

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

**COMMISSION AGENDA**  
**ACTION ITEM**

**Item No.** 4b  
**Date of Meeting** March 8, 2016

**DATE:** February 29, 2016  
**TO:** Ted Fick, Chief Executive Officer  
**FROM:** Wayne Grotheer, Director, Aviation Project Management Group  
David Soike, Director, Aviation Facilities and Capital Program  
**SUBJECT:** Concourse B Roof Replacement Project (CIP #C800770)

**Amount of This Request:** \$1,211,000      **Source of Funds:** Airport Development Fund  
**Est. Total Project Cost:** \$7,262,000

**ACTION REQUESTED**

Request Commission authorization for the Chief Executive Officer to prepare design and construction bid documents for the replacement of the Concourse B Roof at Seattle-Tacoma International Airport for an amount not to exceed \$1,211,000 of a total estimated project cost of \$7,262,000.

**SYNOPSIS**

This project will remove and replace the current roofing system on Concourse B of the main terminal building at the Airport. The portions of the terminal roof being replaced were installed in 1991 and are beyond their useful life expectancy. Warranties on existing roofs have expired and testing of roof membranes by Airport maintenance staff indicates the membranes are deteriorating.

This project was included in the 2016-2020 capital budget and plan of finance. This is the sixth project in a series of roofing projects that replace roofing systems in a prioritized sequence. Staff expects to seek Commission authorization later this year for construction authorization for this project.

**BACKGROUND**

The first phase of the current cycle of roof replacement projects re-roofed the south end of the Main Terminal in 2011. The second phase re-roofed the Fire Station in 2012 and the north end of the Main Terminal in 2013. The third phase replaced the Concourse D roof in 2014. The fourth phase will replace the Alaska Hangar One and associated maintenance building roof this summer along with the fifth phase for the Concourse C Roof which is also scheduled for this summer.

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### **PROJECT JUSTIFICATION AND DETAILS**

The Concourse B roof, similar to other critical systems, must be replaced as it ages and deteriorates. The current roofing system on Concourse B is 25 years old and has reached the end of its dependable leak free lifespan. Because the roofs are exposed to the elements and experience wear and tear, when they fail the risk to the traveling public increases, and the safe availability of the facility becomes impaired. In order to provide a leak free terminal environment and safe experience for those who travel through and work in the facility, B Concourse roof has been identified as the next roof to be replaced.

The recommended replacement age for this type of roof is between 15-20 years. The warranties have expired which has put the roof beyond the industry standard life expectancy. While the Concourse B roof has experienced small leaks, as leaks grow, damage to the underlying infrastructure will take place, and as a result, the renewal and replacement costs will grow as well. Deferring this project until significant leakage occurs does not align with the strategy to minimize long-term total cost of ownership.

While this has not occurred to date on Concourse B, as leaks occur there is the potential for leaking water to enter the public spaces, and place both tenants and passengers at risk of slips and falls. Should such leaks occur, the Airport would need to secure the portion of the concourse where the leaks are occurring during wet weather events as a preventative measure. This however, is contrary to the Port's strategy of anticipating and meeting the needs of our customers, as this action would take portions of the concourse out of service during a time of increased usage and gate shortages.

Per the Sustainable Airport Master Plan (SAMP), staff does not expect any significant changes to Concourse B for at least 15 years. At some time beyond the 15 year mark, it is anticipated that Concourse B will be changed significantly to accommodate widebody aircraft. This will likely impact the roofing system significantly. The new roofing system would have a warrantable period of 15 years minimum and dependable life span of between 15-20 years.

#### ***Project Objectives***

This project will remove and replace the existing roof system on Concourse B at the Airport. Replacing the roof helps to protect Port assets and assure a stronger positive customer experience and avoids potential safety issues and concourse closures that can occur with roof leaks. Replacing the roof supports the Airport Division's Strategy of Operating a World Class Airport.

