

Elliott Bay  Seawall
Project

*City of Seattle Design Commission
October 7, 2010*

Project Relationships



- **Collaboration:** Project teams will collaborate to review seawall design options and define a preferred alternative by spring 2011
- **Integration:** Seawall design will be integrated with the overall design direction for the central waterfront public spaces upland of the seawall
- **Expertise:** Seawall team will provide in-water engineering and habitat design expertise, and the Central Waterfront Project team will provide public space and transportation facility design expertise

Project Area



Preliminary Project Schedule



Elliott Bay Seawall Project:

Advanced Central Waterfront Seawall Alternatives Development (City of Seattle)

○ Preferred Seawall Alternative(s) selected (City of Seattle)

Advanced Central Waterfront Design

Advanced Central Waterfront Seawall Construction (S. Washington to Pine Street)

Central Waterfront Project:



Proposed Bored Tunnel:



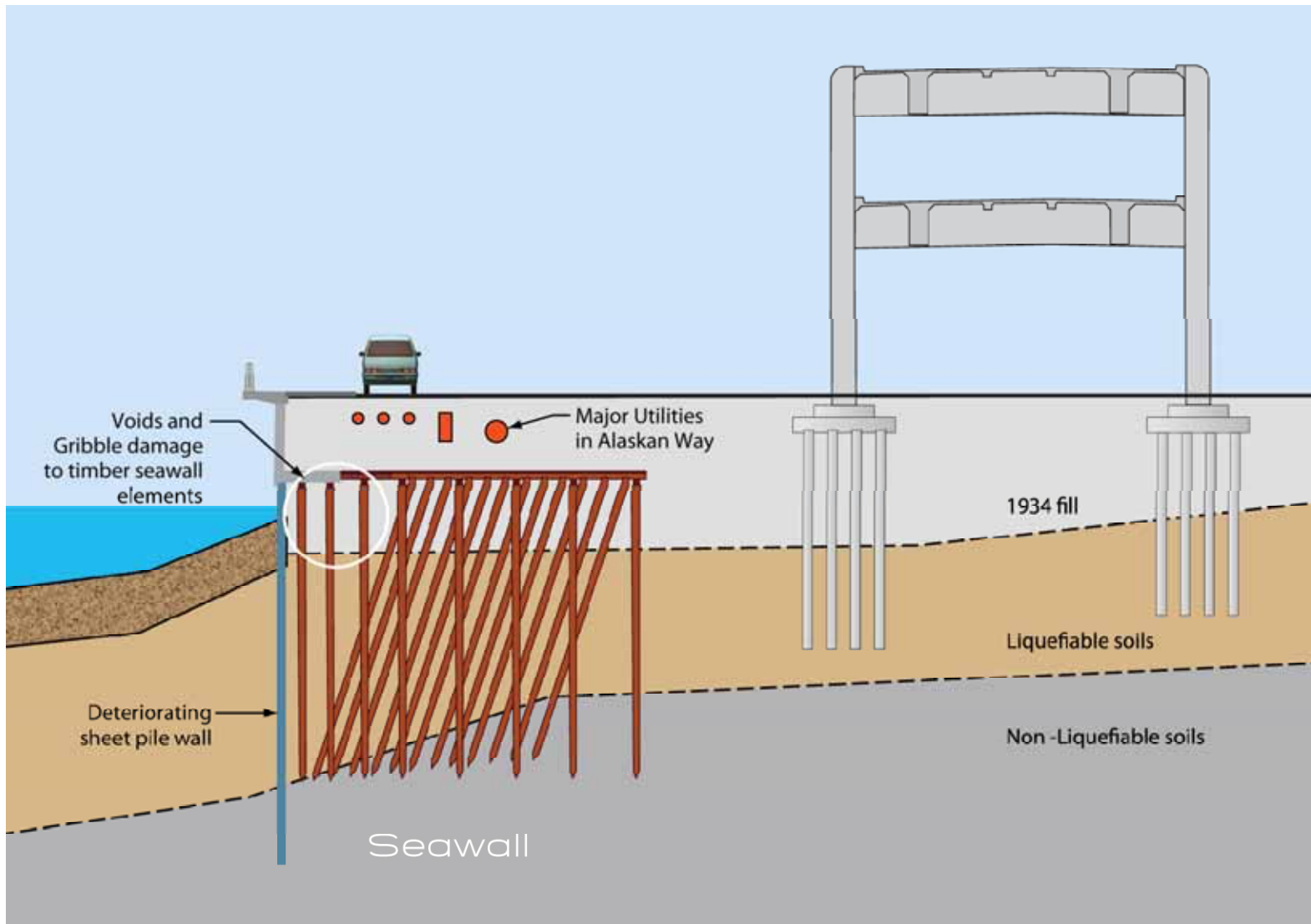
History: Railroad Avenue (1931)



History: Railroad Avenue (1934-1936)



Sample Seawall Cross-Section



**Type B
Seawall
(Madison
to Union)**

Seawall Location: Eastern Extent



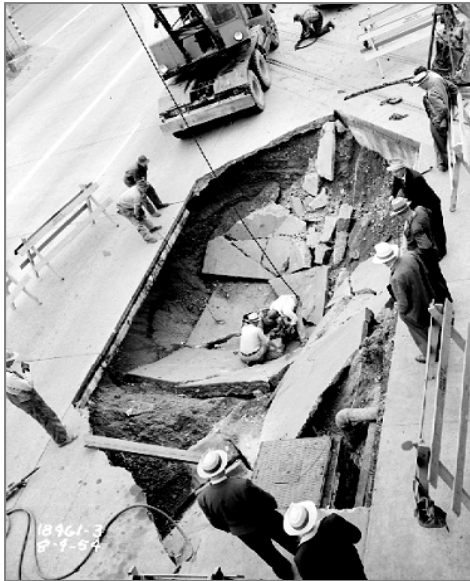
**Type A
Seawall
(Union to
Broad)**

Seawall Location: Eastern Extent



**Type B
Seawall
(Madison
to Union)**

Seawall Repairs and Vulnerability



1954 failure, Clay Street
(above/at right)



1986 relieving platform
repairs (to right)



What could happen during an earthquake?

Kobe, Japan (1995)



WSDOT Earthquake Simulation



What's at risk?

Public Safety

Transportation Corridor

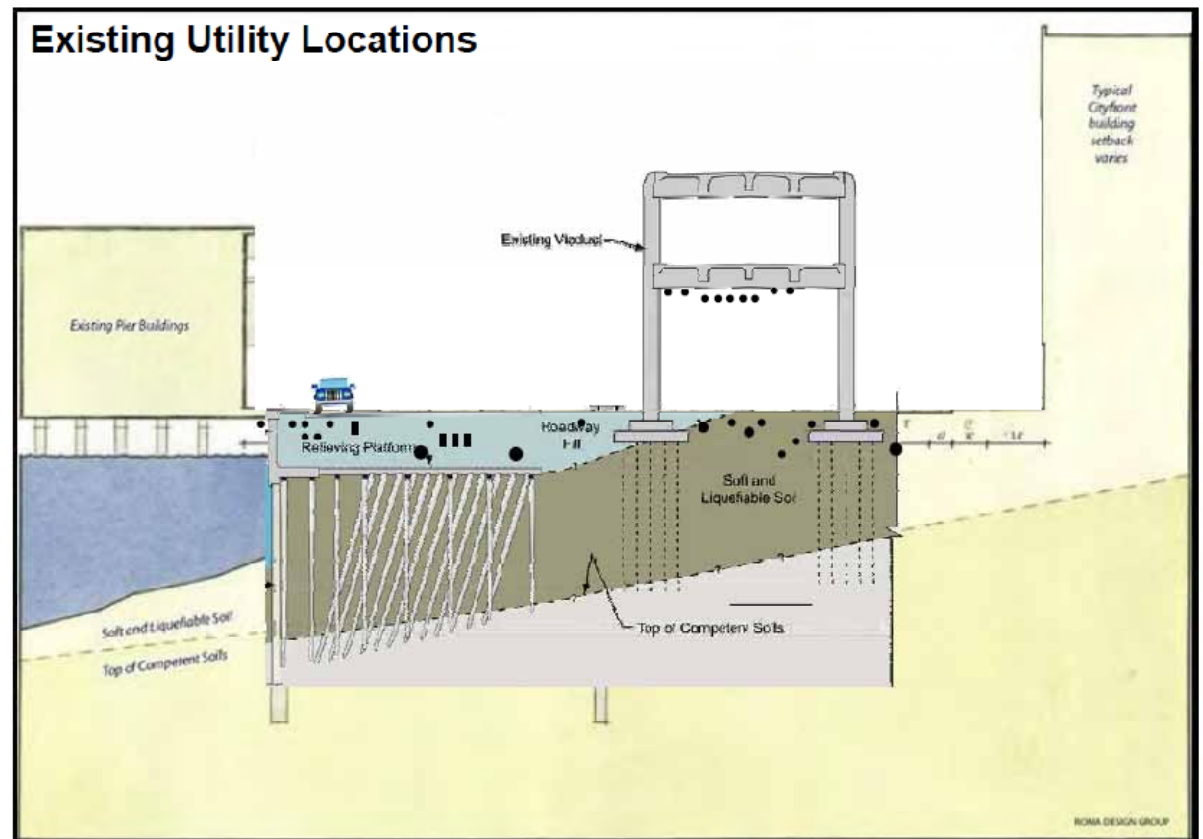
- Alaskan Way
- Washington State Ferries
- Water taxi
- BNSF/Amtrak/Sounder
- Cruise ship terminal
- Pedestrian and bicycle path



What's at risk?

Critical Utilities

- Natural gas
- Sewer
- Water
- Steam
- Fiber optic
- Communications
- Electrical transmission and distribution



What's at risk?

Residential and Commercial Structures

- 3 condo buildings (over 200 residential units)
- 7 landside non-residential structures (over 1.2M sq ft)
- Piers and buildings
- Port of Seattle offices



What's at risk?

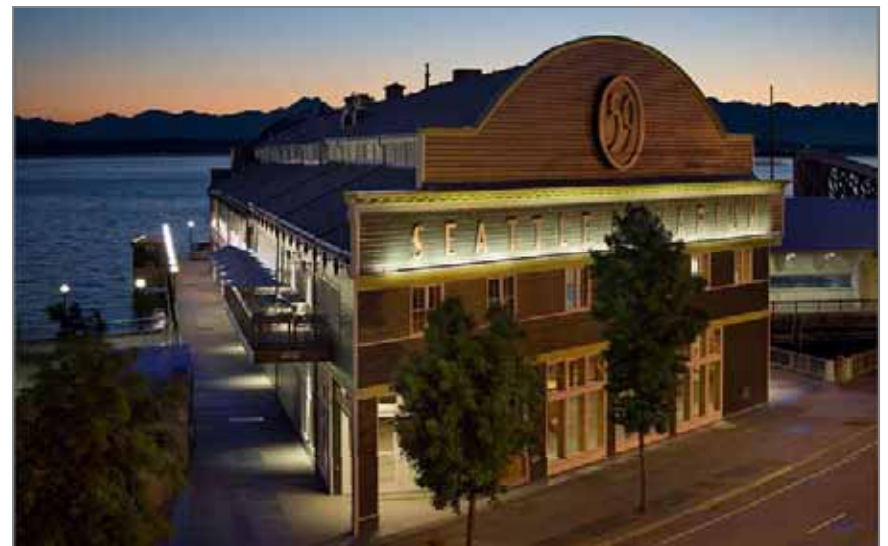
Public Recreation

- Waterfront Park
- Pier 62/63 park

Tourism and Local Attractions

- Waterfront businesses
- Seattle Aquarium

Seattle's Front Porch



Shoreline Stabilization: Potential Technologies

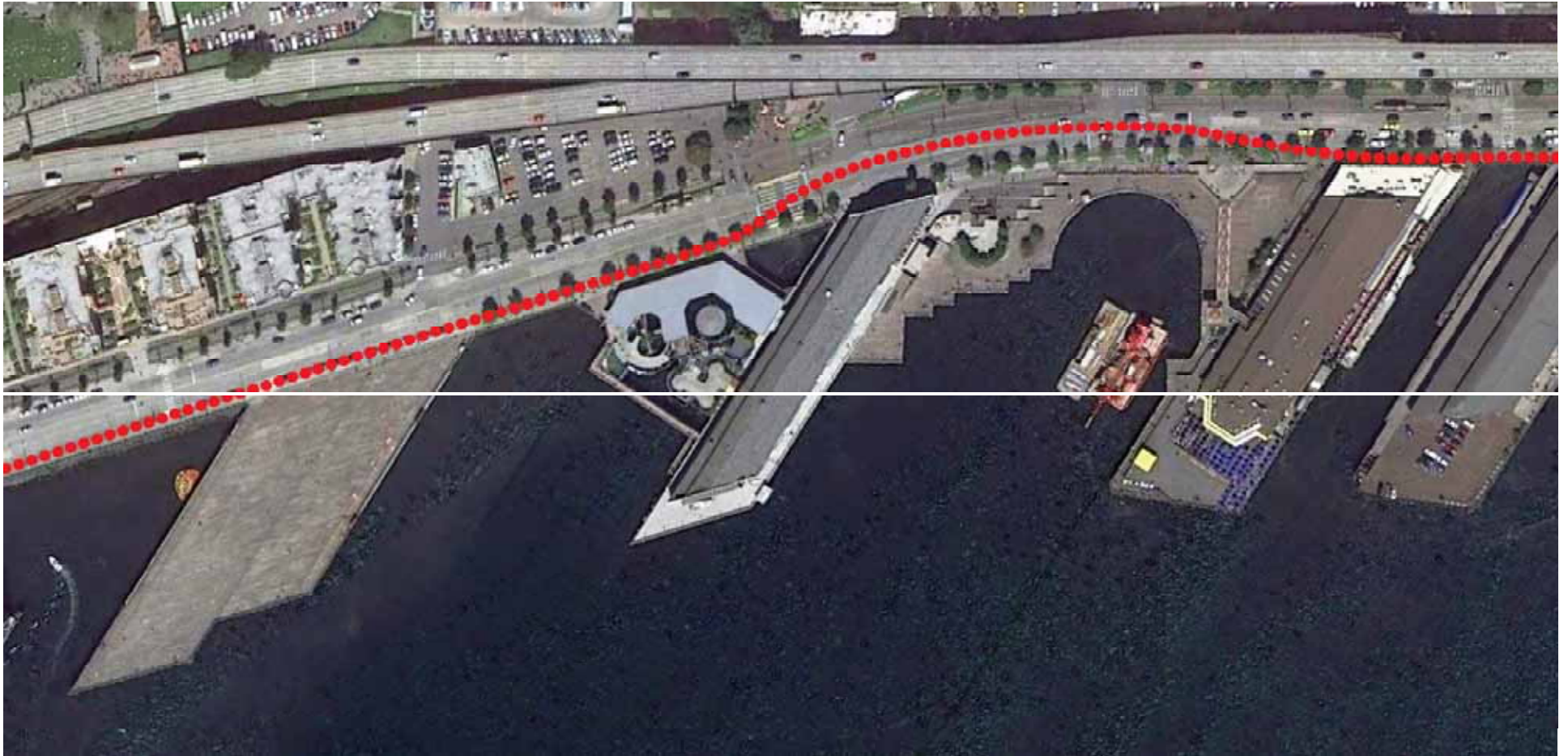
Drilled Shaft



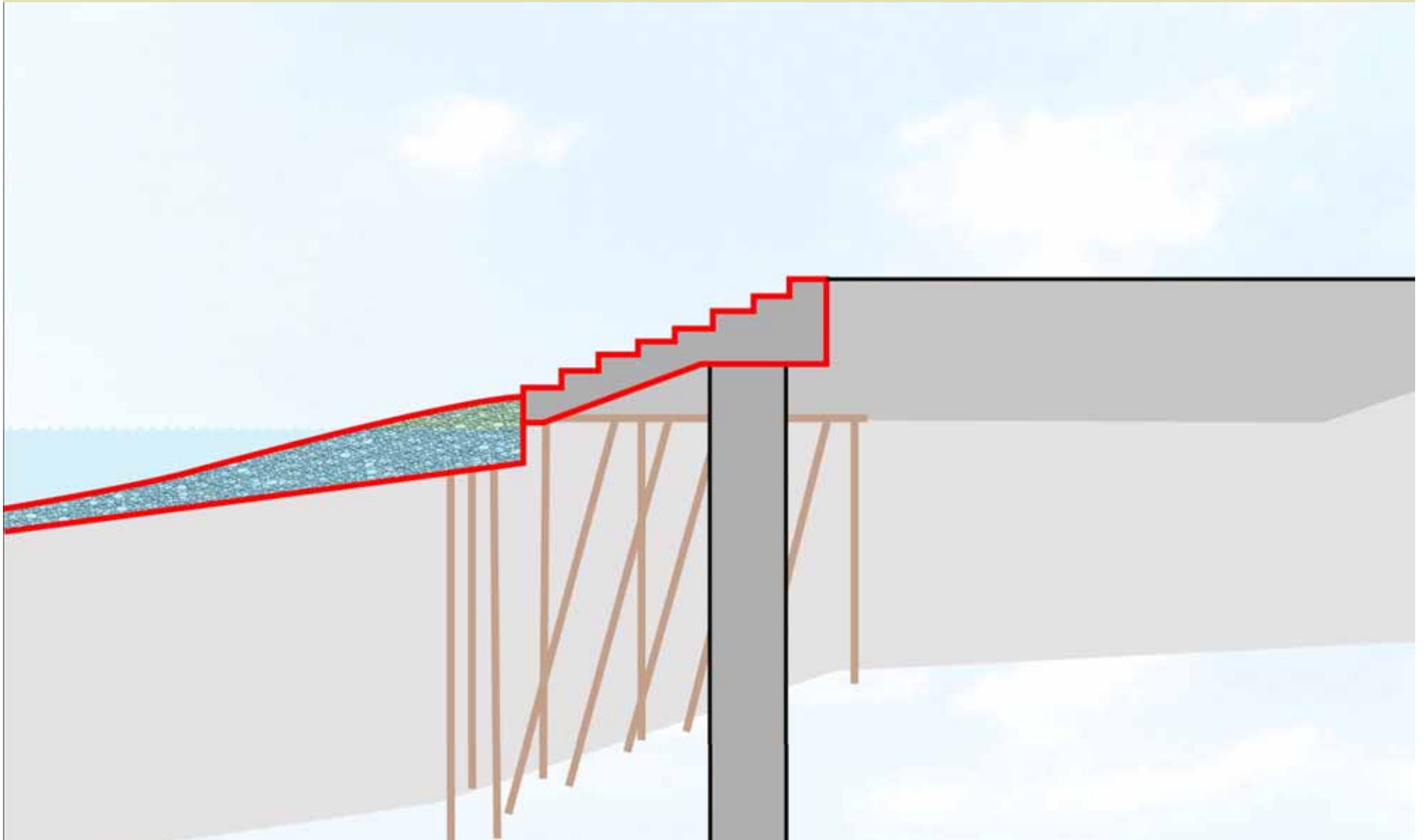
Ground Improvement



Shoreline Stabilization Systems: Flexibility

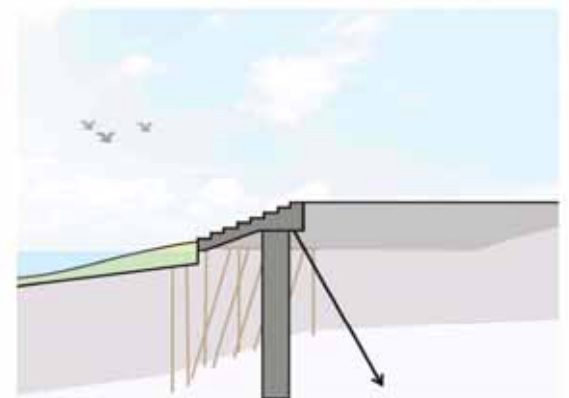
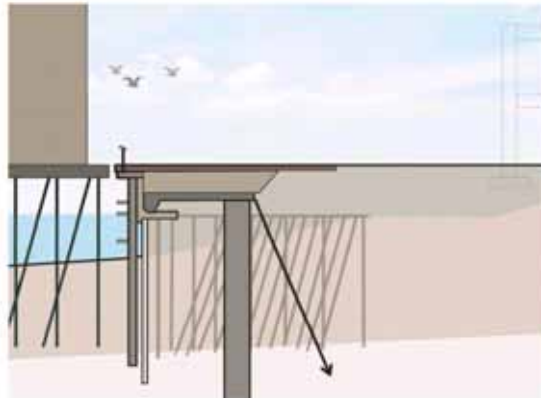
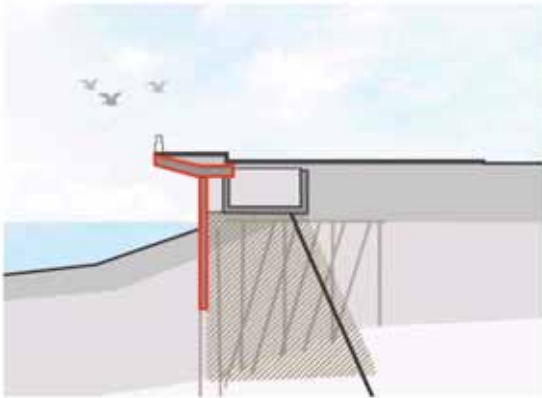


Seawall Face: Protection of Stabilization



Beyond Soil Stabilization

What can the seawall contribute?



