

# Construction Roadway Closures, Restrictions, and Detours

Timeline Assumes Full Project Funding

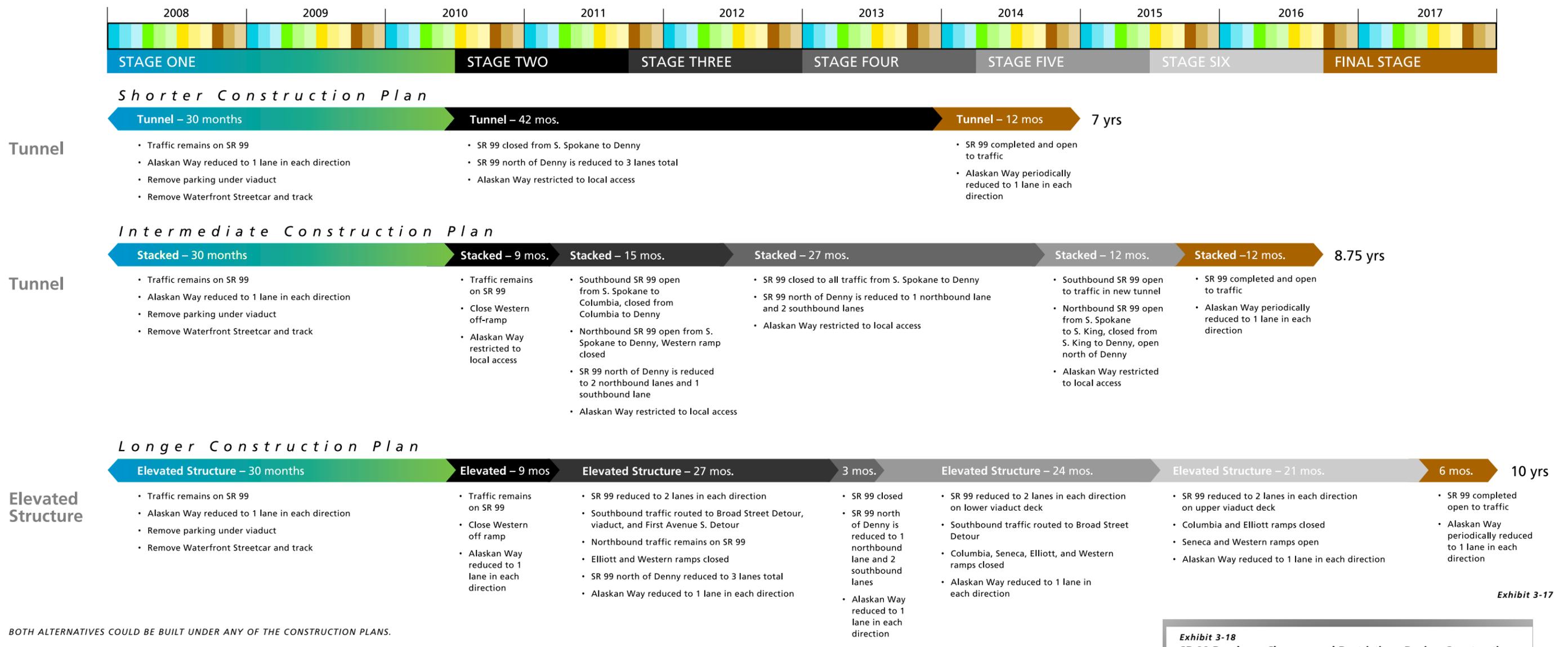


Exhibit 3-17

BOTH ALTERNATIVES COULD BE BUILT UNDER ANY OF THE CONSTRUCTION PLANS.

## 11 How would traffic on SR 99 and Alaskan Way be restricted during construction?

Exhibit 3-17 shows proposed SR 99 roadway closures, restrictions, and detours for the Tunnel and Elevated Structure Alternatives during construction. Durations of roadway closures and restrictions vary depending on the construction plan and alternative selected. SR 99 traffic would be affected for much of the construction period but not all of it. For both alterna-

tives, traffic on SR 99 would not be affected during construction Stage 1 when utilities are being relocated and during the final construction stage when the Alaskan Way surface street is replaced. In general, the time it takes to build the project decreases the longer SR 99 is closed; however, the intensity of effects to traffic increases when SR 99 is closed. Exhibit 3-18 shows how long SR 99 would be closed or restricted during construction. When SR 99 is closed, the facili-

ty would be closed to all traffic between S. Spokane Street and Denny Way. When SR 99 is restricted, there would be lane or ramp closures on SR 99.

**Exhibit 3-18**  
**SR 99 Roadway Closures and Restrictions During Construction**  
*in months/years*

CONSTRUCTION PLAN Alternative	SR 99 Closed	SR 99 Restricted <sup>1</sup>	Total Time SR 99 Would Be Affected	Total Construction Time
SHORTER Tunnel	42	0	42	84 <i>7 years</i>
INTERMEDIATE Tunnel	27	36	63	105 <i>8.75 years</i>
LONGER Elevated Structure	3	81	84	120 <i>10 years</i>

<sup>1</sup> The SR 99 Restricted column shows how long SR 99 would be subject to lane and ramp closures. This duration does not include the time SR 99 would be closed.

Note: Both alternatives could be built under any of the construction plans.

Exhibit 3-19 shows how long various ramp connections would be closed to traffic during construction.

**Exhibit 3-19**  
**SR 99 Ramp Closures During Construction**  
*in months/years*

	SHORTER PLAN Tunnel	INTERMEDIATE PLAN Tunnel	LONGER PLAN Elevated Structure
<b>SOUTHBOUND</b>			
First Avenue/SODO <sup>1</sup> Off-Ramp	42	27	3
Downtown On-Ramp	42	27	48
Elliott On-Ramp	42	42	75
South Lake Union/Denny Ramps	0	0	0
<b>Total Construction Duration</b> <i>in months/years</i>	<b>84 7</b>	<b>105 8.75</b>	<b>120 10</b>
<b>NORTHBOUND</b>			
First Avenue/SODO Off-Ramp	42	39	27
Downtown Off-Ramp	42	27	27
Western Off-Ramp	42	63	63
South Lake Union/Denny Ramps	0	0	0
<b>Total Construction Duration</b> <i>in months/years</i>	<b>84 7</b>	<b>105 8.75</b>	<b>120 10</b>

<sup>1</sup> SODO = South of Downtown

Note: Both alternatives could be built under any of the construction plans.

Exhibit 3-20 on the next page shows how many trips would be accommodated on SR 99 during construction based on the roadway restrictions, detours, and closures discussed above.

In addition to closures and restrictions on SR 99, the Alaskan Way surface street would either be reduced to one lane in each direction with occasional closures or closed to traffic, except local access for deliveries and emergency vehicles. Alaskan Way closures and lane reductions for the alternatives and construction plans are shown in Exhibit 3-21.

**Exhibit 3-21**  
**Alaskan Way Roadway Closures and Restrictions During Construction**  
*in months/years*

PLAN Alternative	Alaskan Way Closed <sup>1</sup>	Alaskan Way Restricted <sup>2</sup>	Total Time Alaskan Way Is Affected	Total Construction Time
SHORTER PLAN Tunnel	42	42	84	84 7 years
INTERMEDIATE PLAN Tunnel	63	42	105	105 8.75 years
LONGER PLAN Elevated Structure <sup>3</sup>	0	120	120	120 10 years

<sup>1</sup> Alaskan Way Closed – This means Alaskan Way would be closed to general traffic, but open to local access for deliveries and emergency vehicles.

<sup>2</sup> Alaskan Way Restricted – Alaskan Way would be reduced to one lane in each direction.

