



*Central Waterfront
Stakeholders Group
April 30, 2013*



and



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Housekeeping

2

*Alaskan Way Viaduct
Replacement Program*

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Alaskan Way Viaduct
REPLACEMENT
PROGRAM



Central Waterfront Stakeholders Group
April 30, 2013

Alaskan Way Viaduct
REPLACEMENT
PROGRAM

Meet Bertha, the SR 99 Tunneling Machine

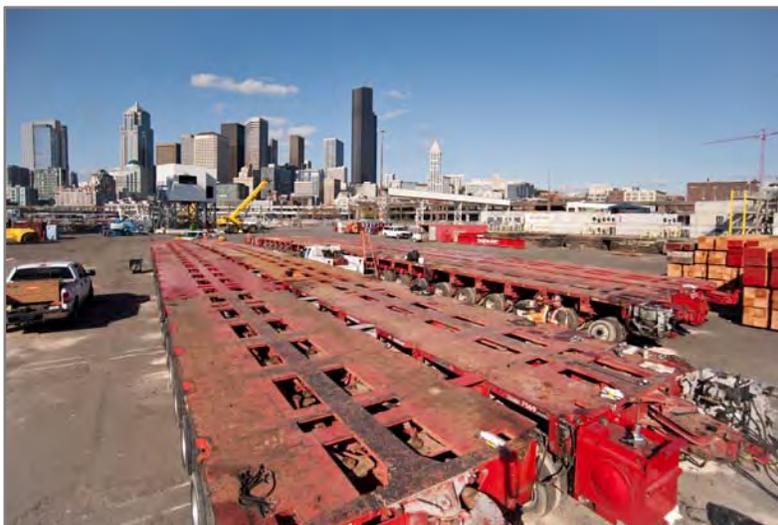


Alaskan Way Viaduct
REPLACEMENT
PROGRAM

Tunneling Machine Arrival in Seattle



Specialized Trucks Used to Transport the Machine



7

Unloading the Machine's Cutterhead



Crews unloading the cutterhead on April 7.

8

Tunneling Machine's Trailing Gear



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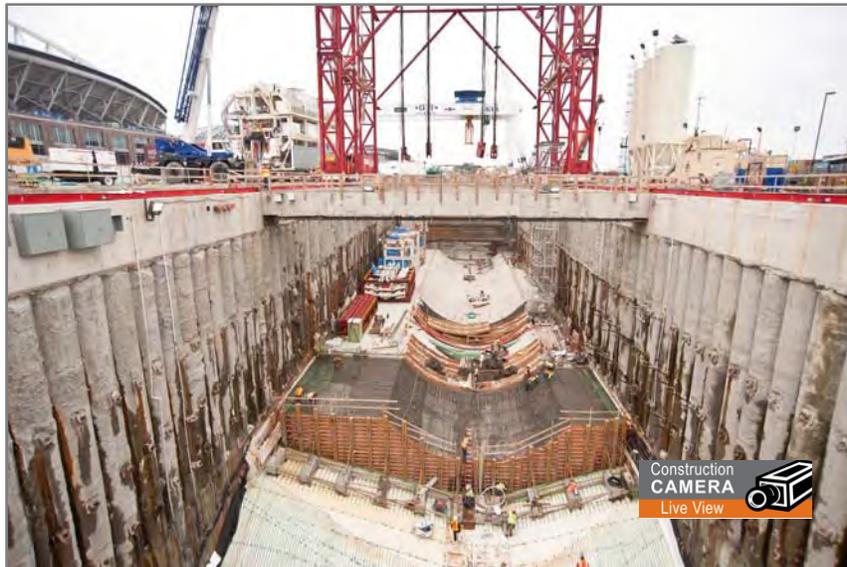
Gantry Cranes in Tunnel Work Zone



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Alaskan Way Viaduct
REPLACEMENT
PROGRAM

The SR 99 Tunnel Launch Pit



Alaskan Way Viaduct
REPLACEMENT
PROGRAM

Lowering the Machine's Trailing Gear



Launching a Tunneling Machine



Port of Miami launch pit.

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Tunnel Spoils Conveyor Belt



A similar conveyor belt system at a tunneling project in Asia.



The SR 99 tunnel conveyor belt system foundations beginning to take form.

Upcoming Program Milestones

- Tunneling machine assembly (spring 2013).
- Tunneling starts (summer 2013).
- North access project goes to ad (summer 2013).
- South Atlantic Street overpass opens (end of 2013).



The tunneling machine will be assembled in the launch pit.



Tunneling will begin this summer. Here, Sound Transit launches Brenda the tunneling machine. Photo source: Sound Transit.

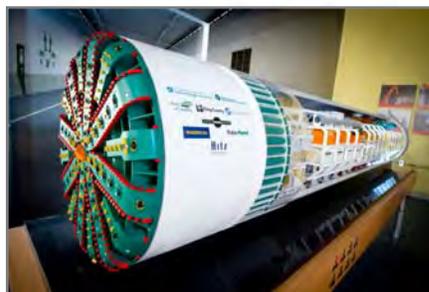
15

Website:
www.AlaskanWayViaduct.org

Twitter: @BerthaDigsSR99

Email:
viaduct@wsdot.wa.gov

Hotline:
1-888-AWV-LINE



Milepost 31 is located at 211 First Ave. S.

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*What additional information
would you like to have about
the tunnel boring process?*

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Elliott Bay Seawall Project

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Design Update

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Elliott Bay  Seawall  SDOT
Southwest Department of Transportation

Design Features

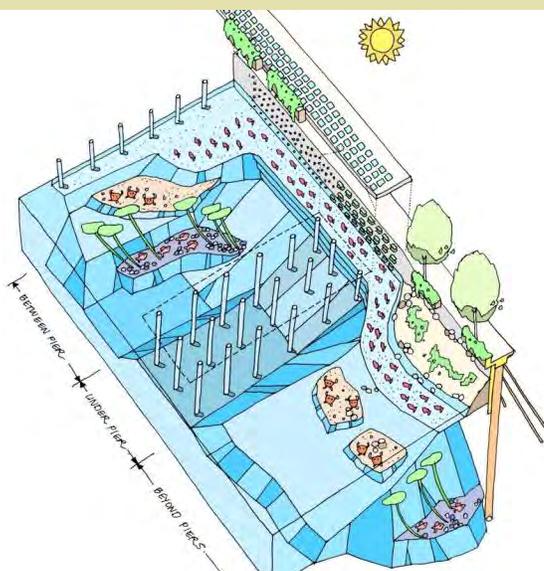
- Face of wall: 10-15 feet inland
- Soil stabilization with jet grouting
- Continuous migration corridor and nearshore restoration
- Restored Alaskan Way and pedestrian/bicycle facilities



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Migration Corridor and Nearshore Restoration

- New seawall
- Intertidal corridor
- Lighting
- Riparian vegetation
- Textured wall
- Substrate enhancement

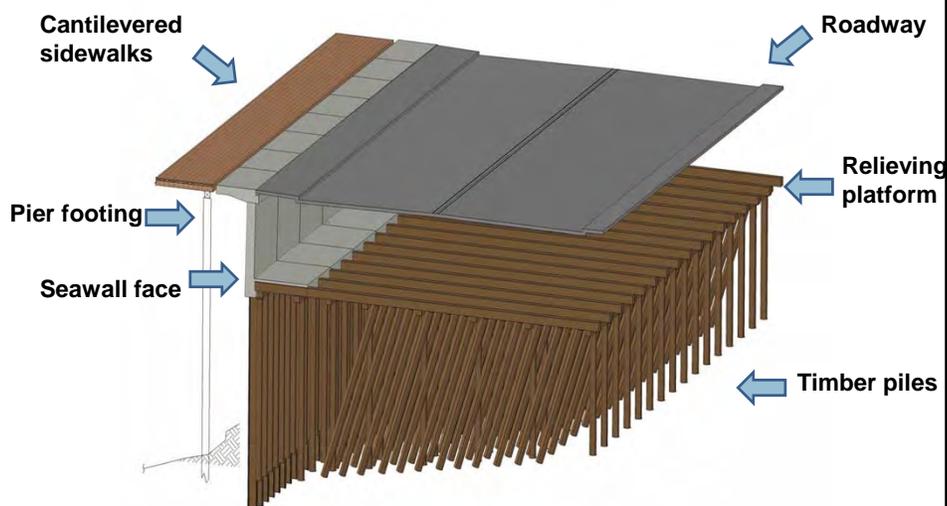


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Elliott Bay  Seawall

 SDOT
South Dakota Office of Transportation

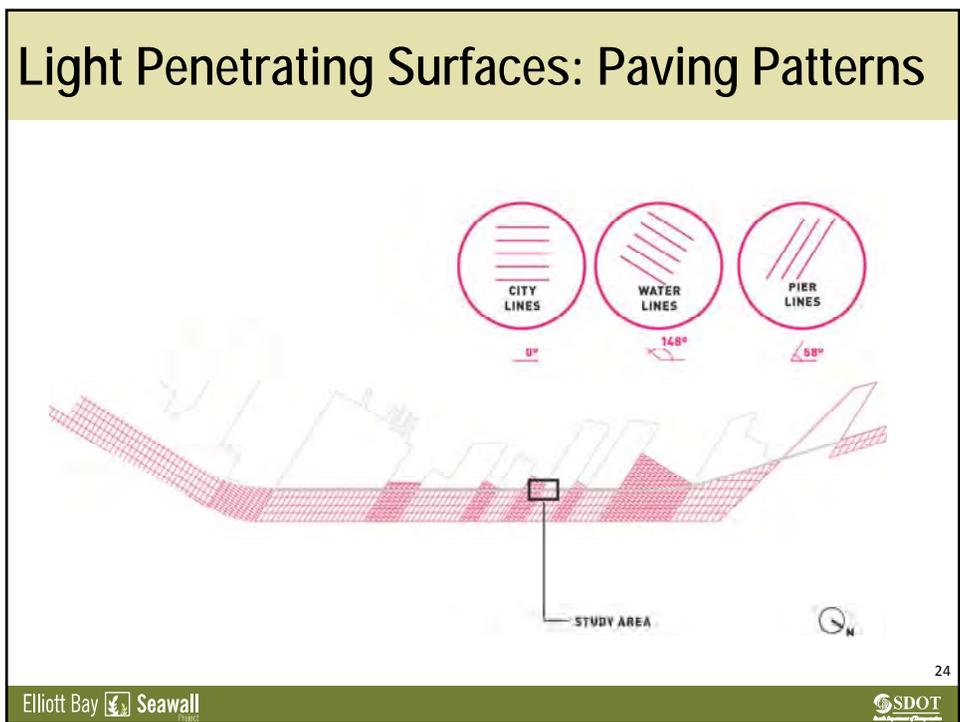
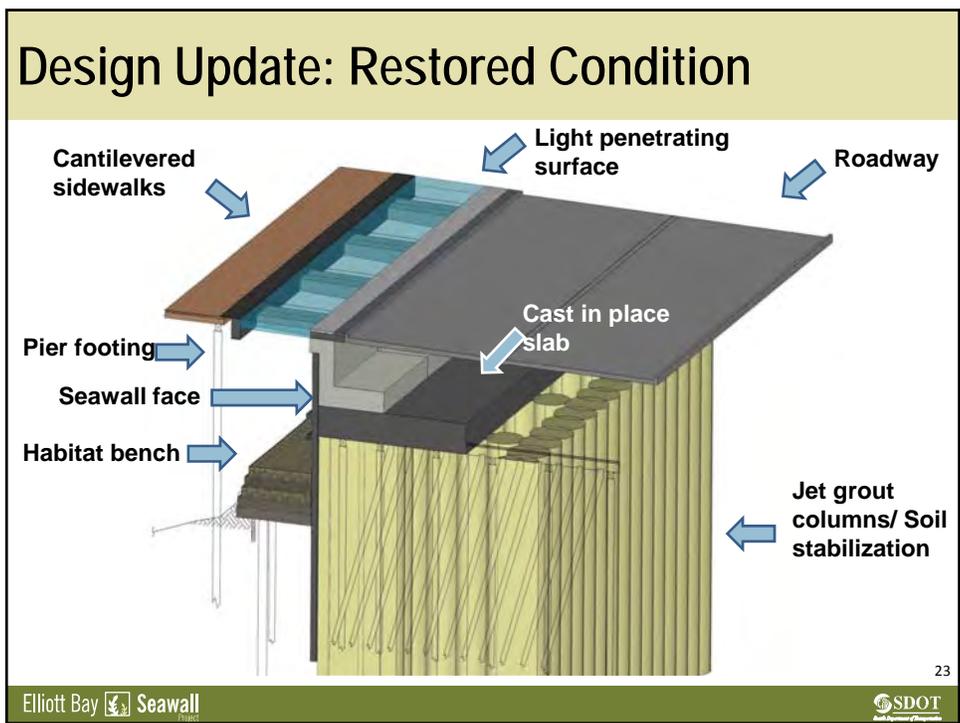
Design Update: Existing Conditions



