



Washington State Transportation Commission

City Projects Supporting and Related to the SR99 Tunnel Project

May 23, 2012

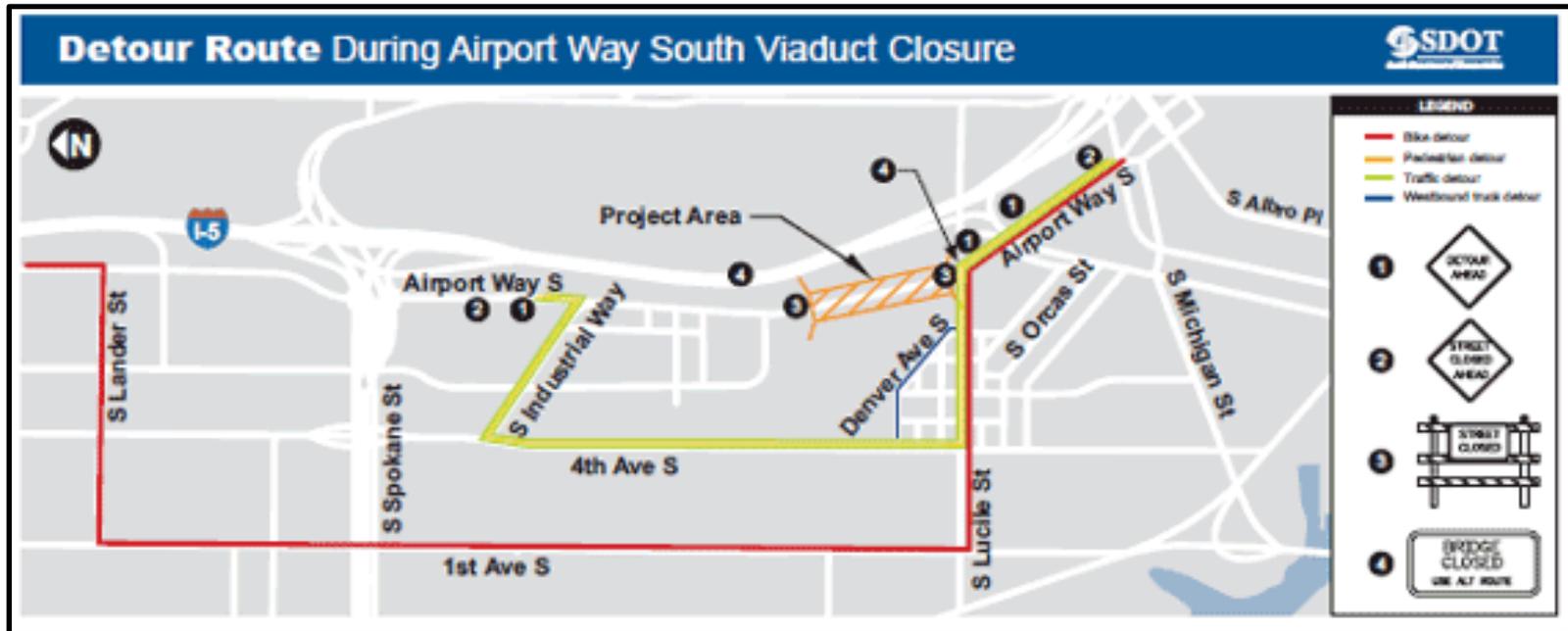
Program Overview

The Alaskan Way Viaduct Replacement Program includes projects led by the Washington State Department of Transportation, City of Seattle, King County and Port of Seattle.



Airport Way S Viaduct Over Argo Railroad Yard Rehabilitation Project

Rebuild Airport Way South Viaduct



- November 2011 to early 2013.
- Current work includes ground improvements for MSE wall approaches.
- Airport Way South closed between South Lucile and South Edmunds streets.

South Spokane Street Project

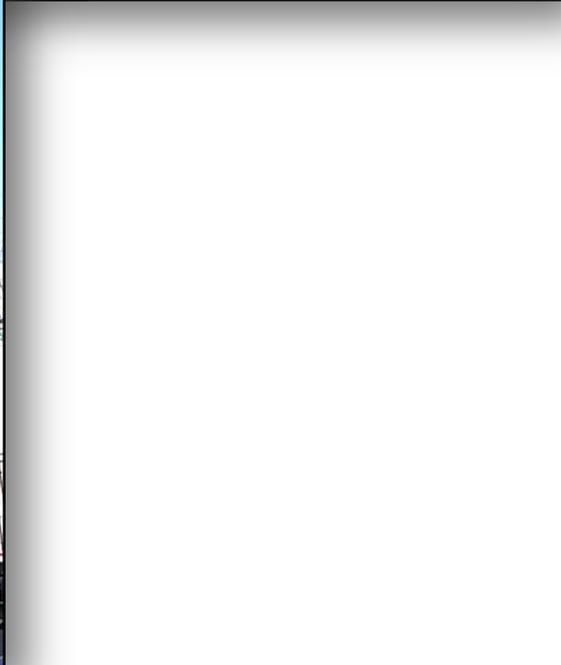
Rebuild South Spokane Street Viaduct



- Eastbound traffic is now temporarily on the new bridge deck along with westbound traffic while the old bridge deck is repaired and repaved.
- Multiple traffic shifts still ahead, but two lanes will be maintained eastbound and either 1st or 4th Avenue Off-Ramps will be open.
- Combined westbound on / off ramp at 1st Avenue South projected for spring completion, although with both west- and eastbound traffic on the new structure, the on-ramp portion not expected to open until late summer.
- Project currently expected to reach substantial completion late this summer.



South Spokane Street Project



East Marginal Way Grade Separation Project



Mercer Corridor Improvements Project



Problem: The Mercer Mess



Mercer East (under construction)



Mercer East Project

Two-Way Mercer Street Construction



- Anticipate Mercer Street opening to two-way traffic in late summer/fall 2012
- Crews currently working to finish installing utilities and repave old Mercer roadway.
- Anticipate 6-8 weekend closures of the I-5 on- and off-ramps at Mercer Street this summer
- Severe Fairview Avenue N restrictions will begin when Mercer Street open to two-way traffic

Utility work at Mercer Street and Westlake Avenue N

Project Schedule

Stage 1

(fall 2010 to winter 2012)

- Construct 9th Avenue North sewer replacement and roadway improvements
- Begin constructing Broad Street connection
- Construct westbound Mercer Street lanes north of existing lanes
- Begin Roy Street improvements

Stage 2

(winter 2012 to fall 2012)

- Reroute existing eastbound Mercer Street traffic to new lanes; construct improvements to eastbound lanes
- Construct Westlake Avenue N improvements
- Begin constructing Fairview Avenue North improvements
- Mercer Street open to two-way traffic at end of Stage 2

Stage 3

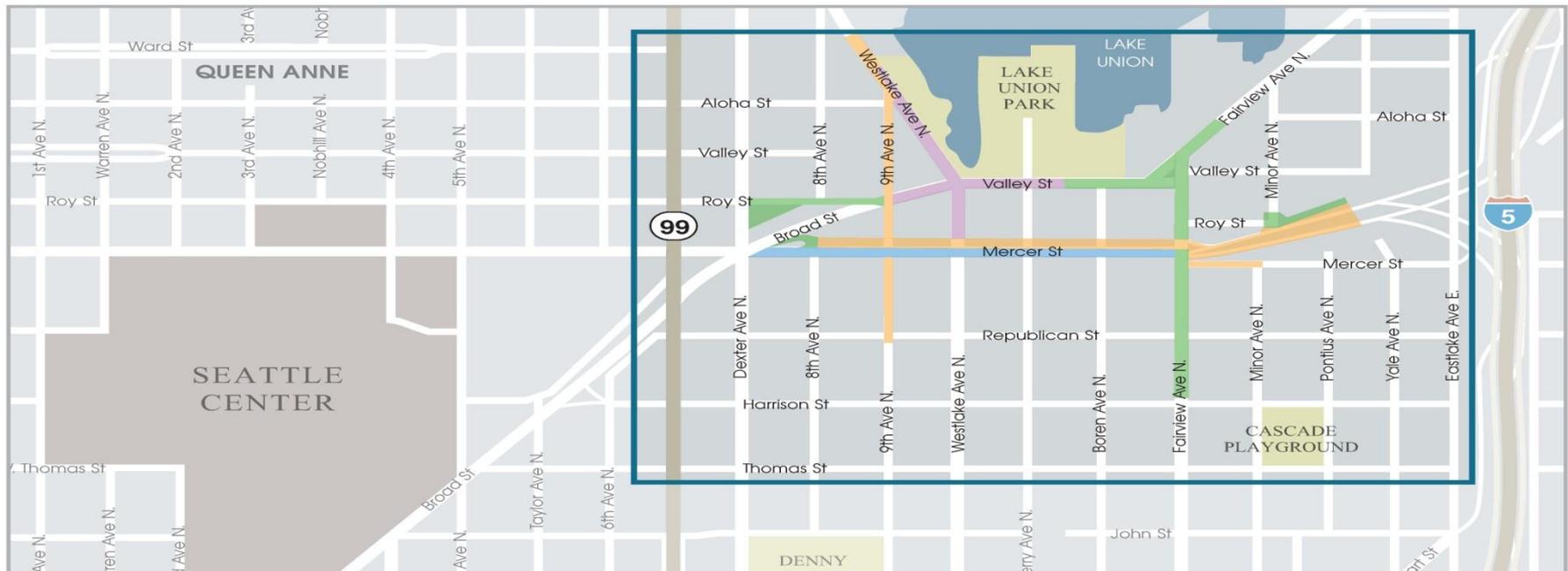
(fall 2012 to spring 2013)

- Begin constructing Valley Street improvements
- Complete construction of Fairview Avenue North improvements
- Complete Roy Street improvements
- Complete Broad Street connection

Stage 4

(spring 2013 to summer 2013)

- Complete Westlake Avenue North improvements
- Complete Valley and Broad Street improvements



Schedules are estimated and are dependent on weather conditions and availability of materials.

Widened Mercer Street



More Closures of I-5 on- and off-ramps at Mercer St planned for Summer 2012

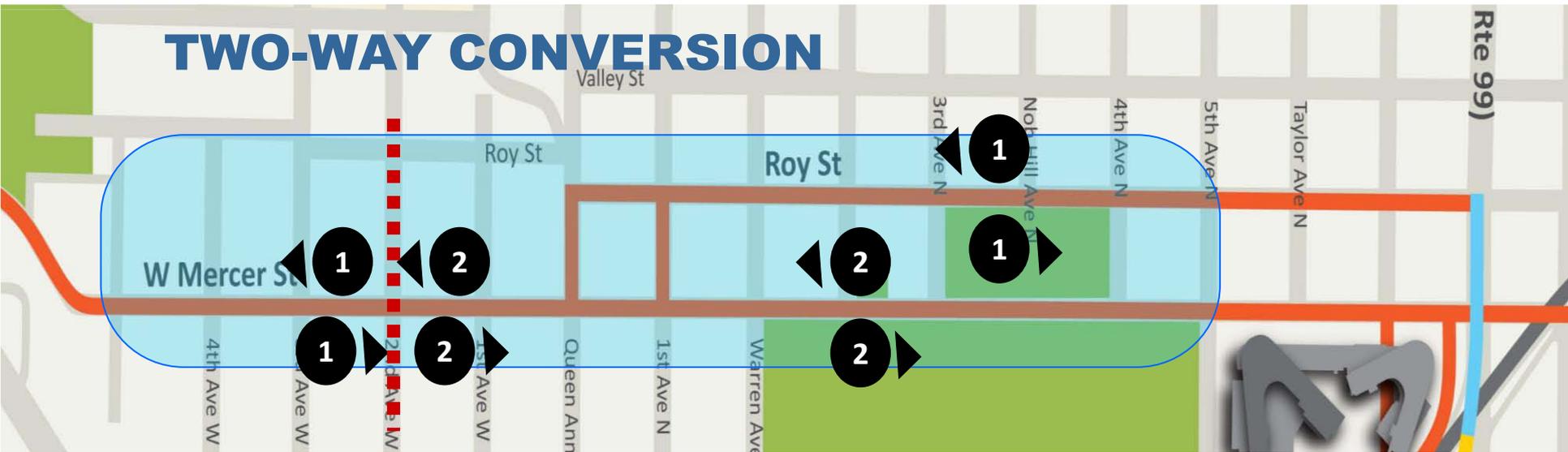




© 3/15/2010 sky-pix.com

Mercer West Project

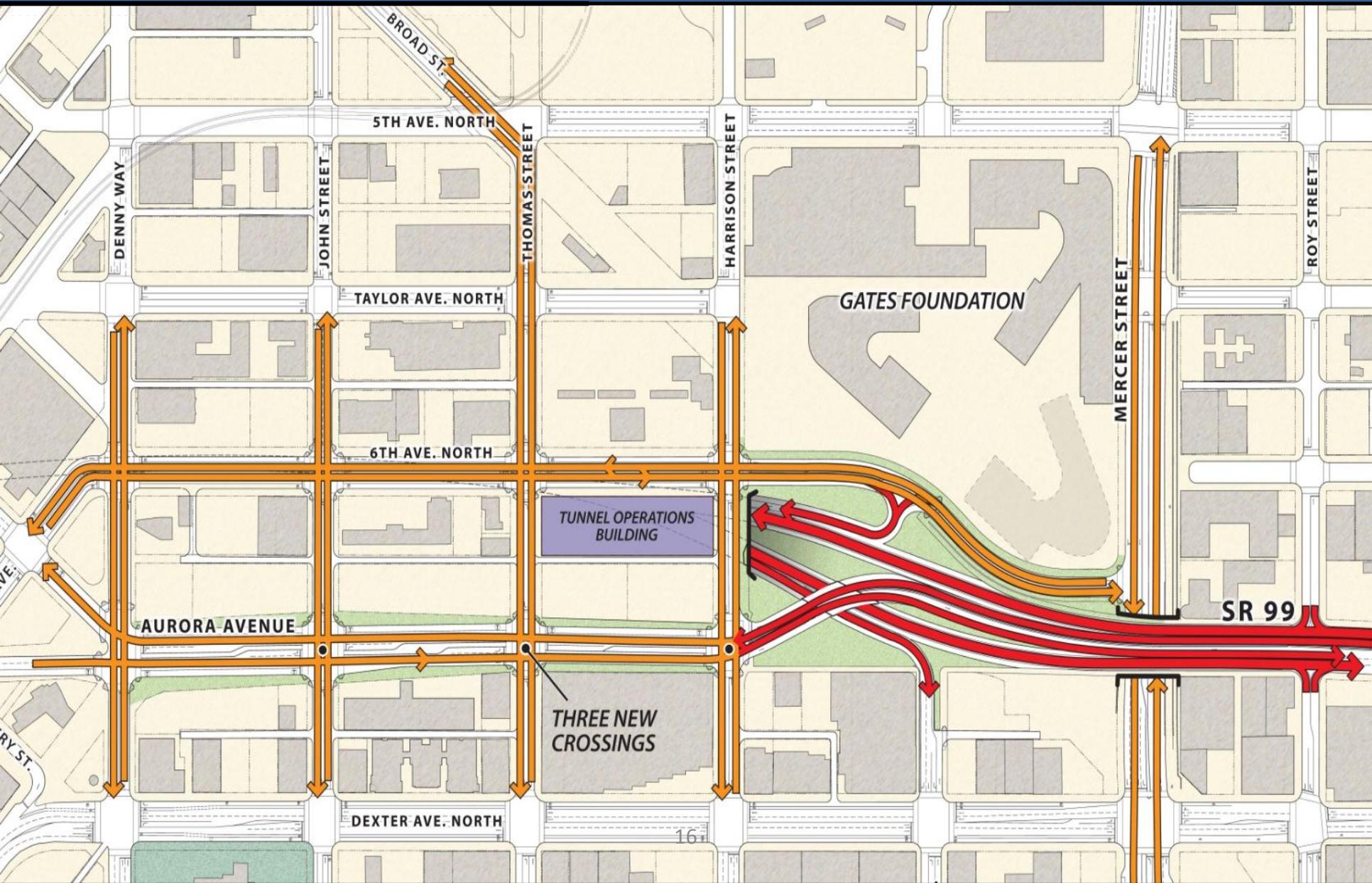
Two-Way Conversion (5th Ave N to 5th Ave W)



- Two lanes in each direction on Mercer St (Fifth Ave N – Second Ave W)
- One lane each direction on Roy St (Fifth Ave N – Queen Anne Ave N)
- Bike lanes on Roy St
- All changes within the existing street right-of-way
- Project coordination: Seattle Center, RapidRide

