

Alaskan Way Viaduct **REPLACEMENT** PROGRAM



North Portal Working Group Meeting
Nov. 8, 2012

Program updates

New AWW Website

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**Alaskan Way Viaduct
REPLACEMENT
PROGRAM**



Advisories / Updates

This week's viaduct closures
Posted on Sep 13 2012 9:26 AM

The southbound SR 99 Alaskan Way Viaduct will close between the north end of the Battery Street Tunnel and the West Seattle Bridge from 9 p.m. to 5 a.m. each night through Thursday this week.

We'll use the closures to [continue reinforcing](#) a two-block section of the viaduct located above the tunnel route. Drivers should expect more weeknight southbound closures of the viaduct through fall.

Take a walk, watch us make history
Posted on Aug 29 2012 3:22 PM

If you haven't walked by the [SR 99 tunnel construction site](#) lately, you should. The progress our crews are making to the west of Seattle's stadiums is jaw-dropping, and it's worth [taking a trip](#) down there to check it out.

The best viewing area is on the bicycle/pedestrian path to the west of the construction area, between South King and South Atlantic streets. You can access the path's north entrance at South King Street and Alaskan Way South, a few blocks south of Colman Dock, or the south entrance at South Atlantic Street and Alaskan Way South, west of Safeco Field. We've posted a series of informational signs on the fence along the path to help visitors understand what crews are up to.

The walking tour is part of our monthly [First Thursday speaker series at Milepost 31](#). Please email viaduct@wsdot.wa.gov or call 1-888-AVV-LINE if you have questions.

Blog

Check out our new look
Aug 27 2012 12:28 PM

As you may have noticed, we've made quite a few changes lately.

Earlier in September we celebrated the early completion of our south end viaduct replacement, a massive effort that has transformed the area to the west of Seattle's stadiums. Striking as the changes are, it's clear to anyone driving by that our job isn't yet finished. We have a tunnel to build.

To keep up with the changing times, we've changed the viaduct program's ... [more](#)

Hello from Japan



It won't arrive in Seattle until early 2013, but as you can see, the giant machine that will bore the SR 99 tunnel is taking shape in Japan. View more photos of crews building the machine at our [Flickr site](#).

Construction CAMERA
Live View 

Multilingual Information
中文 - Chinese
Español - Spanish
Tagalog - Filipino
Tiếng Việt - Vietnamese

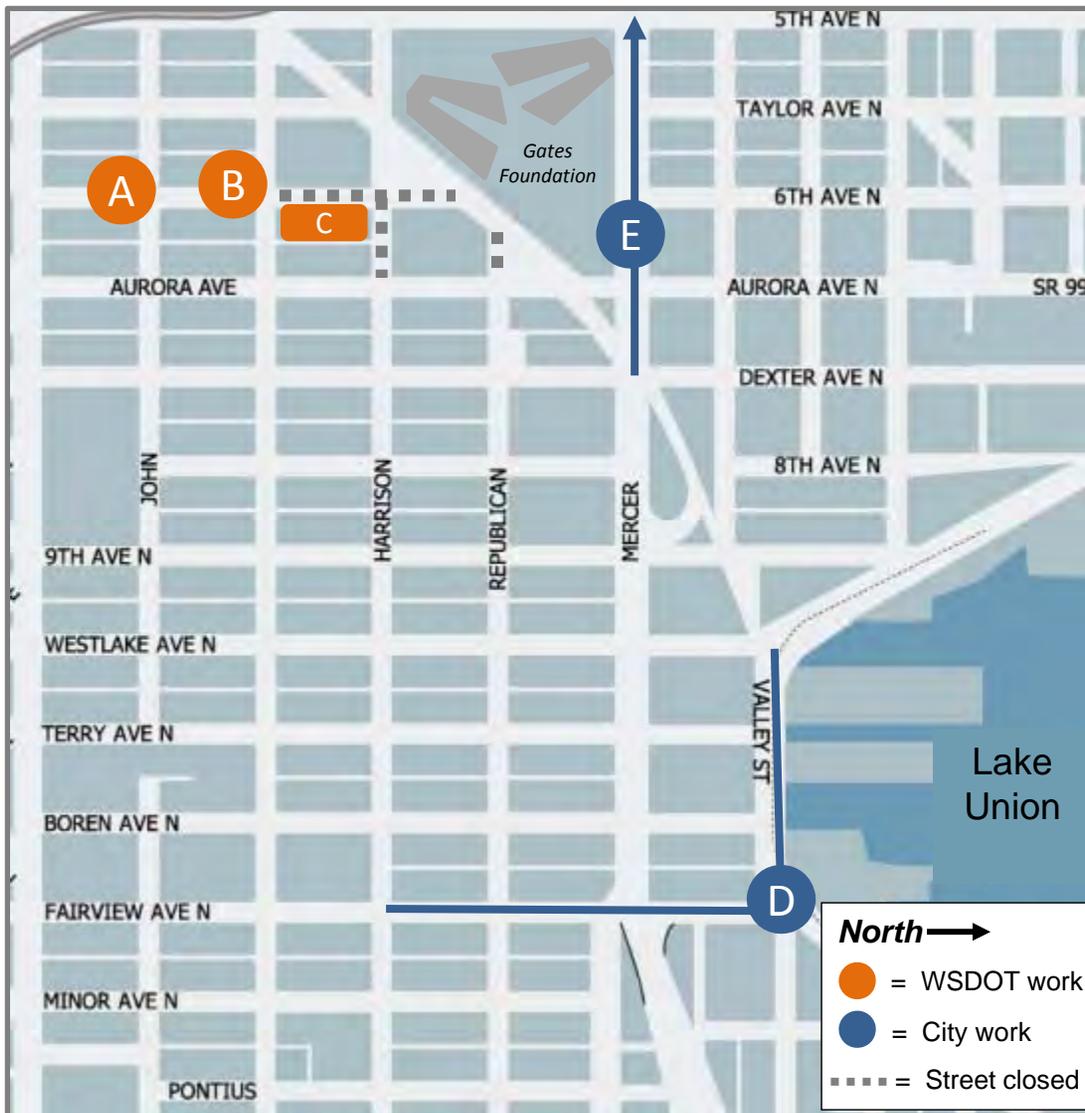
Traffic Camera | Search | Contact Us | Site Index | Privacy Policy | Accessibility | Title 17

Name the SR 99 Tunnel Boring Machine Contest



- Open to Washington state students, grades K-12.
- Criteria:
 - Name must be female.
 - Name should have significance to Washington state heritage, life, nature, transportation or engineering.
 - Name should be creative and original.
 - TBM cannot be named after a living person.
- Enter online at www.alaskanwayviaduct.org or in person at Milepost 31.

North End Construction Overview



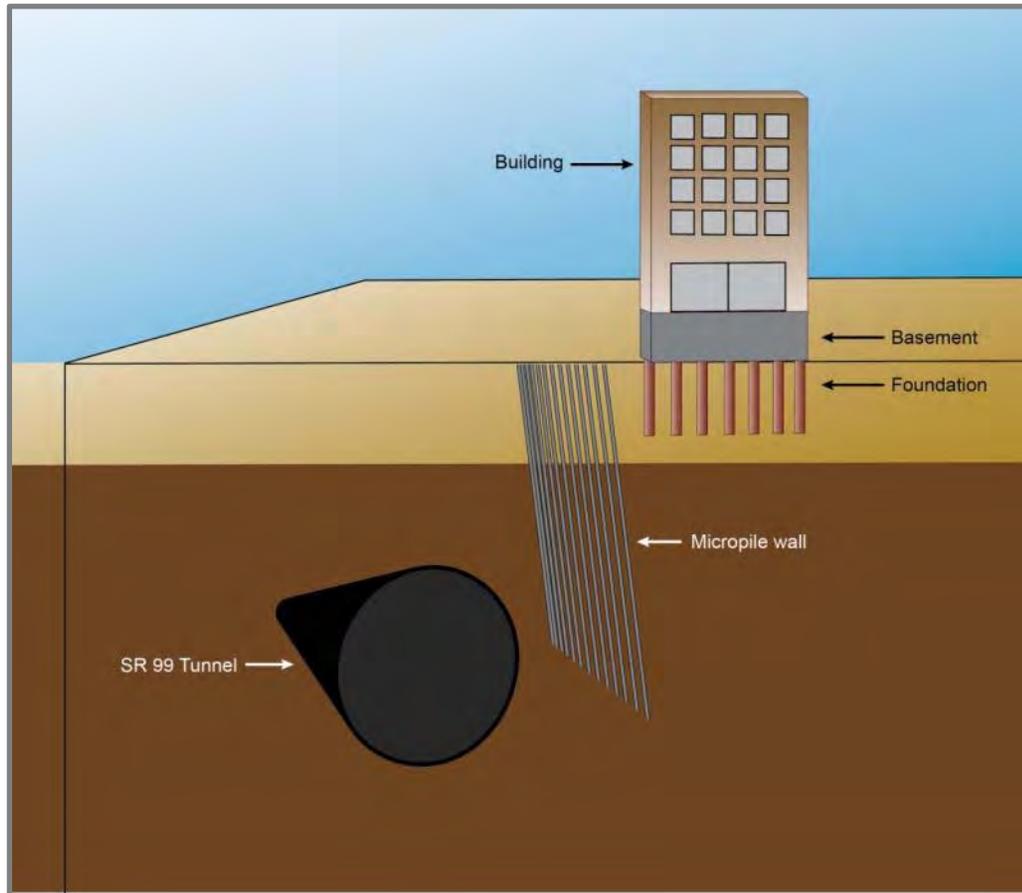
- A** Relocate utilities near north portal area
- B** Install micropile walls
- C** Build tunnel receiving pit
- D** Mercer East construction
- E** Future Mercer West construction

