

Elliott Bay Seawall Project

*Design Commission Briefing
December 2, 2010*

Project Area



Project Goals

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

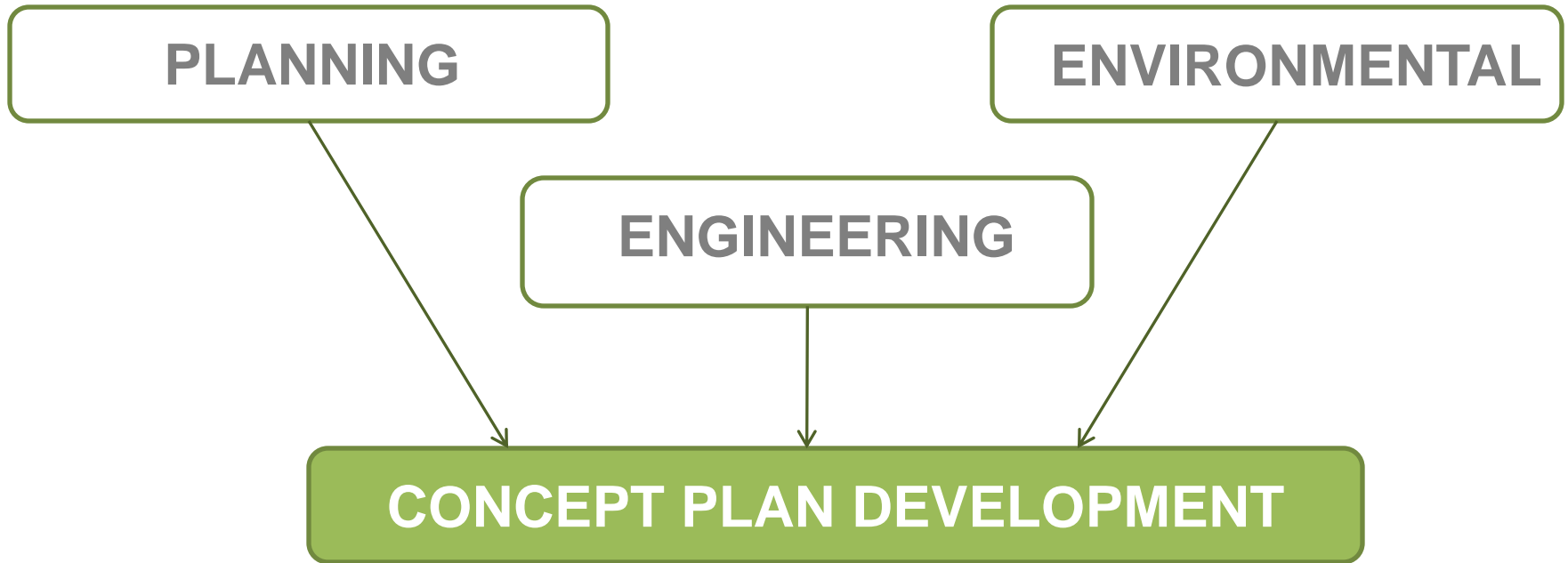
Developing Alternatives

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

Ongoing Team Work



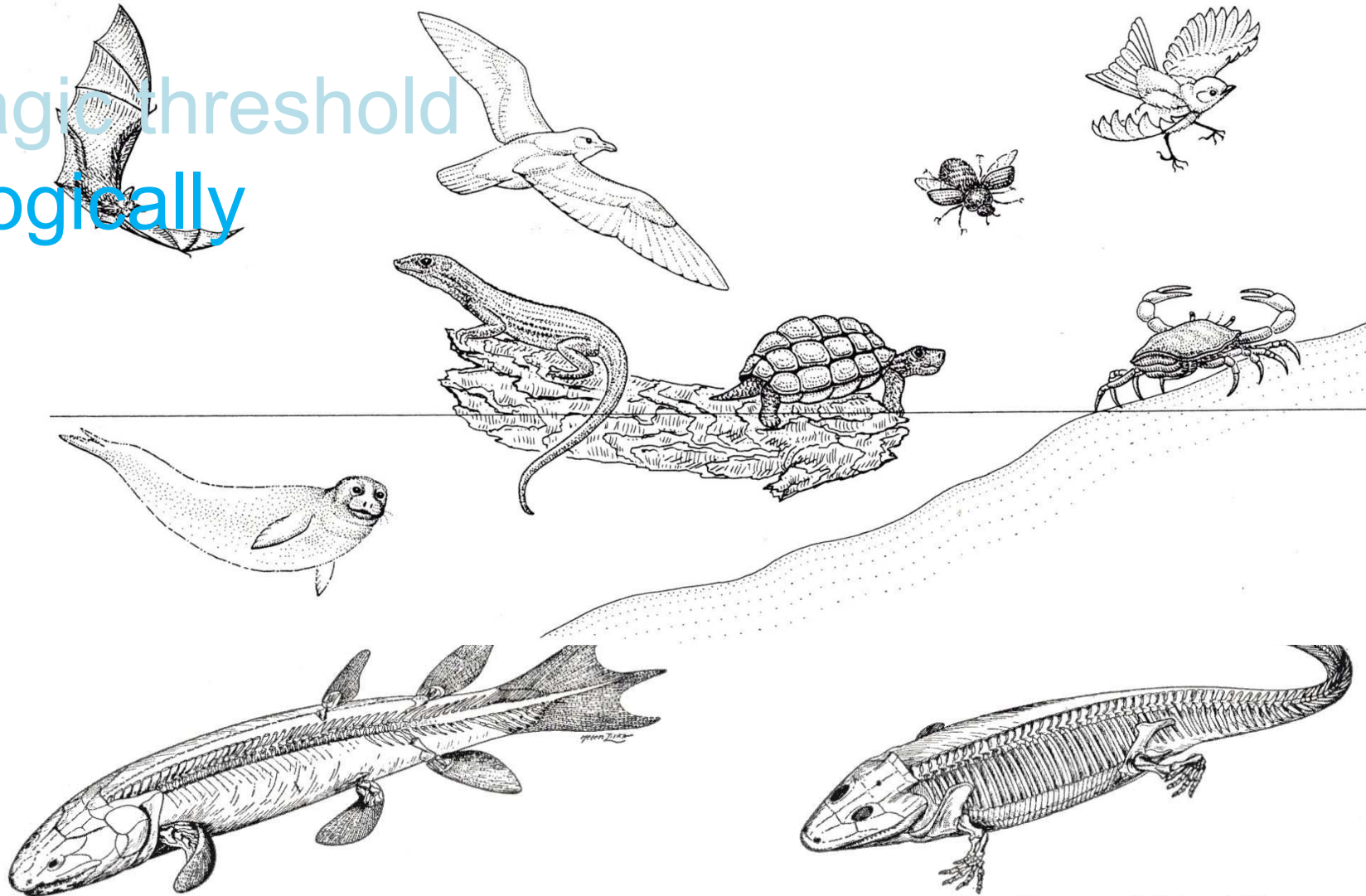
seawall



a magic threshold



a magic threshold
ecologically



American Museum of Natural History

31-4 The vertebrates conquer the land. *Upper left*, restoration of the Devonian lobe-fin fish, *Eusthenopteron*, crawling out of the water. *Lower left*, the skeleton of *Eusthenopteron*. *Upper right*, the primitive Carboniferous-Permian labyrinthodont (p. 764) amphibian, *Diplovertebron*. *Lower right*, skeleton of *Diplovertebron*. Note that the limb bones of *Diplovertebron* show the same pattern, now familiar, as all higher vertebrates (Fig. 19-2); this pattern is still not clear in *Eusthenopteron*.