Project Goals

- Address critical public safety needs at shoreline.
- Respect cultural, archeological, and historic resources.
- Consider long-term vision for the Central Waterfront.
- Provide enhanced habitat.
- Provide enhanced public gathering and recreational opportunities.
- Support economic vitality of the waterfront.
- Minimize construction impacts.
- Support fiscal responsibility.

Developing Alternatives

Elliott Bay Seawall Planning and Conceptual Design Process

July	August	September	October	November	November -April
Identify waterfront zones; present preliminary goals and objectives	Identify opportunities in each waterfront zone	Present preliminary zone area designs	Present conceptual plans and preliminary analysis	Refine alternatives and conduct more detailed analysis	Review alternatives with Central Waterfront Project

★April - Define preferred alternative

Questions?

Zone Area Designs

7 Principles

Framework Principles for Development of a Central Waterfront Plan
City Council Resolution 30664, April 2004



Balance

Environmental Sustainability

Develop the waterfront as a model of environmental sustainability through redevelopment and public improvements that enhance marine habitat and migration, improve water and air quality, and reduce noise.



Destination & Movement

Improve the waterfront's accessibility for people while acknowledging its critical role as a transportation corridor to and through Downtown. Ensure that the multiple modes of transportation serving the waterfront are well integrated with each other and with the larger downtown and regional transportation network.



Authenticity & Identity

Keep the waterfront real by accommodating functions that serve local community needs and by maintaining connections with the area's past. Promote development that reinforces the uniqueness of place, reveals the dynamic nature of the shoreline, and reflects the spirit of the people of Seattle and the Puget Sound region.



& Integration

As an overarching principle, strike a workable balance for integrating nature, human activities, economic development, and transportation to create a functional, ecologically sound, and beautiful waterfront.



Diversity & Flexibility

Plan for the waterfront's future in a manner that recognizes the area's dynamic nature and the need to respond to conditions likely to change over time. Make the waterfront an exciting urban neighborhood and regional destination that accommodates multiple functions, including recreation and public gathering, working waterfront activity, a place for people to live and work, and habitat conservation.



Economic Development

Promote a healthy economy and attract investment to the Puget Sound region by developing the area as a modern, urban, working waterfront and a major recreational and cultural amenity that serves as a symbol of the region's vitality and livability.



Access & Connection

Make public use and access the primary objective for redeveloping the central waterfront. Increase physical and visual access to the shoreline and link the waterfront with inland areas so that each area reinforces the other and contributes to a cohesive downtown.



Establishing Zones

Zones serve as an organizing framework based on:

- Existing and potential future land use
- Existing infrastructure (utilities) setting
- Water depth and uses
- Existing habitat



Common Opportunities

- Aquatic habitat enhancement
- Shoreline public access and/or touch points
- Cultural, education, and/or interpretation
- Sustainable design



ZONE 1 Pioneer Square / Washington Street

Enhance habitat in shallow water area

Bring people to the water

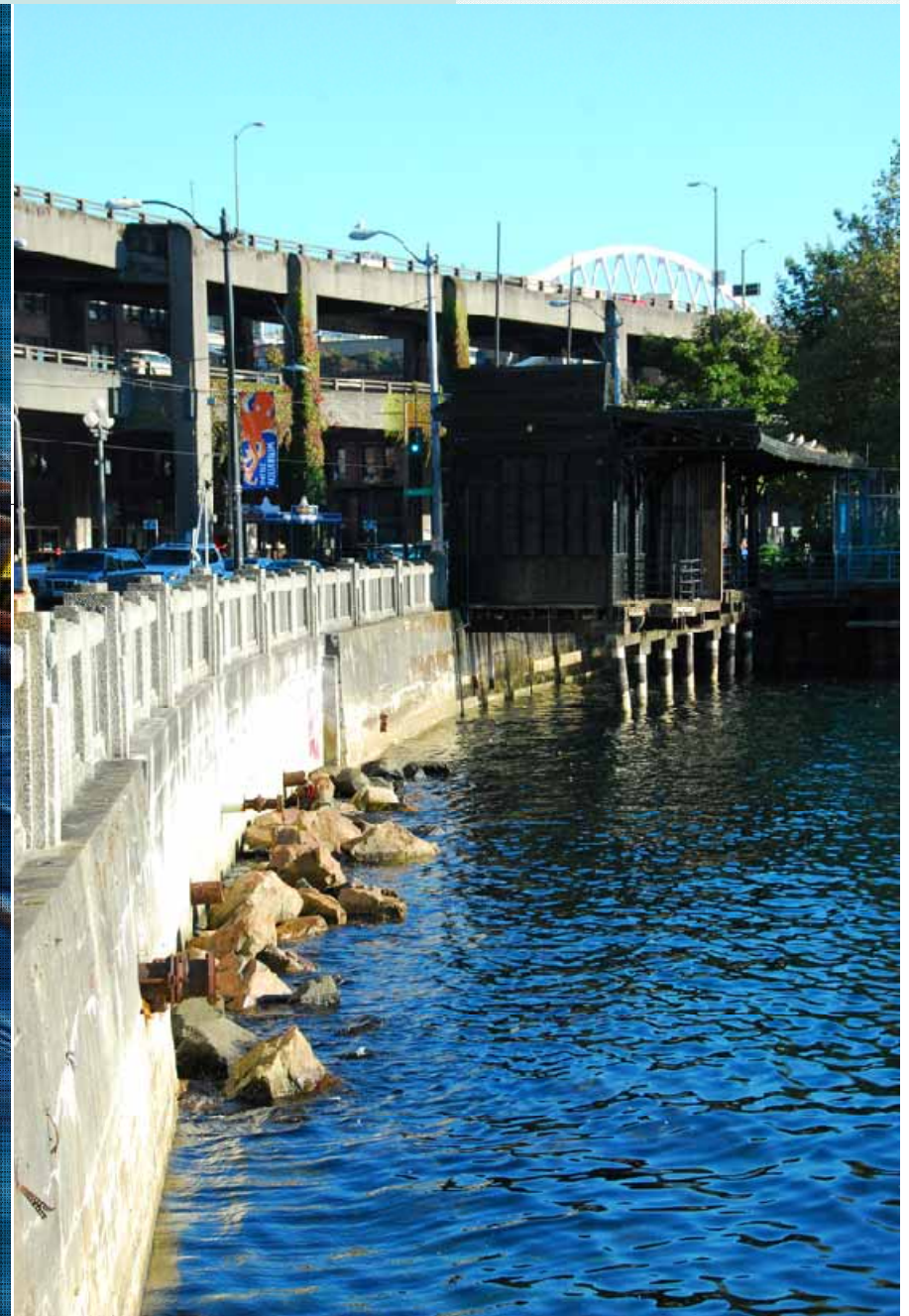
Provide recreational opportunities

Connect to Pioneer Square

Restore Washington Street Public Boat Landing

Develop focal point for cultural and historic interpretation

Create bookend to Olympic Sculpture Park



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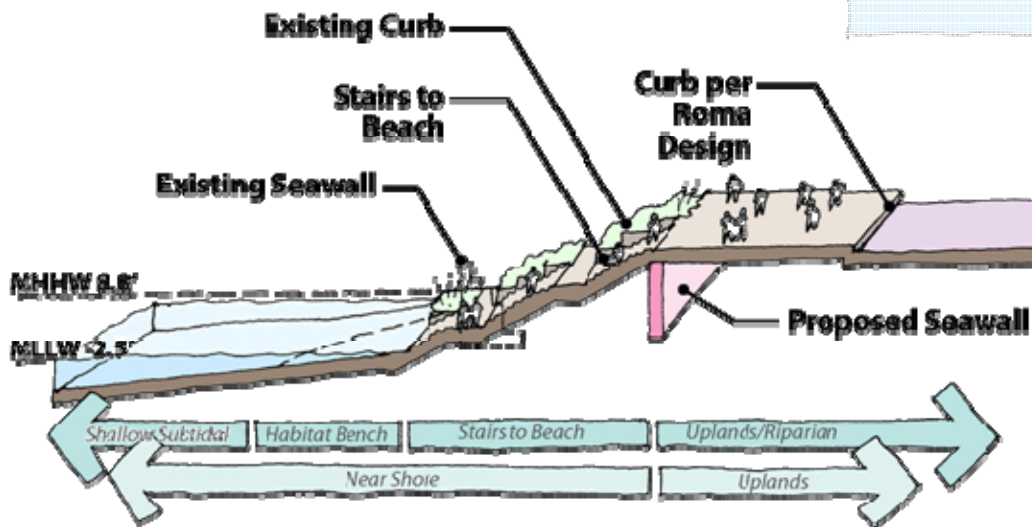
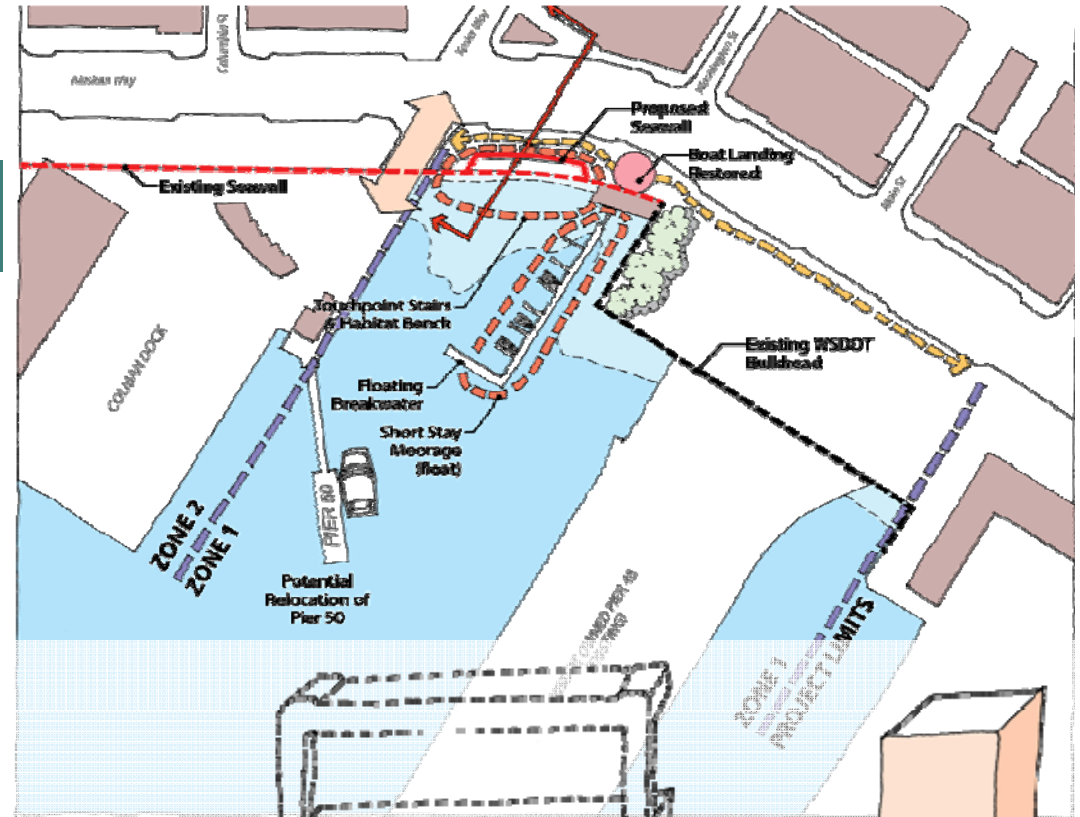
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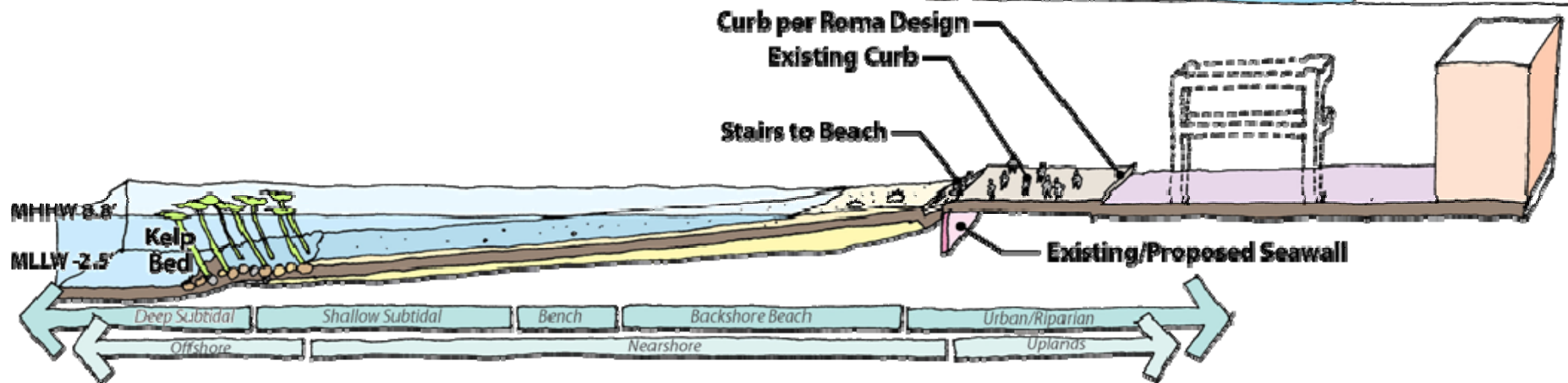
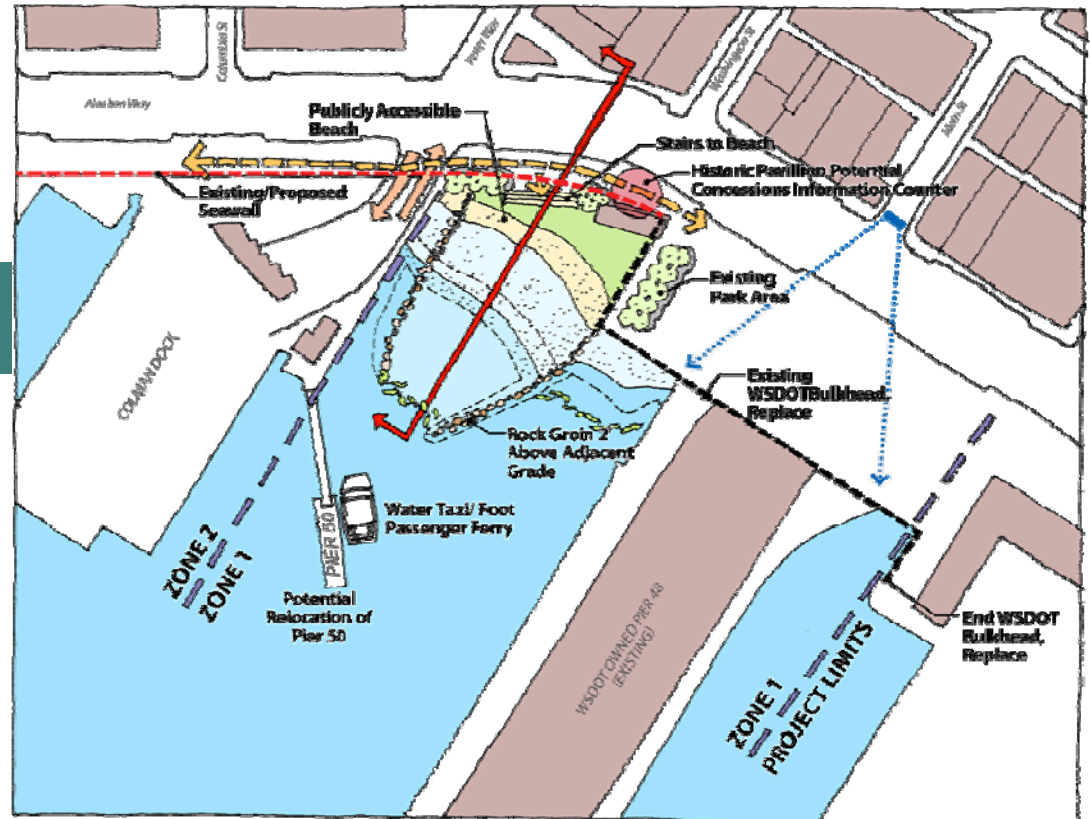
ZONE 1 Area Design Options

- 1.A Wall in Place, Pocket Beach at Pier 48 Site
- 1.D Wall in Place, Pocket Estuary at Pier 48 Site
- 1.E Wall Set Back, Urban Hardscape with Moorage (Washington to Yesler)
- 1.F Wall in Place, Pocket Beach (Washington to Yesler)
- 1.H Wall Push Out, Hardscape/Stairs (Washington to Yesler)

