

*Alaskan Way Viaduct & Seawall Replacement Program*  
Central Waterfront Tri-Agency Partnership  
***EXECUTIVES' RECOMMENDATION***





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## *CHAPTER 1 - INTRODUCTION*

The Alaskan Way Viaduct, part of State Route 99 (SR 99), is one of only two north-south limited-access highways through central Seattle. The 2001 Nisqually earthquake damaged the double-level elevated viaduct structure along Seattle's central waterfront. Replacing the Alaskan Way Viaduct and the adjacent seawall has been a top priority for the State of Washington and the City of Seattle since the Nisqually earthquake. However, until recently, agreement on a solution for the portion of the structure along Seattle's central waterfront has been elusive.

A Draft Environmental Impact Statement (EIS) released in 2004 and a Supplemental Draft EIS released in 2006 considered a variety of six-lane elevated, tunnel, and surface replacement alternatives in the existing SR 99 corridor. In 2007, an advisory vote was held in Seattle, calling for a separate yes or no vote on a surface-tunnel hybrid and a six-lane elevated structure. Both received a majority "no" vote.

Following the 2007 vote, Washington Governor Chris Gregoire, King County Executive Ron Sims, and Seattle Mayor Greg Nickels committed to a collaborative effort to forge a solution for the Alaskan Way Viaduct. This effort, referred to as the

*Single-bore Tunnel Cutaway*



Partnership Process, sought to resolve the longstanding needs of the viaduct and seawall in a manner that could be broadly supported and implemented. It reframed the issue by looking beyond simply maintaining vehicle capacity and function within the narrow SR 99 corridor. Instead, it considered a range of multimodal solutions covering a much larger study area to facilitate the movement of people and goods to and through downtown.

On January 13, 2009, Governor Gregoire, County Executive Sims, and Mayor Nickels signed a letter of agreement outlining a recommended program for replacing the Alaskan Way Viaduct and Seawall. This program was based on a year-long technical analysis of systems scenarios, over one hundred public meetings, guidance from an Interagency Working Group, and input from a 30-member Stakeholder Advisory Committee (SAC).

The three executives agreed on a single-bore, four-lane tunnel, together with improvements to city streets, the city's downtown waterfront, and transit, as the recommended alternative for replacing the existing viaduct. The executives' decision was broadly supported by a wide range of stakeholders. Total cost of this program, including the already agreed to Moving Forward projects, is estimated to be \$4.24 billion in year of expenditure dollars and approximately \$15 million in annual operating costs for increased transit service. Funding responsibilities were established that allowed the State to stay within the Governor's \$2.8 billion state funding commitment for the program. The balance of this report provides a detailed description of the recommended program, the basis for the recommendation, a description of the funding plan for the program, and key implementation considerations. The report concludes with a section that provides a summary overview of the Partnership Process. More details on this process can be found in the *Independent Project Manager's Report* and supporting Technical Appendices to that report.

## CHAPTER 2 - RECOMMENDED PROGRAM

The recommended program includes four broad categories of improvements within the study area. The accompanying map and table provide a catalogue of the program elements, each of which is described in more detail in the following sections.

### Summary of Program Elements

#### *Four-Lane Bored Tunnel*

The recommended tunnel will extend from approximately S. Royal Brougham Way near Qwest and Safeco Fields to Harrison Street just north of the existing Battery Street Tunnel. The bored tunnel will follow an alignment beneath First Avenue from Pioneer Square to Stewart Street, and then turn northward across Belltown and surface in Aurora Avenue. The large-diameter structure will carry two lanes of traffic southbound on an upper-level roadway and two lanes of traffic northbound on a lower-level roadway. The tunnel will include passageways to safety in case of an accident or other emergency, fire suppression systems, public communication systems, and emergency ventilation systems that meet the latest federal standards.