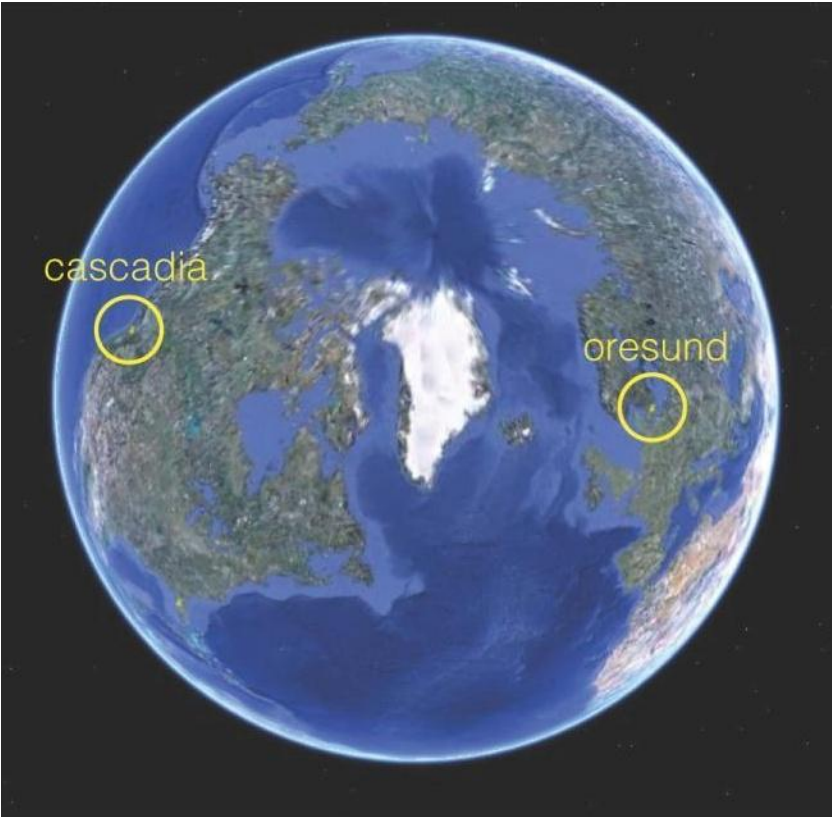
A magic threshold
ecologically
culturally



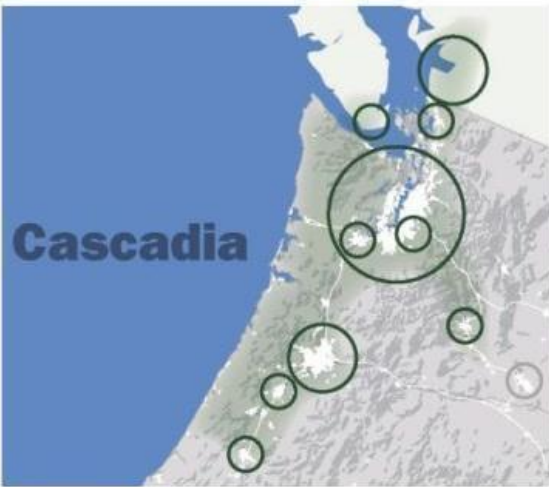
a magic threshold
ecologically
culturally
commercially



two regions

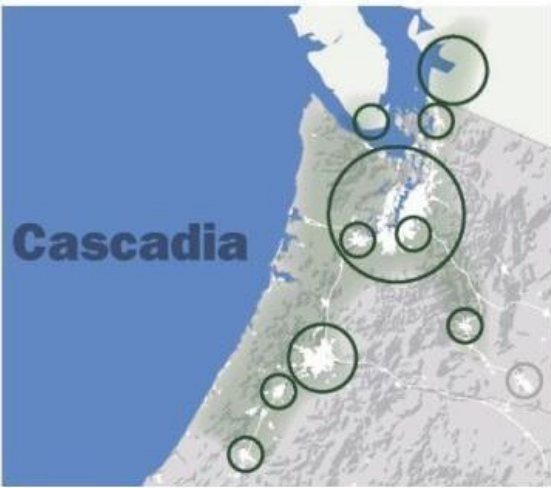


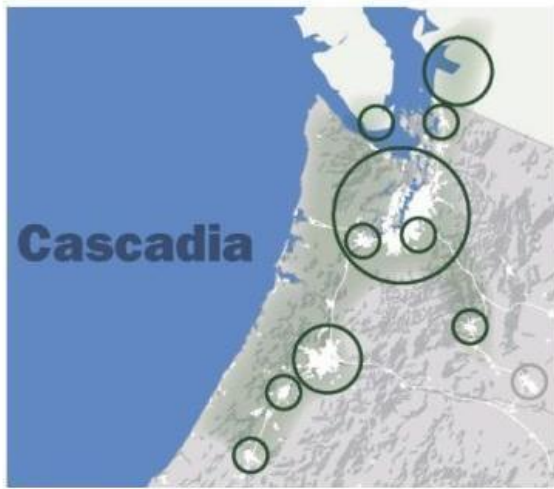
oresund region

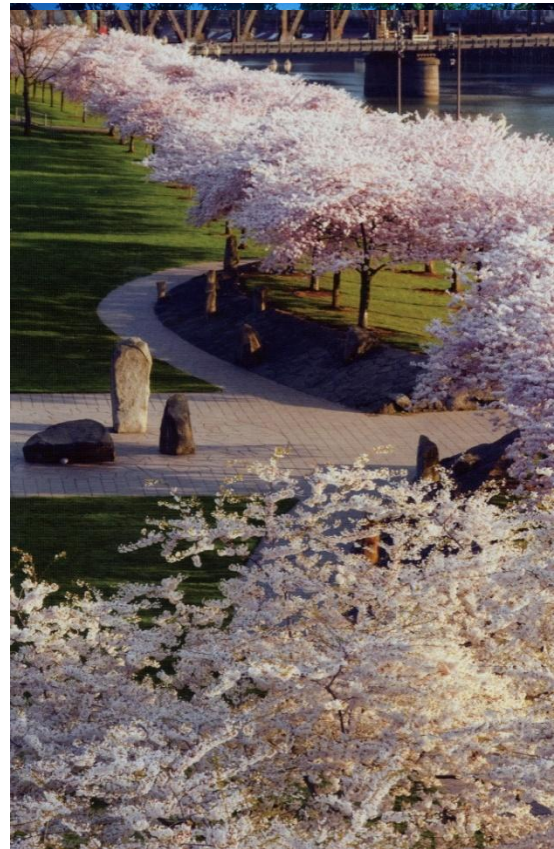
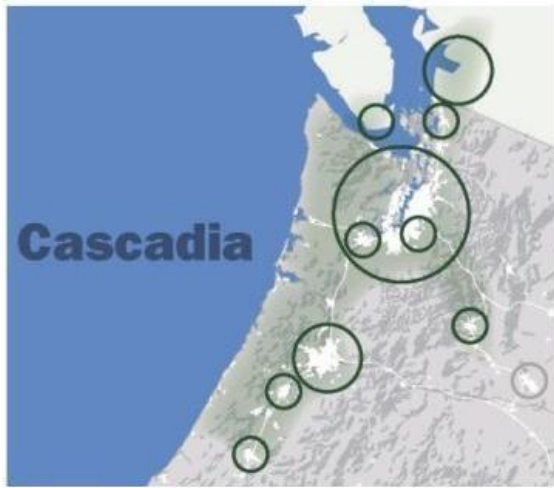


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Seattle Central Waterfront Park Planning Feasibility Study Salmon Migration

puget sound



To reach open water, juvenile salmon must traverse the difficult passage along Seattle's upper harbor and waterfront. Enhancements in the project area would provide much needed rest and food, and increase their rate of survival.