Mercer West Project

Curved Sixth Ave

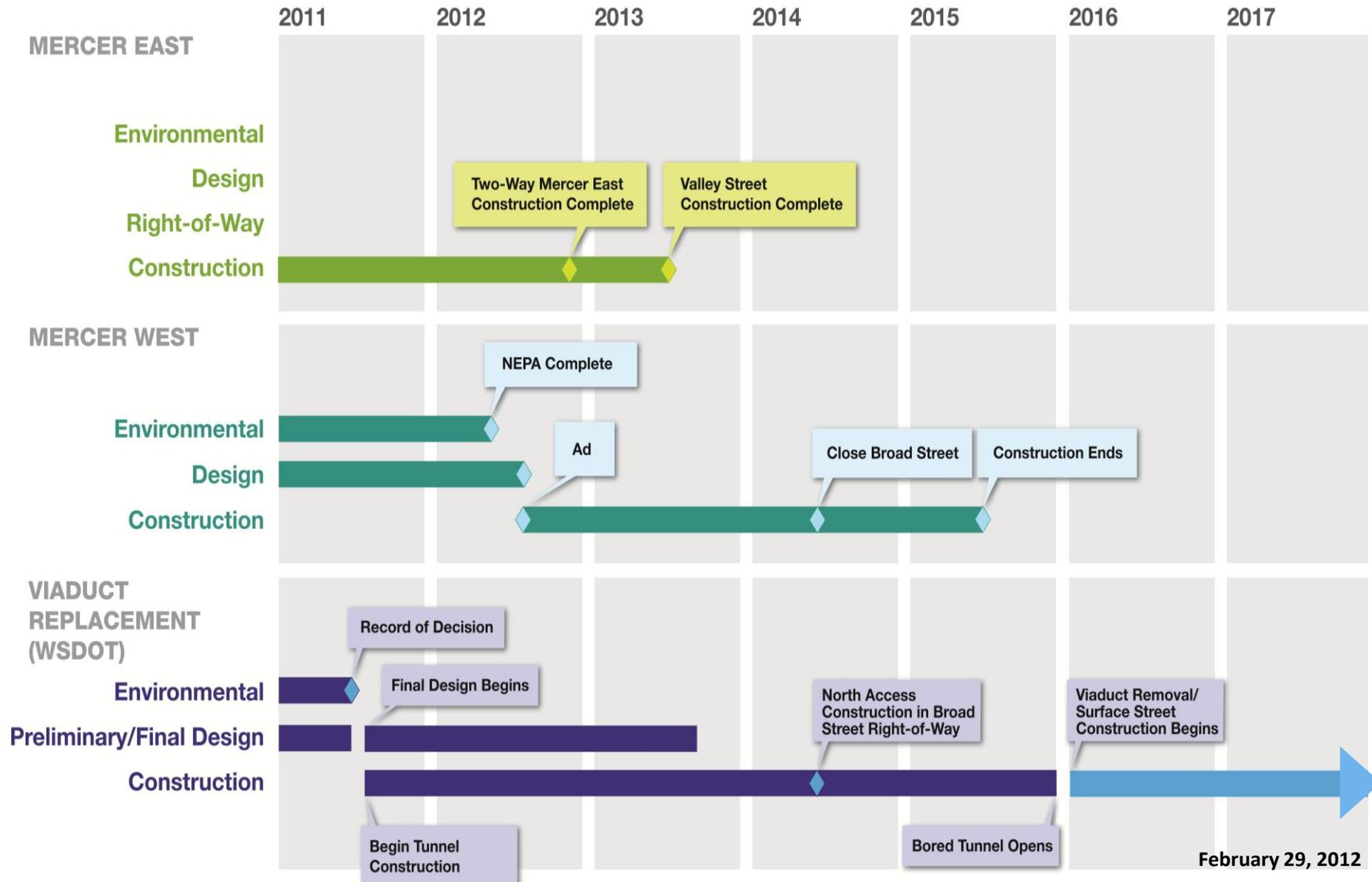


Mercer West Project

Curved Sixth Ave



Mercer Corridor Schedule



Mercer West Project

Existing Underpass at Aurora



- Four lanes (only eastbound)
- Five-foot sidewalks



Mercer West Project

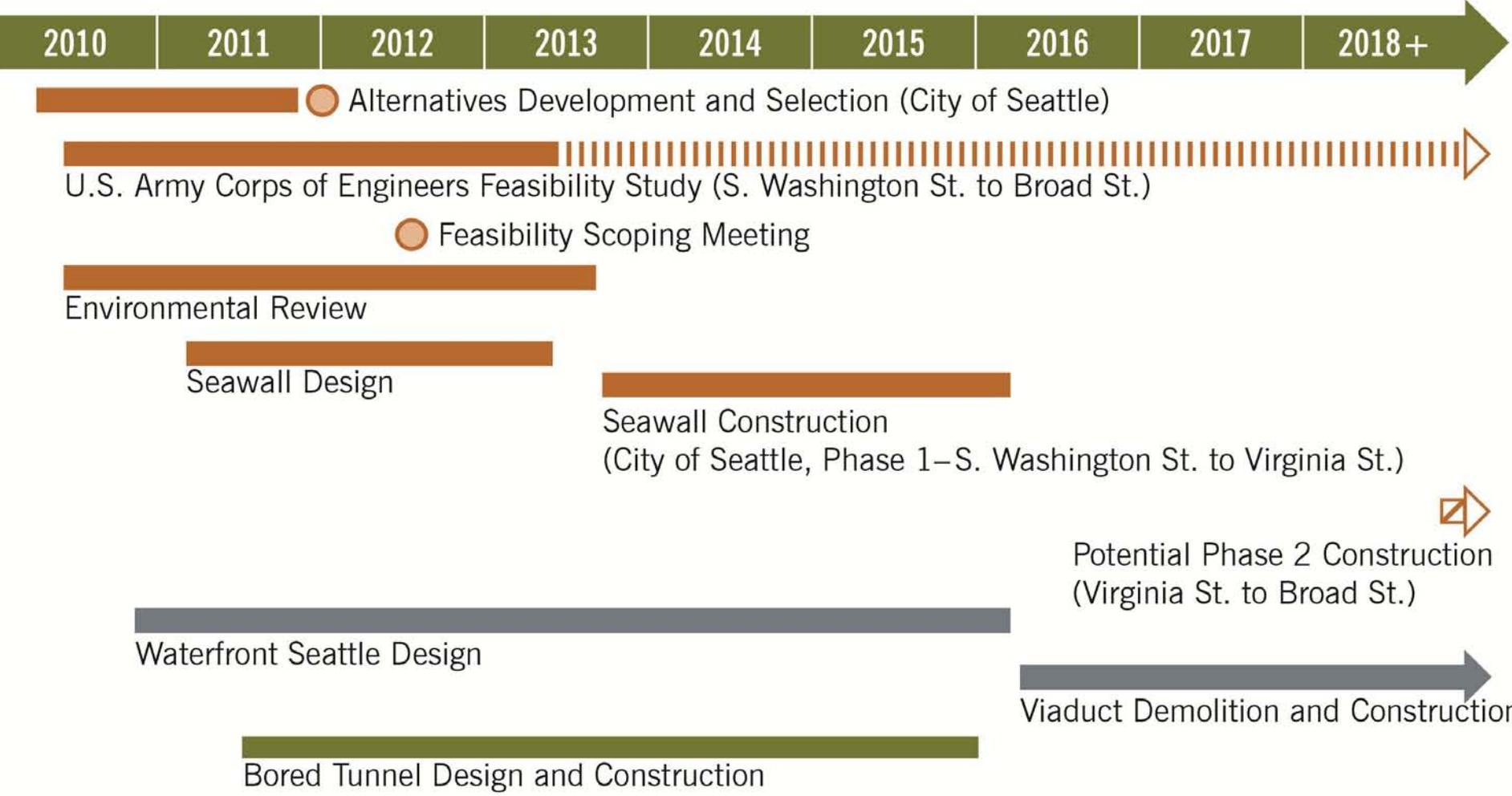
Widened Underpass at Aurora



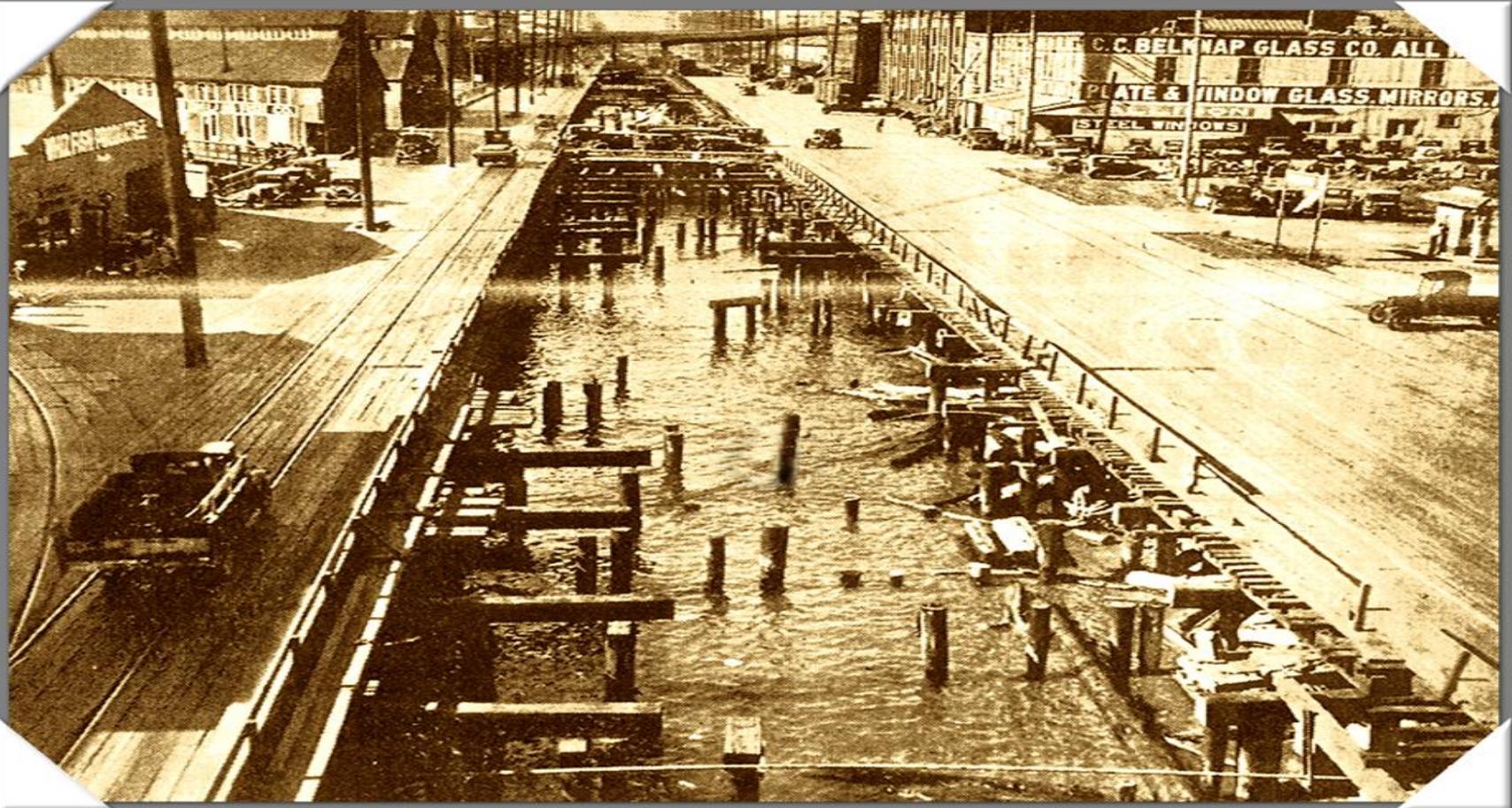
- Three lanes in each direction
- Public Art (under the bridge)
- North side: 25' (bike path & sidewalk)
- South side: 16' sidewalk
- Project Coordination: WSDOT (Viaduct Replacement), Mercer East, Bill and Melinda Gates Foundation, Seattle Center

Elliott Bay Seawall Project

Current Project Schedule



History – Railroad Ave (Alaskan Way) 1931



Railroad Avenue, as it exists today is carried on pile and timber structures of varying ages and descriptions. These structures are mainly old and badly decayed and require constant expenditure of funds to keep in repair. In a great many places they have deteriorated so far that entire reconstruction is necessary.

ELLIOTT BAY

Elliott Bay Seawall Project
(Phase 2)

Elliott Bay Seawall Project
(Phase 1: 2013-2016)

Partner Projects

Waterfront Seattle
(Core Project: 2016+
Potential Early Projects:
2012-2015)

SR 99 Tunnel Project
(2011-2015)

- WATERFRONT SEATTLE
- ELLIOTT BAY SEAWALL PROJECT
- SR 99 TUNNEL PROJECT
- PARTNER PROJECTS



Sources: City of Seattle GIS, Google maps, SDOT 2010
Bike Map, ROMA 2002 Urban Design Assessment

Project construction dates are tentative and
subject to change

Project Area



Project Purpose

- Reduce the risks of coastal storm and seismic damages
- Protect public safety, critical infrastructure, and associated economic activities along Seattle's central waterfront
- Improve the degraded ecosystem functions and processes of the Elliott Bay nearshore in the vicinity of the existing seawall



Alaskan Way Surface Street
and Underground Utility Corridor

BNSF Mainline / Sounder Commuter Rail / Amtrak

Seattle World Trade Center

Hotels

Condominiums

Parking

Alaskan Way Surface Street
and Underground Utility Corridor

WA Marine Highway

S. Washington St.

Broad St.

Virginia St.

LANDSIDE INFRASTRUCTURE



Pier 70 – Office / Restaurant →

Pier 66 – Port of Seattle / Victoria Clipper →

Hotels →

Bell Harbor Cruise Ship Terminal and Conference Center →

Port of Seattle Public Short Stay Marina →

Pier 62/63 Public Park
Seattle Aquarium
Waterfront Park

Piers 54-59 – Historic Piersheds / Retail and Business Core / Tour Boats

Seattle Fire Department – Station # 5

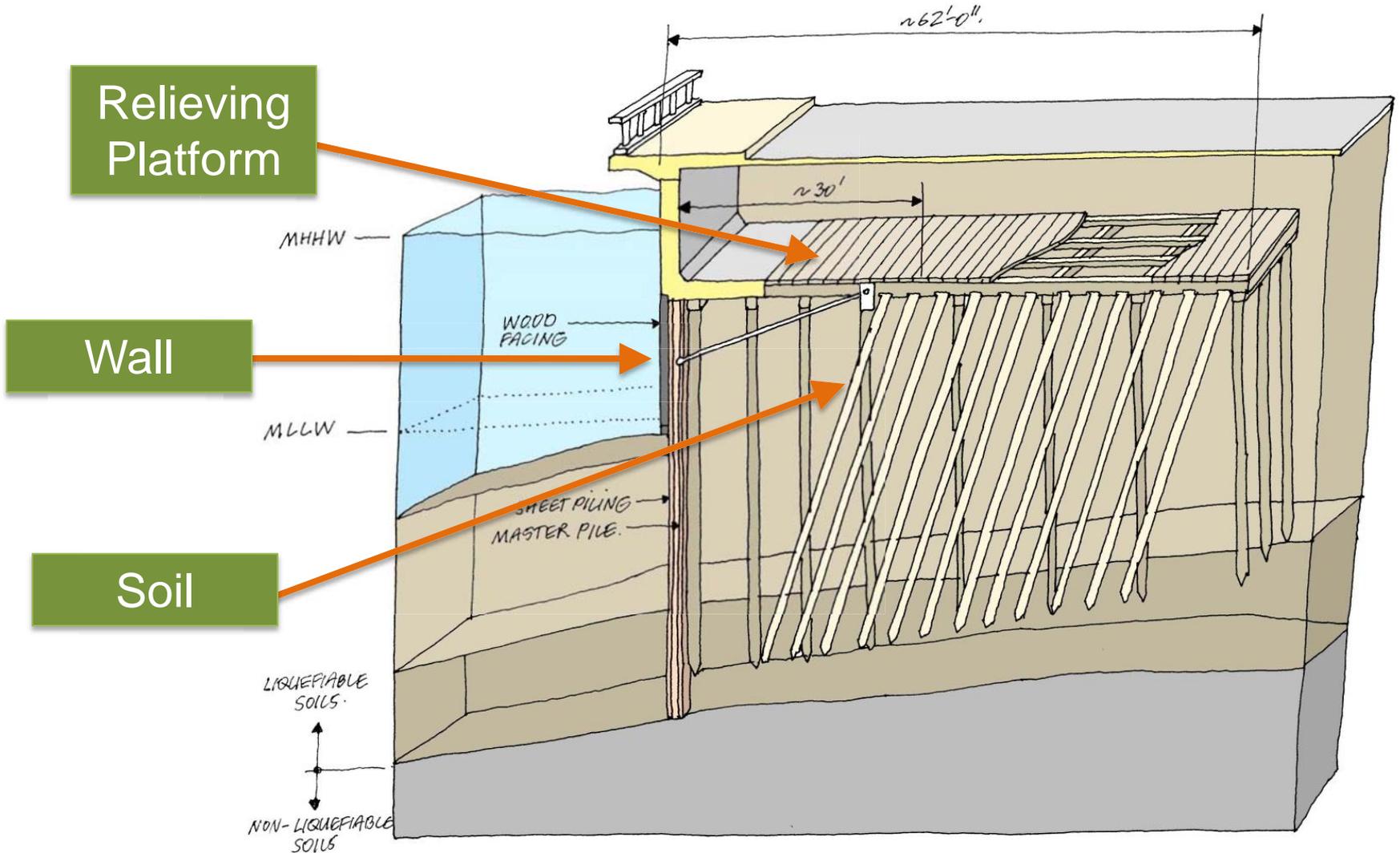
Washington State Ferries – Colman Dock Terminal

WSF Foot Ferry / King County Water Taxi

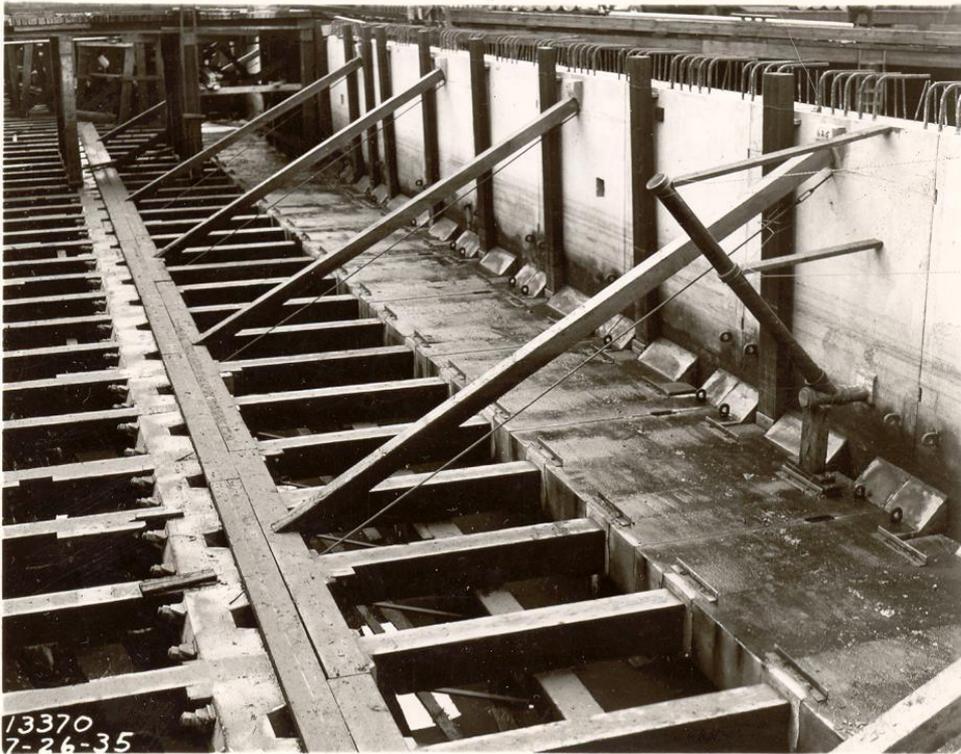
Historic Washington Street Boat Landing →