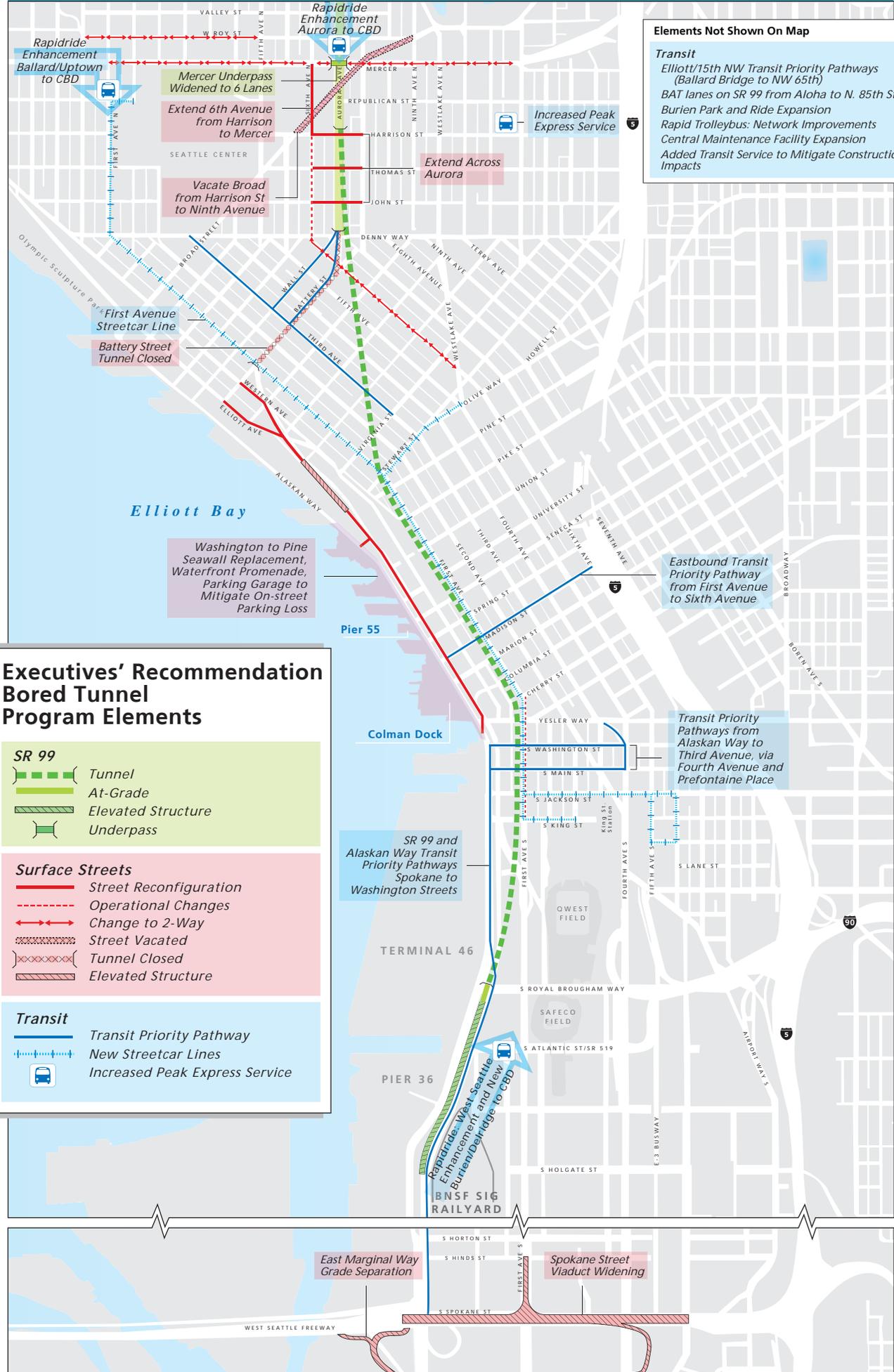
#### *Central Waterfront Elements*

In addition to tunnel construction, the seawall will be replaced from S. Washington Street to Pine Street. Once the tunnel is open to traffic, the existing viaduct structure will be torn down. It will be replaced with a new surface boulevard extending from the intersection of Elliott and Western Avenues north of the Pike Place Market to S. Royal Brougham Way, where it will tie into the existing city street grid and provide access to SR 99 to the south. This new boulevard will be designed to carry local and through traffic, including efficient access to downtown and northwest Seattle, since access to the bored tunnel will be available only at the north and south portals.

The replacement of the seawall, removal of the viaduct, and development of a new waterfront boulevard will allow the central waterfront to be reconnected to downtown and provide a large, continuous public open space. A promenade will

### Table of Program Elements

<b>SR 99</b>
Four-lane, double-level, large-diameter, single-bore tunnel
South end full directional interchange
Full directional access at north end
Business access & transit (BAT) lanes from Aloha Street to N 85 <sup>TH</sup> Street
Northbound transit lane from S Spokane Street to Alaskan Way exit
Decommission Battery Street Tunnel
Demolish existing viaduct
<b>CENTRAL WATERFRONT</b>
New two-way boulevard
New street replacing the viaduct from Battery to Pike
New promenade, public open space, & bicycle facility
Replace Seawall from S Washington to Pine Streets
Waterfront parking garage in mixed-use facility to mitigate on-street parking loss
<b>SURFACE STREETS</b>
Two-way Mercer – I-5 to Elliott Ave
Two-way Roy Street – Queen Anne Ave N to Aurora
Reconnect John, Thomas, & Harrison over SR 99
Vacate Broad Street from Harrison to Ninth Ave N
Extend Sixth Avenue from Harrison to Mercer
15 <sup>TH</sup> Avenue NW BAT Lanes – Ballard Bridge to NW 65 <sup>TH</sup> Street
Transit Priority Pathways – Battery, Wall, Third, Main, Washington, Madison, & Alaskan Way
Convert Sixth Avenue to two-way from Denny to Westlake
Spokane Street Viaduct Project from SR 99 to I-5
East Marginal Way grade separation
<b>TRANSIT</b>
Ballard/Uptown, West Seattle, & Aurora RapidRide enhancements
New Burien/Delridge RapidRide line
First Ave Streetcar – King Street Station to Seattle Center Uptown
Simplify trolley bus network in Center City
New peak express service
Burien Park & Ride expansion
Bus maintenance base expansion
Added transit service to mitigate construction impacts



**Elements Not Shown On Map**

**Transit**  
 Elliott/15th NW Transit Priority Pathways (Ballard Bridge to NW 65th)  
 BAT lanes on SR 99 from Aloha to N. 85th Street  
 Burien Park and Ride Expansion  
 Rapid Trolleybus: Network Improvements  
 Central Maintenance Facility Expansion  
 Added Transit Service to Mitigate Construction Impacts

### Executives' Recommendation Bored Tunnel Program Elements

- SR 99**
  - Tunnel
  - At-Grade
  - Elevated Structure
  - Underpass
- Surface Streets**
  - Street Reconfiguration
  - Operational Changes
  - Change to 2-Way
  - Street Vacated
  - Tunnel Closed
  - Elevated Structure
- Transit**
  - Transit Priority Pathway
  - New Streetcar Lines
  - Increased Peak Express Service

provide approximately 6.1 acres of public open space along the waterfront that will average approximately 70 to 80 feet in width.

**Improvements to City Streets**

In addition to a new Alaskan Way boulevard, other surface street improvements are critical to support the bored tunnel replacement for SR 99. The most important of these are projects that support cross-town travel to the north and south of the downtown core. North of downtown, Mercer Street will be rebuilt to carry six lanes of two-way traffic between Interstate 5 (I-5) and Fifth Avenue N. and four lanes of two-way traffic to Second Avenue W. The project will proceed in two phases, starting with the section between I-5 and Dexter Avenue N. and followed by the western half extending all the way to Elliott Avenue.

South of downtown, the widening and improvement of the Spokane Street Viaduct will improve safety and traffic flow and provide new eastbound access to Fourth Avenue S. Other improvements in the north downtown include reconnecting John, Thomas, and Harrison Streets over Aurora Avenue. This will reconnect the Uptown and South Lake Union neighborhoods. Enhancements to facilitate transit operations on a number of downtown streets will also be provided.

**Transit Improvements**

Transit will play a significant role in accommodating future travel growth in the SR 99 corridor as well as handling general growth in travel to and through downtown Seattle. While both King County Metro and Sound Transit have programs to significantly expand both bus and rail service in the region, King County will be seeking funding to make additional improvements to enhance transit service in the SR 99 corridor. These include new Delridge RapidRide service and enhancements to the planned Ballard-Uptown, West Seattle, and Aurora RapidRide lines, a park-and-ride expansion in Burien, and investment in a new bus maintenance base.

King County and the City of Seattle will work together to improve transit pathways to and from SR 99 from both the north and south as well as through downtown. King County will also adjust the trolley bus network to improve its efficiency. The City will be responsible for development of a new First Avenue Streetcar that will eventually connect Seattle Center to Pioneer Square.

Conceptual View of New Elliott & Western Connection to the Waterfront



***Implementation Schedule***

A key advantage of the bored tunnel is that it limits traffic disruptions during construction and allows the existing viaduct to remain in service until the tunnel is open to traffic. The accompanying timeline shows the overall implementation schedule for the bored tunnel. Environmental review and preliminary design are scheduled for completion by midyear 2011, allowing construction to start on the tunnel by the end of 2011. The tunnel is expected to be opened to traffic by the end of 2015, while the Alaskan Way and waterfront promenade construction are to be completed by late 2018.

