

Alaskan Way Viaduct **REPLACEMENT** PROGRAM



South Portal Working Group Meeting
Nov. 7, 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-AWW-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

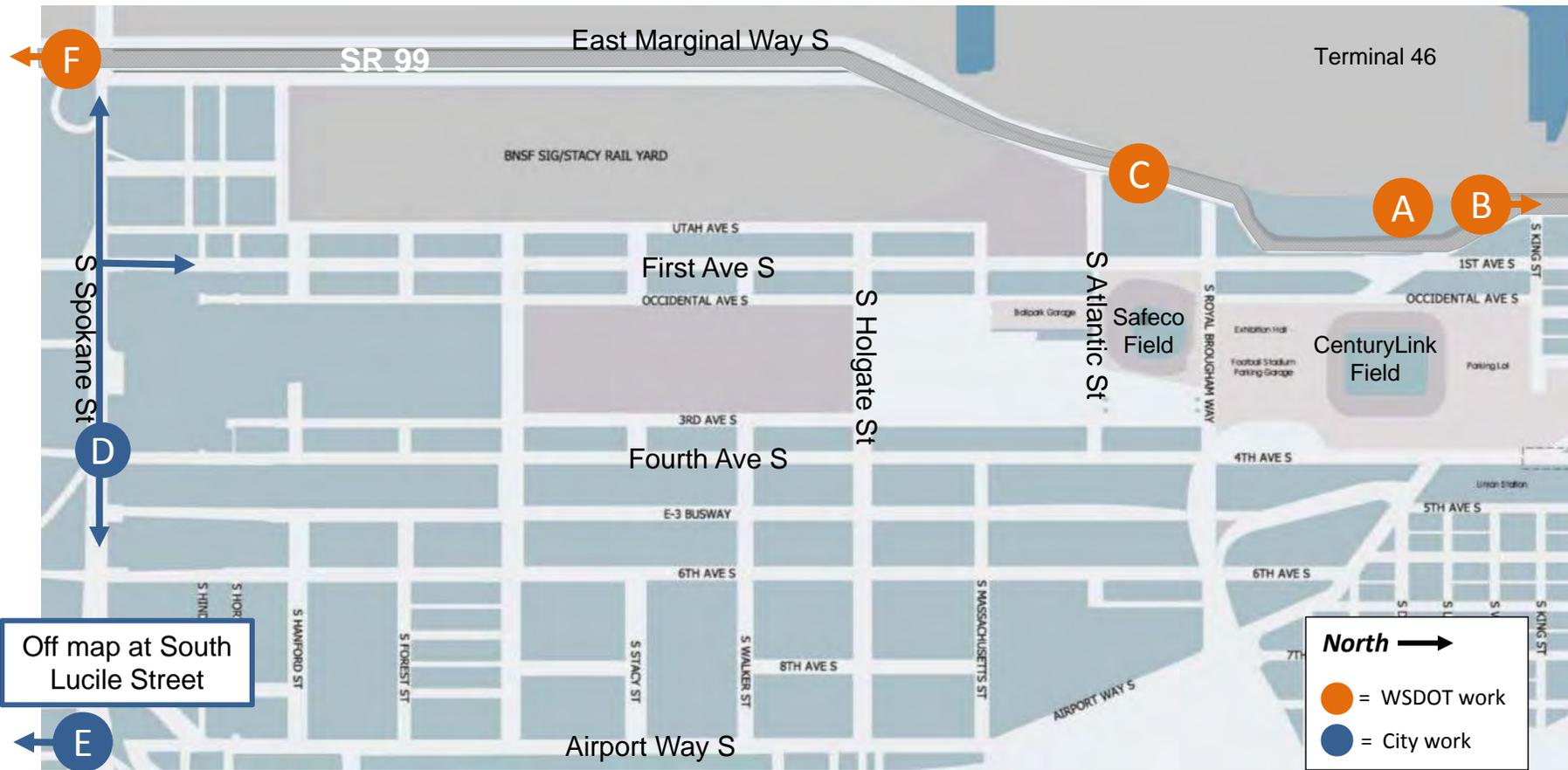
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Name the SR 99 Tunnel Boring Machine Contest



- 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.

South End Construction Overview



Off map at South
 Lucile Street

- A** Build tunnel launch pit
- B** Build tunnel support walls
- C** Build South Atlantic Street overpass
- D** Rebuild South Spokane Street viaduct
- E** Rebuild Airport Way South viaduct
- F** Future SR 99 Timber Bridge Replacement Project

A 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.



B Building Tunnel Support Walls

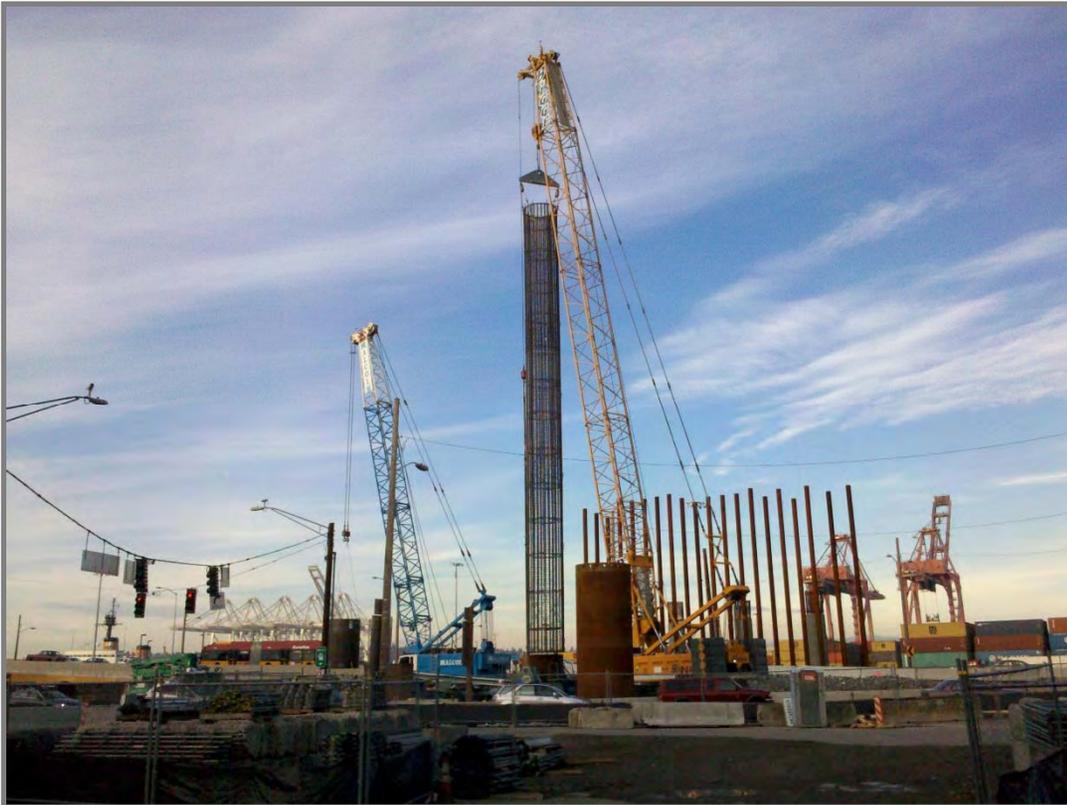


- June 2012 to spring 2013.
- Secant piles form underground walls to provide a protected area where the TBM will start tunneling.
- Crews will use jet grouting to stabilize some areas.

