

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA
ACTION ITEM

Item No. 4e
Date of Meeting May 24, 2016

DATE: May 16, 2016
TO: Ted Fick, Chief Executive Officer
FROM: Wayne Grotheer, Director, Aviation Project Management Group
Dave Soike, Director, Aviation Facilities and Capital Program
SUBJECT: Wi-Fi Enhancements Phase 1 Construction Authorization (CIP #C800585)

Amount of This Request:	\$7,239,000	Source of Funds:	Airport Development Fund
Est. Total Project Cost:	\$10,676,000		
Est. State and Local Taxes:	\$322,000		

ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to advertise and execute contracts for the first phase of construction of the Wi-Fi Enhancement Project (CIP #C800585) at Seattle-Tacoma International Airport for an estimated cost of \$7,239,000 and to increase the project's overall budget to \$10,676,000 for additional scope.

SYNOPSIS

The Wi-Fi Enhancement project will replace an existing, outdated Wi-Fi system used throughout much of the Airport with a higher performing, wireless network with modern Wi-Fi access points to better meet the needs of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 on the ramp.

This first phase request provides Wi-Fi improvements to the ramp and concourse levels of Concourse C and D as well as the ramp levels of Concourses A, B, and the South Satellite, as well as ticketing level security checkpoint locations. A second phase of this project will include Wi-Fi improvements in the Main Terminal Bagwell, Bag-Claim, Gina Marie Lindsey Hall, Satellite Transit System Platforms and the interior of the South Satellite.

BACKGROUND

The existing Wi-Fi system at the Airport shares use of cellular radio equipment, which was installed with the AT&T Wireless Distributed Antenna 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service and its Wi-Fi capabilities have become outdated.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, has a limited coverage area, and does not support the latest Wi-Fi network standards used by today's mobile devices.

PROJECT JUSTIFICATION AND DETAILS

The project will install network backbone infrastructure and Wi-Fi access points to provide high-speed, wireless Internet access at portions of the Airport. This project, when combined with the recently finished Fiber to Backstands Project, will provide a complete upgraded Wi-Fi experience for users at the Airport. The North Satellite Wi-Fi improvements will be completed as part of the NorthSTAR program.

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 DAS Wi-Fi access points in the terminal and concourses. The new Wi-Fi access points will enable higher bandwidth, support more connected devices and comply with the latest Wi-Fi standards used by today's mobile devices. The density of wireless access point coverage will significantly reduce connection problems while providing higher download and upload speeds for passengers and airline staff.

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.

This project began as four separate Wi-Fi projects (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 two phases. After design authorization, the project utilized an on-site survey team with radio frequency measuring devices to more accurately determine the number of access points needed to meet the required level of service. During this survey, an increased number of Wi-Fi access points were determined to be needed to meet the level of service the Wi-Fi system will need with the growing number of passengers and other users at the Airport. This has increased the project scope 22% and required a budget increase of 8% from \$9,880,000 to \$10,676,000.

Project Objectives

This project will install high-speed, wireless Internet access throughout the main terminal, concourses, and ramp with the exception of the North Satellite, where that scope is included in the NorthSTAR project.

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Scope of Work

When both phases of this project are complete, the Airport will have an enhanced Wi-Fi system that will provide high-speed Internet access for mobile device users throughout Concourses C and D, the South Satellite, Ticketing and security checkpoints, the Central Terminal, Baggage Claim, the Gina Marie Lindsey Hall, north and south Satellite Transit System (STS) platforms, and operational areas including the Airport ramp, passenger loading bridges, and baggage make-up areas. Improvements to the Wi-Fi infrastructure for the North Satellite and to the interior of Concourses A and B are being completed by other projects.

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. Micro-distribution cabinets will also provide the required network connectivity for Wi-Fi improvements to the interior of Concourse C hold rooms.

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 concession lease spaces which were included in the Airport's Dining and Retail program and associated projects.

