TREND NOTICE
ALASKAN WAY VIADUCT & SEAWALL REPLACEMENT PROGRAM

Washington State Department of Transportation

Trend Title: **Stage 2 Contract Alignment w/ Bored Tunnel Implementation Plan**	Date: 3/23/09
Trend Log Number/Rev. **Trend SS0019R2**	Segment Name: Holgate to King, Stage 2
Prepared By: Ali Amiri, PE Name / Date Preparer's Supervisor . Name / Date	Approval Level / Authority: ☐ Project Director / Deputy Project Director
Nature of Change: ☒ Scope	☒ Schedule ☒ Budget
Does Trend Impact Legislative Funding Allocation? ☐No ☐Yes	Does Trend Affect Biennium Aging? ☐No ☐Yes

Level of Approval Requested:

☐ *Full Approval*

☒ *Approval for Scope Only; Additional Study / Justification to follow*

Description of the Trend (Use Continuation Sheets as Needed):

This trend update seeks approval of an updated 3B alternative for the interim transition structure by adding an Alaskan Way North bound movement.

Justification for the Trend (Use Continuation Sheets as Needed):

Why are we requesting approval of this Trend, and what are the benefits?

On March 18, 2009, Trend SS0019R1 was presented to the Change Control Board. The trend's approval status is "Defer Approval Pending Receipt of Additional Information" of an Alaskan Way North bound movement. Alternative 3B (Attachment #1, page 5) was chosen over other proposed interim transition alternatives due to improvements in geometry over 3A and lesser schedule and surface street impacts related to the Alternative 4 families. However, there was the desire to see a North bound Alaskan Way movement accommodated.

If the Trend is approved, what are the drawbacks? Identify and discuss any negative impacts.
Alternatives:

Inclusion of a North bound Alaskan Way can not be continuously provided for during all stages of the project. During short windows, closures will likely be needed to facilitate construction of the transition structure and a closure would be needed during removal of the portion of the existing viaduct.

It is assumed that NB Alaskan will run under the existing viaduct until traffic is moved onto the interim transition structure and the portion of the existing viaduct can be removed.

Inclusion of the NB Alaskan way movement will further reduce space in the WOSCA property for the tunnel contractor.

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Washington State
Department of Transportation

Impacts of this Trend:

Schedule Impacts to QPR Milestones:

Milestone Description	Date Before Trend	Date After Trend	# Calendar Days Impact
Project Definition Complete	29-Jun-07	TBD	
Begin Preconstruction Engr.	23-Jul-07		
Environmental Doc. Compl.	25-Feb-09		
RW Certification	18-May-09		
Advertisement Date	14-Sep-09		
Operationally Complete	31-Dec-12		

Schedule Impacts to Other Milestones:

Milestone Description	Date Before Trend	Date After Trend	# Calendar Days Impact
Bid Opening	9-Sep-09	TBD	
Award	17-Sep-09		
Execution	26-Jan-10		
Construction Start	8-Feb-10		
Final Contract Completion	30-Sep-13		

Cost Impacts (x $1,000)

Project Phase	Baseline Target Estimate	Trend Estimate	Variance from Trend
PE	40,782	TBD	
RW	49,979		
CN	293,958		
Total	384,719		
Total Estimated Impact			

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Business Management/Project Controls Review:

Aging Summary Table (x $1,000)

Phase	Cost	07-09	09-11	11-13	13-15	15-17	Future	Total
Prelim Eng	Current Trended Budget	TBD						
	This Trend Estimate							
	Revised Budget							
Right of Way	Current Trended Budget							
	This Trend Estimate							
	Revised Budget							
Construction	Current Trended Budget							
	This Trend Estimate							
	Revised Budget							
Total	Current Trended Budget							
	This Trend Estimate							
	Revised Budget							

Mitigation(s) for the Trend:

List and Description of Attachments:

- Attachment #1: Alternative 3B Graphic
- Attachment #2: Major Considerations between Alternatives (3/25/09)

Acknowledgement Status (Name / Date):

☑ AWV&SRP Design Manager — 3/25/09

☑ AWV&SRP Construction Manager — 3-31-09

☑ AWV&SRP Environmental Manager — 3-25-09

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Washington State Department of Transportation

Approval Status:

☐ *Fully Approved*

☐ *Elevate to UCO Regional Administrator/SDOT Director*

☒ *Approved for Scope Only; Additional Study / Justification Required (See "Instructions" Below)*

