

How will construction affect downtown Seattle neighborhoods with the bored tunnel and how does it compare to the I-5/surface/transit and SR 99 elevated hybrids previously considered?

Short answer

Construction of the bored tunnel will result in significantly less disruptions to SR 99 traffic and downtown Seattle neighborhoods than other options previously considered. There will be no closures of SR 99 other than a several month closure when the bored tunnel is connected at the north and south portals. A detour for the new south end of the viaduct will be necessary regardless of the central waterfront option; the length of the detour is still being evaluated.

Seattle neighborhoods will also be less disrupted because SR 99 traffic does not need to be re-routed onto city streets and over five years of construction on the central waterfront is avoided. Construction of the north and south portals will introduce some new impacts and the agencies will work with the adjacent neighborhoods, businesses, and major property owners to develop appropriate mitigation plans.

Portal construction in the South end will require a short cut and cover section between Railroad Way South and South King Street. The total disruption is expected to be 15-18 months while the utilities are relocated, secant pile walls are installed and the street is decked for traffic. Construction under the street would continue for several more months afterward. Work on the portal and tunnel would continue outside the right of way and behind sound walls for another 3 years while the tunnel is bored, the internal roadway structure, and ramps are added.

Talking points

- One of the reasons the bored tunnel hybrid alternative was selected was because it minimized construction disruptions on SR 99 traffic and downtown Seattle neighborhoods.

SR 99 Traffic

- Replacing the viaduct with a bored tunnel under downtown Seattle will cause minimal disruptions to SR 99 traffic.
- All of the options previously considered assumed the south mile of the viaduct was removed and replaced with a new limited access road from S. Holgate to S. King Street with new access near the stadiums.
- The south end project requires traffic to be re-routed onto the WOSCA site (adjacent to the existing viaduct on the eastside of SR 99). There will also be some selected detours on to First Avenue and Alaskan Way. Freight access to nearby port and railroad facilities will be maintained. Construction of the south end will begin later this year and be completed in 2013.

- There will be some temporary closures of SR 99 for several months to connect the mainline to the bored tunnel south of Railroad Way and to connect the bored tunnel to Aurora Avenue north of the Battery Street Tunnel
- This is in comparison to three years of detours and reduced lanes on the viaduct required for construction of a new elevated viaduct.

Downtown Seattle Neighborhoods

- Construction of a bored tunnel minimizes affects on downtown Seattle neighborhoods compared to a new elevated viaduct or the cut-and-cover waterfront tunnel previously considered.
- For example, the central waterfront businesses would experience seven years of construction if a cut-and-cover tunnel was constructed and 6.5 years of construction with a new elevated viaduct.
- With the bored tunnel less disruptive construction on the waterfront will be required and will primarily consist of utility relocation (12 months); demolition of the viaduct (six months); and final restoration work (6 months). The seawall will also be replaced, but could be phased to avoid peak business periods for waterfront businesses.
- For the Pike Place Market and central downtown core (including Belltown) construction will also be less disruptive with the bored tunnel.
 - Construction will consist of removal of the viaduct up to the Battery Street Tunnel and construction of a new connection from Alaskan Way to Elliott and Western avenues.
 - Construction of a connection up to Battery Street Tunnel (in front of the market and adjacent to Belltown) will take approximately one year, regardless of which option is selected.
 - More intensive impacts on the market with the I-5/Surface/Transit hybrid alternative would have been required with construction of one way of the couplet on Western Avenue.
 - Eliminating the need to re-route SR 99 traffic during construction also minimizes impacts on downtown businesses and neighborhoods.
- For South Lake Union and Uptown neighborhoods north of the Battery Street Tunnel construction of the north portal between Mercer Street and Denny Way will be more disruptive.
 - It is estimated to take two years to build the north portal and new streets over SR 99 compared to 15 months to construct new surface streets with the I-5/Surface/Transit hybrid alternative and **XX months** to construct Republican Street under SR 99 with the Elevated Hybrid Bypass.
- For Pioneer Square, there will be less traffic detoured through the neighborhood with the bored tunnel and less construction on the waterfront (between 6.5 and seven years), which would cut off the neighborhoods' connection.

- However, construction of the portal near S. King Street will take approximately two years and will introduce different impacts to the neighborhood, particularly on First Avenue between Railroad Way and King Street.
- As more information becomes available on the option for the south portal, extensive outreach will be conducted with the Pioneer Square community as well as the sports stadiums, Port of Seattle, BNSF, and adjacent property owners.

