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# 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 29.89 TO MP 30.78

XL-3237 PIN-809936D

June 2009

### WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

Alaskan Way Viaduct and Seawall Replacement Program  
Seattle, Washington

**Mark Anderson, PE**

Project Engineer

Design Approval:

By \_\_\_\_\_, P.E.  
Susan Everett, P.E. Program Design Manager

Date \_\_\_\_\_

By \_\_\_\_\_, P.E.  
Ed Barry, P.E. WSDOT Assistant State Design  
Engineer

Date \_\_\_\_\_

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By \_\_\_\_\_, P.E.  
Randy Everett, P.E. FHWA Major Projects Oversight  
Manager

Date \_\_\_\_\_

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## 2 Deviation revision

3 This document “Design Deviation #3 Access Control” supersedes the project’s Design Deviation #3  
4 “Shoulder Width (Inside and Outside) through the Transition Section”, approved Dec. 18, 2008.

**Comment [KS1]:** Briefly document what changes occurred to the original.

## 5 Project Overview

6 The Alaskan Way Viaduct & Seawall Replacement Program (AWVSRP) is located in an urban area  
7 within the City of Seattle in King County. The program limits extend along SR 99 from north of the  
8 S. Spokane Street Bridge (Milepost [MP] 29.29) to Mercer Street vicinity (MP 32.78) and underneath  
9 First Ave in downtown Seattle.

10 SR 99 is functionally classified as an Urban Principal Arterial Highway by Washington State Dept. of  
11 Transportation (WSDOT). It is also a designated National Highway System (NHS) route and a  
12 Highway of Statewide Significance, per WSDOT classification. The project corridor has a WSDOT  
13 freight tonnage designation of T-1 (more than 10 million tons per year), and the City of Seattle  
14 classifies it as a Major Truck Street.

15 On March 14, 2007, the Project Team was directed by WSDOT to advance portions of the project  
16 that would contribute to improving safety and mobility, and have fundamental consensus among the  
17 project partners. One of the six Moving Forward: Early Safety and Mobility Projects (ESMP) is the  
18 South Holgate Street to South King Street Viaduct Replacement Project (H2K). This project has  
19 been divided into three phases and each phase will be released as a separate construction contract.  
20 Phase one involves relocating existing utilities; phase 2 involves reconstructing SR 99 from S.  
21 Holgate to King St; and phase 3 involves demolishing the existing viaduct and roadside restoration.

22 In January 2009, the Governor, King County, and the City of Seattle agreed to recommend replacing  
23 the existing Viaduct through downtown Seattle with a 55’ diameter single bore tunnel that will  
24 include stacked roadways consisting of two northbound lanes and shoulders above two southbound  
25 lanes and shoulders. The south portal to the tunnel will start at Royal Brougham Way S. (MP 30.32)  
26 and travel north under First Ave until reaching Mercer St (MP 32.78) where the north portal will  
27 emerge and connect to the existing SR 99 route near Ward St. (MP 33.08). At the north and south  
28 portals will be fully directional interchanges (currently in the design phase) that will increase access  
29 to the city’s Central Business District (CBD). Once the tunnel has been opened to traffic, and the  
30 existing Viaduct and detours are removed, the city of Seattle will construct new surface streets and  
31 urban design features on the waterfront.

**Comment [KS2]:** Please refer to Dev#1 & #2 (pg 2, line 27 thru pg 3 line 12) for suggested revisions to sentences.

1 The removal and replacement limits for bridge structures within the H2K Project extend from  
2 approximately S. Holgate Street (MP 29.89) to S. Dearborn Street (MP 30.66). Other required  
3 improvements for SR 99 and city surface streets extend the project construction limits as far north  
4 as S. King Street and as far south as S. Stacy Street. The project includes demolition of the existing  
5 viaduct and reconstruction of infrastructure elements, including portions of many local streets and  
6 portions of SR 99. Near S. Holgate Street, SR 99 will transition from an at-grade roadway to a  
7 bridge structure over railroad tracks and S. Atlantic Street, returning to grade near S. Royal  
8 Brougham Way. An interim transition bridge structure, in place for 4 to 5 years, will be built to  
9 connect the bridge structure spanning S Atlantic Street to the existing Viaduct near the Railroad Way  
10 Ramps (MP 30.78) while construction for the deep bored tunnel takes place. After the tunnel is  
11 opened to traffic, this interim bridge structure and existing Viaduct will be removed.

