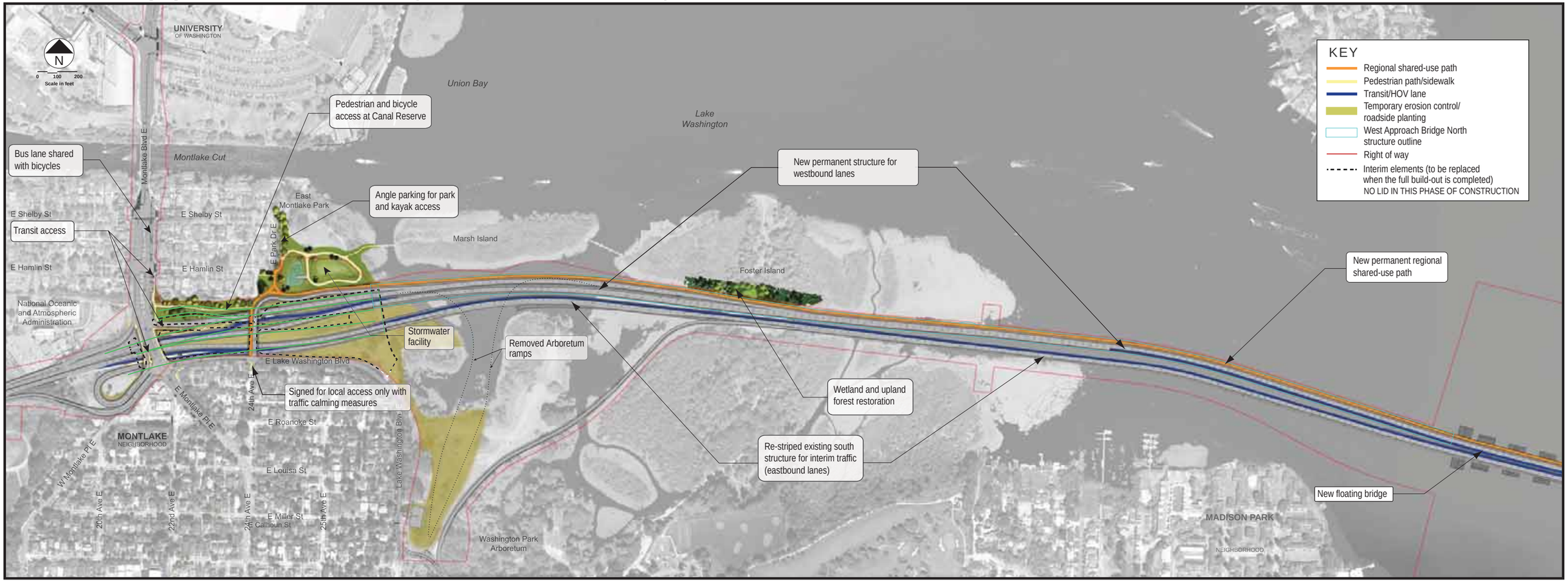
West Approach Bridge North Project overview



The Washington State Department of Transportation (WSDOT) continues to build the SR 520 corridor westward by constructing the West Approach Bridge North Project (WABN), which replaces one of the vulnerable corridor elements. WSDOT received a federal Transportation Infrastructure Finance and Innovation Act (TIFIA) loan to fund WABN construction.

To refine the federally approved baseline design, WSDOT convened the Seattle Community Design Process to hear from the public, agency partners, and design professionals, including the Seattle Design Commission (SDC).

WSDOT also collaborated with the city of Seattle through technical working groups focused on WABN design refinements. Our work resulted in a design that achieves the following:

Future Compatability

- Advances the next phase of full corridor build-out.
- Accommodates potential future light rail.
- Incorporates community input.
- WABN construction at Montlake does not preclude future design decisions for future construction phases.