<sup>3</sup> For purposes of the analysis we have assumed Alaskan Way could remain open with one lane in each direction; however, additional closures may be required.

Note: Both alternatives could be built under any of the construction plans.

## 12 What other routes could drivers use during construction?

It will definitely take longer for SR 99 drivers to get to and from their destinations during construction, but there are many alternate routes drivers could use when SR 99 is closed or traffic is restricted. Most people would probably choose one of the following alternate routes:

1. Trips to and from West Seattle could access downtown from S. Spokane Street using either the First Avenue ramps from the Spokane Street Viaduct/West Seattle Bridge or I-5. An additional westbound off-ramp from the Spokane Street Viaduct to Fourth Avenue may be provided, offering West Seattle drivers another way to get downtown. The West Seattle low-bridge could provide secondary access.
2. Trips to and from SeaTac, Burien, and other communities south of Seattle could access First or Fourth Avenues from SR 99 at Michigan Street. Other alternate routes include Airport Way, Sixth Avenue, and I-5.
3. Trips to and from Fremont, Wallingford, and neighborhoods north of Seattle could continue to use SR 99 to access downtown at or near Denny Way. Other alternate routes include Westlake Avenue N., Dexter Avenue N., and I-5.
4. Trips passing through, rather than to, downtown would predominately use I-5, the downtown street

grid, or 15<sup>TH</sup> Avenue W. This includes trips to and from Ballard, Interbay, or Magnolia that use the Elliott and Western Avenue ramps. The primary downtown routes would include First, Second, Fourth, and Fifth Avenues.

5. Longer trips traveling through the city of Seattle would predominately use I-5. Drivers from the south may choose to get to I-5 by traveling on SR 99 or First Avenue S. to access connections to I-5 at S. Royal Brougham Way and S. Atlantic Street.

Specific detours may be identified during certain construction periods. For example, traffic would be routed to First Avenue S. between Railroad Way S. and S. Spokane Street for 27 months for the Elevated Structure Alternative (this is called the First Avenue S. Detour). Additionally, the Elevated Structure Alternative proposes to route southbound drivers to Broad Street for about 51 months (this is called the Broad Street Detour). When SR 99 traffic is routed to First Avenue S. or Broad Street, the volume of traffic on these streets would substantially increase.

Many people may also make different transportation choices during construction. For example, for a few years some drivers may decide to use transit, carpool, change their time of travel, take fewer trips, change their destination, or group several trips together to be more efficient.

## 13 How long would construction affect drivers on SR 99?

The fact is that no matter what construction plan or alternative is selected, congestion is going to increase throughout downtown Seattle during construction, making it difficult for drivers to get around for a lengthy period of time. The discussion below explains how long drivers on SR 99 would be affected by construction for each of the plans.

### How long would construction affect drivers heading to, from, or through downtown on SR 99?

As shown in Exhibit 3-22 on the next page, drivers heading to and from downtown on SR 99 would be affected for 42 to 75 months, depending on the construction plan and alternative selected.

### How long will it take to build the project?

It would take between 6.5 and 10 years to build the project. These are baseline durations, meaning these estimates don't take various construction risks into account. When risk is included, the total construction duration ranges from 7 to 11.5 years. The total construction duration depends on the construction plan and alternative selected. Durations shown below do not take various construction risks into account.

- Shorter Construction Plan – 6.5 to 7 years
- Intermediate Construction Plan – 7.75 to 8.75 years
- Longer Construction Plan – 9.5 to 10 years

### Why would it take longer to build the tunnel than the elevated structure for the shorter and intermediate construction plans?

The elevated structure would take less time to build under both of these plans because the tunnel is more complicated to build than the elevated structure.

### Why would it take longer to build the elevated structure than the tunnel with the longer construction plan?

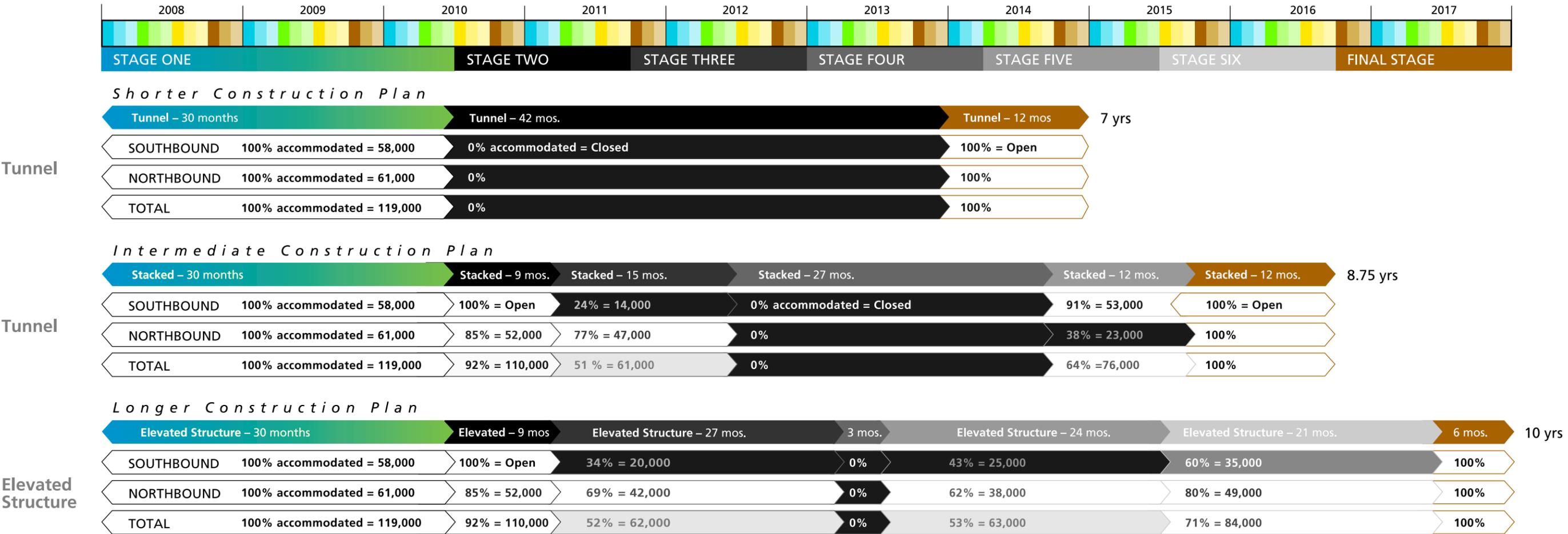
To build the elevated structure, contractors would work around traffic for all but 3 months of construction. For the tunnel, one direction of SR 99 would be closed for several years. It is easier and faster for contractors to build a roadway when large portions of the facility are closed to traffic, which explains why the tunnel would take less time to build under this plan.

## 2006 Appendix C

Sections 6.2 and 6.3 of the 2006 Appendix C, *Transportation Discipline Report*, discuss disruptions to SR 99 traffic and other traffic conditions.

# SR 99 Traffic Accommodated During Construction

Percentage of Daily Vehicles Accommodated on SR 99



BOTH ALTERNATIVES COULD BE BUILT UNDER ANY OF THE CONSTRUCTION PLANS.

Exhibit 3-20

**Exhibit 3-22**  
Duration of Effects to SR 99 Drivers Heading To, From, or Through Downtown in months

CONSTRUCTION PLAN Alternative	SOUTHBOUND	NORTHBOUND	Total Time Round Trips Would Be Affected
SHORTER Tunnel	42	42	42
INTERMEDIATE Tunnel	42	54	54
LONGER Elevated Structure	75	75	75

Note: Both alternatives could be built under any of the construction plans.

