

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA
ACTION ITEM

Item No. 6e
Date of Meeting August 5, 2014

DATE: July 29, 2014
TO: Tay Yoshitani, Chief Executive Officer
FROM: Wayne Grotheer, Director, Aviation Project Management Group
David Soike, Director, Aviation Facilities and Capital Program
SUBJECT: Wi-Fi Enhancements Design Authorization (CIP #C800585)

Amount of This Request: \$1,891,000 **Source of Funds:** Airport Development Fund
Est. Total Project Cost: \$9,880,000

ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to prepare design and construction bid documents for an enhanced Wi-Fi system at Seattle-Tacoma International Airport for an amount not to exceed \$1,946,000 out of a total estimated project cost of \$9,880,000.

SYNOPSIS

The Wi-Fi Enhancements project will replace an existing, outdated Wi-Fi system used throughout much of the Airport with a higher performing, wireless network with modern Wi-Fi access points to better meet the needs of passengers, Airport tenants, and airlines. It will also provide new ramp level Wi-Fi coverage at airport gates. The proposed technology enhancement will support current needs as well as the anticipated growth in the number of connected devices, requirements for improved bandwidth for newer mobile devices, and extend much needed coverage in the terminal and ramp.

This project began as four separate Wi-Fi projects included in the 2014-2018 plan of finance with a combined budget of \$5,098,000 (CIPs C800585, C800622, C800624, and C800633). During project definition, earlier budget estimates were refined, and staff decided to proceed with a unified Airport-wide Wi-Fi project, with a larger scope, to be constructed in phases. The current estimated total project cost is \$9,880,000. Staff expects to seek Commission authorization for construction in 2015.

BACKGROUND

The existing Wi-Fi system at the Airport shares use of cellular radio equipment, which was installed with the AT&T Wireless Distributed Antennae System (DAS) in 2004-2005. The DAS has provided Wi-Fi coverage for the past decade but the design was optimized for cellular phone

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service and its Wi-Fi capabilities have become outdated. The Port assumed ownership of the DAS-based Wi-Fi access points in 2009 as part of the AT&T contract. The DAS-based Wi-Fi infrastructure no longer meets the performance needs of the Airport's passengers and tenants for Internet access, it has a limited coverage area, and it does not support the latest Wi-Fi network standards.

PROJECT JUSTIFICATION AND DETAILS

An enhanced Wi-Fi system will be designed to better support public, business, and operational needs throughout much of the Airport. The project will install network backbone infrastructure and Wi-Fi access points to provide high-speed, wireless Internet access in public areas used by passengers in the Main Terminal, Concourses C and D, the South Satellite, and for Airport ramp operation.

There are two primary types of high-speed wireless access targeted by this project.

The first type of high-speed wireless access will provide much improved Internet access for passengers and tenants in public areas of the Airport. Mobile devices will connect to new Wi-Fi access points installed inside the facility, which replace the existing distributed antenna system's Wi-Fi access points in the terminal and concourses. The new Wi-Fi access points enable higher bandwidth to the Internet, support more connected devices and comply with the latest Wi-Fi standards used by today's mobile devices.

The second type will support airport, airline, and tenant operations outside the facility on the ramp level at passenger loading bridges. The "ramp wireless network" will be accessed by both handheld and vehicle-mounted mobile devices, and by new aircraft avionics systems. The design of the enhanced Wi-Fi network will support Virtual Private Networks (VPNs) that will be configured for secure Airport, airline, and tenant operations.

Project Objectives

This project will provide high-speed, wireless Internet access throughout the main terminal, concourses, and ramp with the exception at the North Satellite, which is anticipated to be included in future development plans for that facility.

Scope of Work

This project will plan and design an enhanced Wi-Fi system at the Airport that will provide high-speed Internet access for mobile device users throughout Concourses C and D, the South Satellite, GML Hall, Central Terminal, Ticketing and Security Checkpoints, the ramp's passenger loading bridges, and baggage make-up areas. Improvements to the Wi-Fi infrastructure for the North Satellite, and to Concourses A and B will be performed by other projects.

