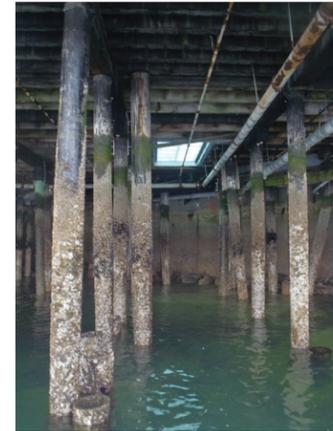


# Seawall habitat: The nearshore environment

When the original seawall was built in the early 1900s, Elliott Bay lost many of the habitat features associated with its native gravelly intertidal habitat, including sloping beaches, crevices, and vegetated hiding places for fish.



Restoring the salmon migration corridor and improving ecosystem productivity are important objectives of the Elliott Bay Seawall Project.

Test panels of glass, such as these shown from beneath Pier 62/63, are being studied for their effectiveness in transmitting light.

The City of Seattle is aiming to create an enhanced migratory corridor in four primary ways:

- 1. Provide more light** – Light penetrating surfaces, such as glass blocks, are being incorporated into the cantilevered sidewalk to allow light to pass through to the water below. The added light will help juvenile salmon navigate, find prey, and will promote shallow water vegetation growth, supporting food sources and refuge for migrating salmon.
- 2. Create shallower habitat** – Intertidal habitat benches will provide a shallow water habitat with gravel surfaces to act as hiding and foraging places for aquatic life.
- 3. Incorporate more texture** – The face of the new seawall has cobbled surfaces and shelves extending from the wall's surface to promote growth of vegetation and marine invertebrates—both important food sources for fish.
- 4. Provide riparian vegetation** – Native riparian vegetation will be planted along the seawall and at a newly constructed intertidal beach at the south end of the project.

# Elliott Bay Seawall Project

Summer 2013

## What is the Elliott Bay Seawall Project?

In fall 2013, the Seattle Department of Transportation will begin construction on a multi-year effort to replace the failing seawall along our waterfront. The seawall, originally built between 1916 and 1934, runs from S. Washington to Broad streets and is the largest single piece of infrastructure owned by the City of Seattle. In addition to protecting the City, residents, workers, and visitors for the next 75 years, seawall replacement provides opportunities to enhance the aquatic habitat and to reconnect the city to Elliott Bay. The Seattle Department of Transportation is replacing the seawall because:

- The aging structure is at risk of failure in the event of earthquakes, wind-driven storm waves, or the erosive tidal forces of Elliott Bay.
- Enhancement of the waterfront's nearshore marine environment will supplement a regional effort to restore a healthy salmon migration corridor.
- The new seawall will form the foundation for the future waterfront that will be fully realized following the demolition of the Alaskan Way Viaduct and the addition of the pedestrian promenade.

## Project area



Starting in September 2013, the City will begin replacing the oldest and most vulnerable sections of the central seawall (between S. Washington and Virginia streets). A second phase of work for the northern seawall (Virginia to Broad streets) will follow central seawall construction as funding is identified.