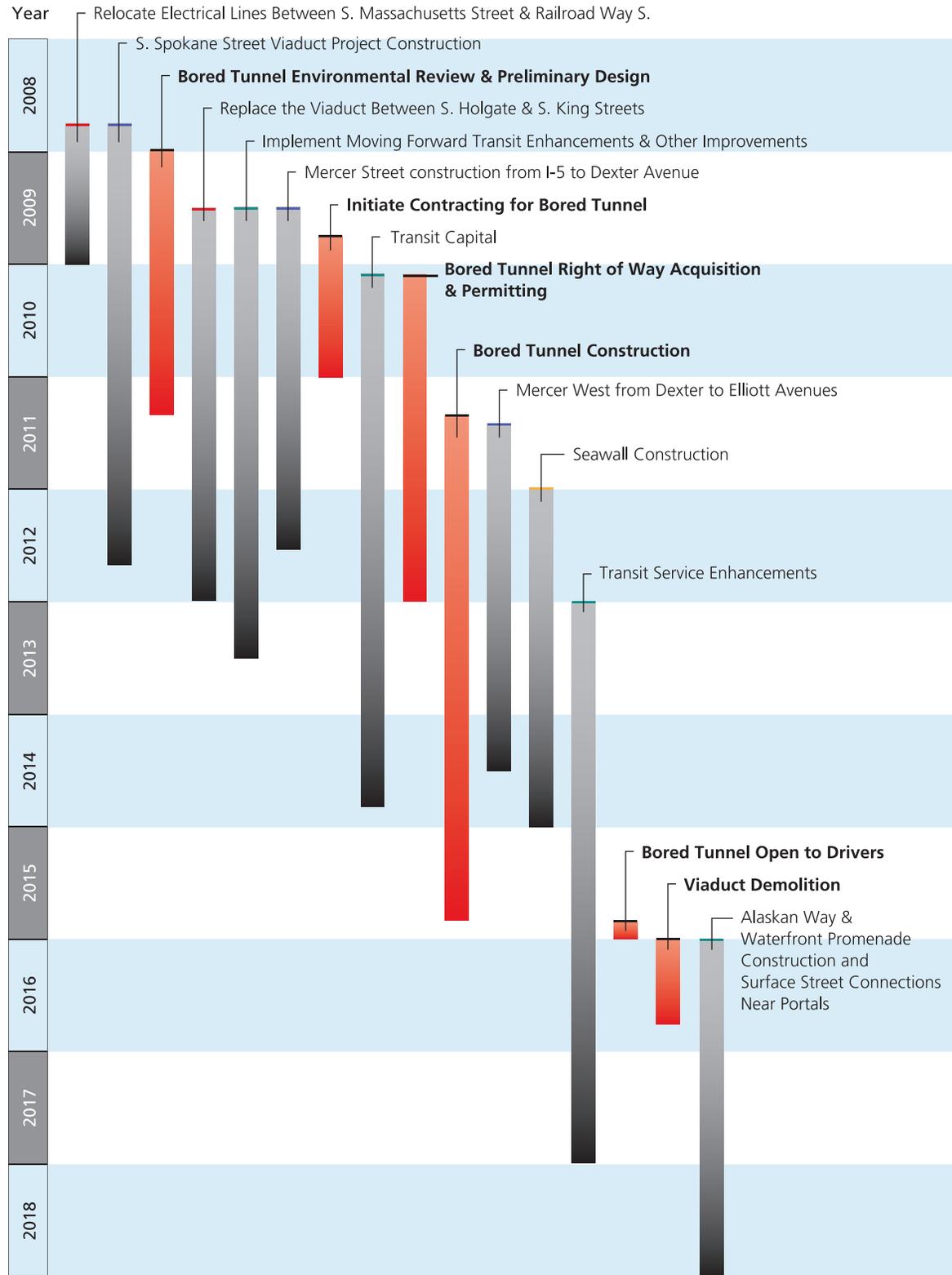
The accompanying program timeline shows how all major program elements fit into the larger construction schedule. Work has already begun on utility relocations south of downtown, and construction will start later this year on the S. Holgate Street to S. King Street Viaduct Replacement Project. The other elements of the program will start in phases, with all elements complete by the end of 2018.

***Agency Roles and Responsibilities***

The State, County, and City have all agreed to implement the program and are working with the appropriate legislative bodies to fund their portions of the project. Each agency will take responsibility for implementing their respective elements of the program and will be responsible for any cost overruns or cost savings. The Port of Seattle has also committed to work with Washington State Department of Transportation (WSDOT) toward funding the SR 99 component of the State's project, subject to review and approval by the Port Commission.

The State's components of the program are the bored tunnel, removal of the Alaskan Way Viaduct, and replacing the viaduct with the new Alaskan Way. In addition, the State will have responsibility for building the reconnection of Elliott and Western Avenues to the new Alaskan Way and construction of the new south mile of SR 99 near the sport stadiums. The County will have lead responsibility for all bus and trolley bus transit service improvements, as well as many of the transit infrastructure investments. The City will have lead responsibility for reconstruction of the seawall, utility relocation along the central waterfront, and the new waterfront promenade. The City will also be responsible for the Mercer Street and Spokane Street Viaduct projects, as well as other city street enhancements and transit pathway improvements. Finally, the City will have lead responsibility for the First Avenue Streetcar.

## Alaskan Way Viaduct & Seawall Replacement Timeline



## Project Views



*Conceptual Visualization of the North Portal Looking South*



*Conceptual Visualization of the South Portal Looking North*

## *CHAPTER 3 - BASIS FOR RECOMMENDATION*

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The three executives based their decision on several important considerations:

- The results of the technical analysis show that the bored tunnel alternative has the potential to meet the project's six guiding principles.
- Diverse stakeholders strongly expressed support for the bored tunnel.
- The analysis completed to date demonstrates the technical and fiscal viability of a single-bore tunnel.
- The project partners, with the support of the Port of Seattle, were willing to develop a funding program that supplements the State's committed \$2.8 billion, providing the funds necessary for a systems solution that includes the bored tunnel.

### **Fit with Guiding Principles**

Six guiding principles served as the backbone of the analysis. The principles—developed by the three executives with input from legislative leaders, the SAC, and the public—focused the



process on a shared vision. The guiding principles are as follows:

***Guiding Principle 1: Improve public safety.*** Replacing the viaduct is an urgent public safety issue. Any solution to the Alaskan Way Viaduct must improve public safety for current viaduct users and along the central waterfront.

***Guiding Principle 2: Provide efficient movement of people and goods now and in the future.*** Any solution to the Alaskan Way Viaduct must optimize the ability to move people and goods today and in the future in and through Seattle in an efficient manner, including access to businesses and port and rail facilities during and after construction.