Recommended Actions

- **Restore/Rehabilitate**
 - Shallow water habitats
 - Riparian vegetation
 - Beaches, backshore and associated plant communities

Project Area

- └ PRIORITY HABITAT RESTORATION AREAS*
- CONCEPTUAL JUVENILE SALMON OUTMIGRATION ROUTE

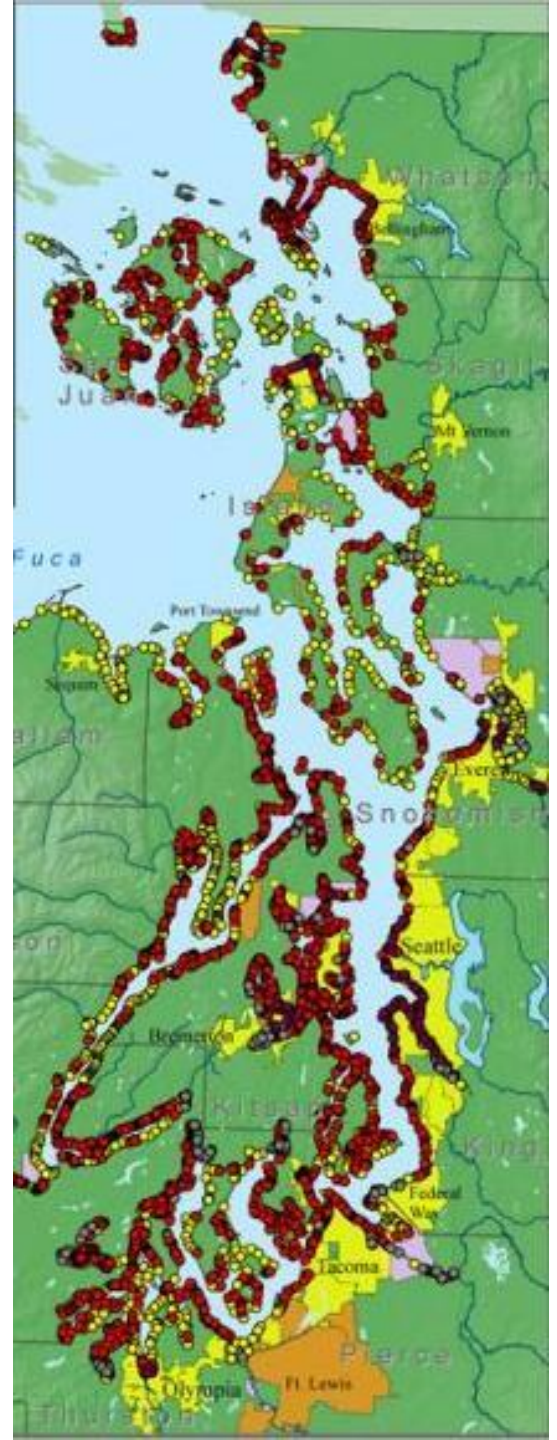
HABITAT ENHANCEMENT PROJECTS

- COMPLETED
- PLANNED

MODIFIED SHORELINE

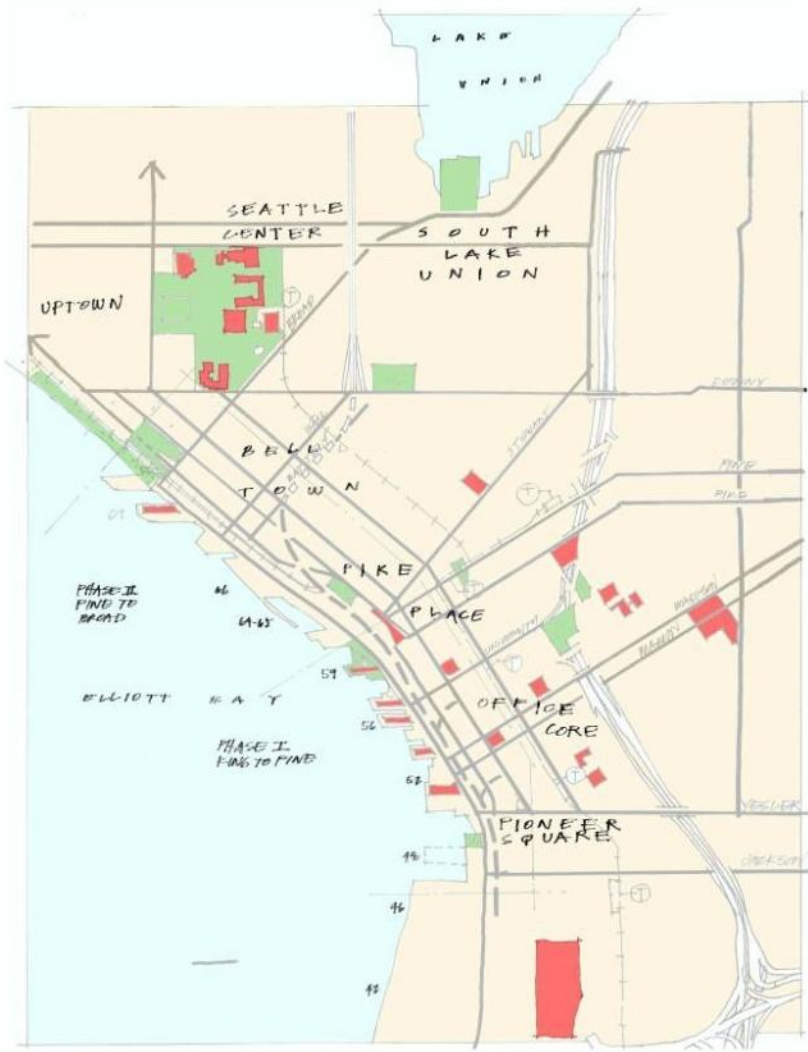
- HIGHLY MODIFIED
- MODIFIED
- MODIFIED W/ SHALLOW WATER BEACH

*Source: Green/Duwamish and Central Puget Sound Watershed Habitat Plan, March 2005