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

Remove and replace the existing roof system on Concourse B; install a new elastomeric roofing system; install ladders and fall protection; and replace and refurbish the existing Kalwall skylight window/walls.

### ***Schedule***

Commission Authorization to Design:	1 <sup>st</sup> Quarter 2016
Commission Authorization for Construction:	3 <sup>rd</sup> Quarter 2016
Issue Notice to Proceed:	2 <sup>nd</sup> Quarter 2017
Construction Complete:	4 <sup>th</sup> Quarter 2017

## **FINANCIAL IMPLICATIONS**

<b><i>Budget/Authorization Summary</i></b>	<b>Capital</b>	<b>Expense</b>	<b>Total Project</b>
Original Budget	\$7,262,000	\$0	\$7,262,000
Previous Authorizations	\$25,0000	\$0	\$25,000
Current request for authorization	\$1,211,000	\$0	\$1,211,000
Total Authorizations, including this request	\$1,236,000	\$0	\$1,236,000
Remaining budget to be authorized	\$6,026,000	\$0	\$6,026,000
Total Estimated Project Cost	\$7,262,000	\$0	\$7,262,000

<b><i>Project Cost Breakdown</i></b>	<b>This Request</b>	<b>Total Project</b>
Design Phase	\$1,211,000	\$1,211,000
Construction Phase	\$0	\$5,577,000
Sales Tax	\$0	\$474,000
Total	\$1,211,000	\$7,262,000

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

The Concourse B Roof Replacement Project (CIP #C800770) is included in the 2016-2020 capital budget and plan of finance with a budget of \$7,262,000. The funding source for this project will be the Airport Development Fund.

The per square foot estimated cost to construct the Concourse B Roof is higher than previous roofs for several reasons: this roof requires more Kalwall replacement and refurbishment than previous roofs (40% more than Concourse C); this roof has a greater level of complexity associated with multiple elevation changes at the end of the concourse; and, costs have been escalated because construction is occurring later (2017).

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

<b>CIP Category</b>	Renewal/Enhancement
<b>Project Type</b>	Renewal & Replacement
<b>Risk adjusted discount rate</b>	N/A
<b>Key risk factors</b>	N/A
<b>Project cost for analysis</b>	\$7,262,000
<b>Business Unit (BU)</b>	Terminal Building
<b>Effect on business performance</b>	Renewal/Enhancement
<b>IRR/NPV</b>	N/A
<b>CPE Impact</b>	.02 in 2018

### ***Lifecycle Cost and Savings***

The new roof system is not expected to have significant repair costs for the first 15 years. Pre-planned preventive maintenance tasks, and therefore costs, will be consistent with the current maintenance program. Unplanned reactive maintenance call-outs, and those associated repair costs are expected to be avoided in future years.

## **STRATEGIES AND OBJECTIVES**

This project supports the Port's Century Agenda objective of meeting the region's air transportation needs at the Airport for the next 25 years. The Airport must maintain its existing facilities to accommodate current as well as future airline tenants and needs.

Replacing the most distressed Airport roofs in a timely fashion as they deteriorate supports the objectives identified in the Aviation Division's Strategy of operating a World Class International Airport by: ensuring safe and secure operation; meeting the needs of our tenants and the region's economy; and managing our assets to minimize the long-term total cost of ownership.

During design, the Project Manager and the Office of Social Responsibility will work together to maximize small business opportunities for this project.

## **ALTERNATIVES AND IMPLICATIONS CONSIDERED**

### **Alternative 1) – Status Quo - Delay replacement of the Concourse B Roof**

Cost Estimate: \$25,000-\$50,000 potential ongoing annual expense cost per year for major repairs and the cost to replace the roof at time of failure which will be \$7.2 million plus escalation

Pros:

- No capital funding required. Leaves capital funds available for other projects.