Bridge and Corridor Safety

- Works to replace existing vulnerable structures on the west side.
- Incorporates corridor and local traffic mobility improvements.
- Extends a 6-lane corridor from Redmond to Montlake vicinity.
- Improves safety for pedestrians and bicyclists by completing the regional shared-use path from Redmond to Seattle.

Construction Period

Construction started in fall 2014, with the new bridge scheduled to open to traffic in summer 2017.

Community and Environmental Benefits

- Advances aquatic, wetland and parks mitigation.
- Constructs the permanent regional shared-use path between Redmond and Seattle.
- Improves bicycle and pedestrian connectivity.
- Maintains existing bus service and access.
- Improves transit connectivity and reliability by extending the HOV/transit lane to Seattle.
- Reduces concrete volumes by nearly 50 percent as a result of baseline design refinements.

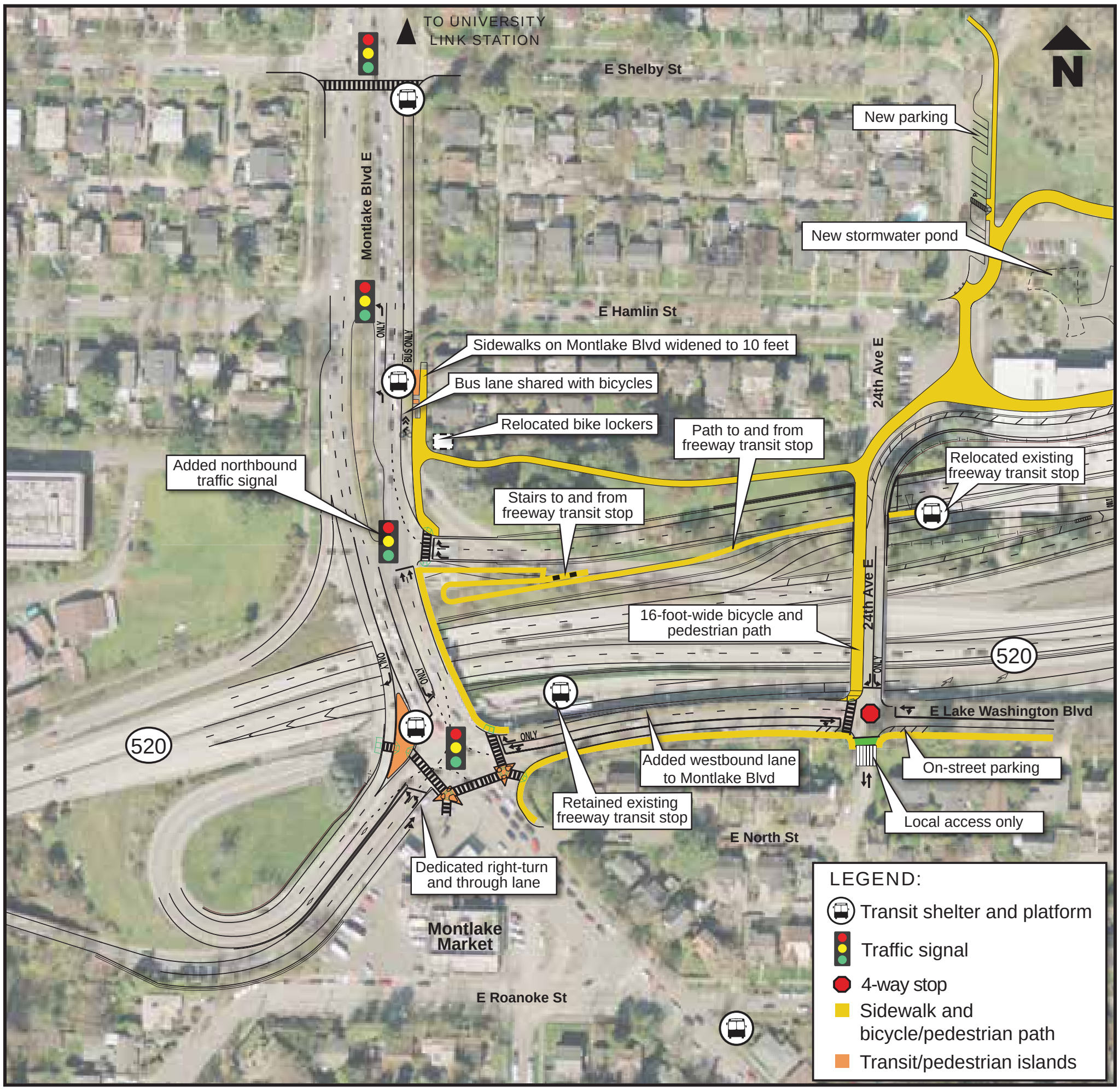
Washington State Department of Transportation