S. Washington St.

Structural Elements of the Wall



Relieving Platform Condition



Wall Condition at Washington Street: 1986



Soil Condition at Clay Street: 1954

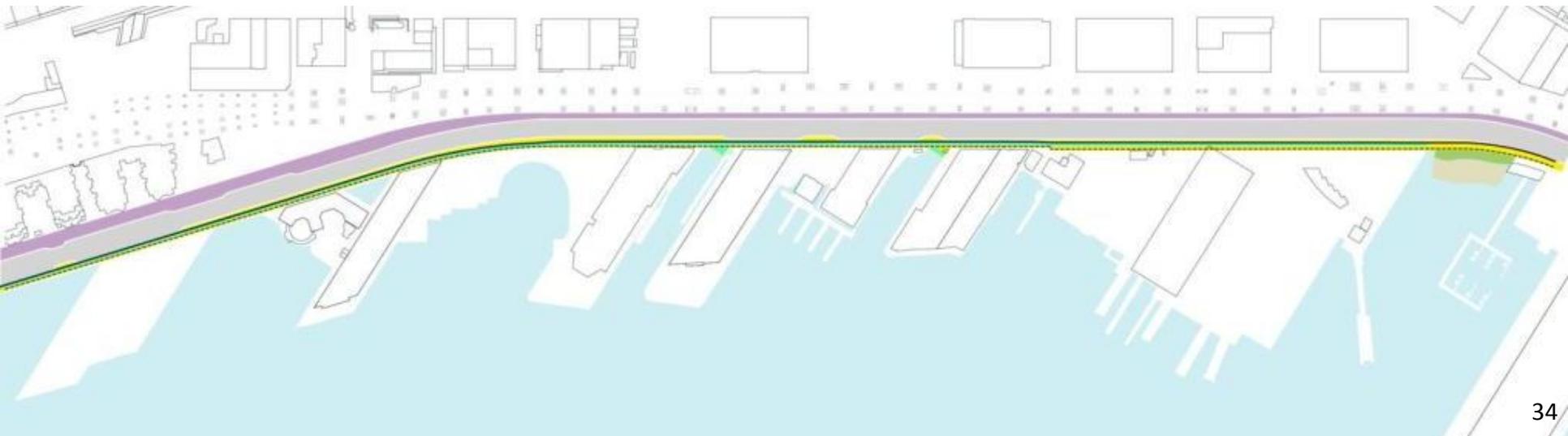


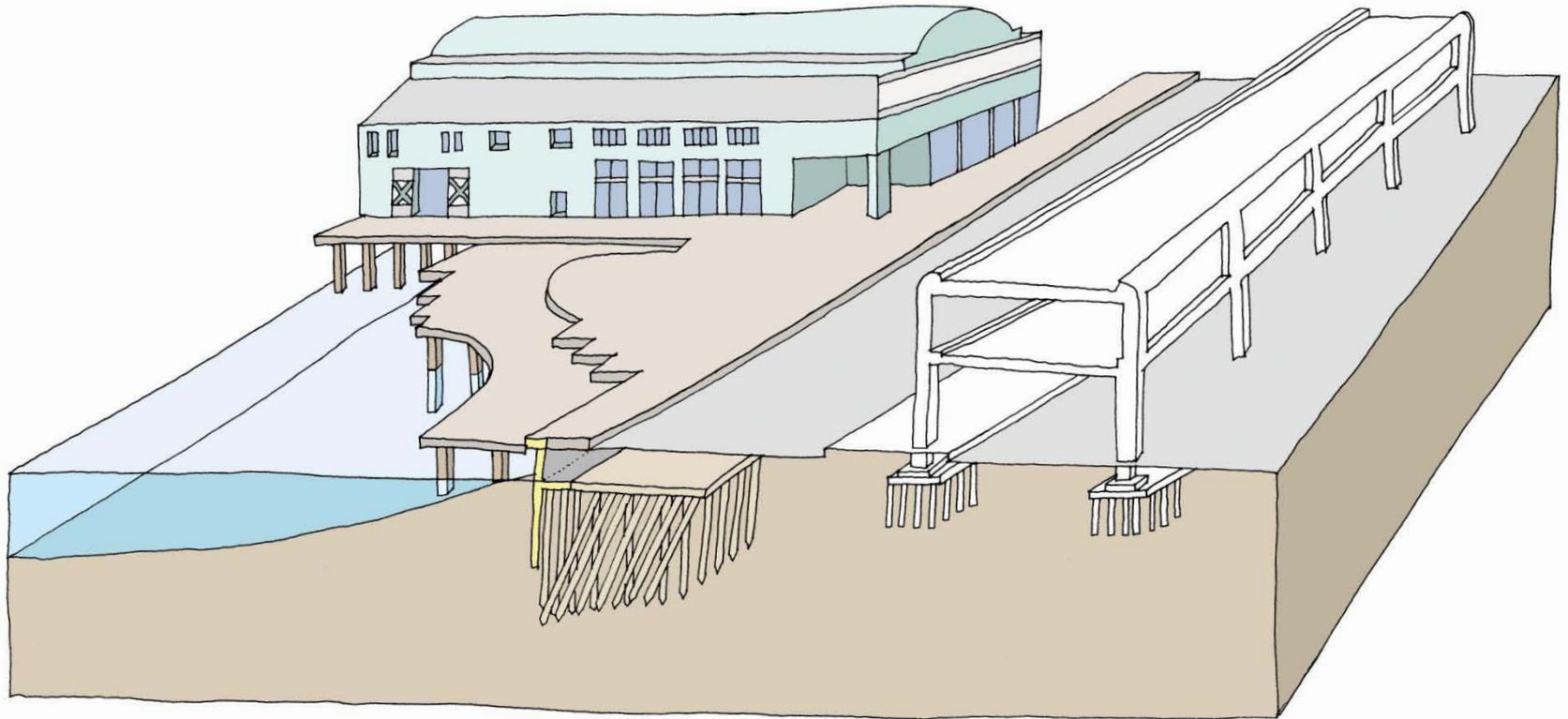
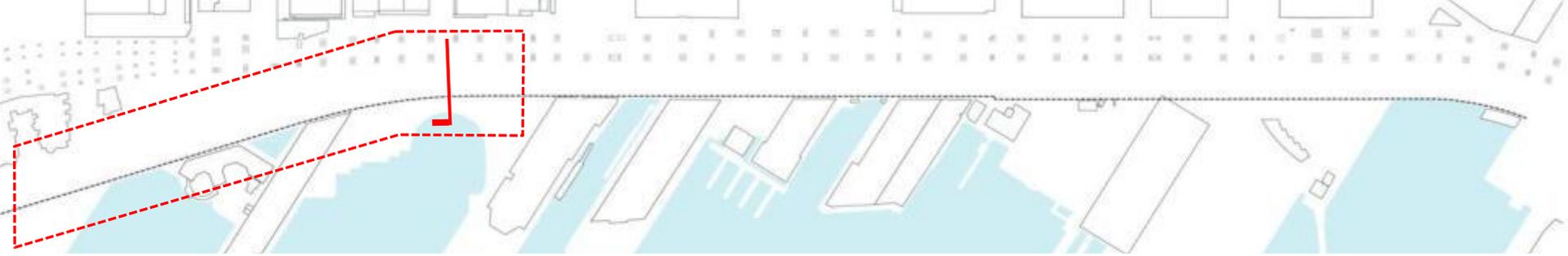
End Result: WSDOT Simulation (2010)



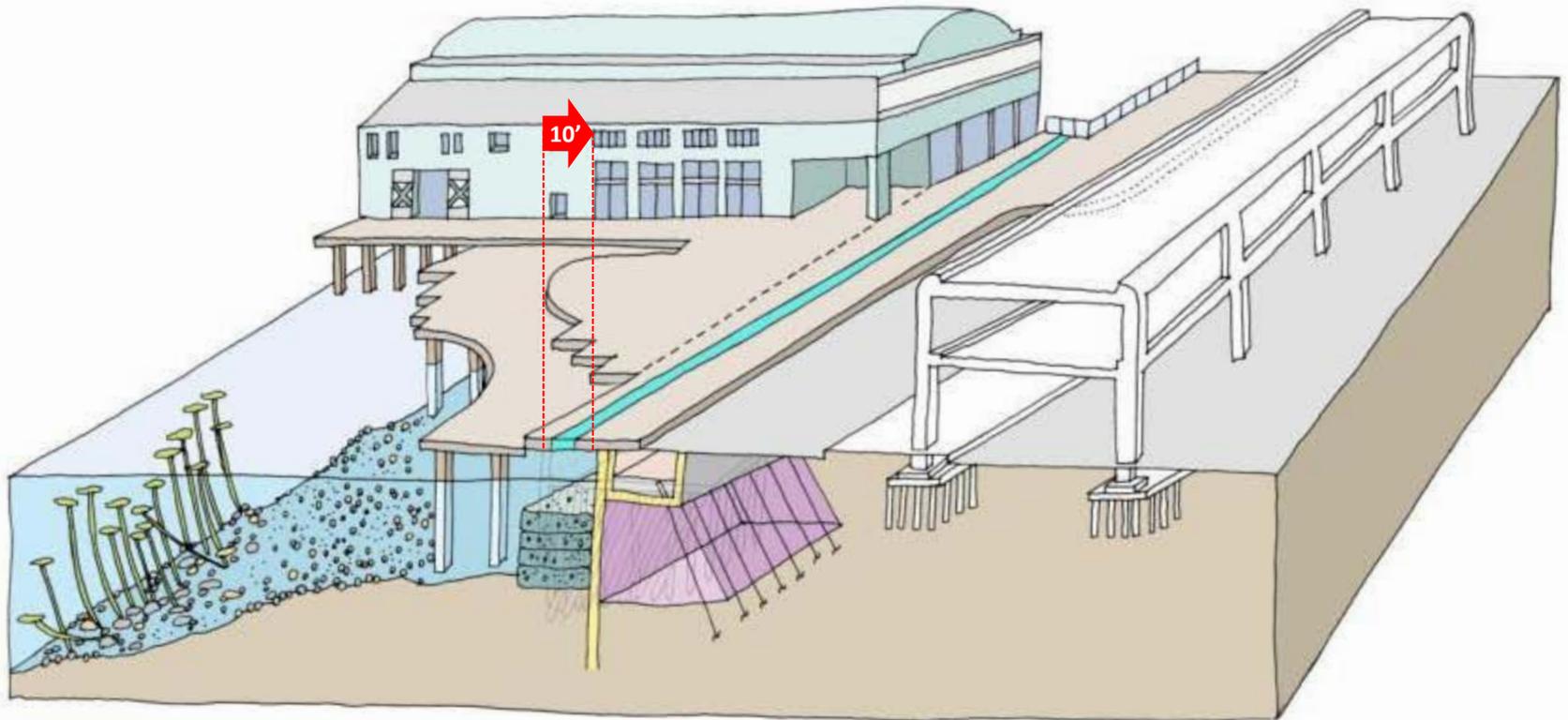
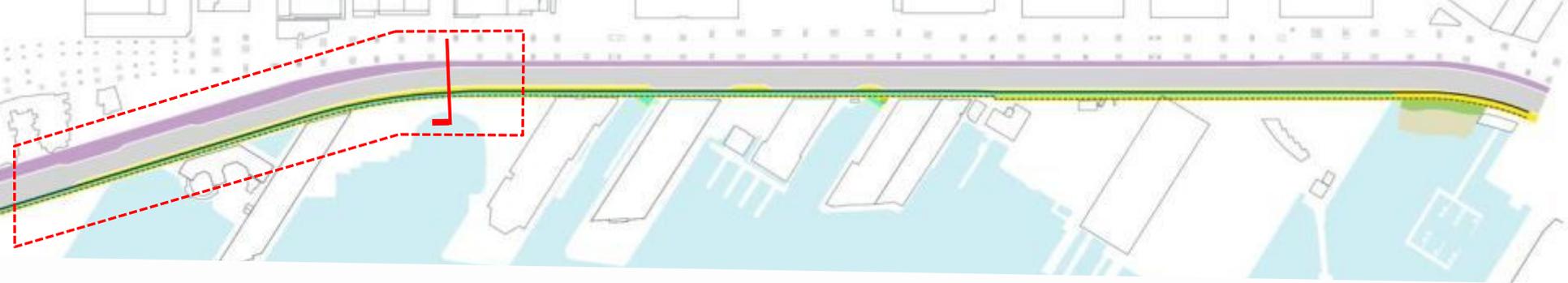
Recommended Design Features

- Face of wall: 10-15 feet inland
- Soil stabilization with jet grouting
- Continuous migration corridor and nearshore restoration
- Restored Alaskan Way and pedestrian/bicycle facilities
- Early program wins



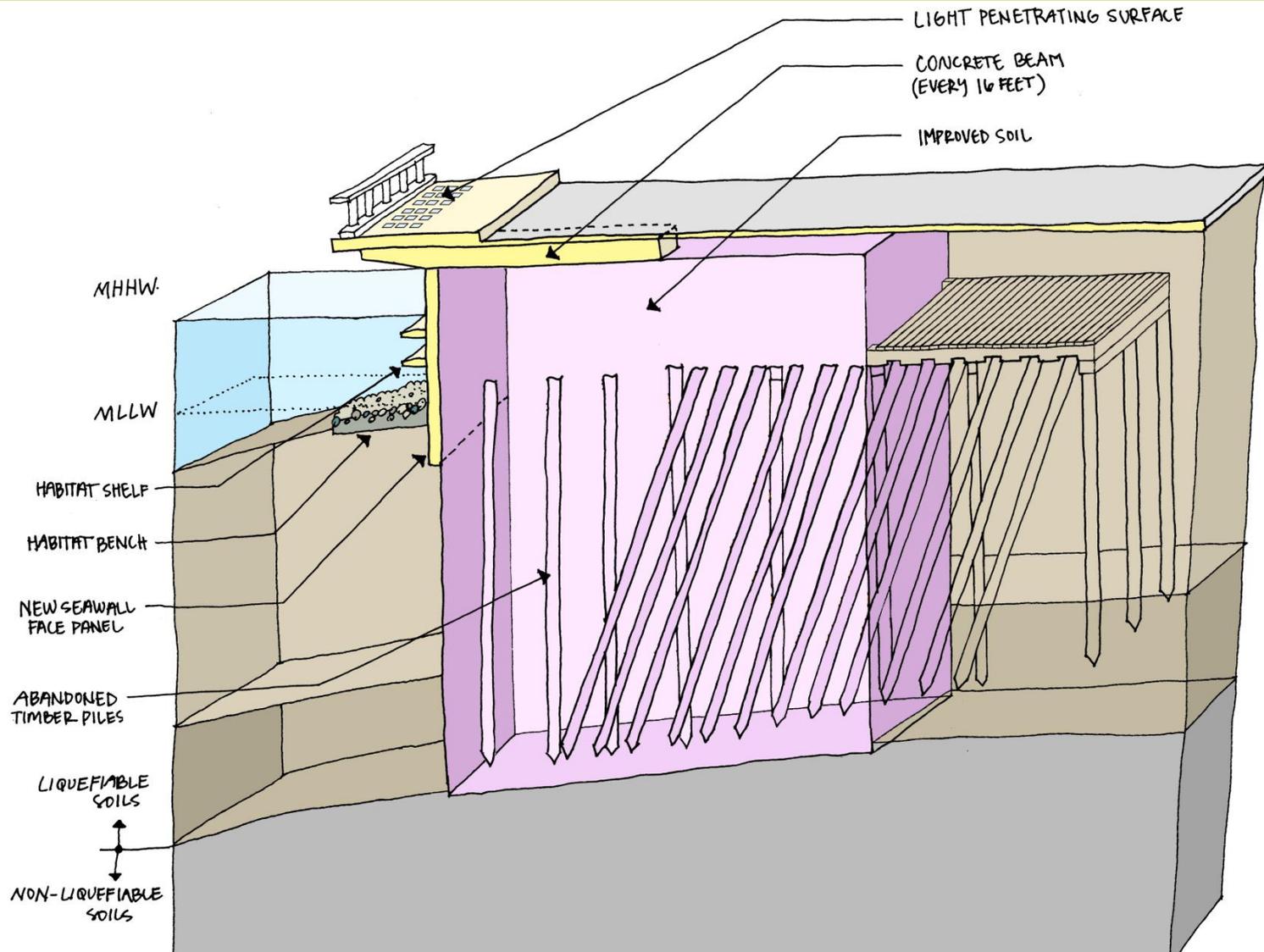


Existing – Zone 4



Recommended Design – Zone 4

Soil Stabilization: Jet Grouting

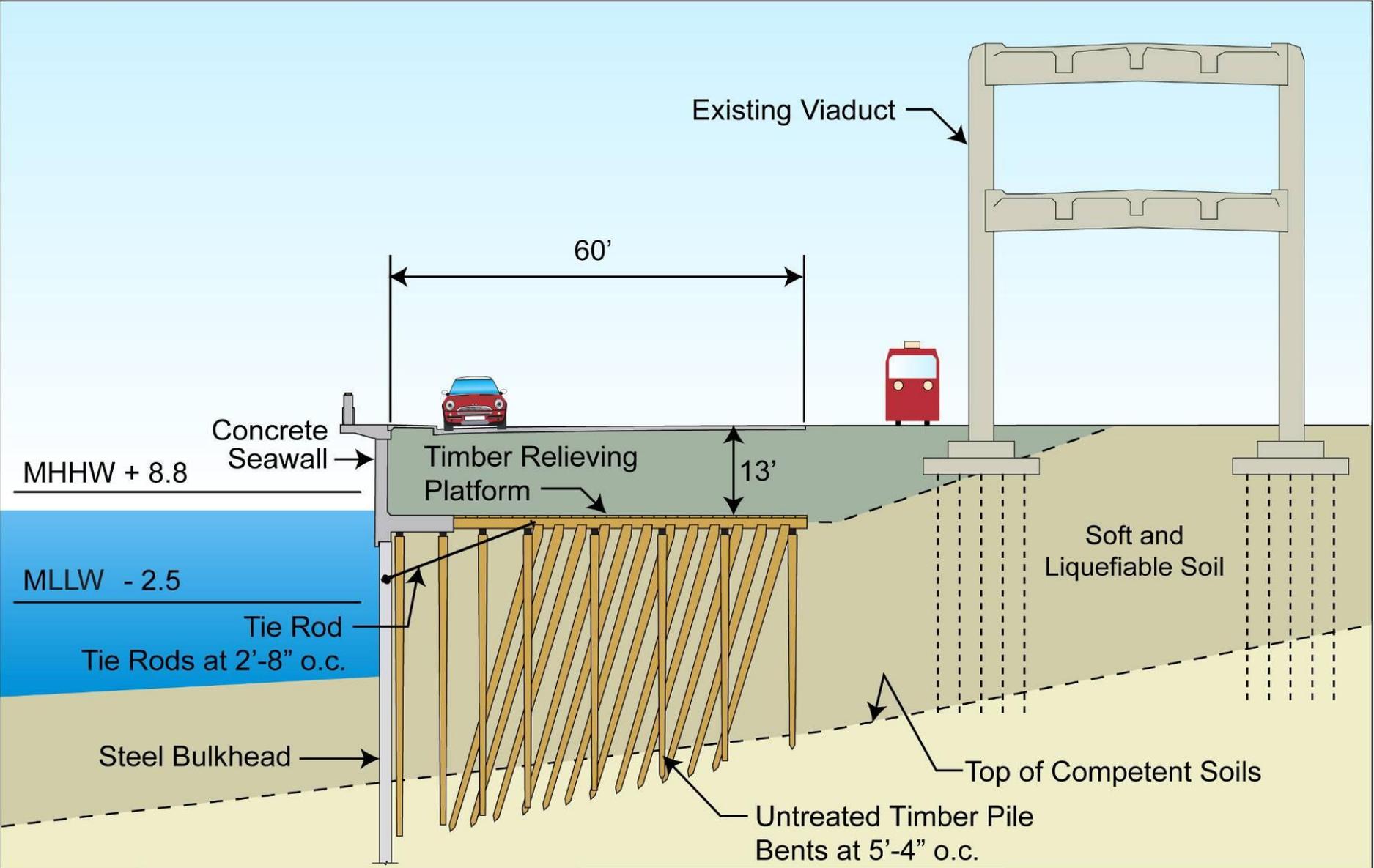


Central Seawall Costs – 35% Design

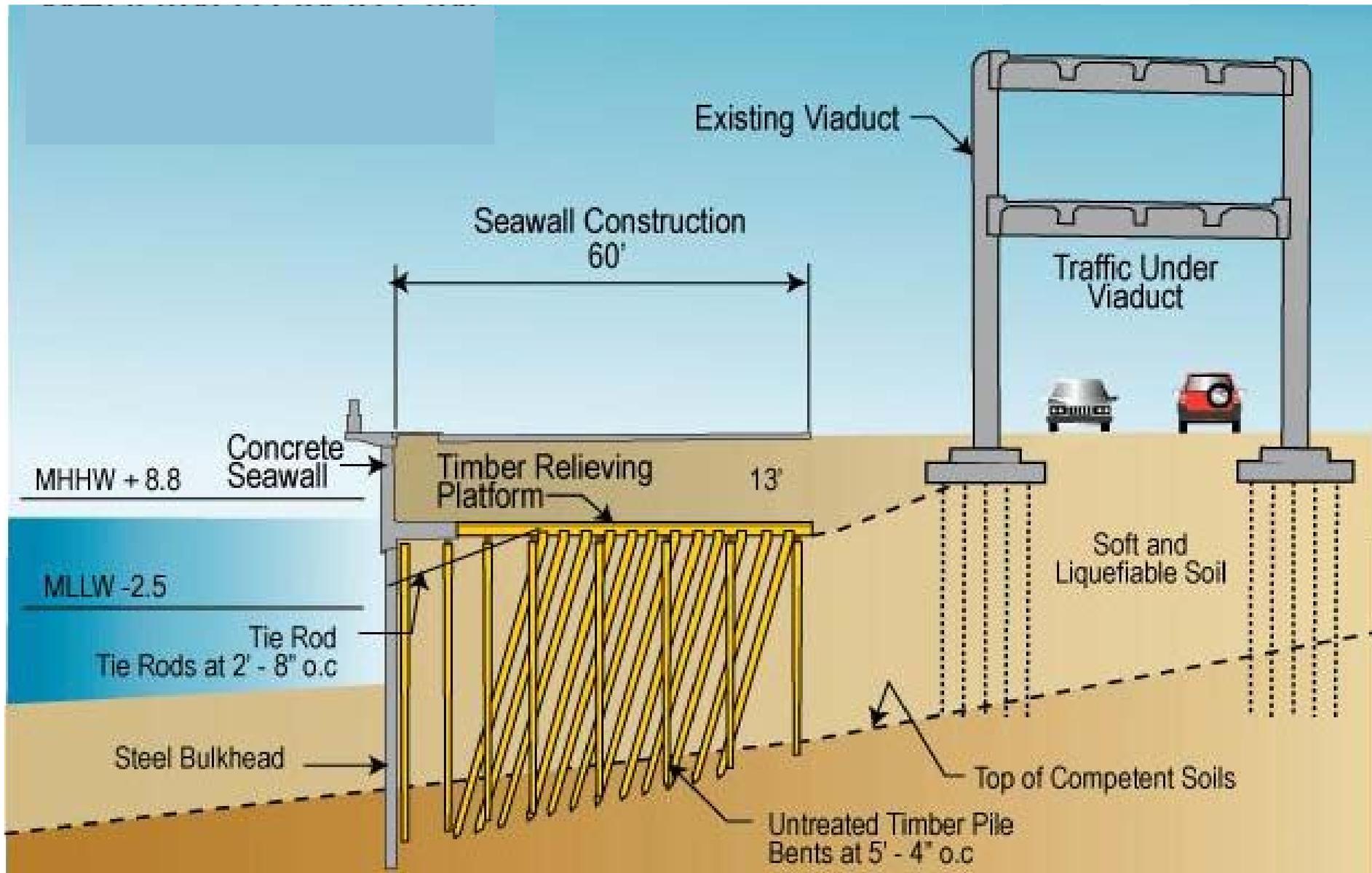
Costs in Year of Construction	Alt A	Alt B	Current CIP	35% Design
Environmental and Design	\$35 M	\$40 M		
Construction				
Soil Stabilization	\$185 M	\$223 M	\$330M	\$178 M
Ecosystem Restoration	\$8 M	\$23 M		\$11 M
Roadway and Access	\$19 M	\$23 M		\$23 M
Contingency	\$63 M	\$81 M		\$48 M
Subtotal	\$310 M	\$390 M		\$300M
Public Utilities Infrastructure				
SPU Facilities (full cost)	\$6 M	\$7 M		\$6 M
SCL Facilities (full cost)	\$19 M	\$19 M		\$19 M
Total	\$335 M	\$416 M	\$365M	\$325M

