

**DESIGN DEVIATION NO. 3**  
**Supersedes Deviation #3 Approved on December 18, 2008**  
**Access Control**  
**SR 99 S. Holgate St to S. King St. Viaduct Replacement Stage 2**  
**MP 29.60 TO MP 30.78**

XL-3237      PIN-809936D

August 2009

**WASHINGTON STATE DEPARTMENT OF TRANSPORTATION**  
Alaskan Way Viaduct and Seawall Replacement Program  
Seattle, Washington

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Design Approval

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## Deviation revision

This document “Design Deviation #3 Access Control” supersedes the project’s Design Deviation #3 “Shoulder Width (Inside and Outside) through the Transition Section”, approved Dec. 18, 2008. The design of the Transition Section substantially changed after the January 2009 recommendation of the Deep Bore Tunnel alternative, and it was decided that the Interim Bridge Transition Structure would be documented in the SR 99 Construction Corridor Analysis.

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## Program Overview—Alaskan Way Viaduct and Seawall Replacement Program

The Alaskan Way Viaduct & Seawall Replacement Program (AWVSRP) is located in an urban area within the City of Seattle in King County. The program limits extend along SR 99 from north of the S. Spokane Street Bridge (Milepost [MP] 29.29) to Mercer Street vicinity (MP 32.78) and underneath First Ave in downtown Seattle. The AWVSRP has been divided into several projects, including the SR 99 S. Holgate to S. King St. Viaduct Replacement Project—Stage 2 (H2KS2), to which this deviation applies.

SR 99 is functionally classified as an Urban Principal Arterial Highway by Washington State Dept. of Transportation (WSDOT) and is currently classified as an M1 Managed Access Highway from S. Spokane St (MP 28.61) to Thomas St (MP 32.58). Speed limits are posted between 40-50mph.

It is also a designated National Highway System (NHS) route and a Highway of Statewide Significance, per WSDOT classification. The project corridor has a WSDOT freight tonnage designation of T-1 (more than 10 million tons per year), and the City of Seattle classifies it as a Major Truck Street.

The AWVSRP is partially funded through a combination of state funds from the 2003 Nickel Funding Package and the 2005 Transportation Partnership Account (TPA) Package. It has also received funding from the U.S. Federal Highway Administration (FHWA) and the City of Seattle.

On March 14, 2007, the Project Team was directed by WSDOT to advance portions of the project that would contribute to improving safety and mobility, and have fundamental consensus among the project partners. One of the six Moving Forward: Early Safety and Mobility Projects (ESMP) is the South Holgate Street to South King Street Viaduct Replacement Project (H2K). This project has been divided into three stages and each stage will be released as a separate construction contract. Stage one involves relocating existing utilities; stage 2 involves reconstructing SR 99 from S. Holgate to King St; and a future contract will involve roadside restoration and demolishing the existing viaduct within the Holgate to King project limits.

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In January 2009, the Governor, King County Executive, and the City of Seattle Mayor recommended replacing the existing Viaduct through downtown Seattle with an approximately 54' diameter single bore tunnel that will include stacked roadways consisting of two northbound lanes and shoulders below two southbound lanes and shoulders. If the bored tunnel alternative moves forward, the south portal to the tunnel would start at Royal Brougham Way S. (MP 30.32) and travel north under First Ave until reaching Mercer St (MP 32.78) where the north portal would emerge and connect to the existing SR 99 route near Ward St. (MP 33.08). The north and south portals would be fully directional interchanges (currently in the design phase) that would increase access to the city's Central Business

District (CBD). As part of the bored tunnel alternative, the City of Seattle would construct new surface streets and urban design features on the waterfront, once the proposed tunnel is open to traffic and the viaduct along the central waterfront is removed.

It is important to note that the bored tunnel alternative is one alternative of three currently being considered within the NEPA process for the Alaskan Way Viaduct Replacement Project. This deviation focuses primarily on how the Holgate to King project interacts with the Executive's recommended bored tunnel alternative. However, all proposed corridor construction associated with the Holgate to King project, both permanent and temporary, would be required by FHWA to function with any of the alternatives being considered within the NEPA process.

The project team is coordinating with the SR 519/I-90 to SR 99 Intermodal Access Project—I/C Improvements (SR 519 Phase 2), the proposed SR 99 Deep Bore Tunnel Project, and proposed SR 99 South Access Portal Project.

