

PORT OF SEATTLE
MEMORANDUM

COMMISSION AGENDA
ACTION ITEM

Item No.	<u>4b</u>
Date of Meeting	<u>June 14, 2016</u>

DATE: June 7, 2016
TO: Ted Fick, Chief Executive Officer
FROM: Fred Chou, Capital Project Manager
Kenneth R. Lyles, Director, Fishing and Commercial Operations
SUBJECT: Terminal 91 Substation Upgrade Project (CIP #C800439)

Amount of This Request:	\$154,000	Source of Funds:	General Fund
Est. Total Project Cost:	\$2,149,000		

ACTION REQUESTED

Request Commission authorization for the Chief Executive Officer to increase overall project funding for the Terminal 91 Substation Upgrade Project (CIP #C800439) in the amount of \$154,000 bringing the total authorized amount to \$2,149,000.

SYNOPSIS

Terminal 91 is an important regional center supporting marine and marine related businesses. Current uses include vessel moorage, cold storage, bulk storage, vessel outfitting and maintenance, maritime related manufacturing, cruise operations and other activities. Reliable and safe electrical power infrastructure meeting operational and tenant needs is essential. The Port awarded and executed a major works construction contract last year to upgrade several substations. The contractor procured long lead items such as power transformers and began field work earlier this year. Substantial completion is expected by early July.

Additional work by the contractor and additional staff resources are required to address differing site conditions/aged infrastructure in order to bring them to current electrical codes. In addition, the main transformer fabrication was delayed by approximately four months due to the need to comply with new Department of Energy regulations that became effective in 2016. Staff also recently discovered that conditions of electrical equipment on vessels that berth at the terminal can vary significantly, some very modern while some are very old and problematic. To accommodate these vessels and to ensure the terminal substation and operations are fully protected from potential electrical power issues, Port Engineering recommended that additional protective features and ground fault devices be designed and installed. These additional protective features and devices would have prevented the substation outages that occurred at the terminal in early May. Staff believes this is a sound investment to ensure longevity of Port assets while maintaining revenue stream.

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Staff has been diligently monitoring project budget and forecasts an additional \$154,000 will be needed to complete and close out the project.

BACKGROUND

Power to Terminal 91 comes through two main distribution substations located within Terminal 91. They in turn supply power to 15 substations. Three substations and associated equipment were found to be unreliable and approaching the end of their service lives.

After completing the design last spring, Port advertised, awarded and executed a major works construction contract with a bid price of \$1,027,031, or \$68,731 above the Engineer's Estimate.

Terminal 91 has much aged infrastructure - some dating back to the Navy era. When a construction project disturbs areas not originally anticipated, bringing existing electrical infrastructure into compliance with current electrical codes to protect life safety is often mandatory. This was the case with the substation upgrade work. Because electrical cable splices could not be made in an existing vault due to new electrical code requirements, additional investigation and engineering design were required before the contractor was able to begin installing a 260 lineal-foot concrete encased electrical duct bank through change order. During excavation, an abandoned asbestos encased line found to be in the way also had to be abated before removal. This is just one example of many challenges staff has faced.

Staff has been diligently monitoring project budget and estimates an additional \$154,000 will be needed to complete and close out the project including implementing the recommended additional scope to install protective equipment to address potential power issues from vessels.

The project was anticipated in the 2016 Plan of Finance as a capital expenditure.

PROJECT JUSTIFICATION AND DETAILS

The project replaces and upgrades Terminal 91 substations/substation equipment at the end of their service lives. This renewal and enhancement project will protect and maintain the long-term revenue stream of the facility.

Project Objectives

- Replace existing substations and equipment with the most cost effective and sustainable solution taking into account full lifecycle costs and total costs of ownership and environmental performance
- Create a design that allows for safe and easy maintenance, and easy future expansions/replacement
- Minimize construction impacts to terminal operations and existing tenants
- Complete project within budget and schedule

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Scope of Work

The work scope of this project includes:

- Design and construct a replacement substation
- Upgrade two existing substations
- Design and construct supporting infrastructure, such as duct banks, conduits, and cabling to and from the substations
- Full commissioning of the systems to ensure functionality and safety

Schedule

	<u>Start</u>	<u>Finish</u>
Commission Authorization for Design	March 2014	March 2014
Design	April 2014	March 2015
Advertisement/Bid/Award/Construction	April 2015	June/July 2016*

* Original Finish Date at time of construction funding request was April 2016.