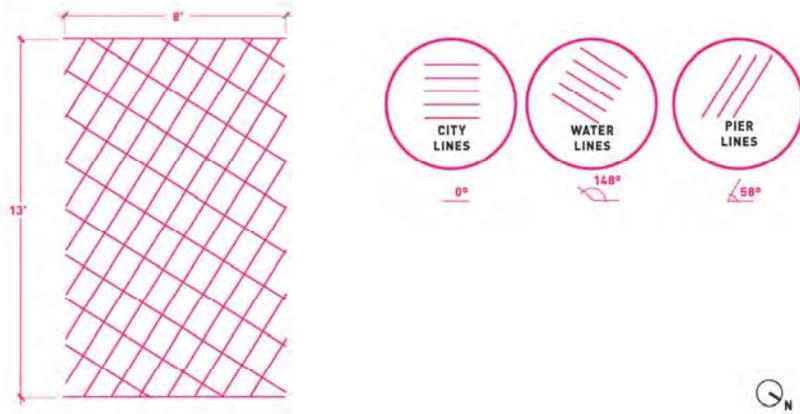
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Elliott Bay  Seawall

 SDOT
South Dakota Office of Transportation



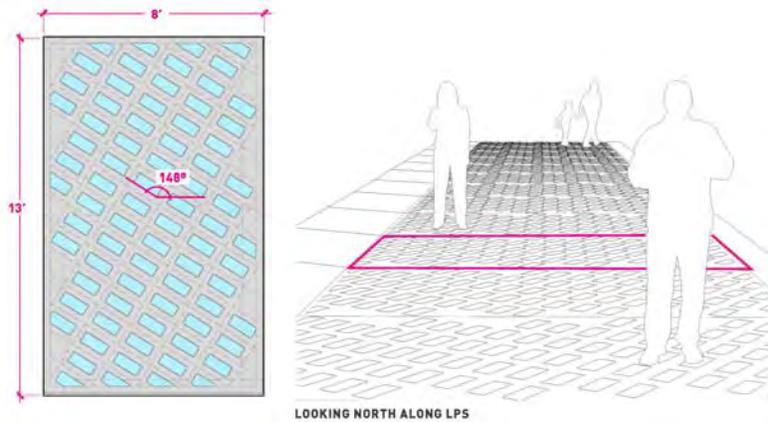
Light Penetrating Surfaces: Paving Patterns



25

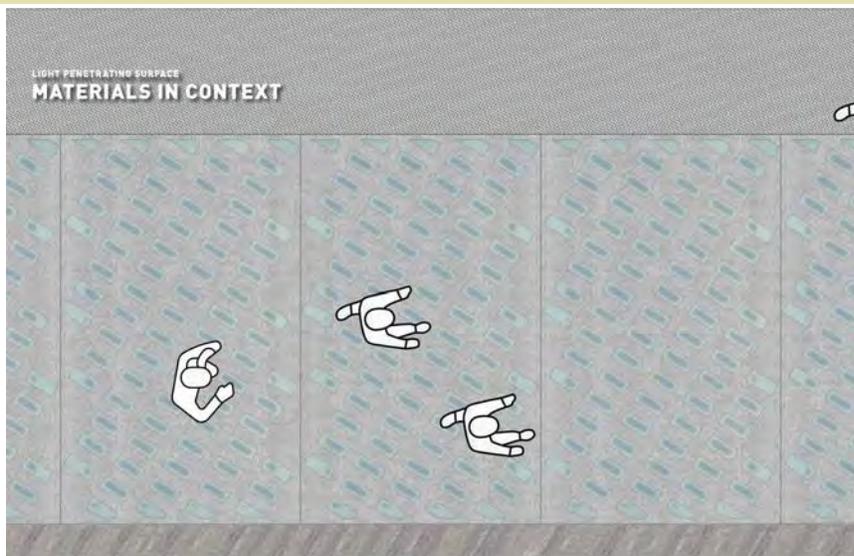
Light Penetrating Surfaces

LPS GLASS PATTERN STUDIES
12" X 5" RECTANGLE



26

Light Penetrating Surfaces

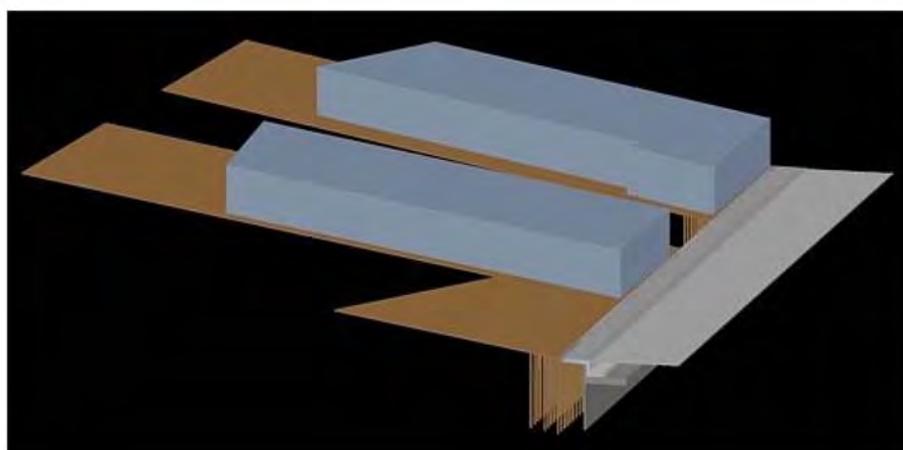


Elliott Bay Seawall

SDOT
Southwest Department of Transportation

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Light Model: Sample Site

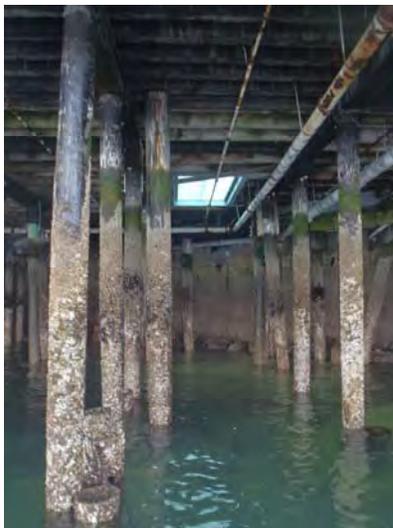


Elliott Bay Seawall

SDOT
Southwest Department of Transportation

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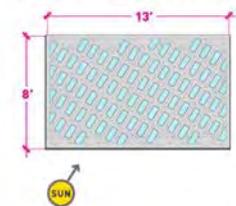
Light Penetrating Surfaces



29

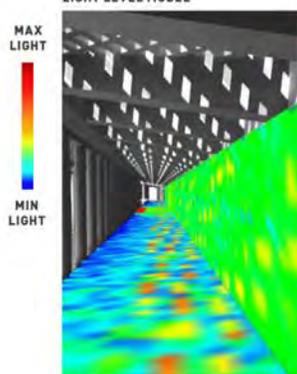
Light Penetrating Surfaces

LIGHT PENETRATING SURFACE
12" X 5" RECTANGLE LIGHTING MODEL



SIZE: 12" X 5" RECTANGLE
% OPENING: 19.5%
GLASS VOLUME: 105 CUBIC INCHES
FOOT: 219 AVG
CANDLES: 3489 MAX

LIGHT LEVEL MODEL



JUNE 21 NOON

RENDERED MODEL

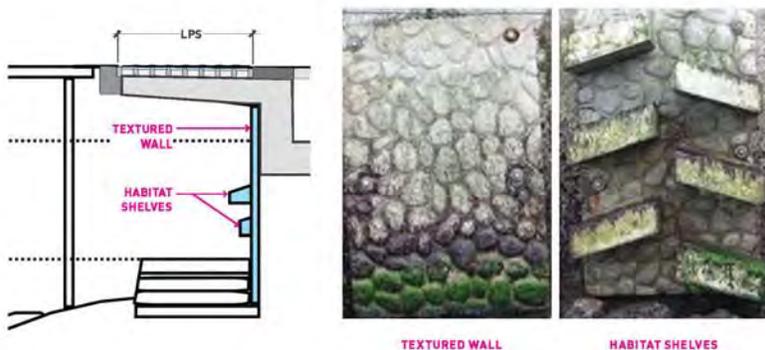


JUNE 21 NOON

30

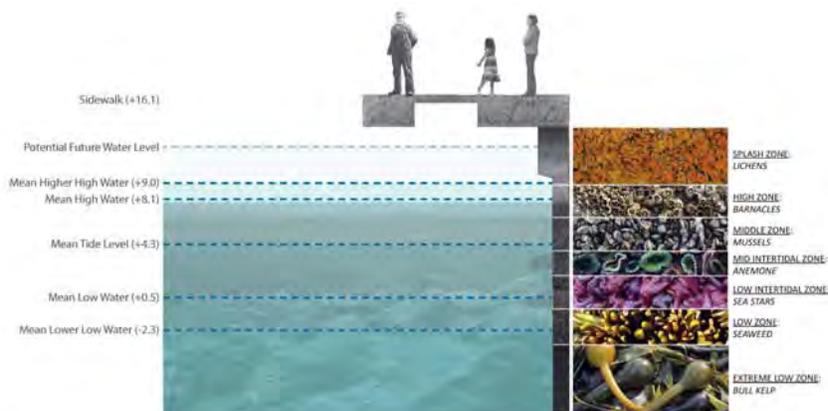
Seawall Face Treatments

AQUATIC HABITAT HABITAT CORRIDOR: WALL TREATMENTS



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Seawall Face Treatments



SEAWALL FACE PANEL "HABITAT STRATA" CONCEPT:

- PANEL TEXTURE MIMICS THE VARIETY OF MARINE LIFE IT IS TRYING TO ATTRACT, CREATING A VARIETY OF SUBSTRATE STRUCTURES
- HORIZONTAL STRATA OF PANEL TEXTURES IS BASED ON HABITAT STRATA OF THE INTERTIDAL ZONE
- HABITAT STRATA ARE INHERENTLY TIED TO TIDAL ZONES, SO WALL PANEL CONCEPT TIES TO "TIDELINES" PROMENADE CONCEPT

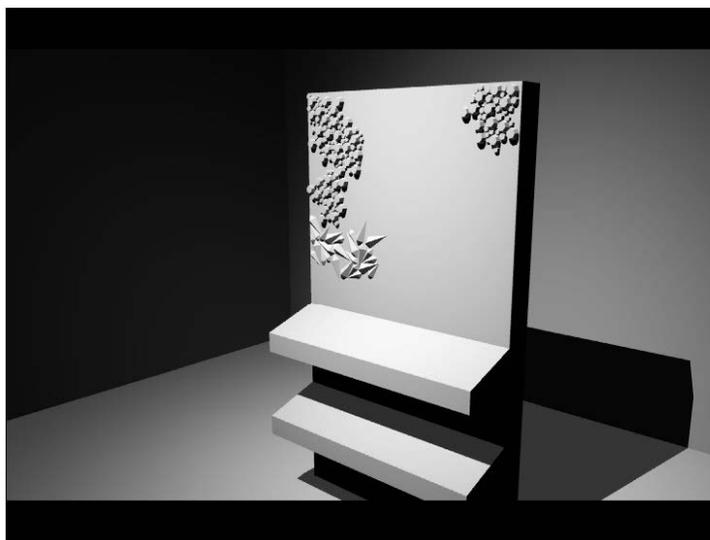
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Seawall Face Treatments