A Relocating Utilities in the North End



- December 2011 to spring 2013.
- Ongoing utility relocation work with intermittent lane closures.
- Seattle City Light will continue work on John Street between Aurora Avenue North and Sixth Avenue North.

B Install Micropile Walls



- January to March 2013.
- Installing underground walls to protect buildings during tunneling.
- Lane closures on Sixth Avenue North between John and Thomas streets.

C Build Tunnel Receiving Pit



- Early 2013 to summer 2013.
- Initial work will include drilling piles for receiving pit support walls.

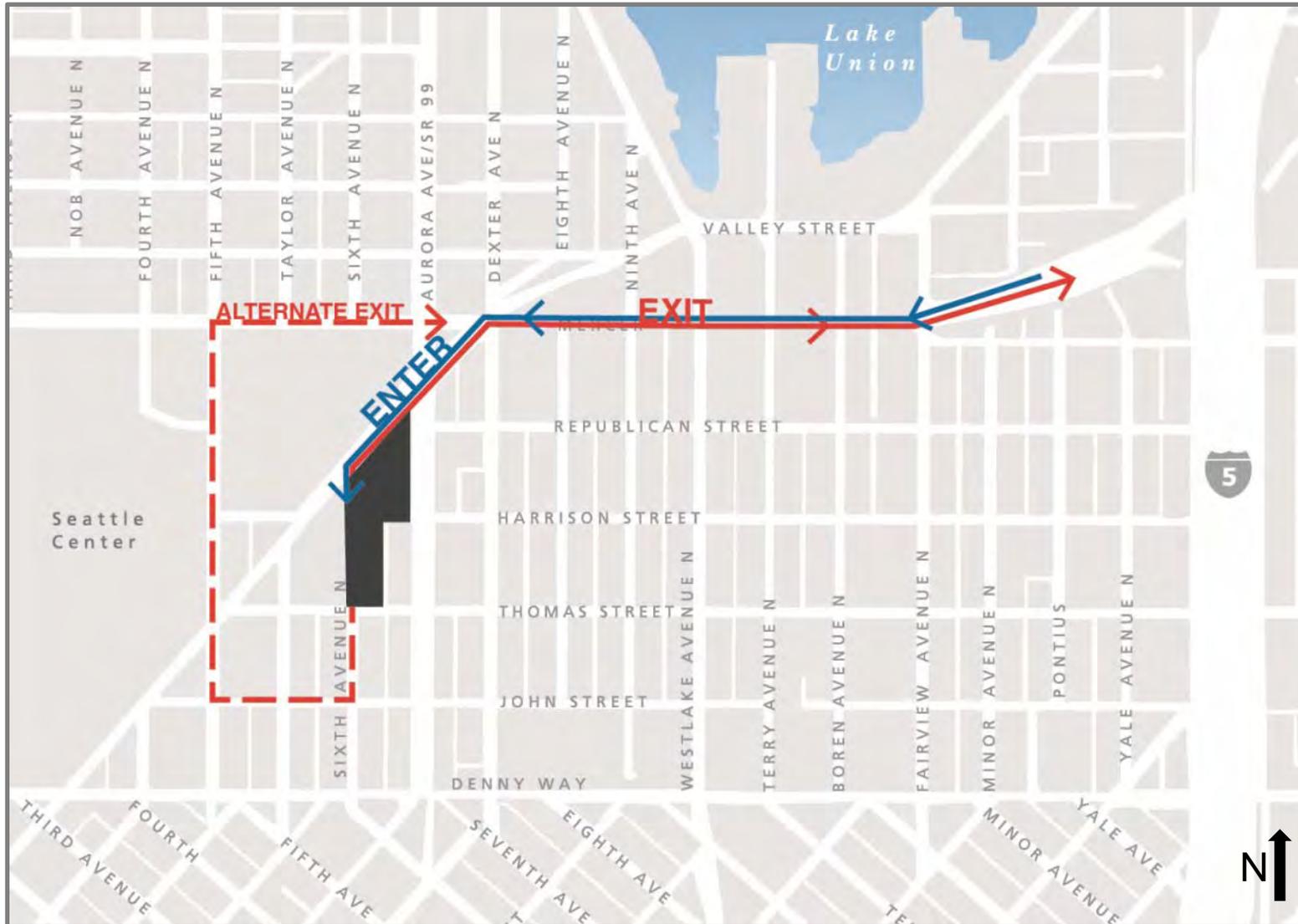
C Street Closures Near North Portal



 Closed streets

- Sixth Avenue North closed between Thomas and Broad streets.
- Harrison Street closed between Sixth Avenue North and Aurora Avenue North/SR 99.
- Republican Street closed between Broad Street and Aurora Avenue North/SR 99.

Proposed North Portal Haul Routes

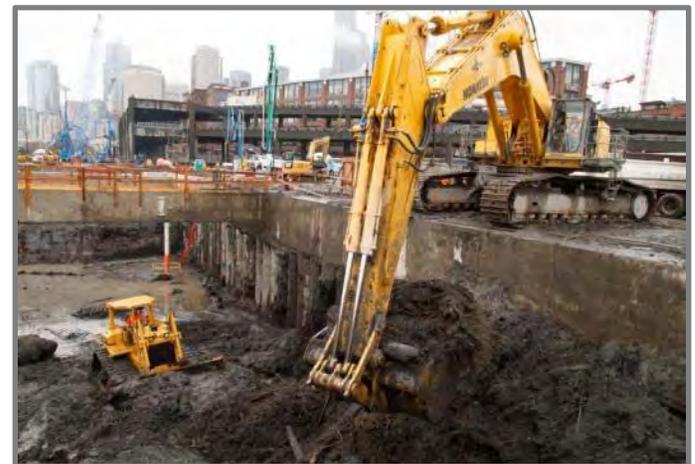


South end construction update

Preparing the Tunnel Launch Pit



- Launch pit excavation will continue through early 2013.
- Additional equipment will be arriving on-site through winter to prepare for TBM arrival in March.