12 Design Matrix 3, line 3-7 (*WSDOT Design Manual* Figure 325-5, January 2009) applies to this project.  
13 This requires that improvements be designed to full design guidelines. The AWVSRP is partially  
14 funded through a combination of state funds from the 2003 Nickel Funding Package and the 2005  
15 Transportation Partnership Account (TPA) Package. It has also received funding from the U.S.  
16 Federal Highway Administration (FHWA) and the City of Seattle.

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

## 18 Existing Conditions though the Project Limits

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

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

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

28 Within the project limits, SR 99 existing lane widths range from 9.5 to 12 feet and shoulder widths  
29 range from 0 to 3 feet. Near S Holgate Street (MP 29.89 vic.), the existing lane widths are 12 feet  
30 and the shoulder widths are approximately 1 foot. The existing transition between the six-lane  
31 surface highway and the viaduct occurs near S. Holgate Street. The existing curve near S. Holgate  
32 Street is built on separate elevated structures for both northbound and southbound. The  
33 northbound roadway has a radius of 920 feet, and the southbound roadway has a radius of 1040  
34 feet, with a superelevation rate of 6% for both roadways. The existing roadway design speed is  
35 50mph when these existing horizontal geometrics are compared against the 6% maximum  
36 superelevation rate table (*WSDOT Design Manual* Figure 642-4c, November 2007) based on current  
37 design guidelines. The vertical curve lengths in this area for both northbound and southbound  
38 roadways are 350 feet. The grade for both roadways in this area is 5 percent. Figure 650-11 from

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**Comment [KS3]:** Please define what the limits are for the project.

**Comment [KS4]:** Should there be a note that briefly discusses that this section of SR 99 was originally designed using design criteria for a UMA-1 design classification which allows using the 6% table superelevation rate?

**Suggest revising:** To confirm the existing roadway design speed of 50 mph, a check was made based upon current design guidelines using existing horizontal geometrics and the 6% maximum superelevation rate table (*WSDOT Design Manual* Figure 642-4c, November 2007).

**Comment [KS5]:** What are the grades for N & S (can the profiles be included)?

**Comment [KS6]:** Not sure where the "area" is, and how does this relate to the vertical curves identified in the previous sentence?

**Comment [KS7]:** Is this the correct reference?

1 the WSDOT Design Manual (May 2008) indicates these existing sag curves meet 50 mph design  
2 criteria.

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

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

**Comment [KS8]:** This seems out of place in the “existing” section. Suggest moving this to the “Project Overview” section.

### 8 **Proposed Access Control on SR 99 within the project** 9 **corridor, Holgate St. vicinity to Mercer St. vicinity (MP 29.89** 10 **to MP 32.78)**

**Comment [LKM9]:** Why deviate beyond the project limits? Corridor wide issues should be covered in the corridor analysis.

11 When the decision was made to realign SR 99 into a deep bore tunnel under 1<sup>st</sup> Avenue, WSDOT  
12 also determined that the current access classification of SR 99 corridor, between Mercer St and  
13 Holgate St, needed to be revised from an M1 Managed Access roadway with a Urban Managed  
14 Access design class to a Full Limited Access roadway with a P-1 design class. That decision has  
15 affected the Holgate to King Stage 2 project since the project limits are within the SR 99 corridor  
16 limits. The project team and management has acknowledged that the time line to acquire Full  
17 Limited Access rights cannot be accomplished by the time the SR 99 H2K project is awarded (this  
18 milestone is set for the first quarter of 2010).

KS – I agree that the Corridor Analysis should address the Access change and that this deviation is just for documenting not having Full LA for this project limits (H2K).

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**Comment [KS10]:** Is there a formal date on this decision?