SR 520 Bridge Replacement and HOV Program

STATE ROUTE 520

West Approach Bridge North Project

Key improvements to Montlake Boulevard East and 24th Avenue East



Note: Curb ramps and pedestrian refuge islands updated to meet ADA standards.

Vicinity map

September 2015

Washington State Department of Transportation

SR 520 Bridge Replacement and HOV Program

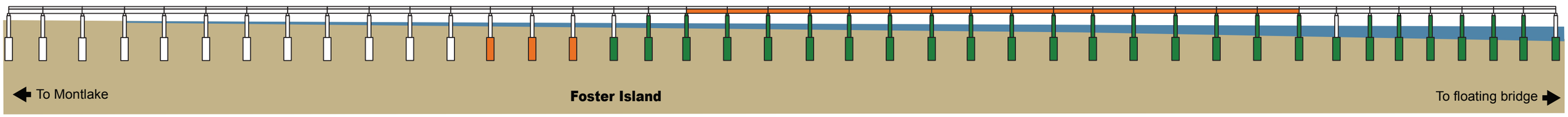
West Approach Bridge North Project

STATE ROUTE 520

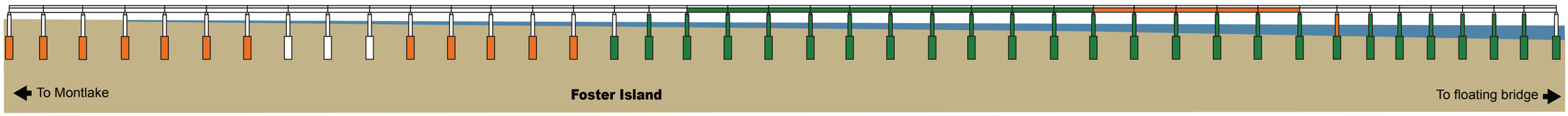
Construction progress on the West Approach Bridge North

April 2016

Beginning of April:



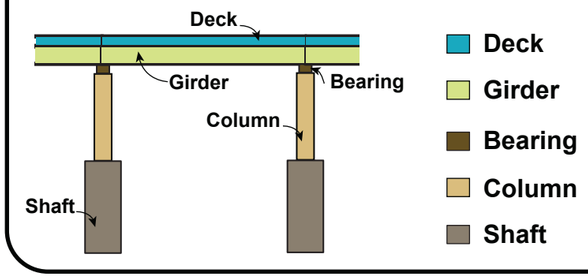
End of April:



PROGRESS KEY: Complete | Under construction | To be constructed

Note: This graphic is for illustrative and tracking purposes only. It is not to scale and is in profile view.

