



**COMMISSION  
AGENDA MEMORANDUM**

**Item No.** 6a

**ACTION ITEM**

**Date of Meeting** January 24, 2017

**DATE:** January 17, 2017

**TO:** Ted Fick, Chief Executive Officer

**FROM:** Wayne Grotheer, Director, Aviation Project Management Group  
Stuart Mathews, Director, Aviation Maintenance  
Mike Tasker, Senior Manager, Aviation Facilities and Infrastructure

**SUBJECT:** Concourse B and Concourse C Roof Projects (CIPs #C800770 and C800702)

**Amount of this request:** \$6,026,000

**Total estimated cost:** \$13,183,000

**ACTION REQUESTED**

Request Commission authorization for the Chief Executive Officer to (1) authorize construction of the Concourse B Roof Replacement Project at Seattle-Tacoma International Airport in the amount of \$6,026,000; (2) advertise and execute a single contract to construct the Concourse B and Concourse C Roof Replacements at the Airport.

**EXECUTIVE SUMMARY**

This project will overlay the current roofing systems on Concourses B and C at the Airport. The portions of the Concourse B and C roof being overlaid were installed in 1991 and are beyond their useful life expectancy. Warranties on existing roof system have expired and testing of roof membranes by Airport maintenance staff indicates the membranes are deteriorating.

Overlaying the roofs helps to assure a stronger positive customer experience and avoids potential safety issues and concourse closures that can occur with roof leaks. These are the fifth and sixth projects in a series of roofing projects that replace roofing systems in a prioritized sequence.

The Commission authorized construction of the Concourse C Roof Replacement project in March 2016. A contract was awarded and the contractor mobilized to the site to begin construction in July. Initial demolition efforts revealed sufficient differences between the design and actual existing conditions that a lengthy redesign effort was required. It was determined that the changes were significant enough to warrant a re-design and re-bidding effort.

During the initial demolition, it was noted that the insulation and substrate beneath the roofing membrane were in very good shape and the roof would be an ideal candidate for a roofing

Meeting Date: January 24, 2017

overlay instead of a complete roof system replacement. Proceeding with an overlay allows the Port to retain the existing roofing, insulation and substrate, saving schedule, duration and cost.

While the existing condition issues on the Concourse C roof were being worked through, Concourse B roof was under design and also designated via the design process as a good candidate for a roof overlay. Since Concourse C roof replacement was deferred until 2017 and Concourse B was slated for 2017, staff decided, after review with Engineering, CPO, Maintenance, and the Aviation Project Management Group, that these projects could be procured as one construction project. This will allow the Port to potentially save costs by initiating a single procurement and managing a single construction contract.

### **JUSTIFICATION**

Replacing airport roofs extends the life of the building, an important Port asset. The Concourse B and C roofs, similar to other critical systems, must be replaced as they age and deteriorate. The current roofing systems on Concourse B and C are 25 years old and have reached the end of their 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, the Concourse B and C roofs have been identified as the next roofs to be replaced.

The recommended replacement age for this type of roof is between 15-20 years. The warranties have expired as the roofs are beyond the industry standard life expectancy. While the existing roofs are leaking, those leaks are considered relatively minor at this time. However, 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. When leaks occur, the Airport may be required to secure the portion of the concourse where the leaks are occurring during wet weather events as a preventive measure. This 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.

For Concourse B and Concourse C we are replacing the roof using a roof overlay. A roof overlay replaces the topmost roofing membrane only. It allows the Port to retain and reuse the roofing materials underneath the roofing membrane. While the existing roof membrane is breaking down, it has protected the existing materials beneath it allowing for them to be reused. The overlay will prevent the demolition and haul away of materials that are in good serviceable condition. In addition, roofing membrane manufacturers will provide the same warranty the Port receives on standard roof replacement projects that replace everything. As the alternatives analysis highlights below, an overlay reduces the cost of replacing both roofs by \$1.3 million to

Meeting Date: January 24, 2017

\$2 million, reduces waste, and provides the same anticipated life and warranty as a full replacement.

As a result of the termination for convenience of the Concourse C contractor, materials remain that cannot be returned to the manufacturer. Staff will return to Commission seeking authorization to re-sell or dispose of the material with a company that will re-sell or recycle it rather than disposing of it in a landfill.

***Scope of Work***

- (1) Overlay existing roof with new roof
- (2) Replace/refurbish the Kalwall® Skylights
- (3) Provide access ladders as needed to correct deficiencies
- (4) Provide fall protection on the mechanical penthouse roofs

**Small Business**

The scopes of work within Concourse B and C related to this roofing project provide a number of opportunities for small and diverse businesses within the construction and supplier industries.

