on the jet bridges and confirm that the bridges are operational when the contractor completes work each day.
- For numerous utility shutdowns and connection of electrical and mechanical systems.

The original estimate of support was \$100,000. The estimated cost of this support through the completion of the project is \$350,000, an increase of \$250,000.

### ***Additional Design Services***

On July 29, 2009, the Port executed a contract with Stantec Consulting for design and engineering support during construction for the PC-Air Project at the Airport in the amount of \$2,011,564. Subsequent to execution of the initial contract, a total of eight amendments have been executed. Amendments Nos. 1, 2, 3, and 5 were for clarification of positions and adjustment of rates. Amendment No. 4 approved the use of overtime to complete the design to meet revised FAA grant application deadlines. Amendments 6, 7, and 8 added scope and addressed necessary design revisions during construction and provide for additional construction support. With the execution of amendment no. 8, the total contract value was \$3,013,069.

Due to construction changes, the Port is seeking to execute amendment no. 9 for an estimated value of \$250,000. Amending the contract with Stantec Consulting will allow the Port to support expeditious project completion. Staff is negotiating the fee with Stantec and will finalize the amendment for execution should this request be approved.

As this amendment and prior amendments exceed 50% of the original value of the Service Agreement, per the requirements of RCW 53.19.060, this memorandum will be made publicly available at the Port's Bid Desk.

### **PROJECT JUSTIFICATION:**

The PC-Air project will lower costs to the airlines while producing significant environmental benefits by reducing tens of thousands of tons of carbon dioxide (CO<sub>2</sub>) emissions each year. It will also reduce noise on the ramp caused by the aircraft's APU. This project is a cost-effective way to aid the airlines while improving the quality of the environment. The airlines have approved funding for this project, most of which will now be covered by the FAA VALE grant. Completing the work expeditiously is necessary per grant assurances.

Continuing the work under the current major works project supported by Stantec Engineers, Inc., the Engineer of Record, Port PCS and Maintenance is the most efficient means to complete this project in a timely and cost efficient manner.

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### **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 CO<sub>2</sub> and other air emissions produced
- Provide aircraft with cabin heating and cooling while eliminating the need for using the APU, which consumes jet fuel
- Minimize lifecycle costs
- Minimize fuel consumption
- Minimize ramp noise

### **PROJECT SCOPE OF WORK AND SCHEDULE:**

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

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

#### ***Scope of this Request***

- Additional contingency construction budget to support the installation of PC-Air to all airport gates
- Additional design services to support construction phase activities
- Additional budget to continue support of PCS and Maintenance

#### ***Schedule:***

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

Start preliminary design	February 2009
Complete design	April 2010
Seek approval from Commission to advertise	May 2010
Award contract	September 2010
Construction Notice to Proceed	November 2010
Contract Project Completion	January 2013

A time extension will likely be requested once staff has completed review and resolution of construction issues that affected the critical path schedule.

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### **FINANCIAL IMPLICATIONS:**

<b><i>Budget/Authorization Summary:</i></b>	Capital	Expense	Total Project
Original Budget	\$40,600,000	\$0	\$ 40,600,000
Previous Budget Increase	\$ 2,935,000	\$590,000	\$ 3,525,000
Current Budget Increase	\$2,000,000	\$0	\$2,000,000
Revised Budget	\$45,535,000	\$590,000	\$ 46,125,000
Previous Authorizations	\$43,535,000	\$590,000	\$ 44,125,000
Current request for Authorization	\$ 2,000,000	\$0	\$ 2,000,000
Total Authorizations, including this request	\$45,535,000	\$590,000	\$ 46,125,000
Remaining Budget to be Authorized	\$0	\$0	\$ 0

<b><i>Project Cost Breakdown:</i></b>	This Request	Total Project
Construction Costs	\$1,598,173	\$34,689,173
Sales Tax	\$151,827	\$3,217,827
Outside Professional Services	\$250,000	\$3,559,000
Project Management & other Soft Costs	\$0	\$4,069,000
Environmental Remediation Liability		\$590,000
Total	\$2,000,000	\$46,125,000

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

This project (CIP # 800238) is included in the 2012-2016 capital budget and plan of finance with a budget of \$43.5 million. The budget increase of \$2,000,000 will be transferred from CIP C102166, Aeronautical Renewal & Replacement Allowance, thus there is no change to the 2012-2016 capital budget. The funding plan is predicated upon the Port receiving \$21.2 million in VALE program grants, with the remaining costs funded with Airport Development Fund, and 2010 revenue bonds. This project was reviewed by the airline representatives and approved through a Majority-In-Interest vote in June 2008.

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

<b>CIP Category</b>	New/Enhancement
<b>Project Type</b>	Infrastructure
<b>Risk adjusted Discount rate</b>	10%
<b>Key risk factors</b>	Realizations of savings due to lower jet fuel usage
<b>Project cost for analysis</b>	\$ 24,912,679 (Excludes VALE grant funded portion)
<b>Business Unit (BU)</b>	Terminal cost Center
<b>Effect on business performance</b>	NOI after depreciation will decrease due to recognizing depreciation on the full cost yet recovering capital costs for the non-VALE funded portion only.
<b>IRR/NPV</b>	NPV range of net savings to airlines: \$5 million to \$30 million. (calculated in 2010)
<b>CPE Impact</b>	CPE will increase by \$.16 in 2013; however, this cost will more than offset by decreased airline operating costs. This project was included in the business plan forecast.

### **ECONOMIC IMPACTS AND BUSINESS PLAN OBJECTIVES:**

The positive net present value (NPV) 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 Point Of Use (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 per gallon for the price of jet fuel (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:**

This project will support the Century Agenda goal to be the greenest and most energy efficient port in North America by reducing air pollutants and carbon emissions. It 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 airlines' 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 PC-Air system. CO<sub>2</sub> 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.

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### **BUSINESS PLAN OBJECTIVES:**

This project support the Airport's business plan goal of leading the U.S. airport industry in environmental innovation and minimizing the Airport's environmental impacts.

### **TRIPLE BOTTOM LINE:**

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.

### **ALTERNATIVES CONSIDERED AND THEIR IMPLICATIONS:**

- Alternative 1 – Reduce Project Scope to Current Approved Funding. To reduce the project scope by \$2,000,000 would require removing PC-Air installation for Concourse D and North Satellite. This change would substantially reduce funding recovery from the VALE phase II grant 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 proceed with completion of the project to all Airport gates for an additional cost of \$2,000,000. Total project cost is estimated at \$46,125,000. **This is the recommended alternative.**

### **OTHER DOCUMENTS ASSOCIATED WITH THIS REQUEST:**

- Memorandum of Notification per RCW 53.19.060 of the Port's intent to amend Professional Services Agreement P-00316148 by \$250,000

### **PREVIOUS COMMISSION ACTIONS OR BRIEFINGS:**

On September 11, 2012, the Commission authorized payment of Change Order # 113 for \$776,910. This change order was paid from Project Construction Contingency.

On September 27, 2011, the Commission authorized a budget increase \$3,525,000 to cover additional costs to the construction budget, outside professional services and PMG soft costs. Total project budget authorization increased to \$44,125,000.

On May 24, 2011, the 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.

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 PC Air Project (CIP # C800238) at the Airport and execute a construction contract. This authorization was for \$36,830,000. The estimated total project cost is \$40,600,000.

On January 13, 2009, the Commission authorized procurement and execution of service agreements with consultants to perform design, 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.