



AGENDA MEMORANDUM

Item No. 4b

ACTION ITEM

Date of Meeting August 8, 2017

DATE: August 2, 2017

TO: Dave Soike, Interim Executive Director

FROM: Kenneth R. Lyles, Director, Fishing and Commercial Operations
Mark Longridge, Capital Project Manager, Seaport Project Management

SUBJECT: Authorization for construction of fender system improvements at Terminal 91 Berths G & H (CIP # C800675)

Amount of this request: \$3,742,000

Total estimated project cost: \$4,100,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to advertise and award a major public works contract for replacement of 420 feet of fender system at Terminal 91 Berths G and H in an amount not to exceed \$3,742,000 for a total estimated project cost of \$4,100,000.

EXECUTIVE SUMMARY

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 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.

JUSTIFICATION

This project supports the Port's strategies to "Position the Puget Sound region as a premier international logistics hub" and "Be the greenest, and most energy efficient port in North America," in the following categories:

Economic Development

- Replacing the fender system at the subject Terminal so that the Terminal can remain in service for berthing.

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- Developing and maintaining community support by retaining longstanding tenants in our harbor, with the related employment and the necessary purchasing 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, providing the greatest economic benefit at the least environmental impact.

Community Benefits

- Conducting community outreach - The permit process requires notification of and coordination with neighboring communities, agencies of interest and appropriate environmental groups. Comment is expected and welcomed.
- Engaging with tribal partners - 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.

Small Business

- The project team will coordinate with the Office of Social Responsibility to determine where opportunities exist for small business participation as direct contracts or through subcontract opportunities.

DETAILS

Throughout the last several years and at many of our facilities, the Port has been replacing aging treated timber systems, 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 approximately 47 ammoniacal copper zinc arsenate (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 Elliott 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.

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Scope of Work

Overall project scope includes the replacement of 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 galvanized steel fender system to facilitate vessel and barge moorage for existing lease tenants and transitory barge and ship traffic. The fender system will consist of approximately 47 steel piles placed by vibratory driving methods, topped by an upper steel waler and fender rubber sections to tie the fender system to the pier.

The contract documents for this work will allow for construction of the project from either the land or water side of the pier to maximize the number of eligible bidders.

The construction contract activities include:

- (1) Removal of the existing timber fender system
- (2) Installation of the new steel piles
- (3) Assembly of the upper fender sections to tie the new piles to the pier

All pile driving work for this project will use vibratory methods and will conform with the requirements of the Port’s existing programmatic permit for pile replacement.

Schedule

All in-water work for the installation of the new piles must be completed within the permitted fish window, between August 15, 2017 and February 15, 2018, 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.

Activity

Commission design authorization	April 2016
Design start	May 2016
Commission construction authorization	August 2017
Construction start	October 2017
In-use date	March 2018

Cost Breakdown

	This Request	Total Project
Construction	\$3,150,000	\$3,150,000
Construction Management	\$130,000	\$185,000
Design	\$45,000	\$185,000
Project Management	\$35,000	\$170,000

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Permitting	\$32,000	\$60,000
State & Local Taxes (estimated)	\$350,000	\$350,000
Total	\$3,742,000	\$4,100,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Continue to use the system in its current condition and maintain as needed, including broken pile replacements.

Cost Implications: 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:

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

Cons:

- (1) 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 Implications: \$2,800,000 (total project)

Pros:

- (1) This is the lower initial capital investment. While design, contract and construction management and installation costs are similar, some savings would be realized in material costs. This alternative provides immediate protection of port assets.

Cons:

- (1) Significantly shorter lifespan (~50%) than the 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 steel pile alternatives.

This alternative would require a redesign effort, delaying the project completion date.

This is not the recommended alternative.

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Alternative 3 – Replace current system with a galvanized steel fender system.

Cost Implications: \$4,100,000 (total project)

Pros:

- (1) Longer expected asset life and improved life cycle cost than other material alternatives (system is designed for a minimum 30 year life)
- (2) This is the most durable and environmentally friendly option which provides immediate protection of Port assets.

Cons:

- (1) More expensive than timber alternative in initial capital outlay

This is the recommended alternative.

FINANCIAL IMPLICATIONS

<i>Cost Estimate/Authorization Summary</i>	Capital	Expense	Total
COST ESTIMATE			
Original estimate	\$2,469,000	\$0	\$2,469,000
Current change	\$1,631,000	0	\$1,631,000
Revised estimate	\$4,100,000	0	\$4,100,000
AUTHORIZATION			
Previous authorizations	\$358,000	0	\$358,000
Current request for authorization	3,742,000	0	3,742,000
Total authorizations, including this request	4,100,000	0	4,100,000
Remaining amount to be authorized	\$3,742,000	\$0	\$3,742,000

Annual Budget Status and Source of Funds

This project was included in the 2017 Plan of Finance under CIP #C800675 P91 South End Fender in the amount of \$2,469,000. The remaining \$1,631,000 will be covered by CIP #C800002 Maritime Contingency Renewal & Replacement.

This project will be funded by the tax levy.

Financial Analysis and Summary

Project cost for analysis	\$4,100,000
Business Unit (BU)	Fishing and Commercial Operations
Effect on business performance (NOI after depreciation)	This project will support/maintain current moorage revenue at T91. Incremental depreciation expense from this project is estimated at \$136,667/year, based on a 30 year asset life. NOI after Depreciation will decrease by the associated depreciation from this project.

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IRR/NPV (if relevant)	NPV is present value of project cost.
CPE Impact	N/A

Future Revenues and Expenses (Total cost of ownership)

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 lifecycle 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.

ATTACHMENTS TO THIS REQUEST

- (1) Presentation slides

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

April 26, 2016 – The Commission authorized design and permitting of 420 feet of replacement fender system at Terminal 91 in the amount of \$308,000.