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Seawall Face Treatments

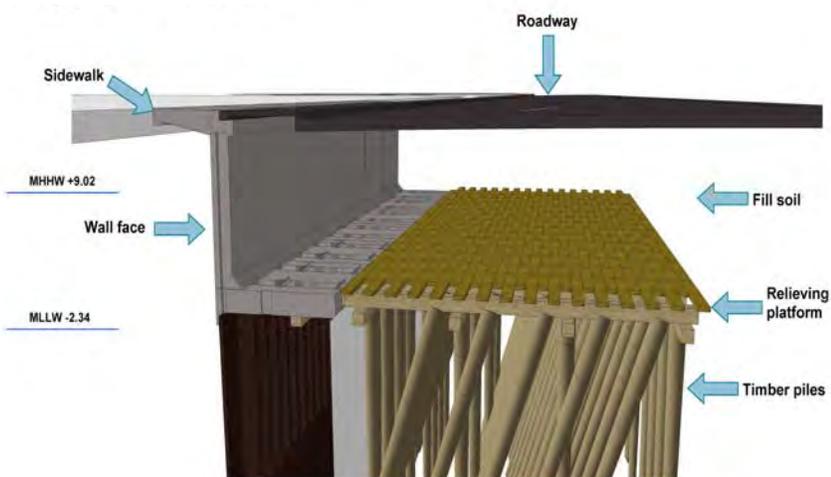


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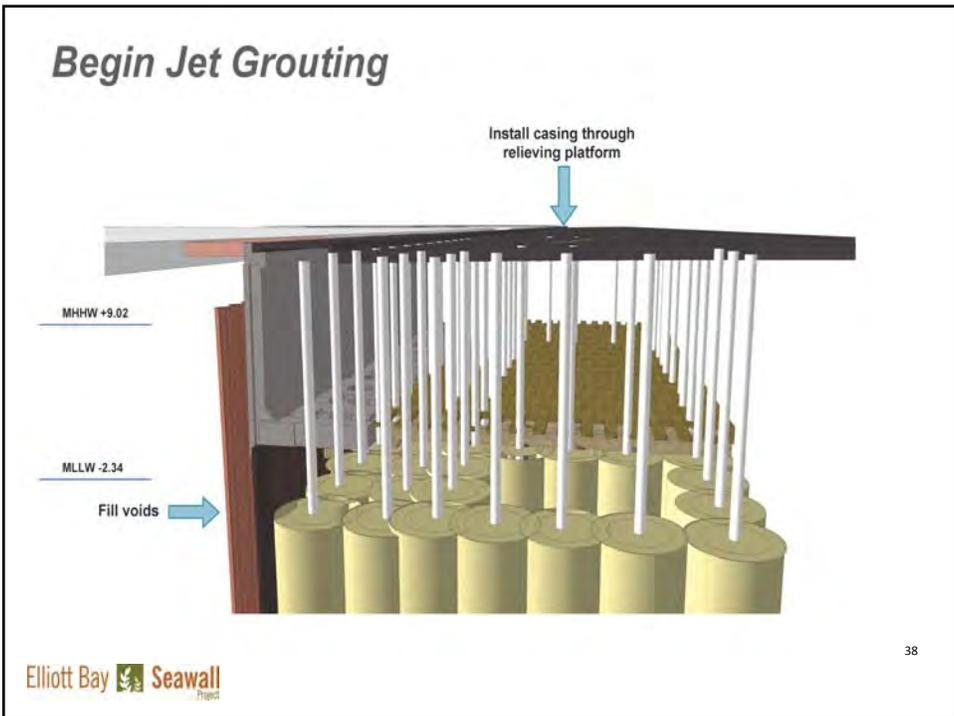
Construction Sequencing and Schedule

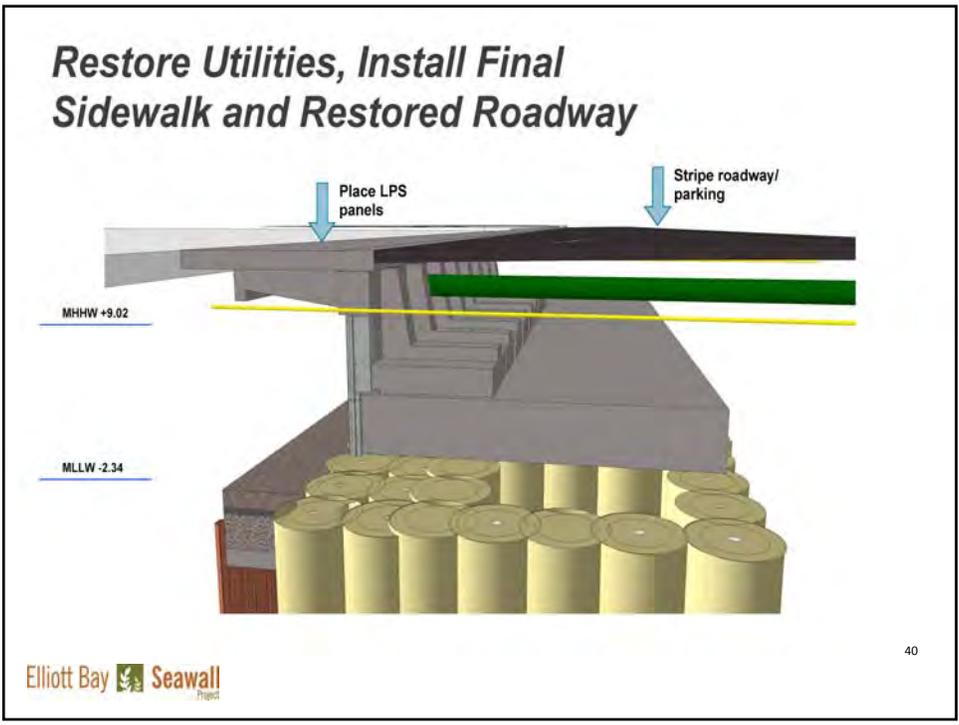
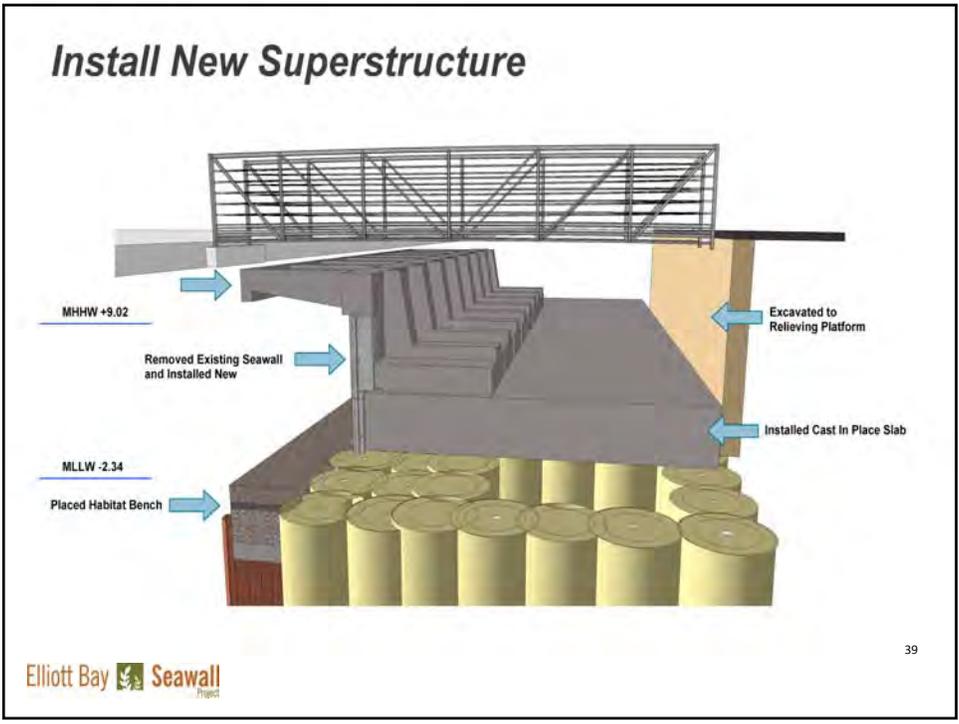
35

Existing Conditions

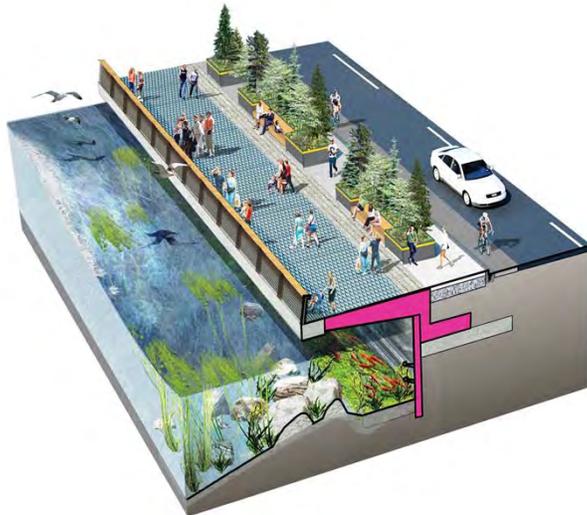


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Restored Condition



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Construction Overview



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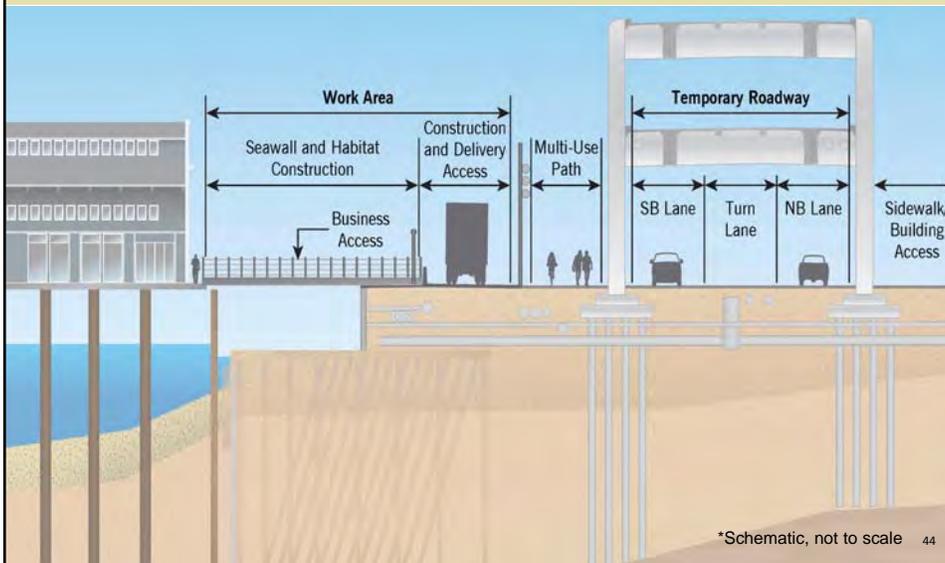
Season 1 Overview

(September 2013 - May 2014)



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In Construction Roadway Cross Section



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Season 2 Overview

(September 2014- May 2015)



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Season 3 Overview

(September 2015 – Spring 2016)



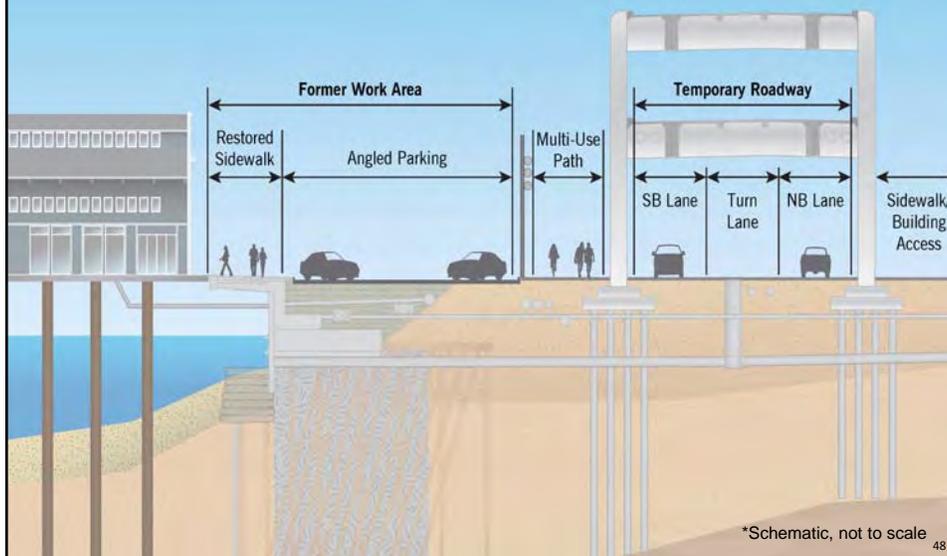
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Summer 2014 and 2015 Overview



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Summer Roadway Cross Section – Restored Condition



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Temporary Roadway

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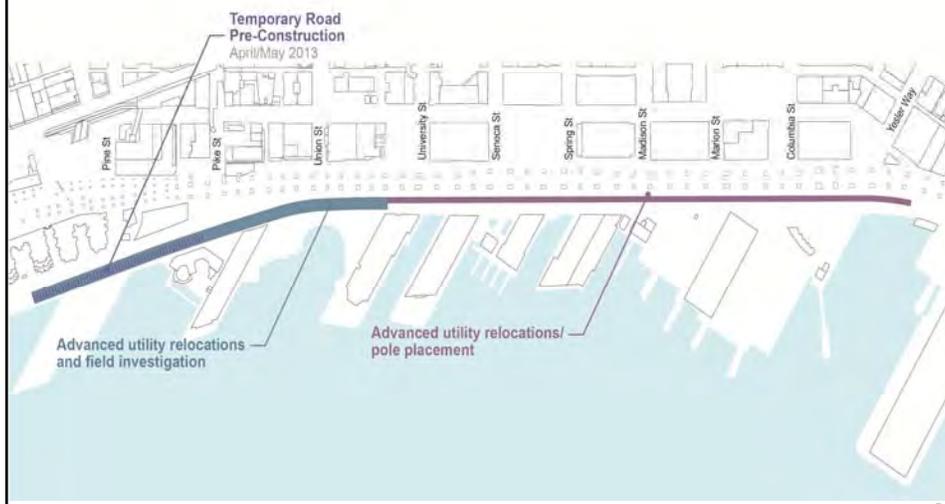
Elliott Bay  Seawall 

Early Work Update

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Elliott Bay  Seawall 

Overview of Early Work



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General Overview of Early Work Schedule

ACTIVITY	April	May	June	July	August	September
Road Widening	X	X				
Duct Bank – civil work	X	X				
Pole installation	X	X				
Duct Bank Cable pulling and splicing		X	X	X	X	X
Other Utilities		X	X			

Note: Specific dates, locations, and impacts are being communicated weekly.

