DRAFT ENVIRONMENTAL IMPACT STATEMENT

Executive Summary

11.2012

Elliott Bay Seawall Project

SDOT
Seattle Department of Transportation

Project Area

Introduction and Project Overview

The City of Seattle (City), through its Department of Transportation (SDOT), is proposing to construct the Elliott Bay Seawall Project, which would replace the existing seawall along the shoreline of downtown Seattle. The seawall extends from S. Washington Street to Broad Street and supports and protects adjacent upland areas, including transportation infrastructure (sidewalks, streets, a ferry terminal, and a rail line), critical utilities, residences, businesses, and parks. The harbor area in Elliott Bay is used for commerce and transportation by ferries, cruise ships, and commercial vessels, and for play by residents and visitors alike. The downtown Seattle waterfront is an important center of commerce and recreation for the entire region.

The existing seawall consists of three types of walls, all built between 1911 and 1936. Over time these structures have deteriorated as a result of natural and physical processes. The seawall's degraded condition puts it at risk for significant damage from a major storm or seismic event. The new seawall would protect the shoreline and upland areas from erosion, coastal storm damage, and damage due to seismic events. The new seawall would help preserve downtown Seattle and the region's economic competitiveness and quality of life. It would also provide a solid foundation for the downtown Seattle waterfront, including the concepts developed as part of Waterfront Seattle.

The Elliott Bay Seawall Project area evaluated in the Draft Environmental Impact Statement (EIS) extends along the downtown Seattle waterfront from S. Washington Street in the south to Broad Street in the north. The western boundary is located 400 feet into Elliott Bay, and the eastern boundary is Elliott and Western Avenues.

What is the history of the project?

The seawall replacement was originally part of the Alaskan Way Viaduct and Seawall Replacement Program being conducted by the City, the Washington State Department of Transportation, and the Federal Highway Administration. The earliest alternatives for seawall replacement were developed in conjunction with options for replacing the Alaskan Way Viaduct. In 2004, the U.S. Army Corps of Engineers (USACE) became involved in the seawall replacement to provide technical expertise and potential funding for a portion of the project.

In 2009, the Bored Tunnel Alternative became the focus of the newly defined Alaskan Way Viaduct Replacement Program, which was no longer directly tied to the seawall replacement. USACE and the City then began planning seawall replacement as a separate project. Due to federal funding constraints, the City has moved ahead with project design and environmental analysis while continuing to pursue a partnership with USACE for future funding and construction permits.

Why is an EIS being prepared?

The Washington State Environmental Policy Act (SEPA) requires the City, as the lead agency and project sponsor, to inform the public of potential effects of the Elliott Bay Seawall Project on the environment, both during and after construction. This EIS provides detailed information on the project purpose and need; the project alternatives and how they were developed; the affected environment; the potential effects of the alternatives on 14 environmental elements during and after construction; options to mitigate adverse effects; the potential cumulative effects of the project and other area projects; and how the project would comply with applicable plans and regulations. Supplementing the Draft EIS are technical appendices that provide more extensive detail on environmental effects.

The evaluation of alternatives enables SDOT decision-makers, with input from the public, regulatory agencies, and Native American tribes, to consider the environmental impacts of project alternatives in conjunction with factors such as cost, schedule, and feasibility.

What is the purpose of this executive summary?

This executive summary highlights the major components of the Draft EIS for the Elliott Bay Seawall Project. It provides an overview of the project, discusses the design features of the proposed alternatives, considers the potential effects of each alternative, and explores proposed measures for reducing the potential adverse effects of each project alternative.

How can I learn more?

The Draft EIS is available online at http://www.seattle.gov/transportation/seawall.htm and is included as a CD on the back cover of this executive summary. Additional CDs containing the Draft EIS and technical appendices can be obtained by calling 206-618-8584 or by sending an e-mail to seawallDEIS@seattle.gov. Paper copies of the Draft EIS are available at a cost of $50.00 (and $25.00 for the technical appendices) can be obtained via the e-mail and phone number above. Individuals requiring reasonable accommodation of any type, including language translation services, may call 206-618-8584. Individuals who are deaf or hard of hearing may call the Washington State Telecommunications Relay Service (TTY) at 711.

Project Background

What is the project purpose?

The Elliott Bay Seawall Project has been proposed to reduce the risk of damage due to coastal storms and seismic events along the downtown Seattle waterfront and to protect public safety, critical infrastructure, and associated economic activities. The project would also improve the nearshore ecosystem of Elliott Bay in the vicinity of the existing seawall.

The seawall holds the waterfront in place and supports Alaskan Way, including the sidewalk and pedestrian and bicycle trail. It also protects utilities located east (landward) of the face of the seawall. Due to cumulative damages over the past 100 years, the seawall is at the end of its useful life. Furthermore, the seawall was not designed to withstand earthquakes, and there is a risk of seawall failure even without an earthquake.

Elliott Bay is an important link for juvenile salmon migrating from the Duwamish River to the Pacific Ocean. Within the project area, vital shallow water habitat is limited, and migration along the shoreline can be difficult. Restoring the degraded nearshore ecosystem would improve the habitat for salmon and other species while increasing plant and animal diversity.

The seawall replacement would also support both existing activities and future plans on the downtown Seattle waterfront, including concepts developed as part of Waterfront Seattle—a separate City program that would create new public open spaces along the waterfront.

What would happen if the project is not built?

Since its completion in 1936, the seawall has been subjected to decades of tidal action and coastal storms. It has also been damaged by a number of earthquakes, including the 2001 Nisqually earthquake. Regular maintenance has prolonged the seawall's useful life; however, the risk of seawall failure is high even with continued maintenance.

If the seawall were to fail, the viaduct would collapse. Access to waterfront piers and buildings on the east side of Alaskan Way would be lost or severely compromised.