### How long would construction affect trips to or from Ballard and Interbay?

As shown in Exhibit 3-23, drivers heading to and from the Ballard/Interbay area would be affected by lane restrictions and ramp closures for 42 to 84 months, depending on the construction plan and alternative selected.

**Exhibit 3-23**  
Duration of Effects to SR 99 Drivers Heading To or From Ballard and Interbay in months

CONSTRUCTION PLAN Alternative	SOUTHBOUND	NORTHBOUND	Total Time Round Trips Would Be Affected
SHORTER Tunnel	42	42	42
INTERMEDIATE Tunnel	42	63	63
LONGER Elevated Structure	75	84	84

Note: Both alternatives could be built under any of the construction plans.

### Why are there several construction stages?

Construction activities for the alternatives have been organized into several stages based on proposed traffic detours. Currently, three construction stages are proposed under the shorter construction plan. If SR 99 is built following the intermediate construction plan, six stages are proposed. For the longer construction plan, seven stages are proposed. For all of the construction plans evaluated, similar construction activities and traffic detours are proposed for Stage 1 and the final construction stage. Differences among the alternatives and construction plans occur in the other stages.

## 14 How would construction affect other trips?

### How would construction affect transit?

Construction would affect transit in many ways. When SR 99 is closed or restricted, buses would be routed to alternate routes. When transit is rerouted due to closures or restrictions on SR 99, increased road congestion would affect transit services, particularly during peak commute hours. Conditions for transit service would be most congested when SR 99 is closed in both directions. Transit operators would also face congestion when SR 99 is restricted. Exhibit 3-24 shows how long transit operations would be affected by closures and lane restrictions on SR 99 during construction.

*Exhibit 3-24*

#### Duration of Transit Effects During Construction in months

SHORTER PLAN – Tunnel	42
INTERMEDIATE PLAN – Tunnel	63
LONGER PLAN – Elevated Structure	75

*Note: Both alternatives could be built under any of the construction plans.*

In addition, the waterfront streetcar would not be available for the entire construction period for either alternative. Shuttle service could be provided to mitigate the loss of the waterfront streetcar during construction, though it may need to be routed to a different street.

We are working with transit providers to develop acceptable alternate routes as needed. In addition, we will enhance transit during construction as part of the project's Construction Transportation Management Plan discussed in Question 16 of this chapter.

### How would construction affect freight?

Because roadway capacity on SR 99 would be reduced during construction, congestion would increase on alternate routes affecting many drivers, including freight operators. Specific effects to freight would be similar to those described above for trips heading to, from, or through downtown. In the south section, access to E. Marginal Way would be maintained throughout construction to allow freight to move

between the ports, railroads, and the other major highways used by freight. Freight traffic to and from Ballard would be affected by lengthy closures of ramps to Elliott and/or Western Avenues. The project partners are currently working with the freight community to learn how and when drivers use SR 99. This information will be used to develop strategies for managing freight traffic during construction. These freight management strategies will be fully described in the Construction Transportation Management Plan discussed in Question 16 of this chapter.

### How would ferry traffic be accommodated during construction?

Ferry access would remain open throughout construction for all construction plans. For both alternatives, a temporary over-water bridge would be built to provide access to drivers entering and exiting the Colman Dock Ferry Terminal during construction.

The temporary bridge would be built between Pier 48 (near S. Jackson Street) and Colman Dock during the first stage of construction and it would be removed in the final stage. Drivers would access the temporary bridge from First Avenue via S. Jackson Street. This connection would also provide queuing space for traffic entering the ticketing area at Colman Dock. Throughout most of the construction period, this route and an additional exit at Marion Street would be maintained for Colman Dock. However, there may be times when access may be restricted to one location. It is unknown at this time how often or how long these interruptions might occur. While in place, these restrictions could increase the amount of time it takes to unload the ferry.

During construction, drivers heading to and from the ferry would experience more roadway congestion near Colman Dock than they do today. For example, roadways leading to Colman Dock would be more congested when SR 99 is closed than when only a portion of traffic is detoured from SR 99. Roadways leading to Colman Dock from the south would also be more congested when the First Avenue S. Detour is used.

Ferry access for pedestrians would be maintained during construction, both at street level and on the existing pedestrian bridge that crosses Alaskan Way at Marion Street. If at any point the existing pedestrian bridge is closed, an alternate route between the waterfront and First Avenue would be provided.

### How would bicycle and pedestrian traffic be accommodated during construction?

For safety, pedestrian and bicycle access on Alaskan Way would be limited during construction. Bicycles would be routed to other city streets, but pedestrian connections would be provided to ensure that people on foot would still be able to make their way to and from businesses and destinations located along the waterfront. In particular, east-west access to businesses and activities on piers would be provided. To help maintain pedestrian access along the west side of the waterfront during construction, the project partners are considering the feasibility of constructing temporary over-water pedestrian walkways between some piers.

## 15 How would construction affect traffic and congestion on other routes?

Proposed roadway restrictions on SR 99 during construction would cause traffic volumes to increase on alternate routes such as I-5 and downtown city streets. Because capacity on many alternate routes is limited, increased traffic volumes on these routes would not only increase the magnitude of congestion, but also the frequency and duration of congestion. The discussion below identifies how long congestion may occur on SR 99 and other roadways during construction; however, this information describes what congestion may be like if no other traffic management strategies are implemented to help minimize and mitigate congested conditions during construction. The project partners plan to develop a Construction Transportation Management Plan to help keep people and traffic moving during construction. This plan is discussed in Question 16.

**How would construction affect SR 99?**

Proposed SR 99 closures, restrictions, and detours have been discussed in previous sections. However, it's important to point out that when SR 99 is open but restricted, overall congestion would increase, causing delays for drivers. Currently, under typical conditions SR 99 is congested about 1 hour per day or less. While SR 99 is restricted during construction, it is expected to have slow-moving, congested conditions for 10 to 12 hours per day depending on lane restrictions.

**How would construction affect city streets west of I-5?**

Under normal conditions when SR 99 is open, traffic congestion typical of a weekday commute typically occurs on downtown city streets and streets south of downtown for about 3 to 4 hours per day. When SR 99 is closed, these congested conditions could occur for 10 to 13 hours per day for streets located in and south of downtown. During other construction stages when SR 99 is affected but not closed, these streets could be congested for 5 to 10 hours per day.

**How would construction affect I-5?**

Traffic is also projected to increase on I-5 when SR 99 is closed or restricted. I-5 currently operates near its maximum capacity, and congested conditions typical of a weekday commute are prevalent for between 5 and 8 hours per day. When SR 99 is completely closed, this level of congestion could be expected for 9 to 14 hours per day. During other construction stages when SR 99 is restricted, this degree of congestion could be expected for 8 to 12 hours per day.

**How would construction affect city streets east of I-5?**

North-south traffic through Seattle is also projected to shift to several routes east of I-5 when SR 99 is completely closed or lanes are restricted. Most of these diverted trips would not come directly from SR 99 but would come from I-5 or other city streets because of increased congestion in the overall transportation network. Similar to information presented for streets

west of I-5, the number of hours drivers would experience congestion during the day is expected to increase when SR 99 is closed or restricted.

**How would construction affect I-405?**

A small share of traffic, specifically longer-distance through trips, may shift to I-405. When SR 99 is closed, I-405 may see as many as 1,000 to 2,000 additional trips each day. Given the volume of traffic that travels on I-405 each day, this possible increase is seen as minimal.