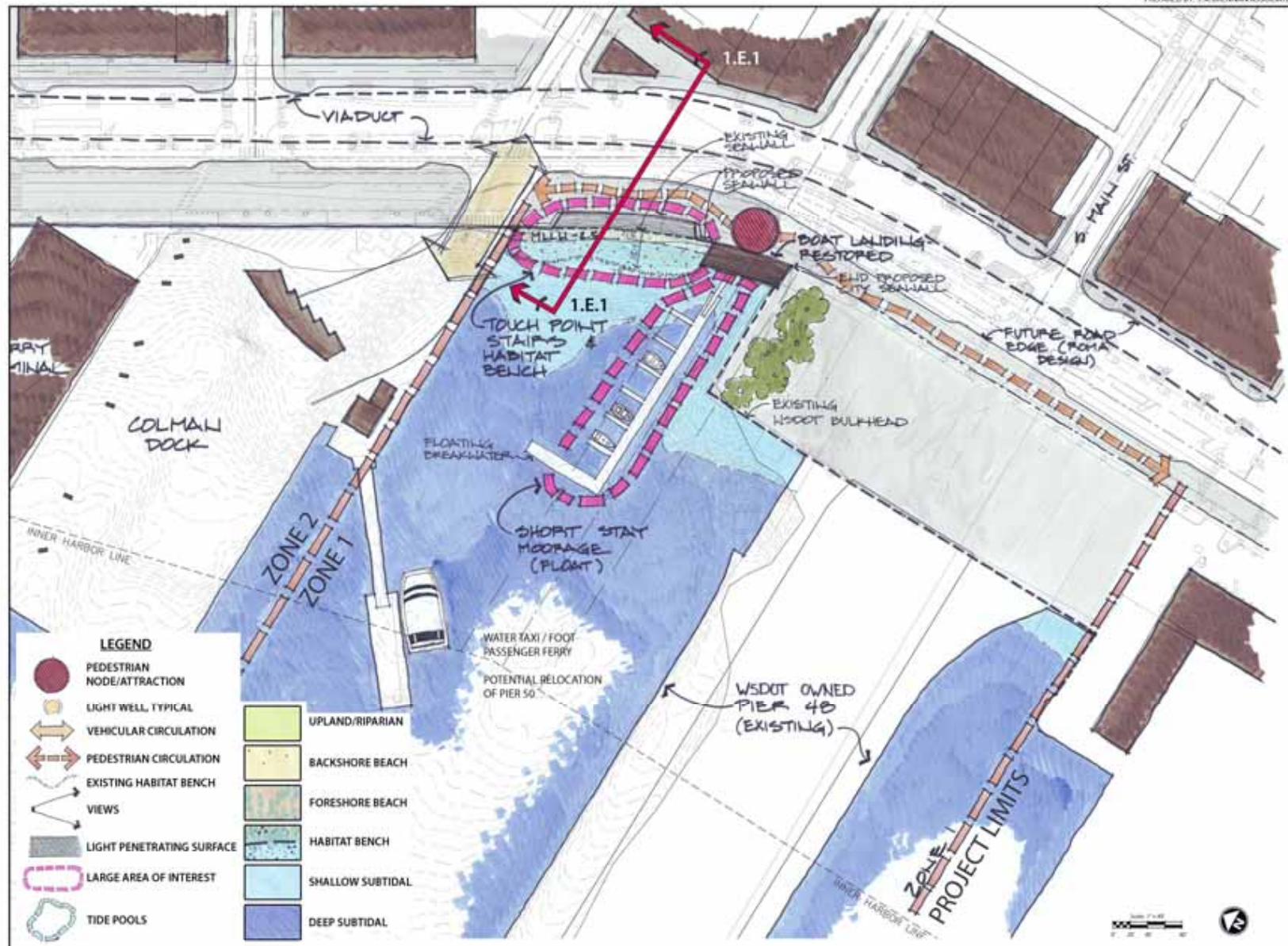


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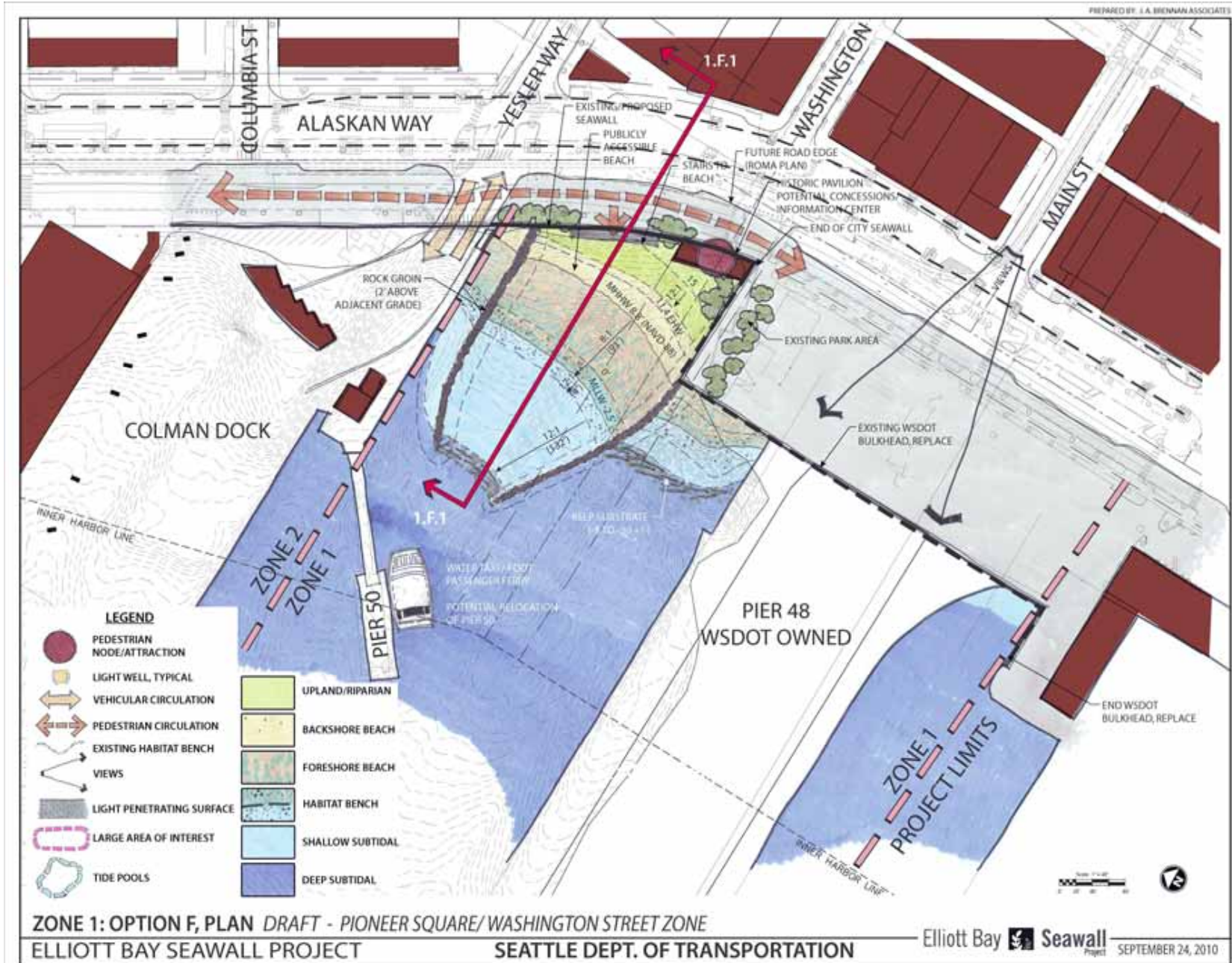
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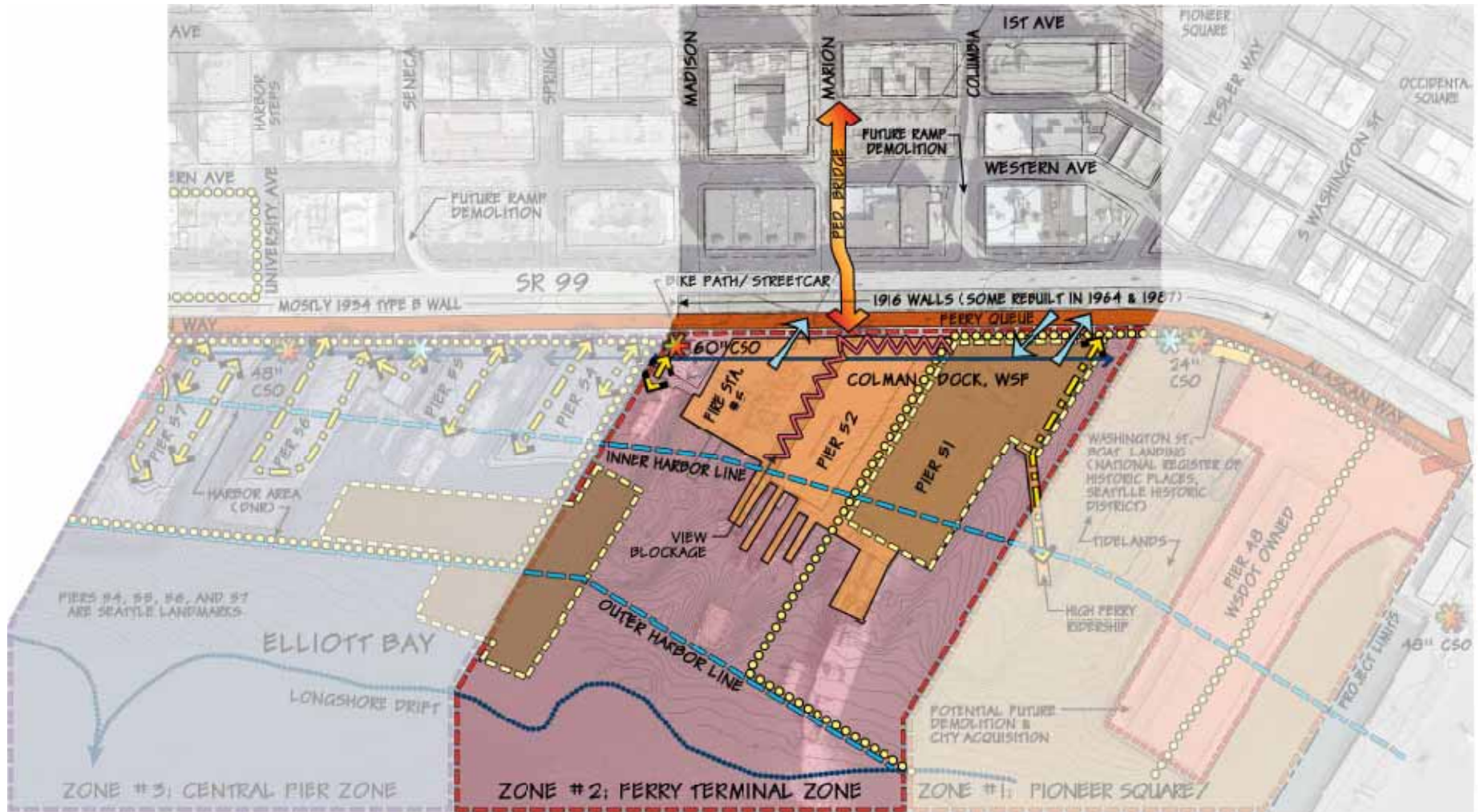
PREPARED BY: J. A. BRENNAN ASSOCIATES



ZONE 1: OPTION E, PLAN - WALL SETBACK, URBAN EDGE, AND BOAT MOORAGE DRAFT - PIONEER SQUARE/ WASHINGTON STREET ZONE



Zone 2: Ferry Terminal Zone



ZONE 2 Ferry Terminal

- Create light corridor for fish migration
- Enhance habitat with modified seawall
- Develop creative connections to WSF terminal
- Support multi-modal transportation hub
- Explore stormwater management through rain gardens



ZONE 2 Ferry Terminal

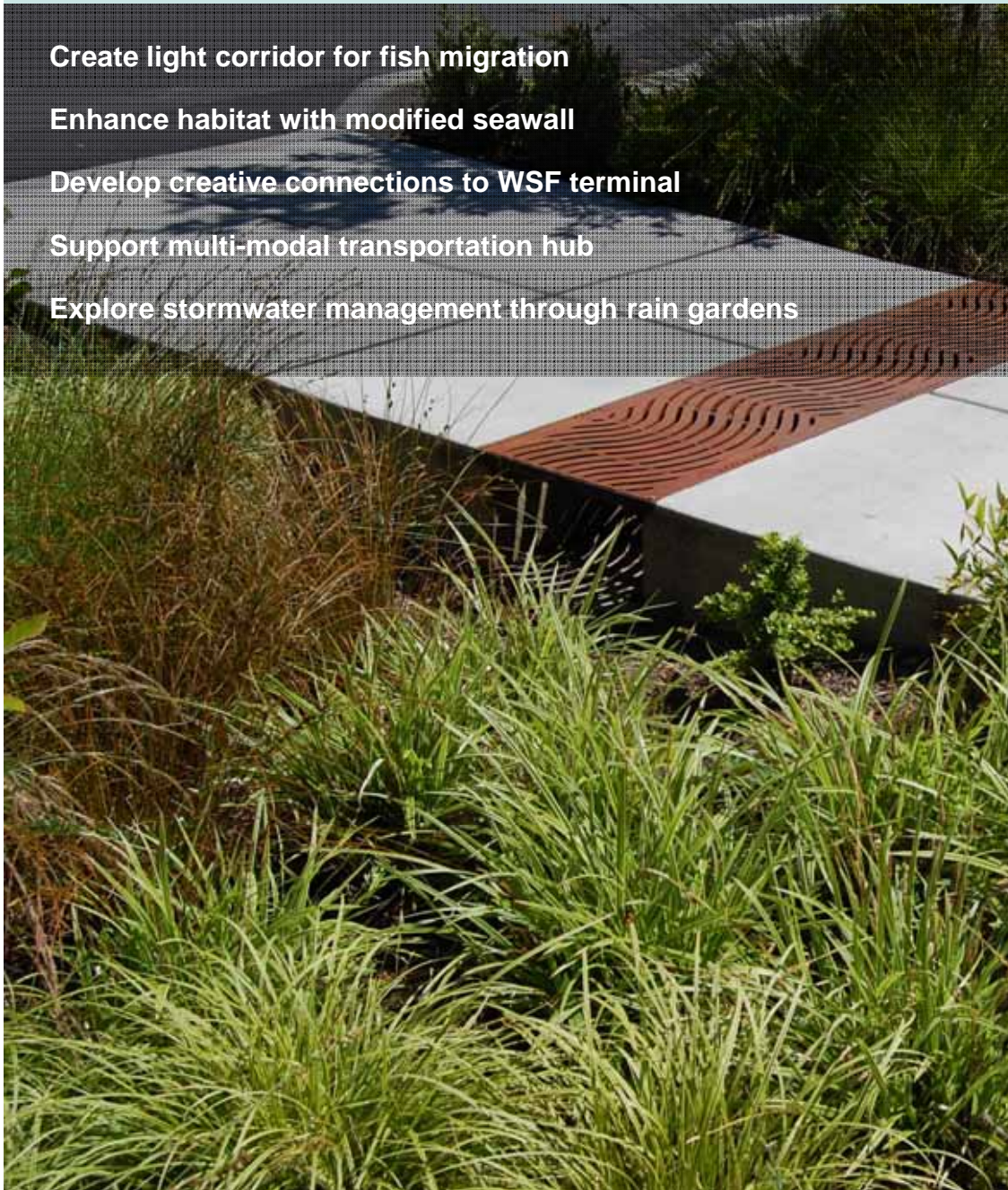
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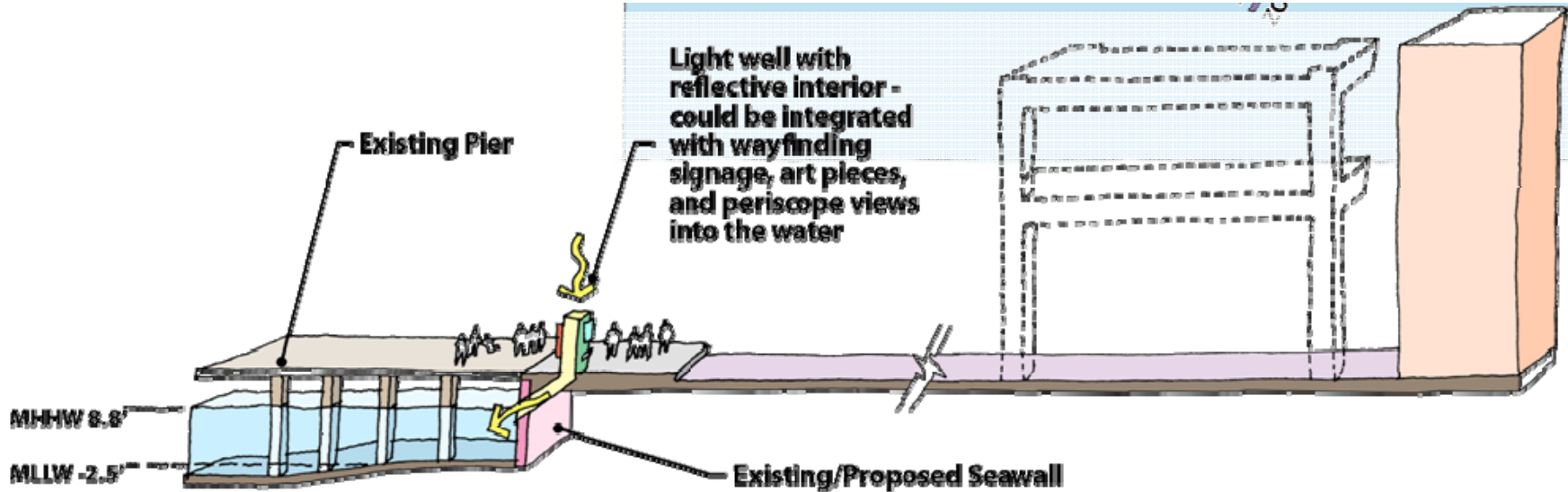
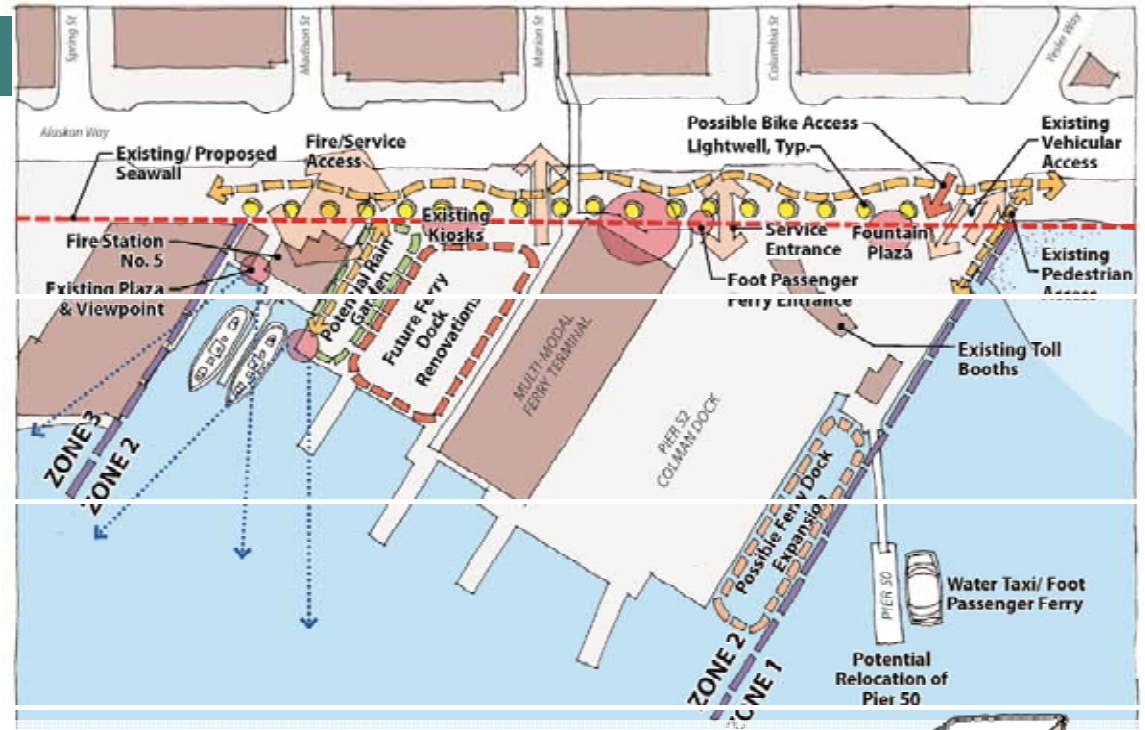
Explore stormwater management through rain gardens