The New SR 99 Bridges

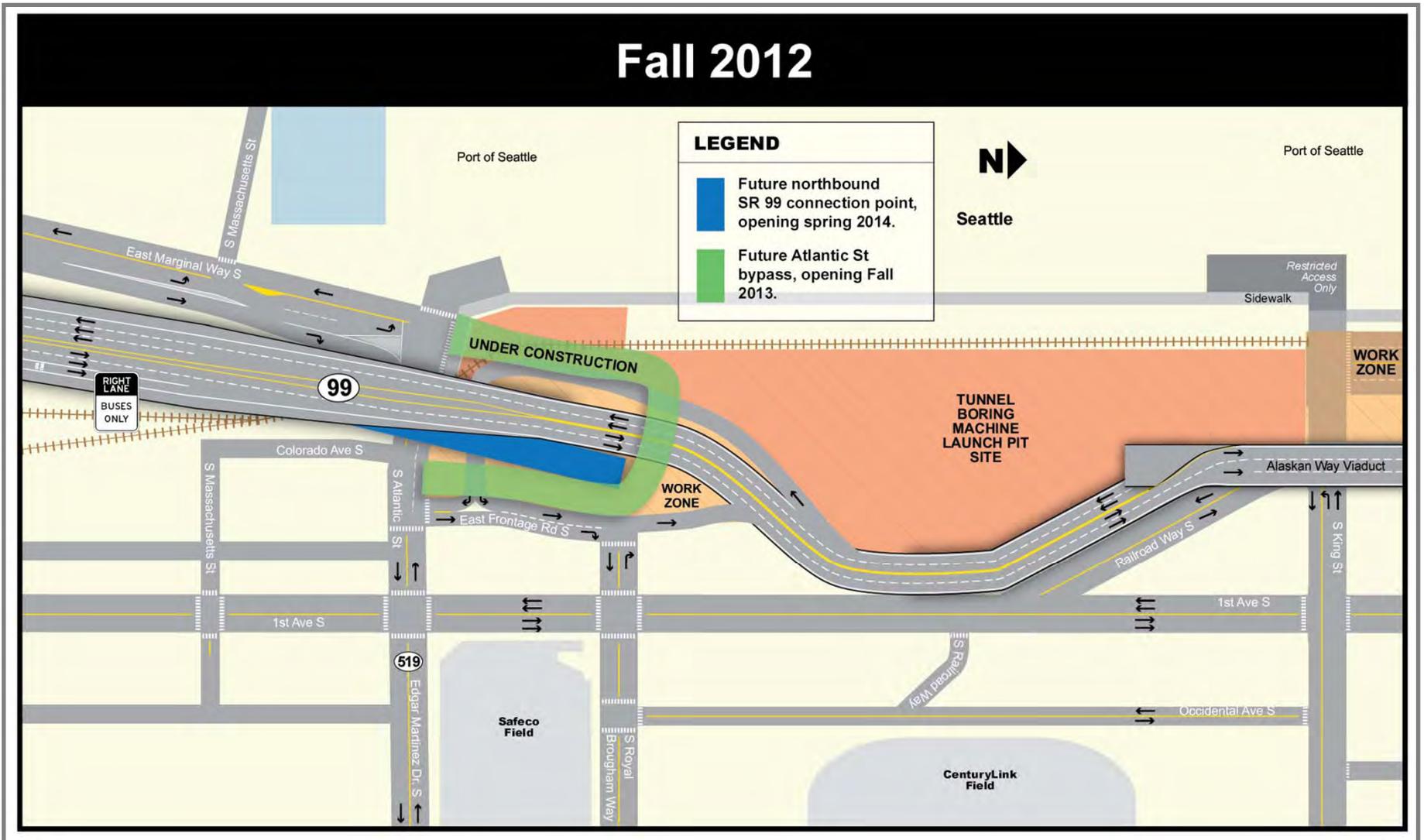


C Build South Atlantic Street Overpass

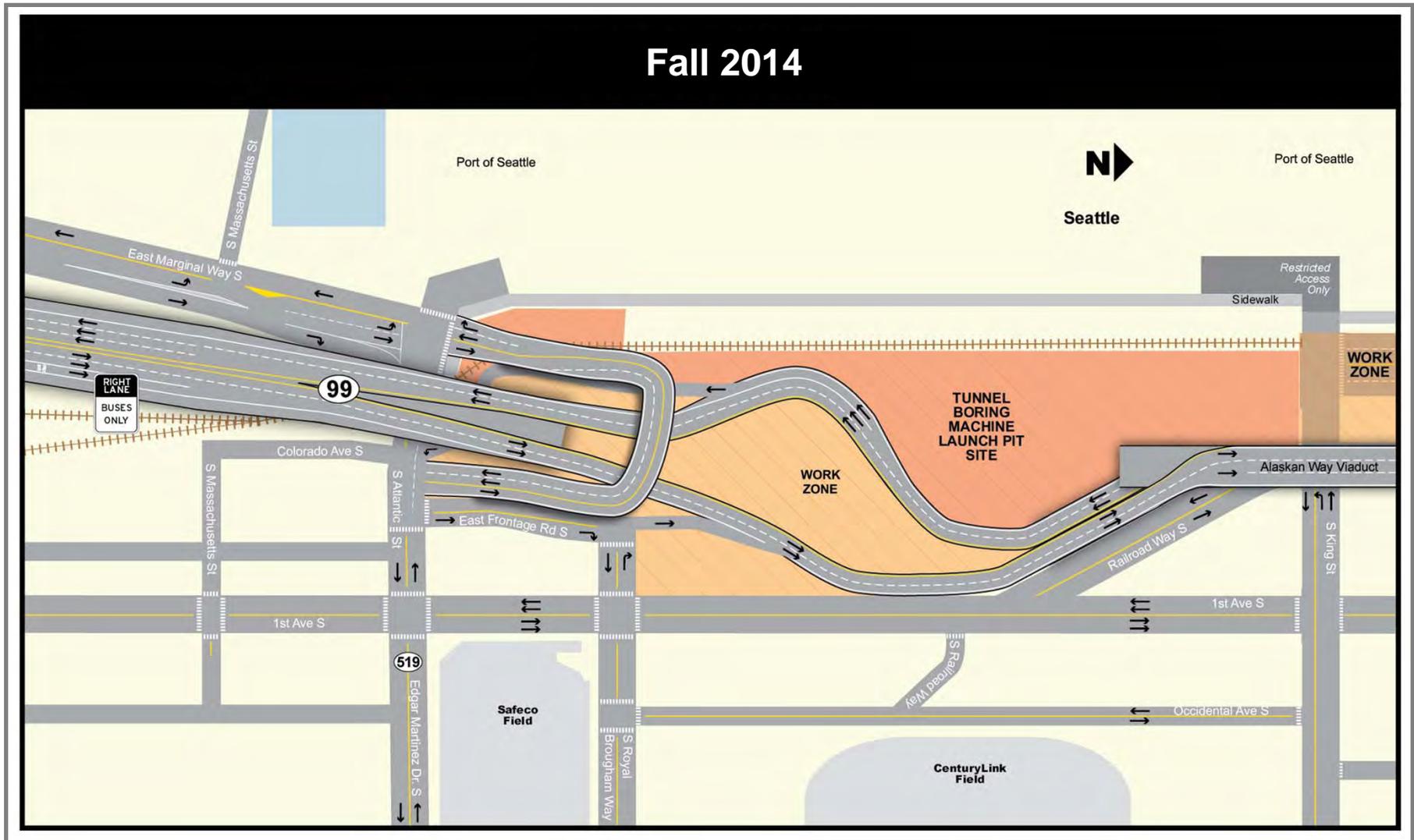


- July 2012 to December 2013.
- Current work includes building bridge foundation and columns.
- Anticipate several weekend or overnight closures of SR 99.

C Building a New Overpass



C Changes to the Construction Bypass

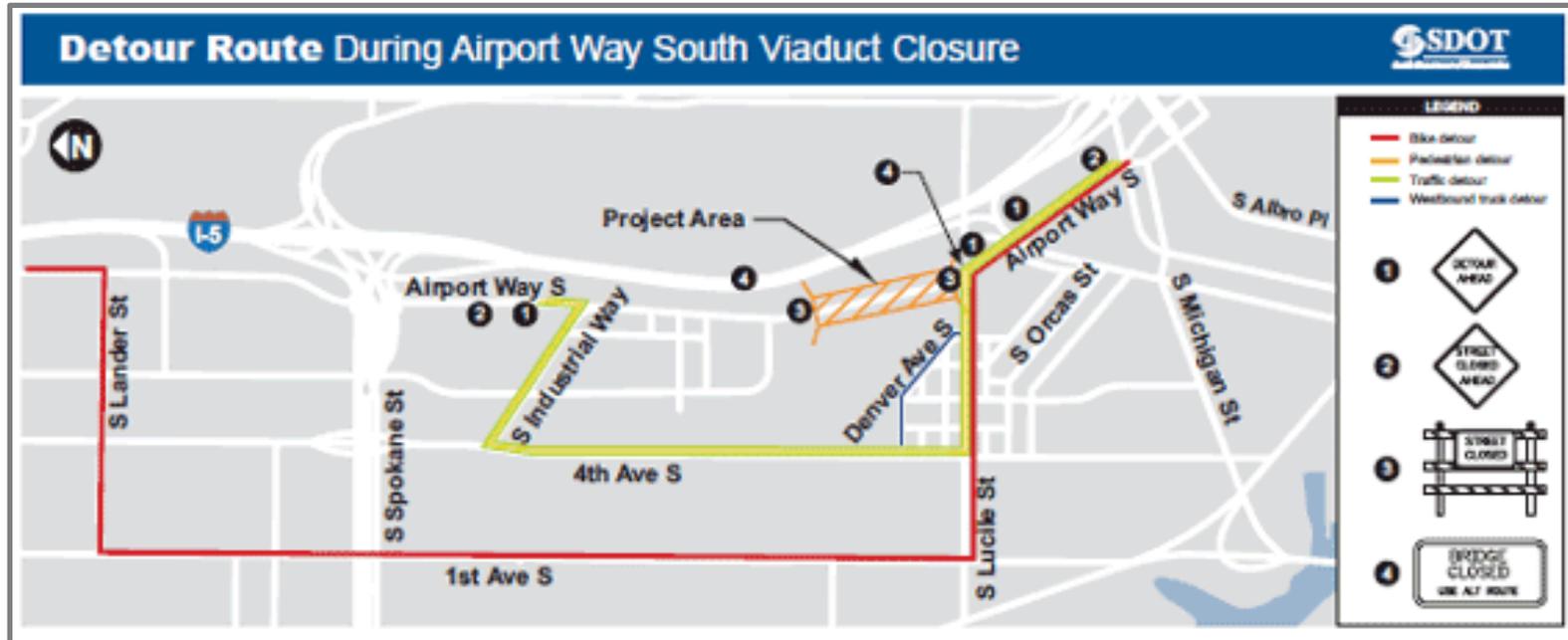


D Rebuild South Spokane Street Viaduct



- Upper roadway and all ramps now open at full capacity.
- Once signal/electrical work at intersections and concrete panel repairs are completed, surface westbound Spokane will re-open from 4th Ave to East Marginal Way (it's already open from 6th to 4th Avenues).

E Rebuild Airport Way South Viaduct



- Viaduct will be open by the end of the year.
- The Structural Earth Wall Approaches are currently being finished on the south while the completed north approach is being utilized for setting the precast concrete girders.
- Paving will be scheduled at the project and within its vicinity once the drainage work is complete.