## Foundation of an improved waterfront

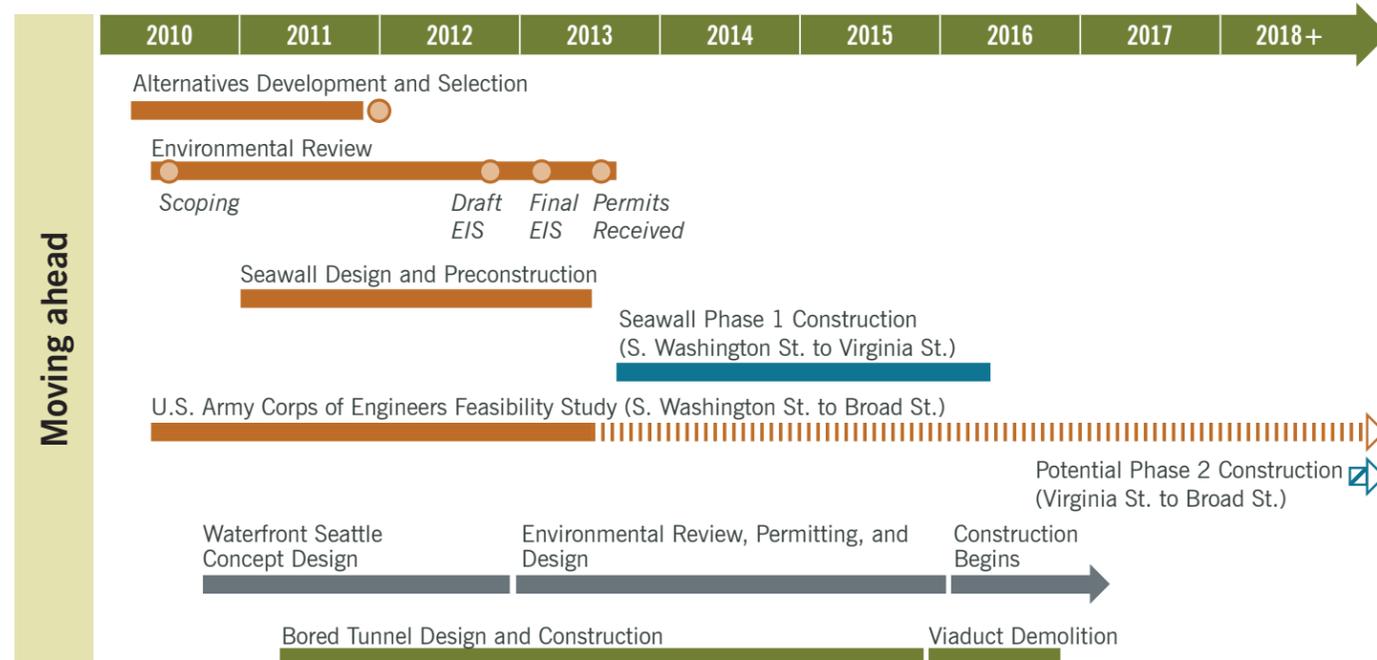
Beyond the Seawall Project, several significant state and City projects are in progress and planned for Seattle's waterfront. The following projects importantly address public safety but also will enhance and benefit the City and its historic waterfront:

- SR 99 Tunnel Project
- Waterfront Seattle
- Partner projects including Colman Dock, Seattle Aquarium and Pike Place Market renovations

## Where we've been

The project reached several significant milestones in late 2012 and early 2013 to help advance the seawall's replacement, including:

- Securing funding for construction of the central seawall
- Reaching 90% design
- Selecting a general contractor/construction manager (GC/CM)
- Publishing the draft and final environmental impact statements
- Securing other state and local permits (in progress)

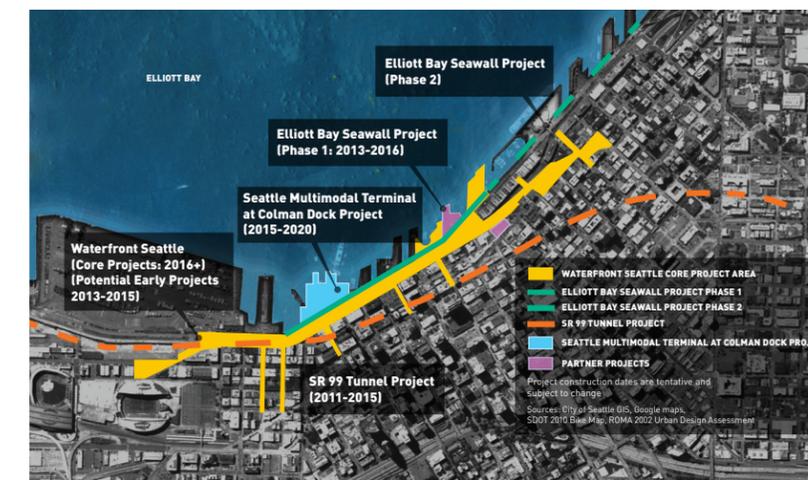


## For more information

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

Web: [www.seattle.gov/transportation/seawall.htm](http://www.seattle.gov/transportation/seawall.htm)  
 Email: [seawall@seattle.gov](mailto:seawall@seattle.gov)  
 Project Hotline: 206-618-8584

**Americans with Disabilities Act (ADA) Information:** Materials can be provided in alternative formats—large print, Braille, cassette tape, or on computer disk—for people with disabilities by contacting 206-618-8584, [seawall@seattle.gov](mailto:seawall@seattle.gov). Persons who are deaf or hard of hearing may make a request for alternative formats through the Washington Relay Service at 7-1-1.



# The existing seawall

Did you know that the existing seawall is more than just the concrete face you see at the edge of the water? An estimated 20,000 untreated old growth trees were driven into the fill soil that have allowed the seawall system to withstand the forces coming from its east and west. In some locations, like near the historic piers, the wall is approximately 60 feet wide, and reaches nearly to the footings of the Alaskan Way Viaduct.