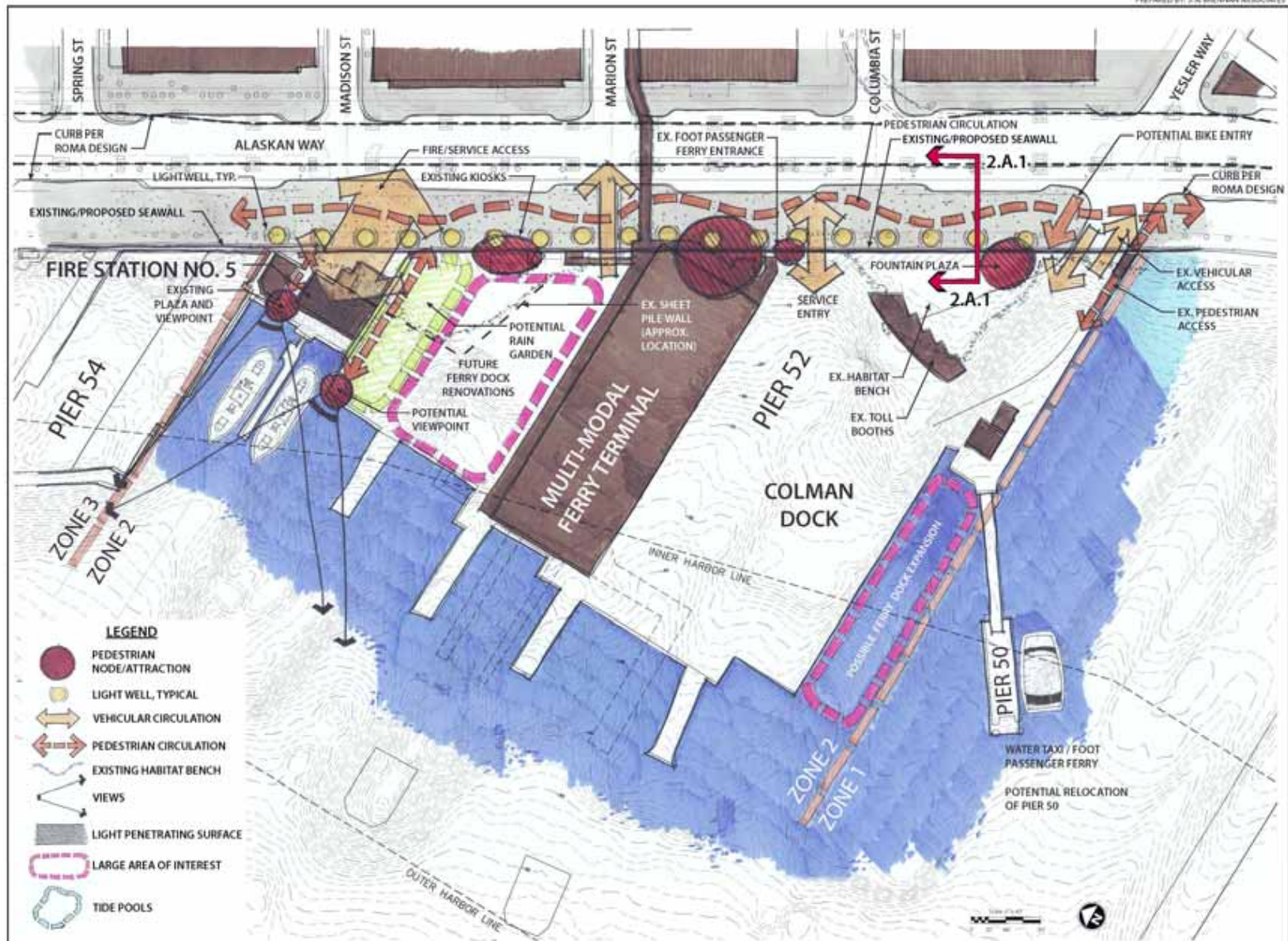
ZONE 2 Area Design Options

2.A Wall in Place, Light Wells

2.B Wall Set Back, Open Water Portals

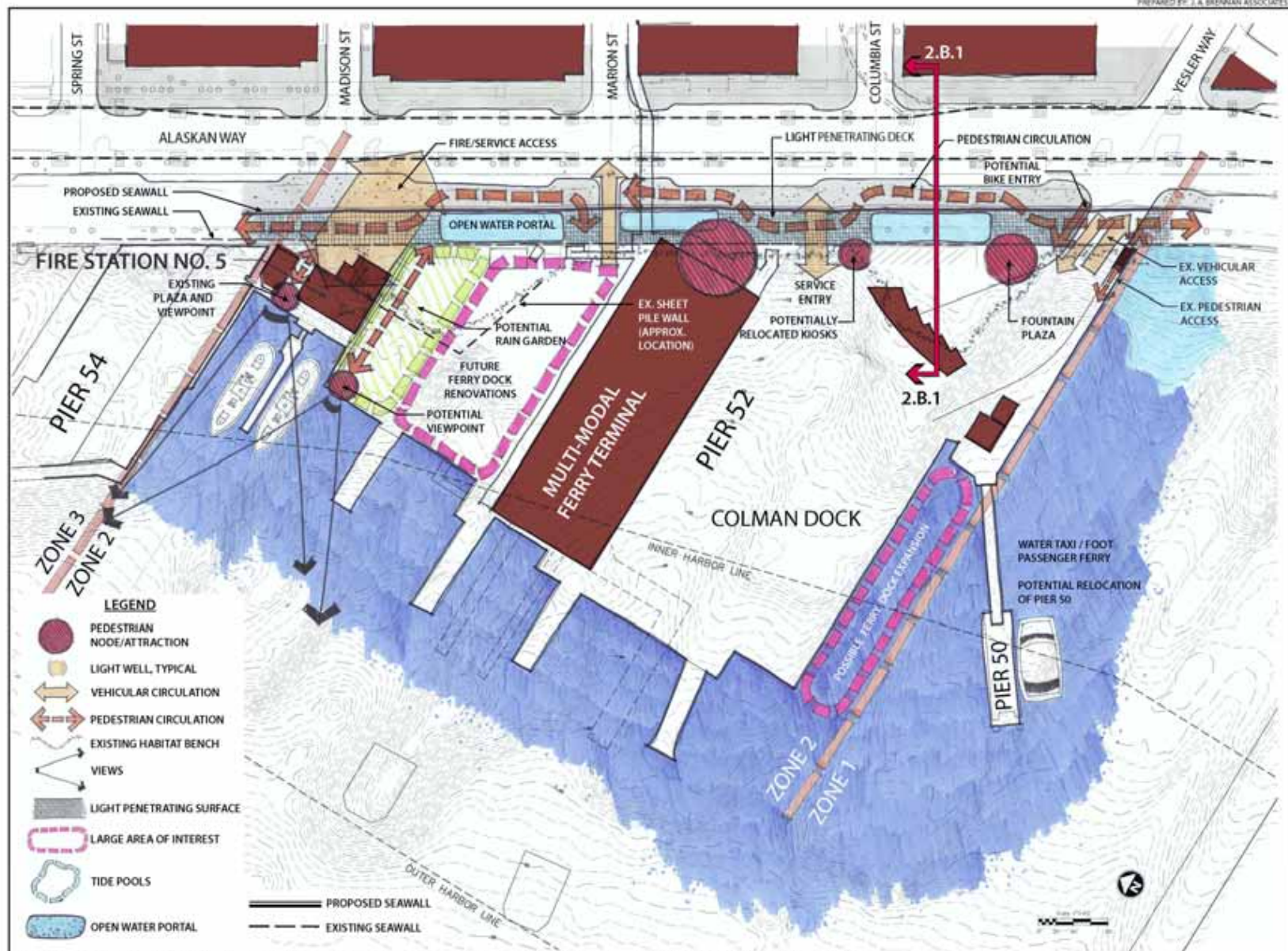


PREPARED BY: J. A. BRENNAN ASSOCIATES



ZONE 2: OPTION A, PLAN - WALL IN PLACE DRAFT- FERRY TERMINAL ZONE
ELLIOTT BAY SEAWALL PROJECT SEATTLE DEPT. OF TRANSPORTATION

PREPARED BY: J. A. BRENNAN ASSOCIATES

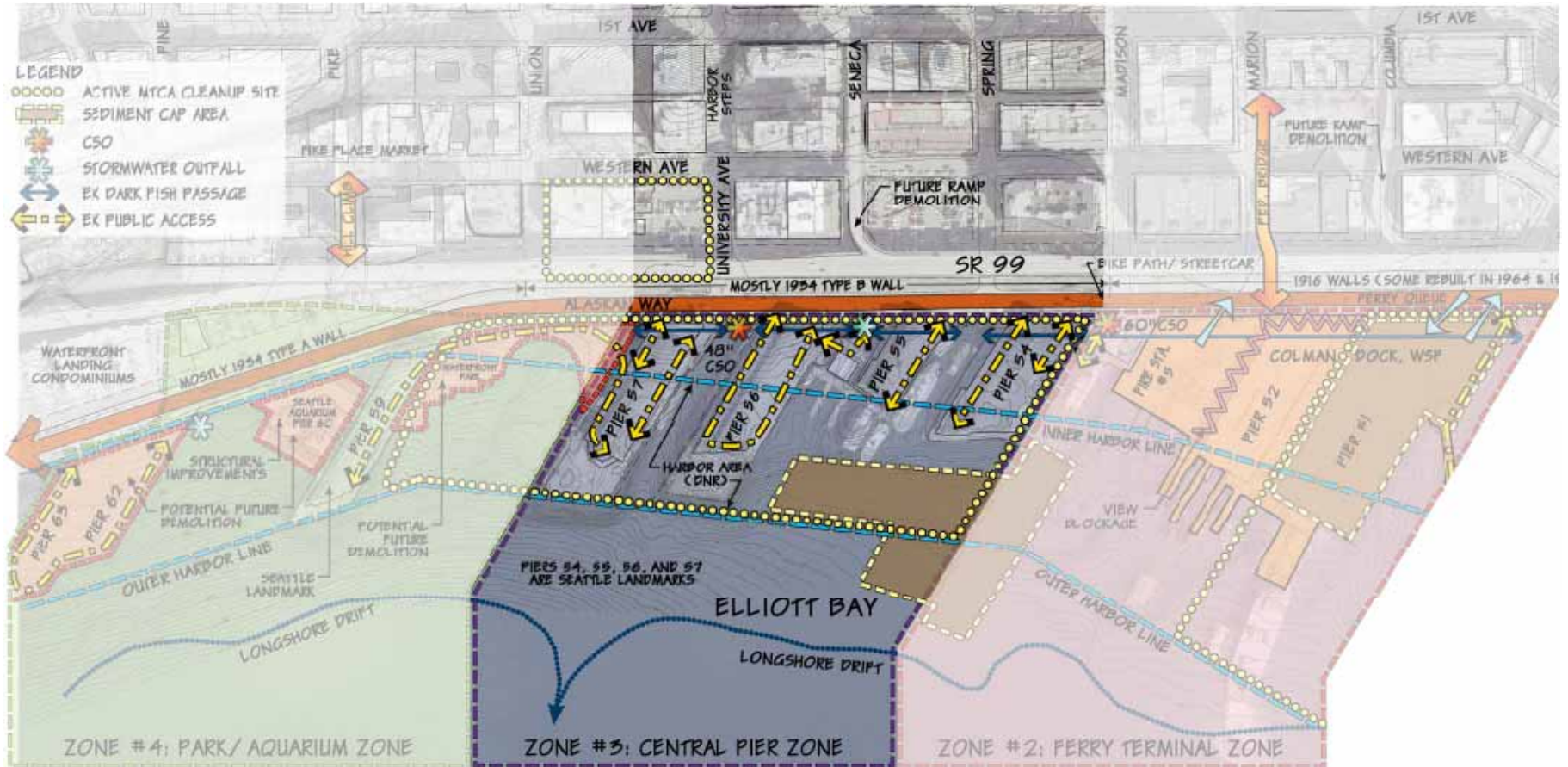


ZONE 2: OPTION B, PLAN - WALL SET BACK DRAFT - FERRY TERMINAL ZONE

ELLIOTT BAY SEAWALL PROJECT

SEATTLE DEPT. OF TRANSPORTATION

Zone 3: Central Pier Zone



ZONE 3 Central Pier

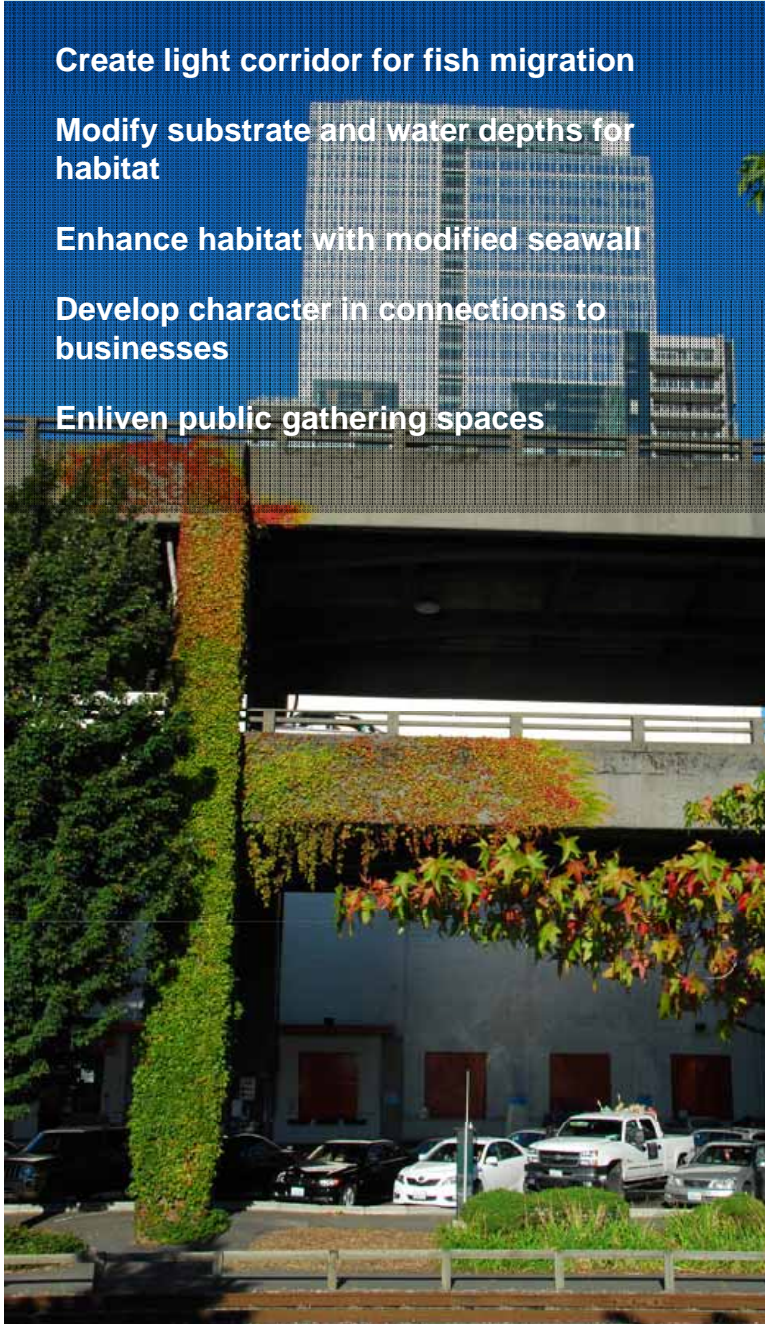
Create light corridor for fish migration