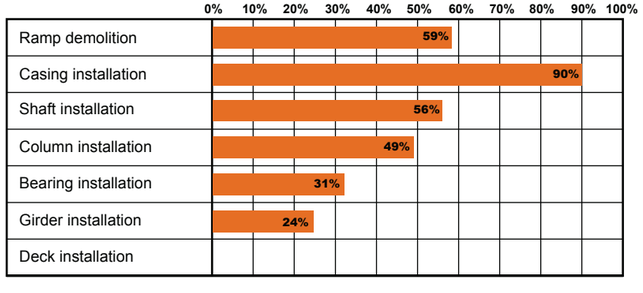
STRUCTURE LEGEND:

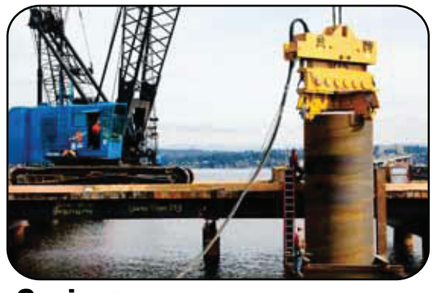


BY THE NUMBERS:

- 89 of 99 casings complete
- 55 of 99 shafts complete
- 47 of 95 columns complete
- 32 of 104 bearings complete
- 85 of 353 girders complete
- 0 of 41 sections of roadway deck complete

WABN PROGRESS





Casings

A bridge casing is a large steel pile that provides the permanent mold for the bridge's concrete foundation. After a casing is fixed into a lakebed, crews drill out soils, place metal rebar inside for strength and then fill the casing with concrete to create the shaft.

Shaft installation

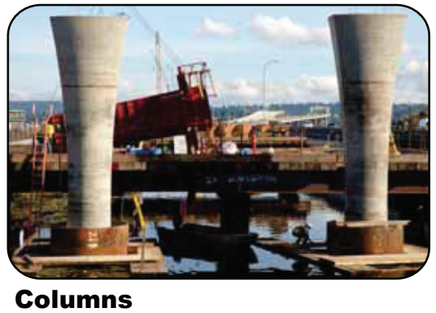
This large machine drills soils out of the casing before crews place metal rebar inside for added strength. Once the rebar is placed inside, crews fill the casing with concrete to create the shaft.

Rebar cage

Rebar cages are used to strengthen the foundation of the West Approach Bridge North (WABN) before concrete is poured to create a shaft. All 99 rebar cages are tied by hand.

Ramp removal

In order to build the WABN project, crews will remove and replace the westbound SR 520 off-ramp to Lake Washington Boulevard and the westbound SR 520 off-ramp to Montlake Boulevard. Crews will also remove the never-completed R.H. Thomson "Ramps to Nowhere" to restore the Arboretum to a more park-like setting.



Columns

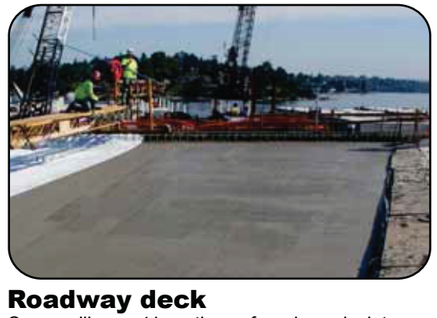
The current west approach bridge's hollow columns are vulnerable to earthquake. All new WABN columns will be strengthened with rebar and filled with concrete. WSDOT also worked with the Seattle Design Commission to incorporate fluted columns into the WABN design for aesthetic appeal.

Bearings

The current west approach bridge structure does not use bearings, which makes it vulnerable to earthquakes. The new WABN structure will use isolation bearings to allow each section of the bridge to move independently as needed during an earthquake.

Girders

More than 350 girders will be set in place before the bridge deck is poured to create a new roadway for drivers.



Roadway deck

Crews will pour 41 sections of roadway deck to complete the 1.2-mile-long WABN structure. After the deck has been poured, crews will grind, pave and stripe the deck before opening the bridge to traffic

Washington State Department of Transportation

SR 520 Bridge Replacement and HOV Program

West Approach Bridge North Project

STATE ROUTE 520

Construction progress on the West Approach Bridge North

September 2015 to April 2016

April 2016

September 2015

September 2015

September 2015

April 2016

April 2016

April 2016