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Early Work: Before and After



Before

After – Excavation prep work

Minimizing Construction Impacts

Strategies to Keep Waterfront Vibrant

- Summer shutdown
- Maximize available parking
- Temporary roadway, and synchronized signal timing
- Maximize business access
 - On a by-pier, by business basis for customers and operations
- Clear and robust way-finding program
- Active, ongoing community outreach program
- Locate stationary equipment (e.g., lighting, generators) away from properties
- Implement 24-hour hotline for noise and emergent issues
- Construction viewing and education
- Off-site contractor parking

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Outreach Underway

Construction

- Weekly email updates to listserv
- Weekly website updates
- Street team field interactions
- 24-hour construction hotline

Overall Project

- Ongoing coordination with property owners and tenants
- Briefings
- Fairs & festivals

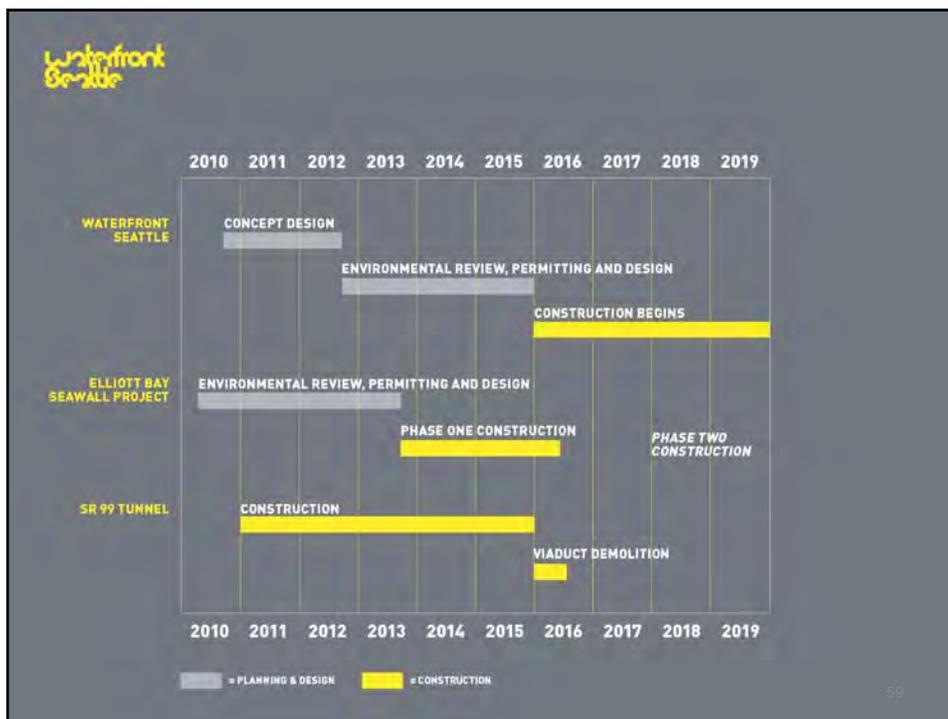
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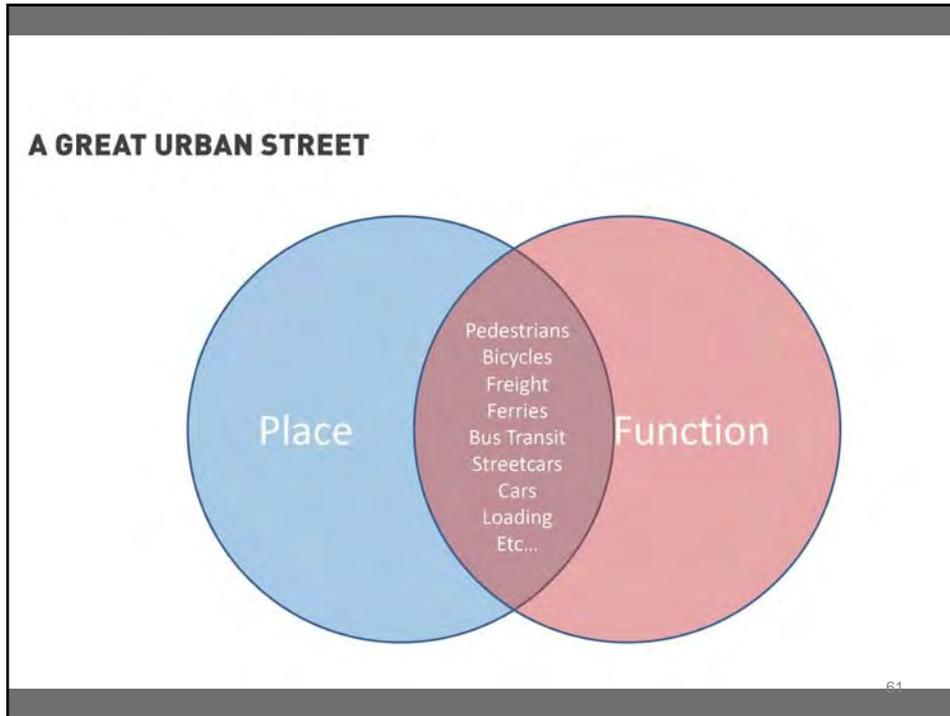
*What other information will
you need this summer to
prepare for fall construction?*

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Waterfront Seattle

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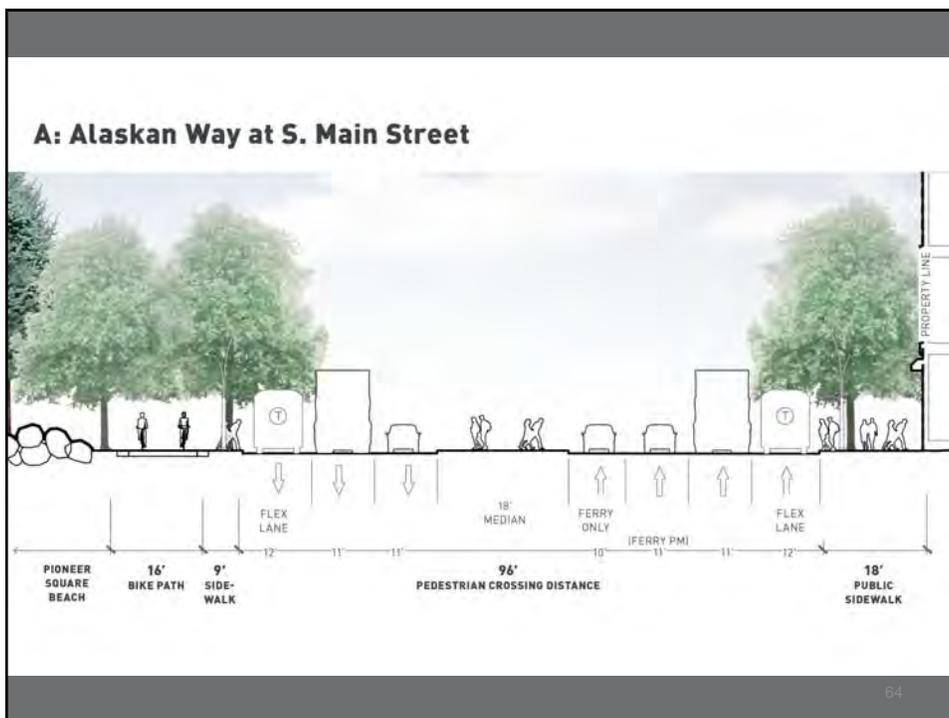


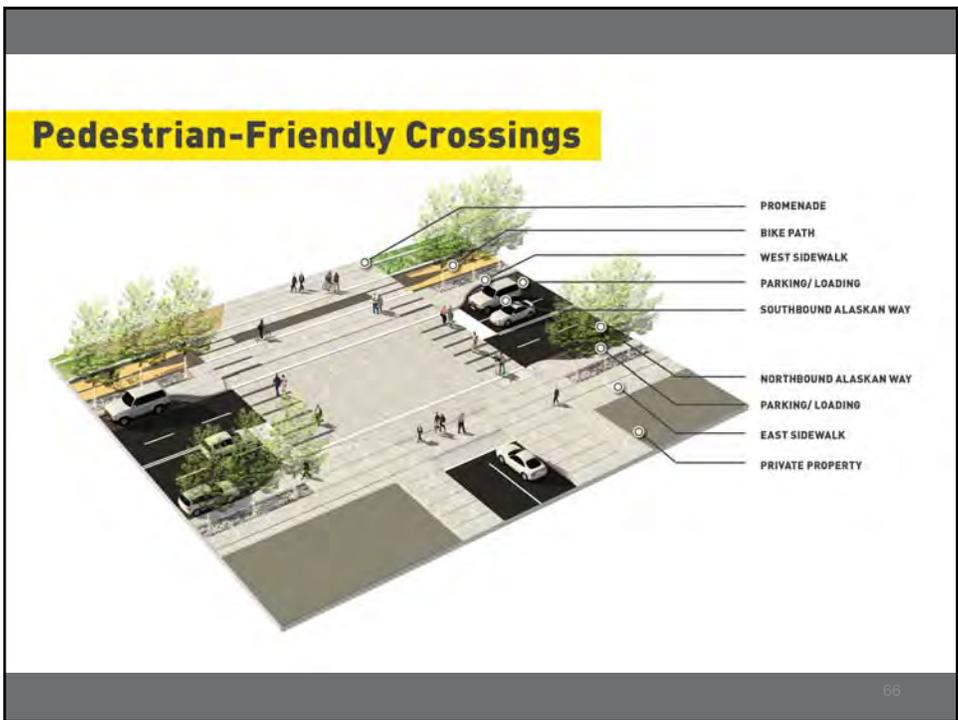


DESIGN PRIORITIES

- **PUBLIC SPACE**
- **PEDESTRIANS**
- **BICYCLES**
- **TRANSIT (SOUTHWEST SEATTLE AND LOCAL)**
- **FREIGHT**
- **PARKING/LOADING**
- **FERRY ACCESS**
- **ACCESS TO DOWNTOWN AND NW SEATTLE NOT PROVIDED BY BORED TUNNEL**

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REMAINING STREET DESIGN ISSUES

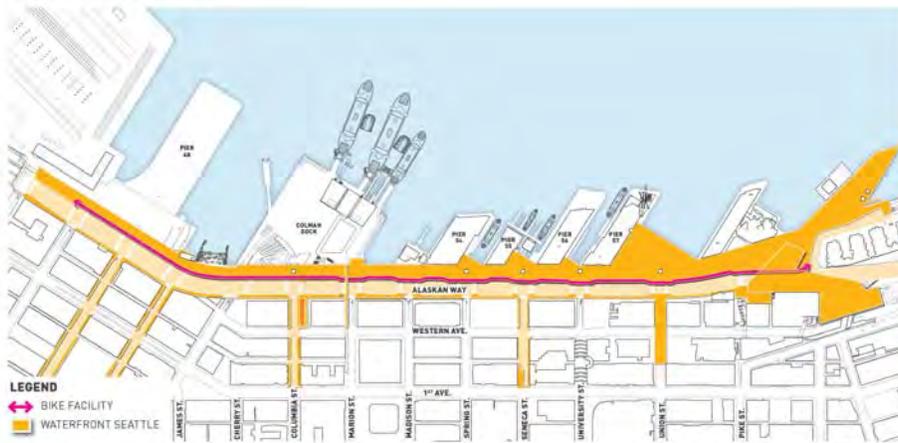
- **BICYCLE FACILITY**
- **SOUTHWEST TRANSIT PATHWAY**
- **LOCAL WATERFRONT TRANSIT**

