

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA

Item No. 6c

Date of Meeting April 6, 2010

DATE: February 24, 2010

TO: Tay Yoshitani, Chief Executive Officer

FROM: Michael Burke, Director, Cargo and Container Operations
Ticson Mach, Capital Project Manager

SUBJECT: Fender system repairs at Terminal 18

Amount of This Request: \$143,000

Source of Funds: General Fund

Total Project Amount: \$965,000

ACTION REQUESTED:

Request authorization for the Chief Executive Officer to prepare design and permit applications for the repair of the damaged fender system at Terminal 18 in the amount of \$143,000, for a total authorization to date of \$273,000, and a total estimated (pre-design) project cost of \$965,000.

SYNOPSIS:

The project consists of repair and replacement of the fender piles and supporting members at Terminal 18. The fender system is designed to protect the main apron structure of the dock from the initial impact made by a berthing barge/vessel. The fender system for this portion of Terminal 18 was replaced in 2003/2004, but, in January 2009, it was found to have a latent defect which exposes the apron structure to possible damage during normal berthing activities. This project was not included in the 2010 Operating Budget because it had not been identified as a Port obligation when the 2010 Budget was prepared. The costs incurred in 2010 will result in an unfavorable operating expense variance which the Seaport will strive to offset with other savings. The cost of the work to be performed in 2011 will be included in the proposed 2011 Operating Budget. The preliminary estimated (pre-design) cost of the project is \$965,000.

PROJECT DESCRIPTION AND JUSTIFICATION:

The project is located within bent 62 to 162 (approximate footmark 2900 to 4900) at Terminal 18 along the waterside of the concrete apron. The timber fender system is designed to absorb the initial impact from a berthing vessel/barge to protect the main apron structure. Periodic repair and replacement of fender piles is typical during the life of the system. The scope of work consists of repair and replacement of approximately 14 percent of the fender piles and their

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supporting members. The preliminary cost estimate for the project is \$965,000. It is projected to be completed in 2011.

The fender system for this portion of the Terminal 18 dock was replaced by the port as part of the berth deepening project in 2003/2004. This deepening to -50 feet was an obligation of the port per the Terminal 18 lease.

The fender system damages were first discovered in January 2009 during the Terminal 18 Maintenance Dredging Project. Port Engineering conducted a detailed inspection of the damages in August 2009, and concluded that the damages may be attributed to a combination of design, construction and operational issues as described in the following:

- 1) Excessive notching at the back of fender piles.
- 2) Restricted movement between the timber walkway and the concrete bullrail.
- 3) Fender piles out of alignment.
- 4) Excessive vessel or barge berthing force.

The broken fender piles created a void in the fender system. With barges or small vessels berthing at an angle, the front corners of the barges or vessels could reach and hit the structural/bearing concrete piles. Split piles will also have less fendering capacity in keeping the vessels from going underneath the dock. The apron structure is exposed to possible damage with ongoing berthing activities. Staff therefore recommends proceeding with the work immediately. The Design Errors and Omissions Team will evaluate and determine contractual responsibilities of the parties involved.

PROJECT SCOPE OF WORK AND SCHEDULE:

Based on the Engineering inspection, three levels of repair effort are recommended, and the project scope includes:

- Trimming of the pile supporting members to allow sufficient movement between the timber walkway and the concrete bullrail.
- Install steel bands on piles with minor splitting to prevent or delay further splitting.
- Prepare engineering design, permits, cost estimate, schedule, and construction documents for the replacement of the broken fender piles. An existing Docks IDIQ contract will be utilized for these services.

In an effort to minimize further fender pile damages, the trimming of the supporting members is completed and steel bands installation is in progress.

The pile banding work will require additional inspection to observe the effectiveness of the repair. Engineering anticipates to see more split (weakened) piles broken off, and needing replacement over the continued life of the timber fendering system. The banding work is intended to extend the life of compromised piles in the fender system and it is anticipated that

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further repair may be necessary. The current fender system is approximately 6 1/2 years old. A typical design life for the timber fender system is 10 years, though we often see fender systems lasting substantially longer, especially at container berths. Future replacement of the fender system would be a tenant obligation if the fender system is properly designed and installed.

