



**COMMISSION  
AGENDA MEMORANDUM**

**Item No.** 4j

**ACTION ITEM**

**Date of Meeting** December 13, 2016

**DATE:** December 6, 2016

**TO:** Ted Fick, Chief Executive Officer

**FROM:** Rod Jackson, Capital Project Manager  
Kenneth R. Lyles, Director, Fishing & Commercial Operations

**SUBJECT:** Fishermen's Terminal Net Sheds 3, 4, 5, and 6 Roof Replacement (CIP #C800526)

**Amount of this request:** \$2,989,000

**Total estimated project cost:** \$3,259,000

**ACTION REQUESTED**

Request Commission authorization for the Chief Executive Officer to (1) proceed with the construction phase of the Fishermen's Terminal Net Sheds 3, 4, 5, and 6 Roof Replacement Project and solar demonstration installation on Net Shed 5 and (2) advertise and execute a major public works contract for the roof replacement, all for an amount not to exceed \$2,989,000 for a total estimated project cost of \$3,259,000.

**EXECUTIVE SUMMARY**

This project will replace the existing built-up roofing systems at Fishermen's Terminal Net Sheds 3, 4, 5, and 6 (FT NS) because they are at the end of their service lives, while adding a photovoltaic solar array system on Net Shed 5 as a demonstration project to help determine future solar panel installation opportunities at the Port.

After installation of the solar panels on Net Shed 5, the information gained will allow the Port to determine:

- How to best implement solar power on future Port projects,
- Costs associated with solar panel and equipment design and installation,
- What the solar energy production of the panels will be,
- How the power generated from the panels affects the existing FT power grid,
- What to look for with respect to the maintenance of the entire system including the warranty requirements, and
- How the solar panel framing and piping will wear on the new roofing system.

The information generated from the demonstration project will also be captured by the proposed public interpretation plan laid out per the future indoor and outdoor interpretive facilities at the Terminal.

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The total estimated project cost of \$3,259,000 is \$73K higher than the amount shared with the Commission at the design phase funding request but below the 2016 Plan of Finance. Additional electrical and related work were identified during design and contributed to the incremental increase.

**JUSTIFICATION**

The proposed project will preserve important building assets and revenues associated with the leased storage space, extend the life of the building structures, and minimize potential Port liability. Proactive asset stewardship is the key to reducing the total cost of ownership to the Port over time. Per lease agreements with affected tenants, the maintenance and repair of the roof is an obligation of the Port. Net shed storage is one of the terminal's amenities that helps retain fishermen as tenants and is part of the infrastructure that will be required to "position the Puget Sound region as a premier international logistics hub", "doubling the economic value of the fishing and maritime sectors" and be the greenest and most energy efficient port in North America as envisioned by the Century Agenda. Approval of this authorization will not affect the long-term development plan for the terminal. This project was included in the 2016 Plan of Finance.

Due to the type of project, elements within this scope of work support small and Minority and Woman Business Enterprise (MWBE) utilization. The project manager will coordinate with the small business team in the Economic Development Division to maximize the small business participation.

**DETAILS**

Construction of the Fishermen's Terminal Net Sheds 3, 4, 5, and 6 took place in 1944, 1953, and 1956. The existing four roofing systems cover approximately 50,234 square feet in total and range from approximately 58 to 70 years old. Fishermen's Terminal, located on Salmon Bay, is a regional center for maritime activity and one of the few working terminals in the United States with public access net shed buildings.

The buildings are 100 percent occupied and primarily used as net shed storage spaces leased within the maritime industry. Fishermen's Terminal is the home port of the North Pacific fishing fleet and the long-term plan has assumed that net shed storage will continue to be a core function at Fishermen's Terminal. In 2012, the Port initiated condition assessments and again in 2015, the assessments determined the roof systems on Net Sheds 3, 4, 5, and 6 were at the end of their service lives.

This project will replace the existing roofing system with a 30-year, 3-ply modified bitumen roofing system complete with new security ladders, gutters, and fall protection system. It will also install forty four (44) crystalline solar panels with an estimated 11,000 kWh power production capacity, and would take Net Shed 5 completely off the FT electrical grid, supply

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excess power to the electrical grid, offset approximately \$843 per year in power consumption, and reduce greenhouse gas by approximately 279 lbs. per year.

This project also evaluated installation of rain barrel stormwater treatment system for roof runoff. With location of the roofs and planned maintenance, and the fact Net Sheds 5 and 6 roof runoff discharges directly to the City’s combined sewer system which would be treated by King County’ wastewater treatment plant, rain barrel stormwater treatment system was determined to have relatively low benefit and thus not recommended for implementation.

**Scope of Work**

The scope of work for the Fishermen’s Terminal Net Sheds 3, 4, 5, and 6 roof replacements includes the construction and installation for the following:

- New energy-efficient roofing systems
- Bird deterrent systems
- Installation of security access ladders
- Fall protection and attachments
- Install a crystalline solar panel system at Net Sheds 5 to serve as a demonstration project that will provide 100 percent of the electrical usage for Net Shed 5 and provide any excess power to the FT power grid
- Utilize environmentally sustainable components and construction methods, as appropriate, such as: idling control measures, waste minimization and selecting materials with limited toxicity and greenhouse gas emissions.