Seawall failure would also affect access to Colman Dock, Fire Station No. 5 (Seattle's busiest fire station), and the Port of Seattle. Major utility disturbances would disrupt power to downtown Seattle and the entire western seaboard. Alaskan Way, the major thoroughfare along the waterfront and a designated truck route for oversized loads and hazardous materials, would close or operate with restricted access for a prolonged period.

How is the project related to other projects in the area?

The Elliott Bay Seawall Project is an independent project that would support existing activities on the downtown Seattle waterfront as well as the future Waterfront Seattle design concepts. In addition to collaborating with the Waterfront Seattle design team, the Elliott Bay Seawall Project team is working closely with the Washington State Department of Transportation and Washington State Ferries on two major waterfront projects: the Alaskan Way Viaduct Replacement Project and the Seattle Terminal at Colman Dock Project. Close coordination among the various projects will ensure that they are completed in a timely manner while minimizing adverse effects.

How were the project alternatives developed?

The project alternatives, also referred to as build alternatives, were developed to address both elements of the project's purpose: (1) reducing the risks of coastal storm and seismic damage to the waterfront, and (2) improving the nearshore ecosystem of Elliott Bay. A comprehensive set of City goals and objectives, established in coordination with project stakeholders, guided development of the alternatives.

The preliminary concepts for the project included five options for reducing coastal storm damage, eight measures for ecosystem restoration, and a no action alternative. Initial screening of the concepts produced a recommendation to further evaluate **two structural wall options** and **six ecosystem restoration measures** that could become part of the project alternatives.

The two structural options for seawall replacement were:

- a soil improvement/grout seawall structure (included in Alternatives A and C in the Draft EIS), and
- a braced soldier pile/drilled-shaft seawall structure (included in Alternative B in the Draft EIS).

The six ecosystem restoration measures (included in all project alternatives) were:

- kelp/seagrass attachment,
- light treatments (such as glass blocks and grating),
- intertidal benches of varying width
- substrate enhancement (such as a shell hash/pea gravel mix),
- seawall complexity (including wall textures and shelves), and
- riparian habitat.

How have the public, regulatory agencies, and tribes been involved?

Ongoing conversations and collaboration with the public, project stakeholders, Native American tribes and federal, state, and local agencies have informed the development of the alternatives evaluated in the Draft EIS. This collaboration began with the environmental scoping process and has continued through design and environmental analysis.

The scoping process, conducted in the summer of 2010, allowed interested parties to share concerns about the project and provide suggestions on the scope and content of the environmental analysis. All affected federal, state, and local agencies, Native American tribes, private organizations, and the public (including adjacent property owners) were invited to comment. The comments received from 39 individuals and 17 organizations were shared with the project team and incorporated into the project as the environmental analysis and design proceeded.

Throughout the development of alternatives and the preparation of the Draft EIS, project staff met regularly with an interagency and tribal team, a City interdepartmental team, and a stakeholder group to obtain diverse perspectives and recommendations on the development of alternatives and project design. The stakeholder group includes waterfront business owners and tenants, professionals from the design and environmental fields, Port of Seattle and Washington State Ferries staff, and downtown community members. The project team has also engaged in hundreds of project briefings and meetings with the public, community groups and organizations, and property owners in the project area.

What alternatives are evaluated in this Draft EIS and what are their features?

The Draft EIS evaluates a No Action Alternative and three build alternatives. The potential effects of the No Action Alternative provide a baseline for comparison to the potential effects of the build alternatives.

As required by SEPA, the three build alternatives represent different ways of achieving the project purpose but share certain basic components:

- a seawall structure,
- habitat enhancements, and
- upland improvements and public amenities.

The table on page ES-11 provides a synopsis of all build alternatives.

Alternative A combines the lowest cost structural option and a cost-effective suite of ecosystem restoration measures and upland improvements. Alternative A would rebuild the face of the seawall as close as possible to its current location.

Alternative B consists of a different type of structural solution and additional ecosystem restoration measures and upland improvements. Alternative B would rebuild the face of the seawall as far landward as practical.

Alternative C was developed as a hybrid of Alternatives A and B. Alternative C uses the structural solution from Alternative A, and includes additional ecosystem restoration measures and upland improvements from Alternative B. Alternative C would move the face of the seawall slightly landward.

Features Common to the Build Alternatives

The features shared by the three build alternatives are described below.

Seawall

The primary function of the new seawall is to protect the waterfront and critical infrastructure from damage due to coastal storms, wave action, floating objects, and seismic events. The seawall would provide a high degree of protection for at least 75 years from both tidal forces and the pressures of soil that liquefies during a seismic event.

Habitat Enhancements

Rebuilding the seawall would provide the opportunity to improve the aquatic habitat in the project area. The poor

quality of the current habitat, paired with deep water and limited natural light, creates challenging conditions for migrating juvenile salmon. Improvements to the migration corridor would include an intertidal habitat bench to create shallow water and light-penetrating surfaces in the cantilevered sidewalk to allow light to reach the water. A textured seawall face would encourage aquatic organisms to attach to the structure, and the addition of coarse substrate farther off-shore would support a more diverse nearshore marine community. Riparian plantings would be installed along the sidewalk in select areas to enhance both intertidal and upland habitat.

Upland Improvements and Public Amenities

After seawall construction, the Alaskan Way surface street, multi-use trail, and parking spaces would be restored to their existing function and capacity. A sidewalk approximately 20- to 30-feet wide would be constructed along the waterfront, with street plantings in areas of adequate width. Stormwater drainage pipes in the project area would be reconstructed to provide treatment for surface water runoff from Alaskan Way, removing most of the suspended solids, oils, and greases.

New seating areas would be provided at viewpoints along the corridor, and viewing areas would be provided at select points along the waterfront. Additional upland improvements would include restoration of the Washington Street Boat Landing, new or restored railings, public art, historic elements, wayfinding features, and lighting.

