Measure Profile

Increase Light Below Deck

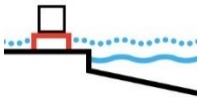
Flood Adaptation Measure

ECOLOGICAL INFRASTRUCTURE

WATER LEVEL RANGE:

Supratidal

SHORELINE LOCATION:



Asset Specific

Seawall: Light Penetrating Sidewalk Installed - Seattle, WA.
©Seattle DOT via Flickr.com

DESIGN LIFE	ADAPTABILITY	IMPACT ON THE WATERFRONT	CONSTRUCTION COST
Decades	Low	Minor Intervention	TBD

COASTAL FLOOD HAZARDS MITIGATED:

Enhancements can provide flood protection when combined with other physical infrastructure

Sea Level Rise | Storm Surge | Groundwater | Waves | Erosion

MEASURES COMPATIBILITY:

Flood	Seismic
Raised Marine Structures, Building Adaptations	N/A

ECOSYSTEM SERVICES: Measure may affect these shoreline values

Aquatic Habitat	Terrestrial Habitat	Water Quality	Carbon Storage
—	—	—	—

DESCRIPTION:

This measure involves adding light penetrating surfaces to pier decks to allow light to pass through, reducing the shadowing effect of opaque piers on the bottom. The reduction in shadowing will allow light to penetrate the water, and depending on the water's turbidity, the additional light can stimulate growth of aquatic vegetation and habitat creation.

CONSIDERATIONS:

- The transparent surfaces need to be structurally sound.
- Installation may proceed with retrofits to existing structures or concurrently with new structures.

ADVANTAGES:

- Can create and enhance tidal and subtidal habitats

DISADVANTAGES:

- Potential high maintenance depending on traffic, design, and material.

Measure Profile

Increase Light Below Deck

Flood Adaptation Measure

CONSTRUCTION IMPACTS TO THE PUBLIC:	SEA LEVEL RISE ADAPTATION OPPORTUNITIES:	CASE STUDIES:
• Depending on the structure to be enhanced, construction impacts may be significant but contained. Can be readily implemented from marine equipment with disruption only to tenant impacted in a facility under construction. For enhancements to public over-water facilities, disruption may impact Promenade or Embarcadero operations.	• Functional within a wide range of water levels as long as light penetration is not reduced at high water levels	• None cited

DESIGN OPPORTUNITIES:

Ecological Enhancements	Urban Design	Form
• Increase in biodiversity and marine habitat	• Design of features can improve visual access to the water and aquatic habitats.	• Formal design can be integrated in other improvements to the public realm alongside (re-)construction of structural over-water features.

DESIGN CONSIDERATIONS:

- The transparent surfaces need to be structurally sound and able to bear weight without cracking.

SITE-SPECIFIC CONSIDERATIONS:

- Water levels, waves, and currents should be well defined to assess water turbulence, turbidity, and light penetration.
- Wave and current conditions will need to be understood to determine the growth potential of vegetation and survivability.
- Water depth, clarity, and turbidity should be conducive of light penetration.

URBAN DESIGN CONSIDERATIONS:

- Improves the sustainability of the waterfront and engagement with pedestrians.

INSTALLATION AND CONSTRUCTABILITY CONSIDERATIONS:

- Installation and constructability will depend heavily on existing conditions. The existing pier decks will need to be retrofitted to adapt the transparent panes.

OPERATIONS AND MAINTENANCE CONSIDERATIONS:

- Once placed, the transparent panes may need to be regularly cleaned and inspected.