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BIKE FACILITY DESIGN UPDATE

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MARCH, 2013
**BIKE FACILITY
DESIGN UPDATE**



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BIKE FACILITY
WIDE VARIETY OF USERS



BIKE COMMUTERS



CASUAL BIKERS



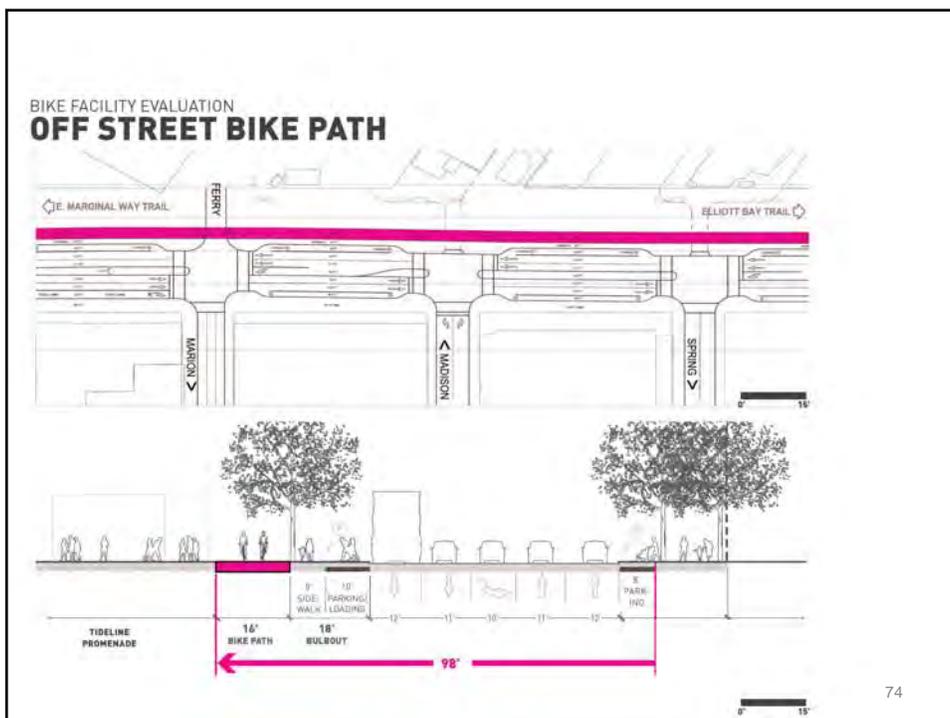
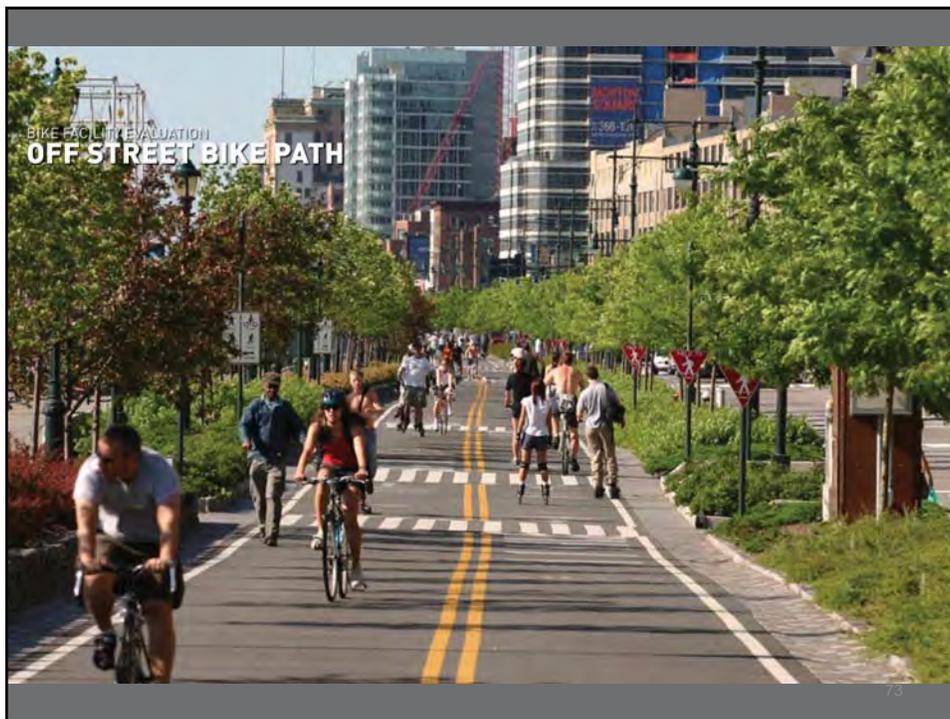
PEDI-CABS

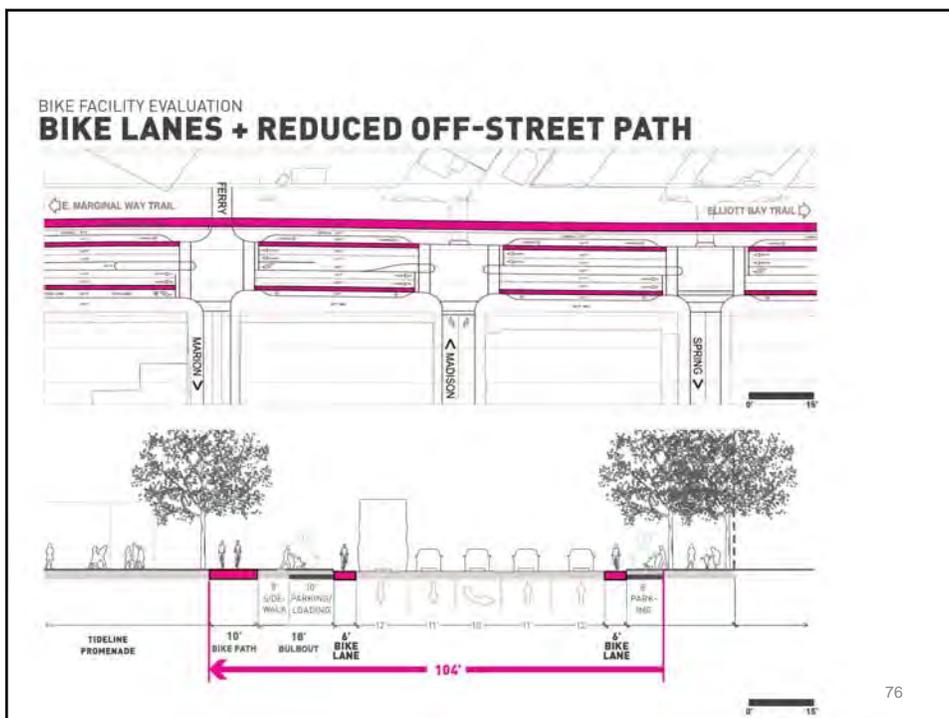
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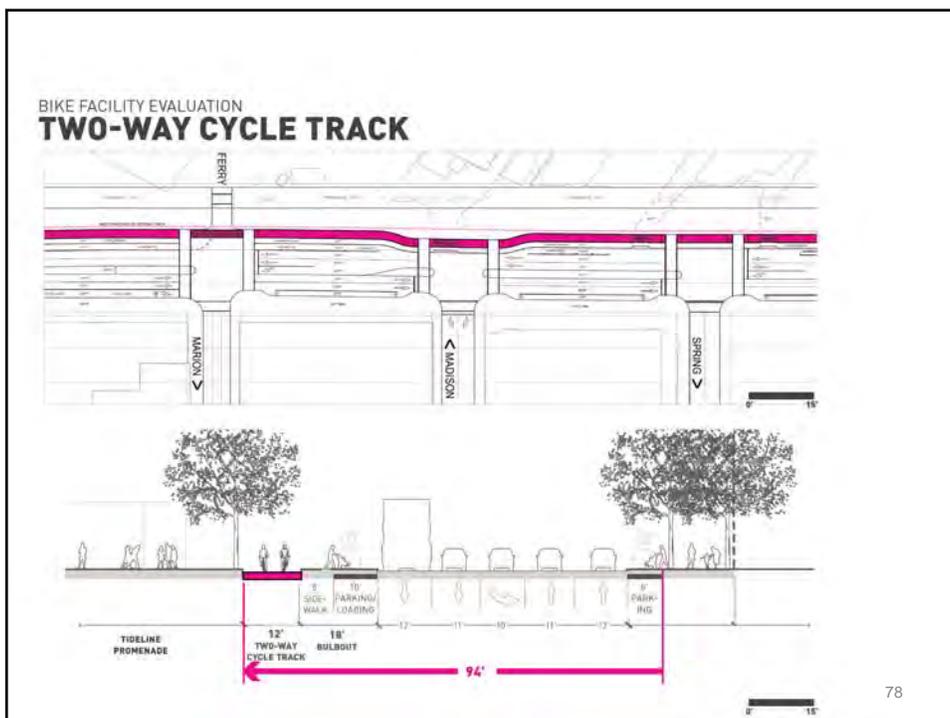
BIKE FACILITY EVALUATION
OPTIONS STUDIED

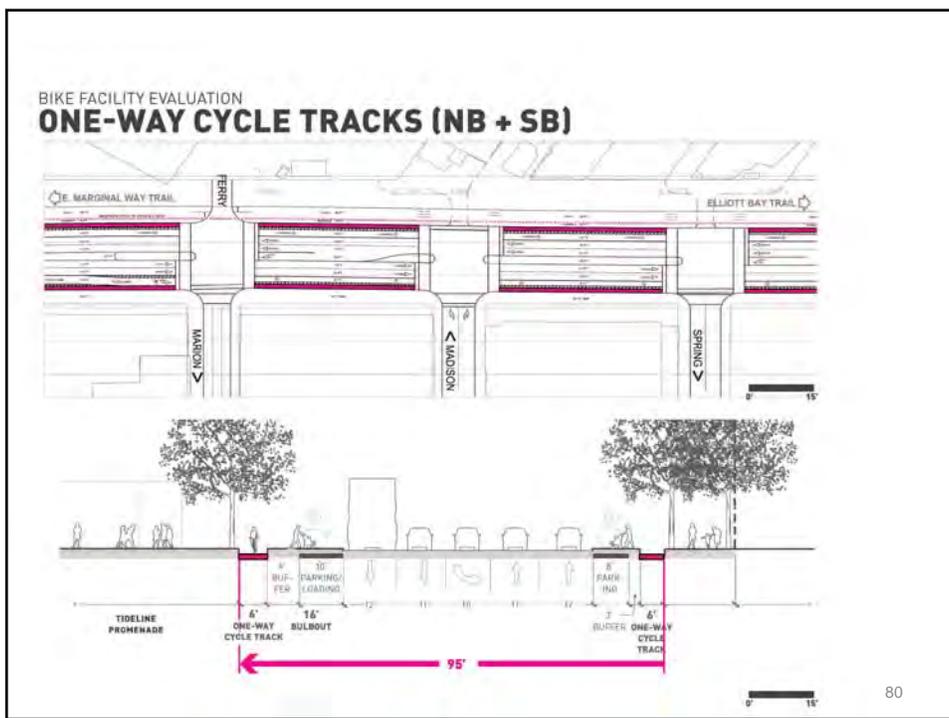
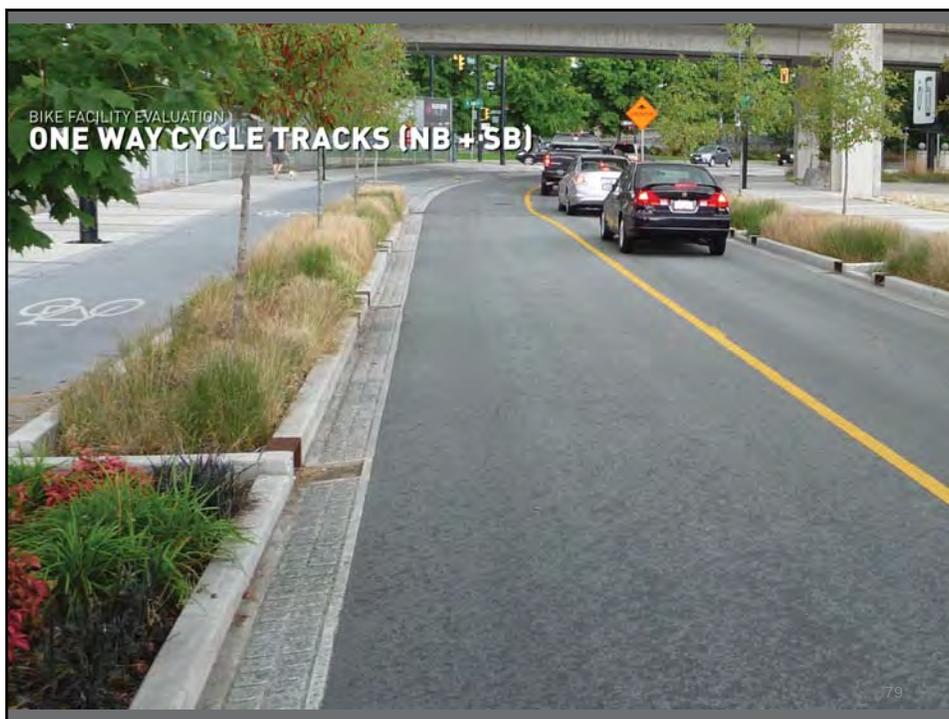
- 1. OFF-STREET PATH (CONCEPT DESIGN)**
- 2. IN-STREET BIKE LANES + REDUCED OFF-STREET PATH**
- 3. TWO-WAY CYCLE TRACK**
- 4. ONE-WAY CYCLE TRACKS (NB + SB)**

