

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA

Item No. 5b

Date of Meeting May 24, 2011

DATE: May 13, 2011

TO: Tay Yoshitani, Chief Executive Officer

FROM: Scott Pattison, Seaport Asset Manager
Anne Porter, Capital Project Manager

SUBJECT: Terminal 18 Pilot Pile Cap Repair and Maintenance Project
(PID #104559)

Amount of This Request: \$250,000

Source of Funds: General Fund

Total Project Cost: \$1,000,000

ACTION REQUESTED:

Request authorization for the Chief Executive Officer to develop design documents, apply for permit approvals, and prepare construction documents as part of the Terminal 18 (T-18) Pilot Pile Cap Repair and Maintenance Project (PID #104599) for an estimated cost of \$250,000 bringing the total authorized cost of this project to \$300,000. Following design, Port of Seattle staff will return to the Commission to seek authorization to complete the project which may include major construction contracts, work performed by Port crews and the purchase of equipment and materials. The total project cost is estimated at \$1,000,000. This project was not anticipated in the 2011 Operating Expense Budget and will create an unfavorable expense variance.

SYNOPSIS:

This memo requests Commission approval for the permitting, design and project management funding in the amount of \$250,000 for the proposed T-18 Pilot Pile Cap Repair and Maintenance Project. This pilot project is proposed in order to accomplish needed repair and maintenance and to obtain practical experience as an aid in implementing future pile cap repairs at T-18 and other marine terminals. This pilot repair project will provide information essential for future projects with larger scopes of work, including evaluating, planning, designing, and implementing pile cap maintenance and repair actions for similar port infrastructure and assets. The Commission was previously briefed on the project on May 10, 2011. This pilot project was not anticipated in the 2011 Operating Expense Budget and will create an unfavorable expense variance.

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PROJECT JUSTIFICATION:

This pilot project will repair between two and five of the 308 existing pile caps at T-18 to maintain their structural capacity and preserve existing revenues. As a pilot project, the results will provide practical guidance to:

- 1) understand the extent and rate of deterioration of pile caps within our pier structures;
- 2) effectively analyze site conditions and more precisely determine when further repairs are required;
- 3) prepare specific design documents and detailed project specifications;
- 4) reduce risk and cost associated with similar and expanded future pile cap repair and maintenance actions; and
- 5) identify means to perform maintenance and repair actions while minimizing disruption of cargo operations at marine terminals, avoiding negative impacts on Port tenants and preserving revenues to the Port.

PROJECT STATEMENT AND OBJECTIVES:

Project Statement:

- Conduct a pilot pile cap repair and maintenance project at T-18 for less than \$1,000,000 by end of 2012.

Project Objectives:

The purpose of this pilot project is to accomplish the following objectives:

- Accurately estimate material and labor costs
- Refine repair procedures to be more time and cost-efficient
- Identify effective means for construction access
- Document repair production rates for various identified repair solutions
- Reduce disruption to marine terminal cargo operations
- Reduce the cost, time and disruption associated with pile cap repairs anticipated at other marine terminals

PROJECT SCOPE OF WORK AND SCHEDULE:

Scope of Work:

The repair and maintenance scope of work includes selecting a representative sample of pile caps for repair and maintenance, selecting an array of alternative repair solutions to gain field experience with each, and performing repairs to this representative sample of pile caps.

Alternative repair solutions may include any or each of the following:

Removal of cracked and corrosive concrete from the lower portion of the pile caps, cleaning the exposed concrete surface, abatement of corrosion to existing reinforcing steel, installation of cathodic protection systems, applying bonding agent to existing concrete, casting of new

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concrete, epoxy injection into small cracks, and/or encasement of portions of pile caps within fiberglass reinforced polymers (FRP).

Design and permitting efforts will be provided by in-house staff. Professional services will be needed for specialty design services such as concrete mix and cathodic protection design. These services will be contracted through existing indefinite duration/indefinite quantity agreements.

Schedule:

The target schedule is to repair a representative sample of the pile caps by June 2012. The schedule milestones are as follows, subject to change depending on permits, the scope and nature of the final repair and maintenance actions and methods selected.