Construction Sequencing and Seasons

The seawall would be constructed in two phases: Phase 1 (Central Seawall) and Phase 2 (North Seawall). Construction of the Central Seawall is expected to begin in fall 2013. It would progress from north to south, beginning at Virginia Street and ending at S. Washington Street. The North Seawall construction would begin after the Central Seawall has been completed. It also would progress from north to south, beginning at Broad Street and ending at Virginia Street.

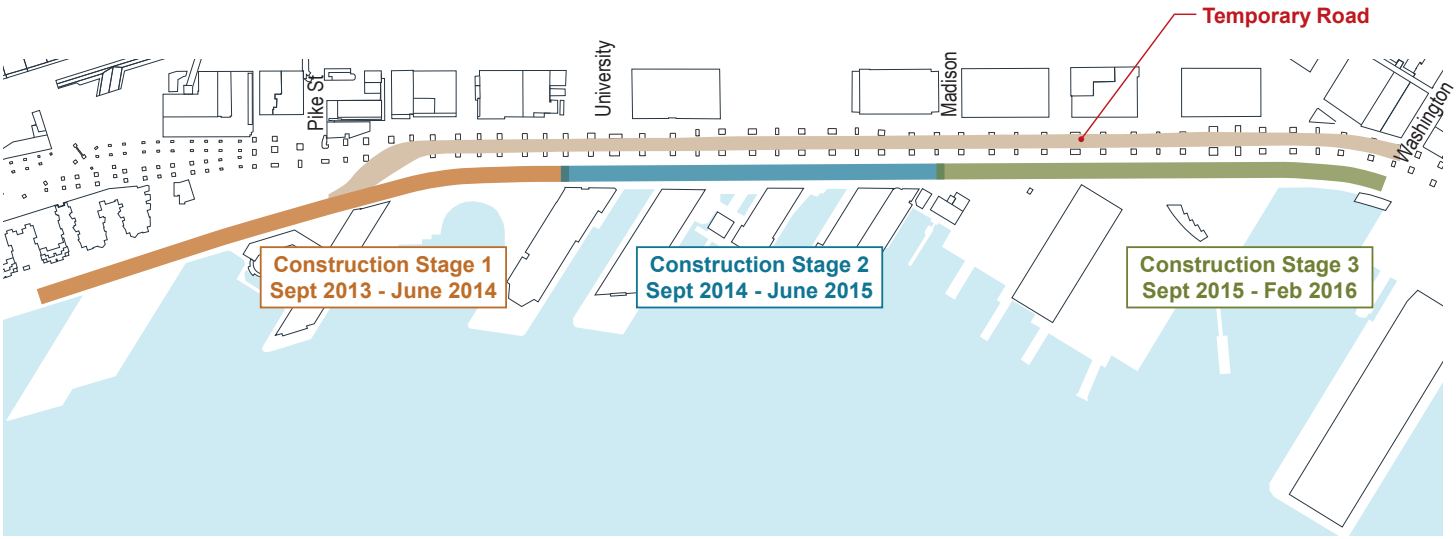
The construction season would extend from approximately Labor Day to Memorial Day to avoid disrupting waterfront activities during the peak tourist season. Additionally, in-water construction would only be permitted between August 1 and February 15 to protect migrating fish; this would be further refined in coordination with regulatory agencies.

Features Distinct to a Build Alternative

The primary differences between Alternatives A, B, and C—in seawall structure, habitat enhancements, upland improvements and public amenities, and construction method and duration—are described below.

Seawall

Alternative A would construct the new seawall as close as possible to the current alignment, moving the new seawall face 3 feet waterward to 15 feet landward of the existing seawall face. Alternative A would use soil improvement to form the structural support for the seawall.



Potential scenarios of construction for Central Seawall

Alternative B would largely reshape the seawall and the downtown Seattle waterfront by moving the face of the new seawall landward of the existing seawall face as far as practical, from a minimum of 10 feet to a maximum of 75 feet near the Seattle Aquarium. Alternative B would use braced soldier piles to form the new seawall structure.

Alternative C would move the face of the new seawall approximately 10 to 15 feet landward of the existing seawall face along its entire length. Alternative C would use soil improvement to form the seawall's structural support.

Habitat Enhancements

Under Alternative A, habitat enhancements would include the installation of a continuous intertidal migration corridor, light-penetrating surfaces in portions of the sidewalk adjacent to piers, and substrate improvements in several areas along the seawall.

Alternative B habitat enhancements would include those in Alternative A, but the area of intertidal habitat would be larger. Substantial habitat enhancements would include an intertidal habitat bench and backshore south of Colman Dock that would be bordered by riparian plants,

Existing conditions between Piers 54 and 55

Alternative A between Piers 54 and 55

Alternative B between Piers 54 and 55

Alternative C between Piers 54 and 55

rocks, and drift logs. Near the Seattle Aquarium there would be either expanded upland riparian plantings or additional intertidal habitat.

Alternative C habitat enhancements would include a continuous intertidal migration corridor and continuous light-penetrating surfaces. Substrate enhancements would be placed in key areas of expanded habitat along the seawall. Like Alternative B, the area south of Colman Dock would include an intertidal habitat bench and backshore habitat features.