☐ *Defer Approval Pending Receipt of Additional Information (See "Instructions" Below)*

☐ *Rejected*

Instructions:

UPDATE COST EST. WITHIN 1 WEEK POST 90% SUBMITTAL

Approval Authority (Name / Date):

☒ Project Director / Deputy ~~Project Director~~ _____ / 3/25/09

☐ UCO Regional Administrator _____ / _____

Instructions:

Does Fully Approved Trend require a PCRF? ☐ Yes ☐ No

Does Fully Approved Trend require a 603 Form? ☐ Yes ☐ No

If Approved; Updating of Project Cost / Schedule Basis/Baselines:

☐ *Cost Basis / System Updated*

☐ *Schedule Basis/ System Updated*

_____

Project Controls Manager Name / Signature / Date

If Approved; Updating of Project Cost / Schedule with PCRF Submittal:

☐ *PCRF Submitted*

_____

Business Manager Name / Signature / Date

Distribution: AVW Project File; WSDOT Task Order Manager; AWV Document Control; AWV UCO; AWV Project Controls

SIDE CONNECTION ALTERNATIVE 3B

N

SB OFF RAMP

SB ALASKAN WAY (ONE LANE)

PEDS & BIKES ON PORT SIDE PATH

TAIL TRACK

~300' FERRY HOLDING

NB ON RAMP

NB ALASKAN WAY (ONE LANE)

RAILROAD WAY SOUTH

OVERHEIGHT VEHICLE ROUTE

1ST AVE S

S ROYAL BROUGHAM WAY

S KING ST

S JACKSON ST

LEGEND

= RETAINED CUT
= AT GRADE
= RETAINED FILL
= AERIAL /BRIDGE
= STRUCTURAL SHORING /RETROFIT
= STAGING & CONSTRUCTION FOOTPRINT LIMITS
= OVERHEIGHT VEHICLE ROUTE

DRAFT WORKING DRAWING
FOR DISCUSSION
PURPOSES ONLY

ALASKAN WAY VIADUCT AND SEAWALL REPLACEMENT PROGRAM	
S HOLGATE ST TO S KING ST VIADUCT REPLACEMENT PROJECT	
MARCH 2009	FIG

...\South_Project_GRAPHIC_SIDE_CONNECTION_ALT3B.dgn 3/19/2009 5:05:29 PM

Trend SS0019R2 Attachment #2
Alaskan Way Viaduct Replacement S – Holgate St to S. King St – MOT Alternatives

Alternative	Description	Cost	Traffic Operations			Impact to Bored Tunnel	Other Considerations
			SR 99	SR 99 Detour	Other Parallel Routes		
3A	25 MPH - side connection	Base	Weekend closures 25 MPH curves 60% to 65% of capacity maintained	No detour required	Moderate impact to 1st Ave Up to 15% increase on parallel N-S streets Up to 3 to 4% increase in traffic on I-5 (9,000 – 12,000 trips per day)	No Impact to schedule WOSCA available Jan 2011 RR Ramps removed Oct 2011	Existing Viaduct needs shoring and retrofitting over 4 frames N-S movements of Alaskan Way will be maintained during the majority of the project duration to provide connectivity to the central waterfront
Recommended Alternative 3B	40 MPH - side connection	+$5 Million	Weekend closures 40 MPH curves 65% to 70% of capacity maintained	No detour required	Moderate impact to 1st Ave Up to 10% increase on parallel N-S streets Up to 2 to 4% increase in traffic on I-5 (6,000 – 12,000 trips per day)	No Impact to schedule WOSCA available Jan 2011 RR Ramps removed Oct 2011	Existing Viaduct needs shoring and retrofitting over 4 frames. Also, structural modifications to achieve 40 MPH design speed involve additional risk. N-S movements of Alaskan Way will be maintained during the majority of the project duration to provide connectivity to the central waterfront
4B	Inline connection with modified WOSCA detour – using 1st Ave	+$1 Million	Closed 1 month 40 MPH curves 65% to 70% of capacity maintained	25 MPH detour 50-60% of capacity maintained (13 months SB, 8 months NB)	Alaskan Way and 1st Avenue closed – detoured to other streets Severe congestion on 4th Avenue Up to 40% increase on parallel N-S streets Up to 3 to 5% increase on I-5 during detour (9,000 – 15,000 trips per day)	10 Month Delay WOSCA available July 2012 RR Ramps removed July 2012	A two-way N-S connection between 1st Ave and Alaskan Way via Railroad Way will be maintained to provide N-S connectivity to the central waterfront except when 1st Ave is closed between Royal Brougham and Railroad Way
4C	Inline connection with modified WOSCA detour – using 1st Ave with traffic signal	+$2 Million	Closed 1 month 40 MPH curves 65% to 70% of capacity maintained	25 MPH detour 30-40% of capacity maintained for NB 50-60% of capacity maintained for SB (13 months SB, 8 months NB)	Alaskan Way detoured to 1st Ave Severe congestion on 1st Avenue Up to 20% increase on parallel N-S streets Up to 4 to 6% increase on I-5 during detour (12,000 – 18,000 trips per day)	10 Month Delay WOSCA available July 2012 RR Ramps removed July 2012	A two-way N-S connection between 1st Ave and Alaskan Way via Railroad Way will be maintained to provide N-S connectivity to the central waterfront