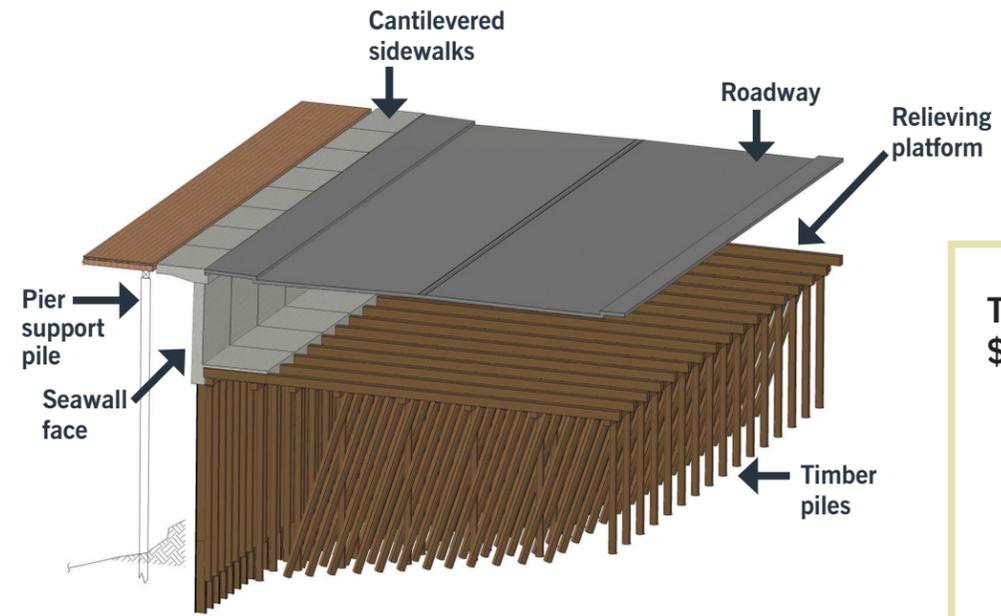


Near the Seattle Aquarium, the seawall is 40 feet wide (shown in blue).



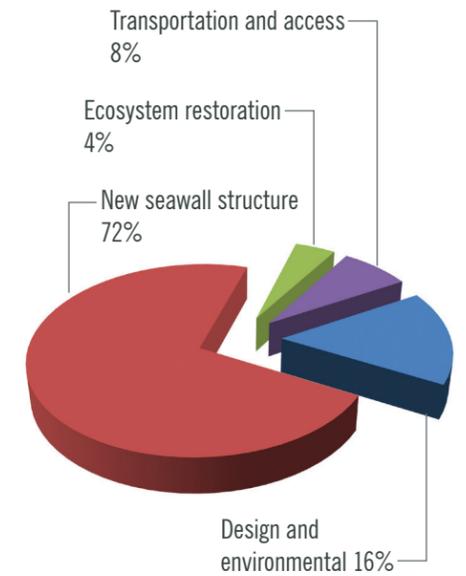
Seawall failure, 1954 (courtesy Seattle Municipal Archives).

The seawall has protected Seattle's waterfront for more than 70 years, but time and a harsh marine environment have weakened the structure. Cracks have formed within the face of the wall allowing salt water and marine borers, called gribbles, to infiltrate and slowly eat away the timber support. As the tide recedes through the cracks in the wall, it carries with it significant amounts of fill soil that, over time, result in dangerous voids underneath the Alaskan Way roadway.



Model of the existing seawall.

