Alaskan Way Viaduct and Seawall Replacement Program

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Alaskan Way Viaduct and
Seawall Replacement Program

Northwest Region's 2010 Design-Construction Conference
Shoreline, WA
Feb. 23, 24, 2010

Washington State Department of Transportation

•Introduce yourself

EXHIBIT F

Agenda

- 2008 / 2009 activities
- Program overview – scope, schedule, budget
- Importance of CEVP and VE processes
- Construction coordination
- Begin removing the southern mile of the viaduct – Holgate to King
- Advancing proposed bored tunnel design
- Risk management

- These are the topics that will be covered in today's presentation.
- We also have some great animations to show you.

Updated Program Cost Estimate

- WSDOT will be managing to the $3.1 billion program budget, as well as reporting on each project budget.
- Estimate is based on extensive cost and risk workshops, value engineering and design changes.

Project	2009 Cost Estimate (millions)*	2010 Cost Estimate (millions)*
S. Holgate Street to S. King Street viaduct replacement	$537	$483
Other Moving Forward projects and prior expenditures	$363	$345
SR 99 bored tunnel and systems	$1,900	$1,960
Alaskan Way surface street and viaduct removal	$290	$290
Central waterfront construction mitigation	$30	$30
Total Cost Estimate	**$3,120**	**$3,108**

** Estimates reflect year of expenditure dollars.*

•Total cost is still within $3.1 billion budget including $2.8 billion in State funding and $300 million from the Port of Seattle.

•Independent subject-matter experts and cost estimators and a higher level of engineering design helped us to identify ways to offset increased cost estimates for tunnel environmental and engineering work, construction, right of way and building protection measures.

•Realized cost savings on S. Holgate Street to S. King Street Viaduct Replacement Project.

- As a result of value engineering, the money that was reduced from the south end project ($54M) keeps the program within the authorized program budget of $3.1 billion.
- Replacing the below-grade crossing at S. Atlantic Street, which is part of the S. Holgate to S. King Street viaduct replacement, with an above-grade crossing that provides the same access to the Port, needed movements for freight traffic and other drivers, at a reduced cost. The new crossing would have fewer impacts during construction and would take less time to construct.

The plan makes financial sense and will support a strong economy.

•The state, county, and city have all agreed to be part of making this solution a reality by working with their legislative bodies to fund their portions of the project. The Port of Seattle has also committed to work toward funding a portion of the project.

•**State**

•The state's component of the alternative is made up of the bored tunnel, the Alaskan Way surface street and promenade and the Moving Forward projects.

- •Moving Forward and prior expenditures = $600m (Port to contribute $300m)
- •SR 99 bored tunnel = $1.9b
- •Alaskan Way surface street and promenade = $290m
- •Construction transit service = $30m

•The bored tunnel estimated cost is $1.9 billion including risk and contingency.