Build Tunnel Support Walls



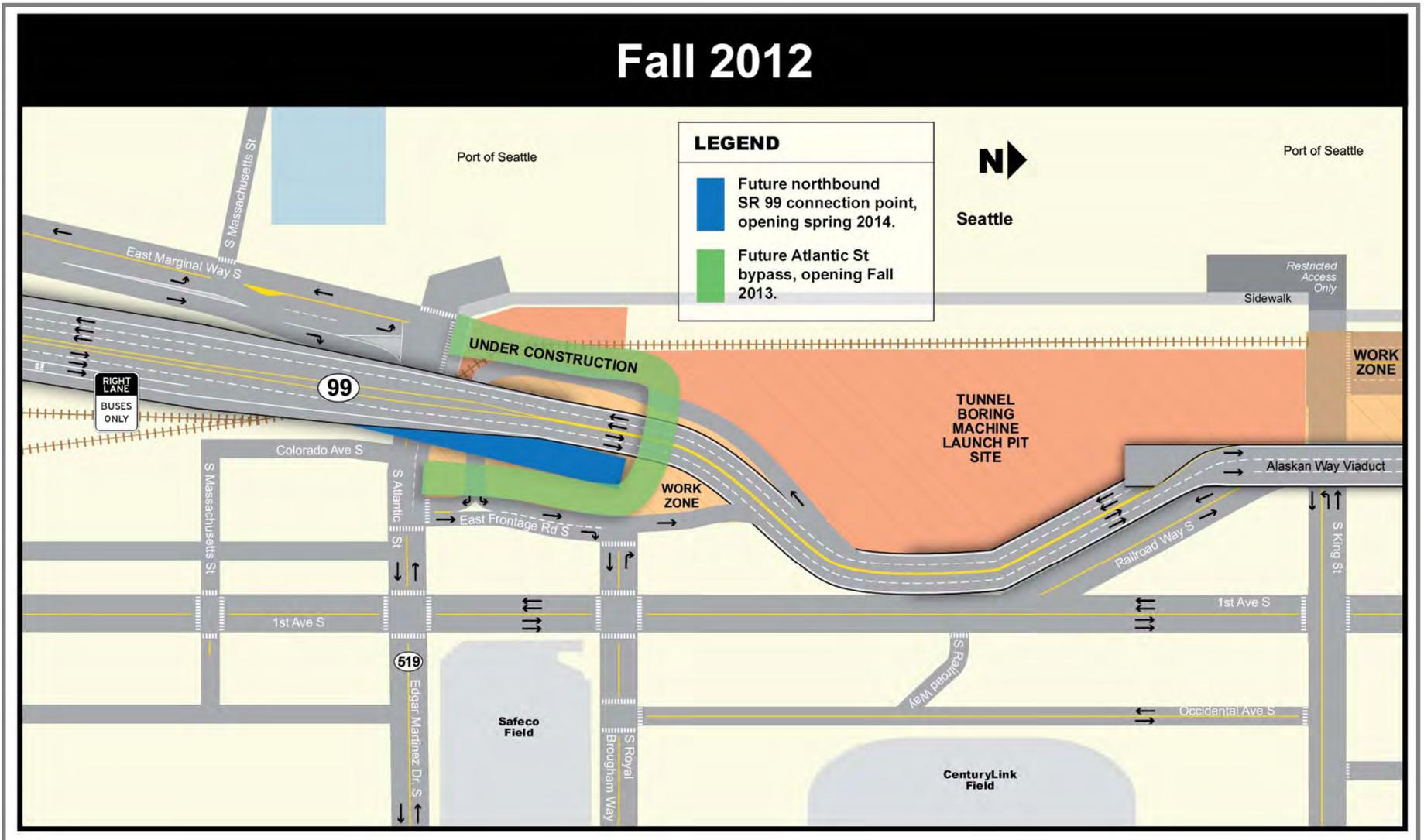
- June 2012 to spring 2013.
- Secant piles form underground walls to provide a protected area where the TBM will start tunneling.
- Crews will use jet grouting to stabilize some areas.

The New SR 99 Bridges



Building a New Overpass

Fall 2012



Other SR 99 tunnel construction

Construction Monitoring Area



Protecting Structures Along the Tunnel Route



Example of monitoring equipment on building roof.

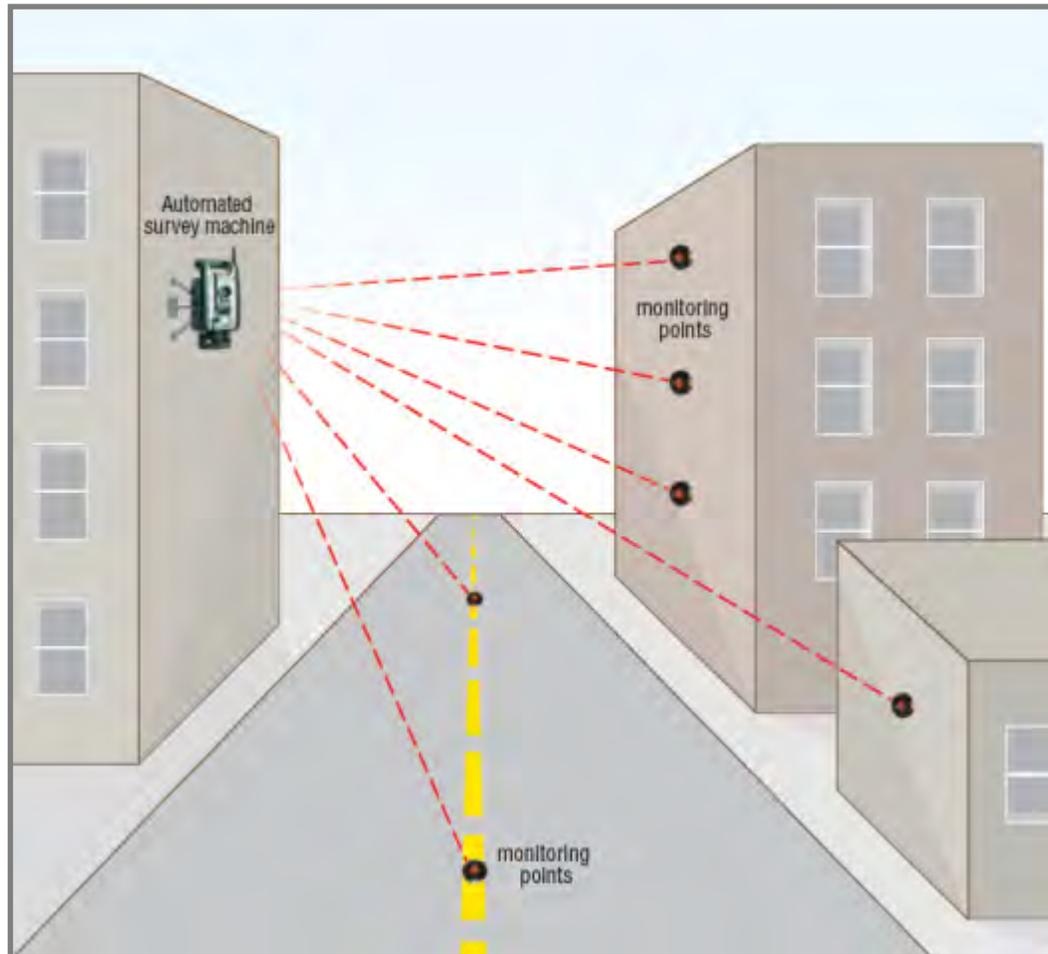
- Install monitoring equipment on nearly 200 buildings.
- Install 700 instruments under streets and sidewalks to measure any ground changes.
- Track measurements of excavated material as tunnel boring machine progresses.
- Use satellite images to assess any changes in ground condition.

Ground Monitoring



- Instruments installed under streets and sidewalks along tunnel alignment.
- Allows crews to detect movement deep underground before effects are seen at street level.
- Instruments extend 2 to 300 feet underground.
- Visible portion is a 4 to 12-inch diameter cover.

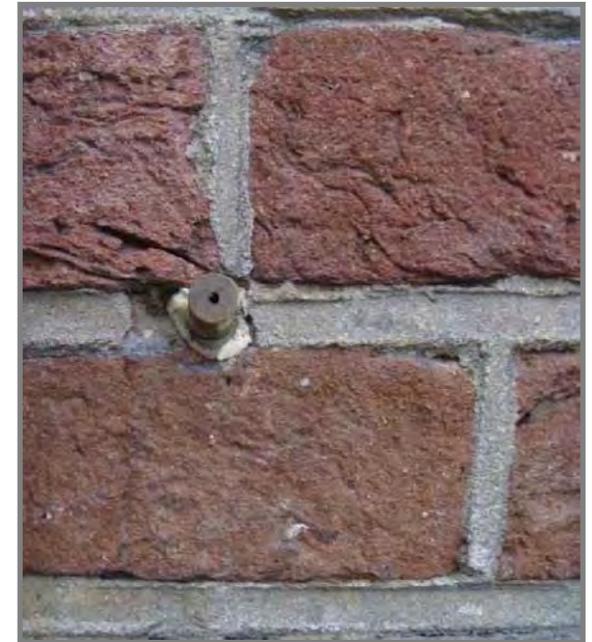
Exterior Building Monitoring Equipment



- Automated survey machines continuously survey nearby monitoring points.
- Monitoring points are small, stationary pieces of equipment placed on buildings.
- Any movement of the monitoring point will be detected by the survey machine.