## Project Overview -- SR 99 S. Holgate to S. King St. Viaduct Replacement—Stage 2

The removal and replacement limits for bridge structures within the H2K Stage 2 Project extend from approximately S. Holgate Street (MP 29.89) to S. Dearborn Street (MP 30.66). Other required improvements for SR 99 and city surface streets extend the project construction work as far north as Lenora Street (MP 31.79 vic.) and as far south as S. Spokane Street (MP 29.20). This project includes demolishing the existing viaduct and reconstructing infrastructure elements, including portions of many local streets and portions of SR 99. Near S. Holgate Street, SR 99 will transition from an at-grade roadway to a bridge structure over the existing railroad tracks and S. Atlantic Street, returning to at-grade near S. Royal Brougham Way. An interim transition bridge structure, expected to be in place for 4 to 5 years, will be built to connect the ultimate bridge structure spanning S Atlantic Street to the existing Viaduct near the Railroad Way Ramps (MP 30.78). If the Deep Bore Tunnel alternative is selected, this interim bridge structure and the existing Viaduct will be removed after the proposed tunnel is opened to traffic.

Design Matrix 3, line 3-7 (*WSDOT Design Manual* Figure 325-5, January 2009) applies to this project. This roadway is being designed to P-1 design class criteria.

This document requests a deviation for access control within the project limits.

## Existing Conditions though the Project Limits

SR 99 is classified as a Class 1 Managed Access Highway from Spokane St (MP 28.61) to Thomas St. (MP 32.58). Speed limits are posted between 40-50mph.

On SR 99 within the program corridor limits, existing Average Daily Traffic (ADT) ranges from approximately 32,400 to 56,100 in the northbound direction and from 31,000 to 55,000 in the southbound direction. Ingress and egress on SR 99 from just north of S. Spokane Street (MP 29.26) to Thomas St. (MP 32.58) is currently limited to on- and off-ramps connecting to First Ave. S, Columbia Street, Seneca Street, Elliot Ave, Western Ave, and Denny Way.

**Deleted:** In January 2009, the Governor, King County, and the City of Seattle agreed to recommend replacing the existing Viaduct through downtown Seattle with an approximately 54' diameter single bore tunnel that will include stacked roadways consisting of two northbound lanes with left and right shoulders, above two southbound lanes with left and right shoulders. The south portal to the tunnel will start at Royal Brougham Way S. (MP 30.32) and travel north under First Ave until reaching Mercer St (MP 32.78) where the north portal will emerge and connect to the existing SR 99 route near Ward St. (MP 33.08). There will be fully directional interchanges at the north and south portals (currently in the design phase) that will provide access to the city's Central Business District (CBD). Once the tunnel has been opened to traffic, and the existing Viaduct and detours are removed, the City of Seattle will construct new surface streets and urban design features along the waterfront. ¶

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Topography in the vicinity of S Holgate Street is mostly level terrain. The posted speed limit is 50 mph in this segment for both the northbound and southbound roadways.

Within the project limits (MP 29.60 to 30.78), SR 99 existing lane widths range from 9.5 to 12 feet and shoulder widths range from 0 to 3 feet. Near S Holgate Street (MP 29.89 vic.), the existing lane widths are 12 feet and the shoulder widths are approximately 1 foot. The existing transition between the six-lane surface highway and the viaduct occurs near S. Holgate Street. The existing curve near S. Holgate Street is built on separate elevated structures for both northbound and southbound. The northbound roadway has a radius of 920 feet, and the southbound roadway has a radius of 1040 feet, with a superelevation rate of 6% for both roadways. The roadway is currently classified as a Class 1 Managed Access highway within the project limits, and in order to confirm the existing roadway's 50mph design speed, a check was made based upon the current design guidelines for a design class  $U_{M/A-1}$  roadway using existing horizontal geometrics and the 6% maximum superelevation rate table. (*WSDOT Design Manual* Figure 642-4c, November 2007). The vertical curve lengths in this area for both northbound and southbound roadways are 350 feet. The maximum grade for both roadways within the project limits is 5 percent. Figure 650-11 from the WSDOT Design Manual (May 2008) indicates these existing sag curves meet 50 mph design criteria.

The Seattle International Gateway (SIG) Rail Yard lies immediately east of SR 99 along the entire length of the SR 99 project limits, and the Whatcom Rail Yard is immediately west of SR 99 in the vicinity of S. Holgate Street. In some areas the closest rail tracks are within 12 feet of the roadway.

### Proposed Access Control on SR 99(MP 29.60 to MP 30.78)

When the recommendation was made to realign SR 99 into a Deep Bore tunnel under 1<sup>st</sup> Avenue, WSDOT also determined that the current access classification of SR 99 corridor within the program limits would need to be revised from an M1 Managed Access roadway with an Urban Managed Access design class to a Full Limited Access roadway with a P-1 design class. That decision has affected the Holgate to King Stage 2 project since the project limits are within the SR 99 program's limits. The project team and management has acknowledged that the time line to acquire Full Limited Access rights cannot be accomplished by the time the SR 99 H2K project is awarded (this milestone is set for the first quarter of 2010).