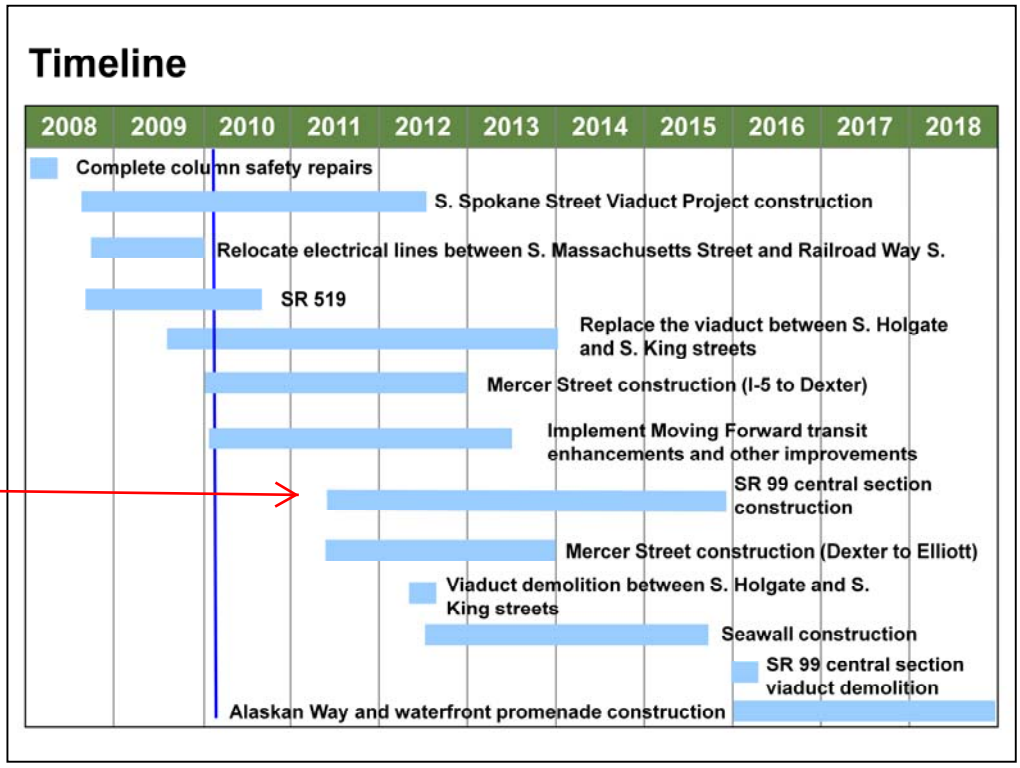
•**King County**

- •City street and transit pathways = $25m
- •Transit infrastructure and services = $115m
- •Construction transit service = $50m
- •Annual operating costs = $15m

•**City of Seattle**

- •Alaskan Way surface street and promenade = $100m
- •Central seawall = $255m
- •Utility relocation = $250
- •City streets and transit pathways = $190m
- •Transit infrastructure and services = $135m

•Each agency is responsible for their cost overruns or cost savings, which means that the state will be responsible for any tunnel overruns.



- Roadway and bridge construction will start this year on the south mile of the viaduct and transit and city street investments to keep people and goods moving during the work.

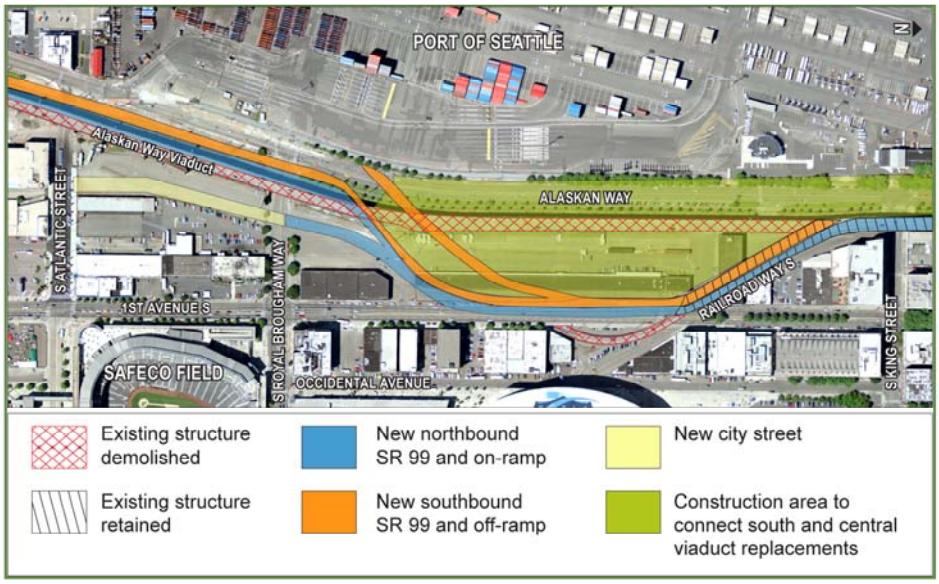
- Transit enhancements will be implemented during construction to mitigate the construction impacts; as part of the overall program, permanent transit enhancements will also be made after the bored tunnel construction is complete to provide additional ways for people to travel to and through downtown.

- Demolition of the viaduct will occur in 2016 after the proposed bored tunnel is open to traffic. The Alaskan Way surface street and waterfront promenade would then be constructed.

Replacing the South End of the Viaduct

S. Holgate Street to S. King Street Viaduct Replacement Project

SR 99 South End Detour



Speaker

- In mid-2010, crews will begin road and bridge construction to replace this section, known as the viaduct's south end, with a new side-by-side roadway. As part of this work, both directions of SR 99 traffic near the stadiums will be shifted to a detour route beginning in late 2011.

- The purpose of the detour is to connect the newly constructed south end with the existing viaduct until the replacement for the viaduct's central section, between S. King Street and the Battery Street Tunnel, is completed.