Monitoring Points

- Bolted to building exteriors.
- Continuously read by automated survey machines or with manual survey equipment.
- Range in size from 6-by-6-inch prisms to points as small as a nail head.



Automated Survey Machines

- Continuously scans monitoring points to detect movement.
- Attached with brackets or stands to building roofs or exteriors.
- Approximate size: 1 foot by 6 inches plus the size of brackets or stand.



Interior Building Monitoring Equipment

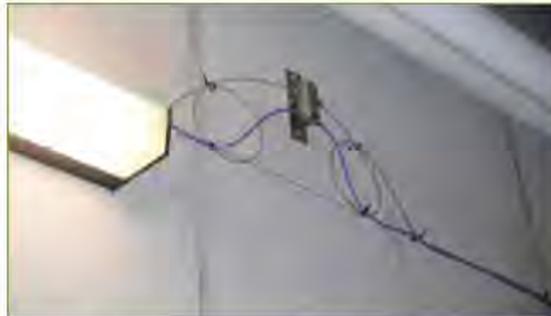
A limited number of buildings along the SR 99 tunnel route will require monitoring equipment on their interiors. These sensors will electronically transmit any building movement to the project team.

Tiltmeter



A tiltmeter is a 3-inch by 12-inch device fastened to an interior wall with bolts or brackets.

Liquid Level Sensor



A liquid level sensor is a 6-inch by 3-inch device connected to a half inch diameter tube filled with water and mounted on a wall with bolts or brackets.

Crack Gauge



Small gauges measure changes in the size of existing building cracks.

Building the Tunnel Boring Machine



Building the Tunnel Boring Machine



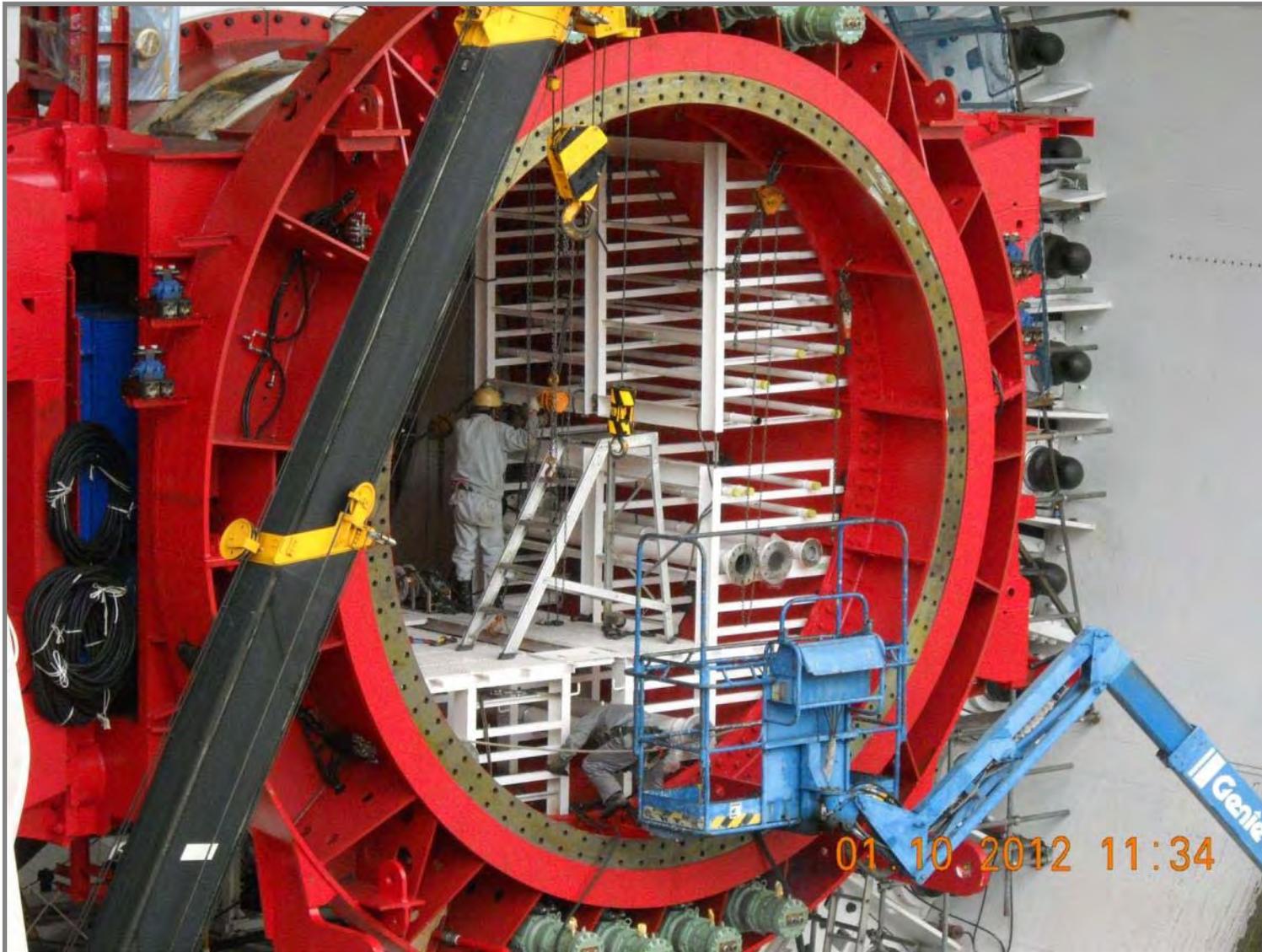
Building the Tunnel Boring Machine



Building the Tunnel Boring Machine



Building the Tunnel Boring Machine



Building the Tunnel Boring Machine



Tunnel Boring Machine Delivery



- 41 different pieces
- Max 1.9 million pounds (861 tons)
- Overland transport from adjacent dock.

Transporting a Tunnel Boring Machine



Transporting the tunnel boring machine for the ESCSO Tunnel Project in Portland, Oregon.

