



**COMMISSION  
AGENDA MEMORANDUM**

**Item No.** 6h

**ACTION ITEM**

**Date of Meeting** January 22, 2019

**DATE:** January 15, 2019

**TO:** Stephen P. Metruck, Executive Director

**FROM:** Kenneth R. Lyles, Director, Maritime Operations and Security  
Rod Jackson, Capital Project Manager, Seaport Project Management

**SUBJECT:** Fishermen's Terminal Docks 3, 4, and 5 Fixed Pier Improvements (CIP #C800531)

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

**Total estimated project cost:** \$3,800,000

**ACTION REQUESTED**

Request Commission authorization for the Executive Director to: (1) proceed with the construction phase of the Fishermen's Terminal Docks 3, 4, and 5 Fixed Pier Improvements; and (2) advertise and execute a major public works contract for the Fixed Pier Improvements, for a total estimated project cost of \$3,800,000.

**EXECUTIVE SUMMARY**

Fishermen's Terminal is the home of the North Pacific fishing fleet. This project maintains the region's vital connection to the fleet by preserving the existing structural steel piling supporting Fishermen's Terminal Docks 3, 4, and 5 and preventing future corrosion. The total estimated project cost is \$3,800,000, which is less than the \$6,400,000 amount shared with the Commission at the design phase funding request on October 10, 2017.

**JUSTIFICATION**

The steel piles supporting Docks 3, 4, and 5 were installed in the early 1980s. The piling consists of thin steel hollow pipes filled with unreinforced concrete. The pile system provided reliable service for the past 35 years, but corrosion is manifesting within the splash zones and near the mud line of some piling, compromising the integrity of the system and requiring the prevention of future corrosion.

The steel piles on Docks 3, 4, and 5 will be wrapped in the splash zone of each of the 294 piling, with some requiring additional wraps at the mudline. Additionally, cathodic protection will be installed on each piling below the waterline.

Meeting Date: January 22, 2019

**DETAILS**

Docks 3 and 4 have moderate-to-major corrosion on a majority of their piling. This corrosion within the water line/ splash zone has resulted in material loss ranging from 12 to 36 percent of the steel pile that is needed for the structural integrity of the pile. Dock 5 is showing corrosion only at the water line/splash zone with a material loss ranging from 3 to 4 percent. All piling were coated when new, but all have corrosion deterioration within the water line / splash zone. The material loss on Docks 3 and 4 piling will require preservation to prevent future corrosion. All piling at Docks 3, 4, and 5 will be repaired by wrapping each pile within a protective outer wrap barrier to isolate the steel from the elements causing the corrosion within the splash zone, including the installation of a passive cathodic protection system by welding a sacrificial anode to each pile. Cathodic protection is an electrochemical means of corrosion control, the benefits of this system include minimum disruption to terminal operations and maintaining economic vitality of the terminal as the wrap system is installed on the existing piles. The pile wraps will be installed by divers who will clean and attach the wrap system in sections. This is far less disruptive and more cost effective than the other options explored which would generate a significant amount of construction demolition waste and emissions.

***Scope of Work***

Prevent future corrosion of the steel piling supporting Docks 3, 4, and 5 and provide corrosion protection in the splash zone. The work includes:

- 1) Cleaning and preparing the existing 294 piling within the water line / splash zone.
- 2) Installing Outer Wraps on 294 piles at Docks 3, 4, and 5 within the splash zone with additional wraps for various piling at the mud line.
- 3) Install and weld 294 cathodic protection anodes at Docks 3, 4, and 5 just below the wraps and waterline.

**Diversity in Contracting**

Per the scope of work within the construction phase, WMBE firms within this field are limited. 0% is the goal for this work. With the support of project staff and the central procurement office (CPO), the Diversity in Contracting Department is continuing to promote and outreach this opportunity.

***Schedule***

Design was completed during the fourth quarter of 2018. Construction is anticipated to start in the second quarter of 2019 with construction completed by Q4 2019/ Q1 2020. In-water work will not be disrupted by the fish window making this decision the preferred design remedy as this work can be installed at any time throughout the life of the project.