Community and Organization Briefings - 2009

Date attended	Organization	Location
January 13, 2009	University of Washington Urban Transportation Planning Class	Mueller Hall University of Washington
January 13, 2009	Cascade Bicycle Club	REI 222 Yale Street
January 15, 2009	Seattle Design Commission	City of Seattle Boards and Commissions Room L2-80
January 21, 2009	Allied Arts	216 First Ave. S. 3rd Floor Conference Room
January 21, 2009	Duwamish Transportation Management Association	Manufacturing Industrial Council 5509 First Ave. S.
January 22, 2009	Washington Society of Professional Engineers	Kent Mitzel's 22330 84th Ave. S.
January 27, 2009	Manufacturing Industrial Council, Executive Committee	MIC Offices 5509 First Ave. S.
January 27, 2009	North Seattle Industrial Association	Car Wash Enterprise 3977 Leary Way NW
January 28, 2009	International District Rotary Club	Sun Ya Restaurant 605 Seventh Ave. S.
February 2, 2009	Downtown Seattle Association, Transportation Committee	600 Stewart Street Suite 200
February 4, 2009	Interbay Neighborhood Association	Quest Church 3223 15th Ave. W.
February 6, 2009	Transportation Choices Coalition, Friday Forum	Public Health Bldg. 401 Fifth Ave., Room 115
February 9, 2009	Horizon House	900 University St.
February 10, 2009	Aurora Avenue Merchants Association	10009 Aurora Ave. N
February 10, 2009	Admiral Neighborhood Association	Admiral Church 4320 SW Hill St.
February 11, 2009	West Seattle Kiwanis Club	Be's Restaurant 4509 California Ave. SW
February 12, 2009	Magnolia Community Club	Blaine Elementary School 2500 34th Ave. W.
February 12, 2009	Women's Transportation Seminar	Seattle Municipal Tower
February 14, 2009	Western Washington Chapter of American Society of Mechanical Engineers	Old Spaghetti Factory 2801 Elliott Ave
February 17, 2009	Freight Mobility Advisory Committee	Manufacturing Industrial Council 5509 First Ave. S.
February 17, 2009	South County Area Transportation	SeaTac City Hall

Date attended	Organization	Location
	Board (SCATBd)	
February 18, 2009	Fauntleroy Community Association	Fauntleroy Church, Fellowship Hall 9140 California Ave. SW
February 18, 2009	Delridge District Council	Youngstown Cultural Arts Center 4408 Delridge Way SW
February 19, 2009	Alki Community Council	Alki Community Center 5817 SW Stevens St.
February 20, 2009	Eastside Transportation Partnership	Unigard Campus Olympus Building
February 24, 2009	AIA Seattle	AIA Seattle 1911 First Ave.
February 25, 2009	Mercer Corridor Stakeholder Committee	Seattle Biomedical Research Institute 307 Westlake Ave.
February 25, 2009	Fremont Chamber of Commerce	History House 790 N. 34th St.
February 25, 2009	Pioneer Square Community Association	201 Yesler Way, Suite B
February 25, 2009	Queen Anne Community Council, Transportation Committee	Queen Anne Community Center
February 25, 2009	Municipal League of King County	Stoel Rives LLP Law Offices
February 26, 2009	Ballard Kiwanis Club	Louie's Cuisine of China 5100 15th Ave. NW
February 26, 2009	SR 99 Corridor Coalition	Ivar's, Pier 54
March 3, 2009	Waterfront Landing Condominiums	Waterfront Landings Club Room
March 3, 2009	North end freight group	Trident Seafoods, Terminal 91
March 4, 2009	Southwest District Council	South Seattle Community College, 6000 16th Ave. SW
March 10, 2009	South Park Neighborhood Association	South Park Neighborhood Center, 8201 10th Ave. S.
March 11, 2009	Seattle Pedestrian Advisory Board	Seattle City Hall, Boards and Commissions Room L2-80
March 11, 2009	Mountains to Sound Greenway	Preston Community Center 310th Ave SE, Issaquah, WA
March 12, 2009	Wedgwood Community Council	Wedgwood Presbyterian Church 8008 35th Ave. NE
March 12, 2009	Uptown Alliance	Neighborhood Service Center 160 Roy St.
March 16, 2009	Georgetown Community Council	Coliman Mexican Restaurant 6932 Carleton Ave. S.
March 17, 2009	South Lake Union Chamber	REI 222 Yale St.
March 18, 2009	Pacific Merchants Shipping Association	Salty's on Alki 1936 Harbor Ave. SW
March 23, 2009	Ballard Public Forum	Ballard High School
March 24, 2009	King County Labor Council, Maritime Group	Executive Board Room, 3440 East Marginal Way S.
March 25, 2009	Belltown Business Association and Belltown Community Council	Seattle Labor Temple Association