North end construction

Build Tunnel Receiving Pit



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

Street Closures Near North Portal

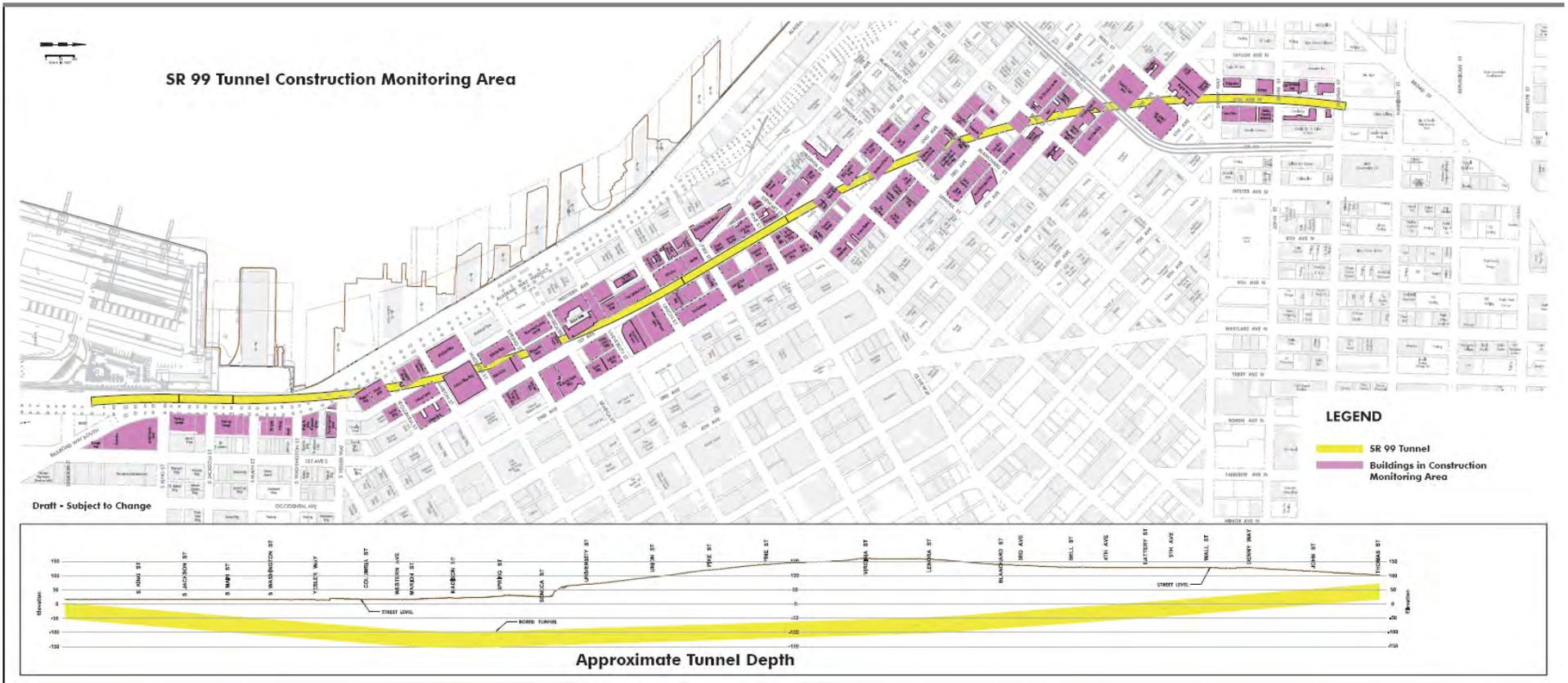


 Closed streets

- 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.

Other SR 99 Tunnel Construction

Construction Monitoring Area



Protecting Structures Along the Tunnel Route



Example of monitoring equipment on building roof.

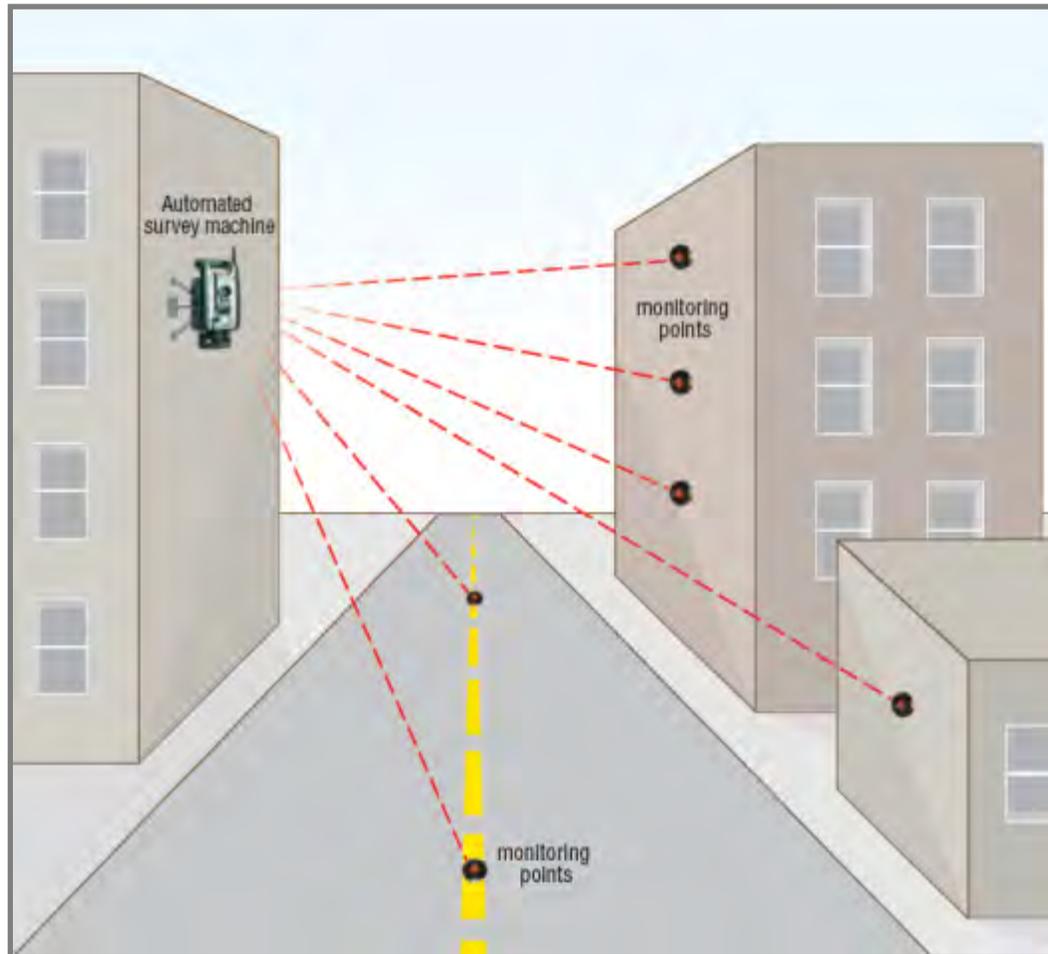
- Install monitoring equipment on nearly 200 buildings.
- Install 700 instruments under streets and sidewalks to measure any ground changes.
- Track measurements of excavated material as tunnel boring machine progresses.
- Use satellite images to assess any changes in ground condition.

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.

