Item No.: 4d\_Supp Date: April 14, 2015

# Terminal 91 Lighting Upgrades & Controls



## **Project Scope**

- Replace 333 exterior lighting fixtures at Piers 90, 91 and cruise parking areas.
- Include lighting controls which will enable the Port to manage lighting effectively and further reduce energy use.

# **Project Objectives**

- Reduce electrical consumption by over 721,000 kw/hrs per year.
- Reduce electricity costs by \$40,000 or more annually.
- Defer 433 tons/yr GHG emissions
- Reduce maintenance cost by nearly \$500,000 over 10 years
- Reduce light pollution and glare to neighborhoods.

# T91 applications



# Old Technology



- 381- 1000 watt High pressure sodium Fixtures; 333 identified for removal.
- Uses 4,380 kWh of electricity annually per fixture. Old HPS fixtures would cost the Port \$90k annually (2015 energy rates)
- Requires re-lamping or ballast replacement every 3-5 years.

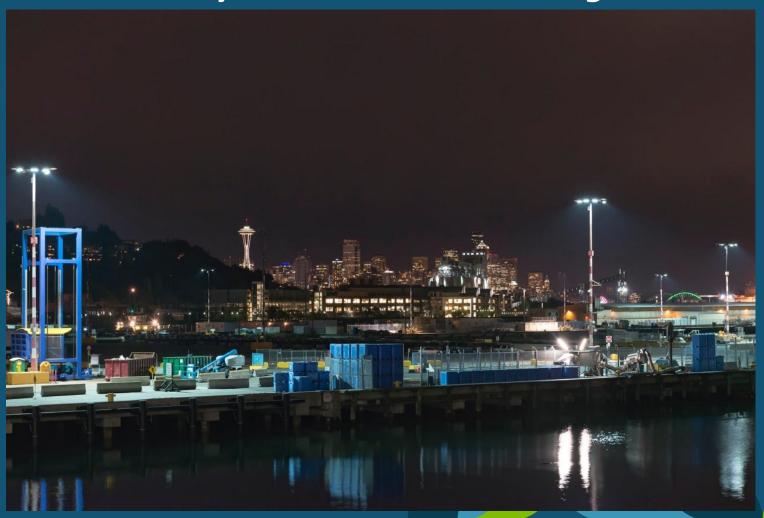
#### New Technology



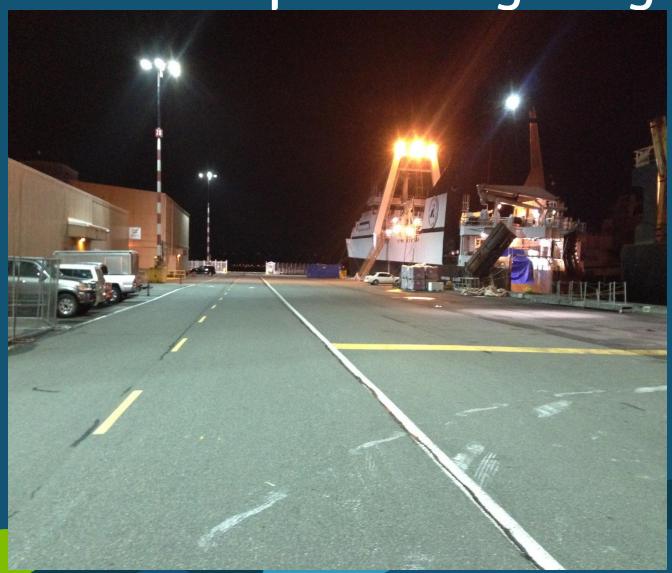
- Will have replaced 333 old HPS fixtures with 308 LED and Plasma fixtures.
- New fixtures require 50% less energy to power them.
- With application of new controls we anticipate a net reduction of 73% in energy use which equates to a reduction of as much as 600,000 kWh in energy consumption.
- The anticipated annual energy costs are expected to be reduced from \$90k to \$24k based on current energy rates.

**LED & LEP Luminaires** 

# Improved Visibility



Pier 90 Improved Lighting



# Pier 91 Improved Lighting



## 12% Increase in Project Costs

- Increased Cost at Bid
- Increased Lead Time
- Selection of a control System with a more involved installation.
- Design Modifications to Benefit Neighbors
- Repair to Infrastructure

#### Cost

2013 Approved Costs: \$1,035,000

#### **Additional Requested Costs**

- Materials (additional fixtures & hardware) \$50,000
- Installation (labor) \$20,000
- Commissioning (consultant/craft costs, ICT)- \$13,000
- Project management -\$7,500
- Taxes \$11,000
- Contingency \$10,500
- Other (rental eq., disposal, demob, etc.) \$13,000
- Total: \$125,000