

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA

Item No. 6b

Date of Meeting December 6, 2011

DATE: November 22, 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: \$700,000

Source of Funds: General Fund

Est. State and Local Taxes: \$9,000

Est. Construction Jobs Generated: 8

Total Project Cost: \$1,000,000

ACTION REQUESTED:

Request authorization for the Chief Executive Officer to proceed with construction of the Terminal 18 (T-18) Pilot Pile Cap Repair and Maintenance Project (PID #104559) using Port Construction Services, Maintenance Crews and Small Works Contractors for an additional estimated cost of \$700,000, bringing the total authorized cost of this project to \$1,000,000. Expenditures incurred and payable in 2012 are included in the 2012 Operating Expense Budget.

SYNOPSIS:

This memo requests Commission approval in the amount of \$700,000 to undertake and complete the T-18 Pilot Pile Cap Repair and Maintenance Project (Pilot 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. The Pilot Project will provide information essential for future projects with larger scopes of work as the need arises, including evaluating, planning, designing, permitting and implementing pile cap maintenance and repair actions for similar port infrastructure and assets. The Commission was previously briefed on the Pilot Project on May 10, 2011. The Commission approved increasing the funding for the project to \$300,000 for design, permitting and preparation of construction documents on May 24, 2011. The aforementioned activities are substantially complete and staff is now prepared to move into the construction phase of work, subject to approval of this request for authorization. This Pilot Project was not anticipated in the 2011

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Operating Expense Budget and will result in a negative variance in 2011. The 2012 Operating Expense Budget contemplates expenditures consistent with this Request.

PROJECT JUSTIFICATION:

The Pilot Project will undertake repair and maintenance affecting approximately 270 linear feet on up to four (4) existing cast-in-place pile cap beams at Terminal 18 as a means of providing practical guidance to:

1. Understand the extent and rate of deterioration of pile caps within our pier structures;
2. Analyze site conditions and more precisely determine when further repairs are required;
3. Prepare specific design documents and detailed project specifications on future scopes of work;
4. Identify means to reduce risk to the Port associated with overly conservative or overly aggressive bids on similar future Major Works contracts;
5. Identify means to reduce cost associated with similar and expanded future pile cap repair and maintenance actions; and
6. 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.

As a function of this project, these pile caps will be repaired to maintain their structural capacity and preserve existing revenues.

PROJECT STATEMENT AND OBJECTIVES:

Project Statement:

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

Project Objectives:

Objectives under the construction phase of the Pilot Project include the following:

- Identify effective means for construction access
- Accurately estimate material and labor costs under alternative repair methodologies
- Refine repair procedures to be more time and cost-efficient
- Document repair production rates for various types of repair solutions
- Reduce disruption to marine terminal cargo operations
- Reduce the cost, time and disruption associated with pile cap repairs anticipated at T-18 and other terminals in the future.
- Determine elements to incorporate into any similar Major Works contracts to increase quality and decrease cost and impact.
- Repair up to four (4) pile caps at T-18 as part of the Pilot Project

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PROJECT SCOPE OF WORK AND SCHEDULE:

Scope of Work:

The repair and maintenance scope of work includes repairing up to four (4) pile caps at T-18. The Pilot Project's sample is representative of conditions identified on other pile caps, and selected alternative repair techniques will be performed to gain field experience with each, which will be useful when preparing to undertake future, larger, scopes of work to repair and maintain pile caps at T-18 and other marine terminals. Alternative repair techniques 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
- Application of bonding agent to existing concrete
- Casting or shotcrete application of new concrete or mortar
- Epoxy injection

Schedule:

The construction schedule contemplates mobilization to the site in January 2012 and completion of repairs and demobilization by June 2012. Below is a table reflecting key milestones to date and targeted through the Pilot Project's close-out.