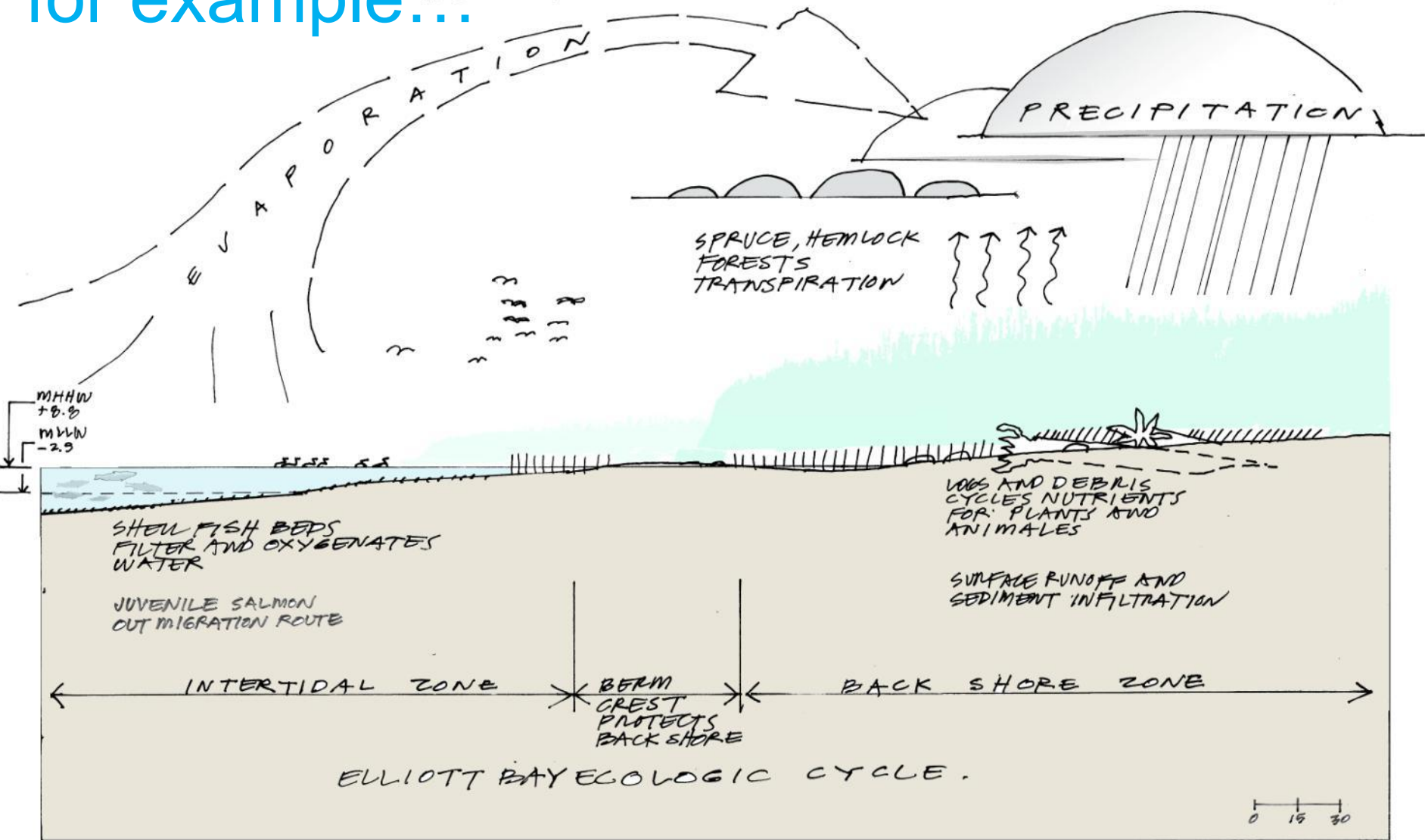


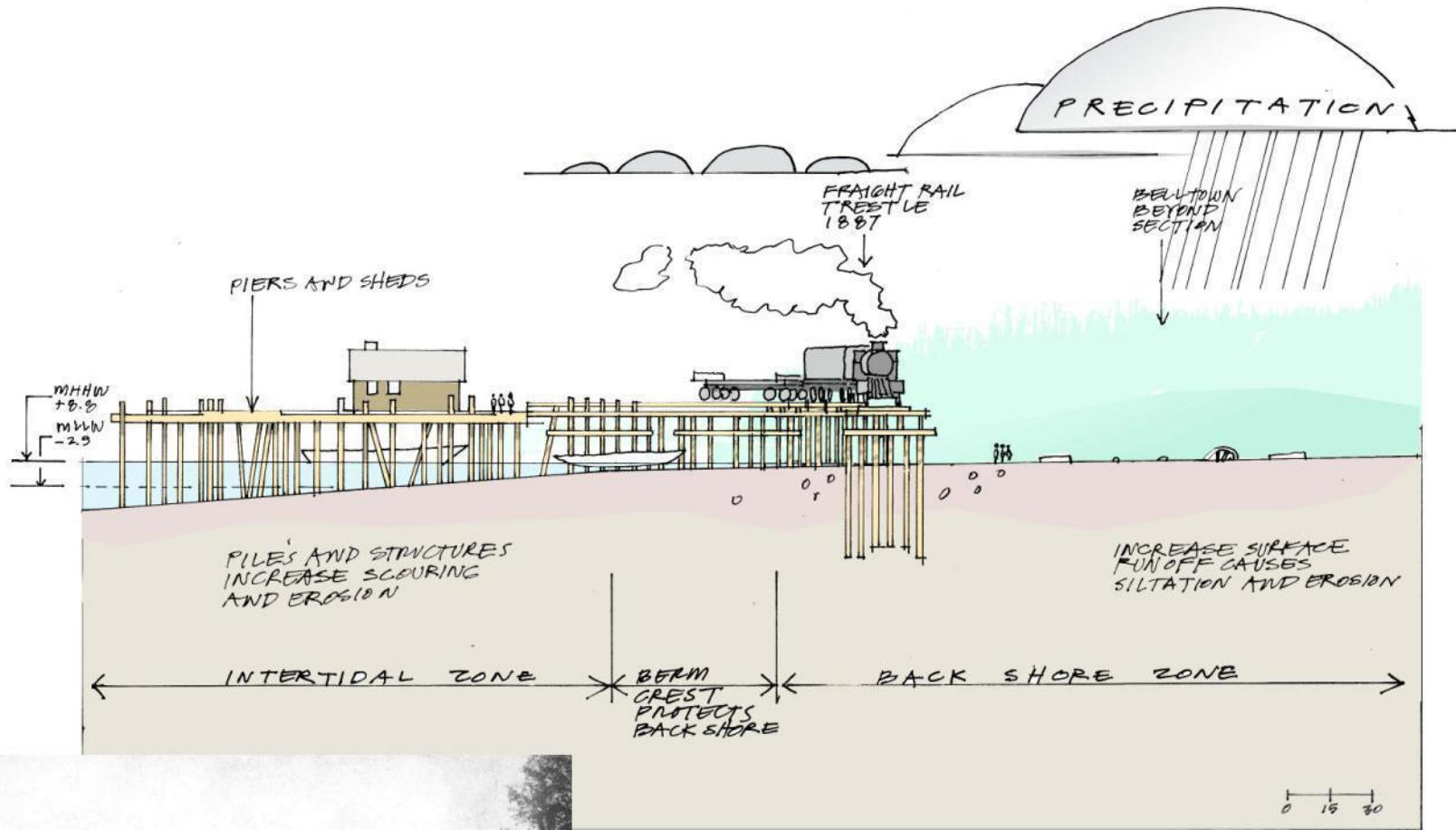
central waterfront

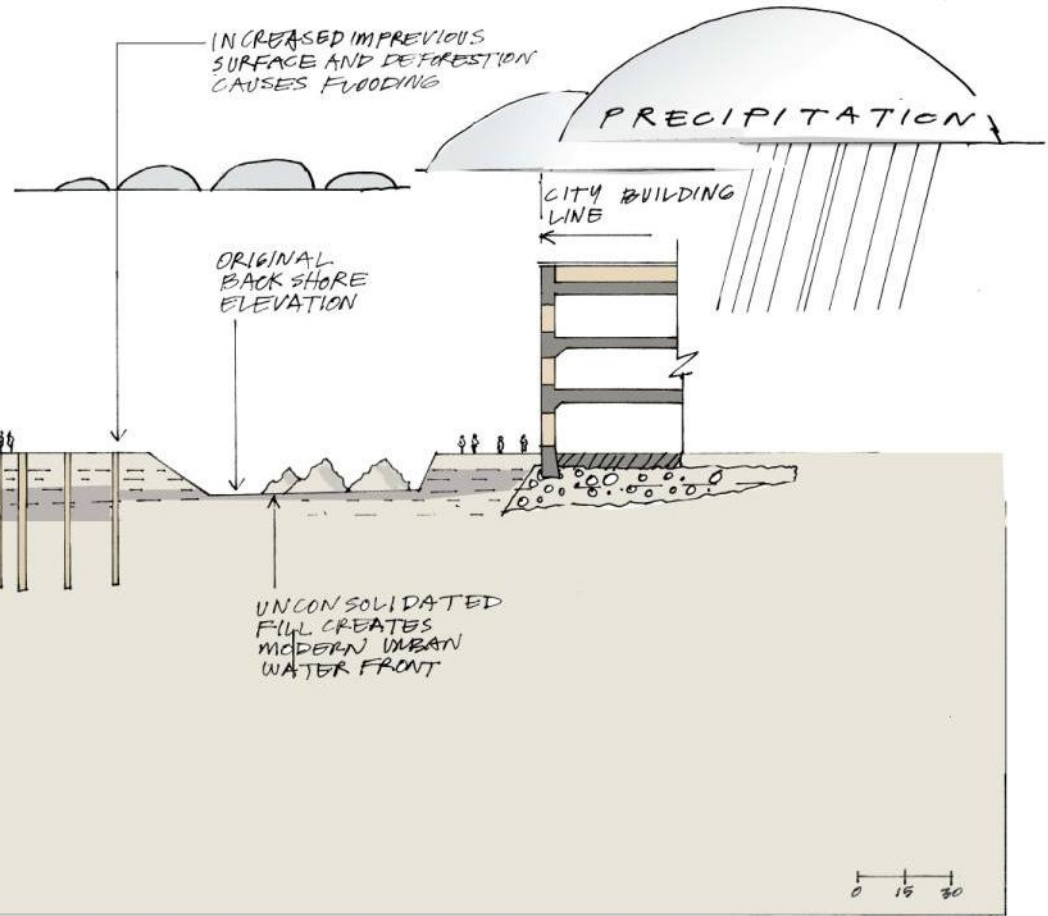
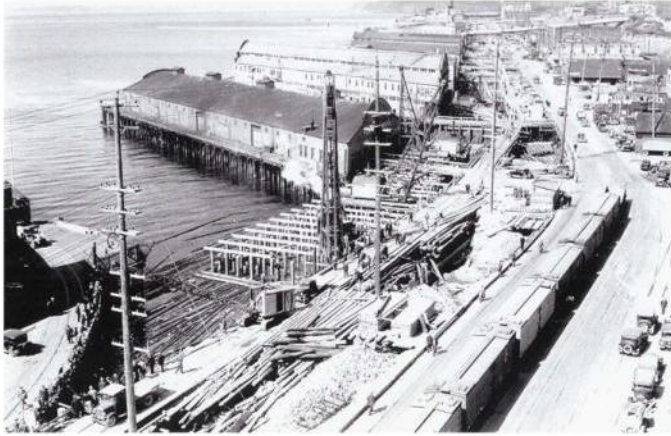


for example...

THE HYDROLOGIC CYCLE

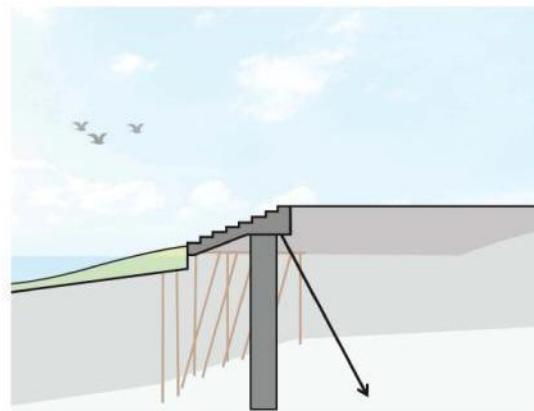
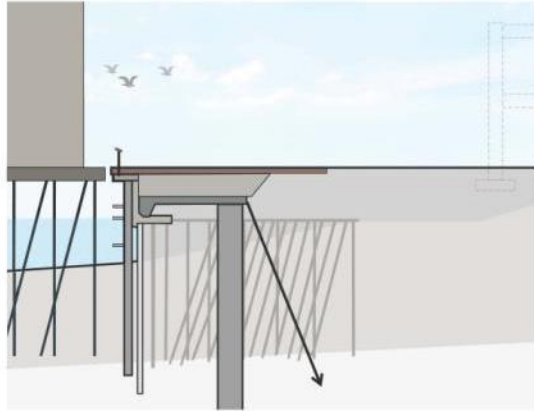
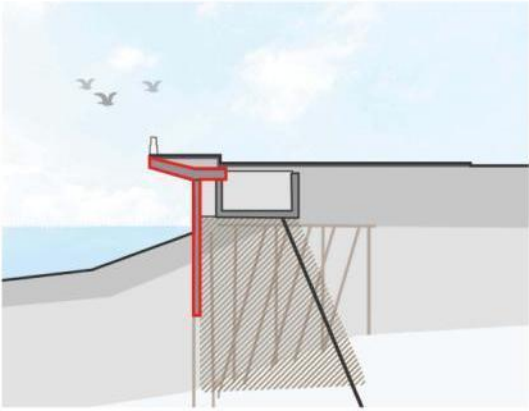








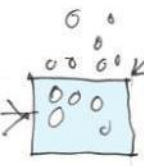
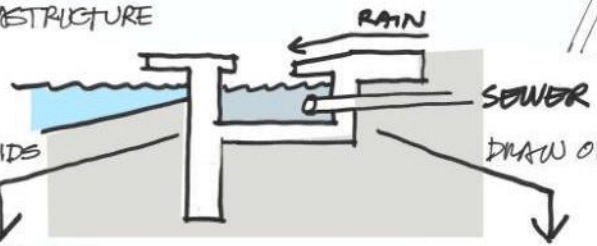
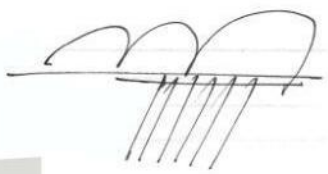
what can the seawall contribute beyond soil stabilization?