The table below identifies the location of Wi-Fi expansion, the type of equipment being installed and the three projects that will expand Wi-Fi coverage to the ramp and inside the Airport's public areas.

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Location	Equipment	Project
Main Terminal (Ticketing, Checkpoints, Central Terminal, GML Hall, Baggage Claim)	Single-mode Fiber/CAT-6A cable, network switches and 802.11 wireless access points	Wi-Fi Enhancement (CIP #C800585, this project)
Concourse-A Concourse Level	Single-mode Fiber/CAT-6A cable, network switches and 802.11 wireless access points	Fiber Infrastructure to Gate Backstand (CIP # 800464)
Concourse-A Ramp Level	Single-mode Fiber/CAT-6A cable, micro-distribution cabinets and 802.11 wireless access points	Wi-Fi Enhancement
Concourse-B Concourse Level	Single-mode Fiber/CAT-6A cable, network switches and 802.11 wireless access points	Fiber Infrastructure to Gate Backstand (CIP #800464)
Concourse-B Ramp Level	Single-mode Fiber/CAT-6A cable, micro-distribution cabinets and 802.11 wireless access points	Wi-Fi Enhancement
Concourse-C Concourse Level and Ramp Level	Single-mode Fiber/CAT-6A cable, micro-distribution cabinets, network switches, and 802.11 wireless access points	Wi-Fi Enhancement
Concourse-D Concourse Level and Ramp Level	Single-mode Fiber/CAT-6A cable, micro-distribution cabinets, network switches, and 802.11 wireless access points	Wi-Fi Enhancement
South Satellite Concourse (Departure) Level and Ramp Level	Single-mode Fiber/CAT-6A cable, micro-distribution cabinets, network switches, and 802.11 wireless access points	Wi-Fi Enhancement
North Satellite Concourse Level and Ramp Level	Single-mode Fiber/CAT-6A cable, network switches and 802.11 wireless access points	North Satellite NorthSTAR (CIP #800544)

In general, the design will include a minimum of two Wi-Fi access points for each gate hold area, and three Wi-Fi access points at each gate ramp location. The ramp Wi-Fi system will be supported by the installation of weather tight micro-distribution cabinets, which provide network backbone connectivity for the ramp Wi-Fi access points. These will be installed on the exterior of the building at the ramp level of concourses and South Satellite mounted on or in close proximity to passenger loading bridges. Micro-distribution cabinets will provide the infrastructure necessary for the ramp wireless network as well as other anticipated network connectivity, e.g., future Closed Circuit TV (CCTV) coverage. Micro-distribution cabinets will also provide the required network connectivity for Wi-Fi improvements to the interior of Concourse C hold rooms.

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- Certain areas and functionality are not included within the above scope of work. While Wi-Fi access points will be installed in hold rooms and aircraft gate areas, this project will not install them within concessionaire lease spaces. Wi-Fi service improvements within concession spaces will be the subject of later requests to the Commission within the Airport's dining and retail program authorizations. Newer technology that is available within the marketplace to track movements of certain individuals will not be installed as part of this project. As a result this project does not increase concerns related to individual privacy. Rather this project aims to increase access to the Internet for the Airport's travelers and business customers.

The first phase of work will occur at Concourse C as a pilot project. The ramp micro distribution cabinets at this location will provide support for the gate hold area Wi-Fi system as well. Once completed, the Port will evaluate the functionality and serviceability of this system before completing similar arrangements for ramp Wi-Fi throughout the Airport.