Modify substrate and water depths for habitat

Enhance habitat with modified seawall

Develop character in connections to businesses

Enliven public gathering spaces



ZONE 3 Central Pier

Create light corridor for fish migration

Modify substrate and water depths for habitat

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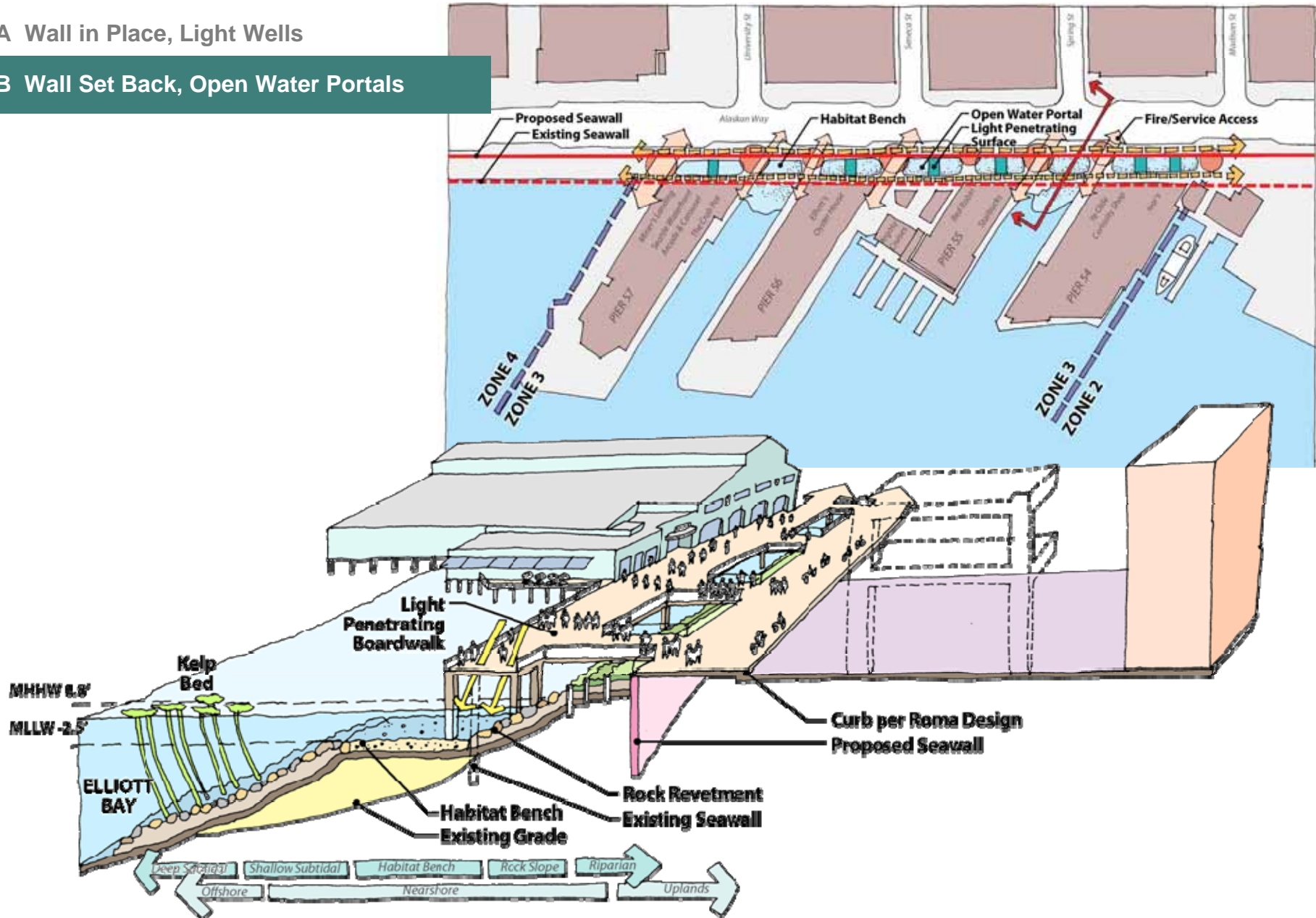
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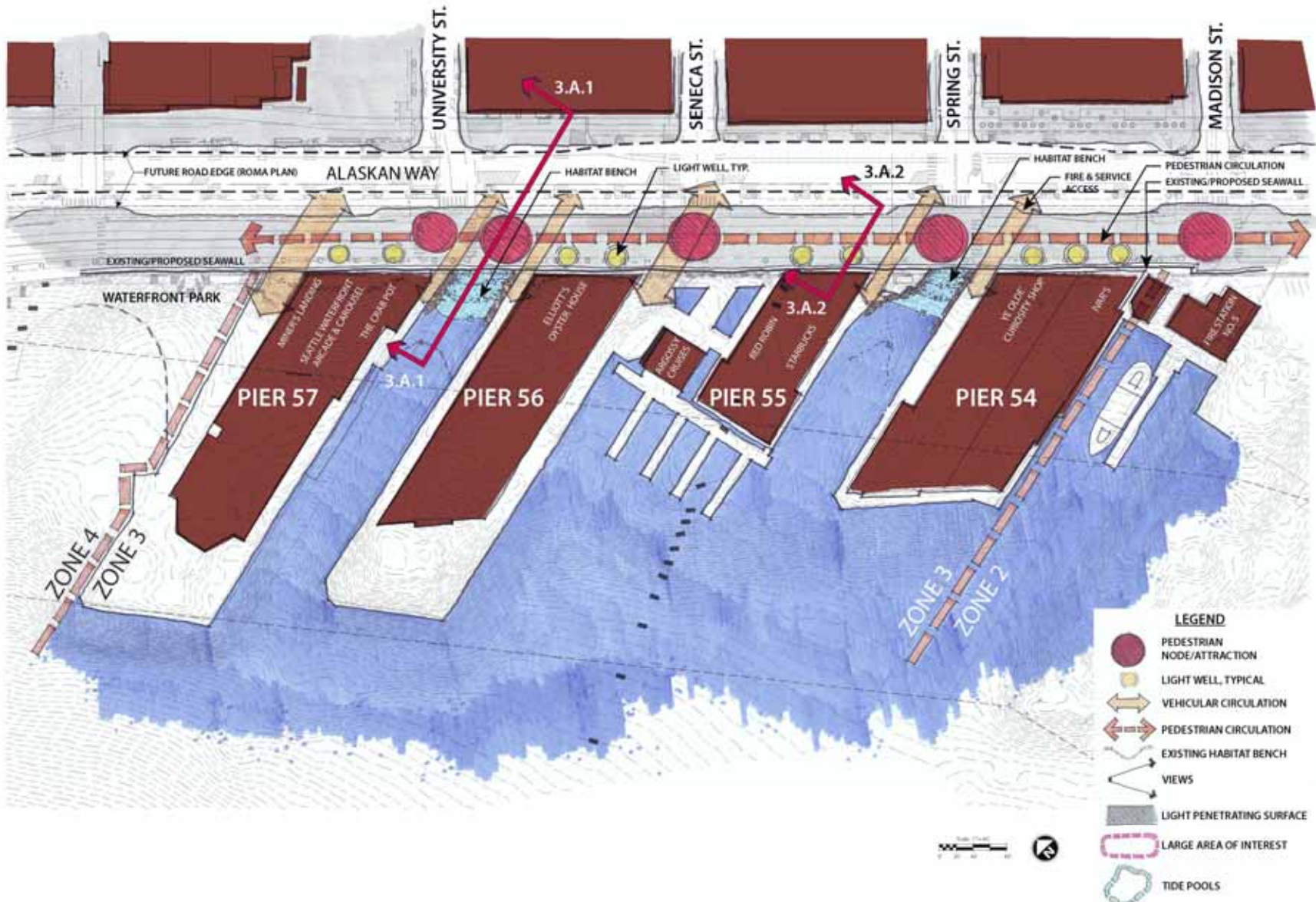


ZONE 3 Area Design Options

3.A Wall in Place, Light Wells

3.B Wall Set Back, Open Water Portals

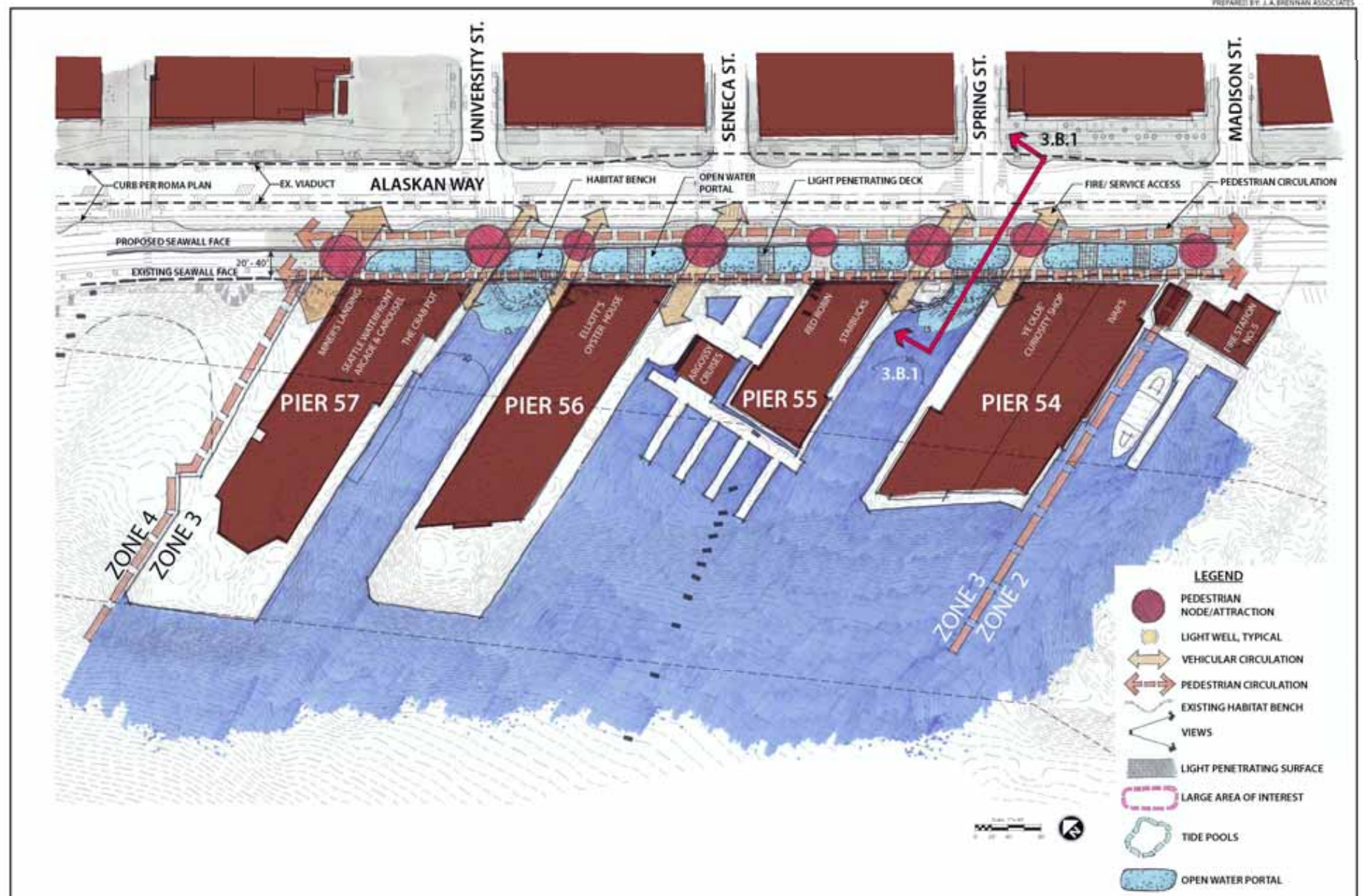




ZONE 3: OPTION A, PLAN - WALL IN PLACE
ELLIOTT BAY SEAWALL PROJECT

DRAFT - CENTRAL PIER ZONE
SEATTLE DEPT. OF TRANSPORTATION

PREPARED BY: J. A. BRENNAN ASSOCIATES



ZONE 3: OPTION B, PLAN - WALL SET BACK DRAFT - CENTRAL PIER ZONE

ELLIOTT BAY SEAWALL PROJECT

SEATTLE DEPT. OF TRANSPORTATION

Zone 4: Park / Aquarium Zone



ZONE 4 Park / Aquarium

Provide large public gathering spaces

Bring people to the water

Provide recreational opportunities

Create a new overwater civic space

Connect to Pike Place Market

Expand shallow water habitat

Develop educational and interpretive opportunities

Mix hard and soft edges



ZONE 4 Park / Aquarium

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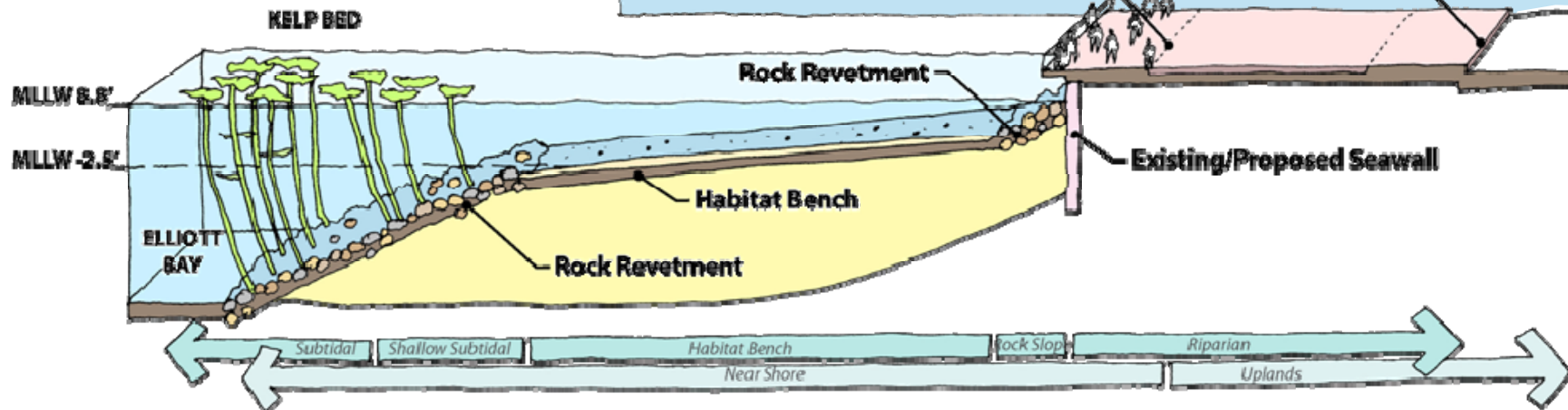
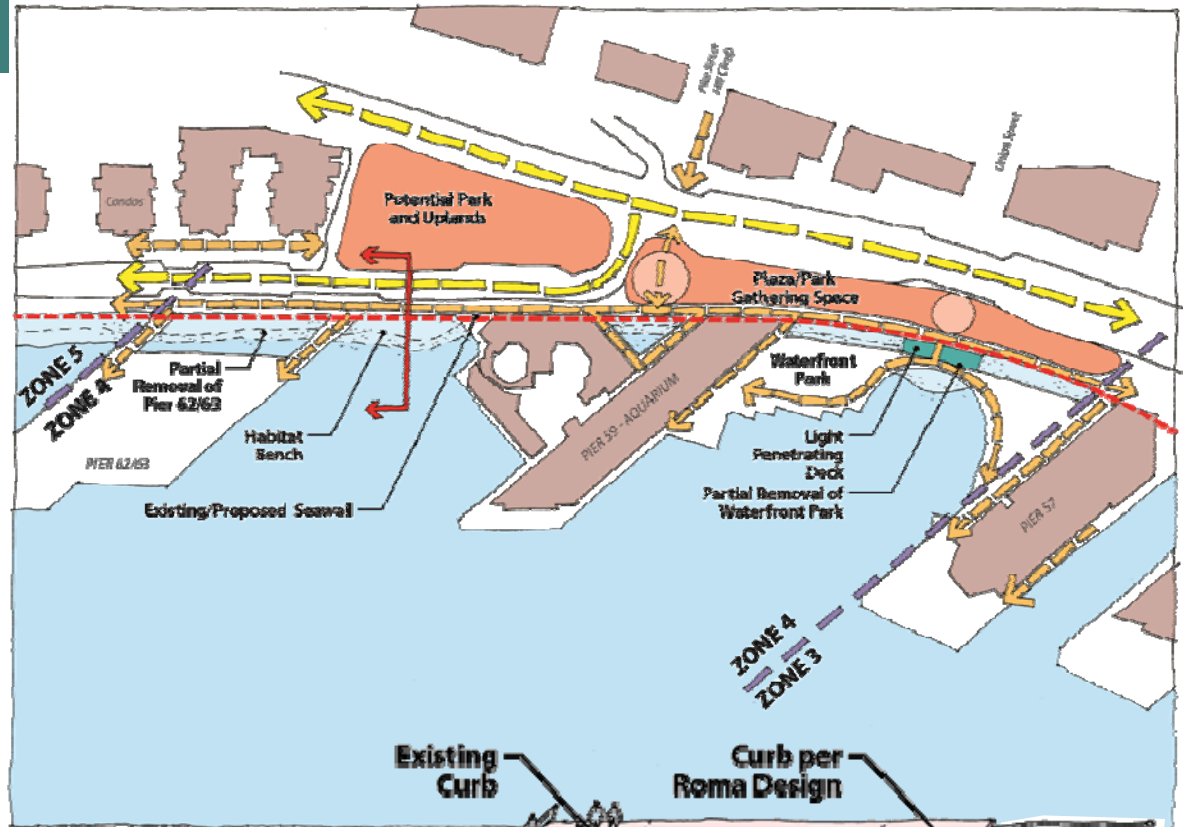
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ZONE 4 Area Design Options

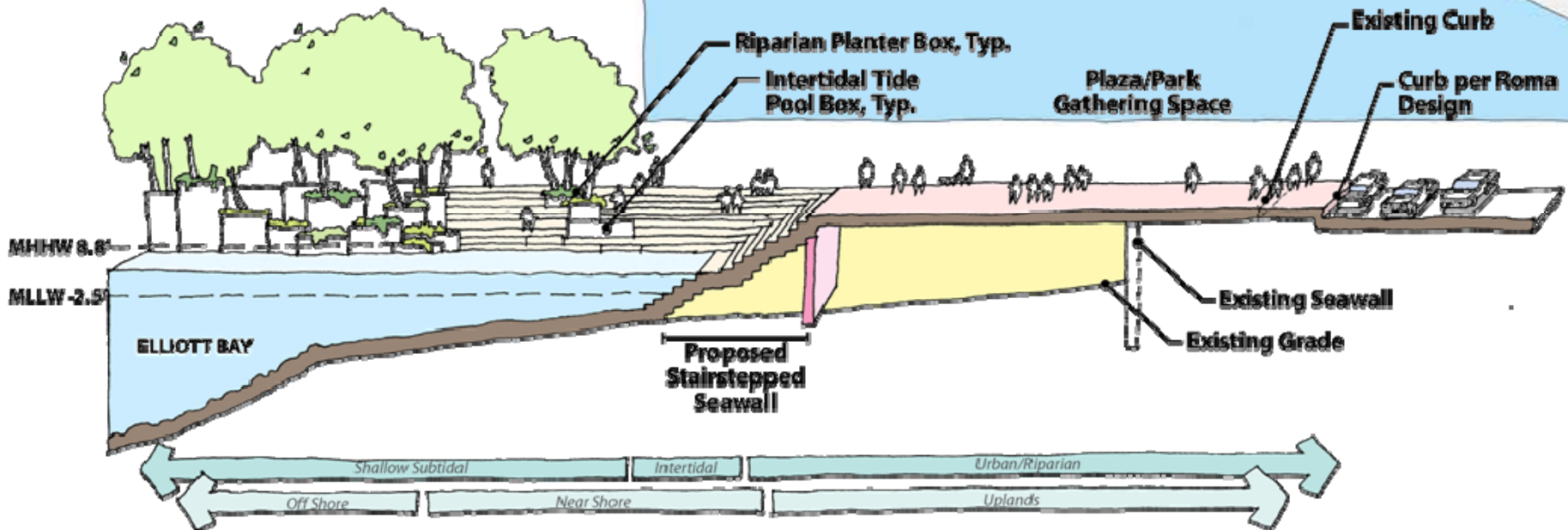
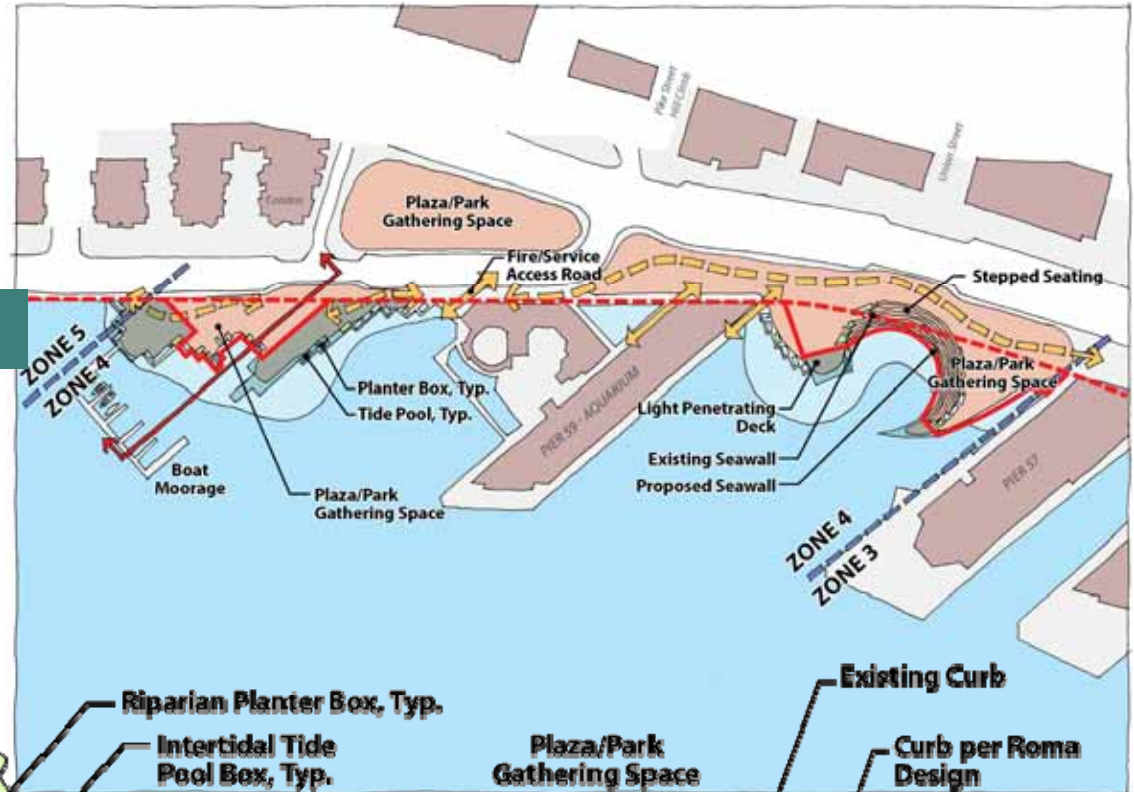
4.A Wall in Place, Habitat Bench

