

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA
ACTION ITEM

Item No. 6d
Date of Meeting December 2, 2014

DATE: November 24, 2014
TO: Ted Fick, Chief Executive Officer
FROM: Mike Ehl, Director, Airport Operations
Wayne Grotheer, Director, Aviation Project Management Group
SUBJECT: Runway 16Center/34Center (RW 16C/34C) Reconstruction (CIP #C800406) at Seattle-Tacoma International Airport

Amount of This Request:	\$99,139,000	Source of Funds:	Airport Development Fund, AIP Grants, Future Revenue Bonds
Est. Total Project Cost:	\$113,095,000		
Est. State and Local Taxes:	\$7,627,000		

ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to (1) advertise and execute a construction contract for the Runway 16C/34C Reconstruction project; and (2) advertise and execute a project-specific service agreement for special testing and inspection services. This authorization request is for \$99,139,000 and the estimated total cost of the project is \$113,095,000.

SYNOPSIS

The runway reconstruction project will replace Runway 16 Center/34 Center (RW 16C/34C) in its entirety as it has greatly exceeded its service life. Other associated work includes the replacement of portions of several connecting taxiways, navigational aids, and utilities; reconfiguration of Taxiway H/J to improve safety; joint seal replacement on taxiways; infrastructure to support an automated foreign object debris system; and blast pad expansion on both RW 16C/34C and Runway 16 Left/34 Right (RW 16L/34R).

This project will be constructed over two construction seasons. In 2015, RW 16C/34C and taxiways C and N will be reconstructed, taxiways crossing RW 16C/34C will be joint sealed, and reconstruction will begin on taxiways H and J. All this will occur within the six-month runway closure. In 2016, RW 16L/34R will be closed for approximately three months to complete taxiway H and J and runway blast pad expansion. To avoid the closure of two runways at once, work that is within the runway safety area of RW 16L/34R will occur in 2016.

The operational requirements for the runway dictate higher than normal concrete specifications. In order to verify that the installed concrete will perform as expected, the Port will be performing

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acceptance testing of the concrete as it is being installed. A project specific IDIQ (indefinite delivery, indefinite quantity) service agreement for testing and inspection services is required as the expected cost for this service is approximately \$950,000 over the duration of the construction contract. The cost for this service is currently included in the requested budget authorization.

The cost estimate was updated based on the advancement of the design from the 60% design level to final design and the modified agreements between the Port and the Federal Aviation Administration (FAA). The current cost estimate is approximately \$10.2 million more than the previous estimate. Primary reasons for the increase are additional items identified during design, more impacts to FAA facilities and some cost associated with the restoration of the SR-518 and Des Moines Memorial Way interchange.

The Port is receiving an FAA grant in the amount of \$15,082,209 for this project. The FAA has indicated that a second grant of up to \$10 million for this project may be received in 2015.

BACKGROUND

RW 16C/34C, with a length of 9,425 feet and width of 150 feet, was constructed as Portland Cement Concrete pavement in 1969, with a 20-year design life, and has currently lasted more than double that lifespan. The Airport began a Runway Improvement Program in 1993, which was designed to rehabilitate and extend the useful life of the runway. The runway rehabilitation has continued through 2014. More than 600 of the approximately 4,300 concrete panels will have been replaced since the beginning of the program. Once a panel begins to deteriorate, it can cause foreign object damage to aircraft, compromise directional stability, and cause wheel assembly damage. Deteriorating panels also allow water infiltration below the runway surface, which leads to erosion of the sub-surface and further pavement deterioration. RW 16L/34R, reconstruction in 2009, resulted in most aircraft using RW 16C/34C for departures. Departures cause the greatest amount of stress on a runway. This additional use in 2009 likely further stressed the runway panels.

Airport staff have regularly monitored the pavement conditions and evaluated when RW 16C/34C should be reconstructed. The runway was originally planned to be reconstructed in 2010, but was deferred to 2016 for budgetary reasons. Even with the ongoing program to replace runway panels, there has been no guarantee that the runway would last until 2016. In August 2013 after consulting with the FAA, Airport staff decided to advance the start of the reconstruction to 2015, due to the high number of concrete patches (more than 2,000) that have been installed in the runway panels, and the increasing occurrence of patch failures.