**Schedule**

The design and permitting phase will be completed by December 2016 with the construction phase expected to begin in Q2/2017 and be fully complete by Q4/ 2017.

*Activity*

Commission design authorization	2016 Quarter 3
Design start	2016 Quarter 3
Commission construction authorization	2016 Quarter 4
Construction start	2017 Quarter 2
In-use date	2017 Quarter 4

**Cost Breakdown**

	This Request	Total Project
Design	\$0	\$270,000
Construction	\$2,989,000	\$2,989,000
Total	\$2,989,000	\$3,259,000

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**ALTERNATIVES AND IMPLICATIONS CONSIDERED**

**Alternative 1** – Status Quo - Maintain the current state and delay replacement of the net shed roofs. Maintenance costs of \$21,050 annually (averaged over 12 months) will continue.

Cost Implications: \$2,989,000 of additional project funding will not be needed.

Pros:

- (1) No additional major capital funding would be required.
- (2) Allows port to reallocate capital investment dollars.

Cons:

- (1) Increases the chances that the interior of the facility will be damaged due to water infiltration.
- (2) Increase of probable construction costs in the future while emergency repair costs continue to increase.
- (3) The cost of a future roofing project in the event of roof failure would be higher which would include the cost of this request and costs associated with escalation, implementation of emergency work, lost revenue, and equipment and property damages.
- (4) Safety of the tenant could be compromised due to the slip hazard to tenant and employees.
- (5) Indefinite deferral could also lead to the risk of catastrophic failure.
- (6) Maintenance cost will continue.

This is not the recommended alternative.

**Alternative 2** – Replace the entire existing roofing system with a modified bitumen 3-ply roof that has a 30 year life and install a new security ladder, gutters, and fall protection system.

Cost Implications: \$2,516,000 of project funding is needed to complete the project.

Pros:

- (1) Install entirely new Modified Bitumen 3-ply Roofing and gutter system that will protect our assets and have a 30 year life span and serve the Port and the tenants well.
- (2) Replacing the roof, security ladders, gutters, and fall protection systems will provide the lowest lifecycle cost.
- (3) Helps to assure a stronger positive tenant experience and avoids potential safety hazards.
- (4) Provides protection of Port assets.
- (5) Increase safety with the installation of fall protection.
- (6) This project would provide for a warranted roof that will minimize the cost of repairs going forward for the foreseeable life of the roof.

Cons:

- (1) This alternative would need additional \$2,516,000 funding that might otherwise be made available for other uses on other projects.

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- (2) The cost of a future roofing project in the event of roof failure would be higher which would include the cost of this request and costs associated with escalation, implementation of emergency work, lost revenue, equipment and property damages.
- (3) Foregoes the opportunity to install solar panels on the Net Shed 5 roof.

This is not the recommended alternative.

**Alternative 3** – Replace entire existing roofing system and gutters with a 20-year PVC membrane roofing system, security ladders, gutter, and fall protection system replacements.

Cost Implications: \$2,505,000 in project funding will be needed and another roof installation would be required in year 20 instead of year 30 as identified in Alternative 2.

Pros:

- (1) The roofing and gutter system investment will protect our assets for 20 years.

Cons:

- (1) This roof will need replacement in 20 years.
- (2) Foregoes the opportunity to install solar panels on these roofs.
- (3) This alternative uses \$2.50 million of capital that might otherwise be made available for other uses on other projects.

This is not the recommended alternative.

**Alternative 4** - Replace the existing roofing system with a modified bitumen 3-ply roof that has a 30-year life, with new security ladders, gutters, and fall protection system as in Alternative 2 plus installation of a solar panel system on the Net Shed 5 to serve as a demonstration project that would produce approximately 11,000 kWh of power per year and would remove Net Shed 5 off of the FT electrical grid and allow excess power for other uses elsewhere in the terminal.

Cost Implications: Additional cost of \$2,989,000 of project funding is needed to complete the project. This amount includes \$473,000 for the solar panel system installation.

Pros:

- (1) This solar panel installation will provide and generate approximately 11,000 kWh of power per year (the current usage is approximately 9,934 kWh per year for the Net Shed 5).
- (2) This installation could potentially save approximately \$843 per year in electrical energy costs (at current rates), reducing yearly operating costs.
- (3) Replacing grid-produced electrical energy with renewable energy reduces greenhouse gas emissions by about 279 lbs. of CO<sub>2</sub>/year.
- (4) Three Century Agenda goals are met by providing renewable power systems: reduces greenhouse gas emissions, increases renewable energy use, and conserves energy use to meet overall energy demand. Project also plays a role in building clean infrastructure and demonstrates the Port's leadership in competing globally to produce clean energy using Washington-based industries.