THE ROLE OF THE SEA WALL INFRASTRUCTURE
 & INTERCEPTOR
 & SEPARATION
 & CONVEYOR



WIND POWER FOR PUMPS



AIRATION



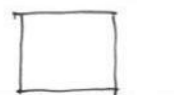
FILTER



SCREEN



SEPARATION



COMPOST MECHANICAL



COMPOST ECOLOGY

METHANE

CLEAN AND COOLED WATER

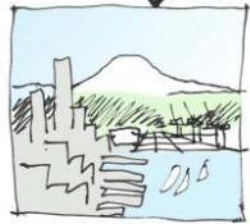
INDUSTRIAL WATER SUPPLY

FISH FEED

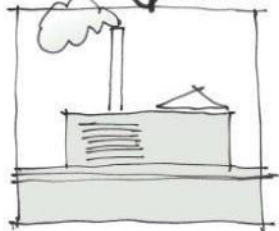
FERTILIZER, PLANTING SOIL MULCH



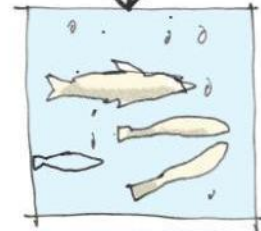
HEAT AND ENERGY FOR SUSTAINABLE INDUSTRIES