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Cons:

- The cost of a future roofing project in the event of roof failure would be the full cost of replacement (\$7.2 million) plus escalation and the cumulative ongoing expense costs. Risk cost of lost terminal space due to emergency repairs – unknown but high.
- Will likely increase maintenance and emergency repair response over time.
- Increases the chances that the interior of the facility will be damaged due to water infiltration. Damage to the interior of the facility would affect Customer Service.
- Safety of the public could be compromised due to the slip hazard to traveling public and employees.
- If a significant failure were to occur, portions of the terminal may need to be closed during emergency repairs.
- The risk of significant or catastrophic failure increases over time with the further breakdown of roof system materials.
- Indefinite deferral leads to risk of catastrophic failure.

This is not the recommended alternative.

**Alternative 2) – Replace the B Concourse roofing system with a different system that could last up to 30 years.**

Cost Estimate: \$12.7 Million

Pros:

- Helps to assure a stronger positive customer experience and avoids potential safety hazards and concourse closures.
- Provides protection of port assets.
- Avoids the need for a future renewal and replacement project that will be disruptive to the terminal operation at the 15 year mark.

Cons:

- Based on information provided by the SAMP team, the long-term configuration and condition of Concourse B may change significantly in the 30 year timespan. There is significant chance that a portion of the roofing system would need to be demolished before the end of useful life.
- Due to the added material cost, handling cost, and structural design considerations to strengthen ceiling support framing, this is the most expensive alternative.

This is not the recommended alternative.

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### **Alternative 3) – Replace Existing Roof with a 15 year roofing system.**

Cost Estimate: \$7.2 Million

Replace the B Concourse roof with a roofing system of similar lifespan, and incorporate enhanced safety features. Through our previously developed “phased” roof replacement efforts we have identified all Port owned roofs that will reach the end of their serviceable life span. We have identified plans and schedules to replace them, with B Concourse identified as the next reroof. In an effort to be timely, get the most competitive bids and take into account our inclement weather seasons, design is targeted 2016 with actual roof replacement to be accomplished in 2017.

#### Pros:

- Provides for the viability of the facility for the foreseeable future.
- Based on information from planning staff, this building will not be affected by the SAMP for at least 15 years.
- This project would provide for a warranted roof that will minimize the cost of roof repairs going forward for the foreseeable life of the roof.
- Helps to assure a stronger positive customer experience and avoids potential safety hazards and concourse closures.
- Provides protection of port assets. This option does the best job of supporting the goal of managing Port assets to minimize the long term total cost of ownership.

#### Cons:

- This project would consume capital funds that could possibly be utilized on other projects.

### **This is the recommended alternative.**

## **ATTACHMENTS TO THIS REQUEST**

- Map with Location of Concourse B

## **PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

- February 9, 2016 – the Commission authorized construction funds for the 2014-2015 Roof replacement.
- May 19, 2015 – the Commission authorized design funds for the Concourse C roof replacement.
- June 10, 2014 – the Commission authorized design funds for the 2014-2015 Roof Replacement project.
- April 1, 2014 – the Commission authorized a budget increase of \$219,000 and execution of a major public works construction contract with the low responsive and responsible bidder for the Concourse D roof replacement.

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- January 28, 2014 – the Commission authorized construction funds for the Concourse D roof replacement.
- July 9, 2013 – the Commission authorized design funds for the Concourse D roof replacement.
- January 8, 2013 – the commission authorized construction funds for the North End Main terminal roof replacement.
- January 24, 2012 – the Commission authorized construction funds for the Fire Station roof replacement.
- July 26, 2011 – the Commission authorized design funds for the second phase of the Airport re-roofing program including design of the Fire Station and North End Main Terminal roof replacements.
- November 30, 2010 – the Commission authorized construction funds for the South End Main terminal roof replacement.
- April 27, 2010 – the Commission approved design funds for the South End Main terminal roof replacement.
- September 22, 2009 – the Commission was briefed on the facility renewal project that was necessary in future years. The Airport re-roofing program was included in the presentation