Transporting Tunnel Liner Segments



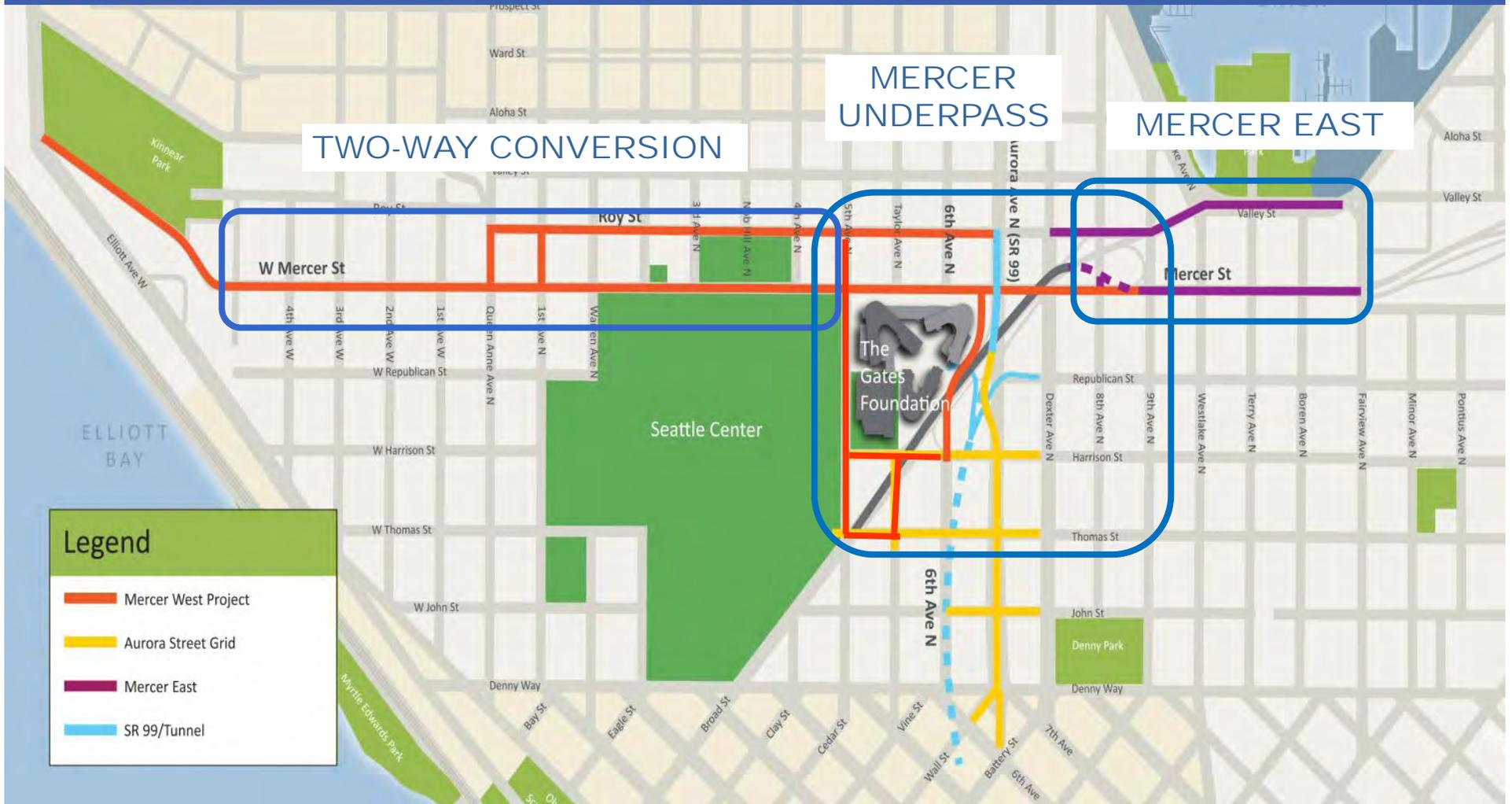
Transporting tunnel liner segments to the Sparvo Tunnel Project, in Italy.

Working group member feedback

Mercer Corridor Update



MERCER CORRIDOR



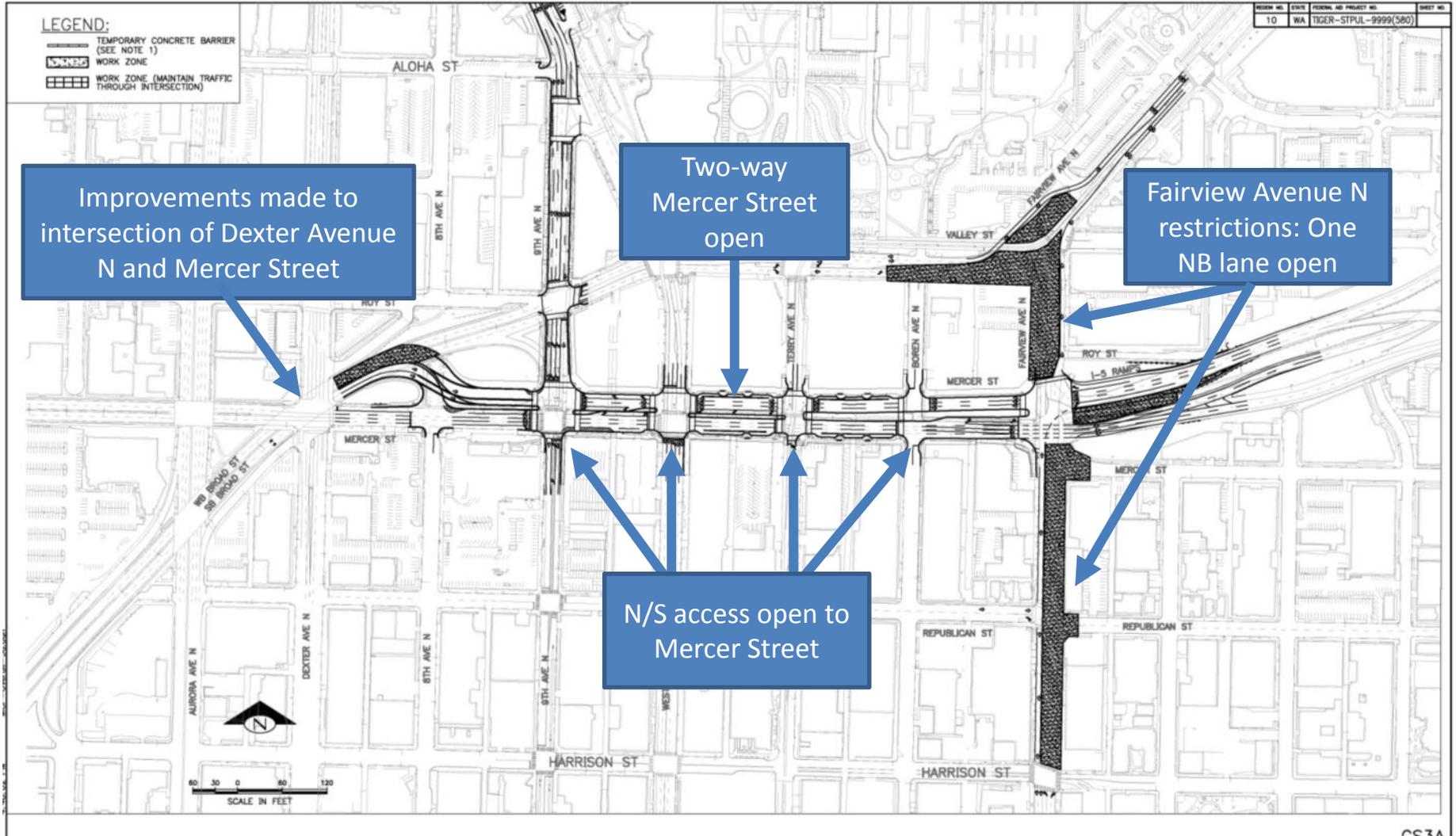
Mercer Street Open to Two-Way Traffic



*Mercer Street open to two-way traffic
Photo courtesy of the Seattle Times*

- Mercer Street opened to two-way traffic on August 26th.
- SDOT continues to monitor traffic flow on Mercer Street and make adjustments to signal timing as necessary.
- Fairview Avenue N. restricted to one northbound lane for construction between Harrison Street and Valley Street.
- Stage 3 completion anticipated February 2013.
- Project completion anticipated Summer 2013.

Mercer East Stage 3





MERCER WEST

Progress and Milestones

Sept 2012 – City Council Approved Budget
Oct 2012 – Advertised for Construction Bids
Dec 2012 – Award Contract
Feb 2013 – Begin Construction