**Total Central Seawall cost: \$300 million**

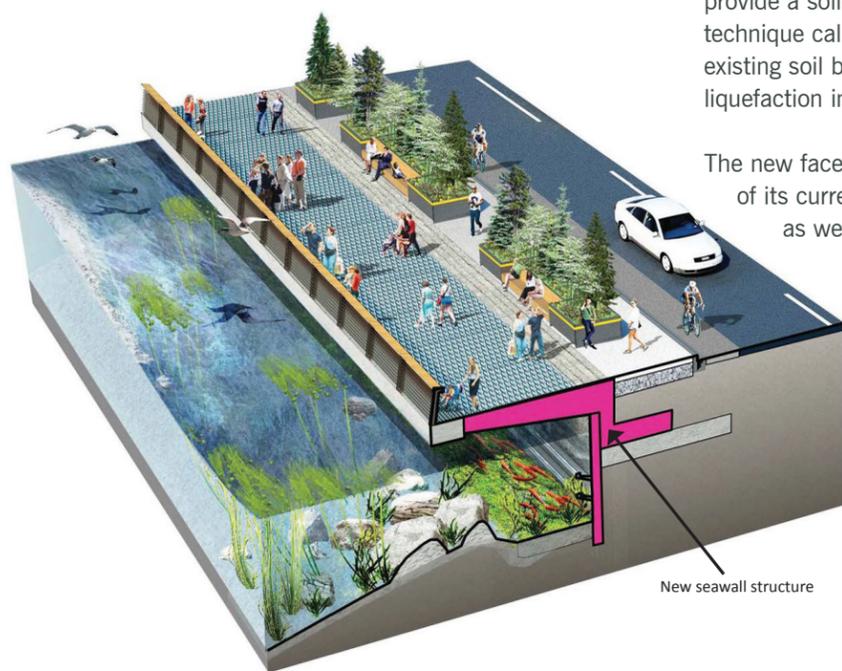


# What we're building

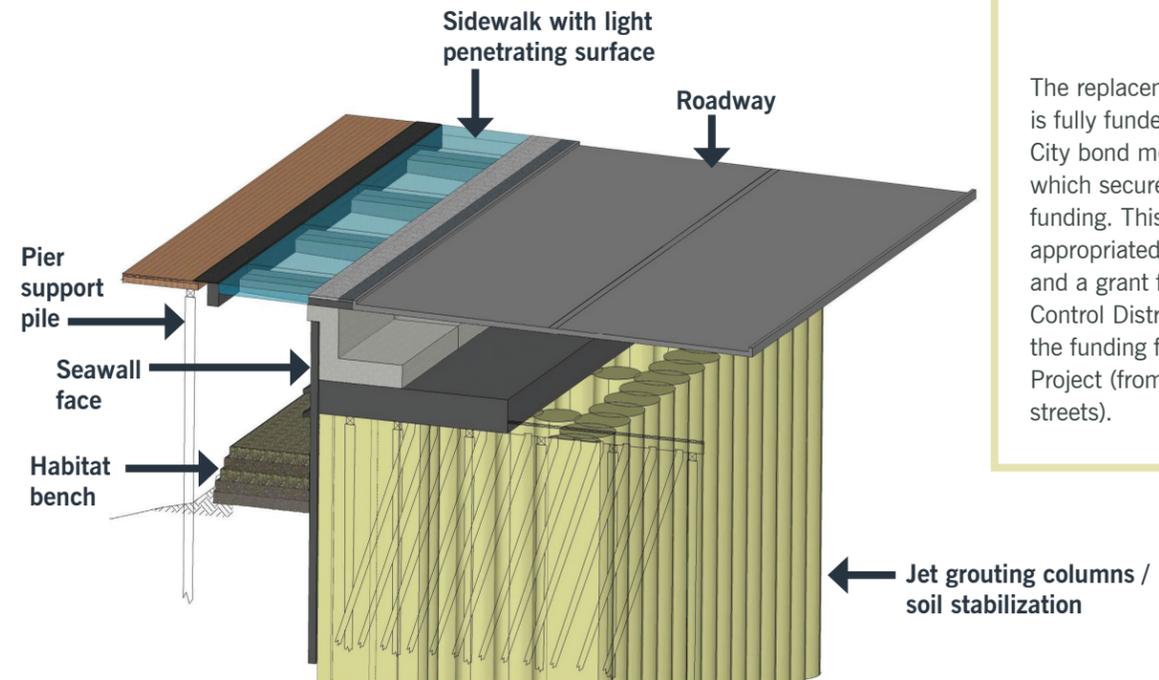
The new seawall will be built to current seismic standards and designed to last more than 75 years. The existing structural timbers do not reach the depths of the stable soils that would provide a solid foundation for the structure, so a construction technique called jet grouting will be used to stabilize the existing soil behind the seawall face and protect against soil liquefaction in the event of an earthquake.

The new face of the seawall will be built 10-15 feet eastward of its current location, which will accommodate construction as well as create additional space for habitat.

Subsequent projects planned along the waterfront have required design of the Elliott Bay Seawall Project to maintain flexibility for future opportunities. To that end, all surface features west of the sidewalk will be built in their final state at the completion of the Elliott Bay Seawall Project. Elements east of the sidewalk, such as the roadway, will be restored, but in an interim temporary condition, as they will be redesigned and rebuilt as part of the Waterfront Seattle project following viaduct demolition.



Schematic rendering of restored sidewalk and roadway.



Model of the new seawall.

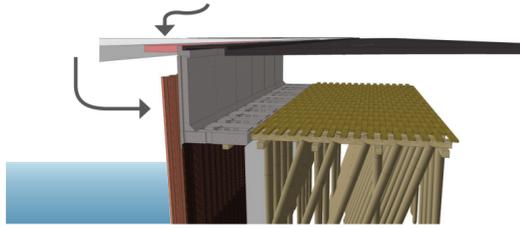
The replacement of the central seawall is fully funded, thanks to a successful City bond measure in November 2012 which secured \$240 million in project funding. This, coupled with previously appropriated City funding (\$30 million) and a grant from the King County Flood Control District (\$30 million), completes the funding for Phase 1 of the Seawall Project (from S. Washington to Virginia streets).

