

Elliott Bay Seawall Project

Summer 2012

What is the Elliott Bay Seawall Project?

The Seattle Department of Transportation has begun the environmental review to address the Elliott Bay seawall along Alaskan Way. The project will replace the failing seawall from S. Washington Street to Broad Street, providing the foundation for a new waterfront. In addition to protecting the waterfront, replacing the seawall provides opportunities to restore fish habitat and reconnect people to the water. This project is a priority because:

- **Aging structure:** The Elliott Bay seawall was built between 1916 and 1934 and has deteriorated significantly. Replacing the seawall is an urgent safety need.
- **Earthquakes:** The seawall was not designed for earthquakes.
- **Erosion:** Failure of the seawall could also be caused by wind-driven storm waves or the erosive tidal forces of Elliott Bay.
- **Infrastructure:** The seawall supports major utilities, Alaskan Way and SR 99, the ferry terminal, rail lines, and waterfront businesses and destinations.

Replacing critical infrastructure provides additional opportunities to re-imagine our waterfront with paths, parks, and public spaces. The City of Seattle has embarked on a multi-year effort to improve the Seattle waterfront through two distinct but related efforts: the Elliott Bay Seawall Project and Waterfront Seattle. Together, these projects have the potential to define a new civic heart for Seattle and to reconnect the city to Elliott Bay.



What's happening now?



Last year, in coordination with Mayor McGinn, the Seattle City Council, Waterfront Seattle, and the public, the project team developed three alternatives for replacing the aging the seawall. In 2012, to address this critical public safety need as quickly as possible, the Seawall Project will:

- Publish a draft environmental document to evaluate the three alternatives in late 2012.
- Work to determine funding options for replacing the seawall.
- Continue to work collaboratively across projects to take full advantage of this once-in-a-lifetime opportunity to create a new waterfront for Seattle.
- Conduct scientific research to better design habitat restoration elements along the water's edge.

What is Waterfront Seattle?

Waterfront Seattle will capitalize on the removal of the Alaskan Way Viaduct and replacement of the seawall to provide a new surface Alaskan Way, improve connections to the waterfront, and develop a series of paths and public spaces that will serve the entire city and region.

Waterfront
Seattle.org

www.seattle.gov/transportation/seawall.htm

 **SDOT**
Seattle Department of Transportation

Today's seawall

The seawall is our waterfront's foundation

The seawall runs from S. Washington Street to Broad Street along Elliott Bay and under Alaskan Way. There are three different types of seawalls along the central waterfront today. These include two kinds of timber structures and a concrete gravity wall.