Sequencing of Waterfront Projects

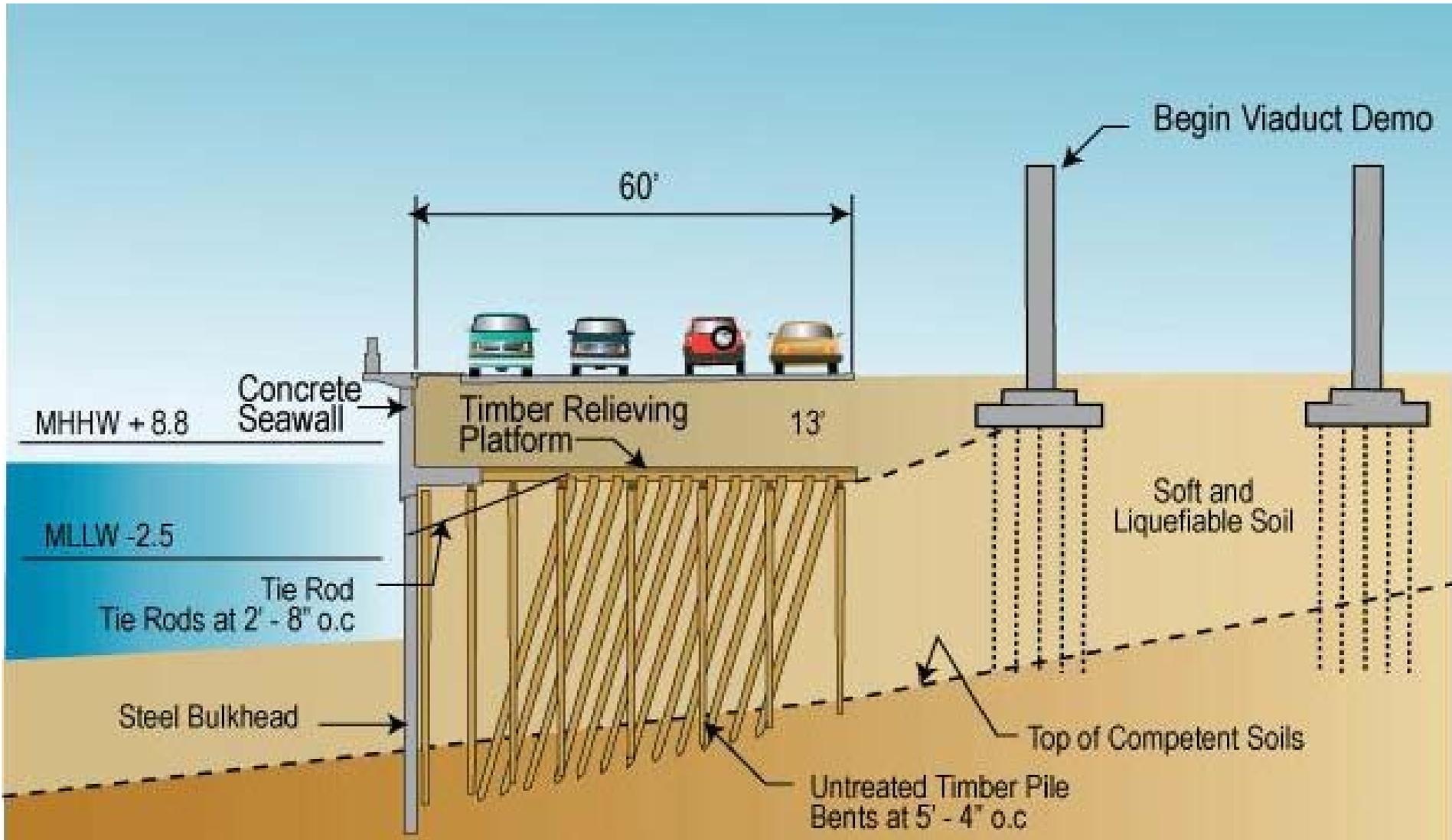
Washington to Pine: Today



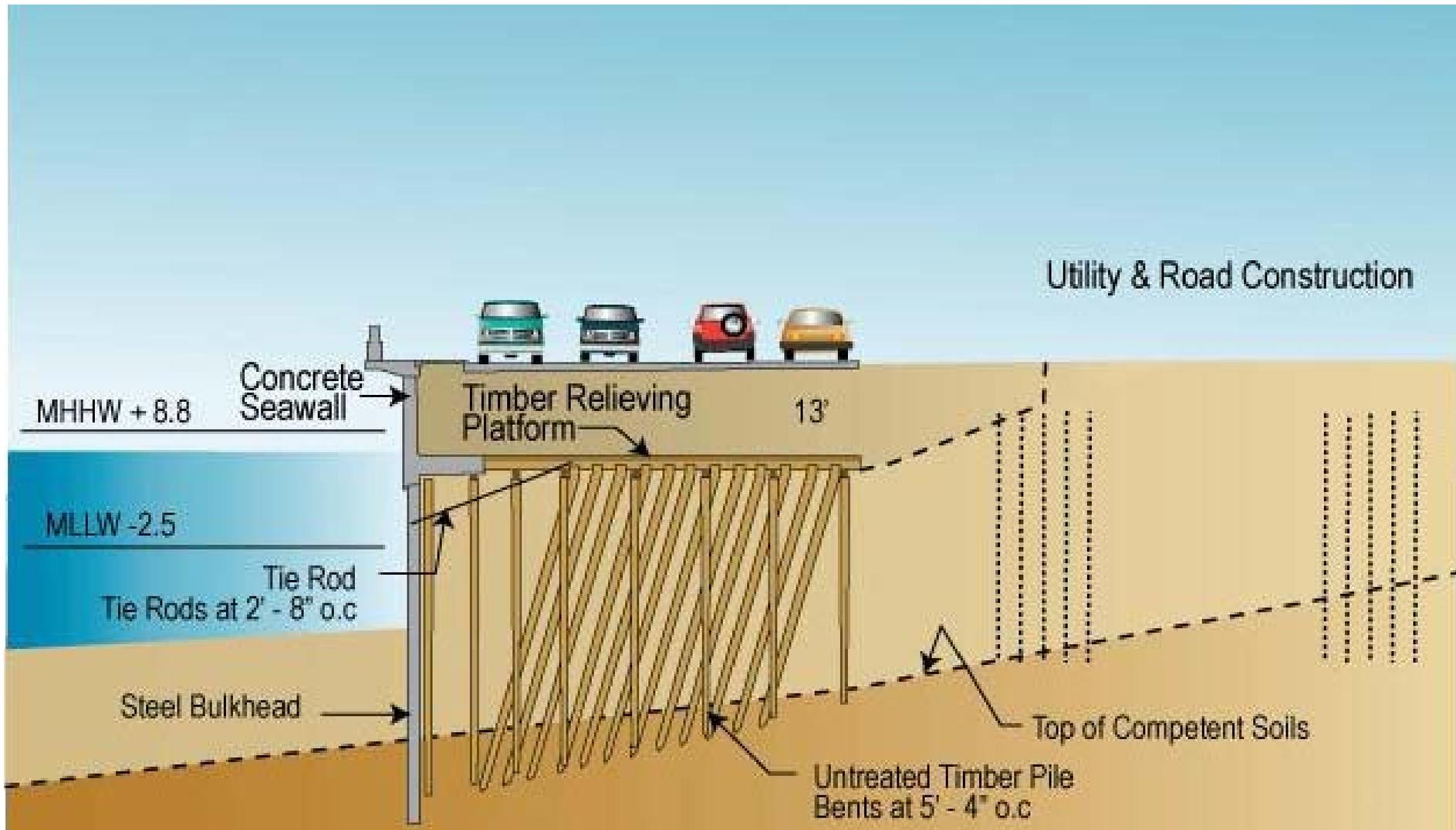
Seawall Construction: 2013 – 2016



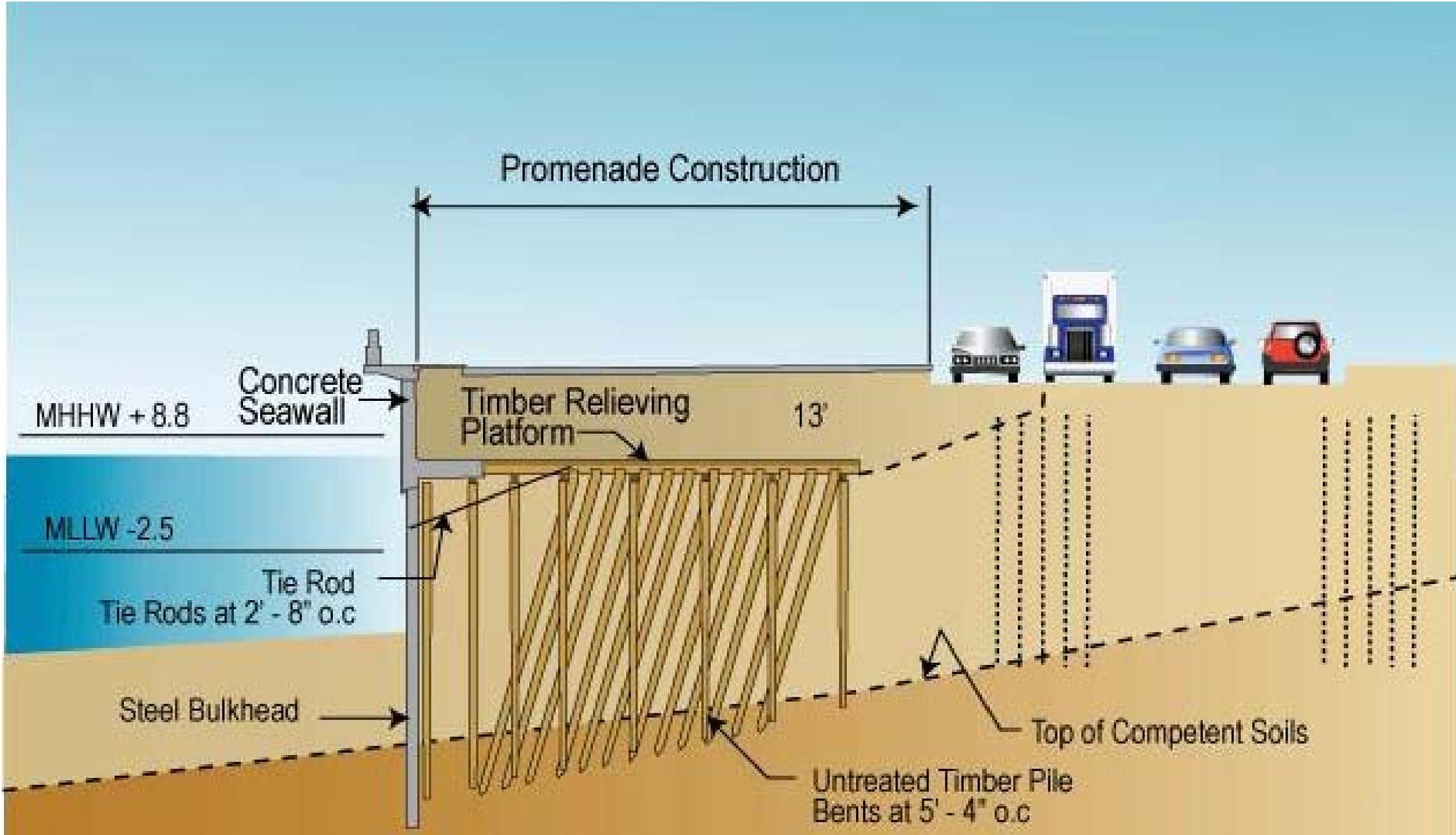
Viaduct Demolition: 2016 – 2017



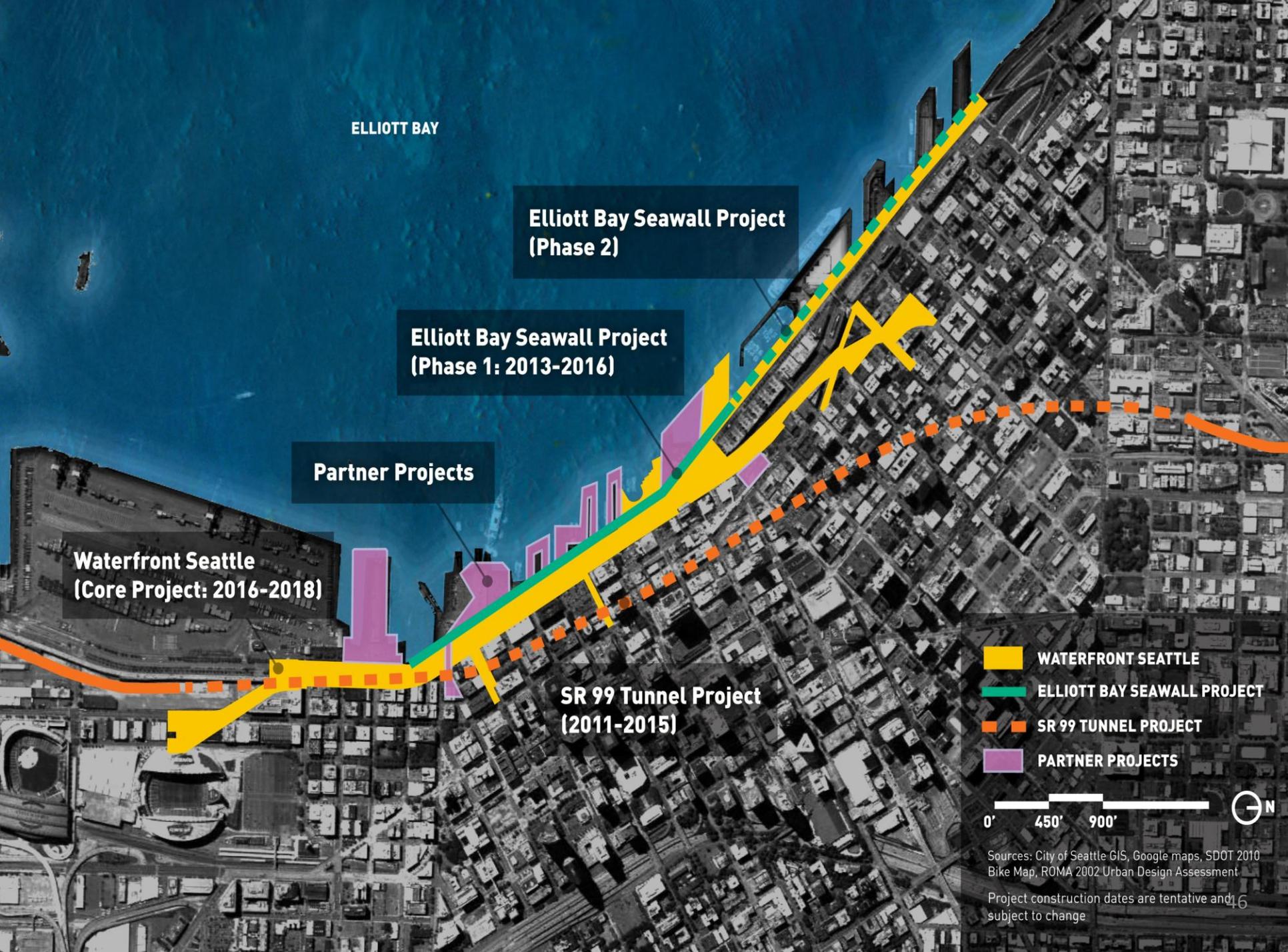
New Alaskan Way: 2017 – 2019



Promenade & New Public Spaces: 2019+



Waterfront Seattle



ELLIOTT BAY

Elliott Bay Seawall Project
(Phase 2)

Elliott Bay Seawall Project
(Phase 1: 2013-2016)

Partner Projects

Waterfront Seattle
(Core Project: 2016-2018)

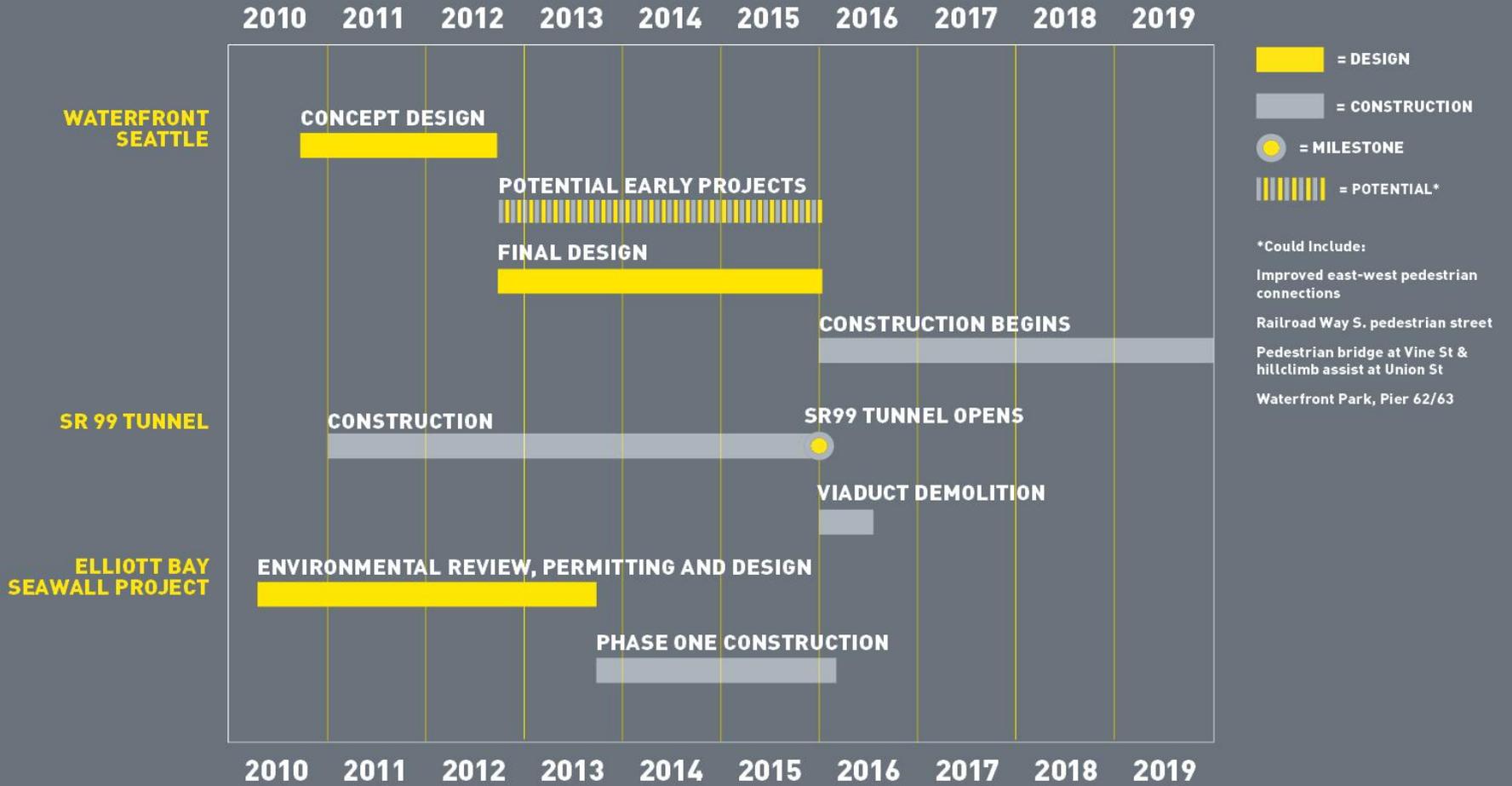
SR 99 Tunnel Project
(2011-2015)