Schedule

Commission Authorization for Design	August 2014
Commission Authorization for Construction	January 2015
Issue Notice to Proceed	June 2015
Construction Complete	July 2016

FINANCIAL IMPLICATIONS

<i>Budget/Authorization Summary</i>	Capital	Expense	Total Project
Original Budget	\$3,000,000	\$0	\$3,000,000
Budget Increase	\$3,727,000	\$0	\$3,727,000
Budget transfers from C800622, C800624, C800633	\$3,153,000	\$0	\$3,153,000
Previous Authorizations	\$55,000	\$0	\$55,000
Current request for authorization	\$1,891,000	\$0	\$1,891,000
Total Authorizations, including this request	\$1,946,000	\$0	\$1,946,000
Remaining budget to be authorized	\$7,934,000	\$0	\$7,934,000
Total Estimated Project Cost	\$9,880,000	\$0	\$9,880,000

<i>Project Cost Breakdown</i>	This Request	Total Project
Design Phase	\$1,891,000	\$1,946,000
Construction Phase	\$0	\$7,327,000
State & Local Taxes (estimated)	\$0	\$607,000
Total	\$1,891,000	\$9,880,000

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Budget Status and Source of Funds

The Wi-Fi Enhancements Projects CIPs (C800585, C800622, C800624, and C800633) are included in the 2014-2018 capital budget and plan of finance with a combined capital budget of \$5,198,000. The budget increase of \$3,727,000 was transferred from the Aeronautical Allowance CIP (C800404) resulting in no net change to the Airport capital budget. The funding source will be the Airport Development Fund.

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	\$9,880,000
Business Unit (BU)	Terminal Building and Airfield Apron Area cost centers
Effect on business performance	NOI will increase
IRR/NPV	N/A
CPE Impact	\$0.07 in 2017

Lifecycle Cost and Savings

The existing DAS-based Wi-Fi system has surpassed its useful life. Current demand for Wi-Fi access results in poor performance, loss of connection, or no connection at all. It is anticipated that an enhanced Wi-Fi system as currently envisioned will provide adequate capacity for the foreseeable future.

Although the enhanced Wi-Fi system provides significant performance improvements and better coverage, renewal and replacement of the some of the network components will be required in the three- to five-year time frame to keep pace with innovation in the wireless industry and compliance with network standards.

A software license and maintenance fee estimated increase of \$20,000 will be budgeted in the ICT Operating Budget. Recurring Port labor costs to maintain the system are not expected to change as a result of this project.

STRATEGIES AND OBJECTIVES

This project support's the Port's Century Agenda objective of advancing this region as a leading tourism destination and business gateway. Airport travelers and tenants have come to expect high speed Wi-Fi access while moving through the Airport and while waiting for their flights. In addition, airlines and Airport tenants are transitioning toward wireless transfer of data for their business operations. Replacing the existing DAS-based Wi-Fi system with a new Wi-Fi system will accommodate public, business, and operational expectations for the foreseeable future.

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TRIPLE BOTTOM LINE

Economic Development

This Wi-Fi Enhancement project represents an investment in our current facilities and supports the long-term vitality of the Airport, airlines, and Airport tenants.

Environmental Responsibility

This is a system internal to the Airport and will have a negligible effect on the environment.

Community Benefits

Wi-Fi Enhancement will increase high-speed data access for passengers and the traveling public and improve customer service for Airport customers and tenants. The Project Manager and the Office of Social Responsibility will work together to determine small business participation opportunities, in accordance with small business Resolution No. 3618.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1) – Do nothing. Continue to rely on the existing DAS system for Wi-Fi access. This alternative will not provide the level of wireless access service (accessibility, stability, speed) expected by Airport customers now and in the future. This is not the recommended alternative.

Alternative 2) – Allow an ad-hoc development of new Wi-Fi connectivity by Airport tenants. This alternative would not provide a consistent solution and could rely on outdated network connectivity thereby not improving service. This is not the recommended alternative.

Alternative 3) – Replace the existing DAS-based Wi-Fi system with a new high-speed Wi-Fi system throughout the Airport ramp, main terminal, and concourses. **This is the recommended alternative.**

ATTACHMENTS TO THIS REQUEST

- None.

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- None.