	Start	Finish
Pre-Design	January 2011	May 2011
Design	June 2011	August 2011
Permits	August 2011	October 2011
Construction	January 2012	May 2012
Project Construction Report	January 2012	June 2012
Project Close-Out	June 2012	July 2012

FINANCIAL IMPLICATIONS:

Budget/Authorization Summary

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

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Project Cost Breakdown

Construction	\$771,000
Construction Management	\$44,000
Design	\$106,000
Project Management	\$54,000
Permitting	\$16,000
State & Local Taxes (estimated)	\$9,000
Total	\$1,000,000

Source of Funds

The T-18 Pilot Pile Cap Repair Project was not anticipated in the 2011 Operating Expense Budget. The design and permitting efforts for this project are expected to be completed in 2011 for approximately \$100,000 and will create an unfavorable expense variance. This 2011 variance in the Seaport Division has been offset by increased revenue and through expense reductions in other areas.

Based on the May 24, 2011 Commission action approving \$300,000 for design and permitting of this project, the funding to complete construction on the T-18 pile cap pilot project has been included in the proposed 2012 Operating Expense Budget in the amount of \$700,000. Due to timing differences in project spending, the current estimated project costs for 2012 is \$900,000, which will create an unfavorable operating expense variance of 200,000 in 2012. The Seaport Division will again work to find offsets to this unfavorable variance through either increased revenue or through expense reductions in other areas. There is no anticipated unfavorable variance in the overall project cost of \$1,000,000.

This project will be funded from the General Fund.

Financial Analysis Summary:

CIP Category	N/A
Project Type	Repair (expense project)
Risk adjusted Discount Rate	N/A
Key Risk Factors	<ul style="list-style-type: none">• Project does not accomplish stated objectives• Cost to construct the pilot exceeds the stated budget• Project is not completed by stated schedule
Project Cost for Analysis	\$1,000,000
Business Unit (BU)	Seaport Container Operations

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Effect on Business Performance	The T-18 Pile Cap Pilot Project has been undertaken to provide knowledge and experience in order to develop cost effective approaches for larger scale pile cap repairs at T-18 and other marine terminals. The impact of this pilot project on Net Operating Income Before Depreciation is shown below. Depreciation Expense will not be impacted by this project, as this pilot project is an operating expense.			
	NOI (in \$000's)	2011	2012	TOTAL
	Incremental Revenue	-	-	-
	Incremental OpExp	(100)	(900)	(1,000)
	NOI Before Depreciation	(\$100)	(\$900)	(\$1,000)
IRR/NPV	N/A			

ECONOMIC IMPACTS AND BUSINESS PLAN OBJECTIVES:

Proceeding with the construction phase of the 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 and implementing repair and maintenance solutions in a cost-effective manner, while minimizing and avoiding potential disruption of tenant cargo operations.

ENVIRONMENTAL SUSTAINABILITY AND COMMUNITY BENEFITS:

- Project construction 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.

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.

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ALTERNATIVES CONSIDERED AND THEIR IMPLICATIONS:

1. Conduct a pilot repair and maintenance project and use the results of design, planning and construction experience to improve efficiency of similar projects in the future, including cost-effectiveness, schedule, and operational impacts on working terminals. **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 project and get the work done sooner, thus avoiding further deterioration and more extensive repairs in the future. Key risks include: scheduling and performing work in areas beneath existing piers in the intertidal elevations at low tide; variable productivity rates for differing repair solutions; accurately determining the extent of repairs based on surveys of damage; and other risks that can be better understood by performing a pilot project. This alternative was rejected due to the high risk of unknowns for a full-scale repair project.
3. Monitor the pile cap distress over time and defer the cost of the pilot project and major repairs until a later date. Further delay is likely to result in costlier repairs in the future as the rate of deterioration in the pile caps accelerates over time. This alternative was rejected due to higher anticipated costs, and risks of greater interruptions to terminal cargo operations.

OTHER DOCUMENTS ASSOCIATED WITH THIS REQUEST:

Photo of distressed pile cap at Terminal 18

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS:

- May 10, 2011, the Commission was briefed on this project.
- May 24, 2011, the Commission authorized increasing the funding for the project to \$300,000 for design, permitting and preparation of construction documents.