- SR 99 will be reduced to two lanes in each direction in this section. Currently, the viaduct has three lanes in each direction. The speed limit on the detour will be between 25 and 30 miles per hour

- Because portions of the existing on- and off-ramps on First Avenue S. will become part of the main SR 99 roadway, we will build new temporary ramps to maintain access to the highway throughout construction. Drivers will access northbound SR 99 via S. Royal Brougham Way; southbound SR 99 traffic will exit near S. Atlantic Street. These ramps are scheduled to open in spring 2011, prior to the detour, which will open later in the year.

- Building the detour will require crews to drive steel piles into the ground along the western half of First Avenue S near Railroad Way S. and demolish a section of the existing northbound SR 99 on-ramp. Pile-driving and connecting the detour to the existing ramps will take approximately six weeks. Ramp demolition and restoration of First Avenue S. will require an additional two months of construction. Our construction methods and schedule are designed to minimize the effects of noise, vibration and dust on the neighborhood.

Specific construction impacts include:

- Traffic on the First Avenue S. portion of the construction zone will be reduced to one lane in each direction between fall 2010 and spring 2011, and there will be periodic full closures of the street to enable crews to finish the detour more quickly. First Avenue S. traffic will be restored to two lanes in each direction in summer 2011.

- Both the northbound and southbound SR 99 ramps at Railroad Way S. will be closed for six weeks while crews modify and connect them to the new detour structure. This closure will occur in early 2011, between football and baseball season, when event traffic volumes are at their lowest.

Updated Proposed Holgate to King Cost Estimate

- Estimate is based on a higher level of engineering design, extensive cost and risk identification, value engineering and independent review of estimates.

S. Holgate to S. King Viaduct Replacement Project	2009 Cost Estimate (millions)	2010 Updated Cost Estimate (millions)*
Construction	$385	$330
Right of way costs	$75	$63
Preliminary and final design	$77	$90
Total	**$537**	**$483**

** All costs are rounded in year of expenditure dollars.*

There were cost savings in both right of way and construction that offset the bump in preliminary and final design costs.

Central Waterfront Update

SR 99 Bored Tunnel Project
Contracting Schedule

Issue Request for Qualifications	September 15, 2009
Statement of Qualifications due	November 23, 2009
Notify short-listed submitters	December 23, 2009
Issue draft Request for Proposals	February 2010
Issue final Request for Proposals	May 2010
Proposals Due	Fall 2010
Announce apparent best value	January 2011

•WSDOT will use a two-step procurement process to select a design-build contractor.

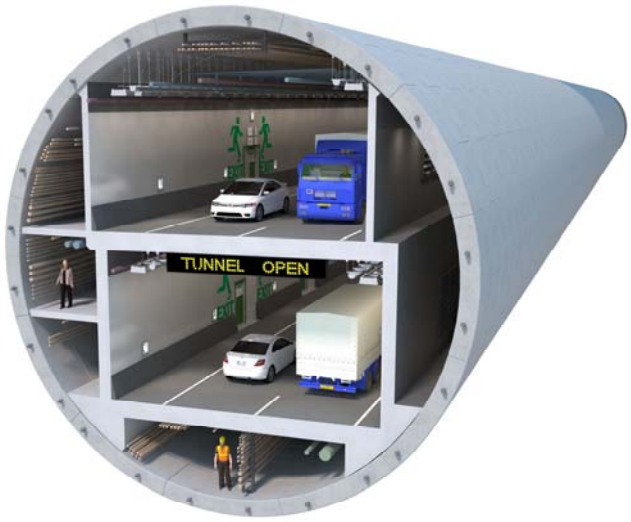
•The RFQ was issued in September and contractors submitted their qualifications for WSDOT to evaluate.

•We selected four qualified firms to continue to the second step of the process.

•WSDOT will issue a draft Request for Proposals to the qualified firms for preparation of bids.

•To ensure that no commitments are made to any alternative being evaluated in the environmental process and that each alternative will be studied fairly, WSDOT anticipates a two-phase Notice To Proceed for the design-build contractors.