- WATERFRONT SEATTLE
- ELLIOTT BAY SEAWALL PROJECT
- SR 99 TUNNEL PROJECT
- PARTNER PROJECTS

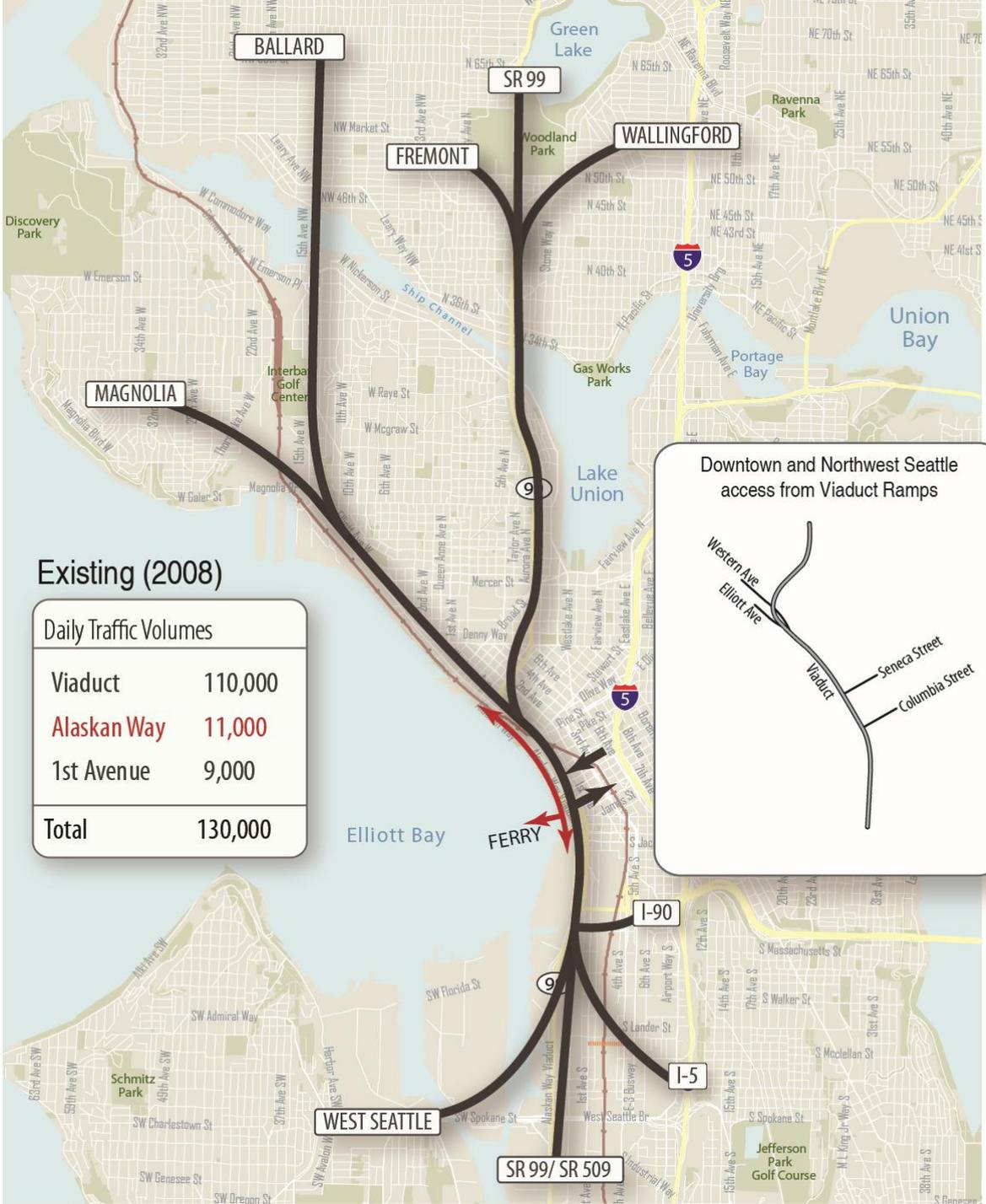


Sources: City of Seattle GIS, Google maps, SDOT 2010 Bike Map, ROMA 2002 Urban Design Assessment

Project construction dates are tentative and subject to change

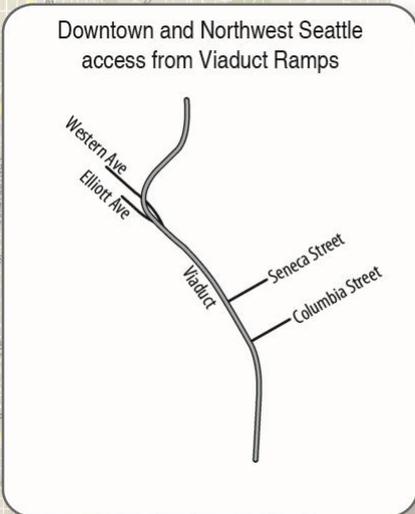


Existing SR 99 Traffic Patterns

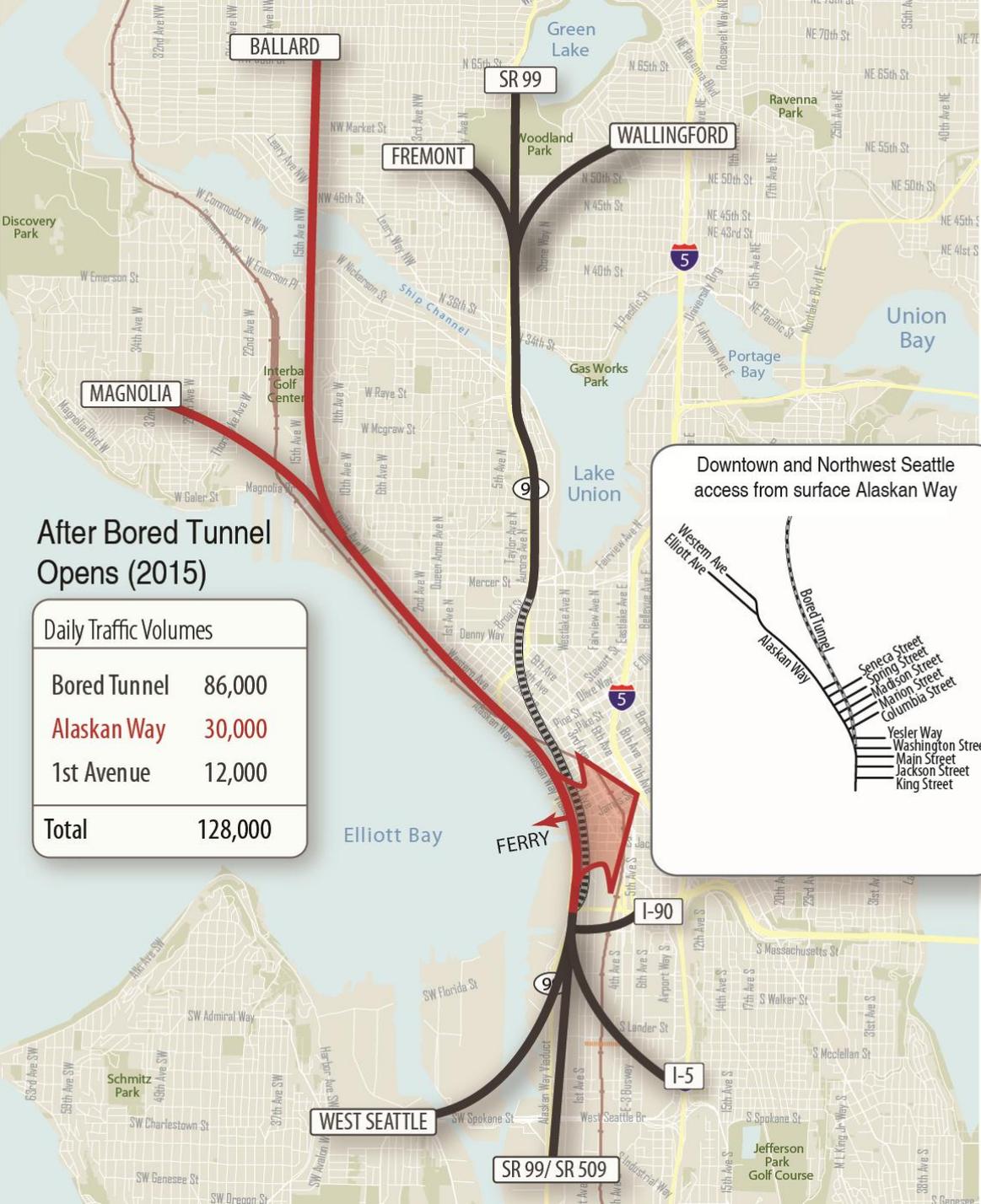


Existing (2008)

Daily Traffic Volumes	
Viaduct	110,000
Alaskan Way	11,000
1st Avenue	9,000
Total	130,000

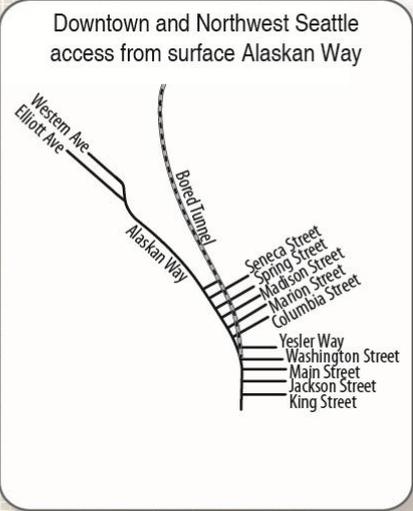


Traffic Changes After Bored Tunnel Opens

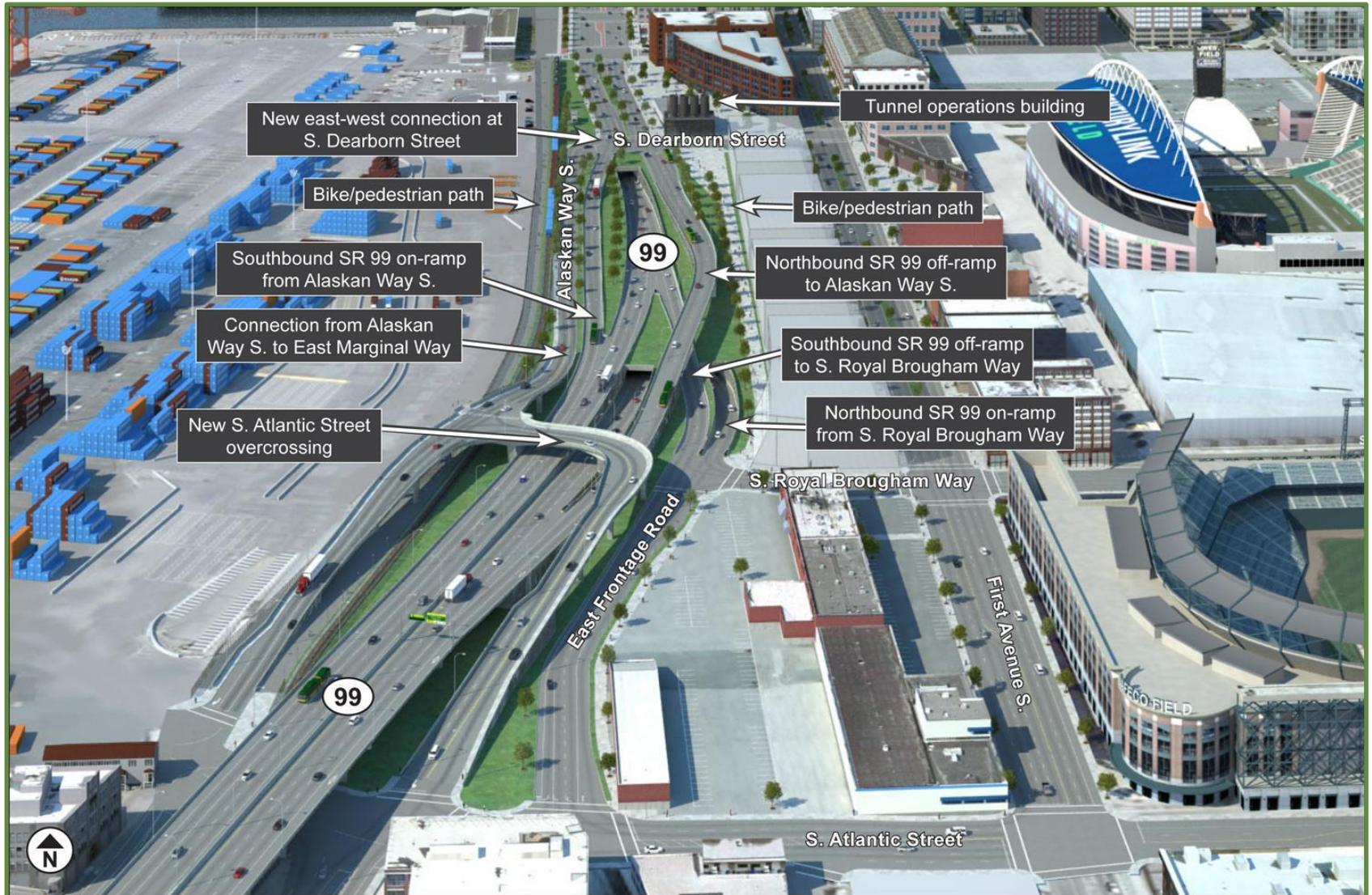


After Bored Tunnel Opens (2015)

Daily Traffic Volumes	
Bored Tunnel	86,000
Alaskan Way	30,000
1st Avenue	12,000
Total	128,000



South Portal Design





**PUBLIC
ACCESS**



**PEDESTRIAN
CONNECTIONS**



FREIGHT



**PUBLIC
TRANSIT**



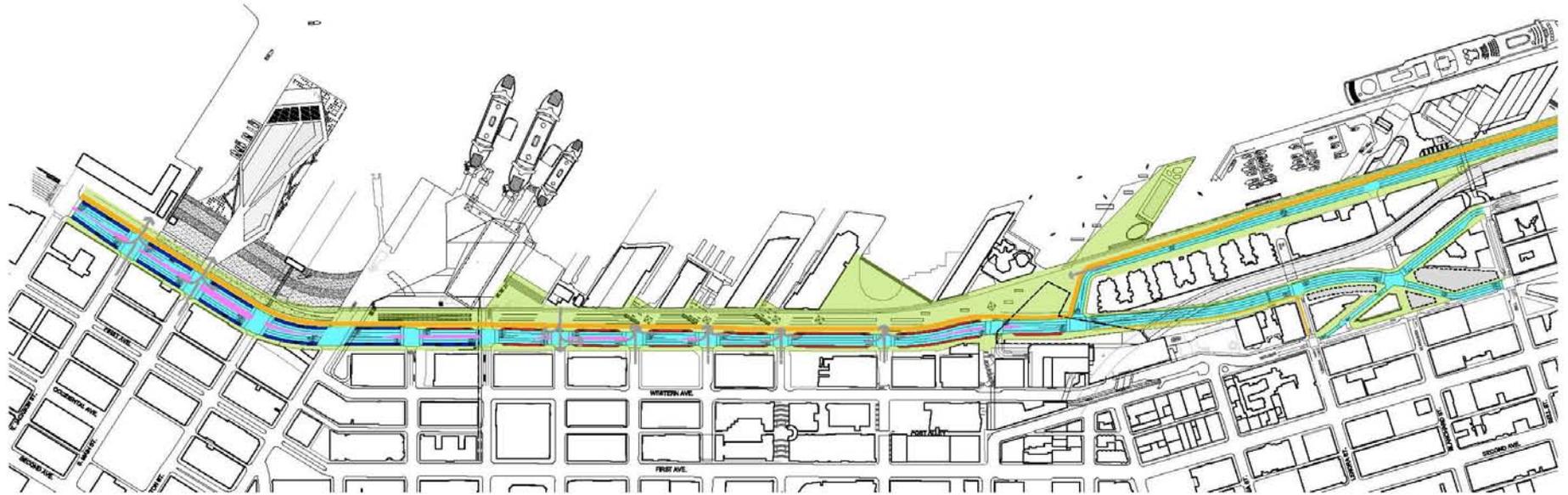
**EXISTING
PARKING**



**ALASKAN
WAY USERS**

STREET DESIGN

SITE PLAN



VEHICLE LANES
GENERAL TRAFFIC /
FREIGHT /
LOCAL TRANSIT

PARKING / LOADING

FLEX LANES
PEAK PERIOD TRANSIT
/ OFF-PEAK PARKING &
LOADING

MEDIANS

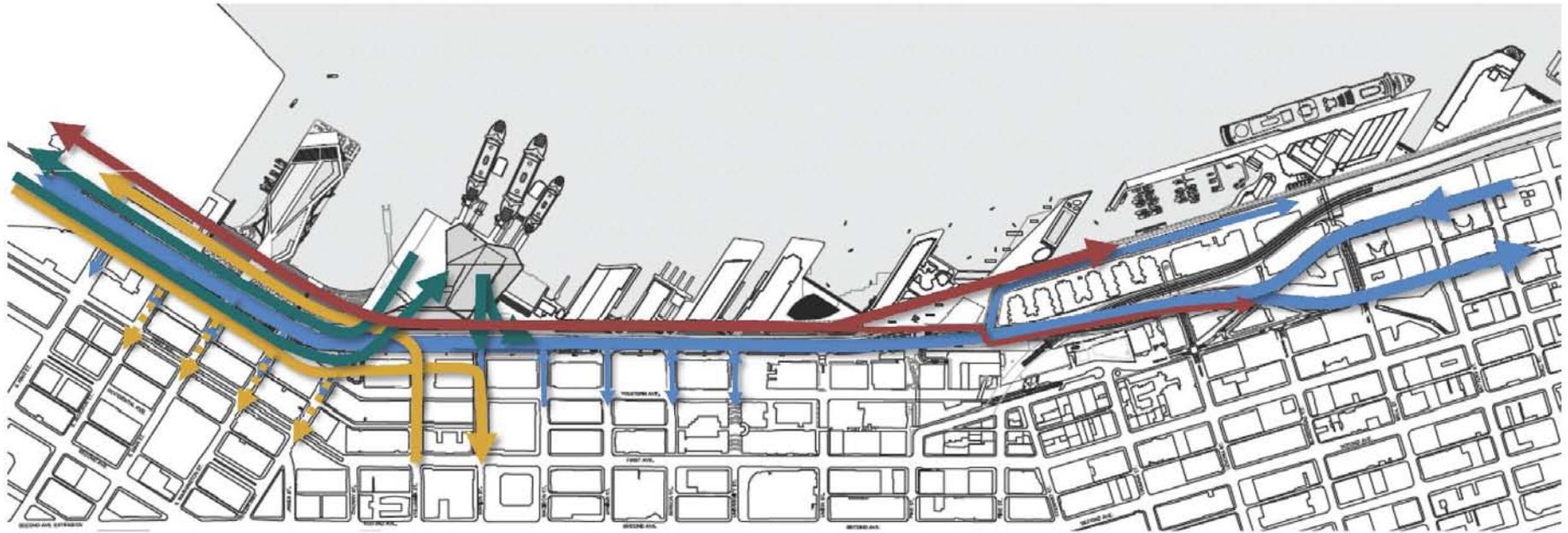
BIKEWAY/LANE

PUBLIC REALM

SERVICE ROUTES

STREET DESIGN

FUNCTIONS OF THE STREET



-  VEHICLES, PARKING AND LOADING
-  FERRIES: LOADING AND UNLOADING
-  TRANSIT LINKAGE
-  NORTH/SOUTH BICYCLE AND PEDESTRIAN MOVEMENT