Upland Improvements and Public Amenities

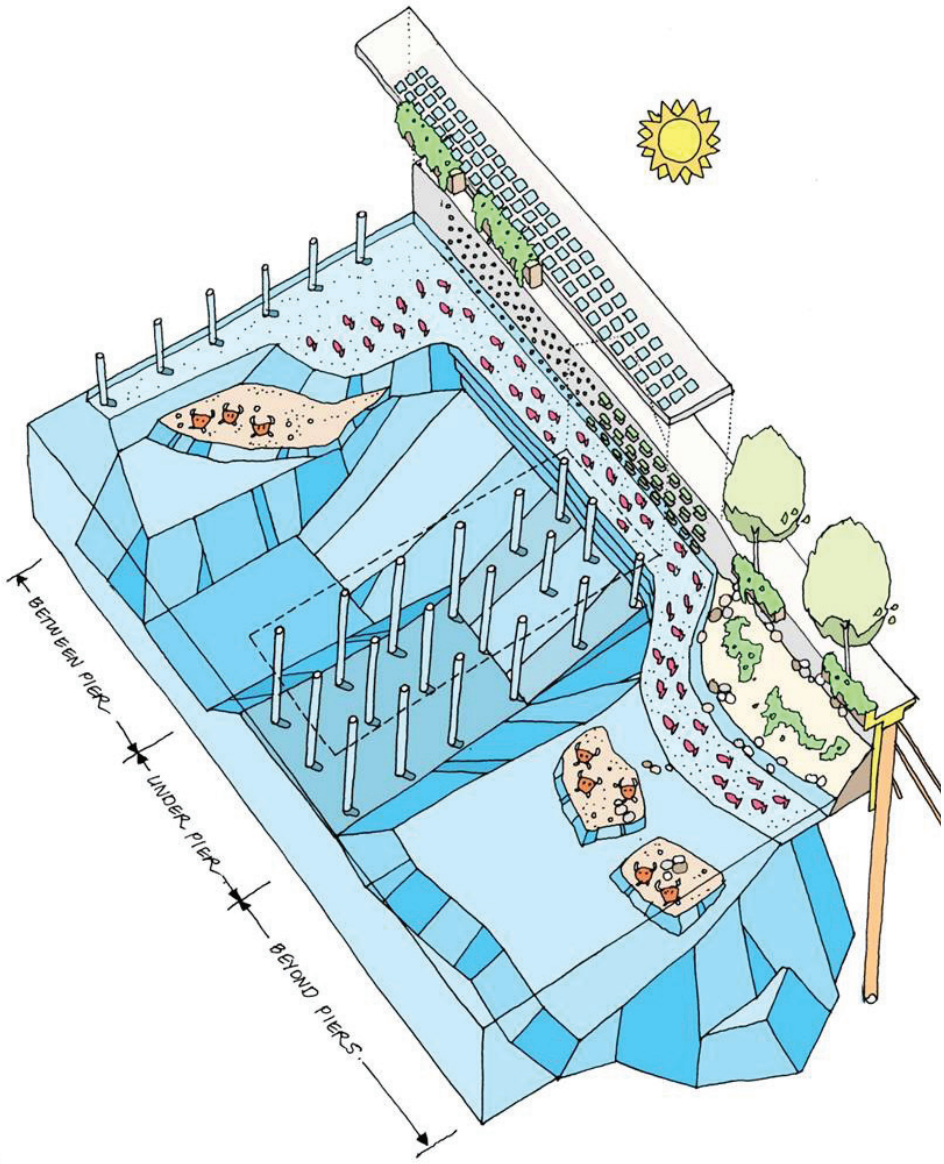
Alternative A would include an additional northbound lane on Alaskan Way from S. Washington Street to Madison Street. It would also restore the existing view corridors between piers.

Alternative B would provide the most improvements in public amenities, with additional gathering areas and enhanced viewpoints along the length of the project. It would provide new decks featuring seating steps between Piers 54 and 55 and between Piers 56 and 57. A new public plaza or a water plaza (with tidepools) would be possible near the Seattle Aquarium and would provide opportunities for interpretive, recreational, and cultural features. Alternative B also includes new visual and physical connections to the water with a short-stay boat moorage at the restored Washington Street Boat Landing.

Alternative C includes the additional northbound lane described for Alternative A. Alternative C would also provide enhanced viewing spaces along the length of the seawall as well as new viewpoints between piers, as in Alternative B.

Construction Methods and Duration

One of the greatest differences between the build alternatives is the construction duration, with Alternative B requiring approximately two years longer than Alternatives A and C. The longer construction duration expected for Alternative B is primarily due to the complexity of construction (especially in the area of the Seattle Aquarium and Waterfront Park) and the construction method. All construction durations are noted on page ES-11.

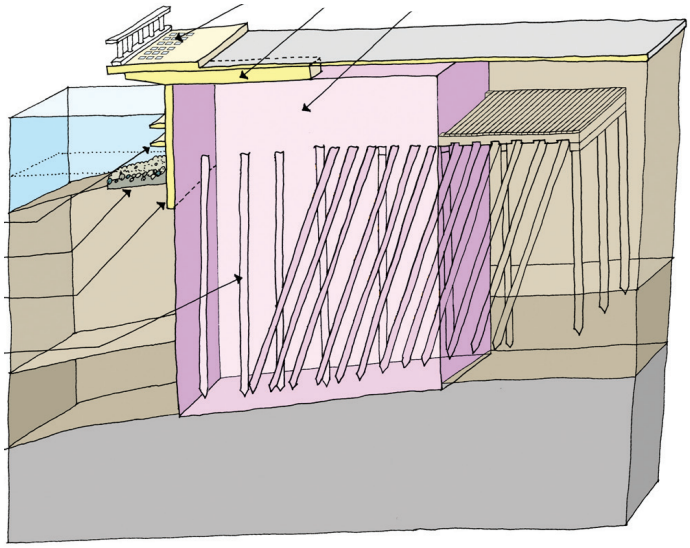


Habitat enhancement features included in the build alternatives

Alternatives A and C would use soil improvement for the primary structural element of the seawall. This method consists of adding a cement mixture, or grout, to existing soils to form a block of improved soil that extends down to the more solid foundation soil layers. Soil improvement options include jet grouting for Alternative A and jet grouting paired with deep soil mixing for Alternative C. In jet grouting, grout is added to the existing soils by using a pressurized jet that is inserted into drilled holes. Deep soil mixing uses an auger that penetrates the ground surface to mix and consolidate the underlying soils.