Tunnel Cross Section

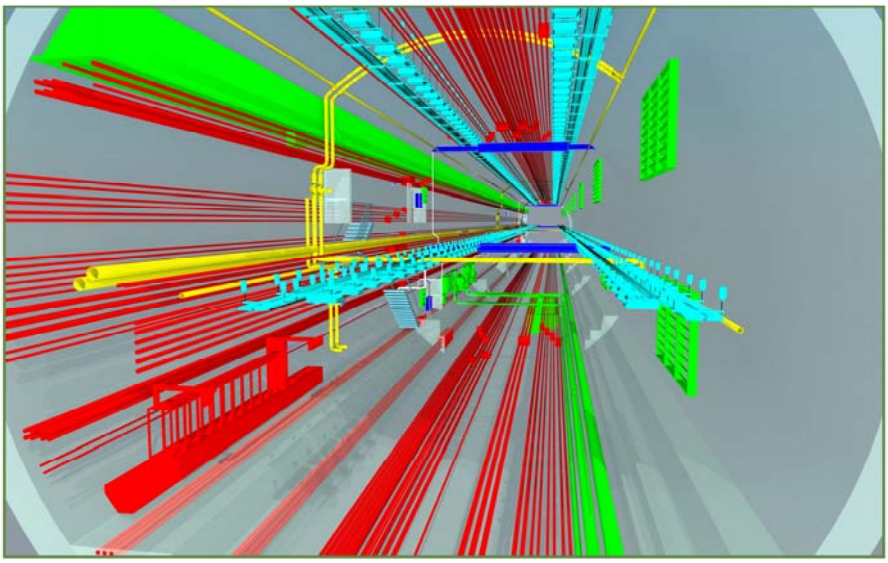


Early design concept.

- Describe the cross-section including refuge areas, utilities, lanes, ITS, etc.

- The bored tunnel will be approximately two miles long .
- We expect to begin construction in 2011 and open the tunnel to drivers in 2015.

Tunnel Systems



CLOSED FACE TBMs

- For use in poor ground conditions, sands, silts, soft clays below the water table
- Replaced the use of compressed air
- Controls the ground and protect the work force while installing the tunnel support.
- Two main types:
  - Slurry
  - Earth Pressure Balance

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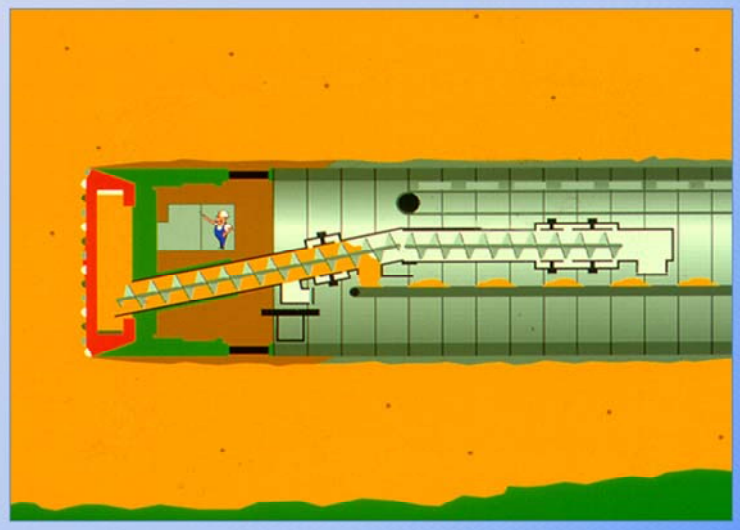
Diagram of EPBM



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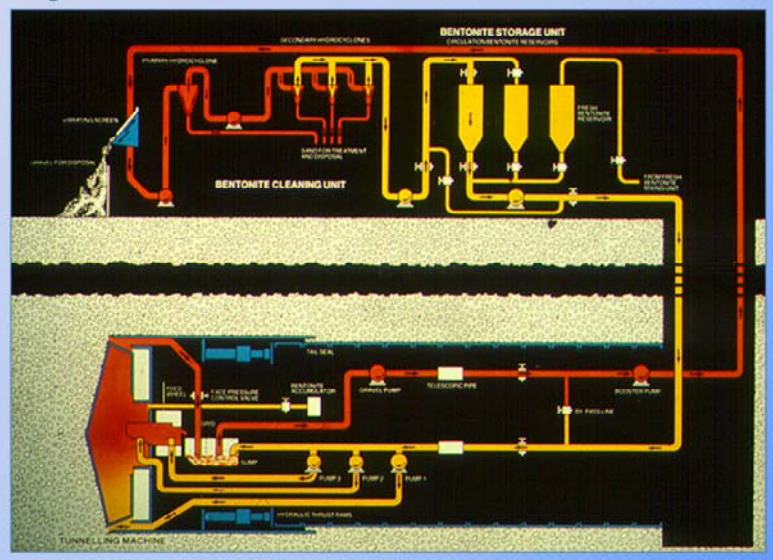
Slurry Machine Circuit