July 2014 –
Close
Broad
Street

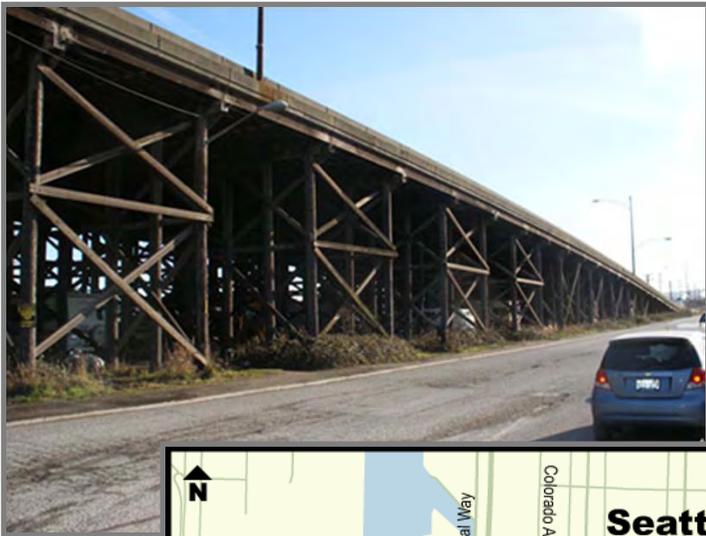
July 2015 →



Mercer West Construction Sequencing

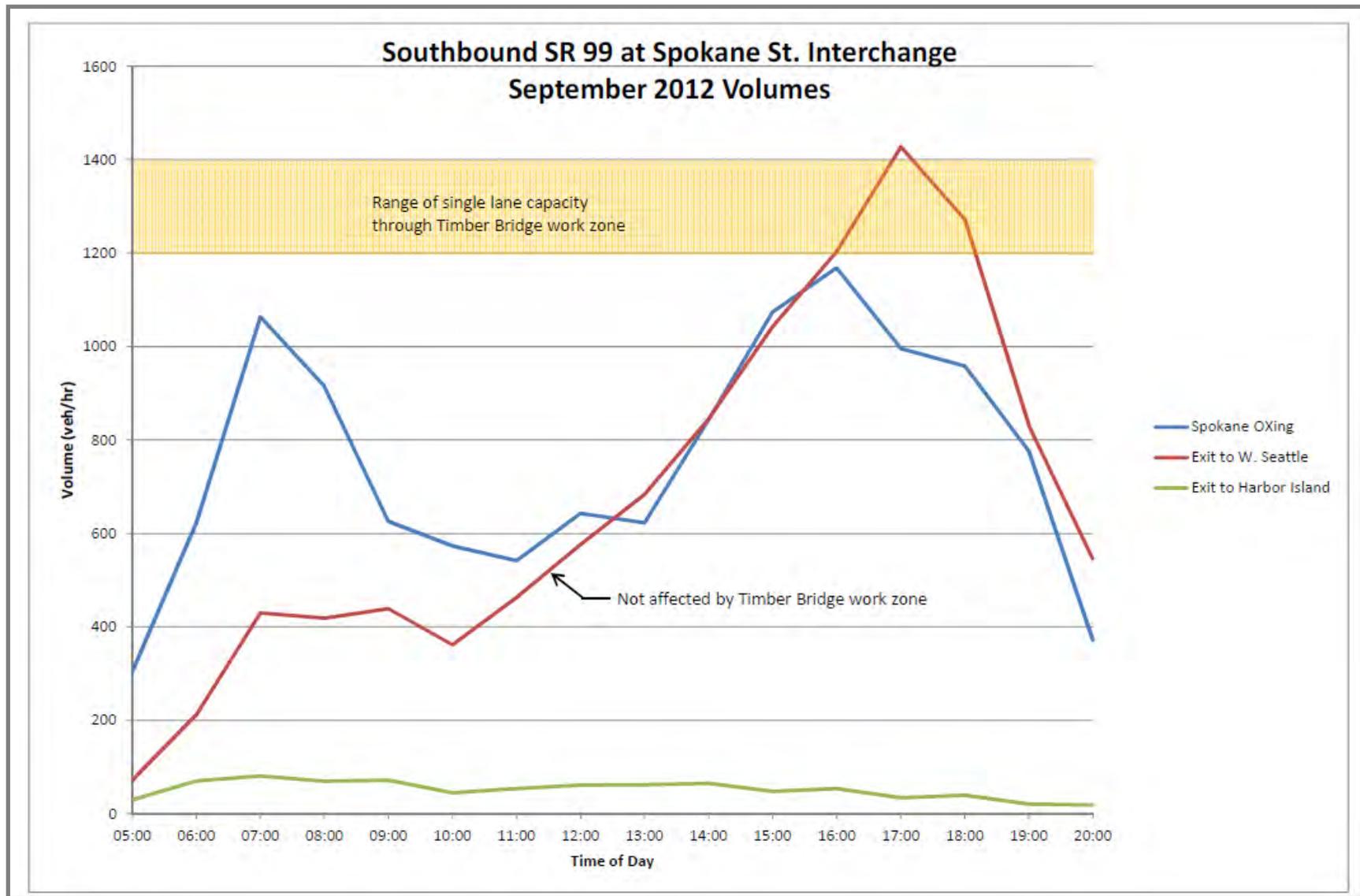
Construction in 2013

SR 99 Spokane Street Overcrossing Replacement Project (Timber Bridge)

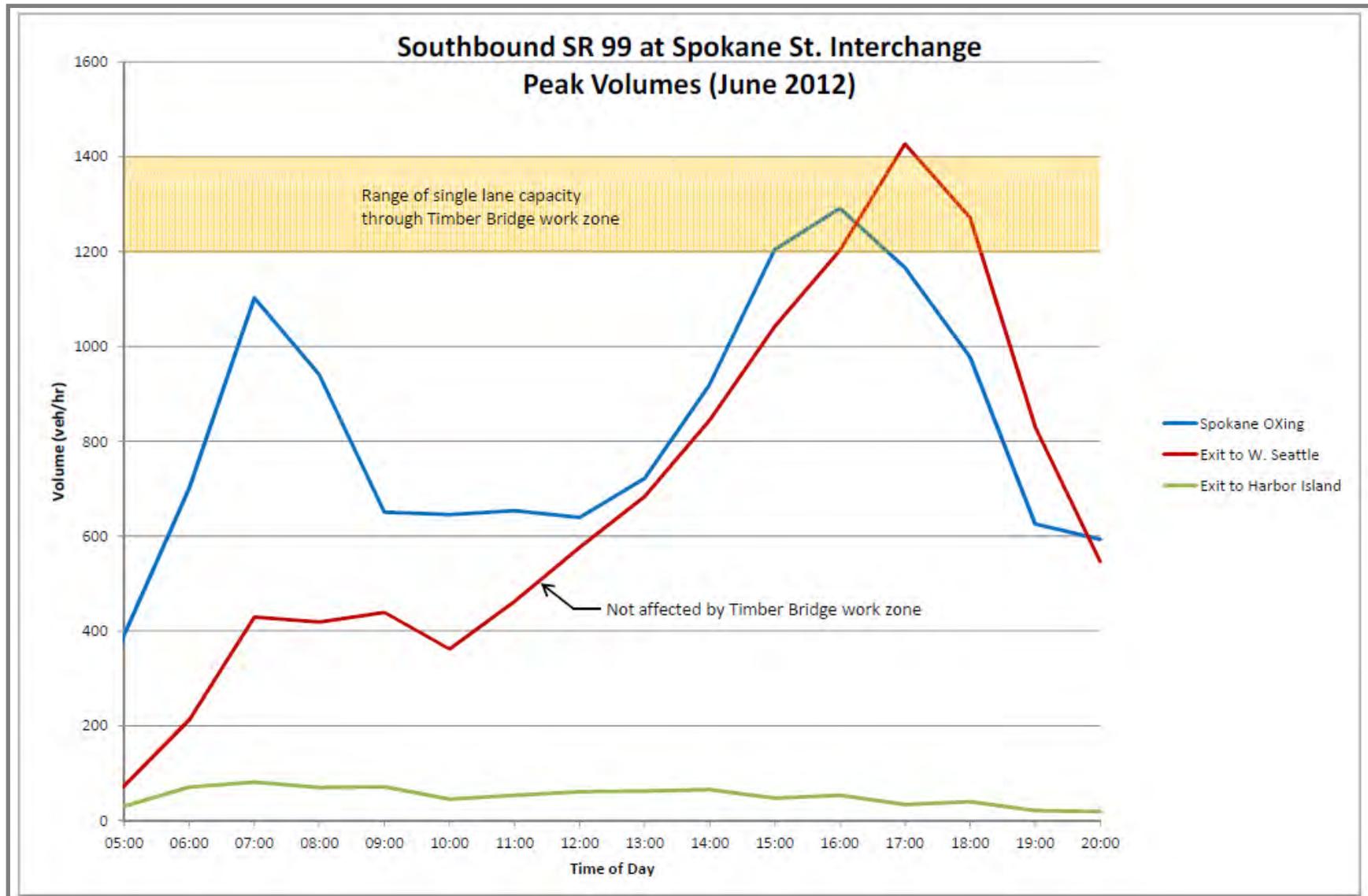


- Replace a 50-year-old timber-supported bridge with a concrete column supported structure.
- South of South Spokane Street, maintain two lanes of northbound and one lane of southbound SR 99 traffic throughout construction by rebuilding the east and west halves alternately.
- January 2013 – July 2014.
- More than half the vehicles on southbound SR 99 exit to the West Seattle Bridge.

