
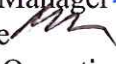



**PORT OF SEATTLE**  
**MEMORANDUM**

**COMMISSION AGENDA**  
**ACTION ITEM**

Item No. 4d  
Date of Meeting April 14, 2015

**DATE:** April 7, 2015  
**TO:** Ted Fick, Chief Executive Officer  
**FROM:** Robert A. Hoyman, Marine Maintenance Project Manager   
Paul Meyer, Manager, Permitting and Compliance   
Mike McLaughlin, Director Cruise and Maritime Operations   
**SUBJECT:** Terminal 91 Lighting Upgrade (CIP C800160)

**Amount of This Request:** \$125,000      **Source of Funds:** General Fund  
**Est. Total Project Cost:** \$1,160,000

**ACTION REQUESTED**

Request Commission authorization for \$125,000 of additional project funding to complete the Terminal 91 Lighting Upgrade for a total authorization of \$1,160,000.

**SYNOPSIS**

This project will reduce energy usage and improve exterior lighting at Terminal 91 for all areas south of the Magnolia Bridge and the cruise parking area north of the bridge. The new lighting and controls will enable the Port to be more energy efficient and to deliver only the light required for specific operations. Seattle City Light will rebate an estimated \$152,000 toward the cost of this project as their incentive to implement energy efficient modifications.

This project was authorized before design was completed and costs have exceeded those estimated. Additional funding is available in CIP C001785 Preliminary Planning

Additional authorization is requested due to the cost of fixtures and controls exceeding the estimated amounts and the costs resulting from unanticipated design modifications made to address Neighbors Advisory Committee (NAC), representing the Queen Anne and Magnolia neighborhoods, concerns.

Lighting installation is 98 percent complete at this time.

**BACKGROUND**

In October 2013, the Commission authorized \$1,035,000 to provide energy efficient lighting with improved lighting illumination levels and quality of light in the loading/unloading yard and cruise parking areas of Terminal 91. This upgrade utilizes new technologies and includes

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removal and proper disposal of existing high-pressure sodium (HPS) fixtures; installation of 331 light emitting fixtures (LED and LEP) to replace 381 existing HPS fixtures; and installation of wireless controls.

Controls allow lighting of areas to the level needed for the activity at the time the activity is happening. Controls will allow the Port to monitor usage on a pole-by-pole basis and will allow dimming of lights as appropriate to the use of the facility. Seattle City Light has approved this project for rebates through their Energy Conservation Incentive / Rebate Program. The rebate amount is contingent upon installation of an operational control system.

Installation of lighting fixtures and controls began in July 2014 and is 98% complete. The lighting fixtures are currently operating at improved levels and are being manually controlled. Shortly after installation of new fixtures began, the Neighbors Advisory Committee (NAC) representing the Queen Anne and Magnolia neighborhoods voiced concern about the project. The consultant revised the lighting design by re-directing the high-mast lights and adding fixtures to address NAC concerns. Additional work and procurement of the materials for the redesign is on hold, pending Commission authorization. Programming and commissioning will take place immediately following completed installation of controls, which is expected to be complete during the second quarter of 2015, pending Commission authorization.

Project costs are expected to exceed the authorized budget for the following reasons:

- The costs for fixtures and controls exceeded the pre-bid estimated cost by 10%.
- In response to concerns raised by the NAC, design modifications were made to reduce the glare in the direction of neighboring properties. Changes to the design included additional fixtures incorporated into the design and realignment of nearly all installed fixtures at high mast locations on both Piers 90 and 91. Project costs resulting from addressing NAC concerns resulted in increased costs to the project.
- Unanticipated labor costs associated with design changes, unforeseen repairs to infrastructure and to a greater extent, installation of a more labor-intensive controls system than initially planned resulted in added costs.

An additional \$125,000 is required to complete the project as designed.

## **PROJECT JUSTIFICATION AND DETAILS**

Terminal 91 Lighting Upgrade project will reduce electricity usage costs by approximately \$49,000 per year, reduce maintenance costs, reduce greenhouse gas emissions by over 400 tonnes per year, allow accurate monitoring of energy use, and provide improved lighting illumination levels and quality of light in the loading/unloading areas of Piers 90 and 91, Shortfill, and the cruise parking area.

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### ***Project Objectives***

- **Improve lighting performance:** Improve lighting illumination levels to provide a safer, more effective work area for pier activities and visitors to the Port. Improve security through enhanced visibility on the piers.
- **Energy Efficiency:** Reduce terminal exterior lighting energy usage by 76%.
- **Carbon Reduction:** Avoid greenhouse gas emissions from deferred energy generation.
- **Controllability:** Lighting controls will enable the Port to deliver light as needed and accurately monitor and measure energy used.
- **Reduce light and glare:** Fixtures will be shielded to conserve night sky darkness and reduce light and glare spillage to neighborhoods.
- **Reduce Maintenance Costs:** Fixture maintenance and replacement at Piers 90, 91 and the cruise parking will be reduced from approximately \$592,000 to \$110,000 for LED lighting over the next ten years.
- **Economic Responsibility:** Total cost of ownership of lighting systems replaced meets a financial objective of simple payback in approximately eight years. Seattle City Light Energy Conservation Resources will provide rebates to the Port for a portion of the cost associated with this project. Seattle City Light will pay an estimated \$152,000 toward the cost of this project as incentives to implement energy efficient modifications. Inclusion of controls with “Revenue Grade Energy Metering” will enable the Port to accurately calculate the cost for lighting use.
- **Compliance:** Installed lighting will comply with federal OSHA, Washington State Labor and Industry standards, Coast Guard and other applicable regulations and standards. LED lighting will enhance the capability of existing security cameras through delivery of full spectrum light evenly distributed throughout work areas.
- **Sustainability:** Modern LED fixtures are expected to have a life span of 10-13 years versus 3-5 year replacement for existing lamps. Controls will enable the Port to limit lighting to the hours and levels required by the users resulting in extended fixture life. Replacement lights will be rated for marine environment and include bird deterrents to avoid buildup of corrosive materials.