***Guiding Principle 3: Maintain or improve downtown Seattle, regional, the port, and state economies.*** Any solution to the Alaskan Way Viaduct must sustain the economic vitality of the city, region, port, and state during and after construction.

***Guiding Principle 4: Enhance Seattle’s waterfront, downtown, and adjacent neighborhoods as a place for people.*** Any solution to the Alaskan Way Viaduct must augment Seattle’s reputation as a world-class destination.

***Guiding Principle 5: Create solutions that are fiscally responsible.*** Any solution to the Alaskan Way Viaduct must make wise and efficient use of taxpayer dollars. The State’s contribution to the project is not to exceed \$2.8 billion in 2012 dollars.

***Guiding Principle 6: Improve the health of the environment.*** Any solution to the Alaskan Way Viaduct must demonstrate environmental leadership, with a particular emphasis on supporting local, regional, and state climate change, water quality, and Puget Sound recovery initiatives.

After extensive deliberations and careful consideration of all the information developed through the Partnership Process, the three executives jointly determined that the bored tunnel best satisfies the six guiding principles. Most importantly, this scenario was seen as the only alternative capable of meeting the region’s mobility needs while still maintaining the economic vitality of the central waterfront, city, and region and reconnecting Seattle’s waterfront with its downtown. In addition, the bored tunnel can be implemented with the least disruption during construction.

The executives also felt that the other two scenarios proposed by the three agencies in December 2008, the I-5/surface/tran-

sit hybrid and SR 99 elevated bypass hybrid, did not satisfactorily address the guiding principles and failed to garner broad-based support from stakeholders and the general public.

The following sections provide a synopsis by guiding principle of the findings of the Partnership Process that support the executives' decision in support of the bored tunnel. More details on the Partnership Process and its findings are contained at the end of this document.

***Guiding Principle 1: Improve Public Safety***

The bored tunnel will improve public safety by replacing the at-risk Alaskan Way Viaduct with a tunnel designed to meet current seismic design standards. Other features, including continuous monitoring of operations, state-of-the-art ventilation, and a fire suppression system, will further enhance tunnel safety. The tunnel is expected to operate as safely as any other alternative that has been considered.

***Guiding Principle 2: Provide Efficient Movement of People and Goods Now and in the Future***

The bored tunnel will provide for both local and through traffic needs. The tunnel is expected to carry 85,000 vehicles each day through downtown Seattle when it opens in 2015, compared to the 60,000 to 65,000 vehicles that now use the Battery Street Tunnel. The new Alaskan Way boulevard will handle 25,000 trips per day in 2015 compared to 13,000 trips today. Enhanced bus service associated with the Alaskan Way Viaduct is expected to carry approximately 17,000 additional daily riders.

Travel times in 2030 are projected to be similar to today, even with predicted regional population growth. Travel times associated with the bored tunnel are faster than those projected for the I-5/surface/transit hybrid scenario and comparable to or faster than most travel times with the SR 99 elevated bypass hybrid scenario.

As with all of the scenarios considered, SR 99 will no longer have midtown ramps at Seneca and Columbia Streets. The bored tunnel hybrid scenario, however, includes new access opportunities from the north and south, an improved Alaskan Way, and transit capital projects such as priority pathways to help buses provide fast, reliable service to and from downtown Seattle. These improvements, along with expanded bus service, will provide quick, reliable options for travel to and from downtown.

*Elliott and Western from the North*



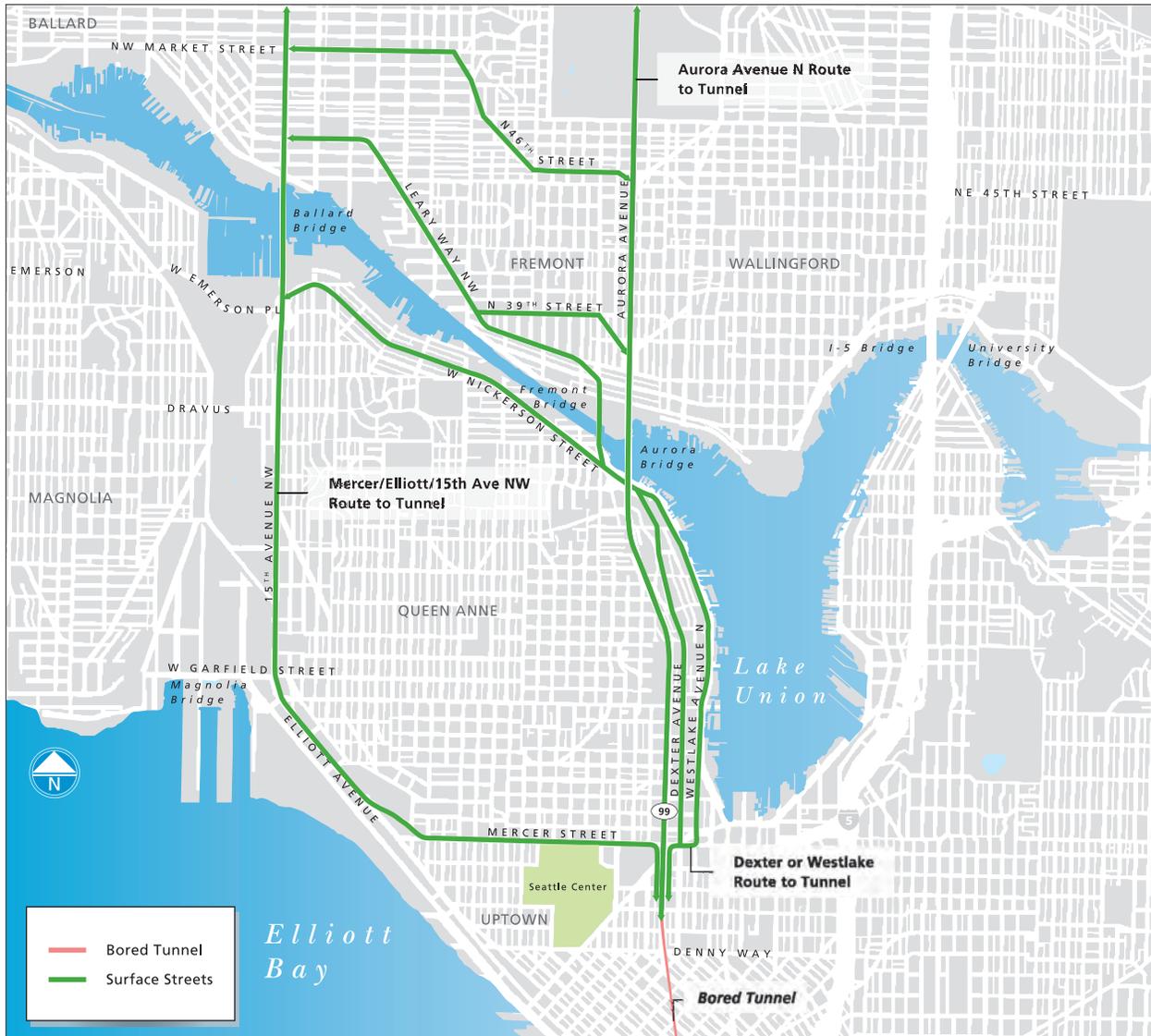
*Conceptual Visualization of the South Portal Looking North*



