



## SUSTAINABLE DESIGN APPROACH

# HARBOR ISLAND MARINA DOCK-E FLOATS AND NORTH PIER IMPROVEMENTS

### PURPOSE

This serves as a summary document for the sustainable design coordination for the Harbor Island Marina (HIM) Dock-E Floats and North Pier Improvements project. Additional information can be found in Project Management's Notebook.

### SUSTAINABLE DESIGN APPROACH

The HIM Dock-E Floats and North Pier Improvements projects has been identified as a Tier 2 project under the Sustainable Evaluation Framework Policy Directive (SEF Policy Directive) adopted by the Port of Seattle Commission in January 2020. Tier 2 projects are described as:

*Tier 2: Medium-sized, or more complex, projects that have opportunities for sustainability benefit would be subject to targeted sustainability analyses and strategies. Tier 2 projects may receive a cost per ton of carbon calculation.*

The HIM Dock-E Floats and North Pier Improvements project consists of the following elements (see Figure 1):

- Complete replacement of 23 (out of 78 total) of Dock-E's existing float sections with new heavier duty floats, steel piles, and appurtenances designed for larger vessel berthing and higher load mooring capability.
- Refurbishment of 55 (out of 78 total) of Dock-E's existing float sections consisting of replacing all remaining timber guide piles with higher load capacity steel piles; replacement of damaged walers and cleats; nominal leveling; and concrete surface crack repairs and sealing.
- Demolition and replacement of Dock-E's existing North Pier to restore vehicle access to it.