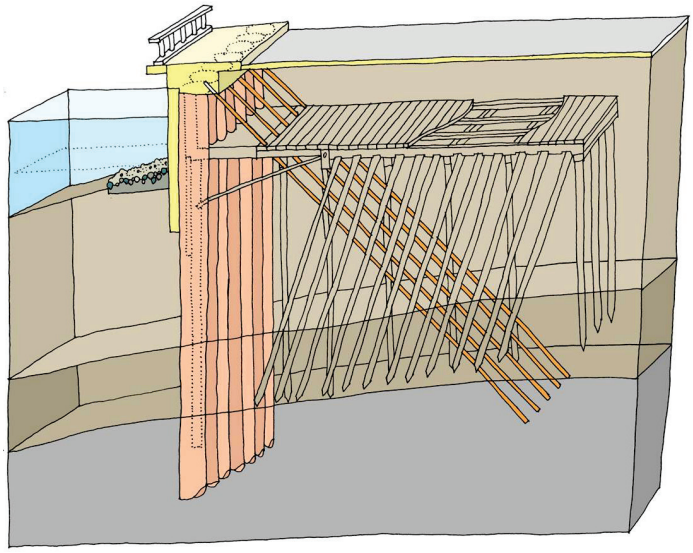
Under both Alternative A and Alternative C, Central Seawall construction would require approximately three construction seasons, with two summer shutdown periods. The North Seawall would require approximately four construction seasons, with three summer shutdown periods. Alternative A assumes excavation of portions

Jet grouting



Jet grouting structure in cross-section (as shown in purple)

Braced soldier piles



Braced soldier piles structure in cross-section (shown in orange)

of the fill above the existing seawall is necessary before soil improvement can begin. Alternative C assumes soil improvement would be completed from street level, without requiring pre-excavation of any fill material.

Alternative B would use braced soldier piles as the seawall's primary structural element. Installing the soldier piles consists of drilling large holes that extend into glacial till. The holes are encased with steel cylinders during drilling to prevent them from collapsing, and the soil within the casing is excavated. Once the holes have been prepared, a steel reinforcing cage is placed into the interior of the casing and the casing is filled with concrete. As the work proceeds, the casing is extracted, leaving a reinforced-concrete cylinder, or soldier pile. Soil anchors are then installed to brace or tie back the soldier piles to create the seawall spine.

Under Alternative B, Central Seawall construction would require approximately five construction seasons, with four summer shutdown periods. Construction of the North Seawall would require an additional four construction seasons, with three summer shutdown periods, although Alternative B may take slightly longer because of the drilled-shaft construction method.

What is the City's Preferred Alternative?

The City's preferred alternative is Alternative C. This alternative combines the most beneficial features of Alternative A (such as shorter construction duration) and Alternative B (greater habitat enhancements and upland improvements) into a cost-effective alternative that minimizes environmental impacts.

Alternative C would provide protection against coastal storms and seismic events with a new seawall using soil improvement, the most cost-effective and least disruptive construction method evaluated. Alternative C would require the fewest construction seasons (like Alternative A), reducing the impacts on local businesses, residents, and the aquatic environment.

By moving the seawall landward along its entire length, Alternative C would provide greater opportunities for ecosystem restoration than Alternative A, including a wider habitat bench to support salmon migration, continuous light-penetrating surfaces, and more extensive nearshore enhancements south of Colman Dock.

Alternative C also provides many of the upland enhancements of Alternative B, including expanding viewing areas and creating new viewpoints between the piers. Lastly, Alternative C also includes the additional northbound lane on Alaskan Way from S. Washington Street to Madison Street.

Construction Comparison of Alternatives A, B, and C

	Seawall Face Placement	Construction Method	Construction Phase 1 / 2	
Alt A	**Landward & Waterward** (3 ft waterward to 15 ft landward)	**Soil improvement** (jet grouting)	**3** construction seasons/ **4** construction seasons	**2** summer shutdowns/ **3** summer shutdowns
Alt B	**Landward** (varied 10-75 ft)	**Braced solder pile** (drilled shaft)	**5** construction seasons/ **4** construction seasons	**4** summer shutdowns/ **3** summer shutdowns
Alt C	**Landward** (consistently 10-15 ft)	**Soil improvement** (jet grouting and deep soil mixing)	**3** construction seasons/ **4** construction seasons	**2** summer shutdowns/ **3** summer shutdowns

The SEPA environmental review analyzed the potential effects of the project alternatives on the built and natural environment both during construction (construction effects) and after construction (operational effects). These environmental effects were categorized as beneficial or adverse and graded along a spectrum from minor to substantial. This executive summary highlights the potential effects of each build alternative, focusing on those that are considered substantial, and describes potential mitigation measures for adverse effects.

All three build alternatives would achieve the project purpose; therefore, the net result of project operation would be beneficial due to reduced risk of seismic and storm damages, protection of public infrastructure and economic activities, and improvements to the Elliott Bay ecosystem. The primary adverse effects of the build alternatives would occur during construction. The differences in impacts between the build alternatives are indicated in the tables on pages ES-15 and ES-18.

What are the anticipated construction effects of the alternatives and how would they be mitigated?

No construction effects would result from the No Action Alternative.

The build alternatives would result in construction activity along the downtown Seattle waterfront for seven to nine years, depending on the alternative selected. Construction effects would be caused by activities such as excavation, demolition, use of heavy equipment, and pile driving. The project's contract specifications would require practices that minimize the project effects. Plans would be developed to address specific construction effects, including a noise management and monitoring plan, a traffic management plan, and a water-quality monitoring and protection plan. As the design progresses, final mitigation measures will be developed and may be tailored to specific construction stages.

Construction Effects Common to the Build Alternatives

Certain construction effects would be similar for all three build alternatives. The common effects to transportation; economics; noise and vibration; fish, wildlife, and vegetation; water resources; and contaminated materials are described below.

