

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA
ACTION ITEM

Item No. 4e
Date of Meeting April 26, 2016

DATE: April 19, 2016
TO: Ted Fick, Chief Executive Officer
FROM: Kenneth R. Lyles, Director, Fishing and Commercial Operations
Mark Longridge, Capital Project Manager
SUBJECT: Authorization for design and permitting of fender system improvements at Terminal 91 Berths G & H (CIP # C800675)

Amount of This Request: \$308,000 **Source of Funds:** Tax Levy
Est. Total Project Cost: \$2,470,000

ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to complete design and permitting of 420 feet of replacement fender system at Terminal 91 in the amount of \$308,000 for a total preliminary estimated project cost of \$2,470,000

SYNOPSIS

This project will remove and replace the current timber fender system of berths G & H on the south end of Terminal 91. Replacing the fender system with a stronger, more environmentally friendly steel system will allow the berth to continue to service a variety of vessel types and sizes, extending utilization of the pier for another 30 plus years and fostering tenant retention and its related employment.

The berths at the southernmost end of Terminal 91 are used primarily for fishing vessels, but also service research vessels, tugs and barges. The current fender system was installed in 1999 and has been repaired several times since then. It is now reaching the end of its service life. Several piles are deteriorated or broken and the loading capacity of the system is becoming significantly compromised.

BACKGROUND

Throughout the last several years, the Port has been replacing aging treated timber systems at many of our facilities as they reach the end of their life and replacing them with coated steel systems that are longer lasting, more environmentally friendly and stronger than the timber systems they replace.

The current fender pile system at these berths consists of ammoniacal copper zinc arsenate

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(ACZA) treated piles, chocks and walers in a conventional arrangement typical of timber fender systems. While environmentally superior to traditional creosote piles used in the past, these piles do not have a relatively long service life under harsh conditions. Several of the piles currently are broken, rotted or have significant section loss around the waterline.

The south end of Pier 91 presents additional challenges as it is one of the highest fetch locations (having the longest direct wind and resulting wave exposure) throughout Elliot Bay. As a result of these conditions, we have seen accelerated wear of the current timber system due to chafing and abrasion of the pile faces. Providing a stronger wear face of high density polyethylene (HDPE or similar) will also be a design priority to ensure a long life for the new system.

All in-water work for the installation of the new piles must be completed within the permitted fish window between August 15, 2016 and February 15, 2017, while above water work may be completed after this time (upper bullrail work etc.). This construction window falls during some of the busiest time for these berths, when fishing vessels are in port for refitting and maintenance, and it is expected that operational constraints may further tighten the time the job site is available for construction. The project team will work closely with operations staff to minimize any impacts to both the construction and operations schedules.

PROJECT JUSTIFICATION AND DETAILS

Replacement of this essential protective system will allow continued operation of fishing vessel, barge and other activity in this lease area.

Project Objectives

The project objective is to fully replace the deteriorating fender system at the south end of Terminal 91, keeping these berths in service.

Scope of Work

Overall project scope would include the replacement of approximately 420 linear feet of old and deteriorated fender pile system, along with the remaining bullrail and brow at the south end of Pier 91 with a new steel fender system to facilitate vessel and barge moorage for existing lease tenants and transitory barge traffic.

Design and permitting scope under this authorization to include preparation of plans, specifications and estimates for completing this work, and coordination of all applicable permits required for in-water work to repair these sites.

Schedule

Commission Authorization for Construction	July 2016
100% Design Complete	July 2016
Major Works Construction Advertisement	August 2016
In-Water Construction Begins	January 2017
Construction Complete	March 2017

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FINANCIAL IMPLICATIONS

<i>Budget/Authorization Summary</i>	Capital	Expense	Total Project
Original Budget	\$0	\$0	\$0
Previous Authorizations	\$50,000	\$0	\$50,000
Current request for authorization	\$308,000	\$0	\$308,000
Total Authorizations, including this request	\$358,000	\$0	\$358,000
Remaining budget to be authorized	\$2,112,000	\$0	\$2,112,000
Total Estimated Project Cost	\$2,470,000	\$0	\$2,470,000

<i>Project Cost Breakdown</i>	This Request	Total Project
Construction	\$0	\$1,835,000
Construction Management	\$55,000	\$156,000
Design	\$140,000	\$165,000
Project Management	\$85,000	\$110,000
Permitting	\$28,000	\$28,000
State & Local Taxes (estimated)	\$0	\$176,000
Total	\$308,000	\$2,470,000

Budget Status and Source of Funds

This project was included in the 2016 Plan of Finance under Committed CIP#C800675 in the amount of \$2,077,000. The current total project estimate is \$2,470,000. The initial \$308,000 is requested in order to proceed with design and permitting.