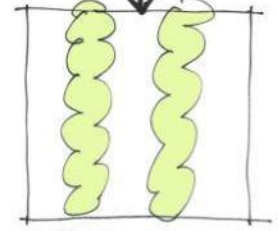
ELLIOTT BAY AND HYDROLOGIC CYCLE



STEAM PLANT ENERGY



AQUACULTURE FOOD PRODUCTS



URBAN AGRICULTURE FOOD PRODUCTS



AGRI-METRO AT GAZOMETRO: VERTICAL FARM ON THE TIBER

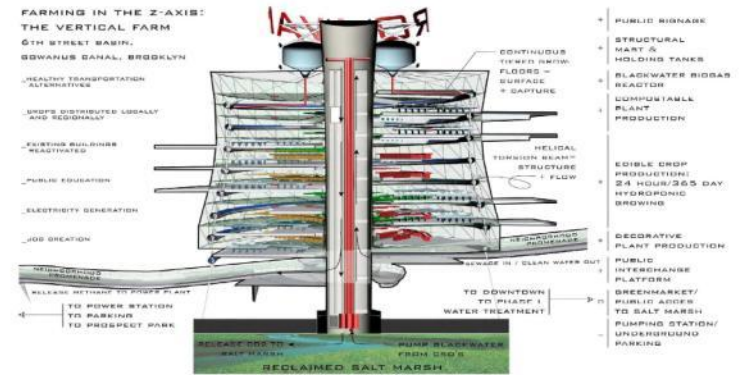


**FARMING IN THE Z-AXIS:
THE VERTICAL FARM**

6TH STREET BASIN,
DUWANUS CANAL, BROOKLYN

- HEALTHY TRANSPORTATION ALTERNATIVES
- DROPS DISTRIBUTED LOCALLY AND SEASONALLY
- EXISTING BUILDINGS REUTILIZED
- PUBLIC EDUCATION
- ELECTRICITY GENERATION
- JOB CREATION

- WALKING NETWORK TO PRODUCE PLANT
- TO POWER STATION
- TO BARBICUR
- TO PROSPECT PARK



the big hairy issues



the big hairy issues the fertile opportunities



FILTER BED
AND CONVEYANCE
UP AND DOWN
WATER FRONT

six design zones

foundation

- contours and elevations
- locations and alignments
- hydrology
- habitats
- cultural resources
- navigational requirements
- property /ownership
- construction activities
- access requirements
- environmental challenges
- and...



six design zones

opportunities

- contour and elevation modification
- locational and alignment improvements and enhancements
- hydrologic cycle reconstitution
- habitat restoration and creation
- cultural resource protection and education
- navigational operation
- sustenance and improvement of properties and businesses
- construction as theater and economic stimulus
- access improvements
- sustainable interventions
- and...



Developing Conceptual Plans

- Why are end-to-end concepts important?
- How did the team develop the conceptual plans?
- How flexible are these designs?

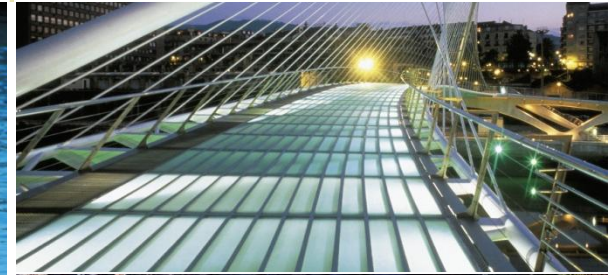


Conceptual Approaches

	Concepts
A	In-Kind Replacement
B	Ecological Waterfront
C	Urban Waterfront
D	Context Connections
E	Evolving Experiences

Program Elements

- Seawall surface treatments
- Rock structures
- Habitat features
- Beaches
- Cantilevered sidewalks
- Steps
- Railings
- Lighting
- Art elements
- Boating/transportation touchpoints
- Pedestrian touchpoints
- Sustainability features
- Educational/interpretive features



Open Water Portals



Open water portal at restaurant, Sipadan-Kopai, Malaysia. Photo by Peter Levey.



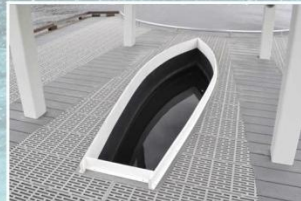
Stormwater conveyance channel, Bern, Switzerland. Photo by J. A. Brennan Associates.



Sherbourne Common park, Toronto, Ontario. Photo courtesy of WATERFRONToronto.



Water with railing edge, Alcázar de Sevilla, Spain. Photo by Jared Preston.



Opening in float, South Lake Union Park, Seattle, Washington. Photo by J. A. Brennan Associates.



Walkways surrounding beach and habitat bench, Juneau, Alaska. Photo by Peter Levey.



Beach near boardwalk and pier, Juneau, Alaska. Photo by J. A. Brennan Associates.



Open water portals along downtown waterfront, Juneau, Alaska. Photo by Mathieu Plourde.

Background photo by Felipe Skroski.

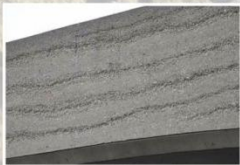
Wall Surface Treatments



Sedimentary wall.



Sedimentary wall, Chapman University. Photo courtesy of Belarde Company.



Exposed aggregate wall. Discovery Park, Seattle, Washington. Photo by J. A. Brennan Associates.



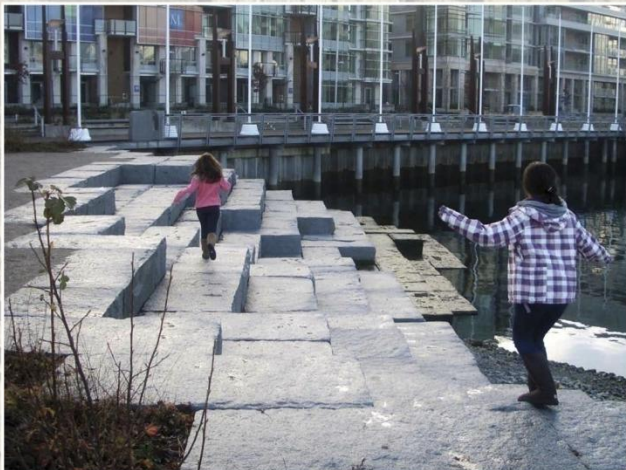
Formlined concrete wave. Photo courtesy of Fitzgerald Formliners.



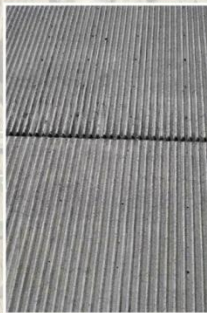
Naturalistic concrete wall texture. Seattle, Washington. Photo by J. A. Brennan Associates.



Stanley Park seawall. Vancouver, British Columbia. Photo by SqueakyMarmot.



Stepped seawall. Vancouver, British Columbia. Photo by J. A. Brennan Associates.



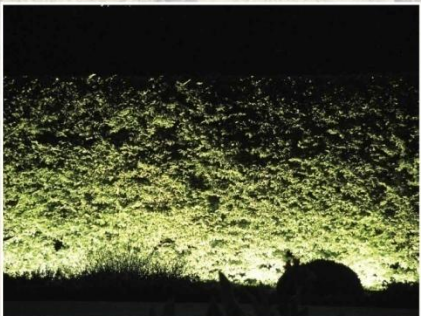
Fractured rib concrete formliner. Seattle, Washington. Photo by J. A. Brennan Associates.



Textured concrete wall panels.



Stanley Park seawall. Vancouver, British Columbia. Photo by Dougson.



Illuminated vegetated wall. Photo by Michael Radtke.



Vegetated wall. Photo by Lorna Mitchell.



Custom tribal fish concrete formliner. Photo courtesy of Fitzgerald Formliners.