Date attended	Organization	Location
		2800 First Ave.
March 31, 2009	Skyline Rotary Club	Columbia Center, 75th Floor
March 31, 2009	Manufacturing Industrial Council, Executive Committee	MIC Office, 5509 First Ave. S.
April 1, 2009	Seattle Bicycle Advisory Board	Seattle City Hall, Boards and Commissions Room, L2-80
April 14, 2009	Washington State Institute of Transportation Engineers	Old Redmond Schoolhouse
April 15, 2009	Park Shore Retirement Community	Parkshore Retirement Home 1630 43rd Ave. E.
April 22, 2009	University of Washington, Environmental Law and Regulations Practicum	University of Washington Electrical Engineering Building
April 30, 2009	Pike Place Market Preservation and Development Authority	Pike Place Market PDA, Conference Room
May 1, 2009	Puget Sound Regional Council (PSRC), Freight Mobility Roundtable	PSRC Boardroom, 1101 Western Avenue
May 4, 2009	University of Washington, Transportation and Construction Seminar	University of Washington Campus
May 7, 2009	Port of Seattle SODO Regional Construction Update	Port of Seattle Pier 69, Room 2D East
May 12, 2009	Seattle Center Resident Director's Group PDA	Seattle Center House, Conference Room A
May 13, 2009	Edmonds Community College Construction Class	Edmonds Community College 20000 68th Ave. W.
May 20, 2009	Burlington Northern Santa Fe Quarterly Trucker's Meeting	15901 West Valley Highway
May 21, 2009	Seattle Design Commission	Seattle City Hall, Boards and Commissions Room L2-80
May 26, 2009	Manufacturing Industrial Council (MIC), Executive Committee	MIC Offices, 5509 First Ave. S.
May 28, 2009	Commute Trip Reduction Program	413 Pine Street
June 8, 2009	Institute of Transportation Engineers annual meeting	Tulalip Casino and Resort
June 11, 2009	Downtown District Council	1904 Third Avenue,
June 16, 2009	Freight Mobility Advisory Committee	Manufacturing Industrial Council 5509 First Ave. S.
June 17, 2009	Belltown Business Association	Seattle Labor Temple Association 2800 First Ave.
June 18, 2009	Seattle Design Commission	Seattle City Hall, Boards and Commissions Room L2-80
June 23, 2009	North Seattle Industrial Association	Car Wash Enterprise 3977 Leary Way NW
July 1, 2009	Regional Access Mobility Partnership	Port of Tacoma 3600 Port of Tacoma Road
July 13, 2009	Magnolia/Queen Anne District Council	Queen Anne/Magnolia Neighborhood Service Center, 160 Roy St.

