

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA

Item No. 5b

Date of Meeting July 26, 2011

DATE: July 19, 2011

TO: Tay Yoshitani, Chief Executive Officer

FROM: Wayne Grotheer, Director, Aviation Project Management Group
John Christianson, General Manager, Aviation Maintenance

SUBJECT: 2011-2013 Roof Replacement Project (CIP# C800459)

Amount of This Request: \$200,000

Source of Funds: Airport Development Fund

Total Project Budget: \$4,770,000

ACTION REQUESTED:

Request Commission authorization for the Chief Executive Officer to prepare design and construction bid documents, using Port Engineers to design the replacement of approximately 167,000 square feet of roof systems located at the Fire Station and on the north end of the Main Terminal at Seattle-Tacoma International Airport (Airport). This authorization is for \$200,000 of a total estimated project cost of \$4,770,000 (CIP# C800459).

SYNOPSIS:

This memorandum requests authorization to proceed with the design that would remove and replace the current roofing system on the Fire Station and sections of the north end of the Main Terminal in order to avoid leaks that cause damage to the underlying infrastructure, equipment, and interior facilities. Portions of the roof being replaced were installed in 1993, 1994, and 1996 and will be at or beyond their useful life expectancy when replacement takes place. This is one of a series of necessary progressive design and construction steps to accomplish reroofing of the airport facilities over the next several years (see attached map). Staff expects to seek Commission authorization for similar work in each of the coming years.

BACKGROUND:

In 1991, the Airport began a major Terminal Facility re-roofing program that was completed in 1997. Since 1997, some Airport roofs have been replaced on a project or roof-area-specific basis.

The first phase of the cycle of roof replacements that are now under construction included sections M-1, M-2, M-10, M-12, MP-2, and MP-3 on the south end of the Main Terminal.

This project is the second phase of the cycle of roof replacement and includes Main Terminal sections A, B, C, M-3, M-4, M-5, M-6, M-7, M-8, M-9, MP-1, MP-4, MP-5, MP-6, and the Fire

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Station roof (see attached map). When originally built, the Airport's current roofs had a 15-year life expectancy that has been, or shortly will be, expired.

The Airport's roof replacement program has been prioritized and phased over the next 6-10 years by a team comprised of Engineering, Maintenance, and Project Management. This first phase of the program was triggered by leaks and the discovery of fractured roof membranes over the last several years. Replacement reduces the potential for facility damage and liability risks associated with roof leaks. This is necessary in order to provide safe and reliable facilities to our business partners, tenants, and the traveling public.

The ability to eliminate leaks by reroofing will mitigate the cost of leak investigation, maintenance, and repairs associated with responding to and "tracking down" the root cause of the roof leaks. Tracking leaks and making repairs is labor intensive and does not always solve the problem. When the roof systems are in a fractured and deteriorated state, more leaks can be created by walking on the roof looking for the original problem. This tracking work can take anywhere from days to months as this effort is weather dependent and success cannot be verified until the next heavy rain.

PROJECT JUSTIFICATION:

Project Objectives:

This project will remove and replace the existing roof system at the Fire Station and the north end of the Main Terminal, eliminating costly leak repair and potential damage to existing infrastructure.

PROJECT SCOPE OF WORK AND SCHEDULE:

Scope of Work:

Remove and replace existing roof systems on the Fire Station and north end of the Main Terminal and install a new 65 millimeter elastomeric roofing system.

The Fire Station roof system is approximately 29,000 square feet. The north end of the Main Terminal, roof sections A, B, C, M-3, M-4, M-5, M-6, M-7, M-8, M-9, MP-1, MP-4, MP-5, and MP-6 (see attached map), is approximately 138,000 square feet. Together, they total approximately 167,000 square feet of roofing systems.

Schedule:

- Request for Authorization for Design July 2011
- Request for Authorization to Advertise for Bids (Fire Station) January 2012
- Fire Station Complete October 2012
- Request for Authorization to Advertise for Bids (terminal) January 2013
- Project Completion November 2013

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FINANCIAL IMPLICATIONS:

<u>Budget/Authorization Summary:</u>	
Original Budget	\$4,770,000
Budget Increase	0
Budget Transfers	0
Revised Budget	\$4,770,000
Previous Authorizations	0
Current Request for Authorization	\$200,000
Total Authorizations, including this request	\$200,000
Remaining Budget to be Authorized	\$4,570,000

<u>Project Cost Breakdown:</u>	<u>This Request:</u>	<u>Total Project:</u>
Construction Costs	\$0	\$3,607,000
Sales Tax	\$0	\$340,000
In-house Design	\$120,000	\$0
Aviation PMG and other soft costs	\$80,000	\$623,000
Total	\$200,000	\$4,570,000

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	\$4,770,000
Business Unit (BU)	Airfield and Terminal
Effect on business performance	NOI after depreciation will increase
IRR/NPV	As a cost recovery project, traditional financial analysis measures such as net present value (NPV) and internal rate of return (IRR) are not meaningful.