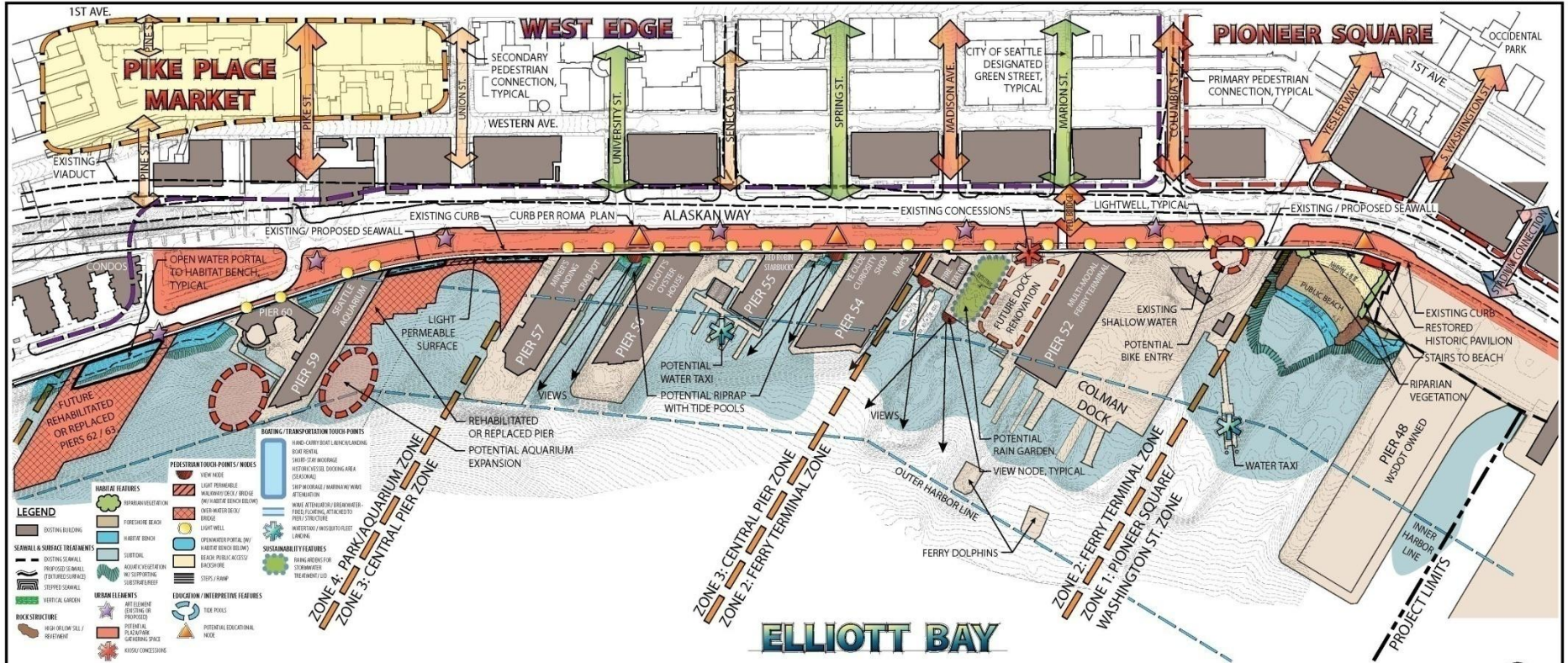


Vegetated wall. Photo by BobisTraveling.

Background: Stone veneer wall. Photo by J. A. Brennan Associates.