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Alaska Way Viaduct Project Director John White has agreed that acquiring full limited access can be delayed to facilitate construction of the Holgate to King Stage 2 project but will be acquired on SR 99 from Holgate to Mercer prior the first Request for Proposal (RFP) or Ad date of any bored tunnel project.

### Deviation Description

Within the project limits, (MP 29.60 to MP 30.78) SR 99 will maintain its current access classification as an Class 1 Managed Access Highway as identified in WSDOT's Limited and Managed Access Master Plan. Table 1 summarizes the difference between Full Limited Access and Class 1 Managed Access Control.

<b>Table 1: Access Control</b>	
<b>Limited Access, Full Control (1)</b>	<b>Class 1 Managed Access (2)</b>
Access only allowed at select interchanges	Minimum 1 mile spacing between intersecting streets, roads, and highways
At-grade crossings and approaches are prohibited	Private access is allowed if the abutting property has no other reasonable access. Traffic signals are allowed.
Applies to Interstates and principal arterials with four or more lanes and 20-year design period	Applies to high-speed and/or high-volume highways providing interstate, interregional, inter- and intra-city travel needs.
Full control extends 300 feet beyond centerline of ramp or terminus of transition taper	Restrictive medians are provided on multilane facilities to separate opposing traffic movements and to prevent unauthorized turning movements

(1)—Design Manual Chapter 1430.03 (January 2009)

(2)—Design Manual Chapter 1435.05 (1) (November 2007)

## Alternatives Considered

### Alternative 1: Preferred alternative — temporarily maintain existing Class 1 Managed Access control

Class 1 Managed Access highways have the strictest access control of any managed access highway, and access control will not be decreased as part of this project. The only existing access to SR 99 within the project limits are located at the Spokane St. Interchange (MP 29.20 vic.) and the Railroad Way Ramps (MP 30.65 vic.) which connect SR 99 to First Ave. These existing on- and off-ramps at Railroad Way will be removed as part of this project but replaced with ramps connecting to the interim bridge structure.

In order to maintain the H2K's accelerated design schedule, Alternative 1 allows for the roadway to be reconstructed using the P1 principal arterial design class while temporarily maintaining the managed access highway class. . Even though existing SR 99 is designated as a Class 1 managed access highway, there are no new access points being proposed within the project limits and all

existing accesses will remain when the final SR 99 alignment is completed. During the interim time period, it has been agreed to that the team working on the proposed Deep Bored Tunnel alternative will actively pursue and obtain Full Access within the program limits, which includes the H2K portion of SR 99.

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This is the design team's preferred alternative and has support and concurrence from WSDOT's upper Management.

### Alternative 2: Provide Full Limited Access

Alternative 2 will provide Full limited access along the project limits. To complete the acquisition of full limited access it is estimated that it will require the project's ad date be delayed for up to a year. A delay to any of the H2K project milestones that been set by the Governor and State Legislature is not considered acceptable.

The design team does not recommend this alternative, as delaying this project's construction date will cause major delays to several other projects as well, including any of the alternatives currently being evaluated as part of the NEPA process.

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### Alternative 3: Retain the Class 1 Urban Managed Access Classification

In the original approved corridor analysis (approved December 1, 2004), SR 99 within the program limits (which includes the Holgate to King Stage 2 project limits) is classified as an Urban Principal arterial within a Managed Access corridor. Under this designation, the design criteria are more suited to a lower-speed roadway within an urban area. These elements include narrower lanes and shoulder widths, and lower maximum superelevation rate. Although the existing roadway is officially classified as lower-speed urban highway, it operates as a freeway corridor through Seattle.

The design team does not recommend this alternative, because the local jurisdiction has the approval authority to grant additional accesses to SR 99 which conflicts with the project intent of moving people through the corridor with minimal impacts. As a result, the travelling public, including public transit and freight, are best served by a roadway with controlled access.

## Recommendation

The Project Team recommends that the access control of the mainline roadways be deviated temporarily from current design guidelines found in the approved corridor analysis for this project.

The justifications for this recommendation are:

- The design team for the Deep Bored Tunnel Alternative is actively working to obtain full limited access for this corridor, from MP 29.60 to the northern limits of the tunnel (MP 32.78), which is expected to be obtained in 2010.

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- This roadway is being designed to meet the guidelines of a P-1 Limited Access facility.

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- Delaying this project in order to obtain full limited access rights will jeopardize the entire Alaskan Way Viaduct program's construction milestones as set forth in legislative rule making.

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- Alternative 1 provides a roadway which meets the geometric features of a freeway.

The Project Team recommends approval of this deviation based on the above justifications.