STREET DESIGN

TRAFFIC CONSIDERATIONS

Waterfront Seattle

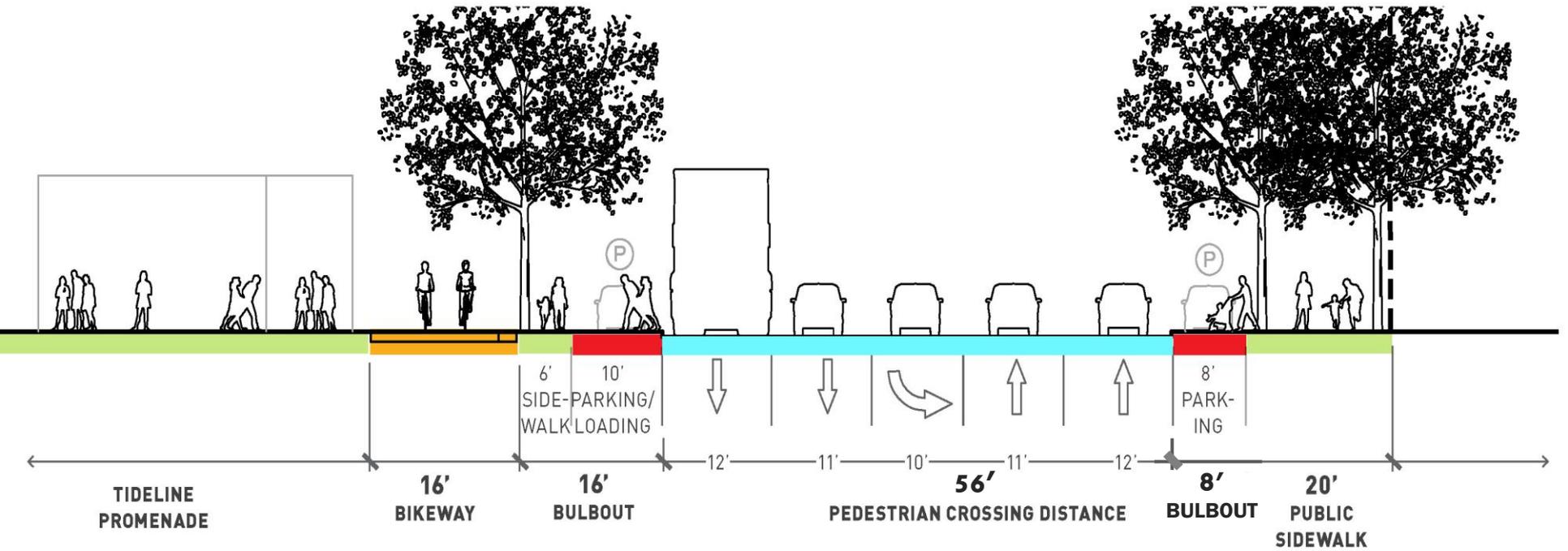
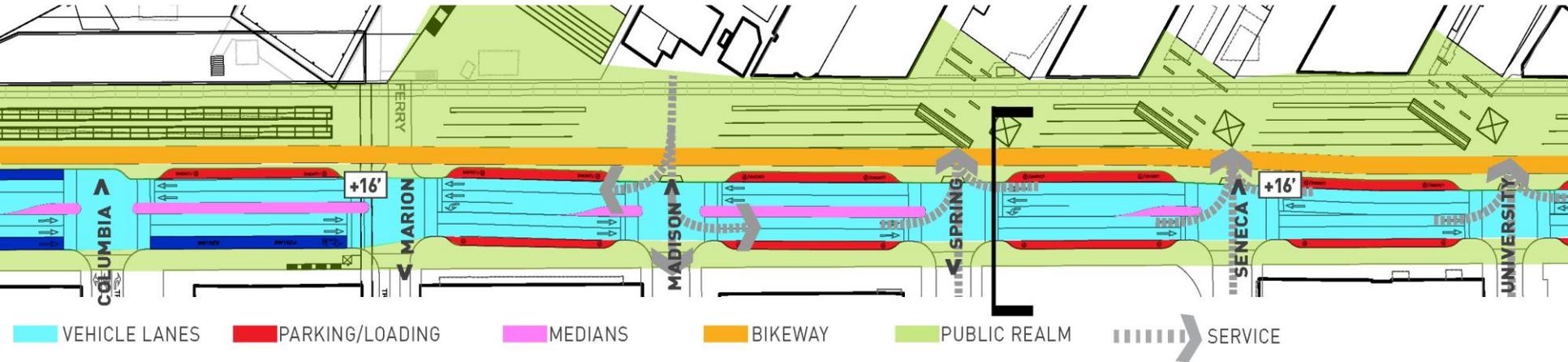
2030 Average daily traffic volumes on Alaskan Way



Central Segment

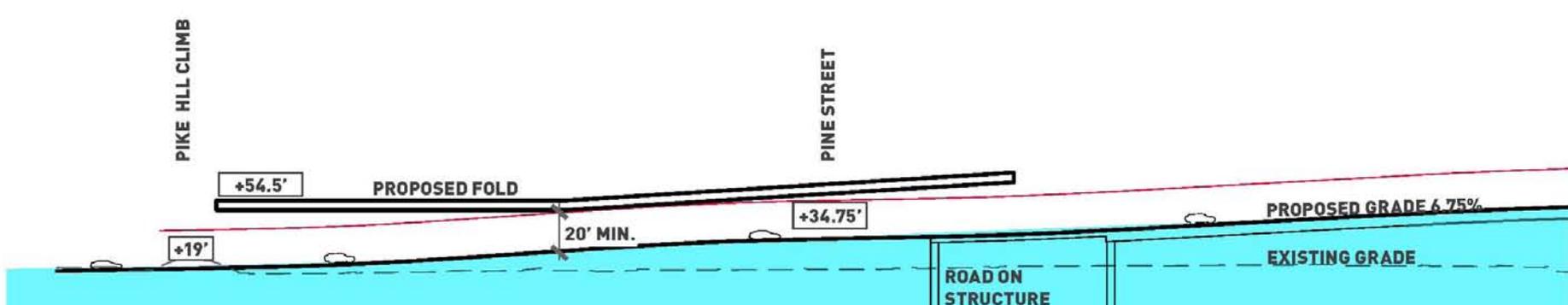
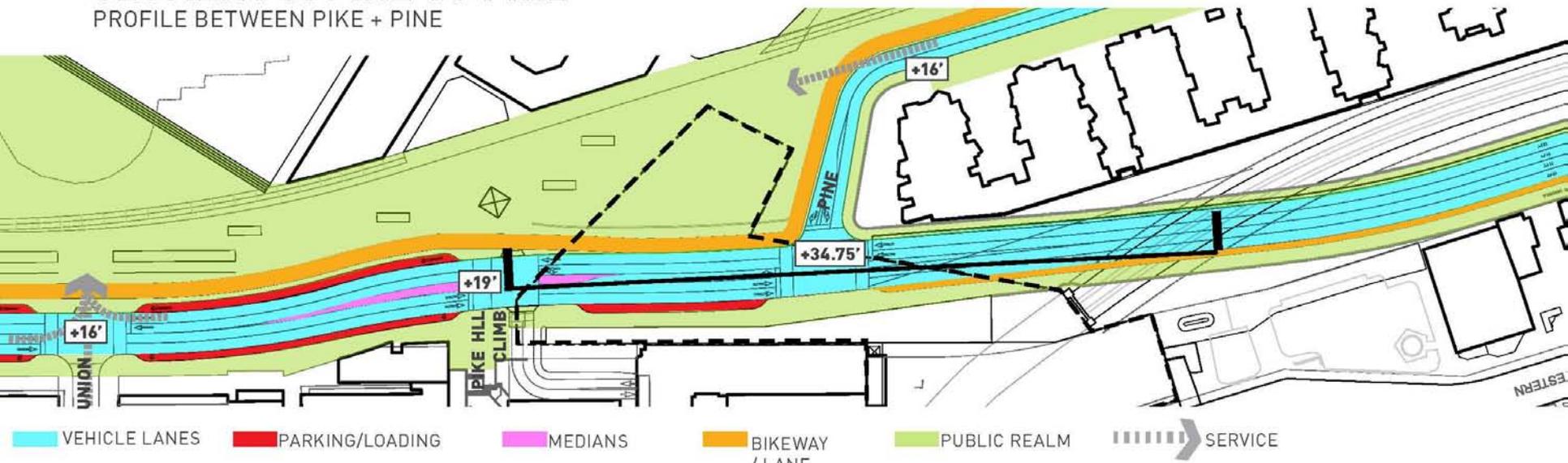
SEGMENT 3: MARION TO SENECA

SECTION @ SPRING STREET



SEGMENT 5: PIKE TO PINE

PROFILE BETWEEN PIKE + PINE

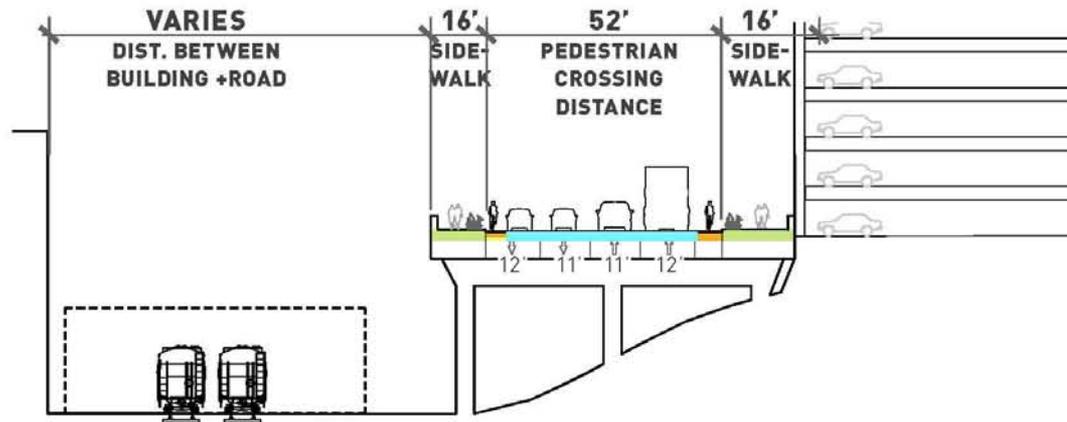
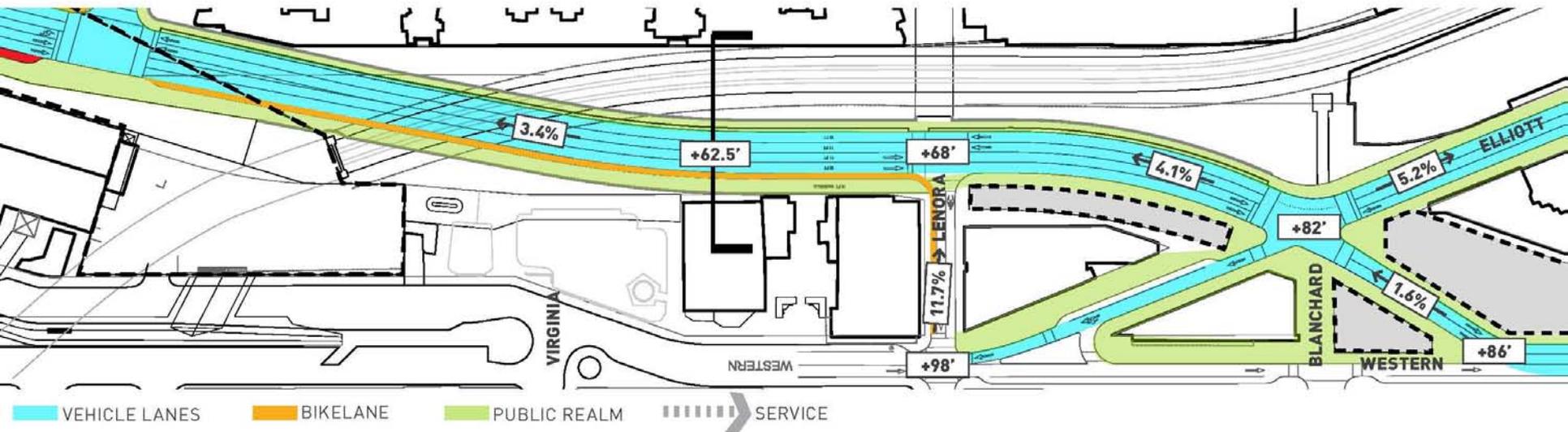