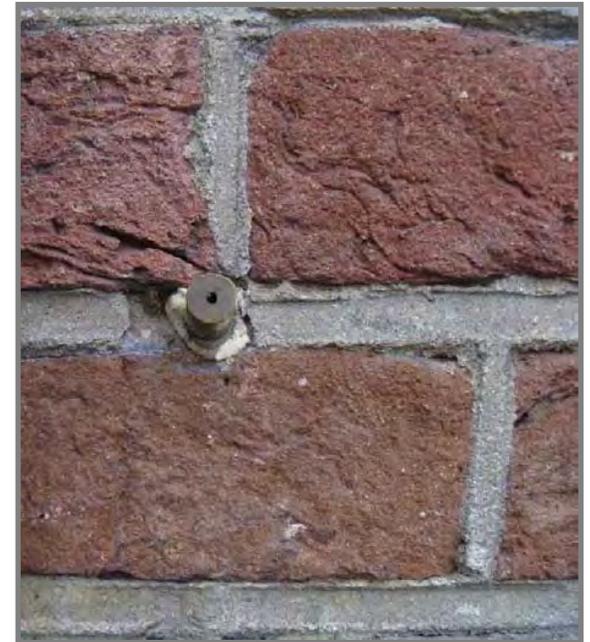
Exterior Building Monitoring Equipment



- 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

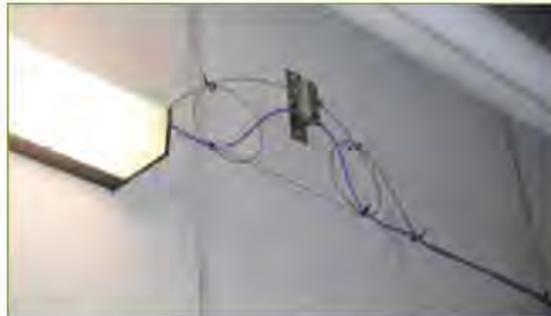
A limited number of buildings along the SR 99 tunnel route will require monitoring equipment on their interiors. These sensors will electronically transmit any building movement to the project team.

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.

