

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA
ACTION ITEM

Item No. 4d
Date of Meeting July 1, 2014

DATE: June 23, 2014
TO: Tay Yoshitani, Chief Executive Officer
FROM: Rees Robinson, Manager, Marine Maintenance Project Management
Nick Milos, Manager, Corporate Facilities
SUBJECT: Pier 69 Roof Beam Rehabilitation (CIP #C800698)

Amount of This Request:	\$260,000	Source of Funds:	Airport Development Fund, General Fund and Tax Levy
Est. Total Project Cost:	Range from \$2,300,000 to \$3,300,000		

ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to complete design and prepare construction bid documents to rehabilitate the Pier 69 roof beams for an amount not to exceed \$330,000, including \$70,000 for preliminary project work authorized in January 2014, making the current request amount \$260,000. The current total estimated project cost is between \$2,300,000 and \$3,300,000.

SYNOPSIS

This project will rehabilitate the five rows of concrete beams that support the roof at the top of the clerestory windows of the Pier 69 facility. The interior surfaces of the beams began exhibiting visible spalling and exposed rebar shortly after the Port of Seattle occupied the building in 1993. Recently, small pieces of concrete have fallen to the floor below. Initial corrective action consisted of a physical inspection of the beams and chipping away of loose concrete to eliminate the falling object hazard. A preventive maintenance task was set up to inspect the beams periodically and remove any loose material. Additionally, assessment and repair of the beams was included as part of the deferred maintenance program in 2011 and 2012.

Preliminary analysis indicates that the beams may lack adequate structural capacity due to the reduced cross sectional area. Although not at risk of imminent failure, this is a serious concern that requires additional investigation. In addition, the top of the window frames are anchored to the concrete beam soffit, which in many cases has cracked, causing the anchor bolts to come loose, resulting in the windows not being securely attached to the beams.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

June 23, 2014

Page 2 of 5

PROJECT COST

Repair of the beams was included in the 2012 deferred maintenance program based on an earlier investigation that indicated repair was only required in isolated locations. A prototype repair detail was developed in collaboration with Port Engineering, and \$570,000 was budgeted in the 2014 Marine Maintenance expense budget to perform the work. At the onset of the repair work, it became evident that the beams should be completely rehabilitated, which was beyond the funding capacity of the program.

The cost of this project is a very difficult to estimate. While there remains some uncertainty around the precise scope of the rehabilitation, the primary issue involves estimating the cost of accessing the work area. The total project cost is currently estimated to be between \$2,300,000 and \$3,300,000. The estimate will be reevaluated and refined during the design phase of the project.

The scope of work has increased to the extent that this project is no longer an expense repair project but a capital rehabilitation project. Preliminary design work was authorized in the amount of \$70,000 from the expense budget. Those incurred costs will be transferred to the capital project.

BACKGROUND

In 2011, a design consultant was hired to assess the beams and provide repair recommendations. The consultant identified 11 areas in need of repair, but failed to determine a definitive reason for the concrete deterioration. Their investigation also discovered that the window detailing as installed was different than what was shown on the original architectural drawings.

In 2012, funds were budgeted in the deferred maintenance program to perform the recommended repairs. The scope of work was to chip away loose concrete, coat exposed rebar and patch concrete. Although there was a potential falling-object hazard from loose concrete, the consensus up until this point was that the issue was aesthetic and not structural. When maintenance personnel began the recommended work, the problem was found to be more extensive than originally thought: the anchor bolts attaching the top of the window frame to the beams had been installed too close to the edge of the concrete, which caused the concrete to crack, rendering the anchor bolts ineffective. This is a structural issue that affects all the beams along the top of the clerestory window walls.

In response to this additional problem, Port Engineering designed a repair method to both prevent spalled concrete from falling, and provide a direct connection of the top of the clerestory windows to the concrete beams. A prototype of the detail was installed in December 2012. The prototype is performing as expected and is aesthetically pleasing.