Concept A: In-Kind Replacement

PREPARED BY: J. A. BRENNAN ASSOCIATES



CONCEPT A: IN-KIND REPLACEMENT DRAFT - CENTRAL WATERFRONT

ELLIOTT BAY SEAWALL PROJECT

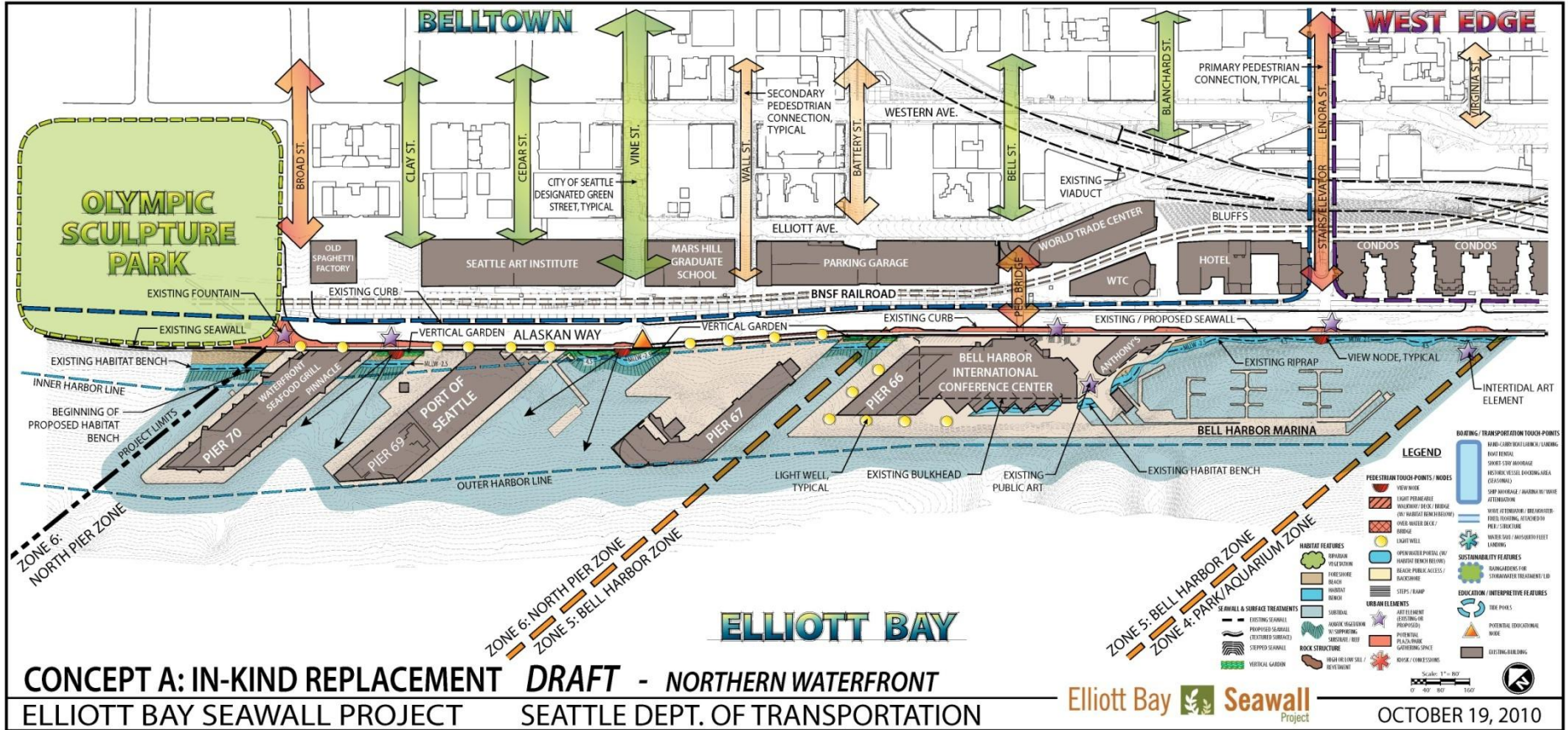
SEATTLE DEPT. OF TRANSPORTATION

Elliott Bay Seawall Project

OCTOBER 19, 2010

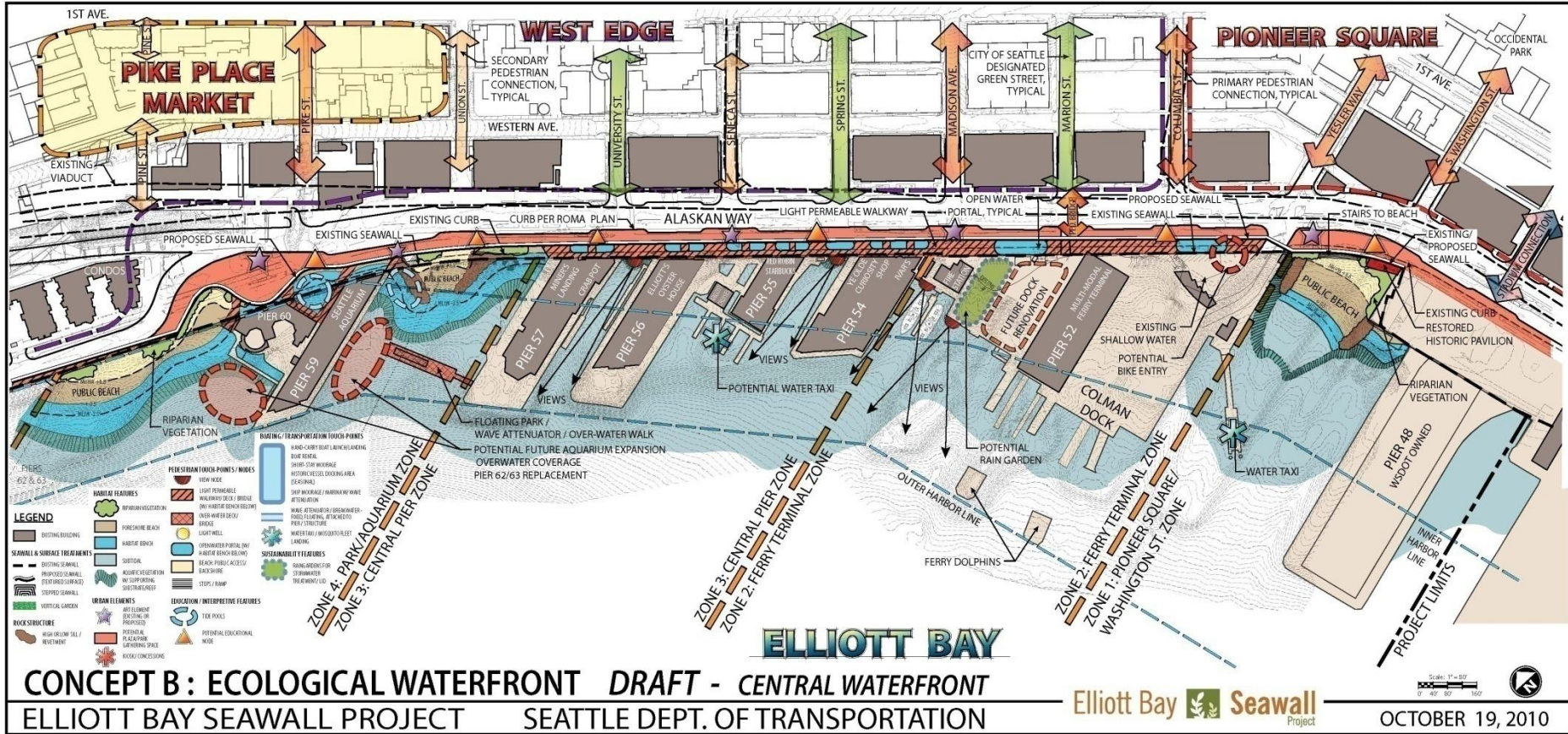
Concept A: In-Kind Replacement

PREPARED BY: J. A. BRENNAN ASSOCIATES



Concept B: Ecological Waterfront

PREPARED BY: J. A. BRENNAN ASSOCIATES



Coordination and Partnerships

Working with City and Corps

Central Waterfront Project

Elliott Bay Seawall Project

Army Corps of Engineers

Working with City and Corps

Central Waterfront Project

Elliott Bay Seawall Project

Army Corps of Engineers

Preliminary Concept Evaluation

- Concept plans evaluated based on goals and objectives
- Results will guide the team in next steps for design refinement and development of alternatives



Upcoming Seawall Public Outreach

December and January

- Conduct broader public outreach to gather feedback on concepts
- Develop interactive features online
- Host public meeting
- Provide organizational briefings

Help Build A New Bridge

compare scenarios

[tolling_choices >> compare scenarios](#)

Scenario	Toll rate	Funding
3	\$0.90 - \$3.25	\$2.3 billion

routes being tolled

Route	Year	2010	2016
522	w/o tolls	19 mph	17 mph
	with tolls	19 mph	16 mph
520	w/o tolls	26 mph	25 mph
	with tolls	26 mph	34 mph
90	w/o tolls	35 mph	33 mph
	with tolls	35 mph	40 mph

Step 1: Select a tolling scenario

- Scenario 1: Start tolling the new 520 bridge in 2018
- Scenario 2: Start tolling the 520 bridge in 2010
- Scenario 3: Start tolling the new 520 and 90 bridge in 2016
- Scenario 4: Start tolling the 520 bridge in 2010, and 90 bridge in 2016

Step 2: View details about this scenario

- 520 and 90 are tolled
- Tolling begins in 2016 when the 520 corridor is complete
- Includes [segment tolls](#) (PDF) beginning in 2016 on 520 and 90
- Moderate toll rate for comparison and analysis purposes (\$0.90 - \$3.25 each way)

Time of day	Toll you'd pay (each direction) 2007\$*
Morning (5-9 AM)	\$2.60
Mid-day (9 AM-3 PM)	\$2.10

Planning Ahead > System Concepts > View Draft Service Alternatives

Way to go!

- Today's System
- Alternative 1 - Reduction [zoom_down](#)
- Alternative 2 - Preservation [zoom_down](#)

System	Annual Service Hours	Proposed Number of Routes		Frequency (Peak/Off Peak)		Span of Service		
		Weekday	Weekend	Trunk Routes	Local Routes	Weekday	Saturday	Sunday
Today's System	618,000	51	33	15/20	30/60	5 AM - 12 AM	6 AM - 12 AM	6 AM - 12 AM
Alternative 1 - Reductions	401,000	47	28	20/30	60	5 AM - 9 PM	10 AM - 6 PM	10 AM - 6 PM
Alternative 2 - Preservation	634,000	52	34	15	15/20/0	5 AM - 12 AM	6 AM - 12 AM	7 AM - 10 PM

Alternative 1 - Reductions:

Alternative 1 is based on the local sales tax funding we currently receive: 0.6%, or 6¢ on a \$10 purchase. It includes reductions throughout the system. Many routes are reduced to peak service only or are eliminated altogether. Across the system there are less bus trips offered because the bus will not come as often and will not run as many hours during the day.

Features and Components

- Disperses local service on Market St., Commerce St., Pacific Ave., and A St. in Downtown Tacoma.
- de-emphasizes the use of Commerce St. Transit Center
- Implements efficiencies, such as straightening out routes
- Changes made to more effectively serve North Tacoma
- Direct route from Puyallup to Tacoma via RT 402 that no longer serves Federal Way

Alternative 1: Reduction Plan

- Service Elimination
- Severe Reduction
- Moderate Reduction
- Reconfigured Service
- Service Unchanged

Reductions may be in how often the bus comes and/or in how many hours it operates during the day.

Example interactive online features

Contact Information

- **Email:** seawall@seattle.gov
- **Website:**
<http://www.seattle.gov/transportation/seawall.htm>
- **Phone:** Stephanie Brown, SDOT: 206-386-4635
Jennifer Wieland, SDOT: 306-733-9970