Schedule

Commission Authorization for Phase 1 Construction	Q2 2016
Issue Notice to Proceed	Q3 2016
Construction Completion for Phase 1	Q3 2017
Commission Authorization for Phase 2 Construction	Q4 2016
Construction Completion for Phase 2	Q3 2017

FINANCIAL IMPLICATIONS

Budget/Authorization Summary

	Capital	Expense	Total Project
Original Budget	\$9,880,000	\$0	\$9,880,000
Budget Adjustments	\$796,000	\$0	\$796,000
Revised Budget	\$10,676,000	\$0	\$10,676,000
Previous Authorizations	\$1,946,000	\$0	\$1,946,000
Current request for authorization	\$7,239,000	\$0	\$7,239,000
Total Authorizations, including this request	\$9,185,000	\$0	\$9,185,000
Remaining budget to be authorized	\$1,491,000	\$0	\$1,491,000
Total Estimated Project Cost	\$10,676,000	\$0	\$10,676,000

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Project Cost Breakdown

	This Request	Total Project
Design Phase	\$0	\$1,897,000
Construction Phase	\$6,917,000	\$8,338,000
Sales Tax	\$322,000	\$441,000
Total	\$7,239,000	\$10,676,000

Budget Status and Source of Funds

The Wi-Fi Enhancements Projects CIP (C800585) is included in the 2016-2020 capital budget and plan of finance with a budget of \$9,880,000. The budget increase of 796,000 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 and Replacement
Risk adjusted discount rate	N/A
Key risk factors	N/A
Project cost for analysis	\$10,676,000
Business Unit (BU)	Terminal Building and Airport Apron Area cost centers
Effect on business performance	NOI will increase
IRR/NPV	N/A
CPE Impact	\$0.06 in 2018

Lifecycle Cost and Savings

Although the enhanced Wi-Fi system provides significant performance improvements and better coverage, renewal and replacement of some 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 potentially upgraded Port 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 supports the Port's Century Agenda objective of being the west coast gateway of choice for international travel. 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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ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1) – Status Quo – Do not proceed with construction of this Wi-Fi Enhancement project.

Cost Implications: \$500,000 in design costs would be expensed.

Pros:

- Costs to deploy new networks could be passed to the tenants.
- Some Wi-Fi coverage would remain via the existing Distributed Antenna System.

Cons:

- Accessibility, stability and speed of current system does not meet customer needs, encouraging tenants to deploy their own Wi-Fi networks.
- Wi-Fi access will vary throughout the airport, and users would need to switch between different networks to continue usage as they moved
- No Wi-Fi would be available on the ramp for use by Operations, Airlines and other stakeholders.
- Concourses A and B will have remarkably better (20 times faster) coverage than the other concourses at the airport due to completion of the Concourse A and B Airport Fiber to Backstand project.

This is not the recommended alternative.

Alternative 2) – Proceed with construction of phase 1 but reduce scope and do not increase the project budget at this time.

Cost Implications: \$9,880,000 (original project budget)

Pros:

- Construction could occur for portions of the planned Wi-Fi Enhancement project on a selected basis.
- High priority areas could be completed.

Cons:

- Some project redesign would be required to determine where to remove coverage and how to re-phase the design and construction.
- The overall Airport Wi-Fi coverage would be spotty.
- Reduced coverage would likely result in “dead zones” with no coverage.
- Customer satisfaction of the Airport’s Wi-Fi coverage would continue to decline.

This is not the recommended alternative.

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Alternative 3) – Proceed with construction of phase 1 and increase the project budget and scope.

Cost Estimate: \$10,676,000 (new project budget)

Pros:

- The Airport will fulfill the need for more accessibility, stability and speed in the Wi-Fi system.
- Installation of high priority areas could be completed.
- Uniform Wi-Fi coverage under the same network will be available throughout the Airport.
- The Airport's Wi-Fi system will provide one of the fastest Wi-Fi systems in a North American airport, increasing the Airport's customer satisfaction and Operational efficiency.
- The density of wireless access point coverage will significantly reduce connection problems while providing higher download and upload speeds for passengers, airline staff and airport operations.

Cons:

- This is the most expensive alternative.

This is the recommended alternative.

ATTACHMENTS TO THIS REQUEST

- PowerPoint Presentation

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- August 5, 2014 – Commission authorized design for \$1,891,000.