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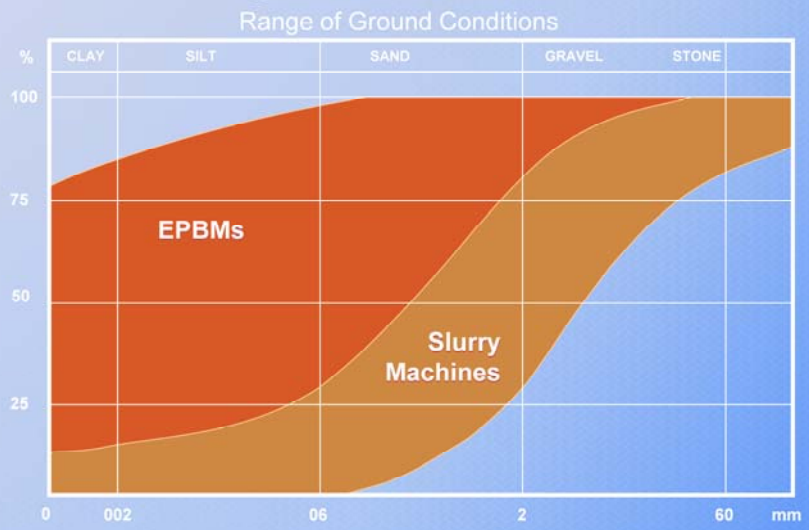
Soil Grading Curves



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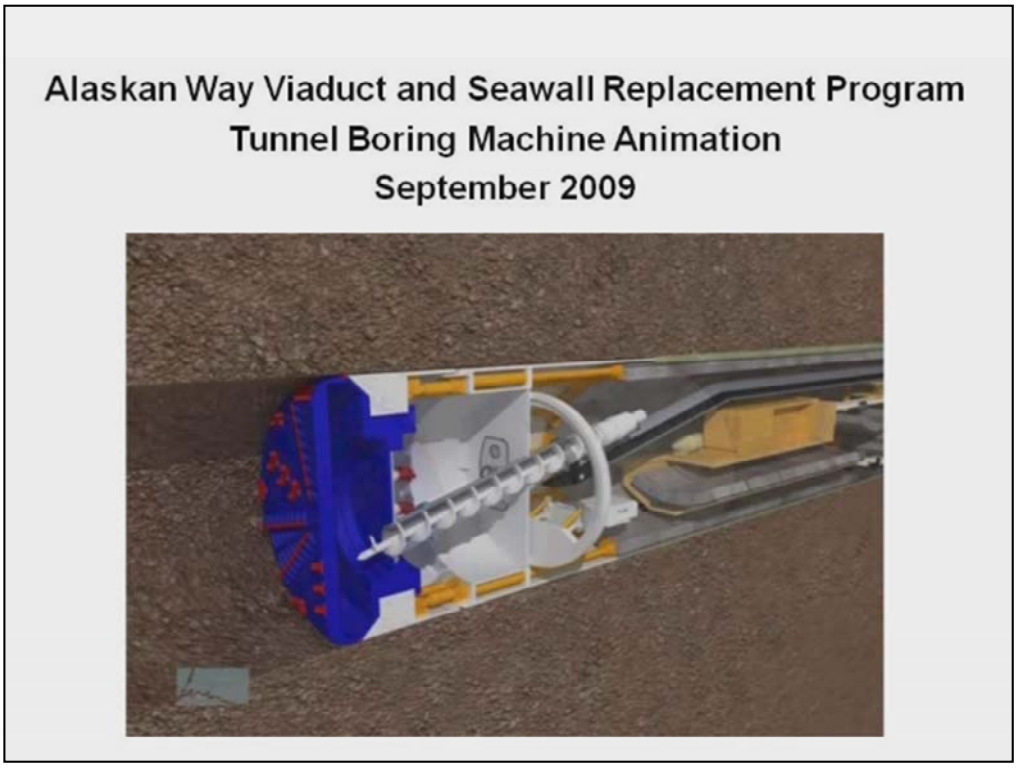
EPBM with Backup at Herrenknecht Factory



Save the video on your desktop.

Go to your desktop to run the video.

Objectives

- Minimize impacts due to tunneling:
  - Surface settlement
  - Structure cracks and deflection
  - Buried utilities