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CPE Impact	Will increase approximately \$.02 in 2013, but no change to business plan forecast as this project was included.
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This project, CIP # C800459, is included in the 2011 – 2015 capital budget and plan of finance as a business plan prospective project. The funding source for this project will be the Airport Development Fund.

The project estimate includes \$111,000 in regulated materials expense funding.

ENVIRONMENT AND SUSTAINABILITY:

The new roof will have a minimum solar reflective index that exceeds 78, which is the value required to obtain the LEED Credit NC7.2. This will reduce air conditioning loads and save energy. The new roofing systems will also be Energy Star rated. The insulating value of the new roof will be greater than that of the existing roof. By replacing the roof and preventing damage to the underlying building systems, the life of the existing building systems will be prolonged.

STRATEGIC OBJECTIVES:

This project supports the Port-wide strategic objective of Ensuring Airport and Seaport Vitality. This project will maximize facility and asset utilization by replacing the Airport's roof systems before they fail through a systemic and timely roof replacement program. The project will reduce risk and liability issues, and safeguard the integrity of the building envelope and underlying infrastructure from water infiltration due to failing roof systems.

TRIPLE BOTTOM LINE SUMMARY:

This roof replacement project represents an investment in our current facility and supports the long-term vitality of the Airport, businesses within the Airport, and the traveling public. Installation of a new Energy Star roofing system will reduce the energy demand of the Airport through insulating against heat loss. Replacing the roof will prevent water leak damage to other building systems, disruption of Airport operations, and will prevent perceptions of poor customer service.

ALTERNATIVES CONSIDERED AND THEIR IMPLICATIONS:

Alternative 1: Develop a systematic replacement program for the Airport's roof systems. Phase the replacement program over multiple years, which allows the Airport to sustain serviceable roof systems and provide safe and productive environments for our business partners and passengers. Through roof inspection and analysis, the second phase of the roof replacement program has identified 167,000 square feet of roof on the north end of the Main Terminal and the Fire Station. This phase is intended to be designed in 2011 with actual roof replacements to be accomplished in 2012 and 2013. The rest of this prioritized replacement program would be accomplished over the next ten years and be approved on a project-by-project basis. This process/alternative requires securing necessary approvals and funding for each specific phase of the roof replacement program. **This is the recommended alternative.**

Alternative 2: Install a green (vegetated) roof system. Green roofs are complete roof systems comprised of vegetation, soil, drainage and waterproof membrane, requiring specific structural

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integrity not currently in place as part of the Airport structure. This alternative would create an environment that could attract birds and other wildlife; increase bird strike hazards; and escalate nuisance-wildlife control. Installing a green roof would be in direct conflict with the Airport's existing Wildlife Hazard Mitigation and Wildlife conservation Program and the existing FAA approved Airport Certification Manual. This is not the recommended alternative.

Some airports have begun to use green roofs on new construction (thereby avoiding the extensive redesign and structural strengthening retrofit issues for existing structures) using plants that do not attract birds or wildlife. Staff will examine recent airport green roof developments more thoroughly and determine potential applicability for smaller or pilot-scale projects at the Airport that do not require structural strengthening to do so.

Alternative 3: Continue to patch and repair the leaks risking continued retrogressive deterioration throughout the entire roof system (terminal and concourses). This alternative increases maintenance and emergency repair response and costs, not only due to the continual patching of the existing roof system but also due to ceiling, floor, and equipment damage caused by the leaks. This also increases liability should customers slip and fall. This is not the recommended alternative.

OTHER DOCUMENTS ASSOCIATED WITH THIS REQUEST:

Roof Replacement Planning Map.

PREVIOUS COMMISSION ACTION:

On September 22, 2009, the Commission was briefed on facility renewal projects that were necessary in future years. The Airport re-roofing program was included in the presentation.

On April 27, 2010, the Commission voted to approve design funds for the first phase of the Airport re-roofing program.

On November 30, 2010, the Commission voted to authorize construction funds for the first phase of the Airport re-roofing program.