Supporting information

- Updated construction charts (to be developed)

Background information

	Bored Tunnel Hybrid Alternative	SR 99 Elevated Hybrid Alternative	I-5/Surface/Transit Hybrid Alternative
Stadium area (S. King Street and southward)			
Type of construction activity	Remove existing viaduct. Construct new SR99 from S. Holgate St. to S. King St. Construct new SR99 transitions & ramps near stadiums, west of 1 st Ave.	Same as Bored Tunnel Hybrid Alternative	Same as Bored Tunnel Hybrid Alternative
Duration of construction	Relocate utilities – 17 months Construct new SR99 – 38 months Construct new ramps into tunnel – 12 months Final restoration work – 6 months Total construction duration = 6 years	Relocate utilities – 17 months Construct new SR99 – 38 months Final restoration work – 6 months Total construction duration = 5 years	Same as SR99 Elevated Hybrid Alternative
Potential affects on neighborhood	Most traffic to be maintained on SR99 or the WOSCA site. Selected detours on First Ave. and Alaskan Way may affect local traffic. Freight access to nearby port and	Same as Bored Tunnel Hybrid Alternative	Same as Bored Tunnel Hybrid Alternative

	Bored Tunnel Hybrid Alternative	SR 99 Elevated Hybrid Alternative	I-5/Surface/Transit Hybrid Alternative
	railroad facilities always maintained.		
Pioneer Square (S. King Street, north to Cherry Street)			
Type of construction activity	Relocate utilities. Remove existing viaduct. Construct tunnel's South Portal.	Relocate utilities. Remove existing viaduct. Construct new elevated roadway.	Relocate utilities. Remove existing viaduct. Construct new surface streets.
Duration of construction	Relocate utilities – 12 months Construct the South Portal – 24 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 4 years	Relocate utilities – 12 months Construct new elevated roadway – 30 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 4.5 years	Relocate utilities – 12 months Construct new SR99 surface streets – 15 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 3.25 years
Potential affects on neighborhood	Traffic to be maintained on SR99, making this tunnel alternative less disruptive than either of elevated or surface alternatives, with fewer detours to affect local traffic.	Traffic to be maintained on SR99 during utilities relocation. Selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct and constructing new elevated roadway.	Traffic to be maintained on SR99 during utilities relocation. Selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct and constructing new surface streets.
Central waterfront (westerly of existing SR99, extending from Pier to Pier)			
Type of construction activity	Relocate utilities. Remove existing viaduct. Reconstruct surface streets.	Relocate utilities. Remove existing viaduct. Construct new elevated roadway	Relocate utilities. Remove existing viaduct. Construct new surface streets.
Duration of construction	Relocate utilities – 12 months Construct new South	Relocate utilities – 12 months Construct new	Relocate utilities – 12 months Construct new SR99

	Bored Tunnel Hybrid Alternative	SR 99 Elevated Hybrid Alternative	I-5/Surface/Transit Hybrid Alternative
	Portal – 24 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 5 years	Elevated Roadway – 30 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 5.5 years	surface streets – 15 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 4.25 years
Potential affects on neighborhood	Traffic to be maintained on SR99, making this tunnel alternative less disruptive than either of elevated or surface alternatives, with fewer detours to affect local traffic.	Traffic to be maintained on SR99 during utilities relocation. Selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct and constructing new elevated roadway.	Traffic to be maintained on SR99 during utilities relocation. Selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct and constructing new surface streets.
Central downtown (Cherry Street north to Union Street)			
Type of construction activity	Relocate utilities. Remove existing viaduct. Reconstruct surface streets.	Relocate utilities. Remove existing viaduct. Construct new elevated roadway	Relocate utilities. Remove existing viaduct. Construct new surface streets.
Duration of construction	Relocate utilities – 12 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing	Relocate utilities – 12 months Construct new Elevated Roadway – 30 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing	Relocate utilities – 12 months Construct new SR99 surface streets – 15 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing

	Bored Tunnel Hybrid Alternative	SR 99 Elevated Hybrid Alternative	I-5/Surface/Transit Hybrid Alternative
	viaduct – 6 months Final restoration work – 6 months Total construction duration = 3 years	viaduct – 6 months Final restoration work – 6 months Total construction duration = 5.5 years	viaduct – 6 months Final restoration work – 6 months Total construction duration = 4.25 years
Potential affects on neighborhood	Traffic to be maintained on SR99, making this tunnel alternative less disruptive than either of elevated or surface alternatives, with fewer detours to affect local traffic.	Traffic to be maintained on SR99 during utilities relocation. Selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct and constructing new elevated roadway.	Traffic to be maintained on SR99 during utilities relocation. Selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct and constructing new surface streets.
Pike Place Market (South to Union Street and north to Virginia Street)			
Type of construction activity	Relocate utilities. Remove existing viaduct. Reconstruct surface streets.	Relocate utilities. Remove existing viaduct. Construct new elevated roadway	Relocate utilities. Remove existing viaduct. Construct new surface streets.
Duration of construction	Relocate utilities – 12 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 3 years	Relocate utilities – 12 months Construct new Elevated Roadway – 30 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 5.5 years	Relocate utilities – 12 months Construct new SR99 surface streets – 15 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 4.25 years
Potential affects on	Traffic to be	Traffic to be	Traffic to be