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- (5) To be eligible for grants, it will be a requirement for solar panels to be manufactured in Washington State and provide support for a growing industry.
- (6) Replacing the roof, security ladders, gutters, and fall protection systems together during construction will provide the lowest lifecycle cost.
- (7) This project provides a warranted roof that will minimize the cost of roof repairs going forward.
- (8) This option provides the opportunity to add on for future solar panel expansions.

Cons:

- (1) This alternative uses an additional \$473,000 to include a solar panel system and structural upgrade for Net Shed 5 or \$3.259 million of capital in aggregate that might otherwise be made available for other uses on other projects.
- (2) The cost of the solar-panel system installation does not meet normally accepted project financial criteria for new capital projects.

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

**FINANCIAL IMPLICATIONS**

<b><i>Cost Estimate/Authorization Summary</i></b>	<b>Capital</b>	<b>Expense</b>	<b>Total</b>
<b>COST ESTIMATE</b>			
Original estimate	\$3,186,000	\$0	\$3,186,000
Revised estimate	\$3,259,000	\$0	\$3,259,000
<b>AUTHORIZATION</b>			
Previous authorizations	\$270,000	\$0	\$270,000
Current request for authorization	\$2,989,000	\$0	\$2,989,000
Total authorizations, including this request	\$3,259,000	\$0	\$3,259,000
Remaining amount to be authorized	\$0	\$0	\$0

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

This project is included in the 2017 Plan of Finance under CIP #C800526 Fishermen’s Terminal Net Sheds 3, 4, 5, and 6 Roof Replacement in the amount of \$4,268,000.

This project will be funded by the Tax Levy.

***Financial Analysis and Summary***

Project cost for analysis	\$3,259,000 (Roof \$2,786,000 & Solar \$473,000)
Business Unit (BU)	Fishing & Commercial Operations

<p>Effect on business performance (NOI after depreciation)</p>	<p>Roof Replacement: This project is a renewal &amp; replacement project and preserves Net Operating Income (NOI). This project does not generate additional NOI.</p> <p>Preserves Net Sheds 3, 4, 5, and 6 Net Operating Income of approximately \$260,000 per year excluding major maintenance/compliance expenses.</p> <p>Increases depreciation expense by approximately \$92,867 per year based on a 30 year useful life for the roof.</p> <p>Solar Panels: Estimated impact on Net Operating Income (NOI) and Depreciation for years 2018 through 2022:</p> <table border="1" data-bbox="662 793 1412 1035"> <thead> <tr> <th><b>NOI (in \$000's)</b></th> <th><b>2018</b></th> <th><b>2019</b></th> <th><b>2020</b></th> <th><b>2021</b></th> <th><b>2022</b></th> </tr> </thead> <tbody> <tr> <td>Electricity Savings</td> <td>\$1</td> <td>\$1</td> <td>\$1</td> <td>\$1</td> <td>\$1</td> </tr> <tr> <td>Maintenance</td> <td>(\$5)</td> <td>(\$5)</td> <td>(\$5)</td> <td>(\$6)</td> <td>(\$6)</td> </tr> <tr> <td>Depreciation</td> <td>(\$16)</td> <td>(\$16)</td> <td>(\$16)</td> <td>(\$16)</td> <td>(\$16)</td> </tr> <tr> <td>NOI After Depreciation</td> <td>(\$20)</td> <td>(\$20)</td> <td>(\$20)</td> <td>(\$20)</td> <td>(\$30)</td> </tr> </tbody> </table>	<b>NOI (in \$000's)</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	Electricity Savings	\$1	\$1	\$1	\$1	\$1	Maintenance	(\$5)	(\$5)	(\$5)	(\$6)	(\$6)	Depreciation	(\$16)	(\$16)	(\$16)	(\$16)	(\$16)	NOI After Depreciation	(\$20)	(\$20)	(\$20)	(\$20)	(\$30)
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<p>NPV</p>	<p>Roof Replacement: The NPV is the present value of the project cost.</p> <p>Solar Panels:</p> <table border="1" data-bbox="662 1199 1079 1335"> <thead> <tr> <th><b>NPV</b></th> <th><b>IRR</b></th> <th><b>Payback</b></th> </tr> <tr> <td>(in \$000's)</td> <td></td> <td>(in years)</td> </tr> </thead> <tbody> <tr> <td><b>(\$511)</b></td> <td><b>NA</b></td> <td><b>NA</b></td> </tr> </tbody> </table>	<b>NPV</b>	<b>IRR</b>	<b>Payback</b>	(in \$000's)		(in years)	<b>(\$511)</b>	<b>NA</b>	<b>NA</b>																					
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<b>(\$511)</b>	<b>NA</b>	<b>NA</b>																													
<p>CPE Impact</p>	<p>NA</p>																														

**ATTACHMENTS TO THIS REQUEST**

- (1) Presentation slides

**PREVIOUS COMMISSION ACTIONS OR BRIEFINGS**

December 13, 2016 – The Commission was briefed on Fishermen’s Terminal Strategic Plan Update.

September 13, 2016 – The Commission authorized Design.

May 17, 2016 – The Commission was briefed on Fishermen’s Terminal Long Term Strategic Plan.