

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA

Item No. 6d

Date of Meeting May 11, 2010

DATE: April 20, 2010

TO: Tay Yoshitani, Chief Executive Officer

FROM: Dave Soike, Manager, Aviation Facilities and Infrastructure
Michael Ehl, Director, Airport Operations
Wayne Grotheer, Director Aviation Capital Improvement Program

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

This Request: \$36,830,000

Source of Funds: Airport Development Fund
FAA – AIP, VALE Grants

Total Project Budget: \$40,600,000

Sales Tax Paid: \$2,972,000

Grants Available: \$25,870,000

Jobs Created: 120

Net Cost to Airport: \$14,730,000

ACTION REQUESTED:

Request Commission authorization for the Chief Executive Officer to advertise for bids, apply a Project Labor Agreement (PLA) and to 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. A separate Notice to Proceed will be issued for each phase (one contract with two separate notices to proceed) as Federal Aviation Administration (FAA) funding becomes available. Award of each phase of the contract will be contingent on grant funds authorized by the FAA. This authorization is for \$36,830,000. Approximately \$25,870,000 is expected to be funded through a Voluntary Airport Low Emissions Program (VALE) Grant from the FAA, with the remaining \$14,730,000 to be the expected Port cost. The estimated total project cost is \$40,600,000.

SYNOPSIS:

The PC Air project will allow flight crews to turn off aircraft auxiliary engines and plug in to the Airport infrastructure to receive both heated and cooled air. This will lower costs to the airlines while producing significant environmental benefits by reducing tens of thousands of tons of carbon dioxide (CO₂) emissions each year. This project is a cost effective way to aid the airlines while improving the quality of the environment. The airlines have approved \$31,087,000 for this

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project, most of which will now be covered by the FAA VALE grant. The cost per enplanement is anticipated to increase by \$0.12; however, these costs will be more than offset by decreased airline operating costs. Application of a PLA is warranted to assure that the project schedule is not disrupted by work stoppages, which could jeopardize the VALE grant funding and airplane gating operations. Installation at each gate will take three days, which must be tightly scheduled to avoid disrupting operations. Work stoppages would jeopardize this scheduling and potentially increase airline costs. The VALE grant is contingent on completing the work within three years of grant approval.

BACKGROUND:

While parked at a gate, an aircraft's heating and air conditioning is provided by either the aircraft's on board Auxiliary Power Unit (APU) or a ground based supply system. Utilization of the aircraft's APU is expensive. It also generates significant carbon dioxide (CO₂) and other air emissions. Currently, some gates at the Airport have a ground based (diesel powered mobile cart) or electrical Point of Use (POU) system alternative to APU utilization.

The dual goals of reducing environmental impacts and operating costs have led the staff to study the feasibility of installing an airport-wide PC Air system. The study evaluated APU operating costs versus three prevalent ground based supply systems, electrical POU, diesel powered mobile carts, and a centralized system. The centralized system produced the most cost effective and environmentally sound results. Estimates for the reduction of CO₂ and other emissions were calculated to be in excess of 69,000 metric tons per year.

FAA grant funding support for this project has been identified through the Voluntary Airport Low Emissions (VALE) Grant Program. This program provides funding for up to 75% of construction costs but excludes design and other soft costs. The project will be accomplished in two construction phases in order to maximize the available VALE funds. Phase I will include construction of the Central Plant, portions of the Chilled and Heated Water Distribution System, purchase of the gate delivery equipment and installation of the gate delivery equipment to selected gates. There are no pre-purchase items necessary. Phase II will complete construction of the remainder of the Chilled and Heated Water Distribution System and the remaining PC Air gate equipment. Phase I will be completed in early 2011, Phase II will be completed in 2012. The FAA has programmed up to \$30 million in grant funding for the project; however, we anticipate using approximately \$25,870,000.

The use of a Project Labor Agreement is recommended for this project. The primary factors contributing to the recommendation are the inclusion of a no-strike clause to avoid the potential for work stoppage and subsequent impacts on airport operations and to the traveling public. This is the largest Centralized Pre-conditioned Air project in the country. Installation of the PC Air equipment at each gate will be difficult due to the nature of working around the airlines' schedules. We will have windows of approximately three days to close down a gate and complete installation. Prep work will be done on off hours when the areas are available. The

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most critical issue is to avoid a work stoppage while a gate is closed for installation. The gates must be open as scheduled otherwise there will be an interruption of the airlines' schedules at substantial cost. A work stoppage can also jeopardize FAA grant funding due to schedule constraints, and the FAA has approved the use of a PLA on this project. There will also be a substance abuse prevention program that will provide a safety benefit.