Date attended	Organization	Location
July 15, 2009	Morgan Community Association	The Kenney Home 7125 Fauntleroy Way SW
July 28, 2009	Amalgamated Transit Union	2815 Second Ave., Suite 230
July 29, 2009	Mercer Corridor Stakeholder Committee	Biomedical Research Institute
July 29, 2009	Queen Anne Community Council, Transportation Committee	Queen Anne Community Council, Transportation Committee
August 4, 2009	South Lake Union Friends and Neighbors	Seattle Armory
August 5, 2009	Seattle Bicycle Advisory Board	Seattle City Hall, Boards and Commissions Room L2-80
August 20, 2009	SODO/Duwamish Commute Trip Reduction group	Seattle City Light, SODO Service Center
September 8, 2009	National Association of Women in Construction, Tacoma Chapter	Fife City Bar & Grill 3025 Pacific Hwy East
September 22, 2009	CG/LA North America Strategic Infrastructure Leadership Forum, Washington, DC	Omni Shoreham Hotel, Washington DC
September 24, 2009	Seattle Design Commission subcommittee	Seattle City Hall, Boards and Commissions Room L2-80
October 1, 2009	Seattle Design Commission	Seattle City Hall, Boards and Commissions Room L2-80
October 2, 2009	American Society of Civil Engineers semiannual meeting (Ports and Harbors Technical Committee)	SeaTac Conference Center
October 5, 2009	International District Forum	InterIm Offices 310 Maynard Ave. S.
October 7, 2009	Pioneer Square Preservation Board	Seattle City Hall, Boards and Commissions Room L2-80
October 8, 2009	Magnolia Community Club	Catherine Blaine Elementary School
October 8, 2009	Women's Transportation Seminar and the Association for the Advancement of Cost Engineering International	Double Tree Guest Suites Tukwila, WA
October 12, 2009	Magnolia/Queen Anne District Council	Magnolia Community Center
October 13, 2009	Construction Financial Management Association	Ruth Chris 727 Pine St.
October 15, 2009	Seattle Chamber of Commerce, Transportation Committee	Chamber Offices, Rainier Tower 1301 Fifth Ave., Suite 2500
October 22, 2009	Seattle Planning Commission	Seattle City Hall, Boards and Commissions Room L2-80
October 29, 2009	Seattle Stadium Parking and Access Review Committee	Seattle City Hall, Boards and Commissions Room L2-80
October 29, 2009	Seattle Design Commission Subcommittee	Seattle City Hall, Boards and Commissions Room L2-80
November 5, 2009	Futures Breakfast Group	Harbor Club

Date attended	Organization	Location
		801 2nd Ave
November 17, 2009	American Institute of Architects	AIA Seattle 1911 First Avenue
November 18, 2009	Management and Public Administration Committee of American Public Works Association	Rock Salt on Lake Union
November 18, 2009	City of Seattle Bike/Pedestrian/Freight Committee	Seattle Municipal Building
November 19, 2009	Washington Highway Users Federation	Washington State Convention Center
November 25, 2009	Queen Anne Community Council, Transportation Committee	Queen Anne Community Center, 1901 First Ave. W
December 1, 2009	North Seattle Industrial Association	Car Wash Enterprise 3977 Leary Way NW

SR 99 Alaskan Way Viaduct & Seawall Replacement Program
SR 99 Construction Corridor Analysis
MP 29.60 to MP 33.08

Document Summary

The Alaskan Way Viaduct & Seawall Replacement Program (AWV) is a major improvement and freight mobility program on SR 99 within the Seattle city limits. The AWV program has been divided into several projects. This Construction Corridor Analysis sets minimum construction design speeds and roadway geometry on SR 99 for the 11 projects associated with the AWV program scheduled to start construction in and after 2010. This document also documents the design parameters for the Interim Transition Bridge Structure. All design guidelines cited are from the WSDOT Design Manual unless otherwise noted.

Definition of Terms

"AWV Program" or "program" is the umbrella term which refers to all work funded under the bin number 809936Z.
"Project" refers to the division of program work into separate construction contracts, which includes work on SR 99 and within the city of Seattle and other partner agencies' R/W.
"Corridor" refers exclusively to SR 99 within the program limits.
"DM" refers to the WSDOT *Design Manual*, January 2009 unless otherwise noted.
"Green Book" refers to *A Policy on Geometric Design of Highways and Streets*, AASHTO, Fifth edition, 2004.

Program Overview

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 vicinity (Milepost [MP] 29.60) to Mercer Street vicinity (MP 33.08) and potentially underneath First Ave in downtown Seattle. 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.

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), and an M3 Managed Access Highway from Thomas St past the northern program limit at Ward St (MP 33.08). Speed limits through the program limits are posted between 40-50mph.

SR 99 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.

EXHIBIT T

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 these six "Moving Forward: Early Safety and Mobility Projects" (ESMP) is the South Holgate Street to South King Street Viaduct Replacement Project (H2K). This project was divided into three stages with each stage being released as a separate construction contract. Stage one involves relocating existing utilities; stage 2 involves reconstructing SR 99 from S. Holgate to King St. Remaining work within the H2K project limits (including demolishing the remainder of the existing viaduct and roadside restoration) will be completed under a separate contract.