Transportation

To provide a dedicated construction area for Central Seawall construction, traffic would be detoured from Alaskan Way to a temporary roadway beneath the Alaskan Way Viaduct. The temporary roadway would provide one through lane in each direction and a center turn lane, which would also be used by emergency vehicles. During North Seawall construction, traffic would continue to operate along Alaskan Way, although the roadway would be reduced to one lane in each direction with a center turn lane. Freight traffic would be accommodated throughout construction.

These detours would be in place throughout the construction of each project phase (three to five years for the Central Seawall and four years for the North Seawall), increasing traffic congestion. Response times for emergency service providers may increase, although the center turn lane might also improve response times somewhat.

During construction, all parking beneath the Alaskan Way Viaduct and along Alaskan Way within the construction

Utilities construction occurring on Alaskan Way, January 2012

area would be removed. Some of the lost parking spaces could be restored in the Alaskan Way right-of-way during the summer construction shutdowns, reducing the impact of lost parking during the tourist season.

Economics

Traffic congestion and other construction effects—such as noise, dust, and access challenges—would affect local businesses.

The City would continue to work closely with the waterfront business community to develop ways to minimize these potentially adverse effects. An important mitigation measure would be the summer construction shutdown from Memorial Day weekend through Labor Day weekend. Avoiding construction during the peak summer months would minimize adverse effects on visitor-oriented businesses and eliminate construction noise and dust when building windows are most likely to be open.

The seawall construction would also result in beneficial economic effects. Construction activities and the procurement of supplies would temporarily stimulate the local economy and create construction jobs.

Noise and Vibration

The most prevalent source of noise and vibration during construction would be heavy construction and impact equipment, such as pile drivers used to install temporary and permanent piles.

The City regulates construction noise by imposing noise limits based on the type of activity, time of day, and property type. Less noise is allowed near residences than near commercial and industrial properties, and less noise is allowed at night. Construction noise would temporarily exceed the noise limits specified in the Seattle Noise Ordinance for daytime and nighttime hours. Although the noise would be temporary and would not be concentrated in any one area for the entire duration of construction, it would continue over several years and affect a wide variety of residential and commercial properties.

SDOT and the project contractor would comply with the City noise regulations and secure a noise variance, specifying mitigation measures to reduce construction noise. Examples of potential mitigation measures include (1) limiting the number of hours for the noisiest construction activities, (2) installing noise-minimizing components on construction vehicle engines, and (3) constructing temporary noise barriers around work areas.

Fish, Wildlife, and Vegetation

Construction noise and vibration could adversely affect marine life, including fish and marine mammals. Activities such as the removal of existing vegetation could disturb birds and other upland wildlife. The multiple years of construction are likely to affect migratory birds, as well as wintering and breeding birds; however, they are expected to move from the area and experience little direct effect.

Other adverse construction effects on fish and wildlife would be related to water quality. Seawall construction would require removal of riprap (loose foundation stones) waterward of the existing seawall. This may stir up and suspend nearshore sediments that contain low to moderate levels of contaminants. The installation and construction of habitat features could also stir up sediments and any associated contaminants.

Mitigation measures for reducing adverse effects on fish, wildlife, and vegetation would include (1) restricting in-water work to the approved in-water work window, (2) monitoring for water turbidity (cloudiness resulting from the suspension of sediments), and (3) minimizing construction noise. Construction practices to reduce the suspension of sediments in water would also be employed.

Water Resources

The potential effects of construction on water resources could include increased turbidity as a result of soils carried into Elliott Bay in stormwater runoff. This adverse effect could be worse during the rainy fall and winter months when the majority of construction would occur.

Erosion and sediment control measures would be used in areas where the soils have been disturbed, minimizing the adverse effects of stormwater runoff. Construction work in and next to Elliott Bay would be isolated behind a containment curtain and/or wall to minimize water quality impacts to the extent feasible.

Contaminated Materials

Some activities would disturb contaminated soils, groundwater, sediments, and building materials (such as asbestos). These activities include upland excavation, demolition, seawall construction, aquatic habitat improvements, and use of in-water construction equipment. Mitigation measures would include pre-construction hazardous materials surveys, appropriate handling of any materials from a potentially contaminated source, and isolation of construction activities from Elliott Bay, to the extent feasible.

Construction of habitat features would have beneficial effects by placing clean fill on top of existing sediments, providing new uncontaminated surfaces. Excavation associated with the build alternatives would also have beneficial effects, removing moderately contaminated materials from the environment.

Construction Effects Distinct to a Build Alternative

The differences between the construction effects of the three build alternatives are described below. The differences are due primarily to (1) the location of the face of the new seawall, (2) the construction method, and (3) construction duration. There are few differences between the effects of Alternatives A and C.

Alternative A

Alternative A would include a continuous haul road during construction, which would provide an alternate route for overlegal vehicles and dedicated space for construction vehicles.

Alternative A would involve the least amount of in-water construction for habitat features and other in-water or overwater features. As such, it has the lowest potential of the three alternatives to adversely affect water quality and fish and wildlife in Elliott Bay.

Alternative B

Alternative B would produce two more seasons of construction effects than Alternatives A and C. The extended periods of increased noise, traffic congestion and detours, disrupted freight movements, reduced

parking supply, and restricted business access would burden local businesses and residents and adversely affect the environment more substantially than Alternatives A and C.

Alternative B also would likely require removing much more groundwater than Alternatives A and C because of the extensive landward shift of the seawall and because the drilled-shaft construction method requires extracting the groundwater from each drilled shaft. The extent of this dewatering would increase the potential for occasional violations of water quality standards in Elliott Bay compared to Alternatives A and C.