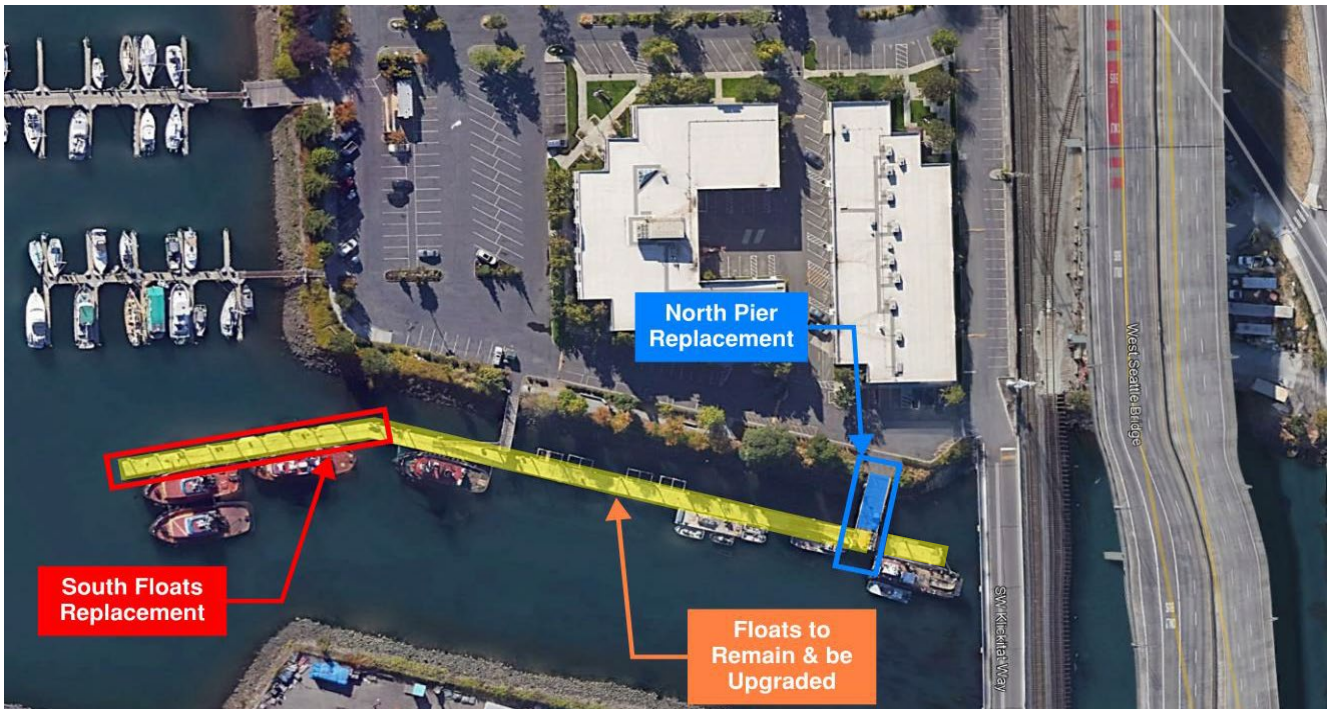


Figure 1. HIM Dock-E Floats and North Pier Improvements

Following the project kickoff meeting, the Project Manager and Sustainability Coordinator assembled a *Sustainable Project Assessment and Review Collaboration* (SPARC) team. The SPARC team leverages port expertise and knowledge of existing and emerging sustainability practices to:

- (1) Identify, review, brainstorm, and recommend sustainability concepts and ideas for project and operational teams to consider and evaluate during the development and design stage of port projects.
- (2) Encourage project and operational teams to evaluate and consider innovative strategies to reduce emissions and energy use beyond traditional approaches.
- (3) Select and apply the relevant Sustainable Evaluation Framework criteria to highlight tradeoffs and benefits during development of the Sustainable Design Approach (SDA).

## PROJECT GOALS

The SPARC team met in January 2020 to solidify project goals which will be shared with the designer to identify potential design alternatives/strategies moving into the 30% design process.

- **Sustainable Asset Management**
  - Upgrade structural integrity and load capacities to meet existing uses
    - Restore vehicle access to North Pier
    - Avoid future structural damage to dock
- **Habitat**
  - Look for cost effective opportunities to enhance habitat, such as
    - Including light transmissivity elements such as “open grating”

- Removing angular rock from bankline to increase potential for shoreline vegetation
    - Removing debris from the bankline and seabed
  - Consider use of Reinhall piles to reduce underwater noise during pile driving
- **Materials**
  - Consider alternative design materials for replaced structures
    - Low-embodied carbon concrete
    - Alternatives to concrete
    - Alternative floatation materials
- **Water Quality**
  - Look into options to address spill containment where feasible
- **Financial Sustainability**
  - Balance project cost and function against environmental benefits

### SUSTAINABLE EVALUATION FRAMEWORK CRITERIA

The goals identified by the SPARC team support three of the seven criteria articulated in the SEF Policy Directive:

- **Reduce GHG Emissions.** The design acknowledges the need for shore power and will accommodate the existing system during float replacement.
- **Increase Resilience.** The proposed improvements will upgrade the existing system to provide necessary structural support, limiting future damage to the existing structures and allowing for the docks to meet current and future intended function.
- **Protect Health and the Environment.** This project focuses on the replacement and upgrade of existing infrastructure while limiting environmental impacts. Goals focus on materials, habitat, and water quality.

### THIRD PARTY CERTIFICATION

The SDA is required to include a recommendation as to whether a project should pursue an applicable third-party sustainability certification (such as LEED or Envision.) Staff does not recommend pursuing certification for this project, but may apply principles from the American Society of Civil Engineers “Envision” rating system to help inform the design as appropriate.

### NEXT STEPS

SPARC recommendations within this SDA will be presented to commission along with the request for authorization for design funds. The Project Manager and Sustainability Coordinator will continue to work with the SPARC team to develop a Draft Sustainable Design Strategy (SDS) that defines alternatives to meet the goals that are included herein. The Draft SDS will be presented to the Energy and Sustainability (E&S) Committee to present sustainable design elements that are incorporated in 30 percent design.

The SEF Policy Directive requires that the project team evaluate and quantify the sustainability costs and benefits of the SDA. This will be completed iteratively as the design progresses, making sure to

coordinate with the project sponsor as appropriate. The SDS and analyses will be finalized as design progresses. Any significant changes to design will be brought to the attention of the E&S Committee. The Final SDS will be included in the Commission authorization request for construction funding for the project.