This project will be funded from the tax levy.

Financial Analysis and Summary

CIP Category	Renewal/Enhancement
Project Type	Renewal & Replacement
Risk adjusted discount rate	NA
Key risk factors	Project schedule could be delayed due to project complexity, in-water work constraints, and the need to minimize disruptions to terminal operations and existing tenant/customers.
Project cost for analysis	\$2,470,000
Business Unit (BU)	Fishing and Commercial Operations
Effect on business performance	Depreciation of \$82,333 per year for 30 years. There are no incremental revenues associated with this project.
IRR/NPV	NPV is present value of project costs.

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Lifecycle Cost and Savings

While a treated timber system would have a lower initial capital cost, it also has a significantly shorter service life (15-20 years, vs. 30-50 years for a steel system). Conservatively, this results in the timber option having a significantly higher life cycle cost as it would need to be replaced twice as often.

Similarly the cost savings of keeping the current system operational would likely present no long term savings even with discounting the risk of a potential catastrophic failure; the system will still be in need of replacement in a few years and require capital outlay at that time. Balancing the deferral of these costs against the likely need for more costly repairs due to vessel damage is not recommended.

STRATEGIES AND OBJECTIVES

This project supports the Port's strategies to "Ensure Airport and Seaport Vitality" and "Exhibit Environmental Stewardship through our Actions", in the following categories:

Economic Development

- Replacing the fender system at the subject Terminal so that the Terminal can remain in service for berthing.
- This project will develop and maintain community support by retaining longstanding tenants in our harbor, with the related employment and the necessary purchase of goods and services to service, maintain, repair and upgrade the vessel while at port.

Environmental Responsibility

- Improving water quality by removing deteriorated treated timber piles from the marine environment.
- Installing a durable coated steel system will provide the greatest economic benefit at the least environmental impact.

Community Benefits

- The permit process requires notification of and coordination with neighboring communities, agencies of interest and appropriate environmental groups. Comment is expected and welcomed.
- Additionally, the waters near Terminal 91 are treaty reserved "usual and accustomed" fishing areas. The Muckleshoot and Suquamish Tribes will be consulted during the permitting process.

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ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1) – Status Quo.

Cost Estimate: Potential ad hoc pile replacements estimated at \$20,000-50,000 each, approximately 8-10 need immediate attention to keep the berth functional. Subsequent replacement costs would be as shown in alternatives below, but adjusted upwards for inflation.

Pros:

- No capital funding required and leaves capital funds available for other projects.

Cons:

- Increased maintenance and emergency repair response costs over time.
- The risk of significant or catastrophic failure increases over time with the further breakdown of the fender piles.
- Failure of the fender system could lead to structural damage to the pier that it protects, leaving it out of service until fully repaired. This type of repair would be significantly more costly and lengthy than fender replacement and could not be completed using the programmatic permit.

This is not the recommended alternative.

Alternative 2) – Replace current system with an ACZA treated timber fender system similar to the current system.

Cost Estimate: \$1,750,000 (total project)

NPV: -\$2,860,000

Pros:

- Lower initial capital investment. While design, contract and construction management and installation costs are similar, some savings would be realized in material costs.
- Provides immediate protection of port assets.

Cons:

- Significantly shorter lifespan (~50%) than steel alternatives, will need replacement again in 15-20 years, especially in this heavy weather location
- Use of treated timber piles strongly discouraged under current permitting guidelines for the programmatic permit, and could be not allowed entirely.
- ACZA treated piles not as environmentally benign as epoxy coated steel pile

This is not the recommended alternative.

Alternative 3) – Replace current system with an epoxy coated steel fender system.

Cost Estimate: \$2,470,000 (total project)

NPV: \$-2,470,000

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Pros:

- Longer expected asset life and improved life cycle cost (system will be designed for 30-50 year life)
- Most durable and environmentally friendly option.
- Provides immediate protection of port assets.

Cons:

- More expensive than timber alternative in initial capital outlay

This is the recommended alternative.

ATTACHMENTS TO THIS REQUEST

- PowerPoint presentation.

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- None