Access during construction would be more difficult for Alternative B than for Alternatives A and C because construction staging areas would be located at the north and south ends of the project area instead of alongside the construction zone. There would not be a continuous haul road under Alternative B, which would adversely

Construction Effects of the Elliott Bay Seawall Project Build Alternatives by Discipline

Discipline	Alternative A	Alternative B	Alternative C
Cultural, Historic, and Archaeological			
Historic	Minor	Minor to Moderate	Minor
Archaeological and Cultural	Moderate	Moderate	Moderate
Economics	Substantial	Substantial	Substantial
Energy Use and Greenhouse Gas Emissions	Minor	Minor	Minor
Land Use, Shorelines, and Parks and Recreation			
Land Use, Shorelines	Minor	Minor	Minor
Parks and Recreation	Moderate	Moderate	Moderate
Noise and Vibration	Moderate to Substantial	Moderate to Substantial	Moderate to Substantial
Public Services and Utilities			
Public Services	Moderate	Moderate	Moderate
Utilities	Moderate	Moderate	Moderate
Social Resources	Minor	Minor	Minor
Transportation	Substantial	Substantial	Substantial
Visual Resources	Moderate	Moderate	Moderate
Air Quality	Minor	Minor	Minor
Contaminated Materials	Minor	Minor	Minor
Fish, Wildlife, and Vegetation	Substantial	Substantial	Substantial
Geology and Soils	Minor	Minor	Minor
Water Resources	Moderate to Substantial	Moderate to Substantial	Moderate to Substantial

affect the movement of freight during construction. Furthermore, construction vehicles would use the temporary roadway along with other vehicles. This could lead to even greater traffic congestion along the temporary roadway (especially during Central Seawall construction), affecting travel times for general traffic and emergency responders.

Lastly, Alternative B would require more upland and in-water excavation and more in-water work than Alternatives A and C, increasing the potential for adversely affecting water quality and disturbing fish and wildlife in Elliott Bay.

Alternative C

Access during construction of Alternative C would be the same as Alternative A. Alternative C would include a continuous haul road during construction, which would provide an alternate route for oversized vehicles and dedicated space for construction vehicles.

The consistent landward movement of the seawall face in Alternative C would result in slightly different degrees of construction effects on fish, wildlife, and vegetation and water quality. The effects would be slightly more adverse than those of Alternative A but less adverse than those of Alternative B.

Alternative C would require slightly more upland and in-water excavation than Alternative A but much less than Alternative B. Excavation and other types of in-water work would increase the potential for adversely affecting water quality and disturbing fish and wildlife in Elliott Bay.

What are the anticipated operational effects of the alternatives and how would they be mitigated?

Under the No Action Alternative, the only operational effects would be those caused by required future maintenance and repairs if the existing seawall fails.

Any of the build alternatives would have primarily beneficial operational effects. The seawall and transportation infrastructure are currently in place along the downtown Seattle waterfront, and a new seawall and similar transportation infrastructure would be in place once the project has been completed. Therefore, few operational changes and very few adverse operational effects would result from project implementation.

Operational Effects Common to the Build Alternatives

Under all three build alternatives, a new seawall would improve aquatic habitat in the project area. New habitat features would restore a functional salmon migration corridor adjacent to the seawall and enhance the nearshore marine food web, improving ecosystem productivity. All build alternatives would provide new habitat for key species, which would increase their populations or densities.

The build alternatives would improve the quality of stormwater runoff in the project area as well. The new seawall would reconstruct stormwater drainage pipes and provide new treatment facilities to remove most suspended solids, oils, and greases from stormwater. The build alternatives would also remove contaminated materials from within the project's area of excavation.

The three build alternatives also would have beneficial operational effects to the upland area along the seawall. All build alternatives would provide new amenities such as railings, plantings, seating, bicycle racks, and wayfinding elements. Additionally, the build alternatives would restore the historic Washington Street Boat Landing and reinstall it within the Washington Street right-of-way, providing a beneficial operational effect to a historic resource.

Although the new seawall would preserve or enhance many environmental elements, it would adversely affect the existing seawall. Each of the three build alternatives would partially demolish portions of this historic seawall structure, entirely replacing its current function.

Operational Effects Distinct to a Build Alternative

The differences between the operational effects of the build alternatives are described below.

Alternative A

Alternative A would provide an additional northbound lane on Alaskan Way between S. Washington and Madison Streets to improve traffic flow in the area around Colman Dock.

Alternative B

Alternative B would largely reshape the existing seawall and the downtown waterfront by moving the seawall landward up to 75 feet in some locations. This would allow an expanded area of intertidal habitat, providing additional operational benefits to fish, wildlife, and vegetation.

Alternative B would improve water viewing at various locations and provide additional public gathering and enhanced viewing spaces and opportunities for interpretive and recreational features. A short-stay boat moorage would be constructed at the restored Washington Street Boat Landing.

The enhanced viewing area between Piers 54 and 55 would displace The Frankfurter. The kiosk housing the ticket venue for Let's Go Sailing may also be permanently affected. Permanent business displacements would be mitigated by the terms of the Uniform Relocation Assistance and Real Property Acquisition Policies Act.

Alternative C

Like Alternative A, Alternative C would add a northbound lane on Alaskan Way between S. Washington and Madison Streets to improve traffic flow in the area around Colman Dock. The beneficial effects of the habitat enhancements provided by Alternative C are expected to be greater than those of Alternative A but less than those of Alternative B.

As with Alternative B, the enhanced viewing area between Piers 54 and 55 would displace The Frankfurter and may also permanently affect the kiosk housing the ticket venue for Let's Go Sailing. Permanent business displacements would be mitigated by the terms of the Uniform Relocation Assistance and Real Property Acquisition Policies Act.