PROFILE BETWEEN PIKE AND STEWART ST., LOOKING WEST



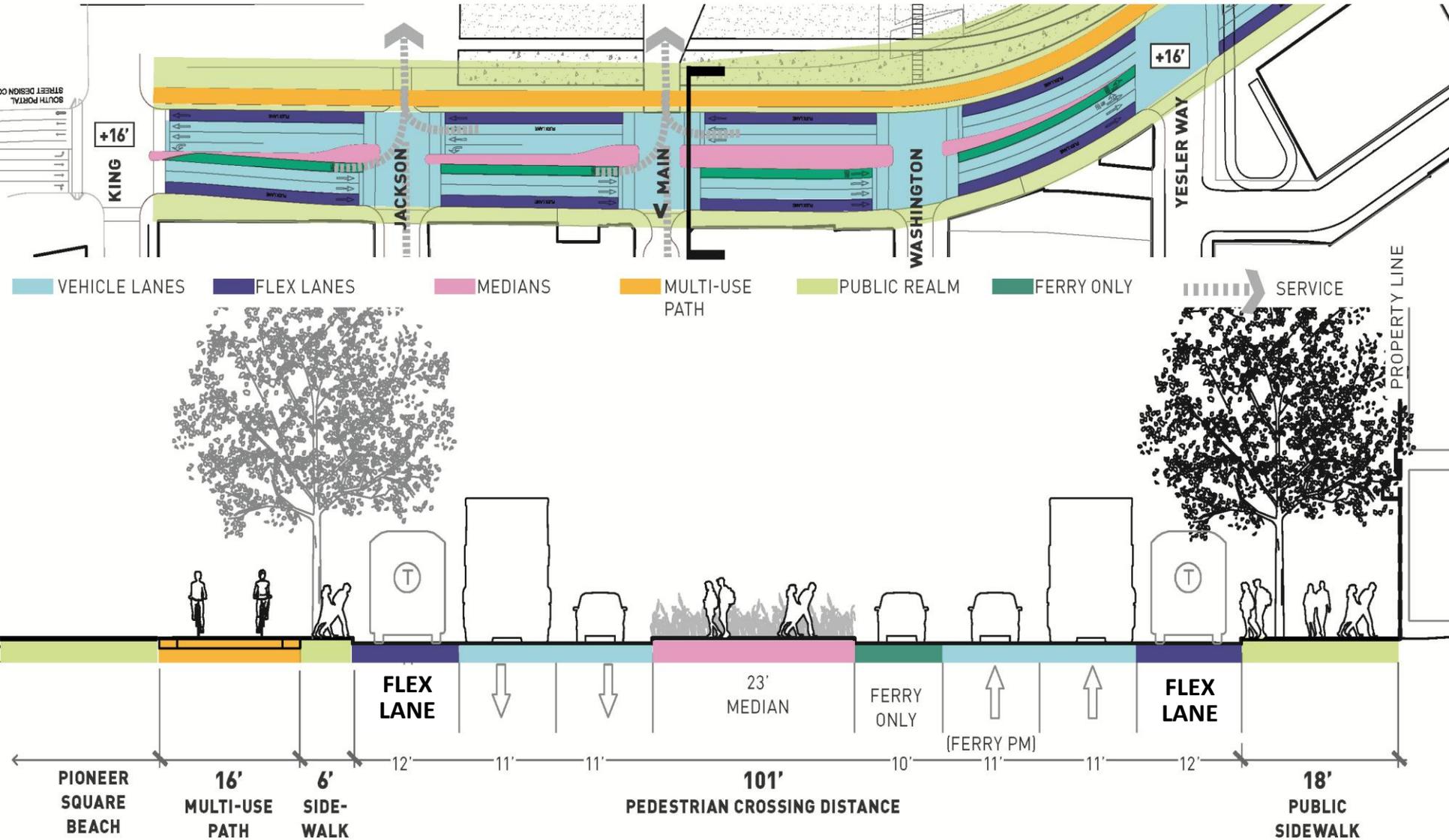
SEGMENT 6A: PINE TO LENORA

SECTION @ VIRGINIA STREET



SEGMENT 1: S. KING TO YESLER WAY

SECTION @ S. MAIN STREET

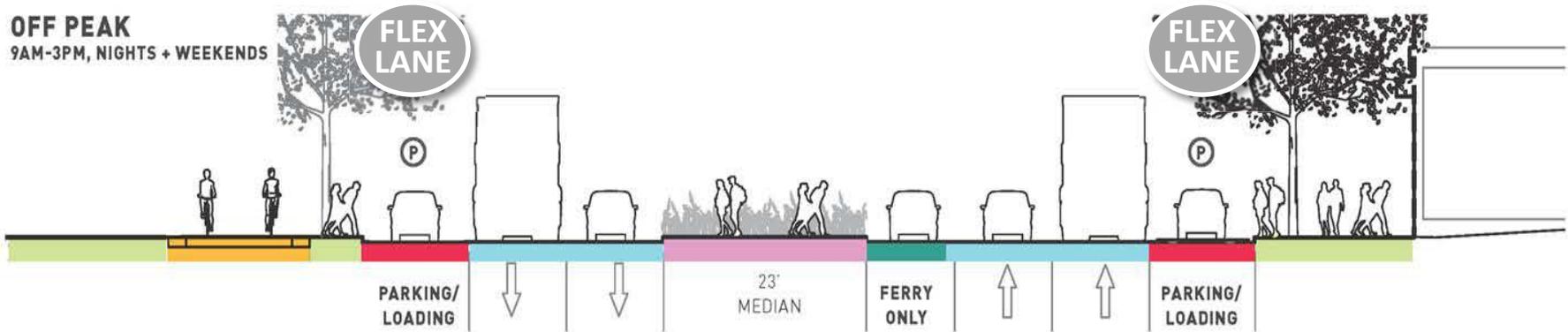


STREET DESIGN

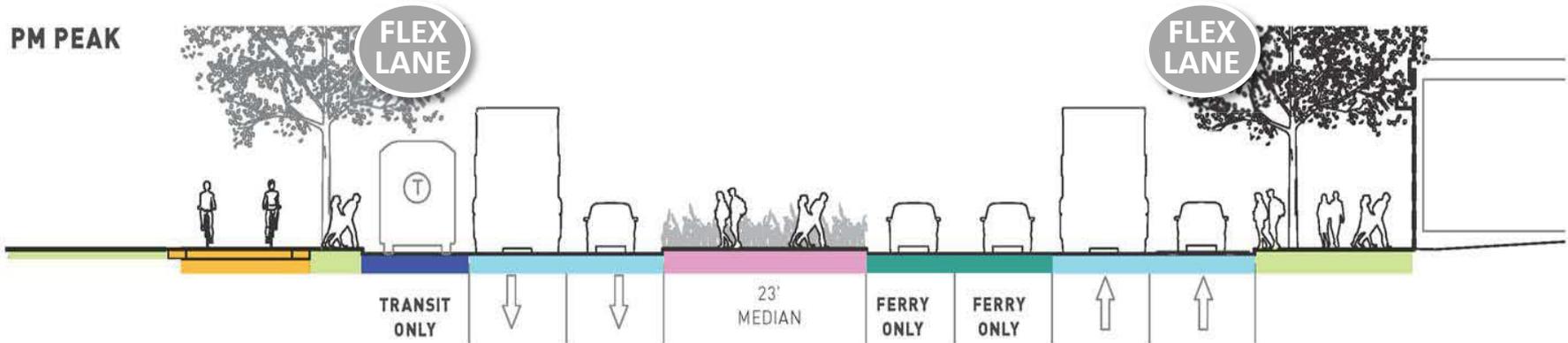
FLEX LANES

OFF PEAK

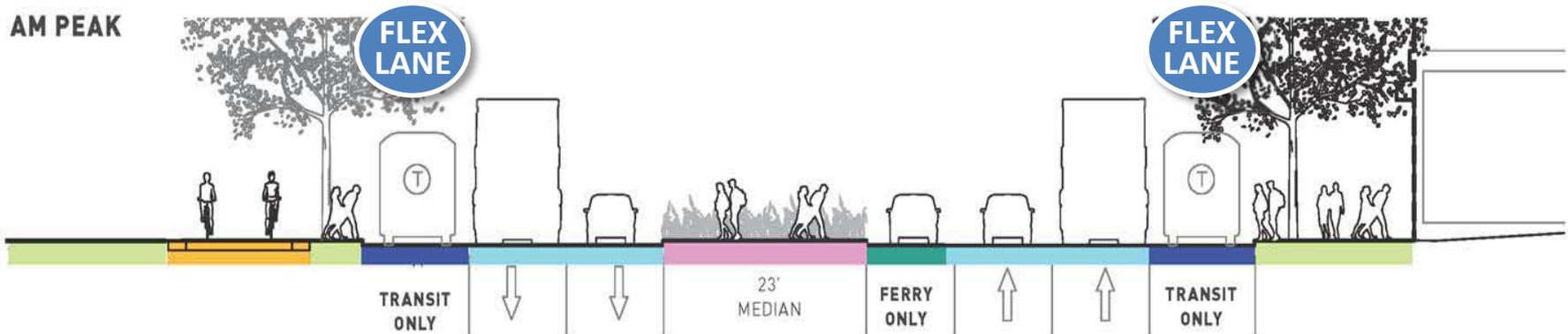
9AM-3PM, NIGHTS + WEEKENDS



PM PEAK

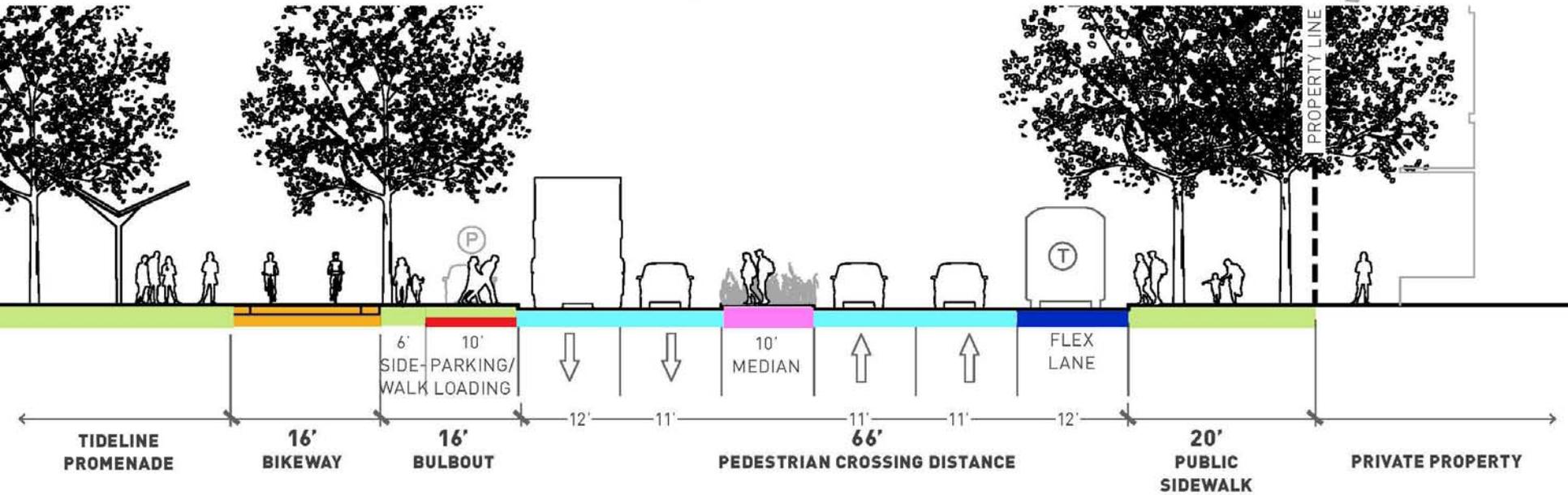
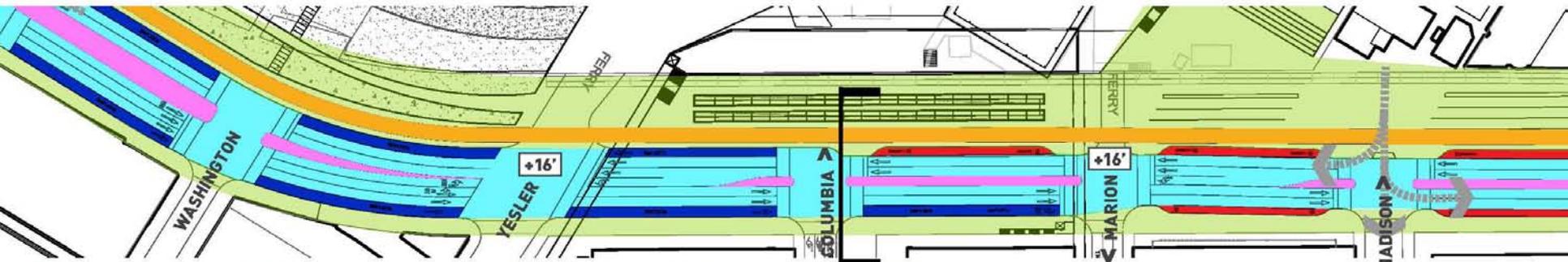


AM PEAK



SEGMENT 2: YESLER TO MARION

SECTION @ COLUMBIA STREET



Back Pocket

OVERALL FRAMEWORK

EXISTING AND PROPOSED TRANSIT NETWORK

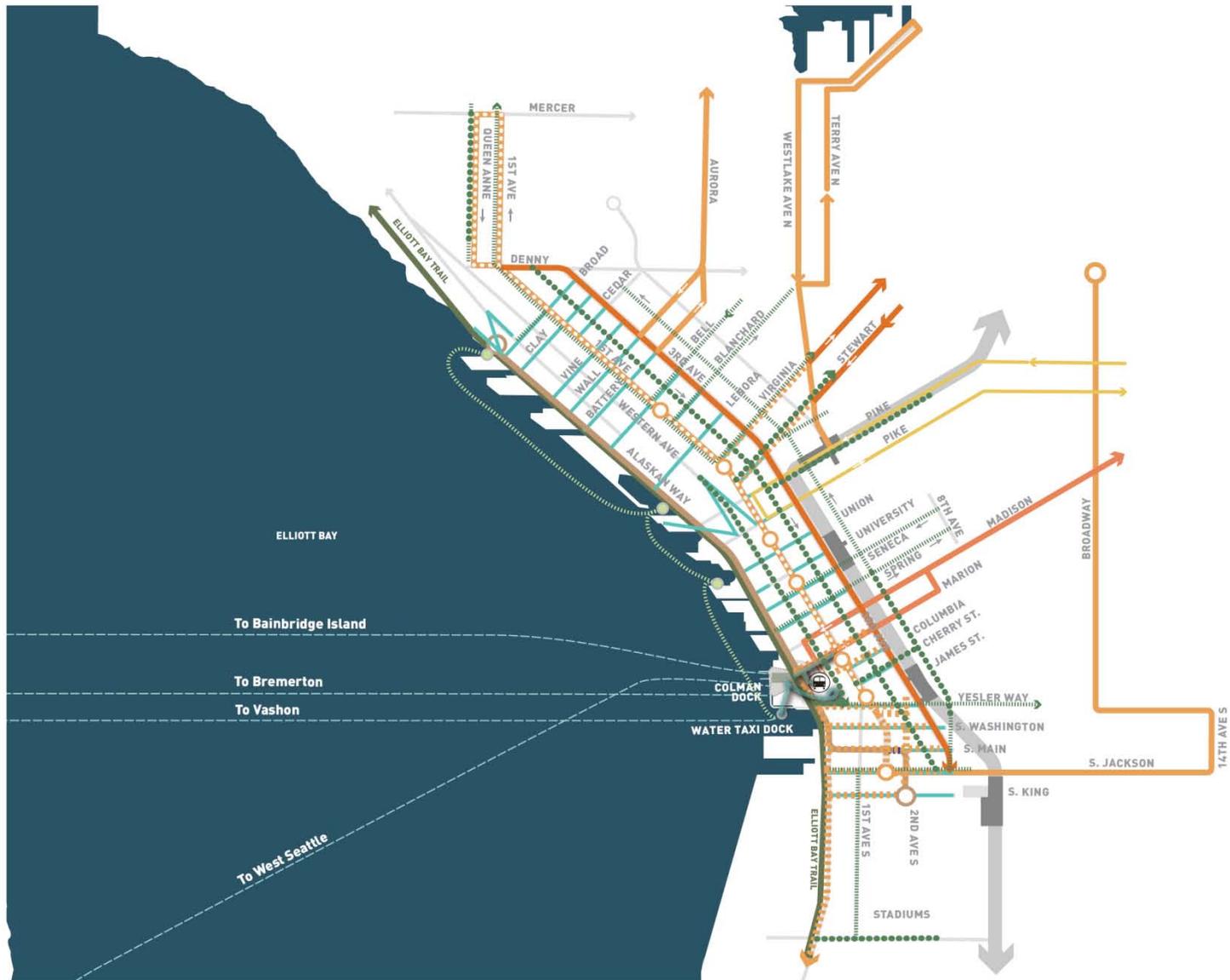
-  LIGHT RAIL
-  TRANSIT TUNNEL STATIONS
-  BRT AND BUS TRANSIT SPINE
-  EXISTING AND PLANNED STREETCAR
-  PROPOSED CENTRAL CITY STREETCAR
-  SW TRANSIT PATHWAY OPTIONS
-  FREQUENT TROLLEY BUS ROUTES
-  WATERFRONT CIRCULATOR
-  WATER TAXI
-  BRT STATION

EXISTING AND PROPOSED BIKE NETWORK

-  BIKE LANES
-  SHARROWS
-  MULTI-USE TRAILS

EXISTING AND PROPOSED PEDESTRIAN NETWORK

-  PEDESTRIAN CONNECTIONS
-  ELEVATED PEDESTRIAN PATHS





STREET DESIGN

TRAFFIC CONSIDERATIONS

Waterfront Seattle
Travel times on Alaskan Way
Year 2030 PM peak hour

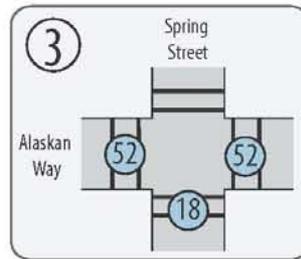
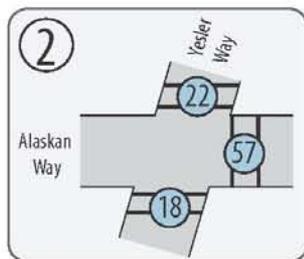
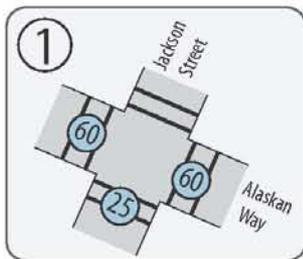


TRAVEL TIMES SHOWN IN MINUTES

STREET DESIGN

TRAFFIC CONSIDERATIONS

Waterfront Seattle
 Pedestrian crossing wait times + crossing times
 Year 2030 PM peak hour



52 Average pedestrian wait time + crossing time

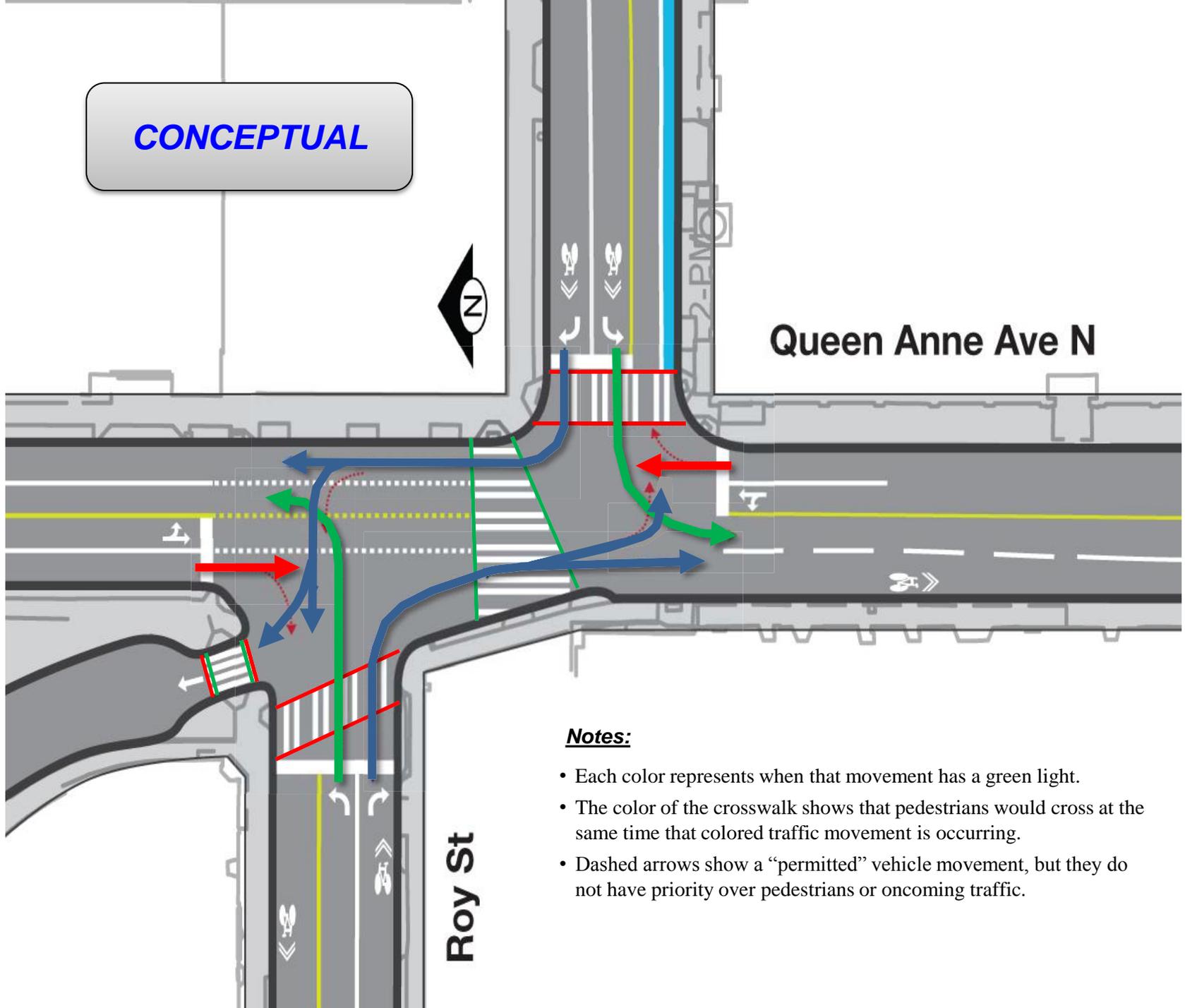
Back Pocket Slides



Roy St

Queen Anne Ave N

CONCEPTUAL



Notes:

- Each color represents when that movement has a green light.
- The color of the crosswalk shows that pedestrians would cross at the same time that colored traffic movement is occurring.
- Dashed arrows show a “permitted” vehicle movement, but they do not have priority over pedestrians or oncoming traffic.

Other projects near Mercer West

Currently

- Bored Tunnel (WSDOT)
- North Access / North Surface (WSDOT)
- Building 3 (Gates Foundation)
- Mercer East (SDOT)

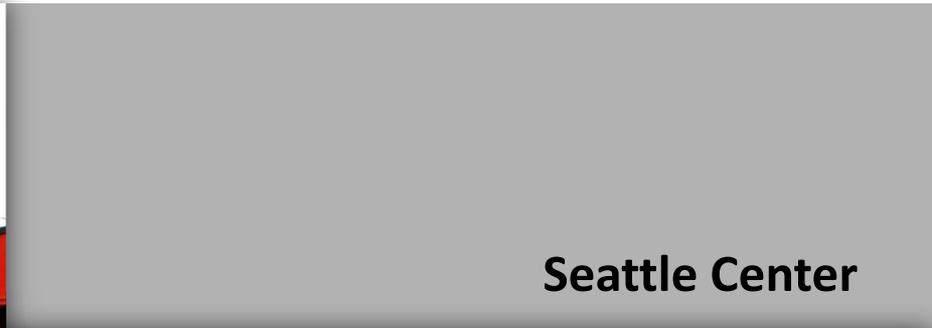
Near Future

- East-Side Campus Improvements (Seattle Center)
- NODO substation (SCL)
- Vulcan

Two-Way Conversion



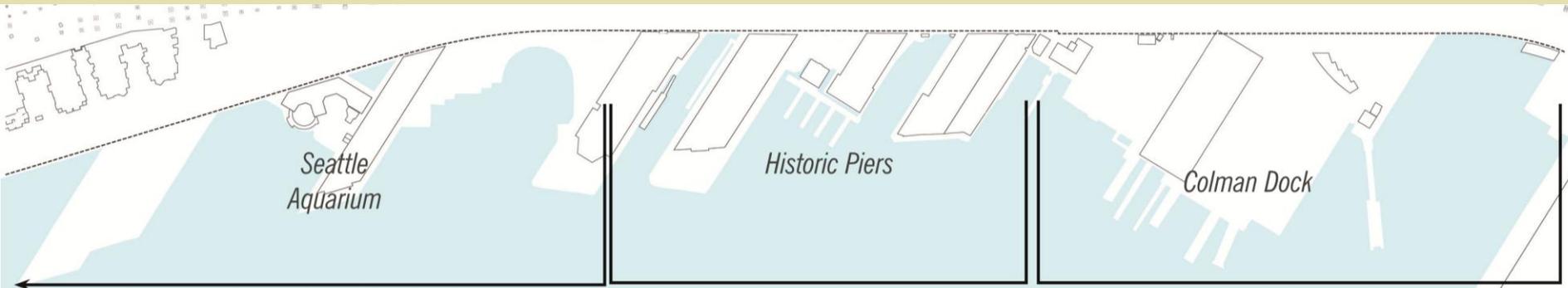
Uptown



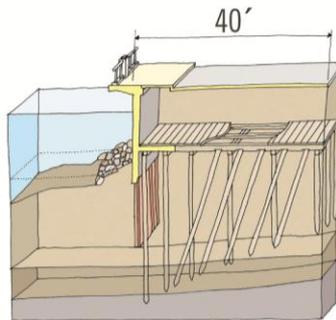
Seattle Center



Existing Wall Types



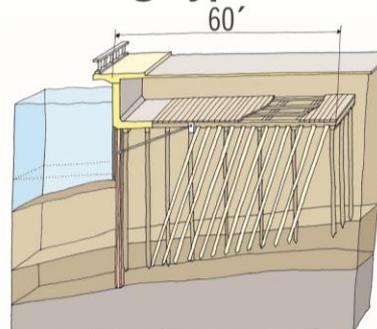
Existing Type A Wall



Location: Aquarium and northward

- Built in 1934
- Timber structure with concrete face
- ~40 feet wide

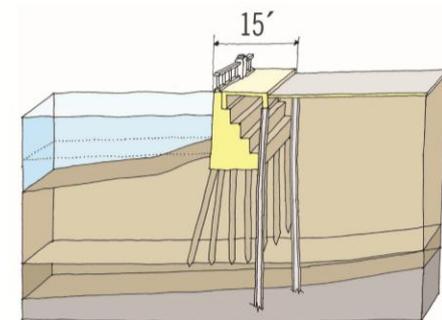
Existing Type B Wall



Location: Central Pier Zone,
Madison St to Union St

- Built in 1934
- Timber structure with steel master pile and concrete face
- ~60 feet wide