**How would the total volume of north-south trips be affected?**

Even though traffic volumes on alternate routes such as city streets and I-5 would increase during construction, the total traffic volumes for north-south routes through central downtown Seattle are expected to decrease during construction by an estimated 7 percent when SR 99 is closed and up to 4 percent during stages when SR 99 is restricted. The total number of north-south trips is expected to decrease because when SR 99 is closed or restricted, available roadway capacity on alternate north-south routes would be extremely limited and congestion on these routes is expected to be high compared to existing conditions. As a result, many people would make different transportation choices during construction. For example, for a few years some drivers may decide to use transit, carpool, change their time of travel, take fewer trips, change their destination, or group several trips together to be more efficient. Question 16 describes some of the strategies the project partners plan to employ during construction to help minimize effects to traffic during SR 99 construction.

**16 What would we do to keep people and traffic moving during construction?**

The project partners will develop a Construction Transportation Management Plan designed to help keep as much traffic moving as possible during construction. We are continuing to look for ways to minimize effects to traffic during construction. No matter what plan is put in place, transportation through the

corridor will be difficult during construction. The plan must balance construction costs, neighborhood and business needs, and traffic management. As part of the plan, we will identify, develop, and test cost-effective improvements that can help move traffic during construction, and we will discuss ways to implement these specific improvements to the transportation system. We will share this information with the public as it is developed. We will use public comments and the information learned from testing to develop the complete list of strategies and projects to be put in place as part of the project's Construction Transportation Management Plan.

The Draft EIS identified many possible strategies and projects that could be put in place to minimize effects to traffic during construction. Since the Draft EIS was published, the project partners have continued to develop and refine the list, which now includes over 130 ideas that address the identified goals.

At this time, WSDOT, FHWA, the City of Seattle, and King County Metro Transit have identified 31 key strategies from the list of 130 that they believe will do the most to keep traffic moving during construction, though we expect this list will grow as part of developing the Construction Transportation Management Plan. The 31 key strategies aim to:

- Maintain reliable transit service to retain and increase transit use.
- Improve and expand transit service in affected corridors to provide travelers with a viable alternative to single-occupant vehicles.
- Maintain or increase roadway capacity on local streets to help absorb traffic shifts during construction.
- Manage traffic effectively to prioritize the movement of people and goods, using limited roadway capacity in the best possible ways.
- Enhance traveler information so travelers can make more informed decisions.
- Manage transportation demand effectively to provide all travelers with more choices of mode, location, route, and time of travel.

**Where can I learn more about the construction traffic management strategies?**

Chapter 7, Question 7 of the *Supplemental Draft EIS* lists the 31 key strategies that the project partners believe will do the most to keep traffic moving during construction. Section 6.4.1 of the *2006 Appendix C* contains the complete list of strategies being considered.

**17 What are the temporary construction effects of building the alternatives?**

**What are the temporary construction effects from noise?**

Noise during the construction period would be both- ersome and annoying to nearby residents, visitors, tourists, and businesses because it would make it unpleasant to be outside and hard to hold conversa- tions. Near residences, noise from nighttime construc- tion activities could be particularly disruptive. The most common noise sources during all stages of con- struction would be from machine engines such as bulldozers, cranes, generators, and other earth- and material-moving equipment. Construction could occur up to 24 hours a day, 7 days a week. The proj- ect corridor is currently noisy, with peak hour average daytime sound levels that range from 57 to 81 dBA. The majority of construction activities would fall with- in the range of 75 to 85 dBA at 50 feet, with some activities like impact pile driving reaching around 100 dBA at 50 feet, as shown in Exhibit 3-25. These noise levels would vary considerably throughout each construction stage as the type and location of the con- struction activities change.

**What are the temporary construction effects on businesses and parking?**

Potential construction effects to businesses from traf- fic detours, congestion, loss of parking, noise, dust, and changes to access would vary throughout the con- struction period. Traffic detours and road closures would affect access to local businesses and could make it harder for customers and employees to reach businesses and for goods and services to be distrib- uted. The project partners recognize that construc- tion will be tough for many businesses located near the construction area. Construction effects to busi- nesses in the project area are an important considera- tion for the project partners as we work to determine how the project would be built.

In addition to the effects described above, approxi- mately 3,703 parking spaces would be removed dur- ing construction in the construction area, as shown in

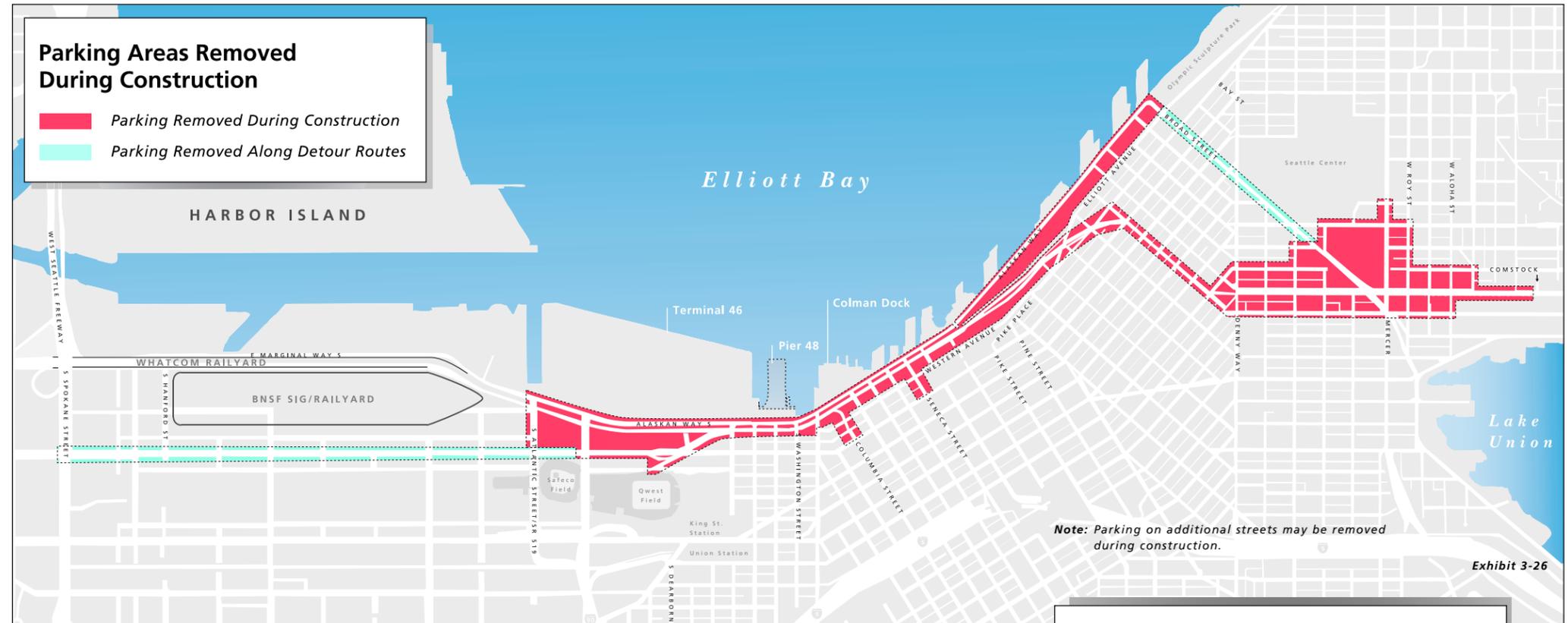


Exhibit 3-26. In addition, parking spaces along detour routes outside of the project’s construction area would also be removed. A detour on Broad Street would remove approximately 40 on-street short-term spaces, and a detour on First Avenue S. would remove approximately 325 on-street short-term spaces. Most of these spaces are not metered, but are signed with 1- or 2-hour limits. It’s likely that parking on other downtown city streets, particularly streets that run north-south such as First, Second, and Fourth Avenues, would also be removed during construction; however, the extent and location of spaces that would be removed is unknown at this time.