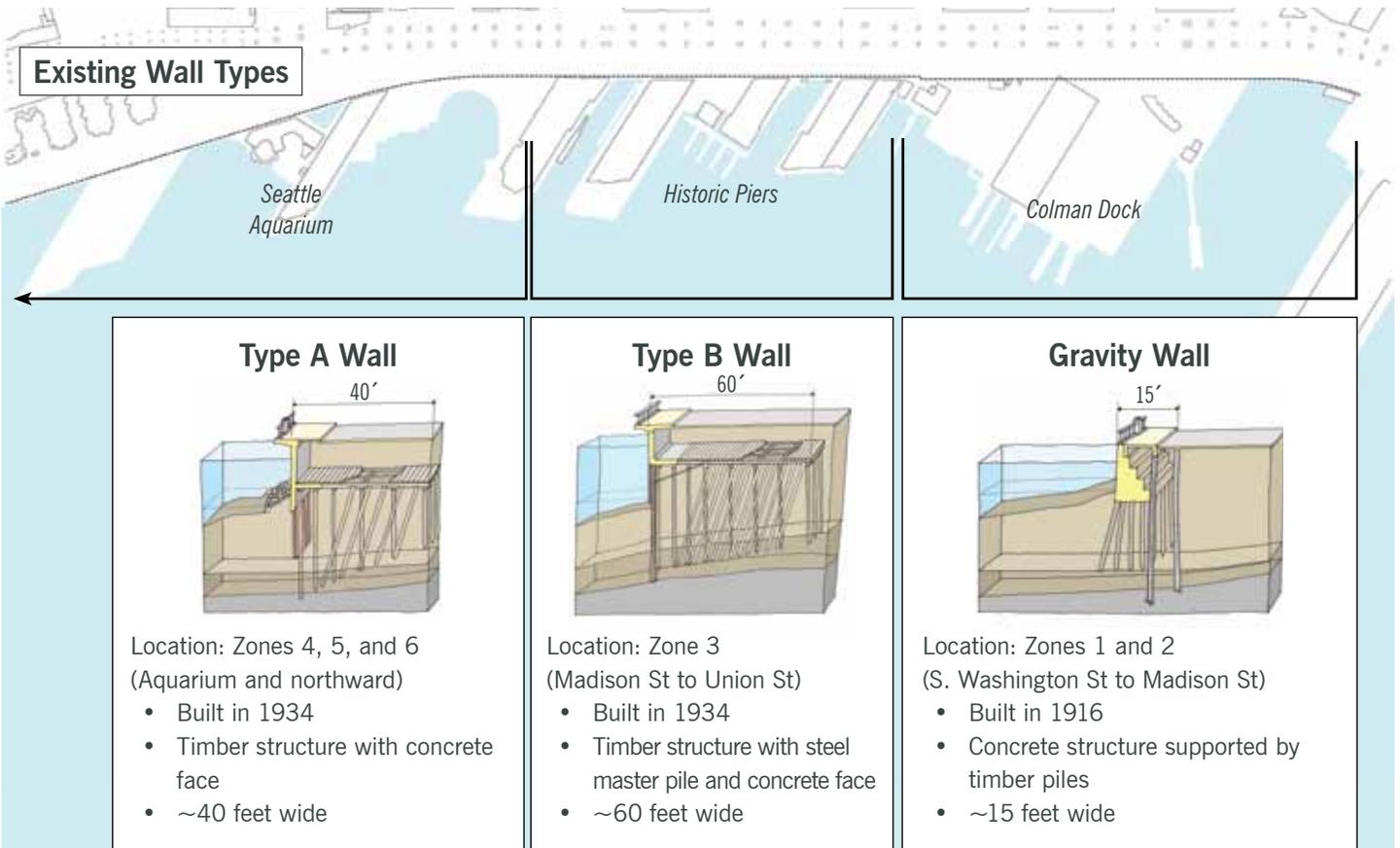
Did you know? An estimated 20,000 old growth trees were used to build the original seawall. They were driven into the mud more than 70 years ago.



Near the Seattle Aquarium, the seawall is 40 feet wide (shown in blue)



Photos courtesy Seattle Municipal Archives



Protecting public safety

What's at risk if the seawall fails?

The seawall is one of the most important pieces of infrastructure in Seattle, and it is vulnerable to earthquakes. The wall could be severely damaged, or possibly collapse, in an earthquake that has a one in ten chance of occurring in the next ten years. Failing to replace the seawall risks major disruptions to the local and regional economy. Utilities supported by the seawall provide power both to our region and to the entire West Coast, as far south as California. Major transportation facilities—ferries, railways, roadways, and paths—provide commuters access to work, freight access to markets, and visitors access to the waterfront. Our city's front porch, which includes historic piers, tourist activities, passenger cruise lines, office buildings, and residential buildings, is supported by the seawall.



Credit Auguste Le Roux

Seawall repairs in 1986 showed where gribbles had eaten away the seawall

Gribble kibble

The seawall has protected Seattle's waterfront for more than 70 years. But time and gribbles have taken their toll. Major pieces of the seawall have been eaten away by salt water and marine borers, such as gribbles, weakening the structure.

What will we construct?

The oldest and most vulnerable portion of the seawall, the Central Seawall from S. Washington Street to Virginia Street, will be replaced in Phase 1 of the project. The seawall will be built to current seismic standards and designed to last more than 75 years. Two options are being considered for construction: jet grouting and drilled shafts. These stabilization techniques will be the unseen, mostly concrete structure beneath your feet. Currently, jet grouting is the preferred soil stabilization technique.