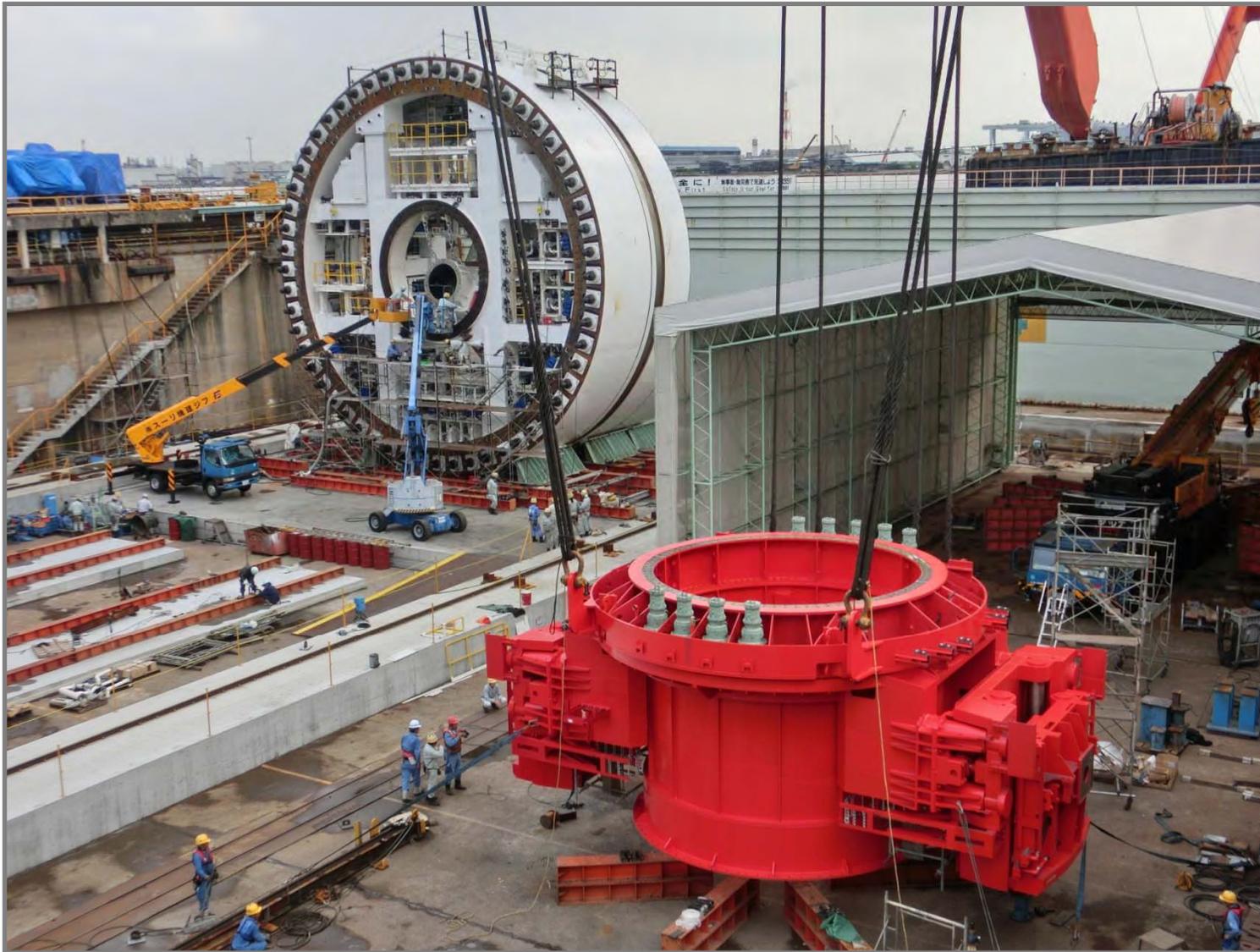
Building the Tunnel Boring Machine



Building the Tunnel Boring Machine



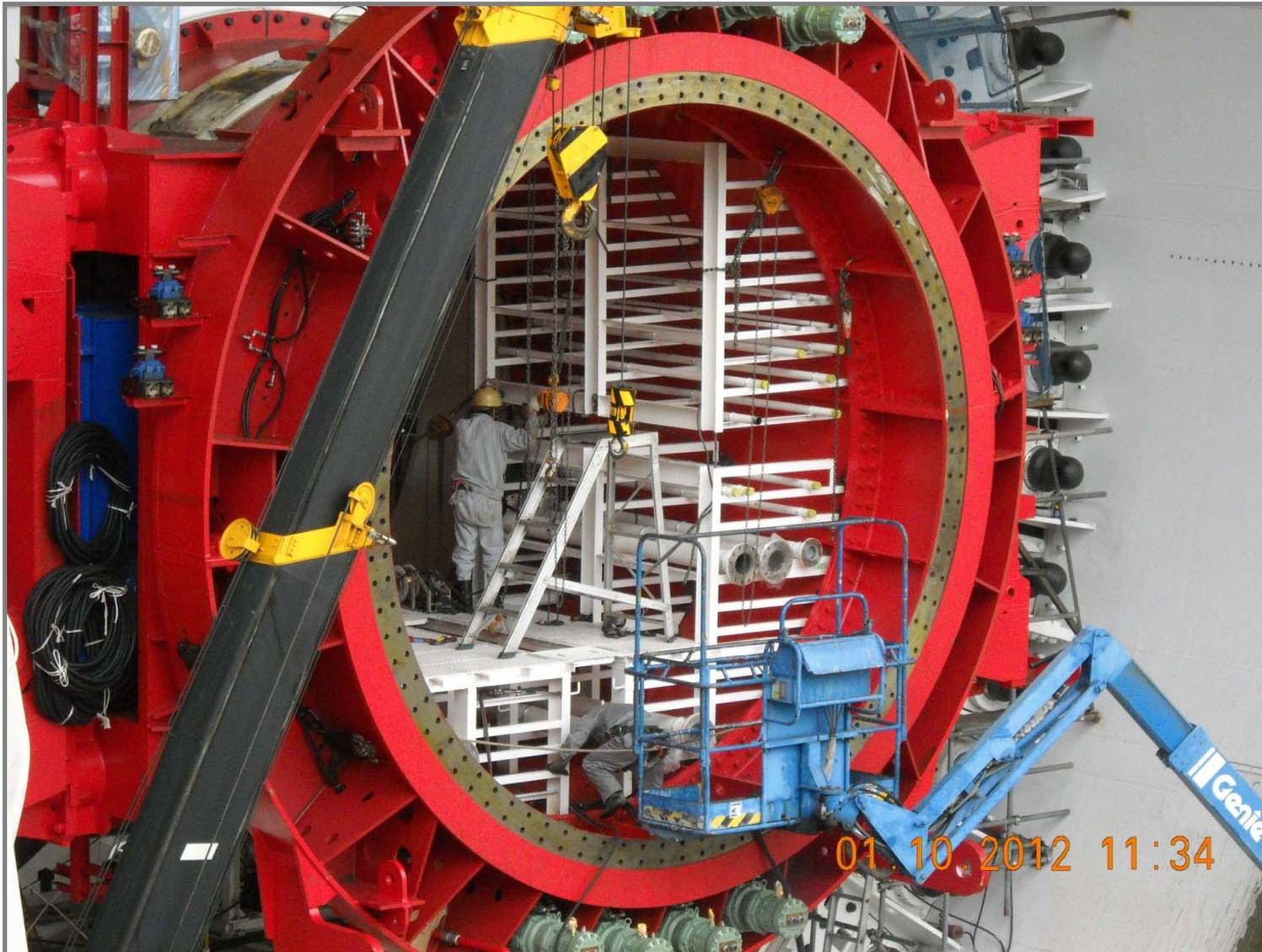
Building the Tunnel Boring Machine



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

