

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA

Item No. 6a

Date of Meeting August 3, 2010

DATE: July 12, 2010

TO: Tay Yoshitani, Chief Executive Officer

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

SUBJECT: Fender Piling Replacement at Terminal 18

Amount of This Request: \$741,000

Source of Funds: General Fund

Estimated Total Project Amount: \$5,738,000

ACTION REQUESTED:

Request Commission authorization for the Chief Executive Officer to prepare design, permit applications, and bid documents for the replacement of the damaged fender piling at Terminal 18 (T-18) in the amount of \$741,000, for a total authorization to date of \$1,014,000, and a total estimated project cost of \$5,738,000.

SYNOPSIS:

The project consists of replacement of the fender piles and supporting members at T-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 T-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. On April 6, 2010, the Commission authorized replacing 30 broken piles, approximately 15% of the fender system. Since that time, an additional 31 broken piles have been discovered, and staff now recommends replacing the entire fender system. The estimated cost of the project is \$5,738,000. Staff will return to Commission later for authorization to pre-purchase material, and advertise for construction.

Port staff determined that replacing the fender piles is a lease obligation, which maintains the Port's competitiveness by keeping T-18 container berthing area active, and helps protect the dock revenue that the Port receives.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

July 12, 2010

Page 2 of 6

PROJECT DESCRIPTION AND JUSTIFICATION:

The project is located within bent 62 to 162 (approximate footmark 2900 to 4900) at T-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. However, the damages discovered in this case are outside of the typical wear and tear. The scope of work consists of replacement of the fender piles and their supporting members. The cost estimate for the project is \$5,738,000. It is projected to be completed in 2012.

The fender system for this portion of the T-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 T-18 lease.

The fender system damages were first discovered in January 2009 during the T-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 Port Design Errors and Omissions Team met and reviewed the case on April 14th, 2010. The team concluded that the case has exceeded time frame of the Statute of Limitations and Statute of Response under the State Legislation even if cause could be shown. Therefore, the team recommended the Port not to pursue the designers or the contractors for E&O or latent defect. Port Engineering has contacted and met with the designers to discuss lessons learned and ways to prevent similar damage in the future.

Prior to the conclusion to replace all of the piling, and in an effort to minimize further fender pile damages, the trimming of the supporting members was completed and steel bands were installed in some of the piles.

After the approval of the Commission on April 6, 2010, staff has proceeded with the design and permitting for the replacement of 30 broken piles and its associated

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

July 12, 2010

Page 3 of 6

supporting structures. However, the design team has discovered an additional 31 broken piles during the May 6, 2010, field inspection. Staff now believes all the fender piles will eventually fail and the Port should replace the entire fender pile system to minimize cost and operational disruptions.

PROJECT SCOPE OF WORK AND SCHEDULE:

The scope of work consists of replacement in-kind of 202 timber fender piles and their supporting members. With this authorization, staff will proceed to complete design phase and seek modified permit authorizations for the project. An existing Docks IDIQ contract will be utilized for these services.

The construction will be phased in two in-water work windows in order to minimize the impact on terminal operation, to accommodate limited in-water work window, and long lead time for piles purchase.

Tentative Project Schedule:

Commission Authorization for Design	April 06, 2010
Procure Engineering Services	April 23, 2010
Permit Submitted	May 23, 2010
Commission Authorization for Additional Design Funding	August 12, 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, 2012

STRATEGIC OBJECTIVES:

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

- Replacing the fender piles in this area is a renewal and replacement project for the Seaport. It will help protect dock revenue the Port currently receives.
- Meeting lease obligation.
- Maintaining our ability to remain competitive by keeping all of Terminal 18 container berthing area active.

Meet Environmental Obligations

The project will meet environmental obligations by:

- Acquiring all necessary and required permits from appropriate agencies prior to start of construction;
- Complying with all conditions stipulated by permit authorizations

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

July 12, 2010

Page 4 of 6

- Using best management practices during construction to limit water quality impacts.
- Using vibratory impact pile driving to limit noise impacts to endangered species.

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)	\$273,000
Current request for authorization	\$741,000
Total Authorizations, including this request	\$1,014,000
Remaining budget to be authorized (estimated construction costs)	\$4,724,000
Total Estimated Project Cost (pending final design)	\$5,738,000

Project Cost Breakdown

Design	\$448,000
Project Management	\$256,000
Permitting	\$183,000
Construction Management (Contracts Admin)	\$61,000
Interim Repair Work (Maintenance)	\$66,000
Subtotal – this request:	\$1,014,000
Estimated Construction Costs (remaining budget to be authorized)	\$4,724,000
Total Estimated Project Cost (pending final design)	\$5,738,000

Source of Funds

The approximately \$66,000 cost of the interim repair work (banding of select piles to deter further splitting) was recorded as an operating expense in 2009 (\$22,000) and 2010 (\$44,000).

The fender replacement project was not anticipated in the 2010 Plan of Finance, as the full extent of the fender damage was not known when the 2010 Capital Plan was prepared. The project cost will be offset by delays or deferrals of other projects included in the 2010 Plan of Finance, such as C800142 Carnitech (new bldg). This project will be funded from the general fund.

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

July 12, 2010

Page 5 of 6

Financial Analysis Summary

CIP Category	Renewal/Enhancement		
Project Type	Renewal & Replacement		
Risk adjusted Discount rate	7.0%		
Key risk factors	<ul style="list-style-type: none">• Key risk factors include potential cost overruns due to project complexity/timeframe and permitting delays.• Construction costs may increase if unknown obstructions are encountered during piling installation.• Procurement of treated timber piling is a long lead item. Delays in delivery may adversely impact planned construction timing.		
Project cost for analysis	\$5,738,000 (preliminary cost estimate based on 90% design)		
Business Unit (BU)	Container Operations		
Effect on business performance	<p>Fender system replacement will preserve existing revenue from Terminal 18 container operations.</p> <p>At completion, incremental depreciation expense from the fender replacement project is estimated at \$567,000/year, based on a 10 year asset life.</p>		
IRR/NPV	<p>No incremental revenue. NPV is present value of project cost.</p> <table border="1"><tr><td>NPV (in \$000's)</td><td>(\$5,202)</td></tr></table>	NPV (in \$000's)	(\$5,202)
NPV (in \$000's)	(\$5,202)		

SUSTAINABILITY AND LIFE CYCLE COSTS:

Due to premature failure of the fender piling, the Port will replace the broken piles with in-kind material to fulfill lease obligation. Port tenant is obligated to perform future maintenance of the fender system. 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: Proceed with the design, bid package and in-kind replacement of the 61 identified damaged timber fender piles and the supporting system, and include allowance to replace an additional 31 broken piles for the cost of \$2,790,000. Inspect and replace 36 piles in each of the following three years as needed to a total of all 200 piles. A potential total project cost ranges from \$1,830,000 for the replacement of 61 broken piles to \$6,995,000 for all 200 piles in the period of four years.

Alternative 2: Proceed with the design, bid package and replacement of all 202 timber fender piles with steel piling and the damaged supporting structures for the preliminary

COMMISSION AGENDA

Tay Yoshitani, Chief Executive Officer

July 12, 2010

Page 6 of 6

total project cost estimate of \$11,656,000. This will provide a steel fender piling system in all of the container berth area.

Alternative 3: 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.

Alternative 4: Proceed with the design, bid package and in-kind replacement of all 202 timber fender piles and the damaged supporting structures for the total project cost of \$5,738,000. This is the recommended alternative.

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS:

On April 6, 2010, Commission authorized design and permitting for the repair of the damaged fender system at Terminal 18.