Up to 2,000 parking spaces could be required during the height of construction to accommodate construc- tion workers during the short period of time when the workers’ shifts overlap. Less parking for construc- tion workers would be needed when only one shift is on duty.

Construction employment would result in additional activity throughout all the economic sectors in the Puget Sound region. The average number of jobs needed to construct the Tunnel Alternative under the intermediate plan is estimated to range between 1,085 and 1,125 jobs per year, adding about \$112 million in wages per year. The average number of jobs needed to build the Elevated Structure Alternative under the longer construction plan would be about 670 jobs per year, adding about \$67 million in wages per year. Sales tax generated from the purchase of goods and materials related to construction is estimated to be \$223 million for the Tunnel Alternative and \$141 mil- lion for the Elevated Structure Alternative. In addi- tion, the influx of construction dollars is estimated to contribute an additional \$132 million to \$137 million to the Puget Sound regional economy over the total construction period. This indirect benefit to the regional economy would come from wages generated by new jobs created in addition to those directly required for construction.

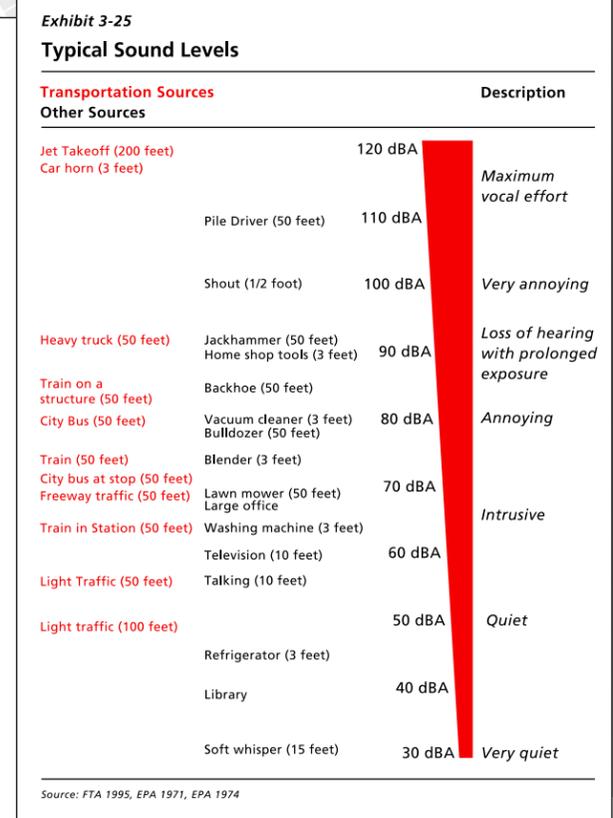


Exhibit 3-26

### What are the temporary construction effects on fish, aquatic habitat, and water quality?

Construction effects could occur from in-water construction activities; in-water pile placement; shading from the temporary over-water access at Colman Dock or possible over-water pedestrian connections; over-water construction staging (including materials handling); erosion in construction areas; dewatering activities; and soil improvements.

Soil improvements, drilled shafts, and slurry wall construction would create spoils (the soil and other material displaced during the construction activities) that contain mostly water. This water could have a high pH, which could harm fish and aquatic habitat if it is directly discharged into Elliott Bay. If the pH is high, the water would be treated to decrease the pH before it is discharged. The amount of spoils anticipated for each alternative is greater than what was discussed for the Draft EIS because of the larger area of soil improvements included for the Reconfigured Whatcom Railyard and Partially Lowered Aurora designs. The Elevated Structure Alternative is expected to have a slightly higher volume of spoils (507,000 cubic yards) compared to the Tunnel Alternative (492,000 cubic yards), because a larger area of soil behind the seawall would be strengthened by soil improvements. For the Tunnel Alternative, much of the soil behind the seawall would be removed, so less spoils would be generated from soil improvements.

### 18 How could temporary construction effects be mitigated?

The Draft EIS and this Supplemental Draft EIS present menus of potential measures that could be used to mitigate negative project effects. After reviewing public and agency comments on both documents, the project partners will prepare more specific mitigation measures to address identified construction effects. Opportunities for public and agency review of many mitigation elements will be provided. We will finalize the list of mitigation measures and commit to their implementation in the Final EIS and the Record of Decision issued by FHWA.

Some of these mitigation measures will be included as part of a formal mitigation plan. These plans include construction transportation management (including parking); noise; business and residential mitigation; Section 106 and historic and cultural resources; and fish, aquatic resources, and water quality.

The mitigation measures and plans will be tailored to the various construction stages and varying levels of effect over time as appropriate. The following paragraphs discuss in more detail the proposed mitigation measures that could be included in the plans.

#### How could temporary construction effects from noise be mitigated?

The long construction duration and unique nature of this project would likely require a technical or other appropriate noise variance from the City of Seattle. We are in the process of obtaining a noise variance for the project. The noise variance process includes a public hearing and requires the applicant to abide by noise mitigation measures set forth by the City.

Possible mitigation measures to reduce the noise levels during construction could include putting temporary noise barriers or curtains around equipment and work areas, using vibration pile driving methods, and using mufflers or intake silencers.

#### How could temporary construction effects to businesses be mitigated?

A primary goal of construction planning is to maintain adequate access to all businesses so they can continue to operate. As construction phasing and staging is refined in the coming months, it may be determined on a case-by-case basis that it is not reasonable or feasible to maintain access to some businesses. If adequate access cannot be maintained, impacts to affected businesses will be mitigated under policies to be identified in the project's Business Mitigation Plan. If the provisions of the Uniform Relocation Act are met, then relocation assistance would be provided.

To help maintain pedestrian access to businesses along the waterfront during construction, we are con-

sidering the feasibility of constructing temporary over-water pedestrian walkways between some piers.

#### How could temporary construction effects to parking be mitigated?

A mitigation plan for effects to parking during construction will be developed as part of the Business Mitigation Plan and the Construction Transportation Management Plan. Mitigation measures for parking could include:

- Purchasing, leasing, or constructing additional parking in the Pioneer Square and central waterfront areas to reduce effects to businesses.
- Providing parking south or north of downtown and providing shuttles for both construction workers and visitors to downtown.

#### How could temporary construction effects to fish, aquatic habitat, and water quality be mitigated?

Temporary protection such as a sheet pile wall, silt curtain, or equivalent measure would be installed where feasible along active work areas to protect water quality and minimize effects to aquatic life in Elliott Bay during construction. Silt curtains might be placed in areas where sheet pile walls are not practical, such as underneath the piers. Bottom sediments, which could be contaminated, could be temporarily disturbed during installation of the sheet pile wall and if riprap is removed. In-water construction work would be restricted during the major portion of the juvenile salmon migration period that lasts for several months in the spring and early summer.

Treatment would be provided as needed to protect water quality before discharging stormwater runoff or dewatering water. Once it is treated, water could be discharged to Elliott Bay or Lake Union using a temporary outfall or through existing outfalls, or the water could be collected, treated, and hauled off-site.

We are evaluating additional conservation measures that may avoid, minimize, rectify, or compensate for impacts to species and habitat.

**Where can I find more information about potential construction mitigation measures?**

Chapter 7, Questions 23 and 24 of the *Supplemental Draft EIS* contains additional information about mitigation plans and possible mitigation measures.

**Where can I find more information about the noise variance process?**

Question 23 in Chapter 7 of the *Supplemental Draft EIS* describes the City of Seattle's noise variance process in more detail.