*Conceptual Visualization of the North Portal Looking South*



## Northwest Seattle Bored Tunnel Access



The bored tunnel cannot accommodate ramp connections to Western and Elliott Avenues. With the bored tunnel, trips along Western and Elliott Avenues will use a new road built in the footprint of the existing viaduct from Battery Street down to the new Alaskan Way boulevard at Pike Street. Alternately, trips to and from northwest Seattle will be able to access the bored tunnel via Mercer Street, Nickerson Street/Westlake Avenue, or Aurora Avenue. Because some through trips to and from parts of northwest Seattle will experience a travel time increase of 1 to 2 minutes compared to today, the agencies will continue to investigate options for reducing this delay as the north portal and the waterfront street design processes continue.

***Guiding Principle 3: Maintain or Improve Downtown Seattle, Regional, Port, and State Economies***

The bored tunnel will support a strong state and regional economy. It is the only scenario that maintains continuous bypass capacity in the SR 99 corridor throughout the construction period. Thus, it will preserve I-5 capacity for longer-distance trips, particularly freight and port traffic. This is a distinct advantage over the I-5/surface/transit hybrid scenario, which would rely on I-5 in the near term to absorb some of the traffic now routed through the SR 99 corridor. In addition, it is estimated that building the tunnel will support more than 4,000 jobs at the height of construction in 2013.

The bored tunnel is expected to have the fewest construction impacts on waterfront businesses of all of the scenarios considered. Construction along the waterfront will be limited to removal of the existing viaduct, the construction of a new surface street and promenade, and replacement of the seawall. Because the viaduct will not be taken down until the tunnel is open to drivers in 2015, disruption to traffic and associated effects on jobs and economic activity is expected to be the least of all the scenarios considered. In addition, removal of the viaduct may increase property values and encourage new economic opportunities on the private properties next to the existing viaduct.

***Guiding Principle 4: Enhance Seattle's Waterfront, Downtown, and Adjacent Neighborhoods as a Place for People***

The bored tunnel creates a unique, once-in-a-lifetime opportunity to re-envision the city's waterfront, providing quality open space, reducing noise impacts, and improving views from downtown and along the waterfront.

The bored tunnel is preferred to the elevated bypass scenario because it eliminates the visual, shadowing, and noise impacts of an elevated structure along the waterfront. It also results in the least downtown surface traffic and greatest potential for pedestrian-oriented open space along the waterfront compared to the other scenarios considered.

***Guiding Principle 5: Create Solutions That Are Fiscally Responsible***

The bored tunnel is the most expensive scenario considered by the three executives, but several aspects of the funding plan make it consistent with this guiding principle. Most importantly, the State's contribution is capped at \$2.8 billion, the amount authorized by the State Legislature. Other funding



*Tunnel Boring Machine*

partners have agreed to fund the remaining elements of the project.

The City's components are estimated to be \$930 million and the County's transit costs are estimated to be \$190 million. The Port of Seattle has also committed to work toward funding a portion of the project, subject to review and approval by the Port Commission. Additionally, each agency is responsible for any cost overruns or cost savings on the projects assigned to them. These contributions and commitments make the bored tunnel financially viable and ensure that there are funding partners in place as the project moves forward. The expected cost to the State is the same in this alternative as it would have been under either the elevated or I-5/surface/transit scenarios. Further details on the funding program are discussed later in this report.

Other factors contributing to the bored tunnel's consistency with this guiding principle include the following:

- The cost risks are well-known and manageable.
- The relative lack of construction impacts would result in the economic benefits discussed in Guiding Principle 3.
- The program elements can be funded from existing revenue sources.
- The program leverages existing investments in the SR 99 S. Holgate Street to S. King Street Viaduct Replacement, Mercer Street East, Spokane Street Viaduct, and RapidRide projects.

***Guiding Principle 6: Improve the Health of the Environment***

The bored tunnel would meet or exceed environmental standards and regulations and improve the environment with cleaner stormwater runoff and much lower noise levels compared to today. All scenarios considered performed similarly with regard to air quality, greenhouse gas emissions, and the potential to improve habitat in Elliott Bay.

**Stakeholder Support**

The recommendation for the bored tunnel is consistent with and responsive to overwhelming feedback received from both the SAC and the many individuals, business interests, and others throughout the city, region, and state that weighed in through the 14-month process.

A strong majority of the SAC, 22 of the 25 active members, pressed for the executives and agencies to take a fresh look at a bored tunnel. Other stakeholders in the region also asked for a new analysis of a bored tunnel (the agencies had originally recommended the I-5/surface/transit and elevated hybrid scenarios based on fiscal responsibility). The work undertaken by the Partnership and the Independent Project Management Team in late 2008 and early 2009 was responsive to this broad-based call.

Moreover, the selection of the bored tunnel as the recommended alternative is consistent with the primary messages heard from both the SAC and many stakeholders at-large:

- Keep goods and people moving today and into the future.
- Stay within the State's \$2.8 billion cap and bring other funding partners into the mix.
- Take advantage of Seattle's unprecedented opportunity to reinvent its waterfront.
- Keep the city's waterfront businesses and other economic interests as strong and as viable as possible both during and after construction.
- Support investment in transit, bicycle, and pedestrian improvements and other efforts that help diminish the reliance on single-occupancy vehicles.
- Improve the environment.

The three executives agreed that the bored tunnel offers the single best opportunity to meet the guiding principles and position Seattle, the region, and the state for a vibrant future. They also recognize that the plan will affect some users, and they are committed to working closely with the affected parties to put in place strategies that minimize these effects.

### **Viability of Bored Tunnel**

Given the feedback from the SAC, strong concerns associated with both the elevated and I-5/surface/transit hybrid scenarios, and indications from industry experts that a single-bore tunnel might be more feasible than previously thought, the three executives directed staff and consultants to take another look at a single-bore tunnel in late 2008.