FINANCIAL IMPLICATIONS

Budget/Authorization Summary

	Capital	Expense	Total Project
Original Budget	\$1,995,000	\$0	\$1,995,000
Previous Authorizations	\$1,995,000	\$0	\$1,995,000
Current request for authorization	\$154,000	\$0	\$154,000
Total Authorizations, including this request	\$2,149,000	\$0	\$2,149,000
Remaining budget to be authorized	\$0	\$0	\$0
Total Estimated Project Cost	\$2,149,000	\$0	\$2,149,000

Project Cost Breakdown

	This Request	Total Project
Construction	\$90,000	\$1,359,000
Construction Management	\$28,000	\$176,000
Design & Design Support During Construction	\$14,000	\$339,000
Project Management	\$16,000	\$114,000
Permitting	\$0	\$39,000
State & Local Taxes (estimated)	\$6,000	\$122,000
Total	\$154,000	\$2,149,000

Budget Status and Source of Funds

This project was included in the 2016 Plan of Finance under CIP #C800439 - T91 Substation Upgrades for a total cost of \$2,089,000. The additional \$160,000 is available under C800002 – Contingency Renewal & Replacement.

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This project will be funded by the General Fund.

Financial Analysis and Summary

CIP Category	Renewal/Enhancement
Project Type	Renewal & Replacement
Risk adjusted discount rate	N/A
Key risk factors	Project costs could exceed current estimates
Project cost for analysis	\$2,149,000
Business Unit (BU)	Maritime Portfolio Management
Effect on business performance	<ul style="list-style-type: none">• No incremental operating revenue is directly associated with this project. Project preserves Terminal 91 revenue (from multiple lines of business).• Incremental savings on maintenance expense, if any, is not yet known.• This project will increase depreciation for the first 25 years by approximately \$77K per year based on a 25-year useful life for the electrical components and a 50-year useful life for the infrastructure and will reduce Net Operating Income after Depreciation by a corresponding amount.
IRR/NPV	The NPV is the present value of the project cost (\$2,149,000).
CPE Impact	N/A

Lifecycle Cost and Savings

The project implements lowest total cost of ownership for the replacement substations and equipment while balancing environmental performance. Annual operating and maintenance costs for the new substations and equipment are expected to decrease.

STRATEGIES AND OBJECTIVES

This project supports the Port's Century Agenda to position the Puget Sound region as a premier international logistics hub to double the economic value of the fishing and maritime cluster, and be the greenest and most energy efficient port in North America by:

- Investing in and preserving a valuable Port asset.
- Maintaining the long-term revenue generating capability of Terminal 91.
- Reducing maintenance by replacing old, outdated equipment with energy efficient equipment and controls.

ALTERNATIVES AND IMPLICATIONS CONSIDERED

Alternative 1 – Defer some remaining work and install less permanent infrastructure. Do not proceed with design and installation of additional ground fault/safety equipment.

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Cost Implications: Reduce amount of additional funds needed to \$90,000 to complete the construction.

Pros:

- (1) Less additional capital funding would be required

Cons:

- (1) Some cost savings would be achieved but long term durability would be compromised
- (2) Unable to serve/accommodate vessels that may have aged equipment/power issues and fully protect newly installed power infrastructure
- (3) Increase in maintenance costs
- (4) This alternative would require some re-engineering and other staff time, and delay construction completion

This is not the recommended alternative.

Alternative 2 – Continue and complete substation replacement work and additional scope identified by Port Engineering.

Cost Implications: Additional estimated capital cost of \$154,000 is needed

Pros:

- (1) Allows the remaining work and durable systems to be implemented, enabling the new assets to achieve full service life potential
- (2) No additional design required to implement this alternative
- (3) Reduce maintenance costs as per the original design

Cons:

- (1) Additional capital funding is necessary and would consume capital funds that could possibly be utilized on other projects

This is the recommended alternative.

ATTACHMENTS TO THIS REQUEST

- None

PREVIOUS COMMISSION ACTIONS OR BRIEFINGS

- March 10, 2015 – Commission authorized \$1,571,000 construction funding for the Terminal 91 Substation Upgrade Project
- March 11, 2014 – Commission authorized \$349,000 design funding for the Terminal 91 Substation Upgrade Project