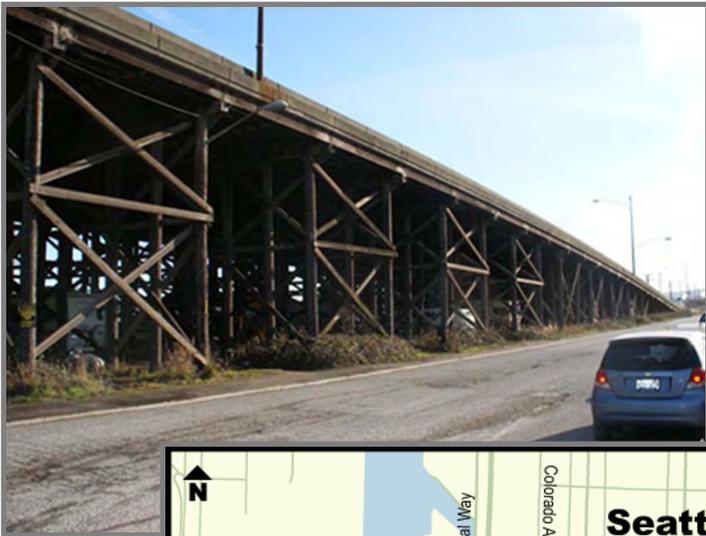


Transporting tunnel liner segments to the Sparvo Tunnel Project, in Italy.

Working group member feedback

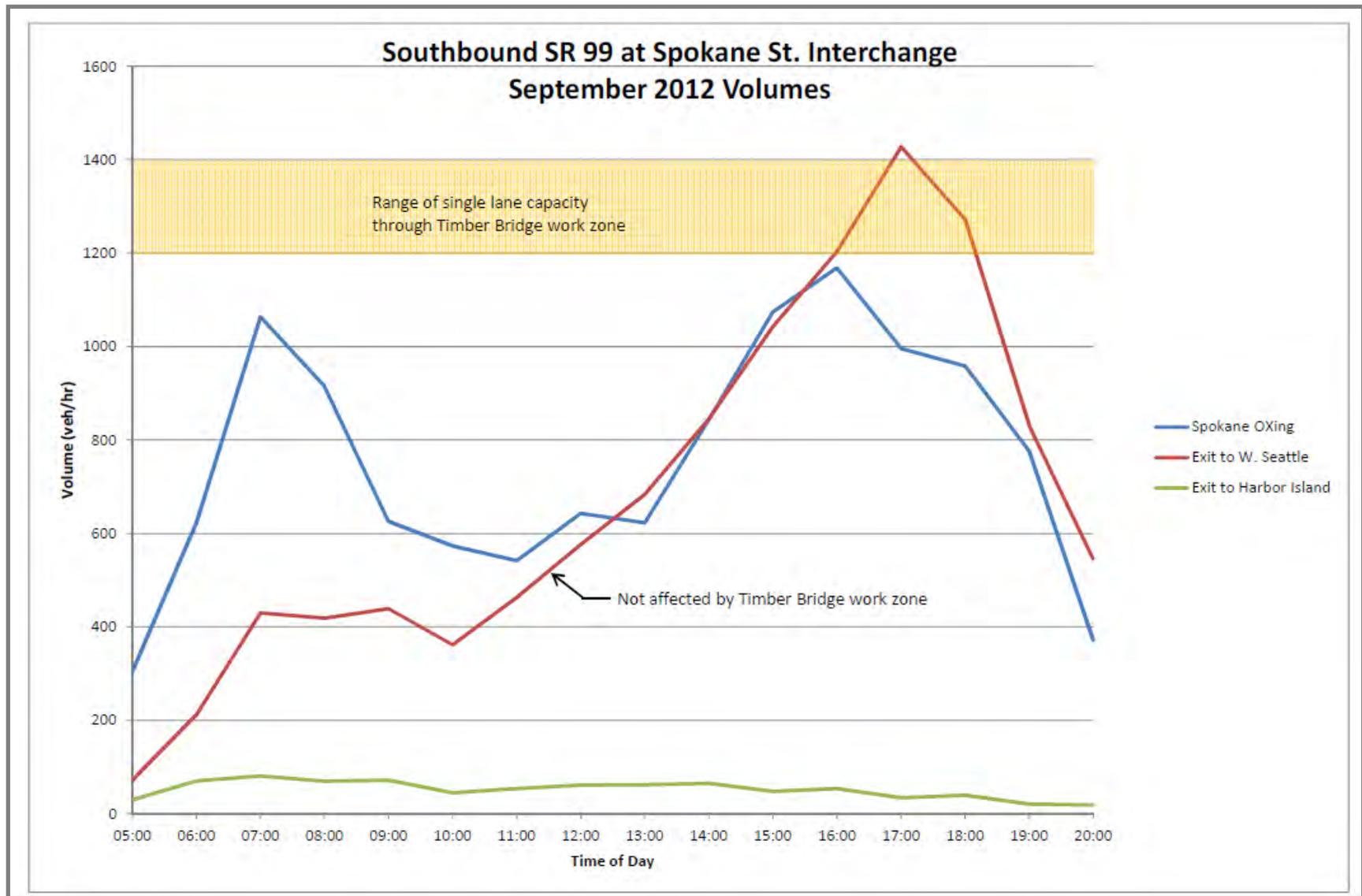
Construction in 2013

SR 99 Spokane Street Overcrossing Replacement Project (Timber Bridge)