## 19 What other design choices are being considered?

The following design choices are being considered for the alternatives. These design choices were identified earlier in Exhibit 3-2. The tradeoffs of these design choices are discussed in Question 20 of this chapter.

### South Section

In the south section, the Relocated Whatcom Railyard design could be chosen for either the Tunnel or Elevated Structure Alternative. This design would replace the existing viaduct with a six-lane, at-grade roadway that would be located west of its existing location, adjacent to E. Marginal Way S. where the Whatcom Railyard is currently located. The Whatcom Railyard would be relocated to the east. SR 99 would continue at-grade, and a new aerial interchange would be built near the stadiums at S. Atlantic Street and S. Royal Brougham Way.

### Central Section

In the central section there are no design choices for the Elevated Structure Alternative. The following design choices apply only to the Tunnel Alternative.

**Side-by-Side Tunnel** – This design would replace the existing viaduct with a side-by-side, six-lane tunnel (three lanes in each direction) from approximately S. Dearborn Street to Pine Street.

**Steinbrueck Park Lid** – This design would build a lid over the aerial structure that connects SR 99 from Pine Street up to the Battery Street Tunnel, creating public space and a pedestrian connection between Steinbrueck Park and the waterfront.

**SR 99 Over Elliott and Western Avenues** – This design would connect SR 99 from about Pine Street up to the Battery Street Tunnel with an aerial structure over Elliott and Western Avenues, similar to the existing facility.

### North Section

In the north section the Battery Street Tunnel Improvements with Curves Widened and Lowered Aurora could be selected for either the Tunnel or Elevated Structure Alternatives. This design would improve the Battery Street Tunnel as previously described in Question 2. Additionally, the curves on both ends of the tunnel would be widened to increase the distance drivers can see ahead of them.

The Lowered Aurora improvements would lower SR 99 from the Battery Street Tunnel to approximately Prospect Street. North of Prospect Street, SR 99 would be improved up to Comstock Street. Four new bridges would be constructed over SR 99 at Thomas, Harrison, Republican, and Roy Streets. Access to and from SR 99 would be built at Denny Way, Republican Street, and Roy Street. To improve safety for vehicles on SR 99, cul-de-sacs would be built at John, Valley, Aloha, and Ward Streets. Broad Street would be closed between Fifth Avenue N. and Ninth Avenue N., allowing the street grid to be connected. Mercer Street would be rebuilt over the top of SR 99, and it would be widened and converted to a two-way street with three lanes in each direction and a center turn lane.

## 20 What are the tradeoffs between design choices?

We analyzed two alternatives and several design choices in this Supplemental Draft EIS. The discussion below describes the tradeoffs between effects of the design choices evaluated.

### South Section

In the south section, the Reconfigured Whatcom Railyard is proposed with both the Tunnel and Elevated Structure Alternatives; however, the Relocated Whatcom Railyard could be chosen instead. Compared to the Reconfigured Whatcom Railyard, the Relocated Whatcom Railyard would:

- Add a southbound on-ramp to SR 99 near S. Massachusetts Street, which would benefit traffic by providing an additional access point to SR 99.

- Require completely relocating the existing Whatcom Railyard into the BNSF Seattle International Gateway (SIG) Railyard. To do this, three additional properties would need to be fully acquired and one additional property would need to be partially acquired. Additionally, relocating the railyard may require excavating additional soil that would most likely be contaminated.
- Require SR 99 south of Railroad Way S. to be closed for at least 12 months in both directions. During this time, both northbound and southbound SR 99 traffic would be routed to First Avenue S., increasing congestion on this local city street.

### Central Section

In the central section, there are no design choices for the Elevated Structure Alternative. There are several choices for the Tunnel Alternative, which are:

- Building a side-by-side tunnel.
- Constructing a lid over SR 99 at Steinbrueck Park.
- Building SR 99 over Elliott and Western Avenues.

*What are the tradeoffs between a stacked and side-by-side tunnel?*

The Tunnel Alternative proposes to build a stacked tunnel along the central waterfront; however, a side-by-side tunnel could be selected instead. A side-by-side tunnel along the central waterfront would require building a much wider structure underground along the waterfront. This would restrict the available area where utilities could be placed in the corridor, and in certain cases it could require some utilities to be relocated to other areas. This is one of the important benefits of building a stacked tunnel along the central waterfront. Currently, areas under the existing viaduct and Alaskan Way surface street carry many important utilities, such as power lines, water, stormwater, sewer lines, telecommunications, and steam. These utilities provide important services to downtown and areas beyond downtown. Specifically, the power lines contained in this area not only serve downtown, but they are also a critical link in the west coast's regional power grid.

Along the central waterfront, the side-by-side tunnel would require three additional property acquisitions compared to the stacked tunnel. A side-by-side tunnel would take about 9 months less time to build than a stacked tunnel under the intermediate construction plan. This means that a side-by-side tunnel could be built under the intermediate plan in 8 years instead of 8.75 years. A side-by-side tunnel would require SR 99 to be closed to both directions of traffic for 18 months instead of 27 months as described for the stacked tunnel. However, a side-by-side tunnel could only be built in 8 years under the intermediate plan if SR 99 were built over Elliott and Western Avenues. A side-by-side tunnel with SR 99 built under Elliott and Western Avenues would take 8.75 years to build. With the shorter construction plan, a stacked or side-by-side tunnel would take the same amount of time to build regardless of whether SR 99 is built over or under Elliott and Western Avenues.

***What are the tradeoffs between the Steinbrueck Park Walkway and Lid?***

As shown in Exhibit 3-27 on the next page, both the Steinbrueck Park Walkway proposed with the Tunnel Alternative and the Steinbrueck Park Lid would provide benefits to the surrounding areas by creating more open space and improving pedestrian connections between the Pike Place Market area and the central waterfront. The lid would increase public space and reduce noise levels in the Steinbrueck Park area by about 10 dBA, which would be like cutting current noise levels in half. The walkway would not reduce noise levels in the surrounding areas, but it would provide the same enhanced pedestrian connections as the lid. Also, the walkway would provide a new public open space, but it would be smaller than the space provided by the lid.

***What are the tradeoffs between building SR 99 under or over Elliott and Western Avenues?***

If SR 99 is built under Elliott and Western Avenues as currently proposed with the Tunnel Alternative, southbound views from Elliott Avenue in Belltown would improve compared to existing conditions, as shown in Exhibit 3-28 on the next page. This benefit wouldn't be realized if SR 99 is built over Elliott and

Western Avenues. Additionally, noise levels in the area would be reduced by 2 to 3 dBA if SR 99 is built under Elliott and Western. Also, vehicles traveling north from Pine Street up to Elliott and Western Avenues would have 1,000 feet to travel on an incline if SR 99 is built under Elliott and Western Avenues compared to 1,600 feet if SR 99 is built over Elliott and Western. In general, it is easier to maintain traffic flow and travel speeds for vehicles, particularly trucks, on flat roadways. Therefore, most highways are designed to minimize the distance drivers must travel on an incline. Building SR 99 under Elliott and Western Avenues would require permanently removing 131 more off-street parking spaces than building SR 99 over Elliott and Western.

**North Section**

In the north section, both the Tunnel and Elevated Structure Alternatives propose to improve the Battery Street Tunnel and construct the Partially Lowered Aurora improvements. However, in the north section another choice would be to widen the Battery Street Tunnel curves and build the Lowered Aurora improvements. The tradeoffs of these choices are discussed below.

***What are the tradeoffs of widening the Battery Street Tunnel curves?***

It would be more expensive to widen the curves at both ends of the Battery Street Tunnel. Widening the curves would marginally improve tunnel safety by improving visibility for drivers. Drivers would be able to see farther in front of them, which may reduce the number of collisions in the Battery Street Tunnel. However, ongoing study on this issue indicates that the potential for reducing collisions is likely small.