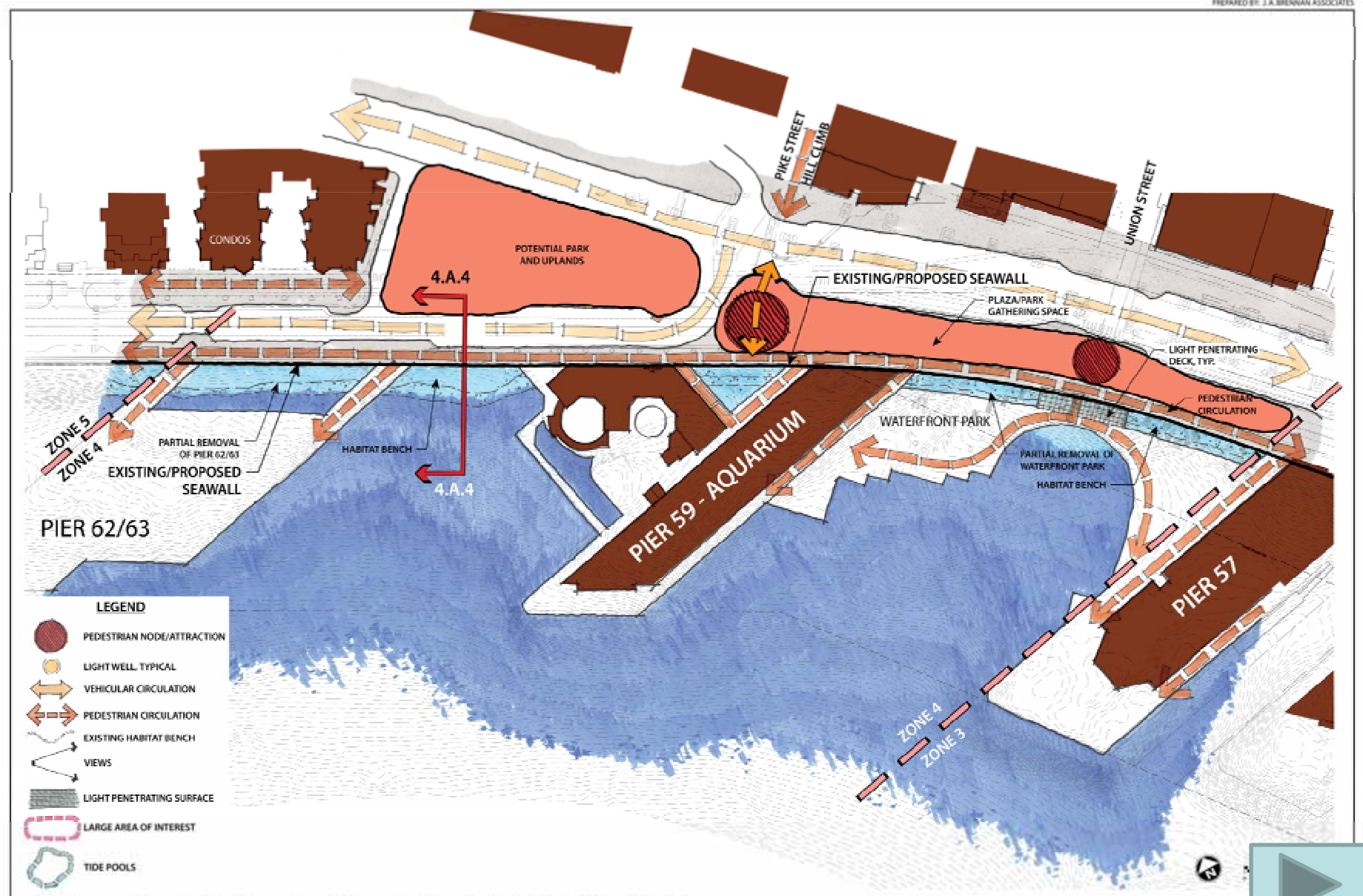
- 4.B Wall Set Back, Fine Substrate Pocket Beaches & Floating Park
- 4.C Wall Set Back, Cobble Pocket Beaches & Floating Park
- 4.D Wall Push Out, Hardscape/Stairs
- 4.E Wall Set Back, Urban Edge
- 4.F Wall Set Back, Stairstepped Wall



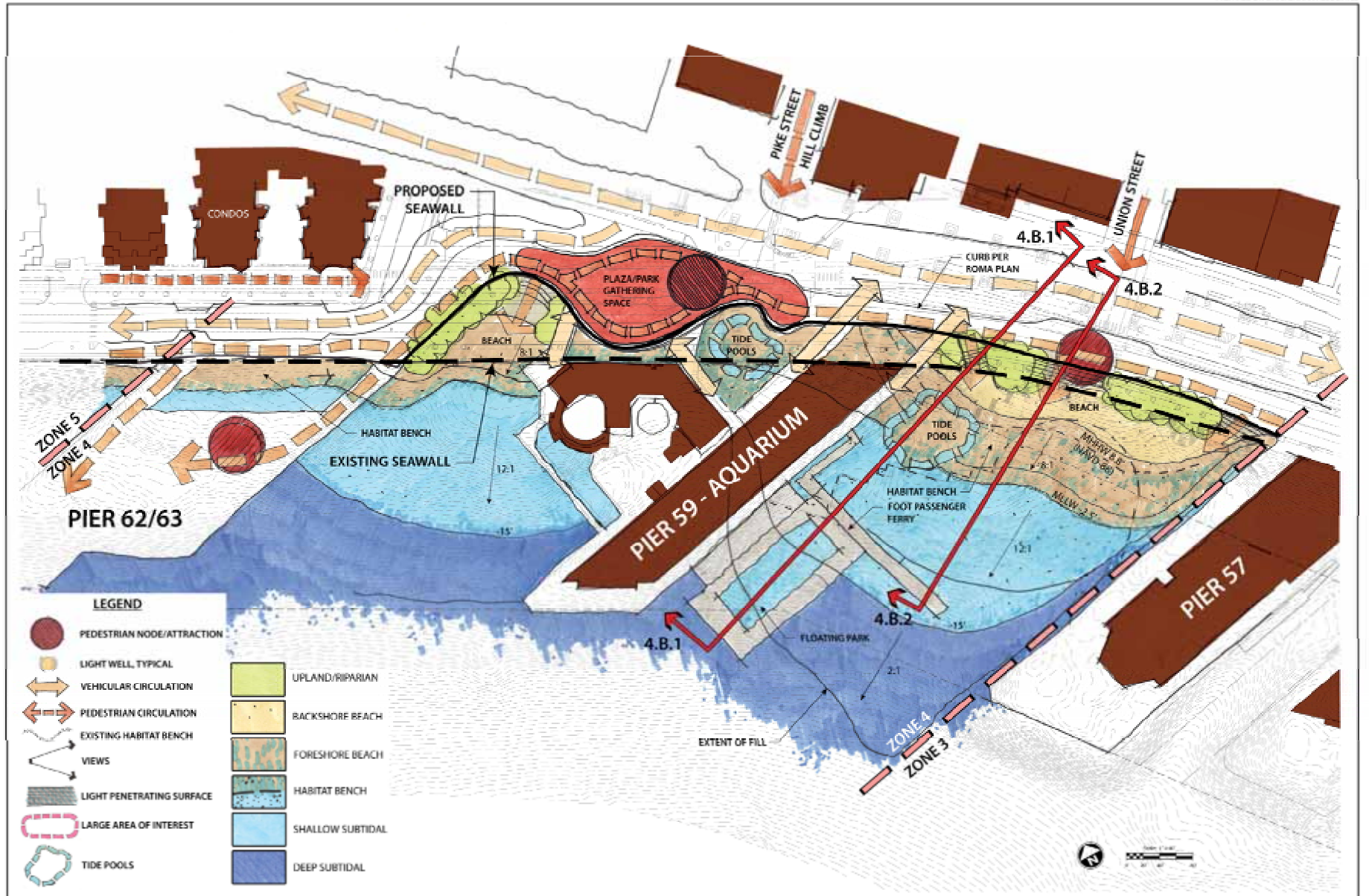
ZONE 4 Area Design Options

- 4.A Wall in Place, Habitat Bench
- 4.B Wall Set Back, Fine Substrate Pocket Beaches & Floating Park
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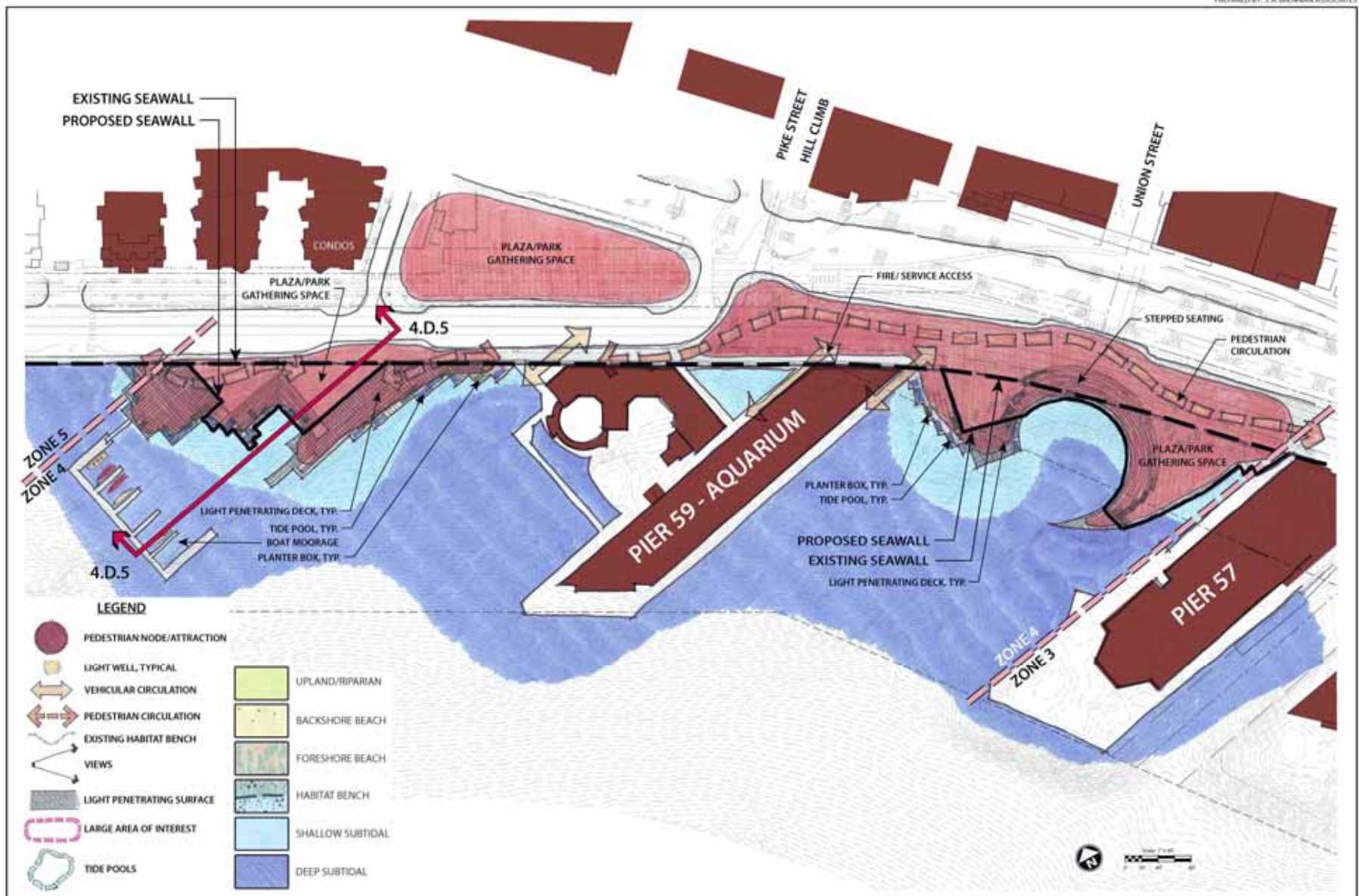




ZONE 4: OPTION A, PLAN - WALL IN PLACE & HABITAT BENCH DRAFT - PARK/AQUARIUM ZONE
ELLIOTT BAY SEAWALL PROJECT SEATTLE DEPT. OF TRANSPORTATION

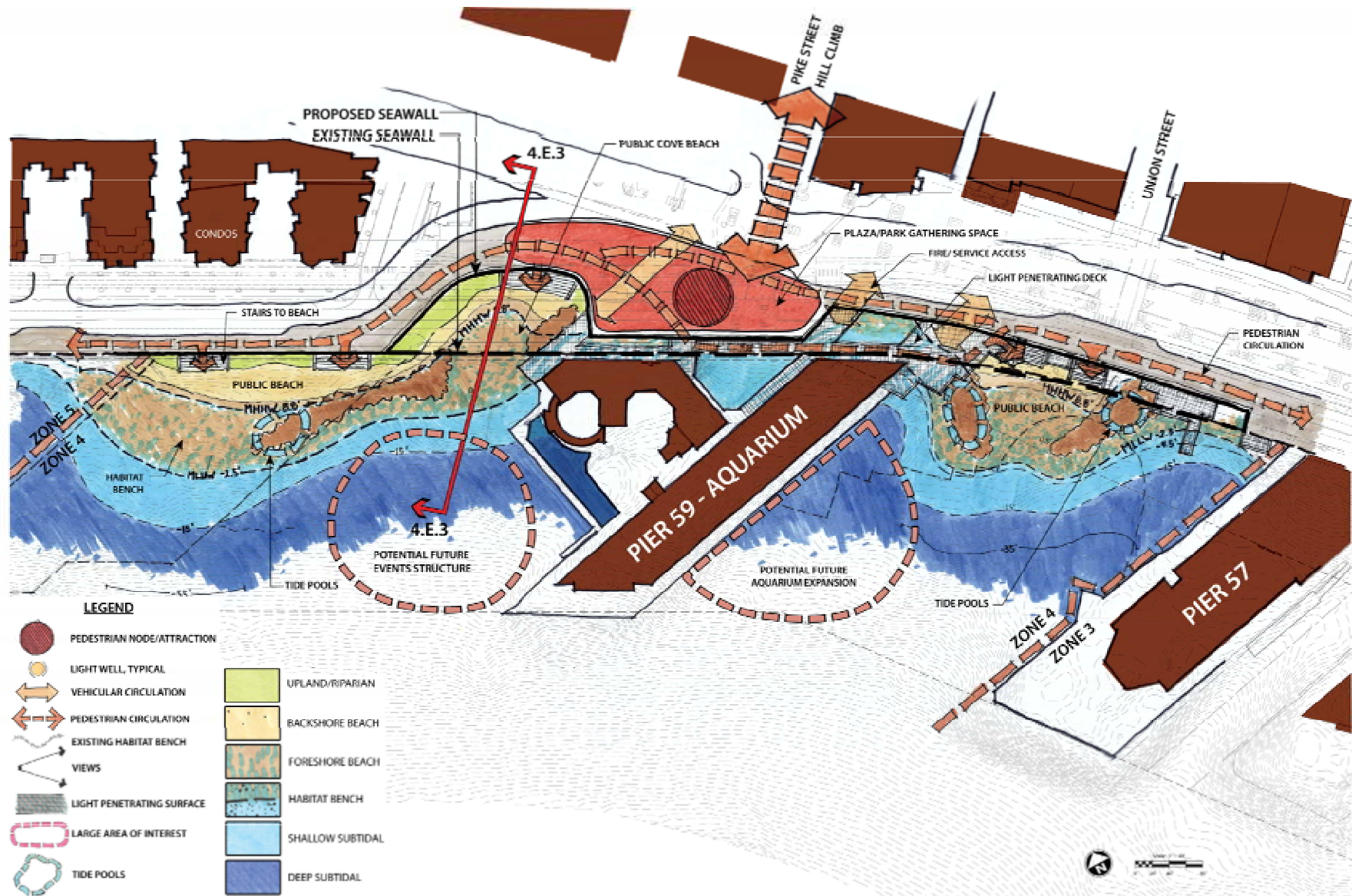


ZONE 4: OPTION B, PLAN - WALL SET BACK, FINE SUBSTRATE BEACHES DRAFT - PARK/AQUARIUM ZONE
 ELLIOTT BAY SEAWALL PROJECT



ZONE 4: OPTION D, PLAN - WALL PUSH OUT AND SEATING STEPS DRAFT - PARK/AQUARIUM ZONE
ELLIOTT BAY SEAWALL PROJECT SEATTLE DEPT. OF TRANSPORTATION