In February 2014, an IDIQ contract was utilized to have a design consultant perform preliminary design tasks for the enhanced rehabilitation. Tasks included review of all existing

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

June 23, 2014

Page 3 of 5

documentation; site visits to reassess the condition of the structure and window framing; preliminary analysis of beam capacity; modification of prototype repair detail; and a rough order of magnitude construction cost estimate. As part of this scope of work, the designer identified additional concerns about the structural capacity of the beams as a result of the reduced cross section. While further analysis needs to be undertaken, the preliminary analysis indicates that the concrete beams should uniformly be restored to their full cross sectional area to support gravity design loads. While there is not a risk of imminent failure, as previously stated, this is a serious concern requiring additional investigation.

As previously stated, the cost of this project is a very difficult to estimate. Estimated costs will be reevaluated and refined during the design phase of the project.

PROJECT JUSTIFICATION AND DETAILS

A major challenge of this project will be to establish a means of accessing the work area. Scaffolding will likely be installed and remain in place throughout construction. The work will require containment of concrete dust, and proper handling and disposal of lead paint.

Project Objectives

There are multiple goals for the rehabilitation:

- Repair the corroded rebar and remove loose concrete
- Restore the cross sectional area of the beams
- Reattach the window frames to solid structure
- Provide a catchment system to prevent concrete from falling onto the floor below

Scope of Work

The scope of work will include removal of loose concrete, coating of exposed corroded reinforcing bars, restoration of beam cross sectional area, reconnection of the top of the clerestory windows, and installation of a continuous metal screen or flashing running the length of the beams to contain any concrete that may loosen in the future. The metal screen or flashing detail will be similar to the prototype detail designed by Port Engineering.

Schedule

Commission Authorization for Design	July 2014
Commission Authorization for Construction	January 2015
Issue Notice to Proceed	June 2015
Construction Complete	October 2015

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

June 23, 2014

Page 4 of 5

FINANCIAL IMPLICATIONS

<i>Budget/Authorization Summary</i>	Capital	Expense	Total Project
Previous Authorizations	\$0	\$70,000	\$70,000
Current request for authorization	\$260,000	\$0	\$260,000
Total Authorizations, including this request	\$330,000	\$0	\$330,000
Remaining budget to be authorized	TBD	\$0	TBD
Total Estimated Project Cost	\$2,300,000 to \$3,300,000	\$0	\$2,300,000 to \$3,300,000

Note: \$70,000 authorized as expense will be transferred to Capital.

Project Cost Breakdown

Design Phase	\$330,000
Construction Phase	TBD
State & Local Taxes (estimated)	TBD
Total	\$2,300,000 to \$3,300,000

Budget Status and Source of Funds

This project was not included in the 2014 Capital Budget, but was included as expense project in the amount of \$570,000 in the 2014 Operating Budget. The additional funds required to complete this project will be funded from timing delays and possible deferrals in other projects.

Since Pier 69 is the corporate headquarters for the Port, the funding for the project is allocated between the General Fund 27.42% (Seaport), Tax Levy 8.37% (Real Estate), and the Airport Development Fund 64.22%.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

June 23, 2014

Page 5 of 5

Financial Analysis and Summary

CIP Category	Renewal/Enhancement
Project Type	Renewal & Replacement
Risk adjusted discount rate	N/A
Key risk factors	Project costs could exceed current estimates
Project cost for analysis	\$2,300,000 to \$3,300,000
Business Unit (BU)	Aviation, Seaport and Real Estate Divisions
Effect on business performance	<ul style="list-style-type: none">• No incremental revenue associated with this project• Incremental operating expense is not yet known• Annual depreciation expense will depend on the useful life of the specific assets identified in the project asset plan
IRR/NPV	NPV is present value of project cost to Port

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1) – Do nothing. This will result in continued risk of falling concrete and further deterioration of the concrete beams with loosening of the window to beam connections. In addition, uncertainty will remain about the structural capacity of these central beams. This is not the recommended alternative.

Alternative 2) – Authorize an additional \$260,000 for project authorization of \$330,000 to complete design and prepare project bid documents prior to coming to Commission for authorization to advertise and proceed with the project. **This is the recommended alternative.**

ATTACHMENTS TO THIS REQUEST

- Photos 1 through 6

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- None.