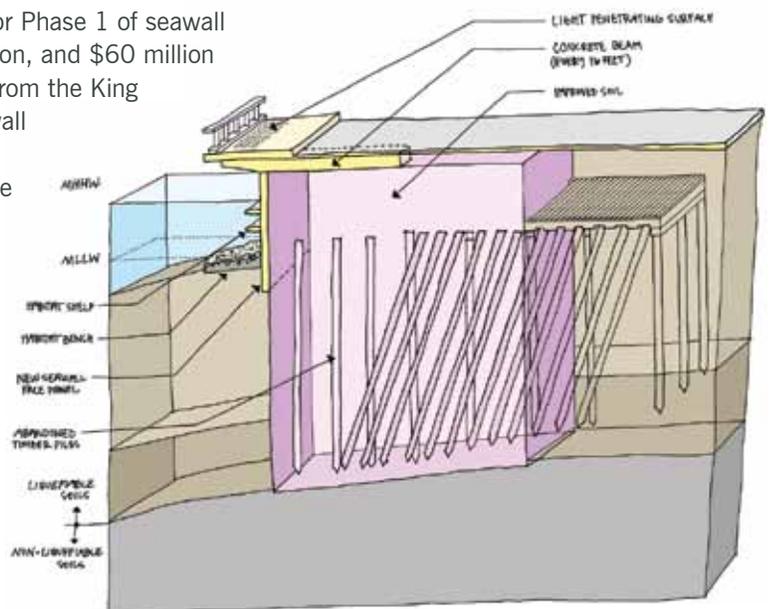
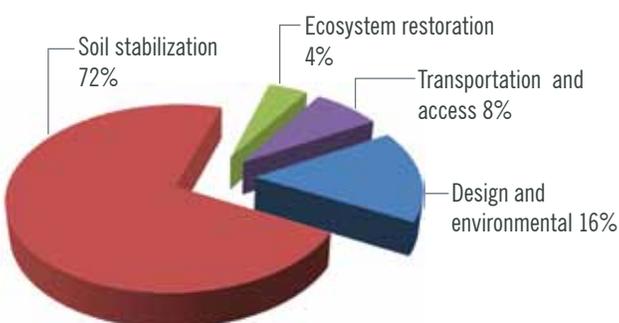
The new seawall alignment will vary along the waterfront depending on the existing wall types, shown on the left. The treatment applied to the structure can be a wall face, a beach, a view deck, or any number of other options.



Jet grouting equipment

The Mayor and City Council are considering funding options for Phase 1 of seawall replacement. The total project cost is estimated at \$300 million, and \$60 million has already been identified through City funding and a grant from the King County Flood Control District. The remaining funding for seawall construction—along with funding to replace other vulnerable waterfront structures—could be part of a public bond measure in November 2012.

Total Central Seawall cost: \$300 million



Soil stabilization

>>See inside for more details about potential wall locations.>>

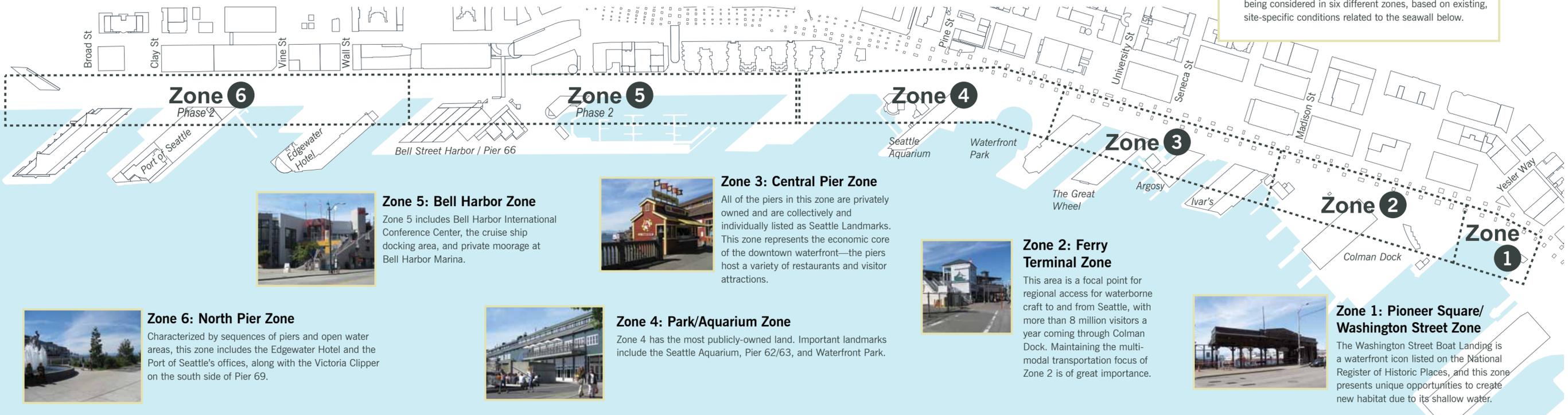
Where will the wall go?

