COMMISSION
AGENDA MEMORANDUM **Item No.** 6d

ACTION ITEM **Date of Meeting** July 28, 2020

DATE: July 21, 2020

TO: Stephen P. Metruck, Executive Director

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

SUBJECT: Authorization for construction of fender system improvements at Terminal 91 Berths K, L & M (CIP # C801097)

Amount of this request: $7,650,000
Total estimated project cost: $8,500,000

ACTION REQUESTED

Request Commission authorization for the Executive Director to advertise and award a major public works contract for replacement of 1,270 feet of fender system at Terminal 91 in the amount of $7,650,000 of a total project cost of $8,500,000 (CIP # C801097)

EXECUTIVE SUMMARY

This project will remove and replace the current timber fender system of berths K, L & M in the Northwest corner 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 northwest corner of Terminal 91 are used primarily for fishing vessels, but also service research vessels, tugs and barges. The current fender system was installed over 20 years ago and has been repaired several times since then. It is now reaching the end of its service life. Approximately 30% of the timber piles are severely deteriorated or broken and the loading capacity of the system is becoming significantly compromised.

JUSTIFICATION

Replacement of this essential protective system will allow continued operation of fishing vessel, barge and other moorage activity in this berth area. The project objective is to fully replace the deteriorating fender system at the northwest corner of Terminal 91, keeping these berths in service and avoiding damage to the pier structure. This project supports the Port's guiding principles of:

- Continue to ensure the safe and efficient operation of Port business gateways to support the viability of our customers, tenants and suppliers.
- Maintain a long-term strategic view of capital improvements with a priority on investments that provide long-term, sustainable community and economic benefits

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 with 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 primarily of 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 have a relatively short service life under harsh conditions. Several of the piles currently are broken, rotted or have significant section loss around the waterline.

The designated use of these berths by industrial customers contributes to accelerated wear of the current timber system due to chafing and abrasion of the pile faces. Providing a more durable 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 in-water work window between July 15th and February 15th of each year, while above water work may be completed outside of this window (upper bullrail work etc.). The project team has been working closely with operations staff to minimize any impacts to both the construction and operations schedules. Phasing and work zone limitations are also planned to be incorporated into the contract documents to minimize any impacts to cruise and industrial tenant operations.

Diversity in Contracting

The project team is coordinating with the Diversity in Contracting Department to determine appropriate WMBE aspirational goals for this project.

Community & Tribal Engagement

The permit process requires notification of and coordination with neighboring communities, agencies of interest and appropriate environmental groups. Comment is expected and welcome. Community outreach will occur throughout planning and construction. Staff briefed the Neighbors Advisory Committee (NAC) which represents Magnolia and Queen Anne at the group's June 2020 meeting. The Muckleshoot and Suquamish Tribes will also be consulted during the permitting process as the waters near Terminal 91 are treaty reserved as "usual and accustomed" fishing areas.

DETAILS

Scope of Work

Overall project scope includes the replacement of 1,270 linear feet of old and deteriorated fender pile system, along with the remaining bullrail and brow at the Northwest corner 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 125 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, including appropriate disposal of all treated and creosote pile and timbers
(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

This work will be performed under the Port's existing programmatic permit for maintenance and pile replacement, along with a project specific Hydraulic Permit Approval (HPA). All permits for the work have been obtained.

Operational concerns will have a significant impact on this project schedule. While it would be possible to complete the construction in the 2020-2021 in-water work window this would place the bulk of construction during the busiest time on the pier for the fishing fleet. Also, the expected intermittent maintenance closures of the Hiram Chittenden locks in late 2020 is expected to place additional demand on these berths for the upcoming season and may preclude the closure of the berths for construction during this time.

By waiting approximately 8 months for the start of the 2021-2022 in-water work window to start construction these tenant impacts can be significantly reduced. For these reasons staff is recommending the later construction window. The work will still be advertised as soon as final design is completed and ready to bid.

Activity	
Commission design authorization	Q4 2019
Design start	Q4 2019

Commission construction authorization	Q3 2020
Construction start	Q3 2021
In-use date	Q2 2022

Cost Breakdown	This Request	Total Project
Design (previously authorized)	$0	$850,000
Construction	$7,650,000	$7,650,000
Total	$7,650,000	$8,500,000

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Defer replacement of fender system and continue patching and maintaining current timber system.

Cost Implications: Expected costs would be approximately $300-400K per year to spot replace the currently failed piles and keep the dock in service. This would not include any potential damage to the berth structure which would be considerably more expensive to repair and would also take the affected berths out of service for a minimum of 6-9 months.

Pros:

(1) Lower initial capital cost.

Cons:

(1) Significant risk to the structure if kept in use.
(2) Spot replacement of piles is significantly less efficient and therefore more costly per pile than system replacement.
(3) System will continue to deteriorate, replacement piles installed under this scenario would have an estimated life of 10-15 years.
(4) Construction costs continue to escalate so replacement would cost more in the future, and still may require shutdowns of the berth in the meantime.

This is not the recommended alternative.

Alternative 2 – Full replacement of the current deteriorated system with a similar ACZA (Ammoniacal Copper Zinc Arsenate) treated timber system similar to the current installation.

Cost Implications: $5,600,000

Pros:

(1) Lower initial capital cost than a steel replacement system.
(2) Would provide better protection of the pier than the existing failing system.

Cons:

(1) ACZA piles would have an expected life of 10-15 years based on current performance and provide a lower level of impact protection compared to a steel system.

(2) Higher costs over the life of the system and more operational disruptions due to more frequent construction cycles.

This is not the recommended alternative.

Alternative 3 – Full replacement of the current deteriorated system with a steel system similar to those previously installed around the Port, starting construction in July 2021 (start of 2021-22 in-water work window).

Cost Implications: $8,500,000

Pros:

(1) Robust, durable proven design currently in use at several sites around the Port with efficient welded construction and all wear surfaces protected. High recycled content in both the steel and plastics used.
(2) Longer life expectancy than timber pile design (approximately 2-3 times as durable)
(3) Lowest tenant impact by avoiding busiest period of terminal use for North Pacific fishing fleet.

Cons:

(1) Higher initial capital cost.

This is the recommended alternative.

FINANCIAL IMPLICATIONS

Cost Estimate/Authorization Summary	Capital	Expense	Total
COST ESTIMATE			
Original estimate	$6,600,000	$0	$6,600,000
Current change	$1,900,000	0	$1,900,000
Revised estimate	$8,500,000	0	$8,500,000
AUTHORIZATION			
Previous authorizations	$850,000	0	$850,000
Current request for authorization	$7,650,000	0	$7,650,000
Total authorizations, including this request	$8,500,000	0	$8,500,000
Remaining amount to be authorized	$0	$0	$0

Annual Budget Status and Source of Funds

This project was included in the 2020 Capital Plan under CIP C801097 with a total project cost of $6,585,000. This project has been included in the draft 2021 Capital Plan with an updated project cost of $8,500,000.

This project will be funded by the General Fund.

Financial Analysis and Summary

Project cost for analysis	$8,500,000
Business Unit (BU)	Elliott Bay Fishing & Commercial Operations
Effect on business performance (NOI after depreciation)	This project will support/maintain current moorage revenue at T-91. Incremental depreciation expense from this project is estimated at $284,000 per year, based on a 30-year asset life. NOI after Depreciation will decrease by the associated depreciation from this project.
IRR/NPV (if relevant)	The NPV is present value of the project cost
CPE Impact	NA

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 (10-15 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 at least 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

December 10, 2019 – The Commission authorized design and permitting funding in the amount of $850,000.