The RW 16C/34C Reconstruction project has three key project components, which are 1) an automated Foreign Object Debris (FOD) detection system, 2) the Runway Reconstruction project, and 3) the State Route (SR) 518 and Des Moines Memorial Way interchange project.

1. The Commission has previously authorized a contract for the automated FOD detection system, which was executed in September 2014. This system will improve safety by the use of electronic surveillance for FOD. The implementation of this system is being coordinated

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with the runway reconstruction project that will provide the necessary power and communication infrastructure to support the automated FOD detection system.

2. The Commission previously authorized proceeding with the design and preparation of final construction documents for the RW 16C/34C Reconstruction project. Commission authorization to advertise and execute a contract now will allow the project to advertise immediately and the work on RW 16C/34C to occur during the 2015 construction season. The magnitude of this civil-type project and coordination with work to be performed by the FAA necessitates the utilization of the best weather period for the work.
3. The Commission previously authorized proceeding with the design and preparation of final construction documents for the restoration of the SR-518 and Des Moines Memorial Way interchange on-ramp as part of the overall RW 16C/34C Reconstruction project design authorization. The interchange was previously modified for the Third Runway project to provide an expedited and safe haul route. The modification included moving the existing on-ramp to the south, removing sidewalk, constructing a construction-vehicle-only ramp so haul vehicles would avoid the use of Des Moines Memorial Way, installation of a signal system, revising drainage, and miscellaneous other items. The Washington State Department of Transportation (WSDOT) agreed to extend the use of the temporary haul route by the Port for other major projects including its use for RW 16C/34C reconstruction. Near the conclusion of the RW 16C/34C project, the Port will fulfill its commitment to WSDOT to restore the interchange to its original configuration as the haul route will no longer be needed. Port staff previously anticipated entering into an agreement with the City of Burien for a single, combined contract that would include their new off-ramp project and the Port's on-ramp reconstruction project. The City's project has been delayed and the schedule no longer aligns with the Port's project. Accordingly, both agencies have decided to proceed with separate contracts. Port staff anticipates returning to the Commission in late 2015 for authorization to advertise and execute a contract for the restoration of the SR-518 and Des Moines Memorial Way interchange eastbound on-ramp.

The Commission authorized Port staff to enter into one or more agreements with the FAA to address impacts to their navigational aids (NAVAIDS) and fiber optic transmission system (FOTS) resulting from the project. An agreement has been executed with additional modifications to the agreement in progress.

The estimated project cost included in the previous Commission memo for February 25, 2014, was based on the 60% design plans finished in 2011 with planned scope adjustments. The current cost estimate, which is \$10.2 million higher than previously anticipated, is partially absorbed by the design development allowance and a reduction in anticipated administrative costs. Key differences in cost between the previous and current estimates are shown below.

Key Differences for the Capital Portion of Budget:

- 1) In retrospect, the previous estimate included less design development allowance than needed for the level of design;

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- 2) The reconfiguration of Taxiway H/J. The design was still in a concept development stage and the cost estimate developed in November 2013 was not well defined at that point. The replacement of panels with abandoned lighting cans located within 20 feet of connecting taxiways' center line added scope. Individual panels located in the same row of these panels were also determined to need replacement to avoid "orphaned panels". The removal of orphaned panels allows more efficient panel replacement to occur by slip-form methods rather than hand placement and results in a better quality product. The additional pavement removal, associated excavation, and installation of new pavement for Taxiway H/J and for the lighting installation resulted in an increase of approximately \$14 million;
- 3) There is more extensive work and higher cost for electrical items including LED lighting and communication systems for automated FOD detection system. The increase in cost is approximately \$3.8 million;
- 4) The size of storm drain pipes was increased to accommodate future potential impervious surfaces and resulted in an increase in cost of approximately \$1.6 million;

Key Differences for the Expense Portion of Budget:

- 1) The cost identified for addressing impacts to FAA facilities has increased as more impacts have been identified as the design has progressed. The additional cost is approximately \$2.4 million;
- 2) Cost for the SR-518 Interchange Restoration estimate has been further refined and is now projected to be approximately \$800,000 higher than previously anticipated.