This is a once-in-a-lifetime opportunity to shape Seattle's waterfront.

Together, Waterfront Seattle and the Elliott Bay Seawall Project will re-imagine 26 blocks of Seattle's downtown. To support the long-term vision for the waterfront, the Seawall Project has developed three alternatives for the seawall that will be evaluated in the environmental documentation for the project.

What are the waterfront zones?

Opportunities within the Elliott Bay Seawall Project are being considered in six different zones, based on existing, site-specific conditions related to the seawall below.

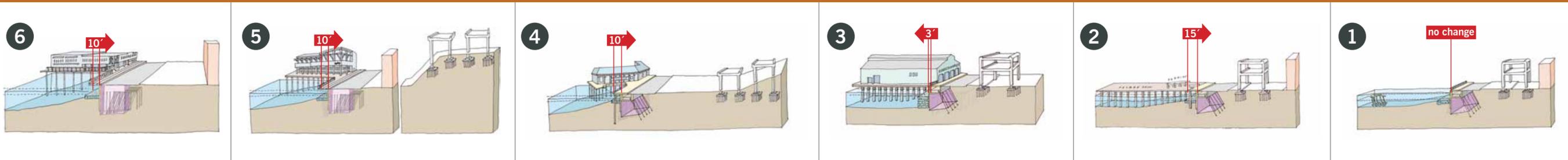


Will I see the seawall?

The seawall structure forms the foundation for the future waterfront, but the face of the seawall—whether that is a vertical face with textures for art or fish habitat, stairs, rocky beaches, or another façade—will allow for a varied public experience and access to the water. In most locations, the sidewalk will hang over the face of the seawall, which will likely be pulled “inland” from today's face.

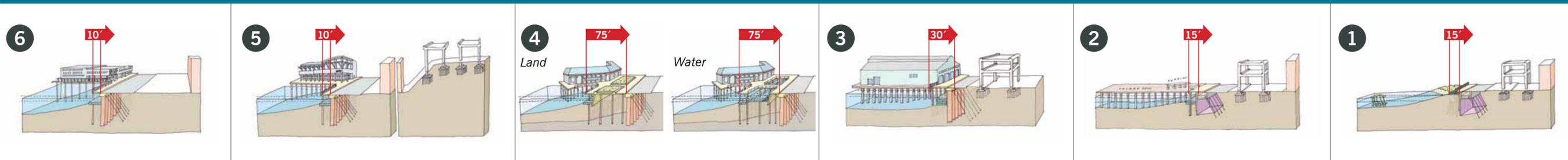
Alt A

Alternative A keeps the seawall face as close to its current location as possible, while adding habitat along the waterfront.



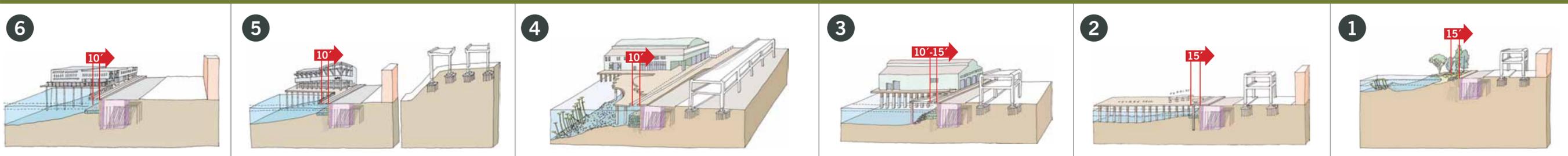
Alt B

Alternative B is at the other end of the spectrum and offers the potential for a dramatic difference from today's seawall—the face of the wall moves up to 75 feet east near the Seattle Aquarium. Pulling the wall inland presents opportunities for additional habitat enhancements and different design possibilities.



Alt C

Alternative C is a hybrid of Alternatives A and B, developed through continued coordination with the public and Waterfront Seattle. The face of the wall is pulled eastward 10-15 feet along the entire length of the seawall, and this alternative incorporates habitat and public access opportunities similar to Alternative B. This alternative maintains flexibility for future waterfront improvements by both public and private partners.