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BIKE FACILITY BIKE FACILITY EVALUATION

PERFORMANCE MEASURES	OPTIONS			
	Option 1: Off-street path	Option 2: Bike lanes + reduced off-street path	Option 3: Two-way cycle track	Option 4: One way cycle-track
Tier 1 - Critical Criteria				
Bike/Auto conflicts	Fewest bike/auto conflict locations	Conflicts in northbound in-street bike lane	Fewest bike/auto conflict locations	Most bike/auto conflict locations (northbound track crosses every east-west street)
Bike/Pedestrian conflicts	Highest risk of bike/pedestrian conflict at uncontrolled path crossing Pedestrians walk on path	Risk of bike/pedestrian conflict moderately reduced by bike lanes	Pedestrians protected by signalized crosswalk	Pedestrians cross two separate cycle tracks. Increase in cyclists riding on promenade northbound
User share	Not attractive to commuter cyclists	Attracts the widest range of cyclists	Serves wide range of cyclists (novice to commuters)	Serves wide range of cyclists (novice to commuters)
Tier 2 - General Criteria				
Consistency with Draft Bike Master Plan Update	Consistent with Bike Master Plan Update	Street has too much traffic for bike lanes	Consistent with Bike Master Plan Update	Consistent with Bike Master Plan Update
Promenade influence	No significant impact on promenade width or design	No significant impact on promenade width or design	No significant impact on promenade width but increased number of casual riders likely to use promenade	No significant impact on promenade width but increased number of casual riders likely to use promenade
Parking/loading	Each Option provides similar parking/loading zone capacity	Each Option provides similar parking/loading zone capacity	Each Option provides similar parking/loading zone capacity	Each Option provides similar parking/loading zone capacity
Pedestrian load/unload	Street sidewalk allows adequate space for load/unload of people, strollers and wheelchairs, including transit and charter buses	Street sidewalk allows adequate space for load/unload of people, strollers and wheelchairs, including transit and charter buses	Each Option provides similar parking/loading zone capacity	Each Option provides similar parking/loading zone capacity
Bicycle network connectivity - Legibility	Contiguous connection to Elliott Bay trail Primary waterfront bicycle route is very clear to users	Bike path provides contiguous connection to Elliott Bay trail, but north-bound bike lane does not Transition to bike lanes is counter-intuitive	Contiguous connection to Elliott Bay trail Primary waterfront bicycle route is very clear to users	No contiguous north-bound connection to Elliott Bay trail Cyclists may not be strong only on the one-way track
Street scale	Narrowest crossing	Street width larger due to added bike lanes	Street width larger due to added cycle track and buffer	Street width larger due to added cycle track and buffer (in both directions)

LEGEND

UNFAVORABLE

MODERATE

FAVORABLE

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BIKE FACILITY PRELIMINARY PREFERRED OPTION IDENTIFIED - FEBRUARY 2013

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LEGEND

UNFAVORABLE

MODERATE

FAVORABLE

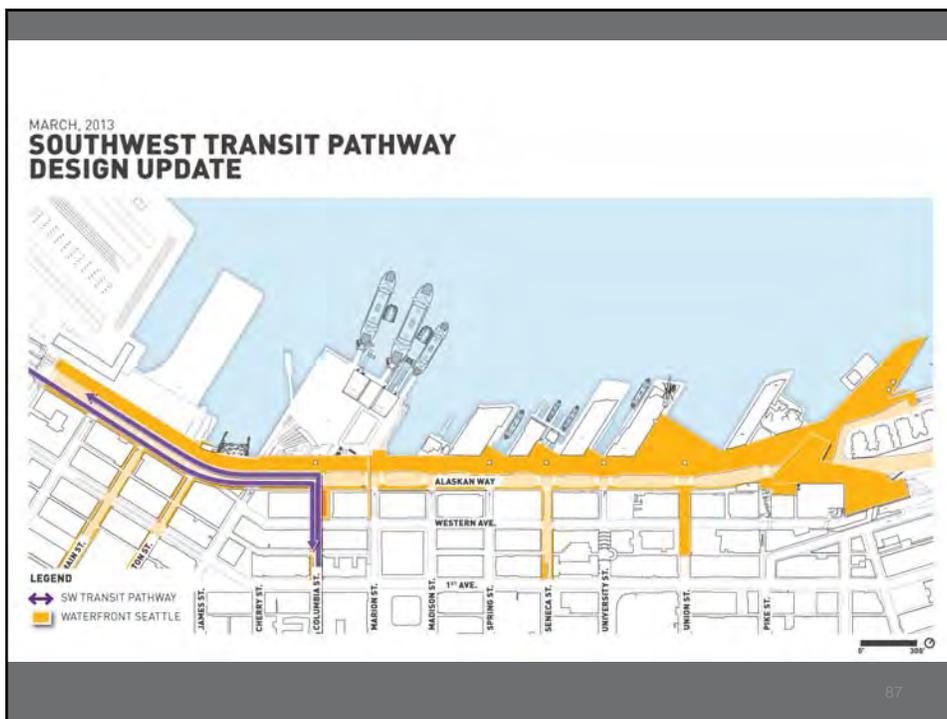
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**SOUTHWEST TRANSIT
PATHWAY
DESIGN UPDATE**

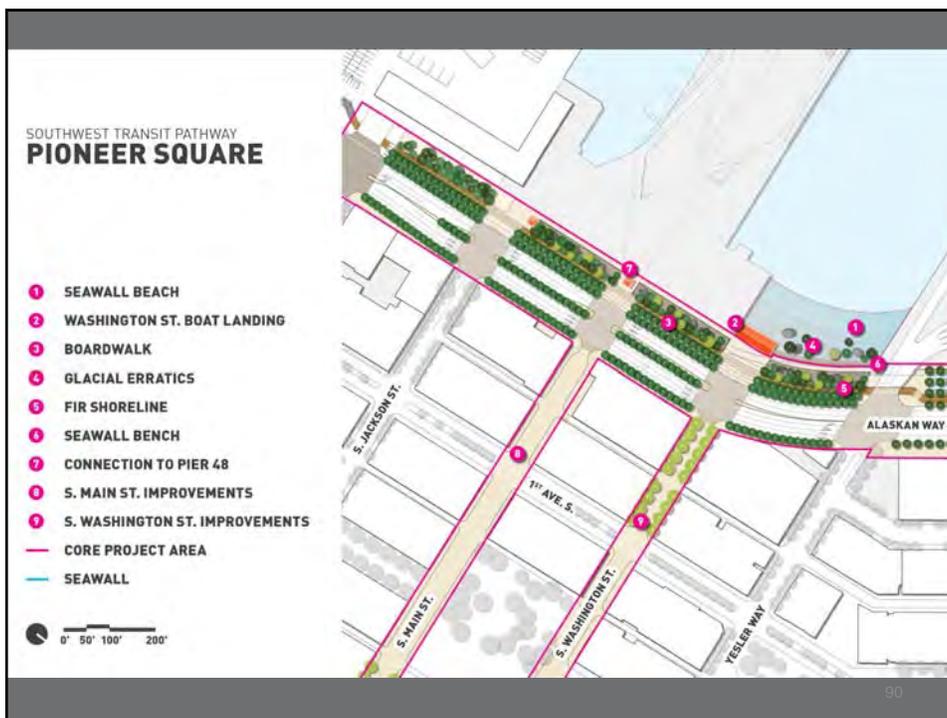
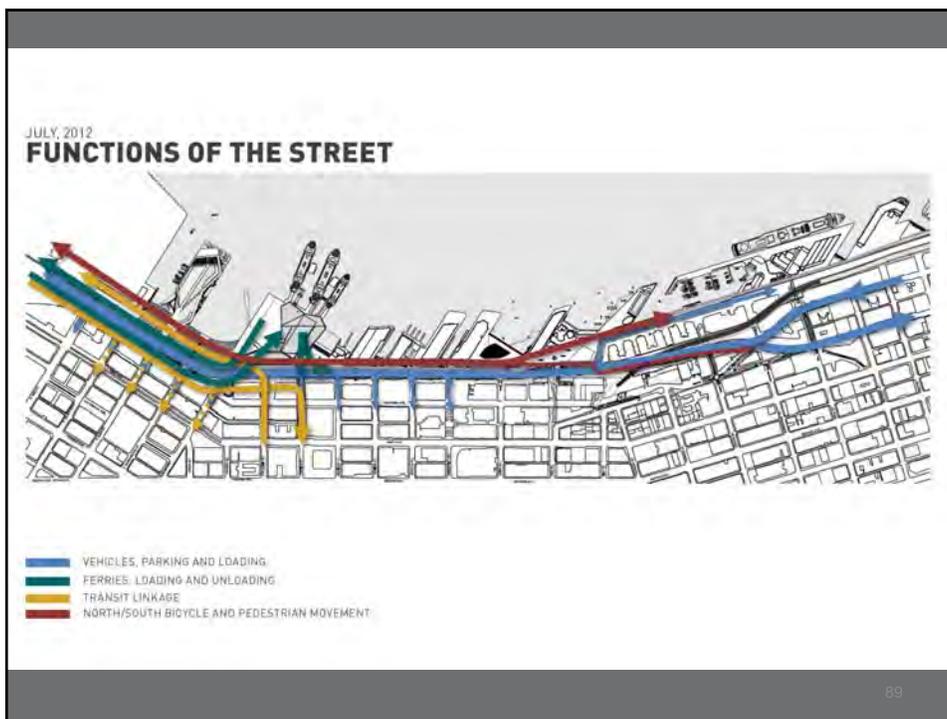
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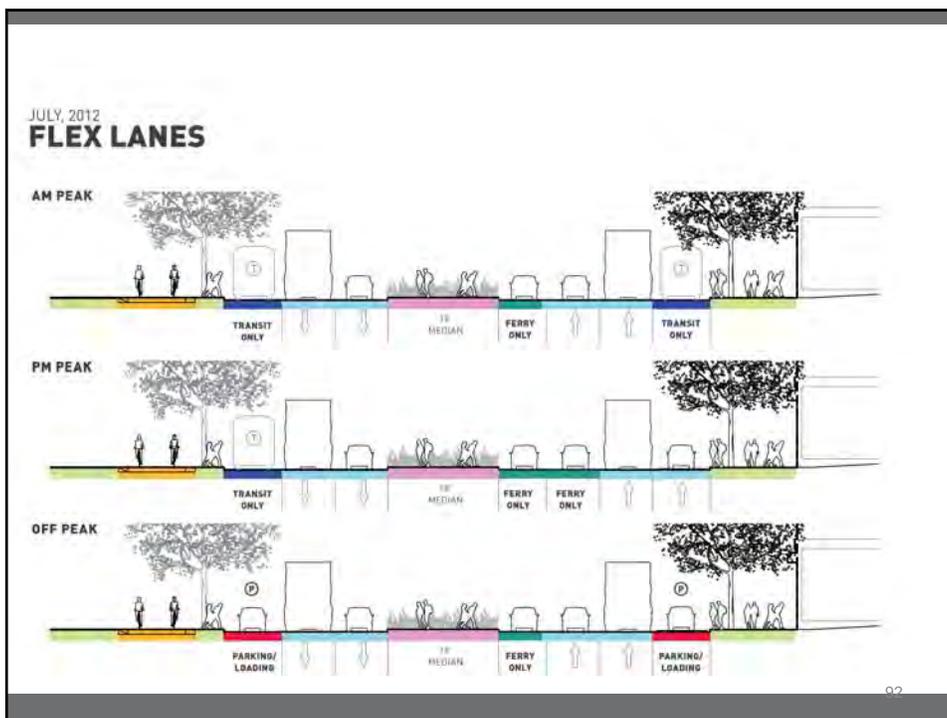
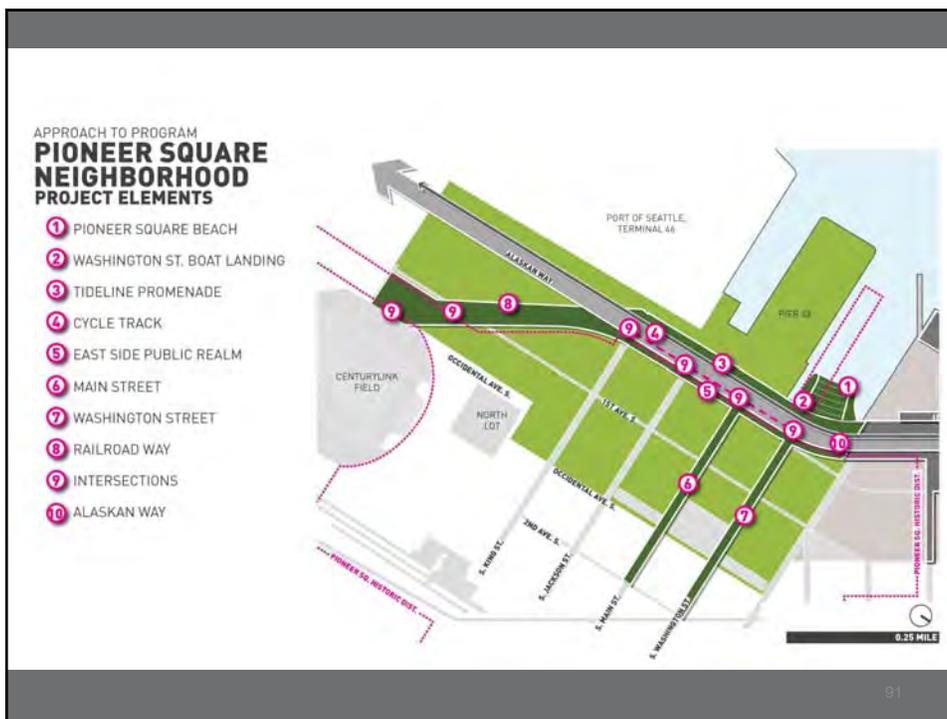