Operational Effects of the Elliott Bay Seawall Project Build Alternatives by Discipline

Discipline	No Action	Alternative A	Alternative B	Alternative C
Cultural, Historic, and Archaeological				
Historic	Adverse *Minor to Substantial*	Adverse *Minor*	Adverse *Moderate*	Adverse *Minor*
Archaeological and Cultural	Adverse *Minor to Substantial*	Beneficial *Minor*	Beneficial *Minor*	Beneficial *Minor*
Economics	Adverse *Minor to Substantial*	Beneficial *Minor*	Beneficial *Moderate*	Adverse and Beneficial *Minor*
Energy Use and Greenhouse Gas Emissions	Adverse *Minor*	Beneficial *Minor*	Beneficial *Minor*	Beneficial *Minor*
Land Use, Shorelines, and Parks and Recreation				
Land Use, Shorelines	Adverse *Minor to Substantial*	Beneficial *Negligible*	Beneficial *Minor*	Beneficial *Minor*
Parks and Recreation	Adverse *Minor to Substantial*	Beneficial *Negligible*	Beneficial *Minor*	Beneficial *Minor*
Noise and Vibration	Adverse *Negligible to Substantial*	None	None	None
Public Services and Utilities				
Public Services	Adverse *Minor to Substantial*	Beneficial *Negligible*	Beneficial *Negligible*	Beneficial *Negligible*
Utilities	Adverse *Minor to Substantial*	Adverse *Minor*	Adverse *Minor*	Adverse *Minor*
Social Resources	Adverse *Minor to Substantial*	Beneficial *Minor*	Beneficial *Moderate*	Beneficial *Minor*
Transportation	Adverse and Beneficial *Minor to Substantial*	Beneficial *Moderate*	Beneficial *Minor*	Beneficial *Moderate*
Visual Resources	Adverse Minor to *Substantial*	Beneficial *Moderate*	Beneficial *Moderate*	Beneficial *Moderate*
Air Quality	Adverse *Negligible to Substantial*	Beneficial *Minor*	Beneficial *Minor*	Beneficial *Minor*
Contaminated Materials	Adverse *Minor to Substantial*	Beneficial *Minor*	Beneficial *Moderate*	Beneficial *Minor to Moderate*
Fish, Wildlife, and Vegetation	Adverse *Minor to Substantial*	Beneficial *Substantial*	Beneficial *Substantial*	Beneficial *Substantial*
Geology and Soils	Adverse *Minor to Substantial*	Beneficial *Moderate*	Beneficial *Moderate*	Beneficial *Moderate*
Water Resources	Adverse or Beneficial *Minor to Substantial*	Beneficial *Minor*	Beneficial *Minor*	Beneficial *Minor*

What are the anticipated cumulative effects of the project and how would they be mitigated?

Cumulative effects are project-related environmental effects that are added to the environmental effects of other past, present, and reasonably foreseeable future projects in the project vicinity. Cumulative effects result from the combination of the individual effects of multiple projects over time.

The Elliott Bay Seawall Project would be constructed in the midst of a busy waterfront at the same time as other capital projects, including the Alaskan Way Viaduct Replacement Project (through 2016), Waterfront Seattle (2016 to 2020), and the Colman Dock replacement (2015 to 2020), among many other ongoing or planned projects.

The construction-related effects of any of the build alternatives for the Elliott Bay Seawall Project would add to the temporary adverse construction effects of these other projects. Construction of Alternative B is expected to take up to two years longer than Alternatives A and C, and its construction schedule is more likely to overlap with the construction schedules of other area projects. The prolonged period of adverse construction effects, although temporary, could constitute a cumulative effect.

The operational effects of the Elliott Bay Seawall Project combined with those of other reasonably foreseeable projects would result in long-term improvements to the aquatic environment, and to economic and transportation conditions along the downtown Seattle waterfront. The overall cumulative effect of the Elliott Bay Seawall Project would be beneficial, resulting in a transformed waterfront from S. Washington Street to Broad Street.

How is the Elliott Bay Seawall Project coordinating with other projects in the area?

SDOT is coordinating with the Washington State Department of Transportation, Washington State Ferries, the Port of Seattle, the waterfront business community, and other City departments to minimize adverse effects due to the construction and operation of the Elliott Bay Seawall Project, both alone and in combination with other area projects. The construction impacts and mitigation measures of related projects will be coordinated to the extent feasible. Coordinated efforts to minimize adverse effects will add to the benefits of each individual project.

Next Steps

The Draft EIS identifies a preferred alternative, but the City will consider comments received during the public comment period before making a final decision on the preferred alternative.

What opportunities are available to comment on the Draft EIS?

Comments on the Draft EIS can be submitted in several ways. Comment letters may be sent to:

Elliott Bay Seawall Project
Draft EIS Comments
c/o Mark Mazzola
Seattle Department of Transportation
P.O. Box 34996
Seattle, WA 98124-4996

Comments also may be e-mailed to seawallDEIS@seattle.gov or submitted online via a comment form on the project website at http://www.seattle.gov/transportation/seawall.htm. In addition, comments may be provided orally to a court reporter at the Draft EIS public open house on Wednesday, December 5, 2012, from 4:00 to 7:00 p.m., at the Bell Harbor International Conference Center's Maritime Events Center, 2211 Alaskan Way. Computer terminals will also be available at the open house for direct entry of comments.

All comments must be postmarked no later than Thursday, December 13, 2012.

How will the comments be addressed?

All comments on the Draft EIS received during the public comment period will be addressed in the Final EIS, scheduled for issuance in March 2013. The Final EIS will include the comment letters, e-mails, comment forms, and oral comments, along with responses to specific concerns and questions. All commenters will be notified of the availability of the Final EIS.

What is the project schedule?

The SEPA environmental review is expected to be complete in March 2013, when the Final EIS is issued. Final design and permitting are expected to be completed by late summer 2013. Central Seawall construction is scheduled to begin in September 2013 and should be completed by early 2016. North Seawall construction would begin once funding is secured but no earlier than fall 2016.