Southbound SR 99 Traffic Volumes at Spokane Street interchange – September 2012



Southbound SR 99 Traffic Volumes at Spokane Street interchange – June 2012

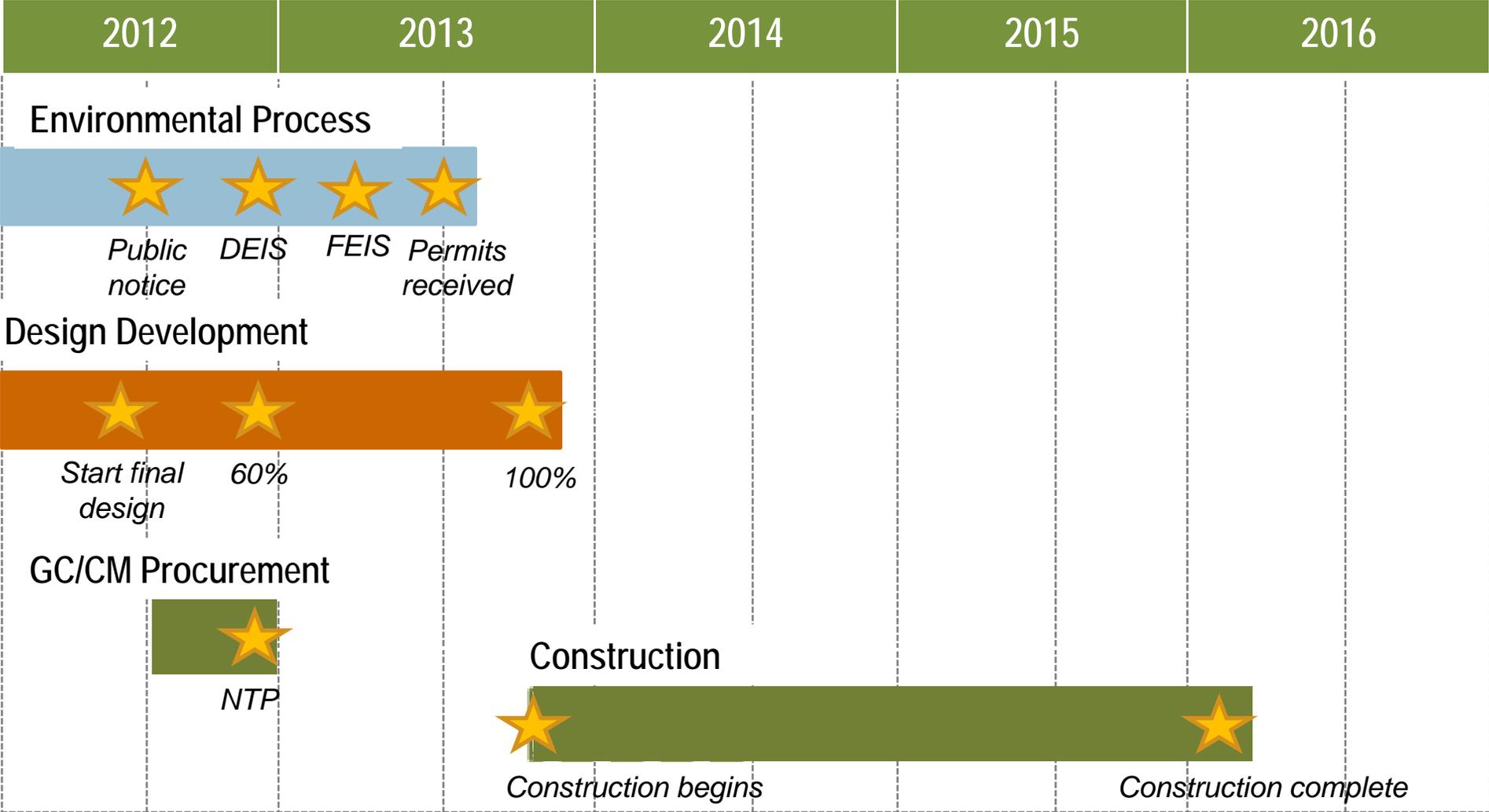


I-5 Special Bridge Repair



- Replace 26 50-year-old expansion joints.
- Located on ramps that connect the West Seattle Bridge, Columbian Way and I-5.
- January 2013 – July 2013.
- 11 weekend ramp closures that will NOT occur concurrently.
- Incentives for early completion.
- Outreach has already begun.

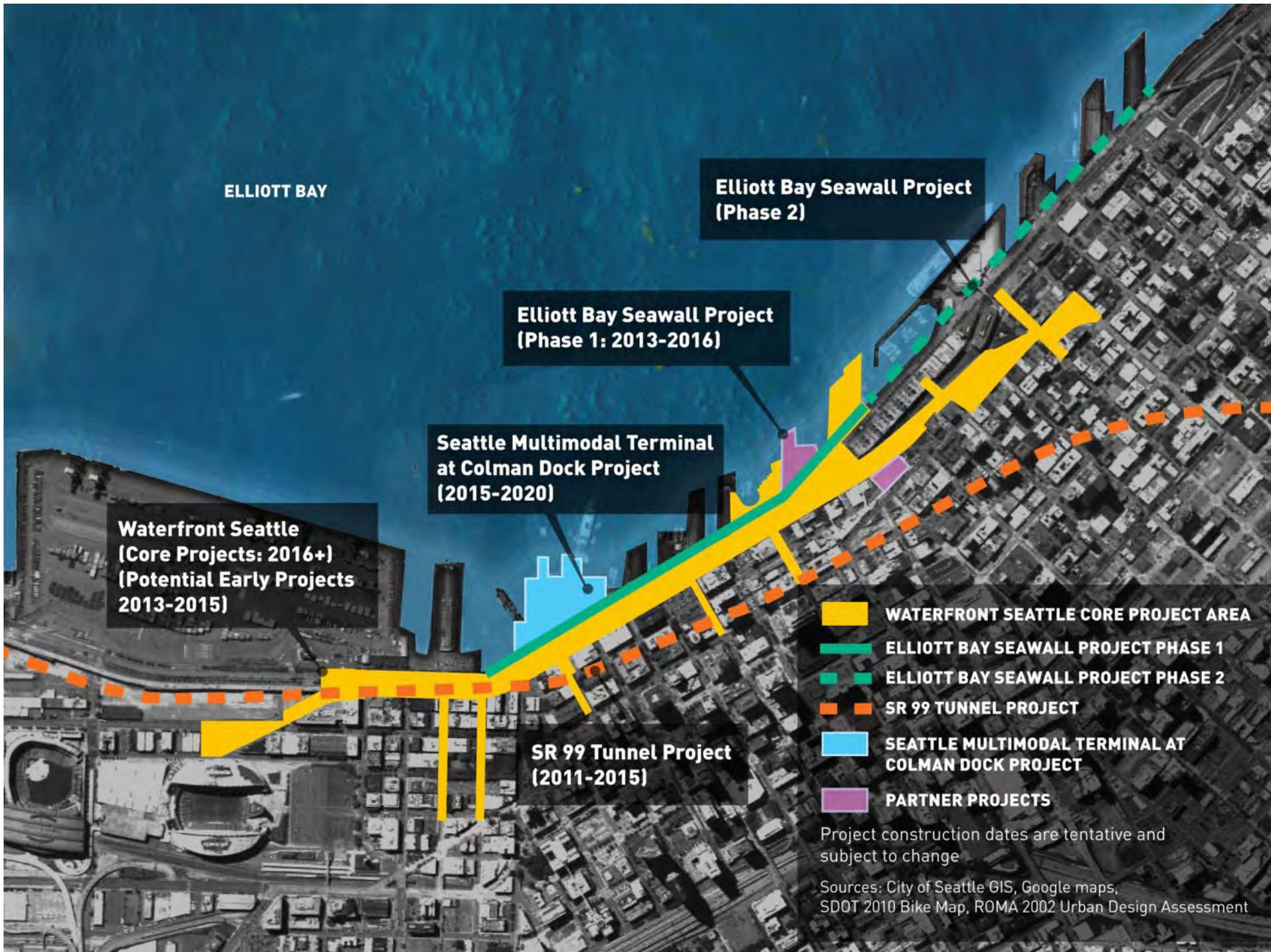
Elliott Bay Seawall - Fall 2012 Milestones