Reconstruction of RW 16C/34C will require closure of the runway while work is accomplished. A safety risk assessment was conducted for the construction activities and determined that the temporary impact on aircraft operations is manageable.

Environmental evaluations were conducted for the project. Construction impacts associated with air, noise, erosion, pollutant runoff, and other environmental media were evaluated and are not expected to produce significant environmental impacts. In August 2014 the FAA approved a Categorical Exclusion under the National Environmental Policy Act (NEPA) and in November 2014 the Port of Seattle issued a Determination of Non-Significance under the State Environmental Policy Act (SEPA).

The project was reviewed with the airlines in December 2013 and approved via the majority-in-interest voting requirements of the airline lease and operating agreement in March 2014.

The Commission previously authorized entering into a Project Labor Agreement for the RW 16C/34C Reconstruction project to ensure labor force continuity and stability and facilitate the timely and efficient completion of the construction project.

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PROJECT JUSTIFICATION AND DETAILS

Project Objectives

- Provide a structurally sound runway for current and future customers
- Provide reliable and appropriately sized infrastructure systems
- Reduce the potential for runway incursions by reconfiguring Taxiways H and J
- Minimize total lifecycle cost (capital and expense)
- Minimize operational impacts

Scope of Work

- Reconstruct the existing RW 16C/34C in its existing location for a 40-year service life.
- Reconstruct the blast pads for RW 16C/34C and RW 16L/34R to comply with FAA standards.
- Install a temporary traffic signal on South 154th Street for the haul route.
- Re-grade a berm located at the northeast side of the blast pad on the north end of RW 16C/34C that the FAA has identified as an obstruction, and minor re-grading at other locations.
- Reconstruct Taxiways H and J in a new configuration to reduce the potential for runway incursions.
- Replace the sections of Taxiways C and N that are located between RW 16C/34C and RW 16L/34R, due to their deteriorated conditions.
- Replace aging infrastructure.
- Install new runway and taxiway light systems. The new light systems will generally use LED fixtures on the runway and incandescent fixtures on taxiways.
- Revise the Airport lighting control and monitoring system to support the LED lights.
- Mark airfield surfaces including taxiway intersection markings, runway hold line markings, holding position markings, enhanced taxiway centerline markings, and other markings at various locations.
- Amend soil of disturbed areas for enhanced stormwater treatment of runway runoff.
- Construct access roads consisting of grass pavers to Port and FAA infrastructure.
- Coordinate with the FAA on their affected navigational aids, utilities, operational issues, and flight checks.
- Restore SR-518 and Des Moines Memorial Way interchange eastbound on-ramp to its original configuration.

Schedule

Commission Authorization to Advertise and Execute a Contract	December 2014
Advertisement	December 2014
Notice to Proceed	April 2015
Begin Construction	April 2015
Construction Completes	August 2016

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FINANCIAL IMPLICATIONS

<i>Budget/Authorization Summary</i>	Capital	Expense	Total Project
Original cost estimate	\$90,390,000	\$0	\$90,390,000
Cost estimate – 2015 Capital Budget	\$99,538,000	\$3,325,000	\$102,863,000
Cost Increase	\$6,998,000	\$3,234,000	\$10,232,000
Revised Budget	\$106,536,000	\$6,559,000	\$113,095,000
Previous Authorizations	\$10,677,000	\$400,000	\$11,077,000
Current request for authorization	\$95,859,000	\$3,280,000	\$99,139,000
Total Authorizations, including this request	\$106,536,000	\$3,680,000	\$110,216,000
Remaining budget to be authorized	\$0	\$2,879,000	\$2,879,000
Total Estimated Project Cost	\$106,536,000	\$6,559,000	\$113,095,000

<i>Project Cost Breakdown</i>	This Request	Total Project
Construction Phase	\$88,265,000	\$97,505,000
Design Phase	\$3,456,000	\$7,963,000
State & Local Taxes (estimated)	\$7,418,000	\$7,627,000
Total	\$99,139,000	\$113,095,000

Budget Status and Source of Funds

This project, C800406, was included in the 2015 – 2019 capital budget and plan of finance with a budget of \$99,538,000. The increase of \$6,998,000 will be transferred from the Aeronautical Allowance CIP (C800404) resulting in no net change to the Airport capital budget. The funding sources will include the Airport Development Fund, FAA grants (approximately \$25 million) and future revenue bonds. The Port plans to issue revenue bonds in 2015 to fund a number of projects.