**Comment [KS11]:** Where are the project limits identified?

**Comment [KS12]:** Need a brief discussion on Full Limited as this is the design standard.

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19 Alaska Way Viaduct Project Director John White has agreed that acquiring full limited access can be  
20 delayed to facilitate construction of the Holgate to King Stage 2 project but will be acquired on SR  
21 99 from Holgate to Mercer prior the first Request for Proposal (RFP) or Ad date of any bored  
22 tunnel project.

### 23 **Deviation Description**

24 Within the project limits, SR 99 will maintain its current access classification as an Class 1 Managed  
25 Access Highway as identified in WSDOT’s Limited and Managed Access Master Plan.

**Comment [KS13]:** Not sure why the UMA line is shown, as SR 99 is P1. Should this line be deleted?

**Table 1: Access Control**

Design Class	Standard	Existing/Proposed
P-1 Roadway	Full Limited <sup>(1)</sup>	Managed Class1 / Managed Class1
U <sub>M/A</sub> -1 Roadway	Managed Access <sup>(2)</sup>	NA

26 (1)—Design Manual Figure 440-6 (May 2008)

1 (2)—Design Manual Figure 440-9 (May 2008)

## 2 Alternatives Considered

### 3 Alternative 1: Preferred alternative—~~Temporarily~~ maintain existing ~~Class 1~~ Managed 4 Access control

5 ~~Class 1~~ Managed Access highways have the strictest access control of any managed access highway,  
6 and access control will not be decreased as part of this project, ~~Design Manual 1435.05, November~~  
7 ~~2007~~. ~~The existing on- and off-ramps connecting SR 99 to First Ave will be removed but replaced~~  
8 ~~with temporary ramps connecting to the interim bridge structure.~~

9 ~~In order to maintain the H2K's accelerated design schedule,~~ Alternative 1 allows for the roadway to  
10 be reconstructed ~~using the P1 principal arterial design class while temporarily maintaining the urban~~  
11 ~~managed access highway.~~ ~~Even though existing SR 99 is designated as a Class 1 managed access~~  
12 ~~highway, there are no new access points being proposed within the project limits and all existing~~  
13 ~~accesses will remain when the final SR 99 alignment is completed. During the interim time period, it~~  
14 ~~has been agreed to that~~ the Deep Bored Tunnel team ~~will actively pursue and~~ obtain Full Access for  
15 the corridor, which includes the ~~H2K~~ portion of SR 99.

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

### 18 Alternative 2: ~~Provide~~ Full Limited Access

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

23 The design team does not recommend this alternative, as delaying this project's construction date  
24 will cause major delays to several other projects as well, including the Deep Bore Tunnel work.

### 25 Alternative 3: ~~Retain the~~ Urban Managed Access $U_{M/A}$ -1 Highway

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

32 The design team does not recommend this alternative, because ~~the local jurisdiction has the approval~~  
33 ~~authority to grant additional accesses to SR 99 which conflicts with the project intent of moving~~  
34

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Comment [KS14]: There is something missing that connects this sentence to the previous thought.

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Comment [KS15]: How does this relate to the access management of SR 99?

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Comment [KS16]: Which limits are these?

1 | people through the corridor with minimal impacts. As a result, the travelling public, including public  
2 | transit and freight, are best served by a roadway with controlled access.

### 3 | Recommendation

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

6 | The justifications for this recommendation are:

- 7 | • The Deep Bored Tunnel design team is actively working to obtain full limited access for this  
8 | corridor, from MP 29.89 to the northern limits of the tunnel (MP 32.78).
- 9 | • This roadway is being designed to meet the guidelines of a P-1 Limited Access facility.
- 10 | • Delaying this project in order to obtain full limited access rights will jeopardize the entire SR  
11 | 99 tunnel program as set forth in legislative rule making.

12 | • Alternative 1 provides a roadway which meets the geometric features of a freeway.

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

14 |

**Comment [KS17]:** Provide an estimated date when this is anticipated

**Deleted:** although the roadway is currently classified as an M1 Managed Access Highway

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