The analytic work by the agencies, the Independent Project Management Team, and others convincingly demonstrated the

viability of a single-bore tunnel, both in its constructibility and cost. The fresh look at the potential of a single-bore tunnel highlighted the following key points:

- The State, County, and City worked closely with the Independent Project Management Team and international tunneling experts to develop the cost projections associated with constructing a large-diameter single-bore tunnel. The cost projections suggest that the tunnel itself will cost approximately \$1.9 billion, a figure substantially less than the \$2.7 billion projected for construction of smaller twin-bore tunnels. The \$1.9 billion figure also includes substantial contingency funding to account for construction uncertainties and the very preliminary design of the tunnel. The cost estimates were reviewed by experts with local and international tunneling experience.
- In recent years, a number of tunnels have been completed around the world in similar environments and with sizes comparable to the proposed SR 99 tunnel. The SR 99 tunnel is expected to benefit from these projects, incorporating the latest technological advances and best practices, as well as drawing on the lessons from closer-to-home projects like Seattle’s Sound Transit Beacon Hill Tunnel, the Brightwater Outfall Tunnel, and the Downtown Seattle Transit Tunnel.
- Discussions with tunneling experts re-emphasized the safety of a tunnel, both in construction and operation. Advances in tunnel boring technology have resulted in better ground control and improved reliability. Safety features built into the tunnel’s design—from drainage systems and wider shoulders to the latest ventilation systems, sprinkler technologies, and continuous monitoring—further enhance already highly reliable tunnel technologies.
- Finally, the willingness of the other partners—the City of Seattle and King County, along with the Port of Seattle—to fund portions of the program allows the State’s investment to be held to the committed \$2.8 billion.

## *CHAPTER 4 - FUNDING PACKAGE*

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The largest challenge presented by the bored tunnel during the Partnership Process and the SAC deliberations was the difficulty in meeting the guiding principle of fiscal responsibility by staying within the State's established budget of \$2.8 billion. Major breakthroughs for the executives included the additional work on the single-bore tunnel concept, which can be built for reduced costs compared to the twin-bore tunnels, and the commitments of additional funds from the City, County, and the Port of Seattle. The accompanying table summarizes the agreed-to funding program by agency and program component and illustrates how the total program cost of \$4.24 billion will be funded.

The State's commitment of \$2.82 billion includes both committed state tax monies from the Transportation Partnership Program and Nickel Gas Tax, and federal funds of \$200 million. A portion of these funds will go toward the Moving Forward projects and prior expenditures totaling \$600 million. The Port of Seattle has also committed to work toward funding a portion of the balance of the \$900 million estimated to be needed for the Moving Forward program, subject to review and approval by the Port Commission. The \$900 million estimate for the Moving Forward projects reflects savings realized by not repairing the viaduct between Lenora Street and the Battery Street Tunnel and reductions in scope for the Battery Street Tunnel improvements.

The largest element funded by the State is the bored tunnel and associated systems, estimated to cost \$1.9 billion. This estimate is reflective of the most likely cost for the tunnel given the current level of conceptual design. The potential total cost range of the bored tunnel is between \$1.2 billion and \$2.2 billion. Also included in the state funding package are \$290 million to pay for removal of the viaduct, the Alaskan Way replacement surface street, and its reconnection to Elliott and Western Avenues.

**Anticipated Contributions from Each of the Program Partners***in Dollars*

PROJECTS	PROPOSED PROJECT IMPLEMENTATION RESPONSIBILITY				COSTS
	State	King County	City of Seattle	Port of Seattle <sup>1</sup>	
Moving Forward Projects & Prior Expenditures	600 million			300 million	<b>900 million</b>
SR 99 Bored Tunnel & Systems	1.9 billion				<b>1.90 billion</b>
Alaskan Way Surface Street & Promenade	290 million		100 million		<b>390 million</b>
Central Seawall			255 million		<b>255 million</b>
Utility Relocation			250 million		<b>250 million</b>
City Streets & Transit Pathways		25 million	190 million		<b>215 million</b>
Transit Infrastructure & Services		115 million	135 million		<b>250 million</b>
Construction Transit Service	30 million	50 million			<b>80 million</b>
<b>TOTAL</b>	<b>2.82 billion</b>	<b>190 million</b>	<b>930 million</b>	<b>300 million</b>	<b>4.24 billion</b>
Transit Operations Annual Cost		15 million			15 million

<sup>1</sup> *The Port of Seattle has committed to work toward funding a portion of the project, subject to review and approval by the Port Commission.*

King County's contribution totals \$190 million for capital improvements to the transit system, funding both infrastructure and new buses and trolley bus coaches. The County also will contribute \$15 million per year in additional operating costs to provide enhanced transit service. King County will need a new funding source to pay for these new transit improvements. Possible new sources include a new motor vehicle excise tax that would require both state and local legislative action, anticipated federal economic recovery funds, and other federal grants.

The City of Seattle's contribution to the program is estimated to be \$930 million to fund the Alaskan Way promenade, replacement of the seawall, utility relocation, the Mercer Street and Spokane Street Viaduct projects, other city street and transit pathway improvements, and the new First Avenue Streetcar. Funding sources and potential amounts by source for the City include a parking tax (\$200 million), a Local Infrastructure Financing Tool and/or Local Improvement District (\$300 million), transportation benefit district (\$65 million), utilities (\$250 million), and other federal grants and federal economic recovery funds (\$85 million).

## *CHAPTER 5 - IMPLEMENTATION CONSIDERATIONS*

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While agreement by the State, County, and City on a program to replace the aging Alaskan Way Viaduct and Seawall marks a historic step, there are challenges to completing the planning, environmental review, design, and construction of the program. The three partner agencies and the Port of Seattle have agreed to a complex program of interrelated actions that are dependent on a wide range of funding sources. Success of the program will require actions by the respective legislative bodies as well as approvals by permitting and review agencies. Many outstanding planning, design, and construction mitigation issues still must be resolved and worked through with the affected communities and interest groups. Continued cooperation will be essential if the parties are to effectively address issues as they arise.

To meet these challenges, the State, County, City, and Port formed the Partnership Leadership Team to provide high-level oversight to ensure the program stays on track. The Partnership Leadership Team consists of the WSDOT Deputy Secretary, the King County Department of Transportation (DOT) Director, the Seattle DOT Director, and the Port of Seattle Chief Executive Officer. To support the Partnership Leadership Team, a group consisting of the WSDOT Program Administrator for the Alaskan Way Viaduct and Seawall Replacement Program, the King County DOT Assistant Director, the Seattle DOT Deputy Director, and the Port of Seattle Government Relations Manager meet on a regular basis to keep the project on track and inform and engage the Partnership Leadership Team as needed. In addition, the agency partners agreed to build on the success of the SAC by creating focused working groups to serve as sounding boards on the most significant implementation issues.