***Schedule***

*Activity*

Construction start	2017 Quarter 2
In-use date	2017 Quarter 4

***Cost Breakdown (Concourse B)***

	This Request	Total Project
Design	\$0	\$1,236,000
Construction	\$6,026,000	\$6,026,000
<b>Total</b>	<b>\$6,026,000</b>	<b>\$7,262,000</b>

***Cost Breakdown (Concourse C)***

	This Request	Total Project
Design	\$0	\$874,000
Construction	\$0	5,047,000
<b>Total</b>	<b>\$0</b>	<b>\$5,921,000</b>

Meeting Date: January 24, 2017

**ALTERNATIVES AND IMPLICATIONS CONSIDERED**

**Alternative 1 – Delay replacement of the Concourse roofs**

Cost Implications: \$25,000-\$50,000 potential ongoing annual expense cost per year for major repairs.

Pros:

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

Cons:

- (1) Will likely increase maintenance and emergency repair overtime labor costs.
- (2) As the roofs continue to age, the risk for leaks increases. The risk of significant or catastrophic failure increases over time with the further breakdown of roof system materials.
- (3) Future roof leaks would damage the existing substrate and require a full replacement in lieu of an overlay.
- (4) Increases the risk of damage to the interior of the facility due to water infiltration.
- (5) Damage to the interior of the facility and resulting repair work would negatively impact customer service.
- (6) Safety could be compromised due to slip hazards to traveling public and employees caused by water infiltration to interior walking surfaces.

This is not the recommended alternative.

**Alternative 2 – Full Replacement of Concourse B and Concourse C Roofs**

Cost Implications: \$14.5 - \$15.2 million

Pros:

- (1) The roofing materials, insulation, and substrate will be replaced with new.

Cons:

- (1) While the roof membrane is wearing out, the underlying roofing material and substrate (insulation, cover-board, etc.) is in good serviceable condition.
- (2) Sends 110,000 cubic feet of insulation that is in good condition to the landfill.
- (3) Cost for a full replacement is more than the cost of an overlay.
- (4) Concourse C will require additional funding.

This is not the recommended alternative.

**Alternative 3 – Overlay both Concourse B and Concourse C Roofs**

Cost Implications: \$13,183,000

Pros:

- (1) Allows the Port to take advantage of existing material that is in good serviceable condition.
- (2) Saves money by reusing material.

Meeting Date: January 24, 2017

- (3) Prevents 110,000 cubic feet of insulation that is in good condition from going to the landfill.
- (4) Manufacturers have verified that warranty and life expectancy will be the same, 20 year warranty, as on a full replacement.
- (5) Reduces the chance of leaks during construction since existing roof stays in place.

Cons:

- (1) A roof overlay, while a common industry practice, is an untried method for the Airport.
- (2) When the concourse is due for a new roof, two roofs will need to be removed and a full replacement will need to be done.

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

**FINANCIAL IMPLICATIONS**

***Cost Estimate/Authorization Summary***

Capital

Expense

Total

***Concourse C***

<b>COST ESTIMATE</b>			
Original estimate	\$5,596,000	\$0	\$5,596,000
Previous budget adjustments	\$325,000	\$0	\$325,000
Amount to be expensed due to termination	\$(350,000)	\$350,000	\$0
Revised budget / Authorization	\$5,571,000	\$350,000	\$5,921,000
<b>AUTHORIZATION</b>			
Previous authorizations	\$5,571,000	\$350,000	\$5,921,000
Current request for authorization	\$0	\$0	\$0
Total authorizations, including this request	\$5,571,000	\$350,000	\$5,921,000
Remaining amount to be authorized	\$0	\$0	\$0

***Concourse B***

<b>COST ESTIMATE</b>			
Original estimate	\$7,262,000	\$0	\$7,262,000
<b>AUTHORIZATION</b>			
Previous authorizations	\$1,236,000	\$0	\$1,236,000
Current request for authorization	\$6,026,000	\$0	\$6,026,000
Total authorizations, including this request	\$7,262,000	\$0	\$7,262,000
Remaining amount to be authorized	\$0	\$0	\$0

Meeting Date: January 24, 2017

***Annual Budget Status and Source of Funds***

***Concourse C:***

The Concourse C Roof Replacement Project (CIP #C800702) is included in the 2017-2021 capital budget and plan of finance with a budget of \$5,921,000. The first project budget increase (during design authorization) covered an increase in scope due to added skylight replacement. The funding sources will include the Airport Development Fund and existing revenue bonds.

***Concourse B:***

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.

***Financial Analysis and Summary***

Project cost for analysis	\$13,183,000
Business Unit (BU)	Terminal Building
Effect on business performance (NOI after depreciation)	NOI after depreciation will increase
IRR/NPV (if relevant)	N/A
CPE Impact	\$0.03 in 2018.

***Future Revenues and Expenses (Total cost of ownership)***

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.

**PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

- March 8, 2016 – The Commission authorized design of Concourse B
- February 29, 2016 – The Commission authorized construction for Concourse C
- May 19, 2015 – The Commission authorized design of Concourse C
- 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.
- 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.

Meeting Date: January 24, 2017

- 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.