Widening the south curve would require affecting the historic McGraw Kittenger Case (the Blu Canary/MGM) Building and relocating the Catholic Seamen's Club, which is a local community service provider, during construction. These effects could be avoided if the curves are not widened.

Additionally, the Belltown neighborhood would be affected more by construction activities if the curves

are widened. About half of the lid over the Battery Street Tunnel would need to be removed, which would require closing Battery Street and the Battery Street Tunnel for a 12- to 18-month period. The Belltown neighborhood would be affected by this roadway closure and by additional construction noise and dust.

***What are the tradeoffs between Partially Lowered Aurora and Lowered Aurora?***

Both designs in the north section would increase safety on SR 99 by providing direct ramp connections, allowing drivers to more safely enter and exit SR 99 compared to existing conditions. Both designs would also improve east-west connections across SR 99 by connecting city streets over the top of SR 99.

The Lowered Aurora improvements would be more expensive to build than the Partially Lowered Aurora improvements because they require a larger footprint. The larger footprint is needed because of the way the ramps would be configured and because SR 99 would be lowered farther north with this design, allowing Mercer Street to cross over SR 99 instead of under it as it does today. Lowered Aurora would add a southbound on-ramp to SR 99 at Republican Street and would eliminate a northbound off-ramp to Republican Street compared to Partially Lowered Aurora. Additionally, this design would connect two more east-west streets (Republican and Roy Streets) over SR 99 north of the Battery Street Tunnel than the Partially Lowered Aurora improvements.

Between Thomas and Roy Streets, the Lowered Aurora improvements would build a roadway system about 50 feet wider than the Partially Lowered Aurora improvements. As a result, Lowered Aurora would require 23 more full property acquisitions than Partially Lowered Aurora. One of the additional full property acquisitions required is a transitional housing facility.

# Steinbrueck Park Walkway and Lid



# SR 99 at Elliott and Western

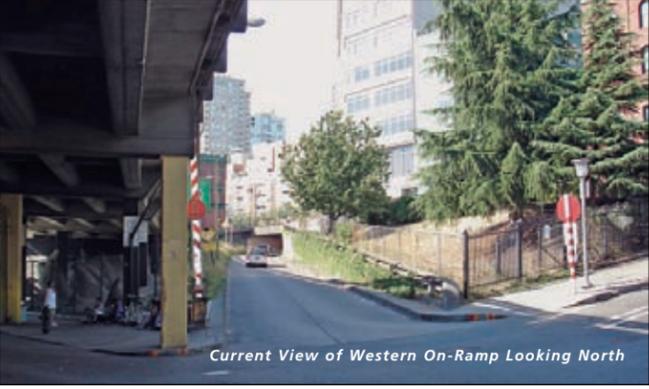
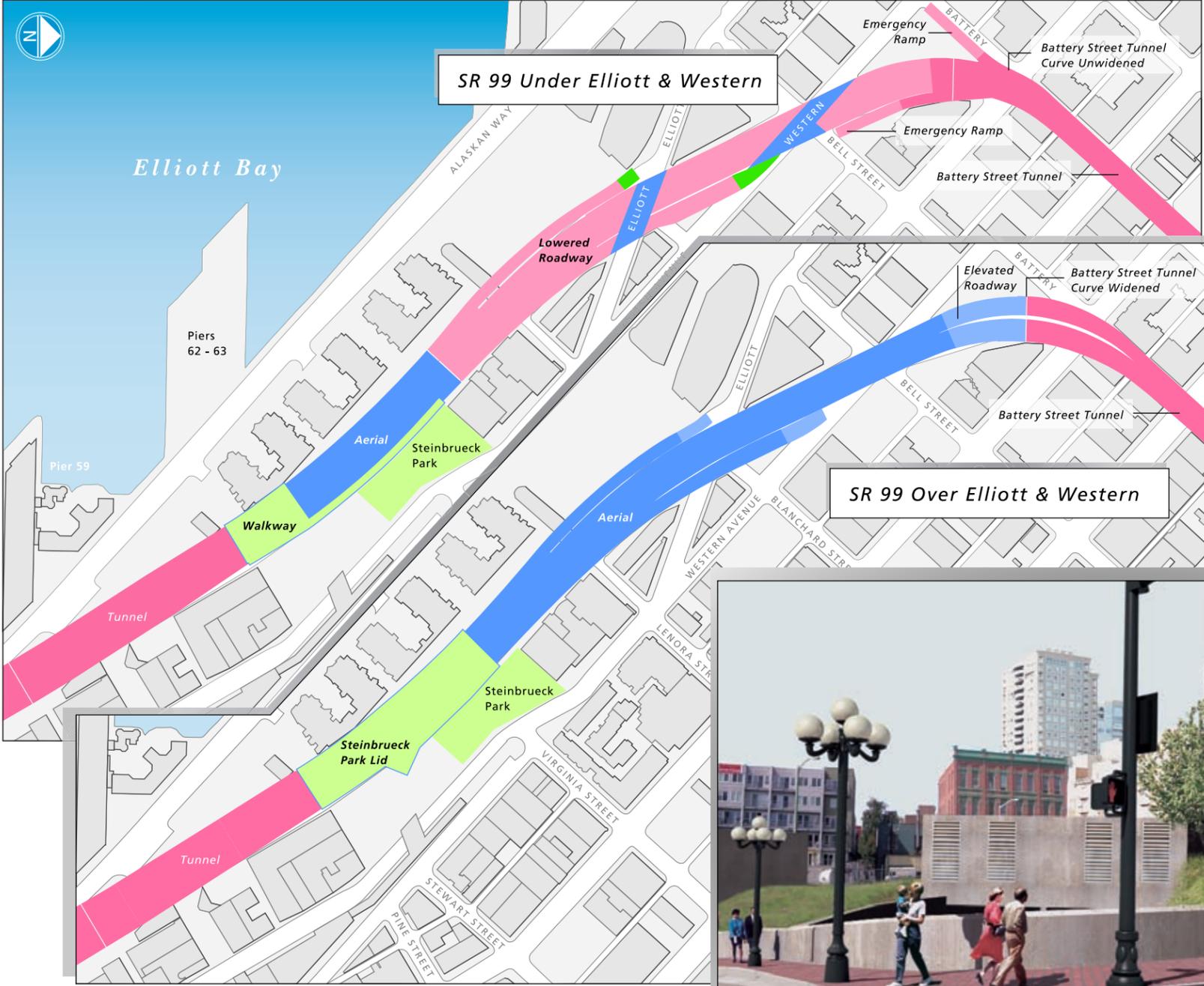


Exhibit 3-28

## 21 How would the construction of the viaduct and seawall and other downtown construction projects affect Seattle and surrounding areas?

Many downtown construction projects are planned over the next several years. It is likely that the construction schedules of some of these planned projects may overlap with viaduct and seawall construction. If construction schedules overlap, they could have a cumulative effect on the downtown area. Together, these projects could:

- Intensify traffic congestion through downtown. This would cause problems for drivers, particularly transit and emergency service providers. Excessive congestion in downtown could cause businesses to suffer if people chose to avoid downtown due to congested areas.
- Cumulatively increase construction noise and temporary air quality impacts.
- Cause relocation and access difficulties for utility providers. Many of the proposed downtown construction projects would require relocating existing utilities. Funding, having enough skilled workers, and ensuring minimal utilities disruptions could be a challenge or could cause delays if several projects were being constructed at the same time.
- Cumulatively affect aquatic habitat and tribal fishing areas in Elliott Bay.