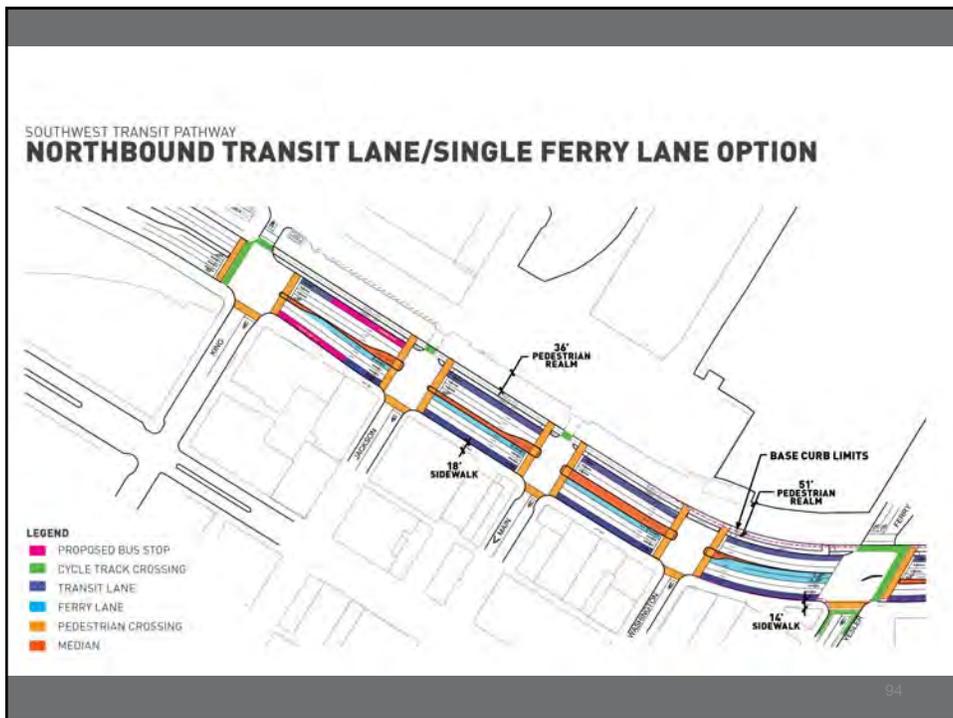
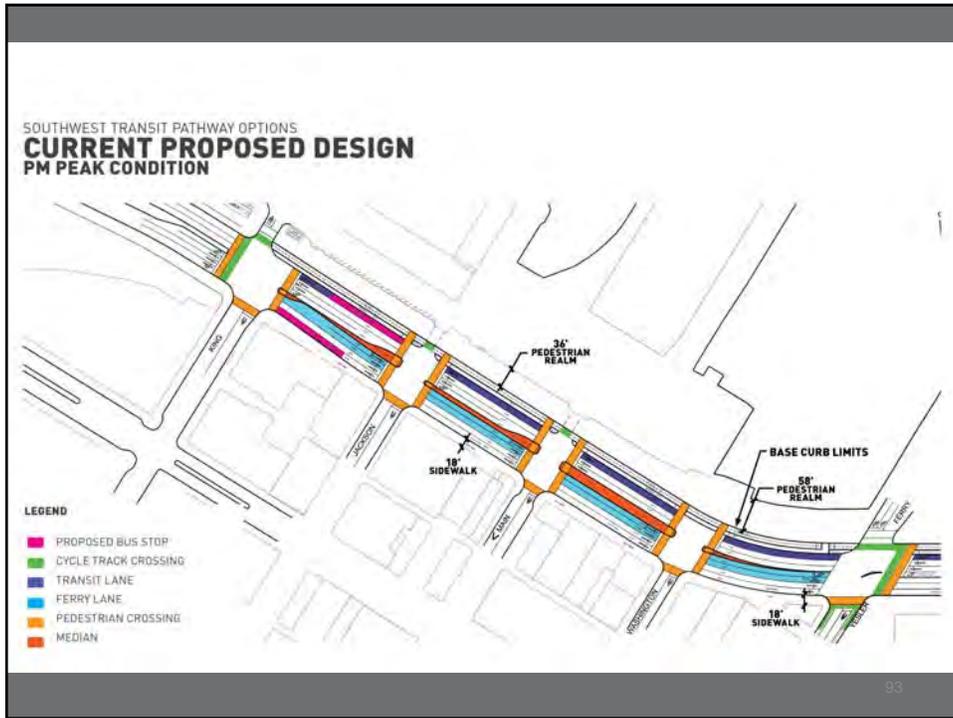
TODAY
**SOUTHWEST TRANSIT PATHWAY
 ON THE VIADUCT**

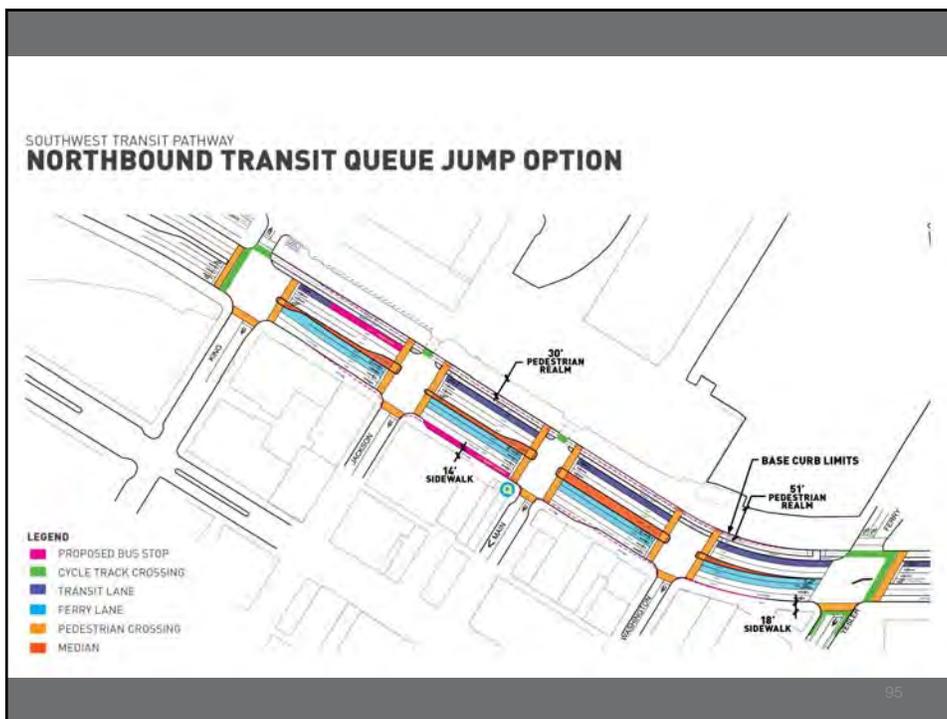
- TODAY, BUSES FROM SOUTHWEST COMMUNITIES ACCESS DOWNTOWN USING THE VIADUCT (AWV).
- AFTER VIADUCT DEMO, BUSES WILL ACCESS DOWNTOWN USING ALASKAN WAY
- DURING THE PM PEAK PERIOD, UP TO 50 BUSES PER HOUR WILL USE ALASKAN WAY IN THE PEAK DIRECTION, AND 30 IN THE OFF PEAK DIRECTION, THE CORRIDOR SERVES OVER 22,000 RIDERS A DAY, INCLUDING RAPIDRIDE C AND D LINES

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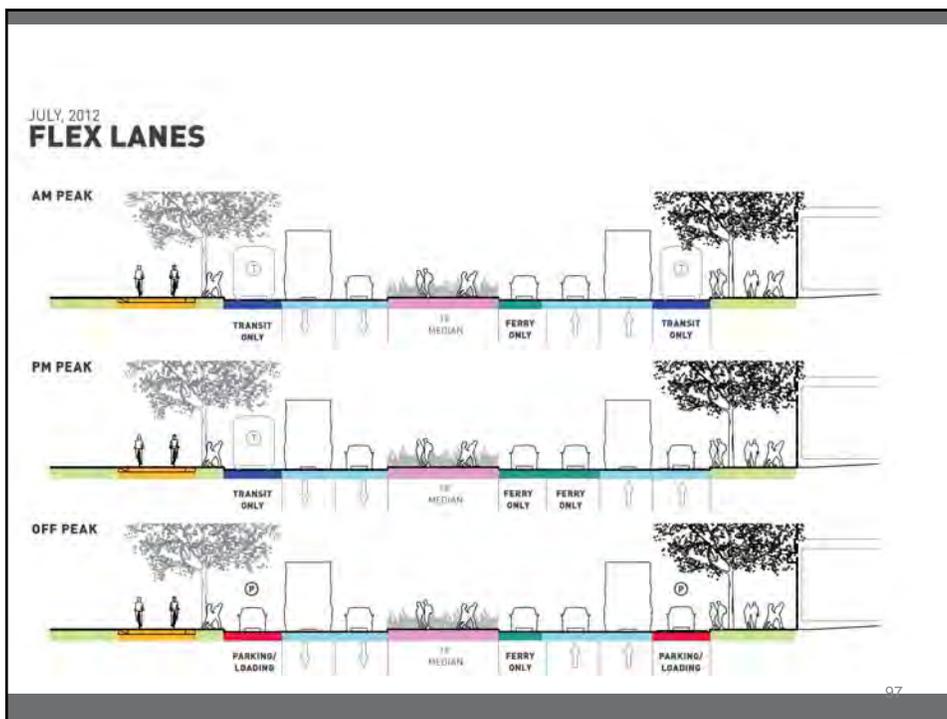