PREPARED BY: J.A. BRENNAN ASSOCIATES

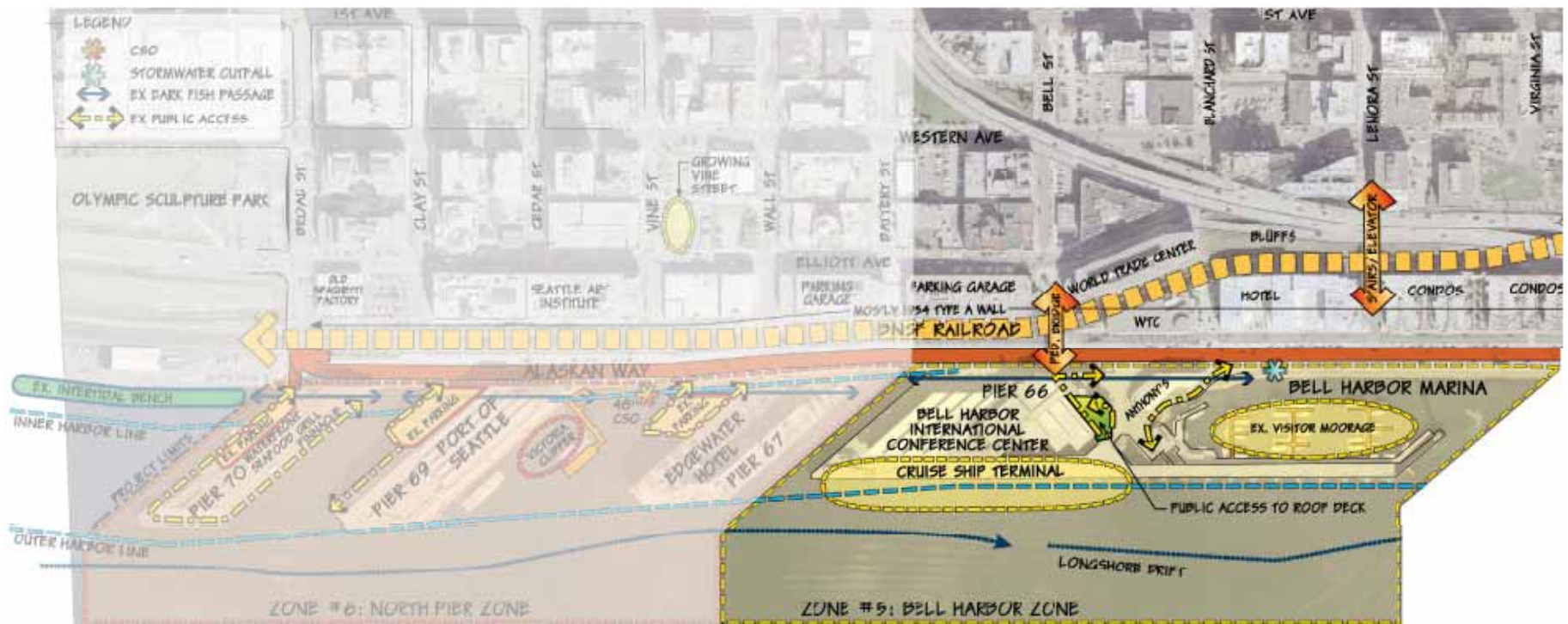


ZONE 4: OPTION E, PLAN - WALL SET BACK, URBAN EDGE DRAFT - PARK/AQUARIUM ZONE

ELLIOTT BAY SEAWALL PROJECT

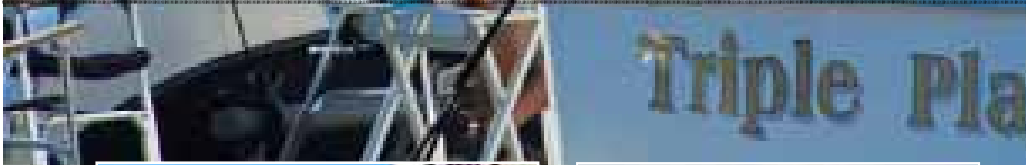
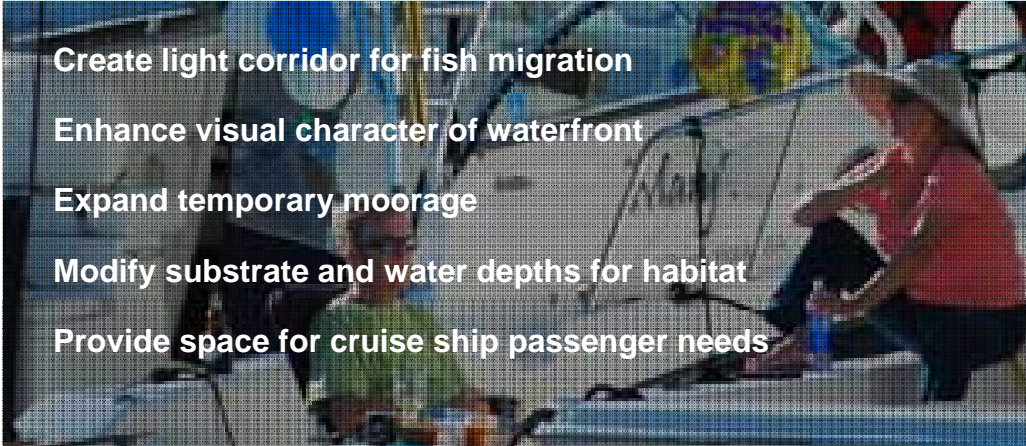
SEATTLE DEPT. OF TRANSPORTATION

Zone 5: Bell Harbor Zone



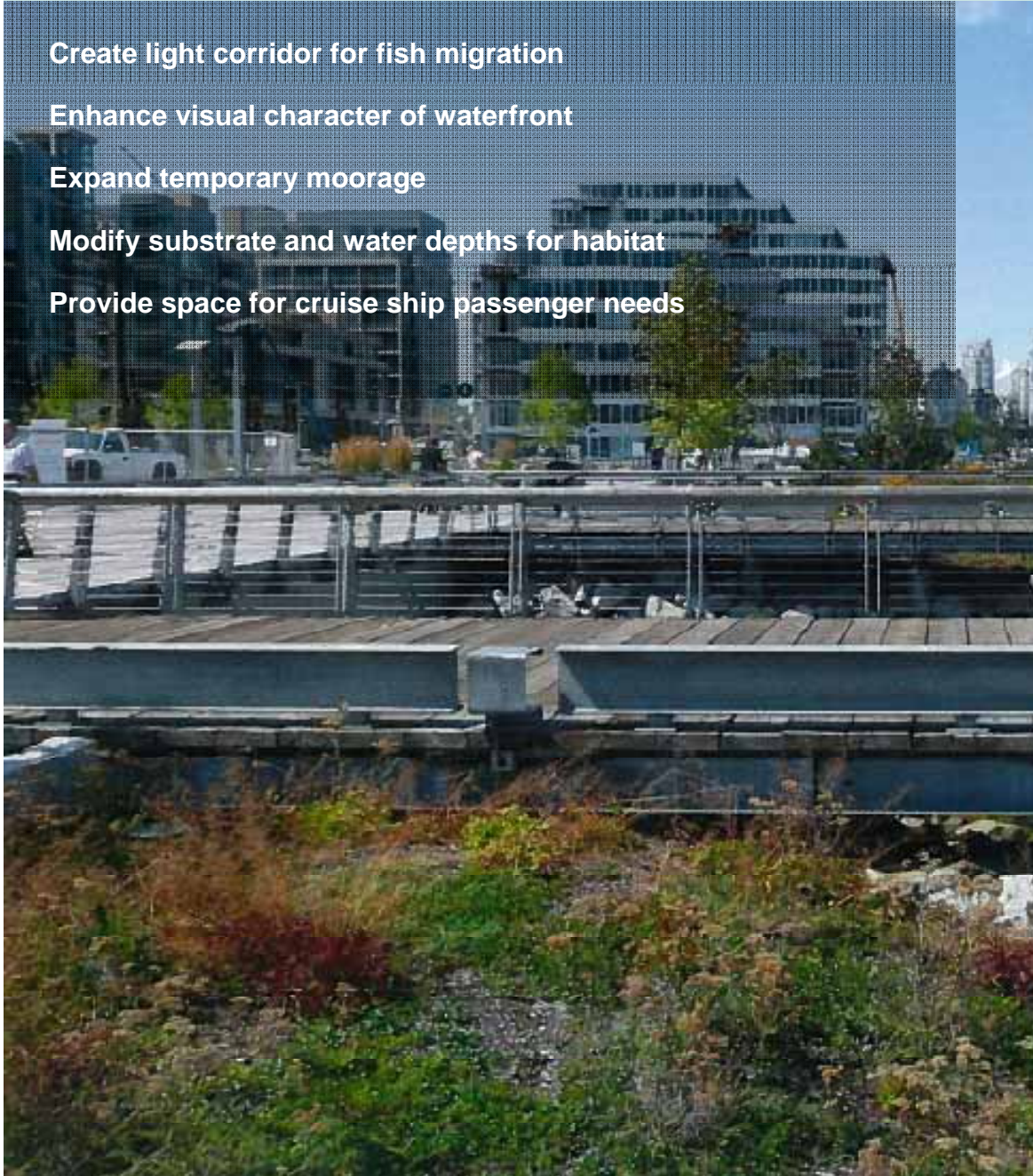
ZONE 5 Bell Harbor

- Create light corridor for fish migration
- Enhance visual character of waterfront
- Expand temporary moorage
- Modify substrate and water depths for habitat
- Provide space for cruise ship passenger needs



ZONE 5 Bell Harbor

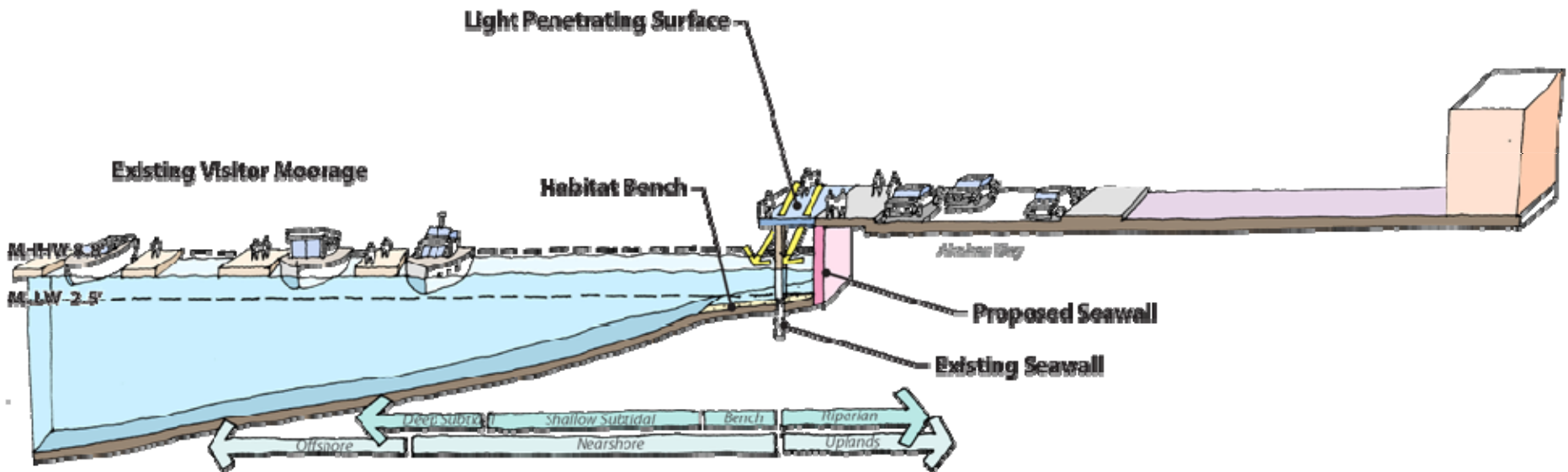
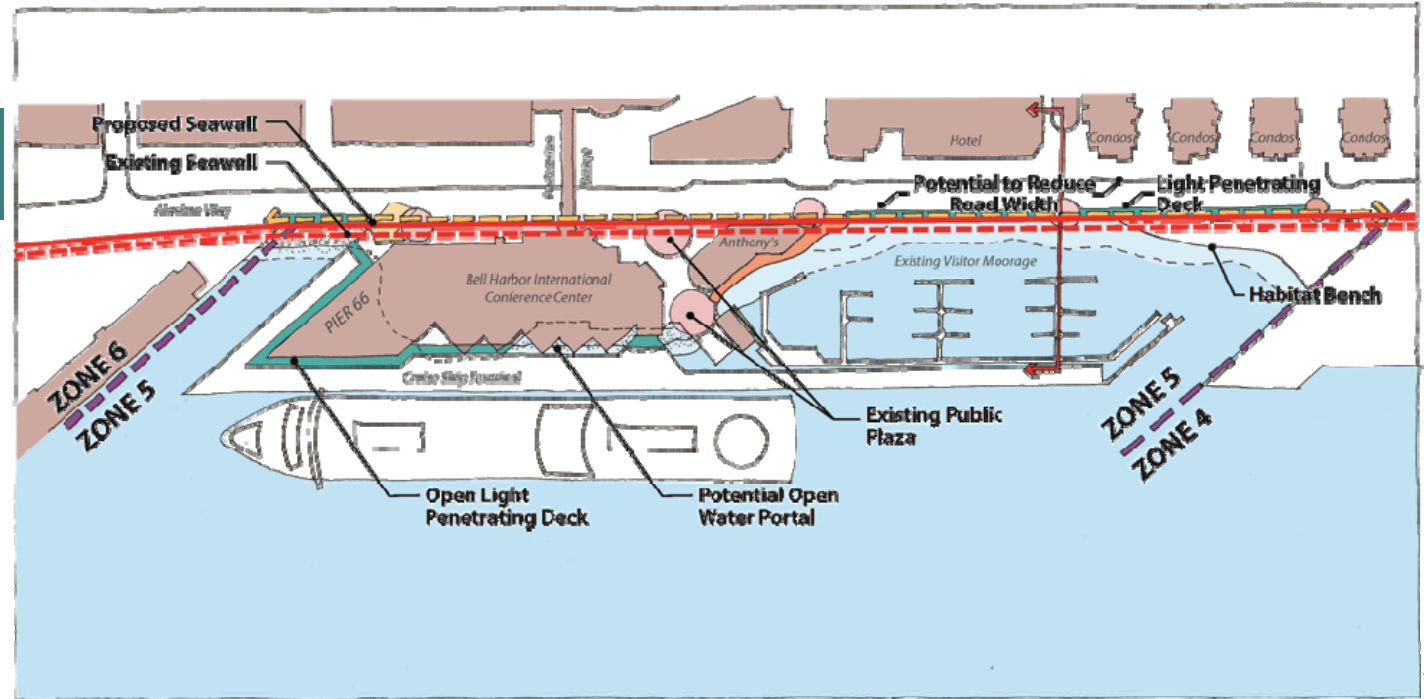
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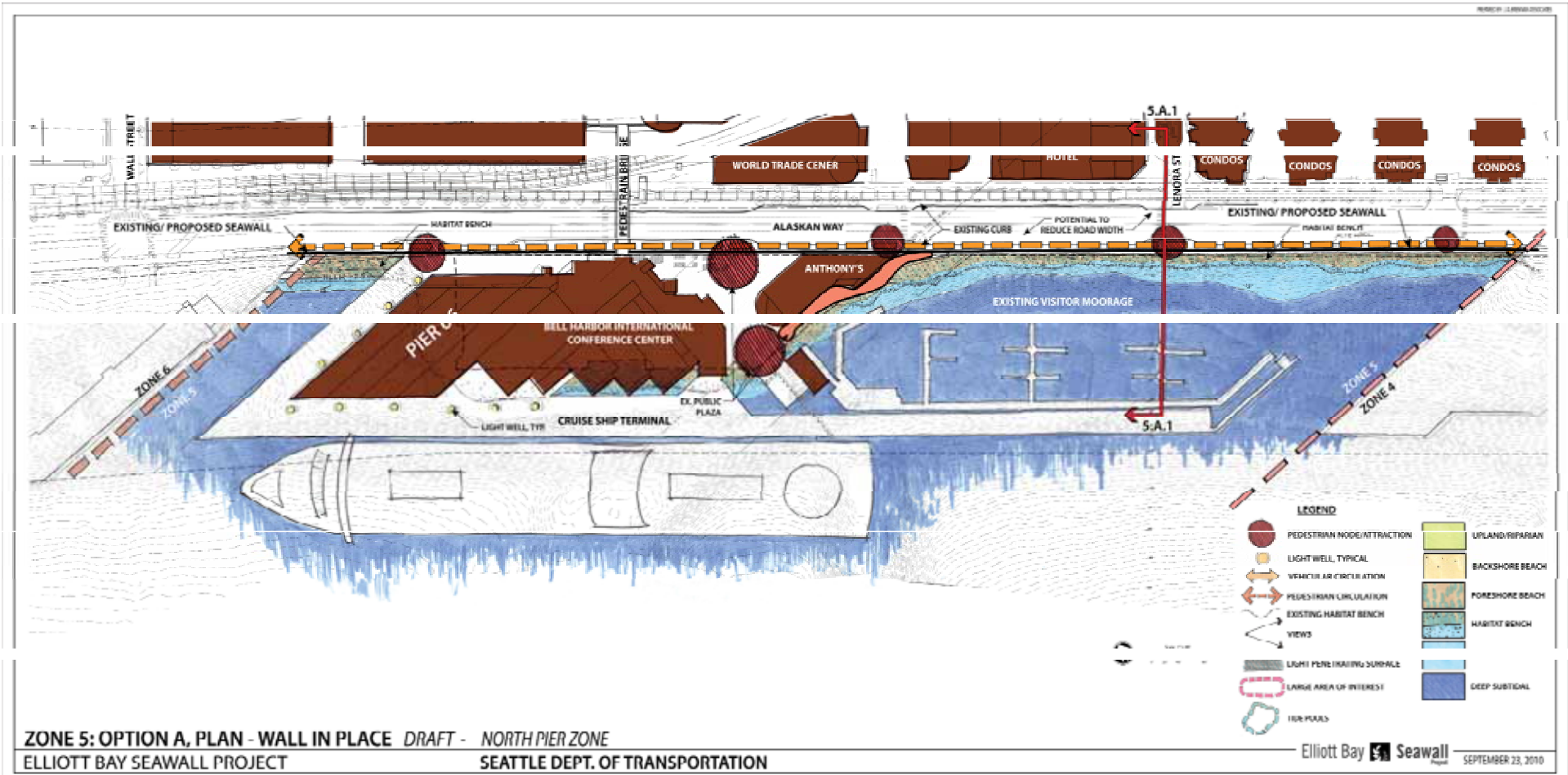