The following sections discuss a number of the most important upcoming implementation considerations.

### *Environmental Review*

The environmental review process will build on the existing record and incorporate the work done during the Partnership

Process. Both a Draft and Supplemental Draft EIS have already been prepared that examined alternatives for the SR 99 component of the program. The single-bore tunnel was not studied as part of this process, and so becomes the eighth alternative to replace the viaduct that will be studied in detail. In addition, the Alaskan Way Viaduct and Seawall Replacement Program includes a number of improvements that would be implemented in parallel or after the bored tunnel opens. These include repair or replacement of the seawall, the waterfront promenade, and Alaskan Way surface street improvements. Project-level environmental review for these improvements will be conducted separately. Other improvements, such as the Mercer corridor improvements, have already completed some or all of the necessary environmental reviews.

The environmental review process for SR 99 begun in 2001 will continue by addressing the new improvements. The transportation effects of the complete program will be evaluated in a second Supplemental Draft EIS. By including all program elements in the bored tunnel Supplemental Draft EIS, we can show how they will work together when the program is completed. Using this approach, the Federal Highway Administration, State, and City expect to complete the environmental process for the bored tunnel by early 2011.

### ***Bored Tunnel***

The bored tunnel needs design work and geotechnical investigations to address a number of design and construction issues, refine the cost estimates, and reduce the cost risk inherent at this early stage of project development. Additional work also is needed to refine the tunnel's configuration.

Further design work is also needed to resolve a number of issues associated with the design and configuration of both the south and north portals. In the south, because the removal of the existing viaduct will eliminate the existing ramp connections at Seneca and Columbia Streets, all access to downtown to and from SR 99 must occur via the new interchange near the south portal of the tunnel. Thus, the design of the portal and connections to this new interchange are critical both for the operation of SR 99 as well as for access to downtown Seattle from West Seattle and points to the south. The north portal and the determination of the future use of the Battery Street Tunnel are major areas that need to be addressed.

*Single-bore Tunnel Cutaway*



*The design of the bored tunnel is in progress*

Work needs to be done to identify ways to minimize the time needed to construct the tunnel, to reduce the impacts associated with hauling tunnel spoils out and construction materials in, and to establish traffic detours in the portal areas. Impacts to freight movements, as well as impacts during construction, are also major considerations to be addressed. This work will need to explore and consider a variety of approaches to project delivery ranging from traditional design/bid/build approaches through design/build.

#### ***Elliott and Western Connections***

The bored tunnel will not have intermediate access points between the south portal near the stadiums and the north portal on Aurora Avenue. Connecting Elliott and Western Avenues into the tunnel has been examined and found to be quite difficult and cost-prohibitive, given the depth of the bored tunnel in this area and the need to build long approach tunnels to reach the surface of both Elliott and Western Avenues. As a result, the design of the new Alaskan Way boulevard from its connections with Elliott and Western Avenues in the north to the new section of SR 99 in the south will need to ensure efficient movement for traffic to and from northwest Seattle. The new surface street will include grade separation over the BNSF railroad tracks. This is an important path for freight, and issues associated with grades and traffic signal operations will need to take freight movements into account.

#### ***Central Waterfront***

The removal of the Alaskan Way Viaduct and its replacement with a bored tunnel presents the opportunity for the City to develop a truly world-class public space on the central waterfront. Designing this space will present many challenges as a result of the remaining competing needs for some through traffic movement, access to the ferries at Colman Dock, and the access needs of the uses on the waterfront. These demands must be balanced with the needs of the likely high volumes of pedestrians and bicycles that will travel to and from downtown as well as along the new promenade. The City will use a holistic design approach to plan for the waterfront and engage communities in an open and inclusive process to complete this design effort.

# Systems Planning Approach

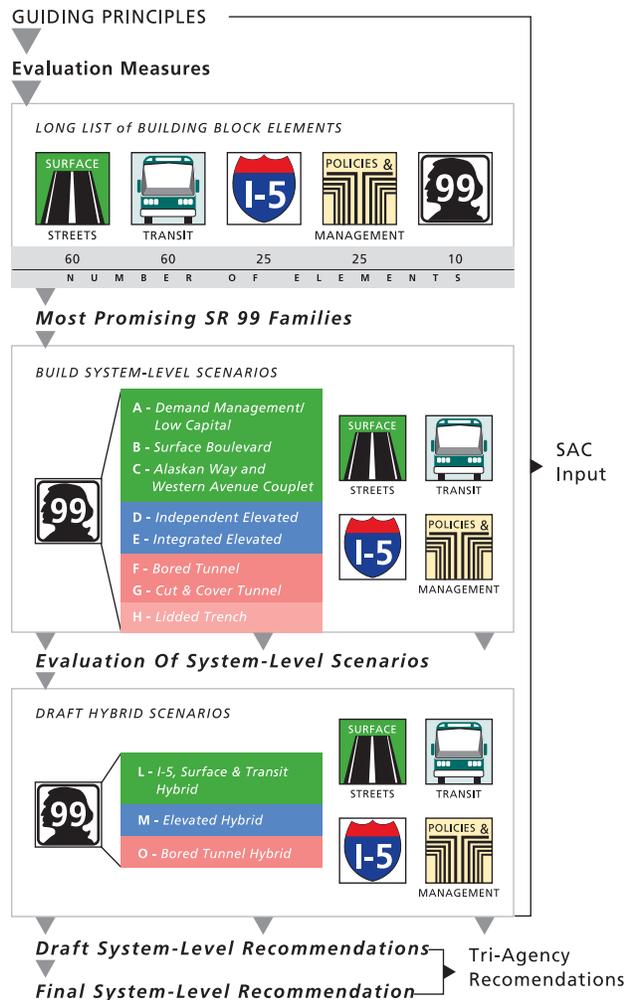
New Project Area



# SYNOPSIS OF SYSTEMS & STAKEHOLDERS ADVISORY COMMITTEE APPROACH

In executing the systems approach, the Partnership pooled State, County, and City planning, design, communication, and other support staff and consultant resources to undertake a transparent, accountable, and credible process beginning at the end of 2007. An Independent Project Management Team was retained to provide overall guidance for the process, coordinate the staff and consultant resources of the three agencies, and ensure that all scenarios were given fair consideration.