Southwest Transit Pathway Options for Alaskan Way – Northbound PM Peak

	Concept Design	Transit lane option	Transit queue jump option
Northbound lane configuration in PM peak (west to east)	Ferry/Ferry/General/General	Ferry/General/General/Transit (plus additional ferry turn lane between Washington and Yesler)	Ferry/Ferry/General/General (plus additional transit lane pull out between Jackson and Main)
Transit priority measures	Transit lane on Dearborn NB off ramp	Transit lane on Dearborn NB off ramp Transit lane on Alaskan Way Dearborn to Columbia	Transit lane on Dearborn NB off ramp Transit queue jump at Main
Transit travel time – Dearborn to Columbia (minutes)	2.7	2.2	2.4
General Purpose traffic travel time – Dearborn to Columbia (minutes)	1.9	1.8	1.8
Street width at Main*	7 lanes/96 ft	7 lanes/96 ft	8 lanes/106 ft
Street width at Yesler*	7 lanes/78 ft	8 lanes/88 ft	7 lanes /78 ft
Northbound bus stop location/type during PM peak	King-Jackson/in lane	King-Jackson/in lane	Jackson-Main/pull-out with queue jump at Main signal
Northbound right turn prohibitions	None	None	NB right turn to Main prohibited

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**LOCAL WATERFRONT
TRANSIT**

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WATERFRONT TRANSIT CONCEPT

- **SERVES LOCAL WATERFRONT MARKET**
- **OPERATES IN STREET IN SHARED LANE**
- **FREQUENT**
- **USER FRIENDLY**
- **LEGIBLE**
- **ICONIC**
- **FITS WATERFRONT CHARACTER AND DEMAND**
- **COMPELLING ALTERNATIVE TO DRIVING**
- **COMPLIMENTARY TO OTHER DOWNTOWN TRANSIT**

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HISTORIC STREETCAR FEASIBILITY

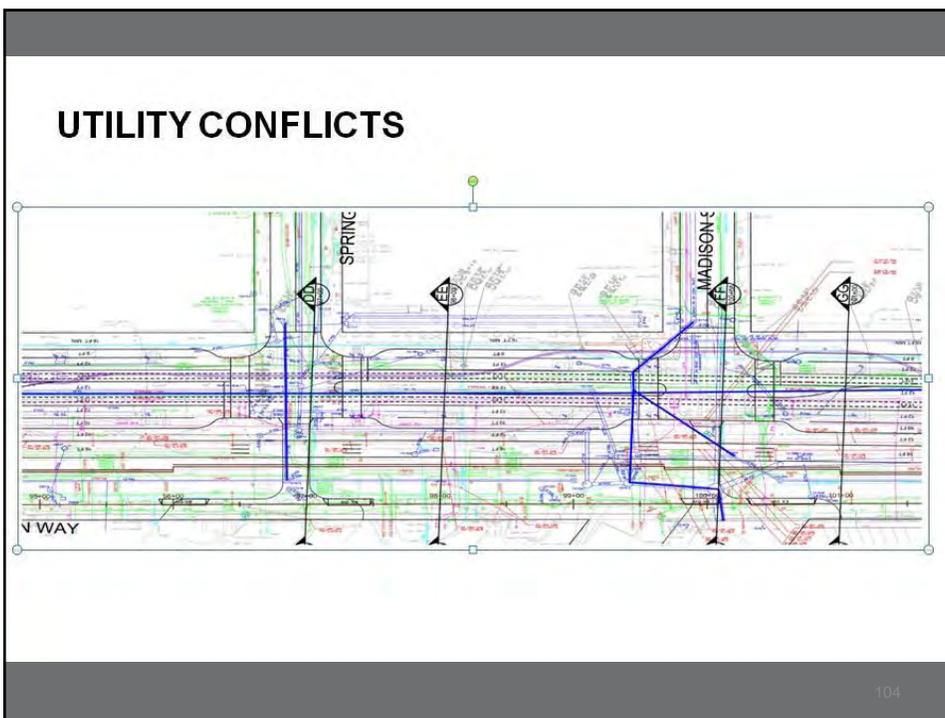
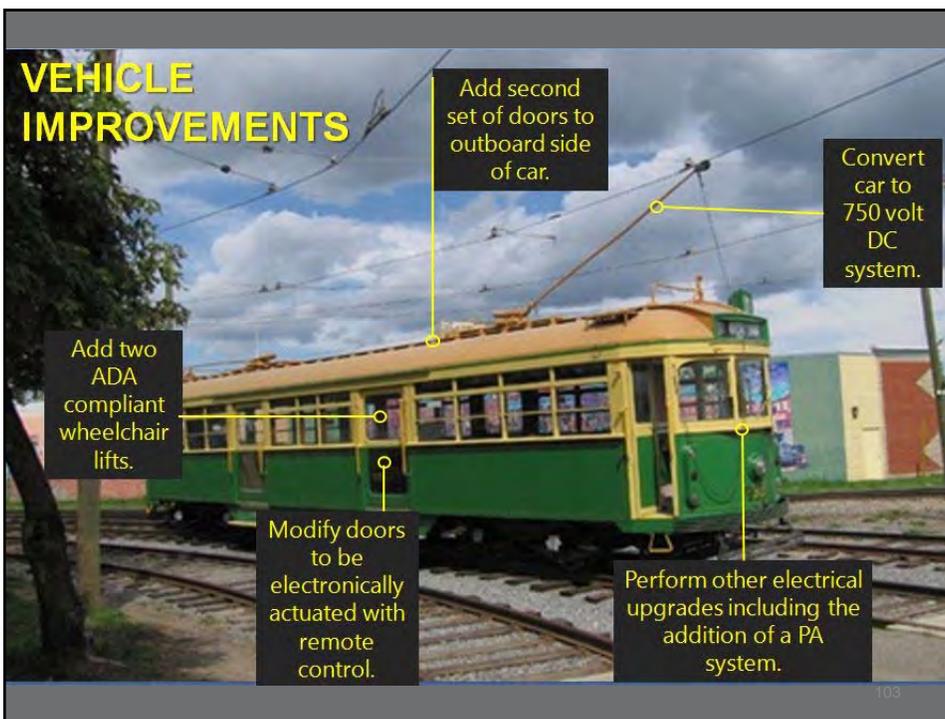
- VEHICLE OPERATIONS/SAFETY
- GRADES
- DOORS ON BOTH SIDES
- AUTOMATIC DOORS/SINGLE OPERATOR
- DISABILITY ACCESS

COMPATIBILITY WITH MODERN STREETCAR

- LOW FLOOR LOADING
- VOLTAGE

UTILITY CONFLICTS

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LOCAL WATERFRONT TRANSIT EVALUATION



HISTORIC STREETCAR



RUBBER TIRE TRANSIT



MODERN STREETCAR



RUBBER TIRE TRANSIT

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HISTORIC STREETCAR ROUTE

CENTER LANES/MEDIAN PLATFORMS

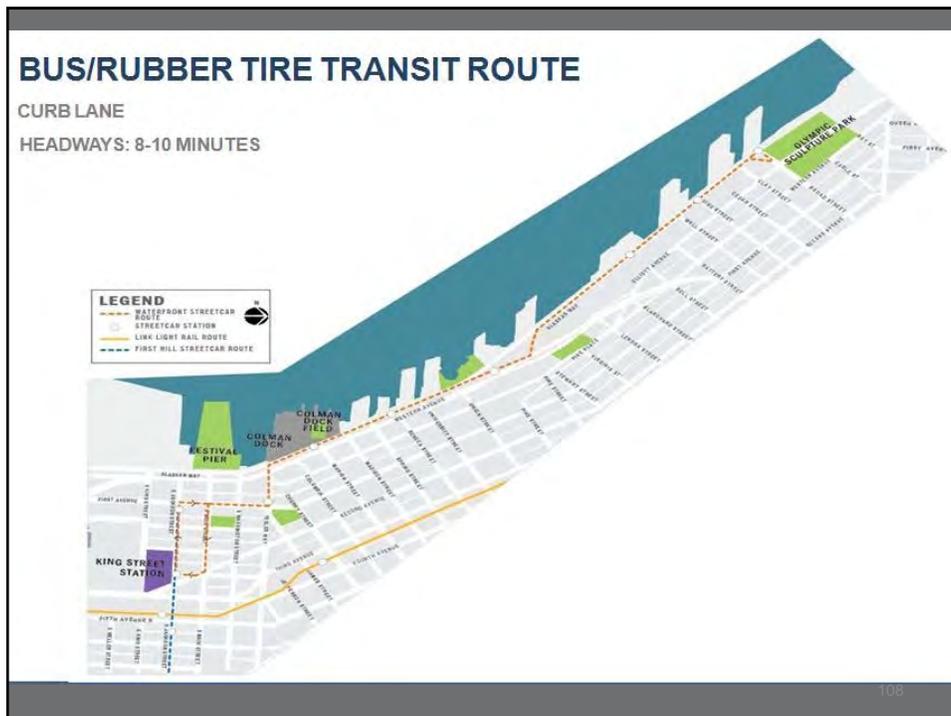
HEADWAYS: 15 MINUTES

LEGEND

- HISTORIC STREETCAR ROUTE
- STREETCAR STATION
- LINK LIGHT RAIL ROUTE
- FIRST HILL STREETCAR ROUTE



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EVALUATION CRITERIA

COSTS

- Operations and Maintenance
- Capital (vehicles, power, rails, platforms, maintenance base)
- Utility conflicts requiring relocation

ENVIRONMENTAL

- Noise
- Air Quality
- Aesthetics

OPERATIONS & PERFORMANCE

- Vehicle/System Capacity
- Travel time
- Safety
- Rider Comfort/Satisfaction
- Vehicle Operations
- Traffic Impact
- ADA Compliance

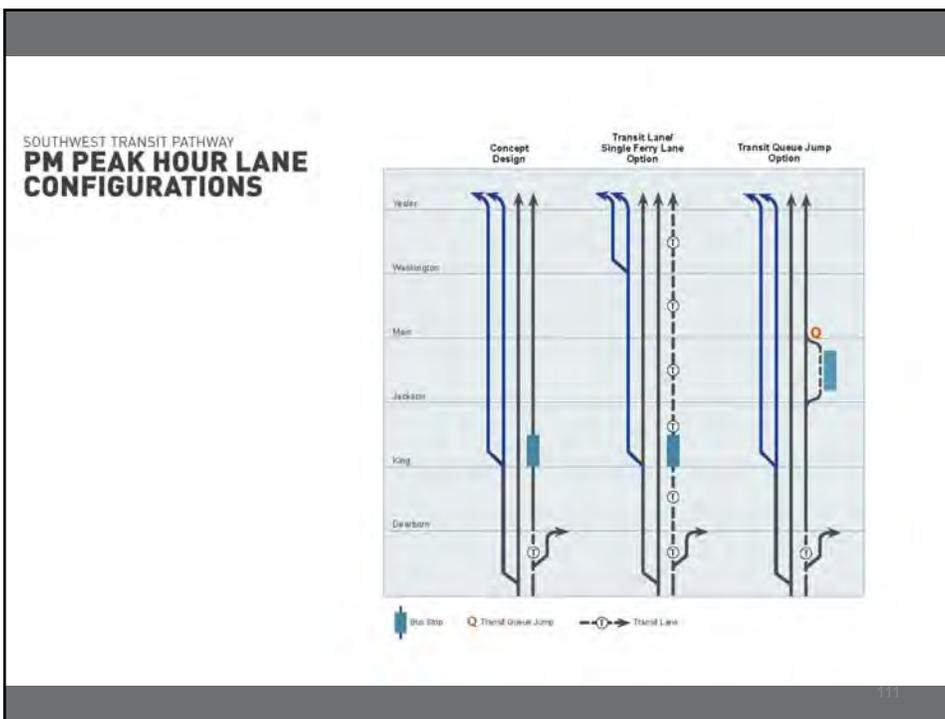
FUNDING

- Public funding potential
- Private fundraising potential

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DISCUSSION

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HISTORIC STREETCAR OPTIONS

TWO OPTIONS TO BE EVALUATED:

LOWER COST OPTION

- OPERATES SEPARATELY FROM MODERN STREETCAR SYSTEM
- HIGH FLOOR LOADING
- ONLY MODIFICATION IS TO ADD DOORS TO BOTH SIDES
- TROLLEY BARN UNDER ELLIOTT WAY AT PINE STREET
- VEHICLE IMPROVEMENT COST - \$1.4 MILLION

HIGHER COST OPTION

- CARS COMPATIBLE WITH MODERN STREETCAR SYSTEM** (LOW FLOOR LOADING, 750 V)
- AUTOMATIC DOORS – SINGLE OPERATOR
- WHEELCHAIR LIFTS
- VEHICLE IMPROVEMENT COST - \$14.6 MILLION

**EXCEPT FIRST HILL LINE

*What comments do you have
about the street design?*

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Stakeholder Once Around

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*What additional feedback do
you have for the project
teams?*

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Public Comment

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Next Meeting:

TBD

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Next Steps and Action Items

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Actions and Contact Information

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