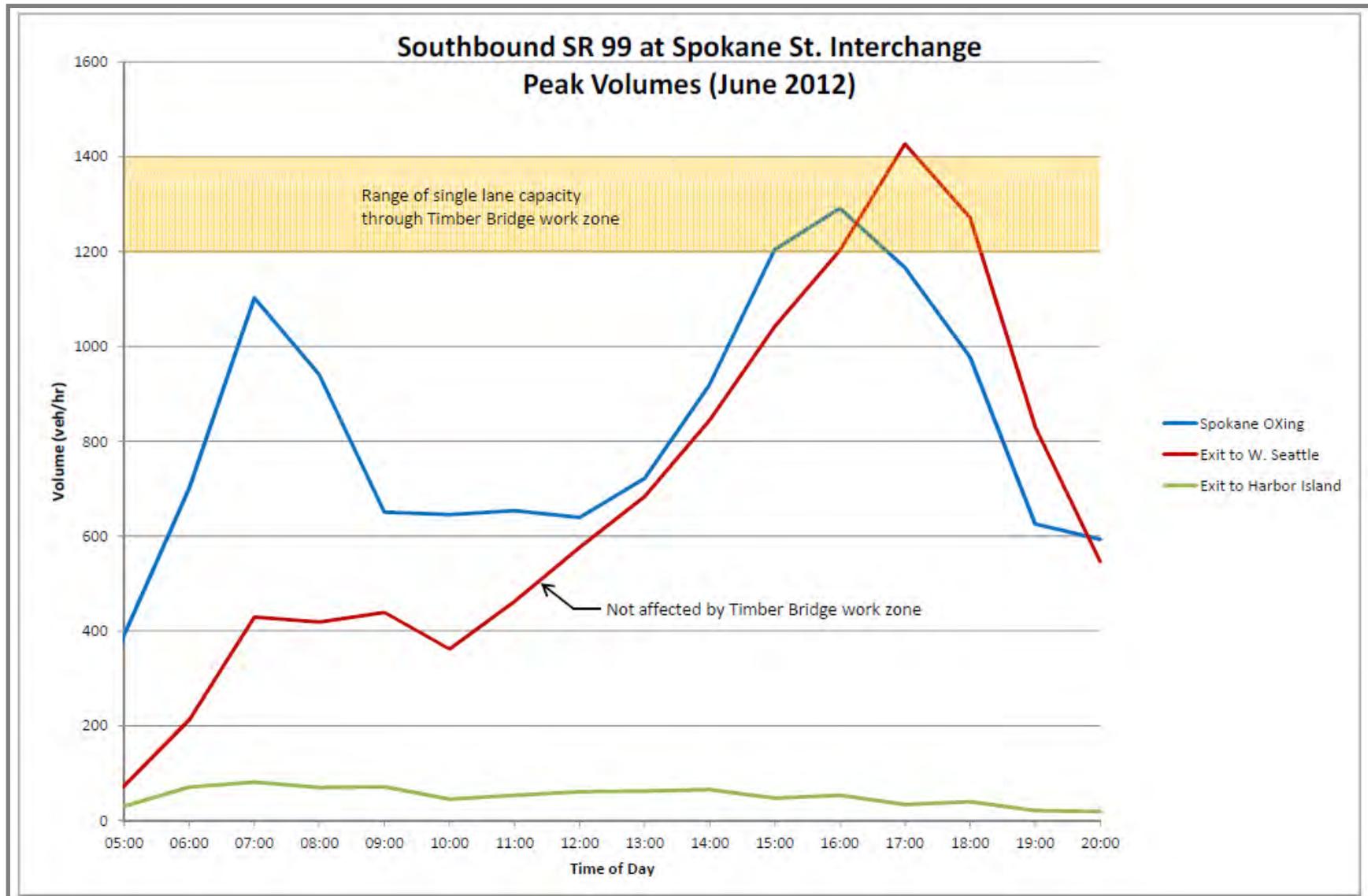


- Replace a 50-year-old timber-supported bridge with a concrete column supported structure.
- South of South Spokane Street, maintain two lanes of northbound and one lane of southbound SR 99 traffic throughout construction by rebuilding the east and west halves alternately.
- January 2013 – July 2014.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