The reimbursement agreement between the Port and the FAA will be paid for by expense funds. The restoration of the SR-518 and Des Moines Memorial Way interchange will be by expense funds. These expense costs will be incurred in 2014 - 2016.

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	\$106,536,000
Business Unit (BU)	Airfield Movement Area
Effect on business performance	NOI after depreciation will increase
IRR/NPV	N/A
CPE Impact	\$.37 by 2017

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Lifecycle Cost and Savings

The design life for modern concrete pavement is 40 years. The installation of LED lighting and signage systems will reduce energy use and the frequency of replacement of fixtures, due to their longer service life.

STRATEGIES AND OBJECTIVES

This project supports the Port's Century Agenda objective to meet the region's air transportation needs at the Airport for the next 25 years. This project also supports the Aviation Division's strategy to operate a world-class international airport by maintaining its assets. Providing a structurally sound runway for current and future customers is key to meeting both of these objectives.

TRIPLE BOTTOM LINE

Economic Development

The Airport promotes regional economic vitality by operating a world-class international airport, and this strategic goal can be met by ensuring safe and secure operations and anticipating and meeting the needs of tenants, passengers, and the region's economy. Structurally sound runways and connecting taxiways are very significant in ensuring air safety at the Airport. This project supports the long-term vitality of the Airport and the regional economy.

Environmental Responsibility

The project will incorporate sustainable practices into construction. These practices include, but are not limited to, the inclusion of energy efficient lighting and signage (LED); utilizing onsite water for dust control and irrigation; possible reuse of materials such as concrete as base course; possible use of fly ash in concrete materials; employing low emission construction equipment; improving stormwater treatment by reconstructing the stormwater drainage system; water quality Best Management Practices (BMPs), such as the infield soil amendment to reduce erosion and improve runoff water quality treatment.

Community Benefits

Maintaining an operating runway benefits both our airline customers and travelers. The project manager will collaborate with the Office of Social Responsibility in determining small business opportunities, in accordance with Small Business Resolution No. 3618, and to encourage the use of Small Business firms to include certified Disadvantaged Business Enterprises (DBEs) on this project to facilitate meeting overall DBE participation goals for the Port.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1) – Do nothing: This alternative would continue to defer the replacement of RW 16C/34C. Concrete runway panels that show signs of impending failure and would need to be replaced or patched, on an ongoing basis, in order to keep the runway operational. This would require temporary closures of the runway that are disruptive to airfield operations. The risk of

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concrete patches dislodging or panels failing could result in a determination that RW 16C/34C is unsafe for aircraft operations and require closure of the runway. This is not the recommended alternative.

Alternative 2) – Reconstruct RW 16C/34C in 2015: The reconstruction will provide a structurally sound runway for current and future customers, for the next 40 years. **This is the recommended alternative.**

ATTACHMENTS TO THIS REQUEST

- Computer slide presentation.

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- On February 25, 2014, the Commission authorized (1) proceeding with project management, design, and preparation of final construction documents for the RW 16C/34C Reconstruction project; (2) executing a contract for an automated foreign object debris (FOD) detection system; (3) performing advance preparatory work to include the advertisement and execution of a contract to install a temporary traffic signal on S. 154th St.; (4) entering into one or more agreements with the FAA for the evaluation of impacts, relocation of utilities, installation of runway lighting, performance of flight checks, and other support needed as part of the RW 16C/34C Reconstruction project; and (5) use of a Project Labor Agreement (PLA) for the RW 16C/34C Reconstruction project. The authorized amount was \$10,408,000 of a total estimated project cost of \$102,863,000.
- On May 4, 2010, the Commission authorized proceeding with project management, design, and preparation of 60% level construction documents for the future replacement of RW 16C/34C. Pre-construction project cost to accomplish the 60% design was estimated at \$669,000.