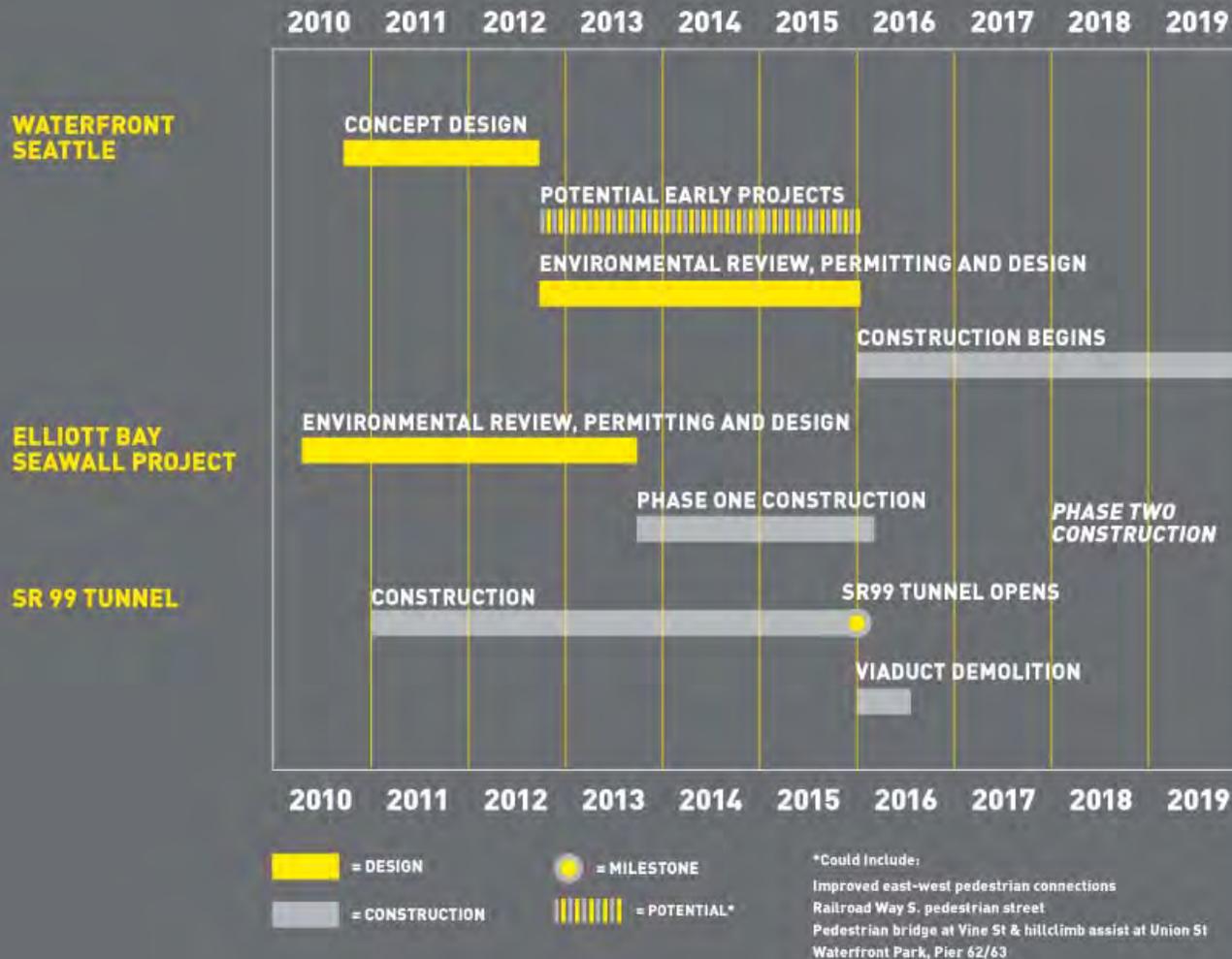


New Alaskan Way

Waterfront Seattle







KEY MILESTONES

Fall 2010: Begin waterfront conceptual design

January 2011 to July 2012: Robust public engagement and outreach including large civic events, interactive community forums, and briefings and workshops throughout the community

July 2012: Complete waterfront conceptual design

July 2012 to 2015: Continue robust public engagement and outreach through design and environmental review

Late 2013: Begin construction of Elliott Bay Seawall Phase 1 (Washington to Virginia Streets)

Late 2015: SR 99 tunnel opens to drivers

Early 2016: Demolish Alaskan Way Viaduct and begin construction of some Waterfront Seattle projects

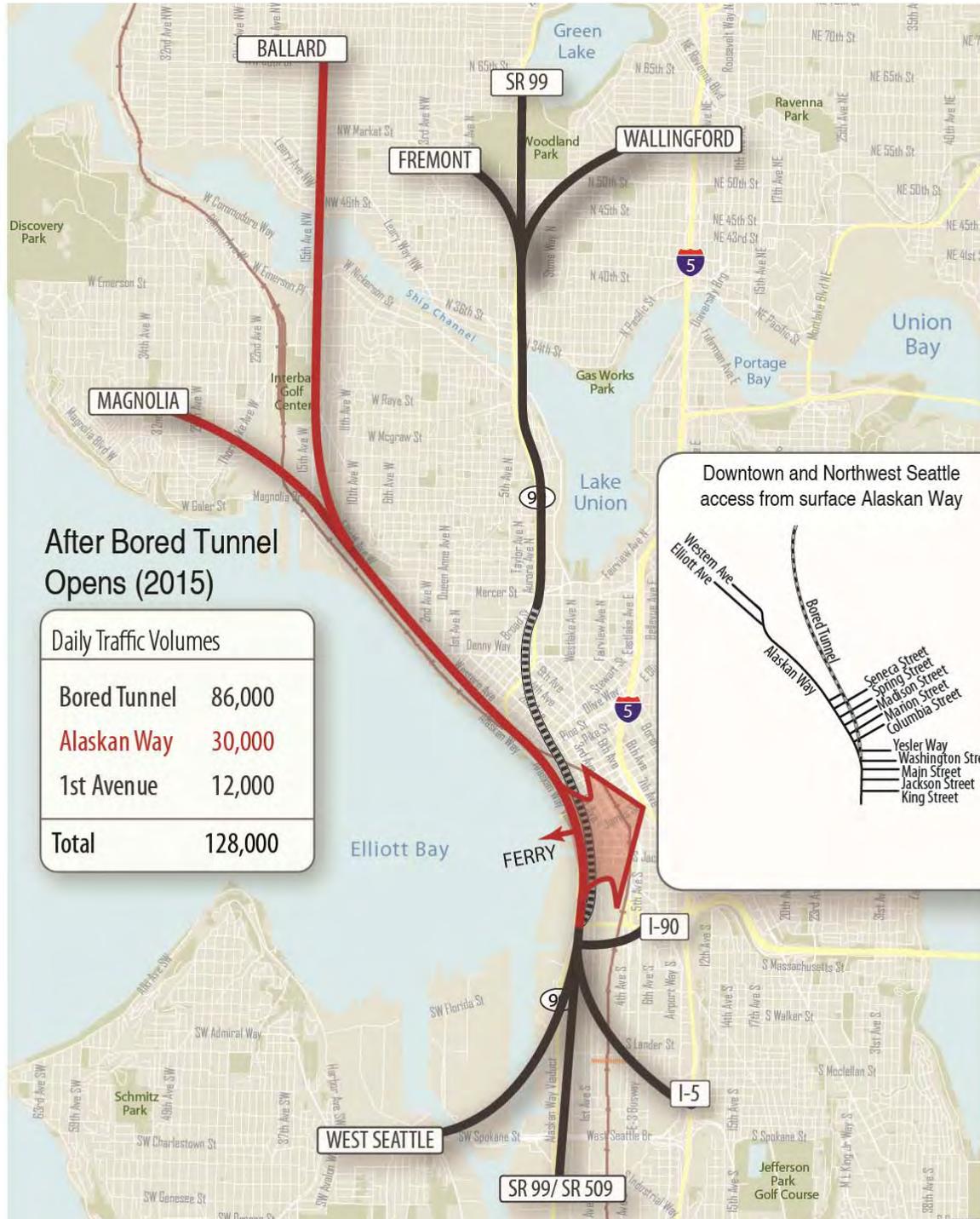
Existing SR 99 Traffic Patterns



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





Fall Metro Transit Service Update

Website:

www.alaskanwayviaduct.org

Email:

viaduct@wsdot.wa.gov

Hotline:

1-888-AWV-LINE