PROJECT DESCRIPTION/SCOPE OF WORK:

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.

Scope of Work:

The PC Air project will provide temperature-controlled outside air to aircraft parked at approximately 73 passenger loading bridges (the number of gates is dictated by the size of the aircraft, smaller aircraft do not require PC Air). The system will include a central plant with chillers and central ice storage, a distribution piping system, individual air handlers at each gate that connect to the aircraft, and direct digital controls. The central plant will be connected to the Airport's existing cooling chilled water system and direct digital control system.

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.

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Exhibit Environmental Stewardship through Our Actions:

This project significantly supports the Port's goal of becoming the cleanest, greenest and most energy-efficient port in the United States, and will dramatically reduce CO2 emissions that are generated by APUs. A centralized PC Air system is the most cost effective and energy efficient long term means of providing preconditioned air to gated aircraft.

FINANCIAL IMPLICATIONS:

Budget/Authorization Summary

Original Budget	\$31,087,000
Budget Increase	\$9,513,000
Budget Transfers	\$ 0
Revised Budget	\$40,600,000
Previous Authorizations	\$3,770,000
Current request for authorization	\$36,830,000
Total Authorizations, including this request	\$40,600,000
Remaining budget to be authorized	\$ 0

Project Cost Breakdown

This Request

Total Project

	<u>This Request</u>	<u>Total Project</u>
Construction costs	\$31,528,000	\$31,528,000
Sales tax	\$2,972,000	\$2,972,000
Outside professional services	\$0	\$2,509,000
Aviation PMG and other soft costs	\$2,330,000	\$3,591,000
Total	\$36,830,000	\$40,600,000

Source of Funds:

This project (CIP # 800238) is included in the 2010-2014 capital budget and plan of finance. The funding plan is predicated upon the Port receiving \$25.87 million in VALE program grants, with the remaining costs funded with revenue bonds to be issued in 2010 or 2011. 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	Realization of savings due to lower jet fuel usage. Grant funding.

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Project cost for analysis	\$14,730,000 (excludes VALE grant funded portion)
Business Unit	Terminal cost center
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
CPE Impact	CPE will increase by \$.12 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.

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.

ENVIRONMENTAL SUSTAINABILITY/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.

TRIPLE BOTTOM LINE SUMMARY:

This project is expected to help reduce the overall operating costs of the airlines while providing an environmentally viable solution to maintaining comfortable aircraft cabin temperatures at the gate. Decreased air emissions and decreased fuel consumption are consistent with the Port's commitment to responsible environmental stewardship.

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PROJECT 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 July 2010
- Anticipated Start Phased Construction Oct 2010
- Anticipated Project Completion Dec 2012

ALTERNATIVES CONSIDERED/RECOMMENDED ACTION:

Alternative 1 - Proceed with the Centralized Pre-Conditioned Air project. The system features a central plant that efficiently shares the load for all gates and distributes cooling or heating as needed. The system includes an ice storage system that allows the system to run at off peak times increasing the energy efficiency. This is the recommended alternative.

Alternative 2 – Airlines continue using onboard APUs to heat and cool aircraft parked at the aircraft gates. This method generates CO2 emissions from APUs, and uses a significant amount of costly aircraft fuel to operate. It is not cost effective for airlines, and negatively affects the environment. This is not the recommended alternative.

Alternative 3 – Proceed with a POU preconditioned air system installed at each passenger loading bridge, which would be individual electrical driven units at each gate. This alternative reduces CO2 emissions. However, this alternative is not the most cost effective on a first cost or life cycle cost basis and would consume almost all of the spare power capacity available from several power centers in the Airport's existing electrical distribution system. This is not the recommended alternative.

OTHER DOCUMENTS ASSOCIATED WITH THIS REQUEST:

- Map showing gates affected by the project

PREVIOUS COMMISSION ACTION:

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.