Tentative Project Schedule:

Commission Authorization	April 06, 2010
Procure Engineering Services	April 23, 2010
Permit Submitted	May 23, 2010
100% Design Completed	August 23, 2010
Commission Authorization for Construction	September 7, 2010
Estimated Begin Construction	February 01, 2011
Estimated Construction Complete	March 15, 2011

STRATEGIC OBJECTIVES:

This project supports the Port's strategies to "Ensure Airport and Seaport Vitality", by:

- Replacing the fender system at Terminal 18 so that the Terminal can continue service for berthing.
- Replacement of the damaged fender piles and its supporting structures in this area is basically a maintenance project for the Seaport. It will help protect dock revenue the Port currently receives.

BUSINESS PLAN OBJECTIVES:

The purpose of the project is to maintain the use of berth.

FINANCIAL ANALYSIS:

Budget/Authorization Summary

Previous Authorizations (authorized by Seaport Division Director)	\$130,000
Current request for authorization	\$143,000
Total Authorizations, including this request	\$273,000
Remaining budget to be authorized (estimated construction costs)	\$692,000
Total Estimated Project Cost (pending final design)	\$965,000

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Project Cost Breakdown

Design	\$85,000
Project Management	\$41,000
Permitting	\$41,000
Construction – trimming & steel banding	\$106,000
Subtotal – current authorization request	\$273,000
Estimated Construction – piling replacements	\$692,000
Total Estimated Project Cost (pending final design)	\$965,000

Source of Funds

This project was not included in the 2010 Operating Budget because it had not been identified as a Port obligation when the 2010 Budget was prepared. The cost of this project will be recorded as an operating expense in the year in which the work is performed. Of the estimated \$965,000 total project cost, \$300,000 of the work is expected to be performed in 2010 with the remaining \$665,000 of work expected to be performed in 2011. The costs incurred in 2010 will result in an unfavorable operating expense variance. Seaport Division will strive to offset this incremental operating expense with savings in other operating expenses. The cost of the work expected to be performed in 2011 will be included in the proposed 2011 Operating Budget.

This project will be funded from the general fund.

Financial Analysis Summary

CIP Category	Renewal/Enhancement
Project Type	Renewal & Replacement
Risk adjusted Discount rate	N/A
Key risk factors	<ul style="list-style-type: none">• Construction costs may increase if necessary repairs are more extensive than currently known.• The effectiveness of steel banding to minimize further damage to the split piles is not known, and will require ongoing monitoring.• The replacement of additional fender piles may be needed if pile banding does not fully prevent the remaining split (weakened) piles from breaking off.
Project cost for analysis	\$965,000 (preliminary cost estimate)
Business Unit (BU)	Container Operations

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Effect on business performance	Fender repairs will preserve existing revenue from Terminal 18 container operations. Depreciation Expense will not be impacted by this project, as this repair is an operating expense.																								
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	<table border="1"><thead><tr><th>NOI (in \$000's)</th><th>2010</th><th>2011</th><th>TOTAL</th></tr></thead><tbody><tr><td>Incremental Revenue</td><td>-</td><td>-</td><td>-</td></tr><tr><td>Incremental OpExp</td><td>(300)</td><td>(665)</td><td>(965)</td></tr><tr><td>NOI</td><td>(300)</td><td>(665)</td><td>(965)</td></tr><tr><td>Depreciation</td><td>\$0</td><td>\$0</td><td>\$0</td></tr><tr><td>NOI After Depreciation</td><td>(300)</td><td>(665)</td><td>(965)</td></tr></tbody></table>	NOI (in \$000's)	2010	2011	TOTAL	Incremental Revenue	-	-	-	Incremental OpExp	(300)	(665)	(965)	NOI	(300)	(665)	(965)	Depreciation	\$0	\$0	\$0	NOI After Depreciation	(300)	(665)	(965)
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IRR/NPV	N/A																								

SUSTAINABILITY AND LIFE CYCLE COSTS:

This is a temporary repair to maintain terminal operation. Value Engineering will be conducted at the end of the system design life to determine best fender system for current and future use of the terminal.

ALTERNATIVES CONSIDERED AND THEIR IMPLICATIONS:

- **Alternative 1: Proceeding with the design, bid package and replacement of the damaged timber fender system would enable the division to minimize further risk of operation impact, and damage to apron structure.**
- **Do Nothing:** Continue monitoring of the timber fender system. The apron structure is exposed to possible damage with ongoing berthing activities, creating a safety hazard for the operation, significant cost for repair, and lengthier impact to operation.

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS:

None