>> See inside for more details about construction. >>

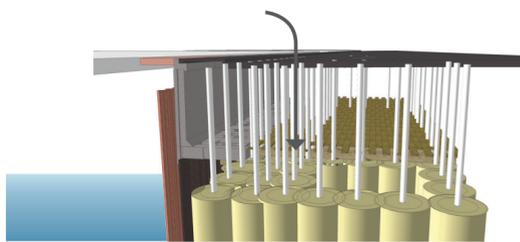
# How to build a seawall

Each season of construction work will include all elements of seawall construction for that area, including: soil improvement (jet grouting), demolition of the existing wall, and installation of the new wall (which includes the new sidewalk with light penetrating surfaces). Within each season, the waterfront will undergo the following conditions and activities:

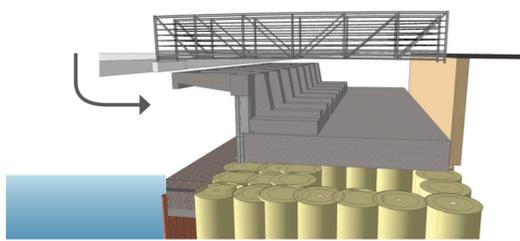
## 1 Remove sidewalk, install containment wall, and install temporary sidewalk



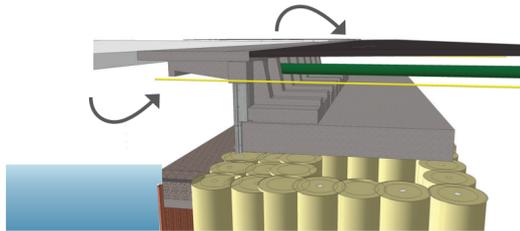
## 2 Begin jet grouting



## 3 Install new structure



## 4 Restore utilities, install final sidewalk and restored roadway



### Did you know?

Jet grouting is a technique that stabilizes the soil through the injection of grout or cement into the ground. The grout is mixed with the existing soils to form a solid foundation. Jet grouting is an effective method of stabilization for an urban setting, as shown in this image of jet grouting activities in downtown Pittsburgh, PA.



# Construction over three seasons

Building the new seawall will take three seasons of construction. These seasons are separated by construction shutdowns in the summer months of 2014 and 2015, a commitment made by SDOT to help waterfront businesses remain vibrant throughout seawall construction.

This construction schedule was developed with a number of goals in mind:

- Accommodate waterfront businesses in the busy summer months
- Maximize parking and access on the waterfront
- Where possible, limit the construction impacts to one construction season
- Accommodate Washington State Ferries queuing at Colman Dock
- Coordinate timing with other waterfront projects, such as the SR 99 Tunnel Project



Construction overview

## Getting to the waterfront

SDOT is committed to ensuring that the public can access the waterfront during construction. Access routes will vary, but watch for:

- Clear and robust wayfinding
- A temporary roadway under the viaduct for traffic
- Clear pedestrian and bicycle routes
- East/west access across Alaskan Way in key locations
- Temporary fencing around construction areas to ensure public safety
- Signage for parking in and around the waterfront
- Access to all businesses and destinations

## What can you expect during construction?

- Your favorite waterfront attractions, businesses, and events are open and accessible.
- The neighborhood will be given as much advance notice as possible if night or weekend work is needed.
- A 24-hour public hotline is available for project information.
- An up to date project website is available with our latest information – [www.seattle.gov/transportation/seawall.htm](http://www.seattle.gov/transportation/seawall.htm).

### Getting to the piers

In preparation for the placement of the new seawall structure, large excavations are required. Temporary vehicle and pedestrian bridges will be installed to maintain east/west travel and access to the waterfront piers.



### A place to park

Wondering where you can find parking during construction? Visit [downtownseattleparking.com](http://downtownseattleparking.com) for the latest information and promotions.

206-618-8584

[seawall@seattle.gov](mailto:seawall@seattle.gov)



Call with questions or comments



Weekly email updates and project updates from the street team

[seawall@seattle.gov](mailto:seawall@seattle.gov)



Email to ask us questions

via Waterfront Seattle



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## Season 1: Construction areas and temporary roadway location\*



\*Temporary roadway illustrated will be in place for the duration of seawall construction; Season 1 construction will run between September 2013 and May 2014.

\*\*East/west crosswalks and connections omitted for clarity.