	Bored Tunnel Hybrid Alternative	SR 99 Elevated Hybrid Alternative	I-5/Surface/Transit Hybrid Alternative
neighborhood	maintained on SR99, making this tunnel alternative less disruptive than either of elevated or surface alternatives, with fewer detours, if any, to affect local traffic.	maintained on SR99 during utilities relocation. Selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct and constructing new elevated roadway.	maintained on SR99 during utilities relocation. Selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct and constructing new surface streets.
Belltown (Virginia Street, north to Wall Street)			
Type of construction activity	Relocate utilities. Remove existing viaduct. Surface street improvements and construct the new tunnel's North Portal.	Relocate utilities. Battery Street Tunnel improvements. Remove existing viaduct. Construct new elevated roadway.	Relocate utilities. Battery Street Tunnel improvements. Remove existing viaduct. Construct new surface streets.
Duration of construction	Relocate utilities – 12 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Construct the North Portal – 24 months Final restoration work – 6 months Total construction duration = 5 years	Relocate utilities – 12 months Battery Street Tunnel improvements – 20 months Construct new Elevated Roadway – 30 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 7 years	Relocate utilities – 12 months Battery Street Tunnel improvements – 20 months Construct new SR99 surface streets – 15 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 6 years
Potential affects on neighborhood	Traffic to be maintained on SR99, making this tunnel alternative less	Traffic to be maintained on SR99 during utilities relocation.	Traffic to be maintained on SR99 during utilities relocation.

	Bored Tunnel Hybrid Alternative	SR 99 Elevated Hybrid Alternative	I-5/Surface/Transit Hybrid Alternative
	disruptive than either of elevated or surface alternatives, with fewer detours to affect local traffic.	Night closures of Battery Street Tunnel and selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct, improving existing Battery Street Tunnel and constructing new elevated roadway.	Night closures of Battery Street Tunnel and selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct, improving existing Battery Street Tunnel and constructing new surface streets.
Uptown/South Lake Union (Denny Street and northward, south to Olive Way & 6th Ave)			
Type of construction activity	Relocate utilities. Remove existing viaduct. Surface street improvements and construct the new tunnel's North Portal.	Relocate utilities. Battery Street Tunnel improvements. Remove existing viaduct. Construct new elevated roadway.	Relocate utilities. Battery Street Tunnel improvements. Remove existing viaduct. Construct new surface streets.
Duration of construction	Relocate utilities – 12 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Construct the North Portal – 24 months Final restoration work – 6 months Total construction duration = 5 years	Relocate utilities – 12 months Battery Street Tunnel improvements – 20 months Construct new Elevated Roadway – 30 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 7 years	Relocate utilities – 12 months Battery Street Tunnel improvements – 20 months Construct new SR99 surface streets – 15 months Construct roadway connecting Elliott/Western Avenues to Alaskan Way – 12 months Remove existing viaduct – 6 months Final restoration work – 6 months Total construction duration = 6 years
Potential affects on neighborhood	Traffic to be maintained on SR99, making this tunnel	Traffic to be maintained on SR99 during utilities	Traffic to be maintained on SR99 during utilities

	Bored Tunnel Hybrid Alternative	SR 99 Elevated Hybrid Alternative	I-5/Surface/Transit Hybrid Alternative
	alternative less disruptive than either of elevated or surface alternatives, with fewer detours to affect local traffic.	relocation. Night closures of Battery Street Tunnel and selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct, improving existing Battery Street Tunnel and constructing new elevated roadway.	relocation. Night closures of Battery Street Tunnel and selected detours on Alaskan Way and/or Western Ave. may affect local traffic and businesses, but are necessary for removing viaduct, improving existing Battery Street Tunnel and constructing new surface streets.
SR 99 traffic (S. Spokane Street, northward through Battery Street Tunnel)			
Type of construction activity	Construct temporary connection to south end of existing viaduct. Construct new permanent connection from south end of bored tunnel, near the WOSCA site. Construct new permanent connection at north end of bored tunnel, north of Denny Way to Aurora Avenue N.	Construct temporary connection to south end of existing viaduct. Construct new permanent connection from south end of elevated roadway, near the WOSCA site. Construct new permanent connection to the Battery Street Tunnel at north end.	Construct temporary connection to south end of existing viaduct. Construct at-grade connection to new surface SR99, beginning at the WOSCA site and ending at the Battery Street Tunnel.
Duration of construction	60 months of major construction, including the new tunnel and portals, and removal of existing viaduct. Except for 21-month long detour at south end detour, there will be no modifications to SR99 traffic.	48 months of major construction, including new elevated roadway, and removal of existing viaduct. SR 99 traffic will be significantly detoured for at least 36 out of 48 months.	36 months of major construction, including new elevated roadway, and removal of existing viaduct. SR 99 traffic will be significantly detoured for at least 24 out of 36 months.
Potential affects on SR 99 traffic	Detour from SR 99 via the WOSCA site onto the existing	Detour from SR 99 via the WOSCA site onto the existing	Detour from SR 99 via the WOSCA site onto the existing

	Bored Tunnel Hybrid Alternative	SR 99 Elevated Hybrid Alternative	I-5/Surface/Transit Hybrid Alternative
	viaduct for 21 months. Temporary closure of SR 99 for several months to connect bored tunnel to Aurora Avenue N.	viaduct for 16 months. 36-month detour of SR 99 via surface streets during construction of new elevated roadway.	viaduct for 16 months. 24-month detour of SR 99 via surface streets during construction of new surface streets.