Existing Gravity Wall



Location: Pioneer Square/Ferry Terminal,
S. Washington St to Madison St

- Built in 1916
- Concrete structure supported by timber piles
- ~15 feet wide

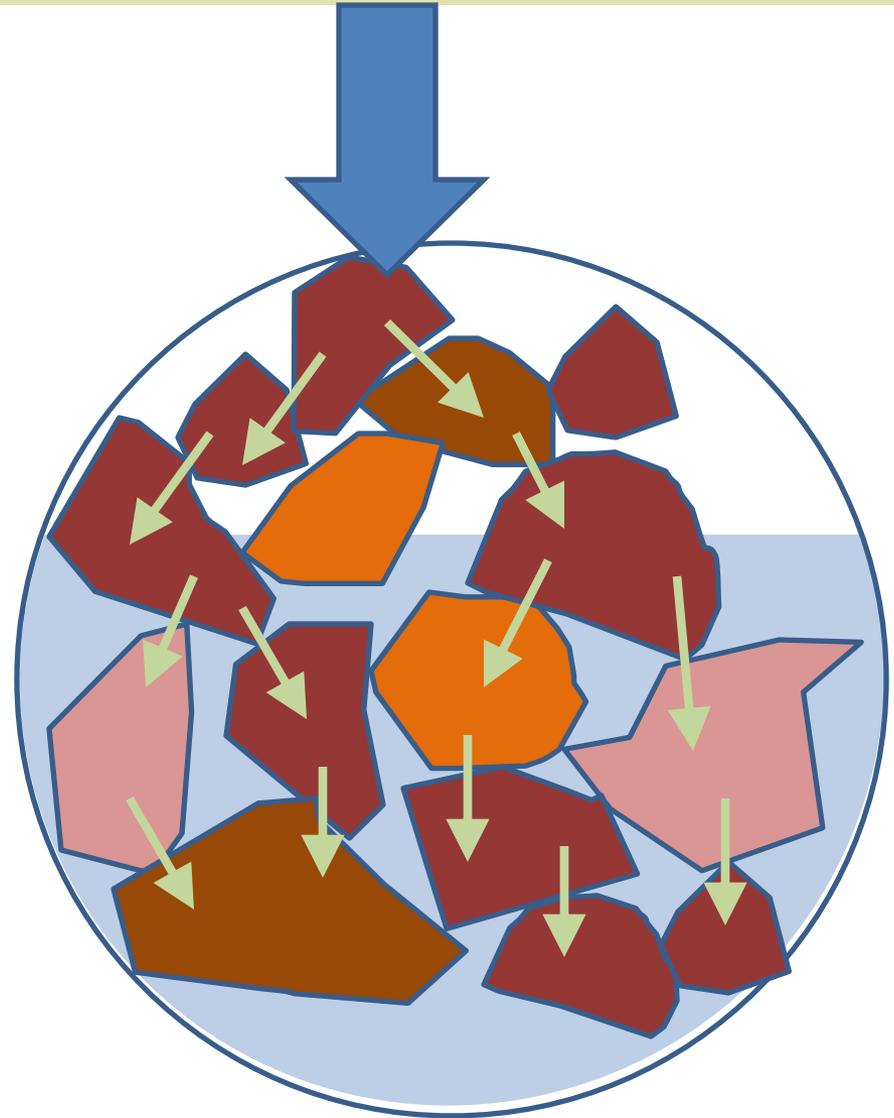
Expected Economic Damages

- Preliminary estimate of total national damages: \$540-600M
- Initial estimate of local and regional damages: \$300M+

Categories of National Damages	Estimate
Transportation delay	\$300M
Utility and roadway infrastructure	\$150M
Structure inventory	\$75M
Major seawall repairs and maintenance	\$30M
Emergency infrastructure	\$24M
Erosion	\$21M

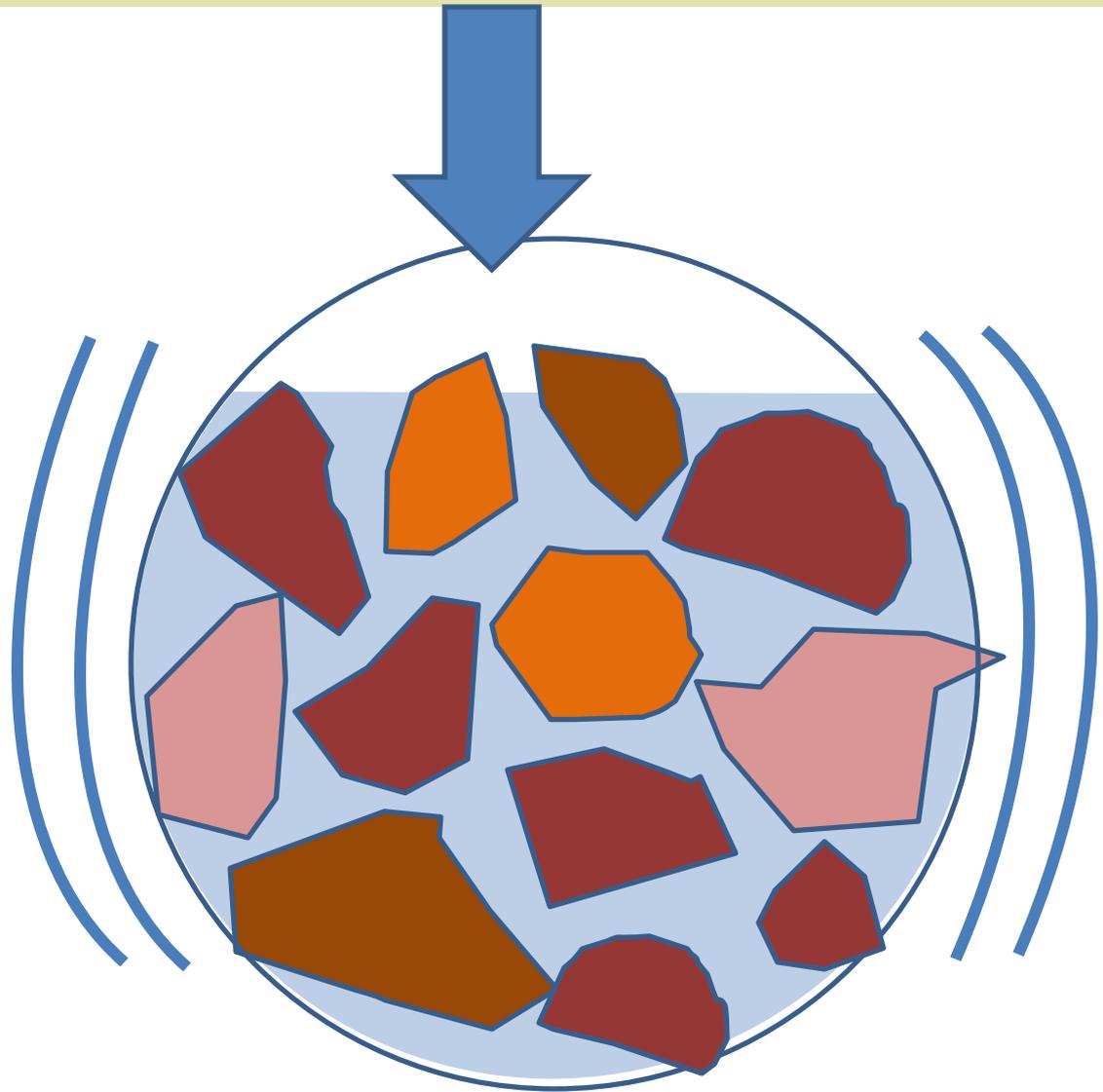
Soil Structure

- Soil supports and distributes the load
- Direct contact and friction
- Water fills the space in between

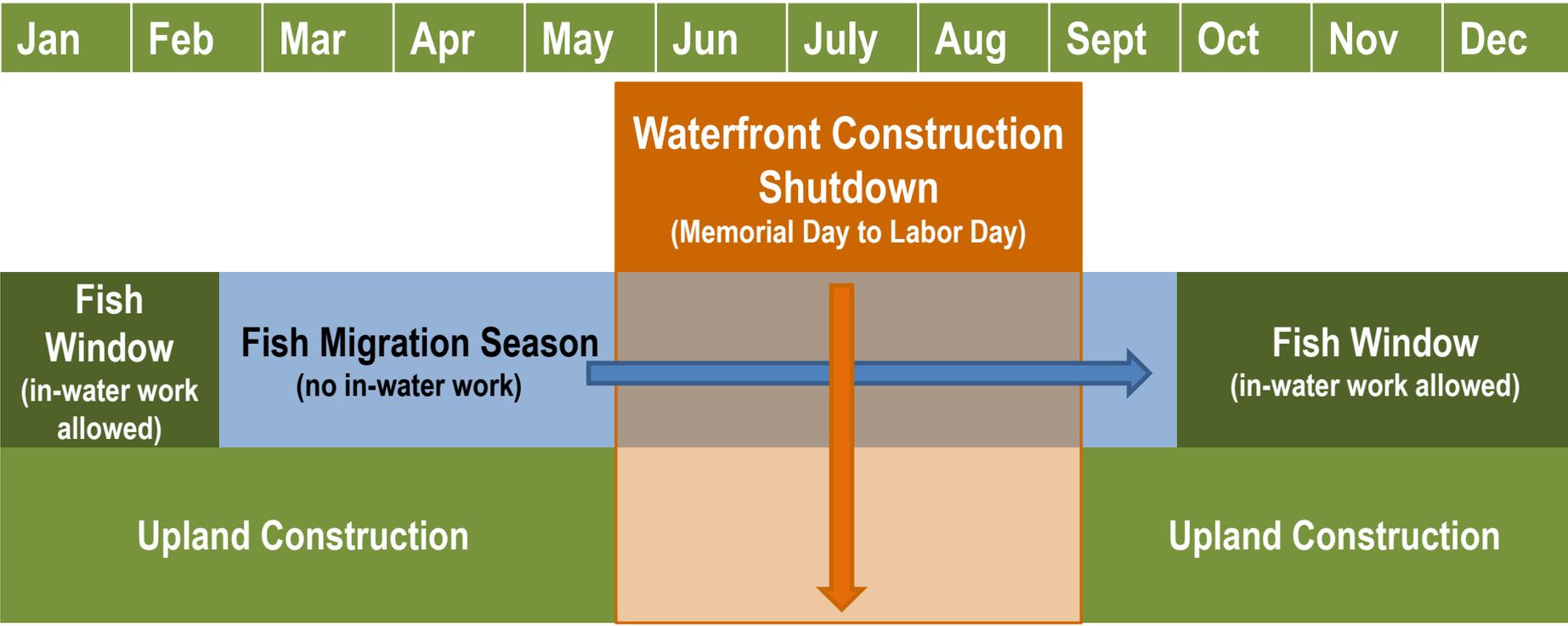


Liquefied Soil

- Soils that lack cohesion separate in a seismic event
- Once separated the soil particles are unable to distribute the load

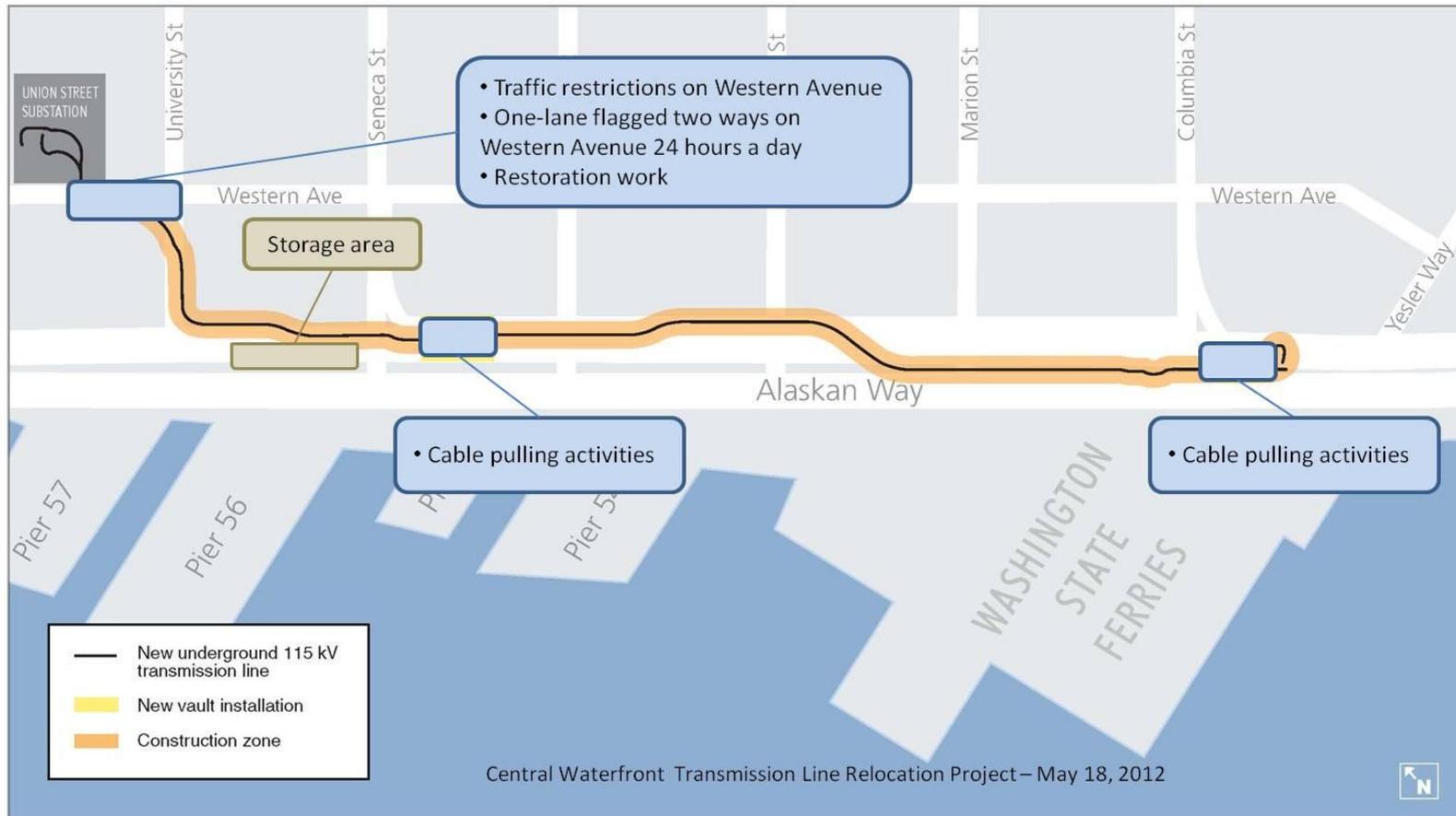


Seawall Construction Schedule Considerations



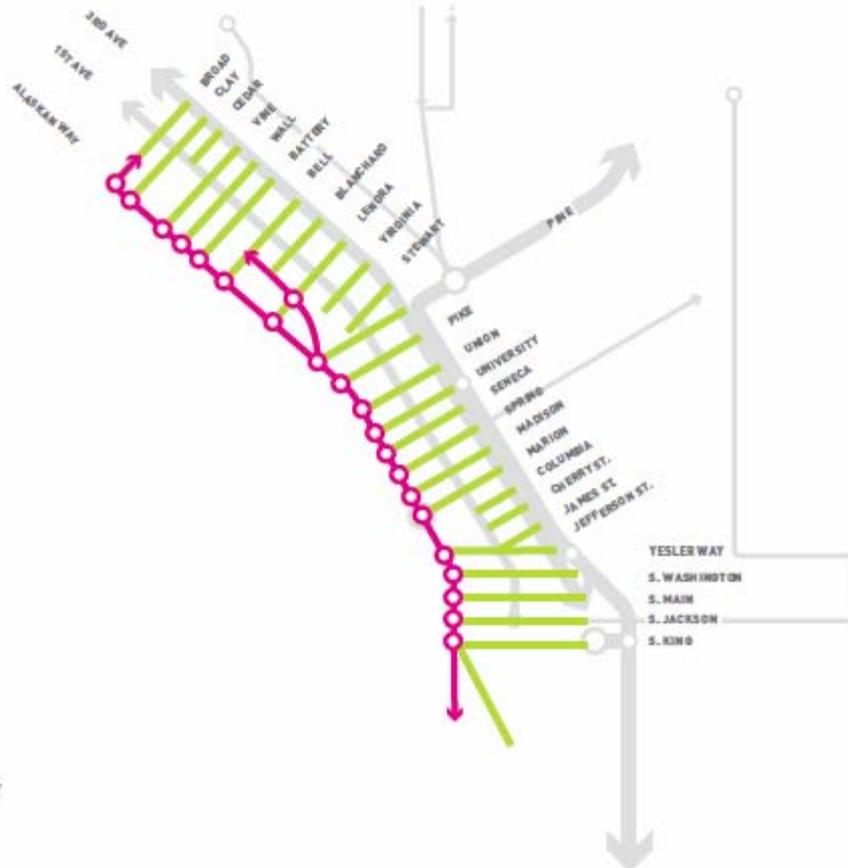
Central Waterfront Transmission Line Relocation Project

Relocate Utility Lines Along Waterfront



- Seattle City Light's Transmission Line Relocation Project completed all duct and vault installation in late April. Remaining work to restore the pavement and pull cable through the new conduit is nearing completion.

INTERSECTIONS



Bike and pedestrian friendly intersection, Copenhagen



Bold pavement markings, Arizona



Generous intersections, Paris

ELLIOTT AVE

VIEW LOOKING NORTH AT PIKE ST





ELLIOT AVE. + BN5F TRAIN OVERLOOK

Waterfront Parking

SR 99 Tunnel Construction Parking Impacts

- Mitigation strategies were included in Final EIS and record of decision, which was approved in August 2011.
- SR 99 Tunnel Project includes \$30 million to mitigate construction effects on parking.
- Some parking mitigation strategies are already underway; others will begin this summer and continue until viaduct demolition in 2016.
- WSDOT and SDOT have worked with stakeholder to develop a plan.

Parking Mitigation Objectives

- Increase parking availability.
- Make short-term parking affordable for customers.
- Make customers feel safe within parking facilities and along routes between parking and destination.
- Reduce travel time to find parking facility and reach destination.

SR 99 Tunnel Construction: Parking Impact Mitigation

GOAL:

Retain customers of the central waterfront and Pioneer Square business districts during SR 99 tunnel construction by making sure parking is:

- Increase parking availability.
- Make short-term parking affordable for customers.
- Make customers feel safe within parking facilities and along routes between parking and destination.
- Reduce travel time to find parking facility and reach destination.

Recent Accomplishments

On-street Parking

- May 12: more than 60 temporary on-street parking spaces become available on Alaskan Way, between Spring and Pike streets.



Mother's Day Promotion

- May 13: up to four hours of free parking at a participating garage if you visit a participating waterfront restaurant / business.



Mitigation Strategies

1. Parking garages / acquire new public spaces
2. Garage partnerships
3. Marketing program
4. Public right of way improvements (sidewalks, lighting, curb bulbs)
5. Temporary on-street parking
6. Waterfront shuttle
7. Wayfinding improvements
8. e-Park operations
9. Parking mobile app
10. Changes to on-street parking restrictions
11. Special event programs
12. Monitoring / administration