## Alaskan Way Viaduct Partnership Systems Evaluation Process



The 30-member Stakeholders Advisory Committee, including representatives from business and economic stakeholders, neighborhoods, and public interest groups, was formed to serve as a sounding board throughout the Partnership Process. Additionally, dozens of public meetings and briefings were held to elicit additional input throughout the year-long process. In addition, an Interagency Working Group was formed to provide focused input as work progressed. The Interagency Working Group had representatives from the Port of Seattle, Sound Transit, Community Transit, Puget Sound Regional Council, King County Public Health, Puget Sound Clean Air Agency, King County Passenger Ferries, the Freight Mobility Strategic Investment Board, Washington State Ferries, the U.S. Army Corps of Engineers, the Federal Highway Administration, and the Federal Transit Administration. The three executives conducted periodic meetings—along with legislative leaders from the State, County, and City—to track project progress and provide interim guidance.

Further details of the Partnership Process, its findings, and a list of Stakeholders Advisory Committee and Interagency Working Group members can be found in the *Independent Project Manager's Report* and supporting Technical Appendices to that report.

### **Findings of the Independent Project Manager**

The Independent Project Manager, hired and directed by the Partnership Leadership Team, was responsible for developing and managing a comprehensive alternatives analysis. The process began in late 2007 with the partnership agencies agreeing to a set of principles to guide the selection of a central waterfront solution. The principles—developed with input from legislative leaders, the executives, the SAC, and the general public—focused the process on ensuring public safety, providing efficient transportation of people and goods, improving the economy, enhancing the urban environment as a place for people, being fiscally responsible, and improving the health of the natural environment.

The alternatives analysis started with the identification of building blocks, or strategies for keeping people and goods moving, in five different categories: surface streets, I-5, transit, transportation policies and management, and SR 99 replacements. Over 170 possible building blocks were identified. The most promising building blocks were grouped into eight systems scenarios, or comprehensive solutions. These

included three scenarios in which SR 99 would operate as a surface street, two in which SR 99 would be elevated, and three in which SR 99 would be located below-grade.

The SR 99 elements were paired with a full suite of complementary improvements from the other building block categories to form complete scenarios. The performance of the scenarios was then analyzed based on previously agreed upon performance measures to determine which building blocks worked best together. The systems scenario approach was not intended to identify a single preferred scenario. Rather, it was used to help understand how the various building blocks might perform together, as well as to identify the many tradeoffs among the choices and to aid in the development of more refined hybrid scenarios.

Based on the analysis of the eight scenarios, agency staff and the Independent Project Management Team constructed several hybrid scenarios so that the tradeoffs among the scenarios could be further considered. For example, the surface and transit scenarios performed quite well on the environmental, urban design, and cost measures, while the elevated and sub-surface bypass scenarios performed better on the measures related to future travel needs and mobility for trips passing through downtown. As a result, the team felt it useful to develop multiple hybrids that would help focus the clear policy choices and tradeoffs for the agencies. Through an iterative process, the Independent Project Management Team eventually settled on three hybrid scenarios. Each of the hybrid scenarios included an SR 99 element along with various I-5, surface street, transit, and policies and management elements.

The first hybrid scenario developed by the Independent Project Management Team was an optimal I-5/surface/transit hybrid. The team developed a second hybrid scenario using an independent elevated structure along the waterfront to replace the existing viaduct. The independent elevated structure was chosen as a base for one of the bypass hybrids because it performed quite well on many of the mobility measures and was the only SR 99 bypass element that, when combined with the other needed SR 99 improvements, could be constructed within the State's \$2.8 billion commitment.

Finally, a hybrid scenario based on a variation of the twin-bored tunnels was developed. While the cost of the twin-bored tunnels substantially exceeded monies available to

WSDOT and was estimated to be the most expensive bypass scenario to build, it offered substantial transportation benefits and the greatest potential to meet the urban design and urban environment guiding principles. In addition, the bored tunnel would be the least disruptive to SR 99 and the central waterfront from a construction standpoint if a decision were made to delay the removal of the viaduct's central section until the bored tunnel was completed.

### **Partnership Leadership Team Recommendations**

The Partnership Leadership Team, comprising the WSDOT Deputy Secretary, the King County DOT Director, and the Seattle DOT Director, provided high-level oversight of the entire effort and resolved issues necessary to keep the project on track. The Partnership Leadership Team was responsible for leading the SAC process.

Following 12 months of intensive hands-on work, the Partnership Leadership Team reviewed the Independent Project Manager's findings and concluded that an optimal solution was not apparent and that only two of the hybrid solutions met the test of being affordable within WSDOT's available \$2.8 billion budget. As a result, the Partnership Leadership Team recommended two approaches to the executives for consideration. These approaches were based on the I-5/surface/transit hybrid scenario and the SR 99 elevated bypass hybrid scenario. While the twin-bored tunnel hybrid scenario had many positive features and it was possible that the costs might be reduced after further analysis and design work, it did not appear possible to make the tunnel affordable within the budget limitations that had been established in the guiding principles.

### **Stakeholder Advisory Committee (SAC) Process**

An open public process was used to help develop a solution for the Alaskan Way Viaduct. Through nearly a hundred different public meetings and events held from 2007 through 2008, and with a website devoted to the project, the project partners encouraged the public to learn about and comment on the solutions being considered. The SAC was the avenue for focused public dialogue.

Through regularly scheduled meetings and additional topic-focused briefings, the SAC reviewed and commented on the materials and presentations produced by the partnership agencies and technical experts. The intent of the SAC was to

provide the partnership agencies with informed feedback; it was not convened as a decision-making body. A total of 15 full meetings (each lasting 3 or more hours) and five focused briefings were held between December 2007 and December 2008.

The Partnership Leadership Team presented its recommendations on the two hybrid scenarios (I-5/surface/transit and SR 99 elevated bypass) to the SAC in December of 2008. The discussion generated the following broad themes:

- The SAC showed a clear interest in moving away from long-held individual positions to identify an approach capable of being supported by a majority of the members. There was strong interest among many in finding common ground.
- Members generally felt it was important to limit the State's contribution to \$2.8 billion, and they called on the other partners and the region to identify funding sources able to cover costs associated with transit service, improvements to city streets, and other aspects of the project.
- Members felt it was important that any solution reliably meet the area's mobility needs now and in the foreseeable future, but they called on the Partnership to do so in a way that would make it possible for the city to take advantage of a rare opportunity to reconnect the central waterfront with the downtown.
- While many members saw the I-5/surface/transit hybrid as an attractive approach, and possibly a first phase of an ultimate recommendation, there was also broad interest in taking a bored tunnel forward for further consideration. Many felt that the tunnel's costs might be reduced as a result of evolving technology and that additional funding might be found for a scenario with such broad appeal.
- There was only support from a handful of SAC members for an elevated solution.

As a result, 22 of the active 25 members of the SAC signed a letter addressed to Governor Gregoire, County Executive Sims, and Mayor Nickels supporting an approach to formulate a hybrid solution that included consideration for a large-diameter single-bore bypass tunnel.