	<u>Start</u>	<u>Finish</u>
Pre –Design	January 2011	May 2011
Design	June 2011	August 2011
Permits	September 2011	December 2011
Construction	January 2012	June 2012

FINANCIAL IMPLICATIONS:

Budget/Authorization Summary

Original Budget	\$0
Previous Authorizations	\$50,000
Current request for authorization	\$250,000
Total Authorizations, including this request	\$300,000
Remaining budget to be authorized	\$700,000
Total Estimated Project Cost	\$1,000,000

Project Cost Breakdown

Construction	\$615,000
Construction Management	\$64,000
Design	\$194,000
Project Management	\$77,000
Permitting	\$29,000
State & Local Taxes (estimated)	\$21,000
Total	\$1,000,000

Source of Funds

The design and permitting efforts for the T-18 Pilot Pile Cap Repair Project in the amount of \$300,000 was not anticipated in the 2011 Operating Expense Budget and, accordingly, will create an unfavorable expense variance. The Seaport Division will work to find offsets to this unfavorable variance through either increased revenue or through expense reductions in other

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areas. One currently known offset is \$250,000 budgeted in Seaport contingency expense. The source of funds will be the General Fund.

Financial Analysis Summary:

CIP Category	NA – Pilot Pile Cap Repair Project
Project Type	Repair
Risk adjusted Discount rate	NA
Key risk factors	<ul style="list-style-type: none">• Project does not accomplish stated objectives.• Cost to conduct the pilot exceeds the stated budget.• Project is not completed by stated schedule.
Project cost for analysis	\$1,000,000
Business Unit (BU)	Seaport - Containers
Effect on business performance	The project will increase operating expenses in 2011 by \$300,000 and, to the extent offsetting saving are not found, will reduce 2011 NOI Before Depreciation by the same amount. The balance of funding for this expense project will be included in the Seaport's 2012 Expense Budget.
IRR/NPV	NA

ECONOMIC IMPACTS AND BUSINESS PLAN OBJECTIVES:

Proceeding with this pilot project will ensure continued use of the repaired pile cap portions of the terminal by the tenant and preserve existing revenues for the port.

STRATEGIC OBJECTIVES:

This project supports Seaport Economic Vitality by analyzing and evaluating the service-life requirements of aging infrastructure assets in a cost-effective manner minimizing and avoiding potential disruption of tenant cargo operations.

ENVIRONMENTAL SUSTAINABILITY AND COMMUNITY BENEFITS:

- Design and project implementation will include practices to avoid and minimize potential negative environmental effects. The pilot project will identify repair and maintenance methods, materials, and practices for effective under-pier work while avoiding release of deleterious materials to the environment and reducing the potential for adverse effects on aquatic area natural resource values.
- Timely repair and maintenance extends the service life of existing infrastructure, as an alternative for avoiding more environmentally disruptive and resource/materials consumptive large scale structure replacement actions.

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TRIPLE BOTTOM LINE:

Extending the useful service life of our existing assets defers eventual replacement costs for a longer period of time, supporting the economic vitality of our operations.

ALTERNATIVES CONSIDERED AND THEIR IMPLICATIONS:

1. Conduct a pilot repair and maintenance project and use the results of the design, planning, and implementation experience to improve efficiency of future similar projects, including cost effectiveness, schedule, and operation impacts. **This is the recommended alternative.**
2. Complete major repairs without the benefit of a pilot project. This alternative would reduce a portion of the costs associated with a stand-alone pilot project and get the work done sooner, thus avoiding further deterioration and more extensive repairs in the future. However, this alternative was rejected due to the high risk of unknowns for a full-scale repair project. Key risks include working in areas beneath existing piers and above tidal elevations at low tide, variable productivity rates, and other risks that can be better understood by performing a pilot project.
3. Monitor the pile cap distress over time and defer the cost of the pilot project and major repairs until a later date. This alternative was rejected because further delay is likely to result in costlier repairs in the future as the rate of deterioration in the pile caps accelerates over time.

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS:

- May 10, 2011, the Commission was briefed on this project.