The project partners will work closely with other agencies and organizations to avoid and minimize these potential effects with upfront planning and coordination. The City of Seattle will be closely involved with downtown construction coordination between the AWV Project and other downtown construction projects. If needed, mitigation measures for negative cumulative effects will be identified.

## 22 What adverse effects of the project would not be mitigated?

Both the Tunnel and Elevated Structure Alternatives would improve conditions compared to today. However, some adverse effects of the project cannot be mitigated.

Like the existing viaduct, a new elevated structure would continue to obstruct views; cast shade over an extensive area; limit future development of parks, trails, and sidewalks; generate overhead traffic noise; and give the impression that the city is separated from its waterfront. In the Pioneer Square area, the new elevated structure would be between 54 and 74 feet wider than the existing viaduct near S. King Street to south of S. Main Street. From south of S. Main Street up to Union Street, the elevated structure would be 11.5 to 35 feet wider than the existing viaduct. The wider elevated structure would leave less room on the Alaskan Way surface street for pedestrian amenities.

During construction, both alternatives would adversely affect traffic, businesses, and noise levels. The project partners won't be able to completely mitigate these construction effects. Increased traffic congestion on SR 99, the Alaskan Way surface street, other city streets, and I-5 couldn't be completely mitigated. This means drivers will lose time being stuck in traffic when SR 99 construction is underway. Construction activities and detours would be disruptive to all areas along the corridor at one time or another. While efforts would be made to keep traffic moving, overall congestion along the corridor and in the downtown area would substantially increase during construction, particularly during times when SR 99 is closed. Additionally, businesses will be adversely affected during construction to varying degrees, even with a dedicated public information campaign, shuttles to and from businesses in the project area, and other mitigation measures.

To reduce the total time needed to build the project, multiple shifts would be used for key construction activities. Construction could occur up to 24 hours a day, 7 days a week. Even by avoiding the noisiest activities during nighttime hours and by using the quietest equipment and construction techniques available, some unavoidable disturbances would be expected to affect nearby areas.

## 23 What issues are controversial?

### What type of structure should be built along the central waterfront?

This issue continues to generate a lot of dialogue and discussion. The project partners have identified the Tunnel Alternative as the Preferred Alternative because it would improve views between the waterfront and downtown by removing the existing elevated structure, improve existing conditions for people along the waterfront by providing new open space and improved conditions for pedestrians and bicyclists, and reduce noise. Nevertheless, some people prefer replacing the viaduct with another elevated structure because it's similar to the existing facility, it costs less, and many drivers like the views provided from the viaduct.

### How long should SR 99 be closed during construction and how should traffic be handled?

One purpose of the Supplemental Draft EIS is to help inform the decision-making process and public discussion centered on how long SR 99 should be closed during construction and how traffic should be handled.

Many downtown business owners and residents want to see construction completed as quickly as possible. One way to decrease total construction time is to maximize the amount of time that SR 99 would be closed. This approach, represented by the shorter construction plan evaluated in this Supplemental Draft EIS, would have the shortest overall construction time, though traffic effects would be more intense than they would be under the other construction plans evaluated.

Many other people are interested in maintaining roadway access on SR 99 as long as possible. Keeping SR 99 open with restrictions accomplishes this goal, and traffic effects would be less intense as evaluated with the longer construction plan. However, even with the longer construction plan, traffic would be substantially affected by lane restrictions and ramp closures. The intermediate plan offers a hybrid of the

shorter and longer construction plans, with its effects falling in between.

We recognize that no plan will be perfect; transportation through the corridor will be difficult during construction. The project partners are focused on developing an optimal construction plan that balances construction costs, neighborhood and business needs, and traffic management. We are continuing to look for ways to minimize effects to traffic during construction. As part of construction planning efforts, we will be working within the community to develop a Construction Transportation Management Plan designed to help keep as much traffic moving as possible during construction. As part of our construction traffic management efforts, we will identify, develop, and test cost-effective improvements that can help move traffic during construction and will discuss ways to implement these specific improvements. We will share this information with the public and use public comments and the information learned from testing to help us develop the right plan for both construction and traffic management. A preferred construction plan will be identified after public comments are received on this Supplemental Draft EIS.

**Is continuous construction (24 hours a day, 7 days a week) needed?**

Similar to the Draft EIS, the construction schedules shown in the Supplemental Draft EIS also assume that construction could occur up to 24 hours a day, 7 days a week.

Obviously, a continuous construction schedule would directly affect some people and businesses in the corridor more than a daytime construction schedule. However, if available working hours were shortened, the total construction duration would take longer than the proposed schedule. The tradeoff is between intense, nearly continuous construction that finishes more quickly but can be disruptive while it lasts, and a more moderate pace of construction that continues for many more years.

**24 What issues remain to be resolved?**

**What sections of the project would be built first?**

The project partners have not determined how construction would be phased. There are numerous ways the project could be built, but the overall construction sequencing will depend on funding. If the project is fully funded when construction begins, the project partners will have more latitude in how construction is phased. If we don't have all of the money needed, certain portions of the project, such as rebuilding the seawall north of Pike Street or proposed improvements north of the Battery Street Tunnel, might get delayed until additional funding could be secured. However, under any scenario, the key project elements needed to replace the most vulnerable parts of the viaduct and seawall will be addressed.

**Traffic Modeling and Transit**

One purpose of the traffic analysis conducted for the AWV Project is to predict the future (year 2030) traffic volumes for each of the alternatives studied. One of the many factors that influence future traffic projections is the number of transit riders forecasted to use buses or trains. An issue identified in the Draft EIS was that the travel demand model used for the AWV Project projected that transit trips to and from downtown would more than double by the year 2030 for any of the alternatives evaluated. Such an increase is considered very unlikely.

The traffic information presented in the Draft EIS was developed using a project-adapted version of the Puget Sound Regional Council's (PSRC) regional traffic model. The AWV Project recently improved this model by updating population and employment estimates, updating roadway and transit networks, improving the way the model responds to congestion, and adjusting the model's sensitivity to future parking cost assumptions. These improvements were coordinated with PSRC to ensure that consistency was maintained with regional models. For year 2030 conditions, the updated traffic model is expected to predict more moderate levels of growth in transit ridership

and slightly higher growth in traffic volumes on downtown city streets compared to the Draft EIS.

**25 What are the next steps?**

Once the comment period is completed for this Supplemental Draft EIS, the project partners will identify a preferred construction plan and continue work on the Final EIS and project design. The project partners will continue to keep the public informed of project progress. Specifically, we will provide opportunities for people to participate in developing components of construction mitigation plans for issues such as noise, business effects, and traffic management.

We plan to publish the Final EIS in fall 2007. The Final EIS will evaluate the Tunnel and Elevated Structure Alternatives and the proposed construction plan, and it will narrow the design choices being considered for both alternatives. It will also include updated traffic information for construction and the final build condition in 2030. The Final EIS will contain an updated discussion of proposed mitigation measures and responses to comments on both the Draft EIS and Supplemental Draft EIS. After the Final EIS is completed, FHWA will issue the Record of Decision, which is the final step in the National Environmental Policy Act (NEPA) EIS process. In the Record of Decision, the project partners will identify the alternative they will build, and they will present the basis for why that alternative was selected. The Record of Decision will also describe all of the alternatives considered and provide information describing how environmental effects will be avoided, minimized, and mitigated.

Construction cannot begin until the Record of Decision is issued and proper permits are obtained. Over the next few years, we will be working to obtain permits and right-of-way, finalize funding plans, and hire contractors to build the project. Throughout these activities, we plan to continue meeting with affected property owners and the public to keep them informed of project progress.