### ***Schedule***

The project work is nearly complete and on hold. Pending Commission authorization, work is expected to be completed in the second quarter of 2015.

## **FINANCIAL IMPLICATIONS**

### ***Budget/Authorization Summary***

	Capital	Expense	Total Project
Previous Authorizations	\$1,035,000	\$0	\$1,035,000
Current request for authorization	\$125,000	\$0	\$125,000
Total Authorizations, including this request	\$1,160,000	\$0	\$1,160,000
Remaining budget to be authorized	\$0	\$0	\$0
Seattle City Light Energy Incentive	(\$152,000)	\$0	(\$152,000)

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Total Estimated Project Cost	\$1,008,000	\$0	\$1,008,000
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### ***Project Cost Breakdown***

	This Request	Total Project
Materials	\$38,500	\$725,000
Construction	\$53,500	\$203,000
Construction Management	\$6,500	\$12,500
Design	\$0	\$71,000
Project Management	\$3,500	\$63,000
ICT Support	\$12,000	\$12,000
Permitting	\$0	\$4,500
State & Local Taxes (estimated)	\$11,000	\$69,000
Total	\$125,000	\$1,160,000
Seattle Light Energy Rebate		(\$152,000)

### ***Budget Status and Source of Funds***

The project is included in the 2015 Approved Capital Budget in the total amount of \$1,092,000 (with \$942,000 spent prior to 2015). The additional \$68,000 required to fund this project is available in CIP C001785 Preliminary Planning.

The project has been and will be funded by the General Fund and the Seattle Light Energy Rebate.

### ***Financial Analysis and Summary***

<b>CIP Category</b>	Renewal and Enhancement
<b>Project Type</b>	Infrastructure Renewal/Replacement
<b>Risk adjusted discount rate</b>	7.0%
<b>Key risk factors</b>	Project costs exceed estimates. Seattle City Light rebate is not received or is less than expected.
<b>Project cost for analysis</b>	\$1,008,000 (\$1,160,000 less \$152,000 rebate)
<b>Business Unit (BU)</b>	Cruise and Maritime Operations
<b>Effect on business performance</b>	Lower annual electricity expense of \$49,000. Lower annual maintenance expense of \$20,000. Lower 2015 maintenance expense of \$235,600 due to savings from necessary lighting repairs and additions to meet code requirements.  Increase in annual depreciation of \$100,800 based on a 10-year asset life.

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<b>IRR/NPV</b>	<b>NPV</b> (in \$'s)	<b>IRR</b>	<b>Payback</b> (in years)
	(\$82,135)	3.6%	9

Note that the NPV on the original Commission action was a positive \$15,216, but the increase in costs and a reduction in the Seattle Light Energy Rebate now results in a negative NPV. However, the rate of return remains positive.

**STRATEGIES AND OBJECTIVES**

This project aligns with the Port’s commitment to be the nation’s leading green and energy-efficient port. Upon completion, the Terminal 91 Lighting Upgrade project will reduce electricity usage by 721,435 kw/hrs. per year translating to an operation cost savings of approximately \$49,000 per year, reduce maintenance costs, reduce greenhouse gas emissions by over 400 tonnes per year, allow accurate monitoring of energy use, provide improved lighting illumination levels and quality of light in the loading/unloading areas of Piers 90 and 91 and the cruise parking area.

**TRIPLE BOTTOM LINE**

***Economic Development***

This project provides necessary infrastructure upgrades that will improve customer safety and security, reduce operating costs and control future maintenance costs.

***Environmental Responsibility***

Replacement of existing fixtures will reduce port-controlled greenhouse gas emissions, reduce light, and glare from Terminal 91 yard lighting.

***Community Benefits***

Neighbors in the Terminal 91 vicinity will be shielded from light and glare and appreciate the controls, which will automatically reduce lighting levels when work is not being performed or the property is not occupied.

**ALTERNATIVES AND IMPLICATIONS CONSIDERED**

**Alternative 1)** – Stop the project in its current state. This would result in limited use of controls and reduce the Seattle City Light rebate amount. In addition, it will not allow for the completion of the design revisions or final adjustments intended to accommodate the Neighbors Advisory Committee (NAC). Additional funds would still need to be authorized to close out the project. This is not the recommended alternative.

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**Alternative 2)** – Authorize an additional \$125,000 for a total project budget authorization of \$1,160,000 to complete the lighting upgrade. **This is the recommended alternative.**

### **ATTACHMENTS TO THIS REQUEST**

- Terminal 91 Project Power Point

### **PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

October 8, 2013 - Commission approved for the Chief Executive Officer to complete the design, purchase materials and proceed with construction by Port crews of the Terminal 91 Lighting Upgrades project, for a total cost of \$1,035,000.