Restoring habitat



Piers along the waterfront create shaded water



Light areas (between piers) have rich habitat

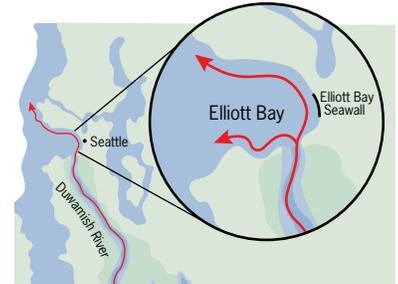


Dark areas (under piers) support little habitat

Improving the waterfront for aquatic habitat

Historically, the eastern shoreline of Elliott Bay looked much like other natural shorelines around Puget Sound—a bluff-backed beach with intertidal marshes and mudflats. When the seawall was built, the nearshore was filled to make room for piers, roads, and buildings. Today, 60 percent of Seattle's waterfront is covered by piers and other over-water structures, resulting in stark contrasts between light and dark areas and creating a difficult migratory corridor for the tens of thousands of salmon that migrate out of the Green/Duwamish River each year. The naturally lighted areas along the central waterfront provide a diverse ecosystem with plants and a variety of fish, invertebrates, and salmon, while the dark areas (under piers) support little to no plant growth or other significant life.

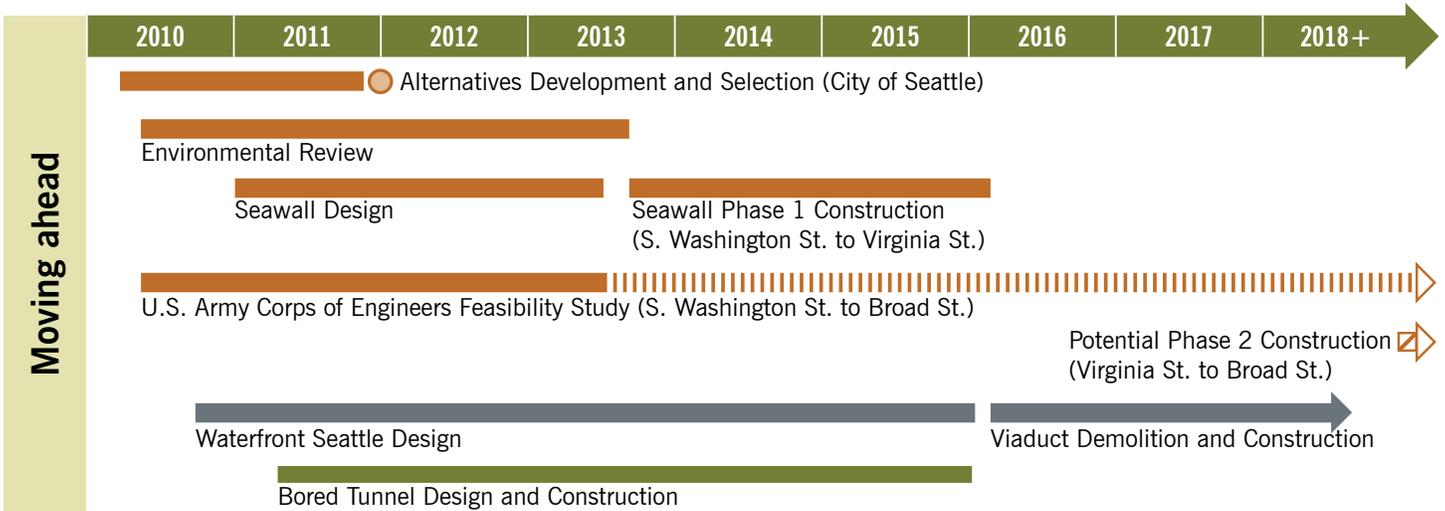
Restoring a salmon migration corridor—a “fish highway”—and improving ecosystem productivity are part of the Seawall Project. This provides an opportunity to showcase habitat restoration along Seattle's urbanized downtown waterfront.



Juvenile salmon migration route

Scientific studies are underway, influencing seawall design

Since 2010, biologists and habitat experts on the seawall team have been working to better understand fish behavior in the project area. Day and night snorkeling surveys and land-based visual surveys have allowed biologists to identify, tally, and observe fish behavior. Fish surveys will continue into spring 2013. A pilot study of light-penetrating surfaces to explore ways to light to the water below is being conducted on Pier 62/63 in summer 2012.



For more information

Visit our website, provide your input, or contact us to hear about our latest activities.

Web: www.seattle.gov/transportation/seawall.htm
 Email: seawall@seattle.gov
 Project Hotline: 206-618-8584

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