Commission design authorization	Q4 2017
Design start	Q4 2017

Meeting Date: January 22, 2019

Design complete	Q4 2018
Commission construction authorization	Q1 2019
Construction start	Q2 2019
In-use date	Q1 2020

<b>Cost Breakdown</b>	This Request	Total Project
Design	\$0	\$240,000
Construction	\$3,000,000	\$3,560,000
Total	\$3,000,000	\$3,800,000

**ALTERNATIVES AND IMPLICATIONS CONSIDERED**

**Alternative 1 – Status Quo**

Cost Implications: \$0

Pros:

- (1) Does not require capital investment
- (2) Does not involve shutdown of current facilities

Cons:

- (1) The facility will continue to deteriorate until failures occur.
- (2) This would only “kick the can down the road” to a future date when significant pile repairs or replacement will be more expensive and more disruptive to day-to-day operations

This is not the recommended alternative.

**Alternative 2 – Strengthen the piling using PileMedic® for repair of deteriorated steel in Splash Zones w/ Cathodic Protection**

Cost Implications: \$5.5M

Pros:

- (1) Reduced cost as compared to a full pier replacement
- (2) Redundancy with cathodic protection system
- (3) Reduces risk during a seismic event
- (4) Possible reduced risk during a seismic upgrade

Cons:

- (1) No case history for this system used on round pile underwater in the marine environment; however, this system has been used for concrete piles and H-piles in the marine environment above water.
- (2) Building permit requirements, including structural calculations are likely with no data to support this system.

Meeting Date: January 22, 2019

- (3) Fish Window installation will reduce the work window (In water work is allowed only from Oct 15 ~ Apr 15).
- (4) Requires periodic maintenance.

This is not the recommended alternative.

**Alternative 3 – Pile Wraps in the splash zone w/ Cathodic Protection**

Cost Implications: \$3.8M

Pros:

- (1) Costs less than the system described in Alternative 2
- (2) No Building Permit requirements
- (3) Slows corrosion, offers corrosion protection including some abrasion protection
- (4) Case history for round piles in Puget Sound, including Port of Seattle
- (5) Work can be performed year round with no fish window restrictions

Cons:

- (1) Moderate cost
- (2) Requires periodic maintenance

***This is the recommended alternative.***

**FINANCIAL IMPLICATIONS**

***Cost Estimate/Authorization Summary***

	Capital	Expense	Total
<b>COST ESTIMATE</b>			
Original estimate	\$6,400,000	\$0	\$6,400,000
Revised estimate	\$3,800,000	0	\$3,800,000
<b>AUTHORIZATION</b>			
Previous authorizations	\$800,000	0	\$800,000
Current request for authorization	\$3,000,000	0	\$3,000,000
Total authorizations, including this request	\$3,800,000	0	\$3,800,000
Remaining amount to be authorized	\$0	\$0	\$0

***Annual Budget Status and Source of Funds***

The Fishermen’s Terminal Docks 3, 4, and 5 Fixed Pier Improvement project was included in the 2019 Plan of Finance under CIP #C800531 FT Dock 3, 4 and 5 Fixed Pier Improvements for a total amount of \$7,536,000. The total estimated project cost is now \$3,800,000, which is less than the \$6,400,000 amount shared with the Commission at the design phase funding request on October 10, 2017. The design cost turned out to be less than originally anticipated due to the lower cost of the wrap system used.

Meeting Date: January 22, 2019

This project will be funded by the Tax Levy.

***Financial Analysis and Summary***

Project cost for analysis	\$3,800,000
Business Unit (BU)	Ship Canal Fishing and Operations
Effect on business performance (NOI after depreciation)	This project will support/maintain current moorage revenue at Fishermen’s Terminal. Incremental depreciation expense from this project is estimated at \$190,000 per year, based on a 20-year asset life. NOI after Depreciation will decrease by the associated depreciation from this project.
IRR/NPV (if relevant)	No incremental revenue will result from this project.
CPE Impact	N/A

***Future Revenues and Expenses (Total cost of ownership)***

Extending the useful service life of our existing assets defers eventual replacement costs for a longer period, supporting the economic vitality of our operations. Other economic benefits include cost effectiveness and minimum disruption to the terminal operations.

**ATTACHMENTS TO THIS REQUEST**

- (1) Presentation slides

**PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

October 10, 2017– The Commission authorized \$720,000 for Design