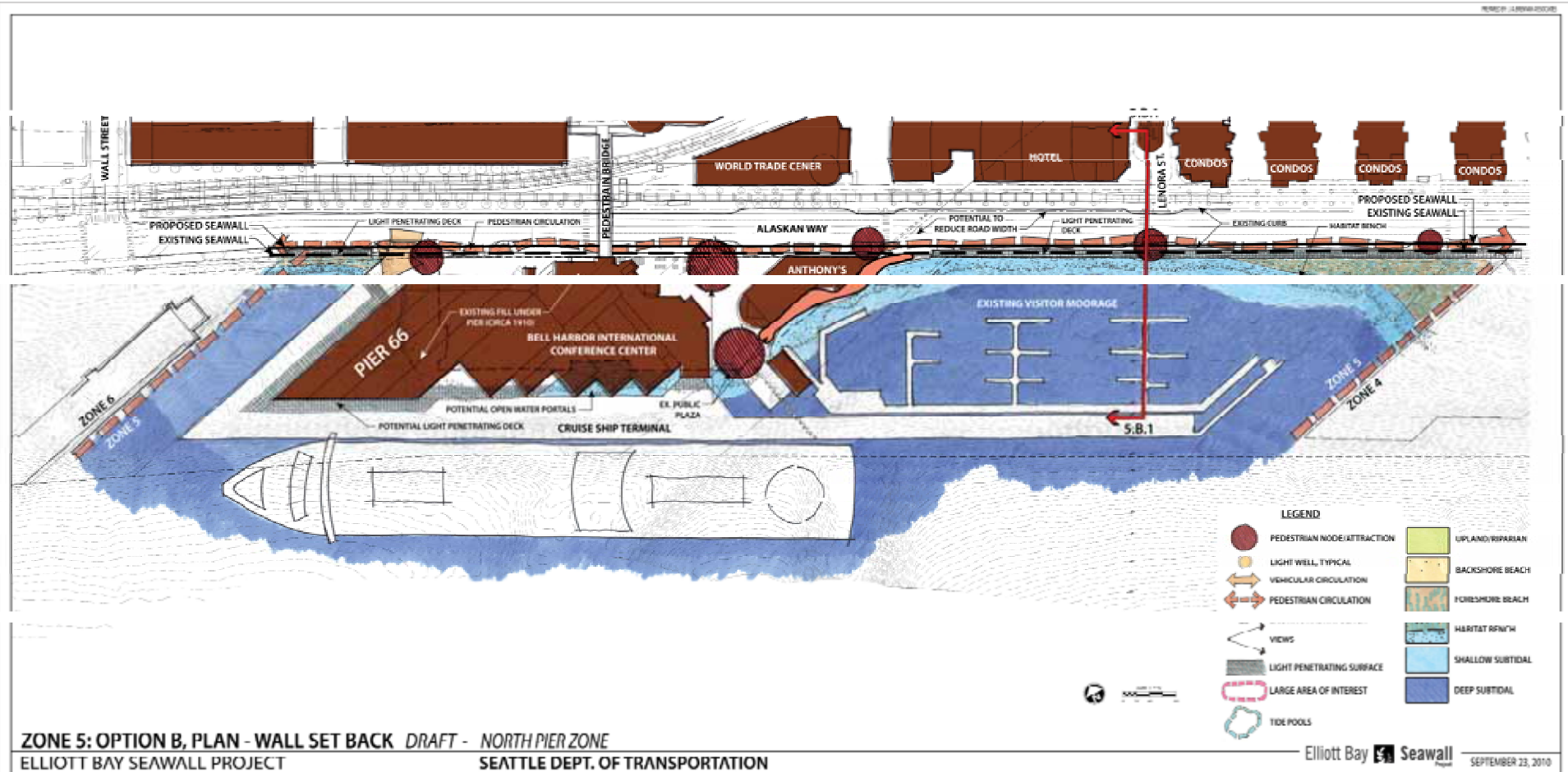
ZONE 5 Area Design Options

5.A Wall in Place, Habitat Bench Improvements

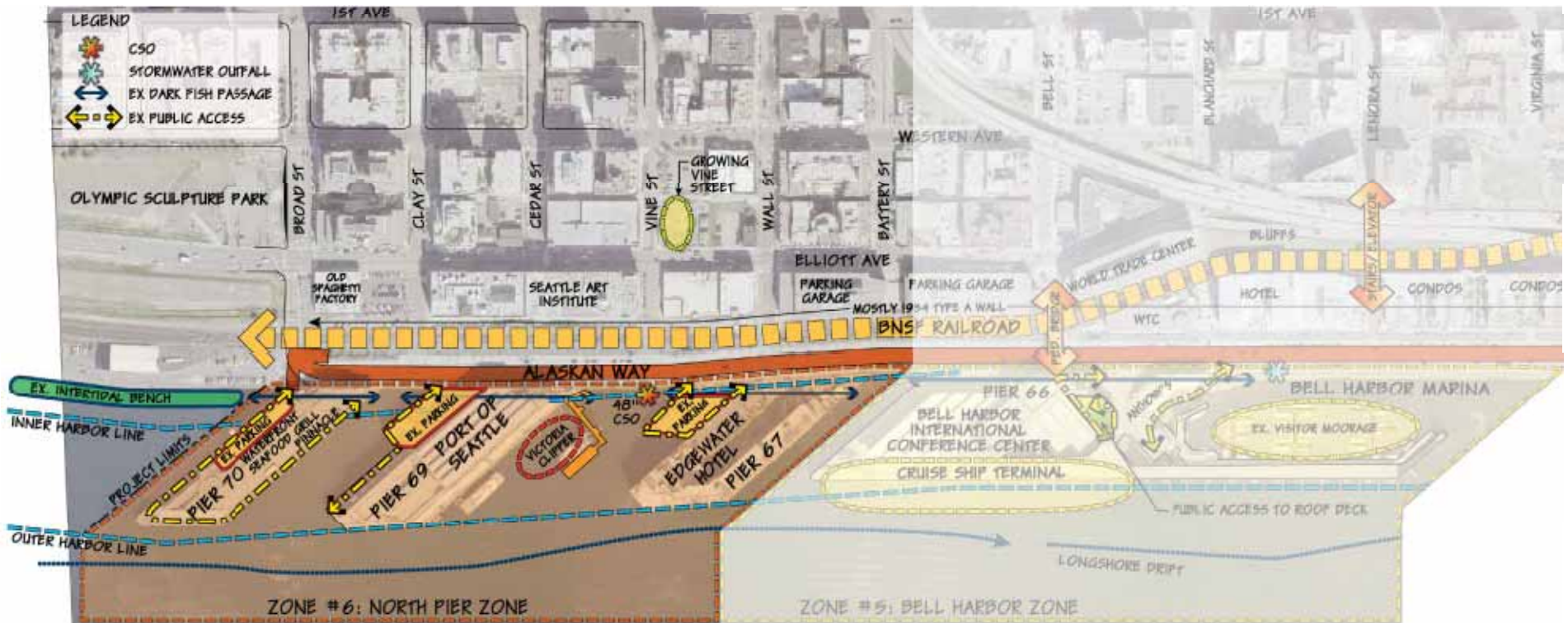
5.B Wall Set Back, Habitat Bench Improvements







Zone 6: North Pier Zone



ZONE 6 North Pier

- Create light corridor for fish migration
- Enhance visual character of waterfront
- Enliven public gathering spaces
- Expand shallow water habitat
- Connect to Olympic Sculpture Park habitat improvements



ZONE 6 North Pier

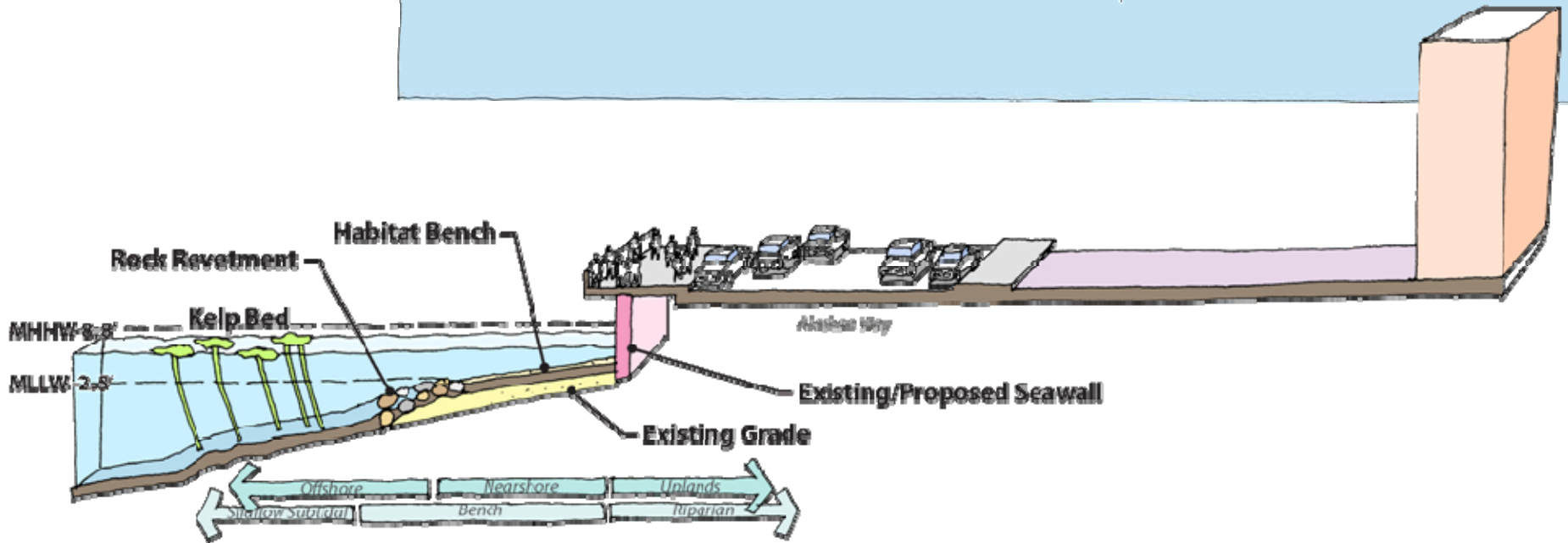
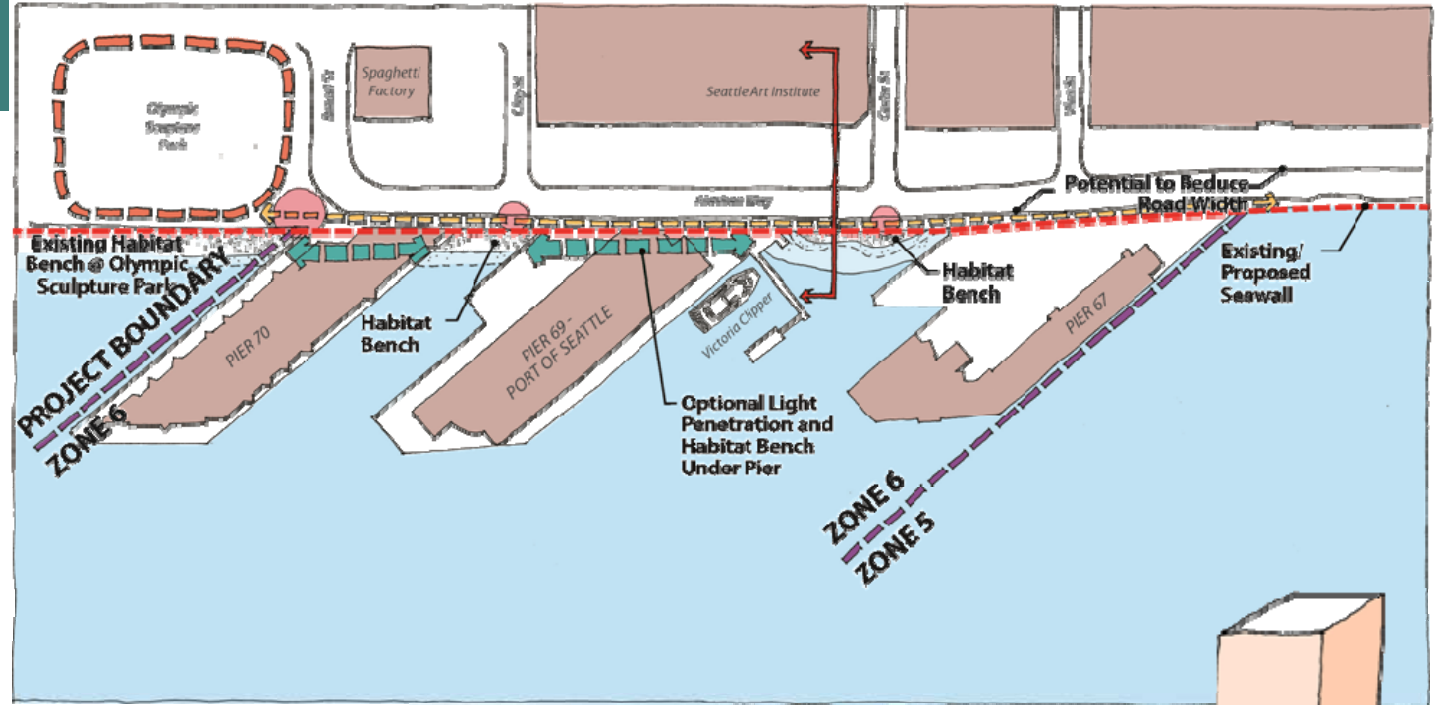
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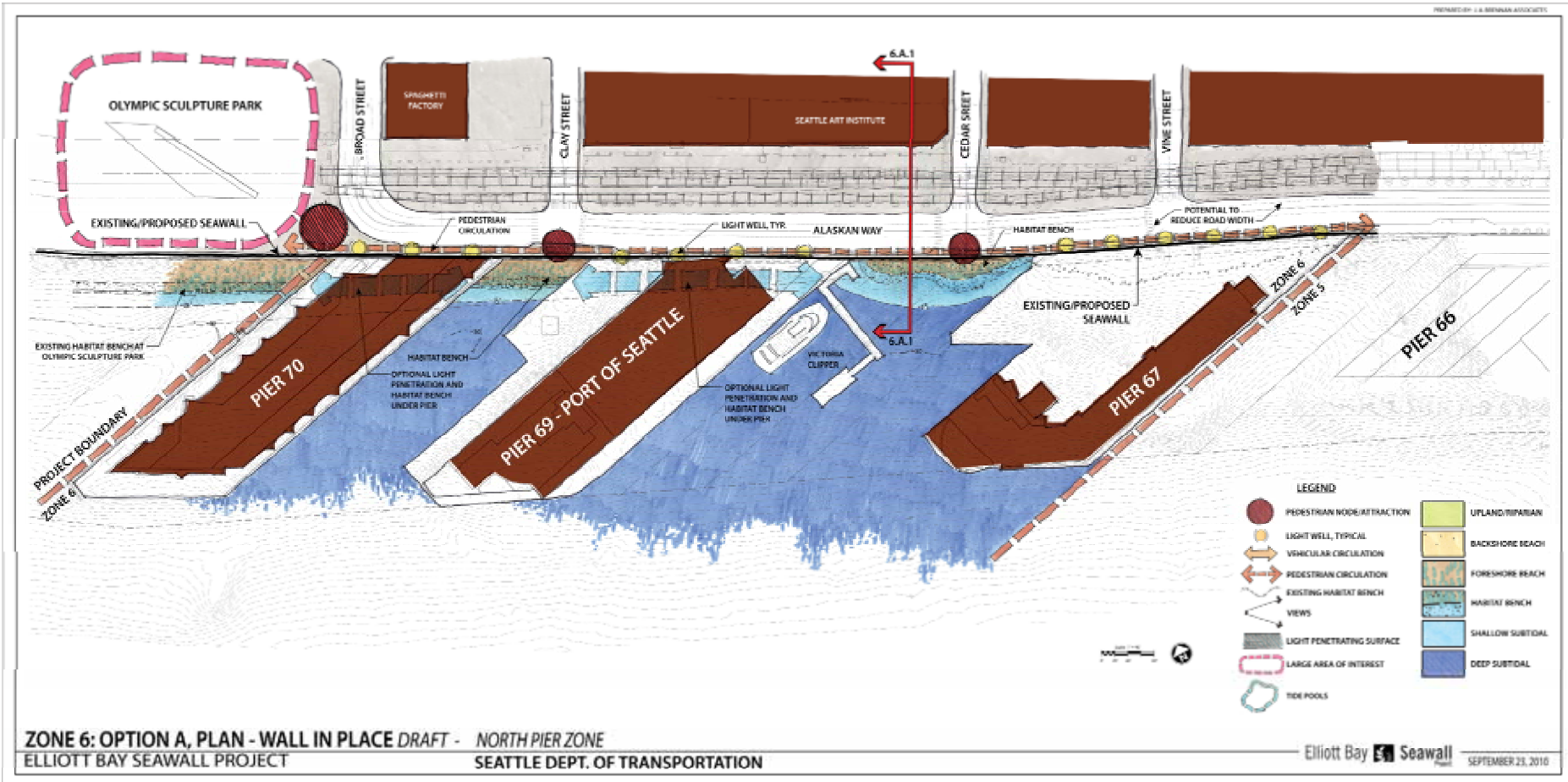


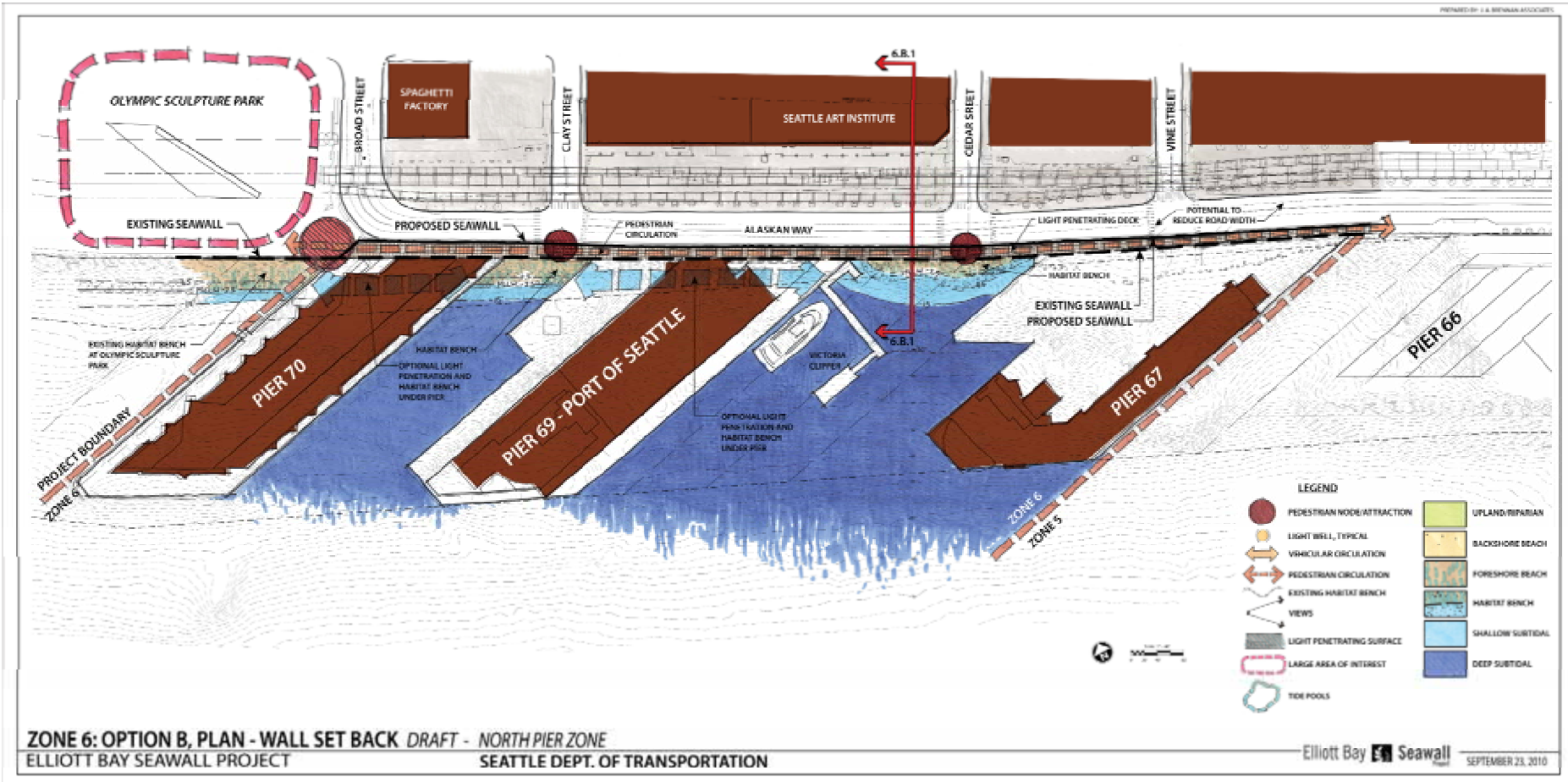
ZONE 6 Area Design Options

6.A Wall in Place, Habitat Bench Improvements

6.B Wall Set Back, Habitat Bench Improvements







PREPARED BY: J. A. BEYER & ASSOCIATES

Developing Alternatives

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Public Involvement Activities

- Subgroup formation and ongoing meetings
- Sustainability workshop
- Public meetings and tours
- Briefings and fair-type events
- Project materials
- Business operations survey
- Maintaining and encouraging opportunities for public comment



Contact Information

- **Email:** seawall@seattle.gov
- **Website:**
<http://www.seattle.gov/transportation/seawall.htm>
- **Phone:** Stephanie Brown, SDOT: 206-386-4635