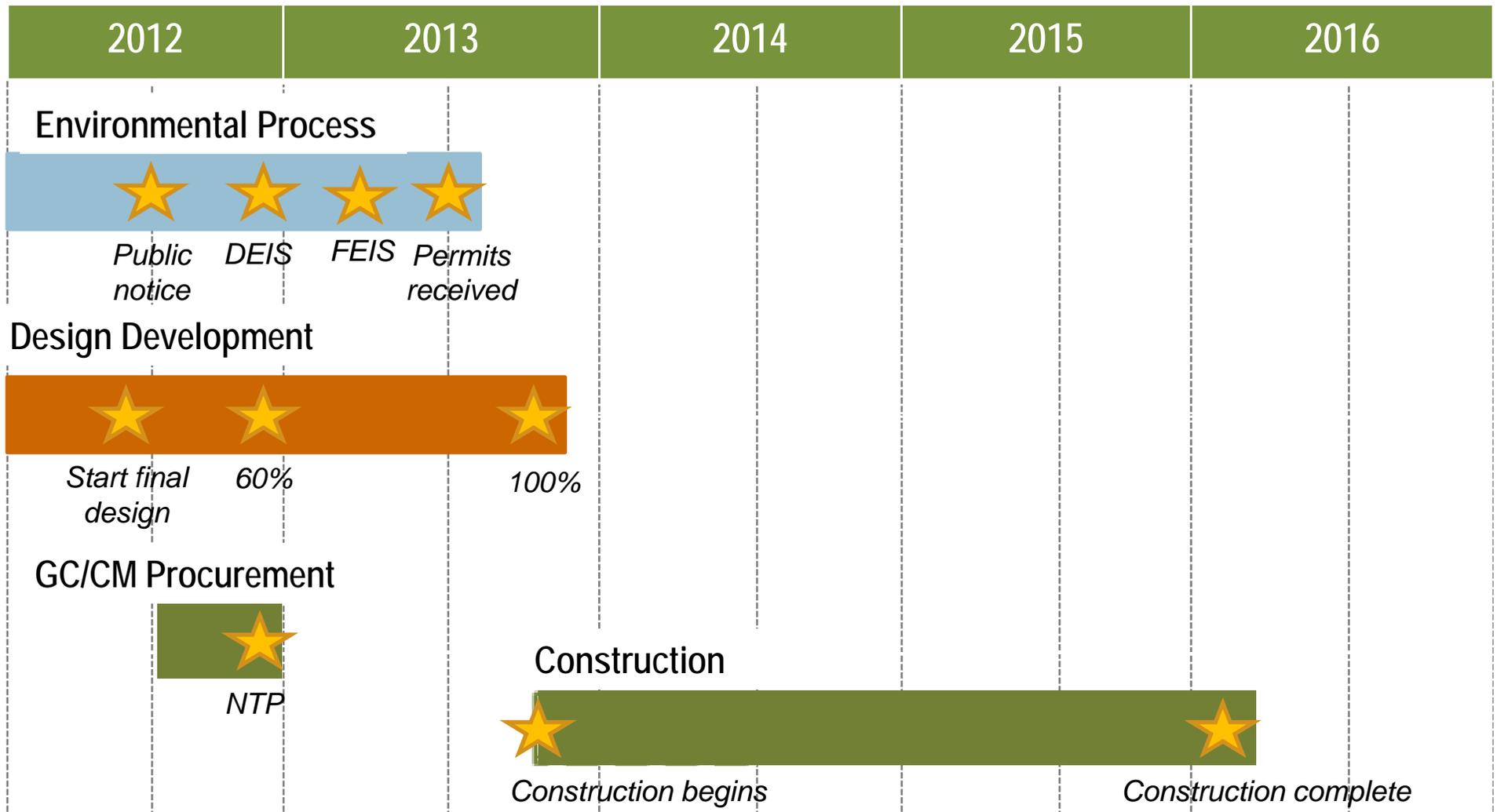


I-5 Special Bridge Repair

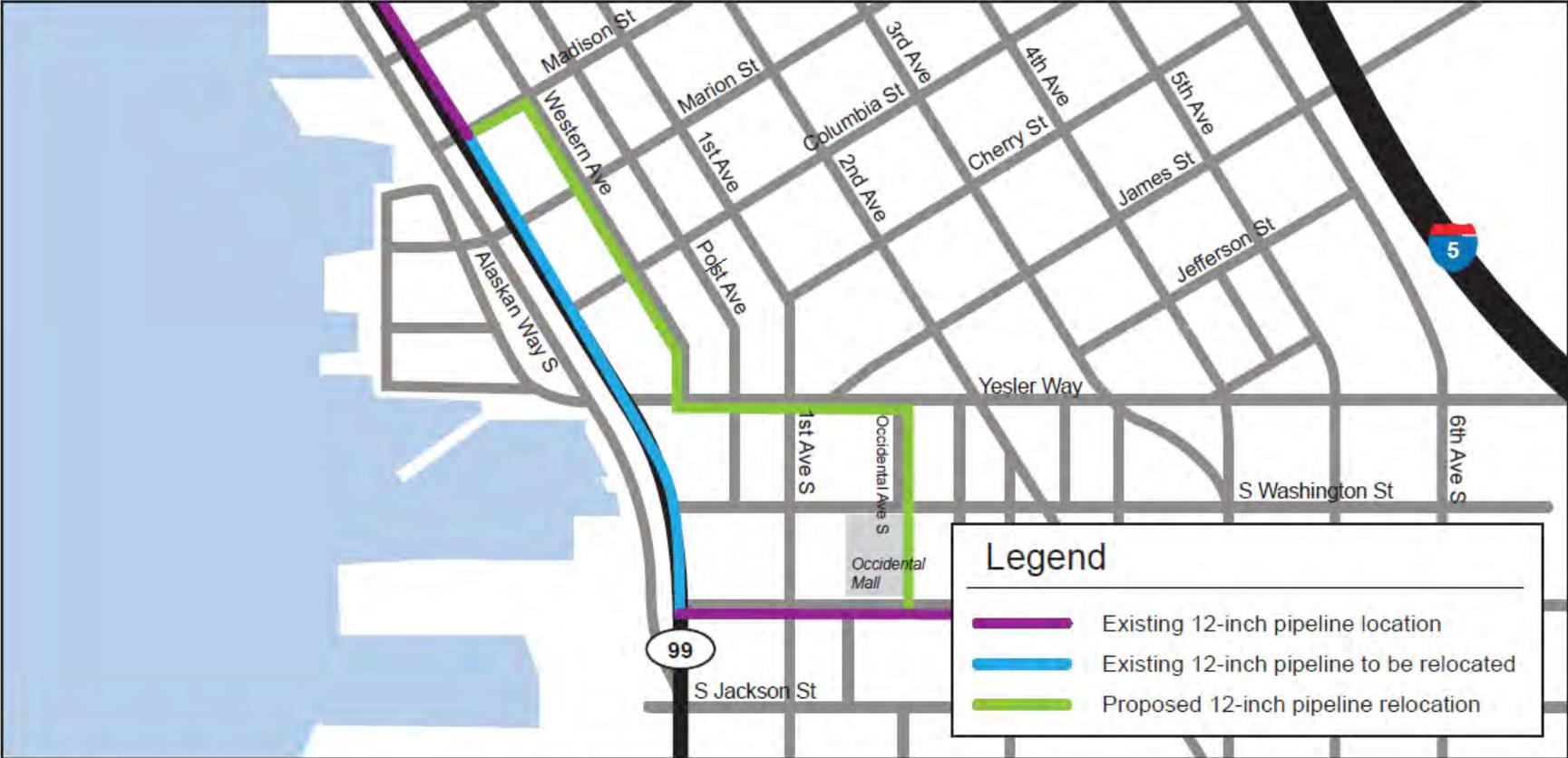


- Replace 26 50-year-old expansion joints.
- Located on ramps that connect the West Seattle Bridge, Columbian Way and I-5.
- January 2013 – July 2013.
- 11 weekend ramp closures that will NOT occur concurrently.
- Incentives for early completion.
- Outreach has already begun.

Elliott Bay Seawall - Fall 2012 Milestones



Puget Sound Energy Project



Alaskan Way Viaduct
12-inch High Pressure Natural Gas Main Relocation



Fall Metro Transit Service Update

Website:

www.alaskanwayviaduct.org

Email:

viaduct@wsdot.wa.gov

Hotline:

1-888-AWV-LINE