In January 2009, the Governor, King County Executive, and the City of Seattle Mayor recommended replacing ~~agreed to replace~~ 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, ~~T~~the south portal to the tunnel ~~will~~ 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 ~~will~~ would emerge and connect to the existing SR 99 route near Ward St. (MP 33.08) (see vicinity map).The north and south portals ~~will~~ would be fully directional interchanges (currently in the design phase) that ~~will~~ would increase access to the city's Central Business District (CBD). ~~Once the tunnel has been opened to traffic, and after the existing Viaduct and detours are remove~~As part of the bored tunnel alternative,~~d,~~ the ~~city~~ City of Seattle ~~will~~ 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.~~.~~

The ultimate configuration of SR 99 is being designed to P-1 design class criteria. Design Matrix 3, line 3-7 applies to the projects on mainline SR 99 and matrix 4, line 4-5 will be used for the North and South Portal Accesses (Exhibits 1100-6 and 1100-7, June 2009).
Full limited access rights along SR 99 will be acquired from the southern program limits through the northern tunnel limits. Modified limited access rights will be acquired from the northern portal to Mercer St (MP 32.78).

This construction corridor analysis encompasses the remaining contracts in the Holgate to King project as well as all projects associated with the bored tunnel alternative for the viaduct's "~~Central~~ central ~~Waterfront~~waterfront replacement", which includes the SR 99 Deep Bore Tunnel and its North and South Access Portals, as well as the other remaining projects in the program. See Appendix A for a complete list of projects. 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 construction corridor analysis 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.

Existing Conditions through the Program Limits
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. Between Thomas St. and the northern program limits at Ward St. (MP 33.08), ingress and egress with SR 99 is not confined to specific access points and right-in/right-out access is available almost continuously.

The posted speed limit is 50 mph in the segment between the southern program limit and Virginia St vicinity (MP 29. 60 to 31.69); between Virginia St. to Lenora St. (MP 31.76) the posted speed is 45mph; from Lenora St. to the northern program limits, the posted speed for all vehicles is 40mph, with a 35mph advisory speed through the Battery Street Tunnel (BST). On the existing viaduct, the posted speed for trucks is 40mph.

Through most of the program limits, SR 99 has three through lanes in each direction. The only exceptions are: two lanes in each direction through the BST, a fourth auxiliary lane northbound between King and Seneca Streets (MP 30.76 to MP 31.30), and an intermittent auxiliary lane northbound from just north of the BST to the northern program limits at Ward St. (MP 32.50 to 33.08).

Existing lane widths range from 9.5 to 12 feet and shoulder widths range from 0 to 3 feet. The existing roadway design speed south of Union Street (MP 31.44) is 50mph based on the comparison of the existing horizontal geometrics and the 6% maximum superelevation rate table (Design Manual Exhibit 1250-4c, June 2009) based on current design guidelines. The existing sag curves in this area meet 50 mph design criteria (Design Manual Exhibit 1260-13, June 2009).

Design Speeds— SR 99 Final Configuration

The design speeds for permanent roadways constructed in this program are listed in the following table:

Table 1 SR 99 Design Speeds (Final)

SR 99	Recommended Design Speed	Anticipated Posted Speed
S. Spokane Street vic. to S. Royal Brougham Way (MP 29.26 to MP 30.32)	50 mph	50 mph
S. Royal Brougham Way to Mercer Street (tunnel) (MP 30.32 to MP 32.83)	50 mph	50 mph
Mercer Street to Ward Street (32.83 to MP 33.08)	45 mph	40 mph

Major Construction Work and Construction Design Speed

The AWV program is divided into several projects (see Appendix A), and each will affect traffic operations to a certain extent. However, most of the traffic impacts will result from the four largest proposed projects: Holgate to King Stage 2, South Portal Access, Deep Bore Tunnel, and North Portal Access. H2K is the first major project to go to construction, and the "Maintenance of Traffic"

(MOT) challenges for this project have served as the basis for creating this Construction Corridor Analysis. The MOT plans for the other major projects have not yet been developed in great detail, and this document will serve to provide the minimum design and posted speed requirements while all the remaining projects in the AWV program are constructed.

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 railroad tracks and S. Atlantic Street, returning to grade near S. Royal Brougham Way.

An interim transition bridge structure ("transition structure"), in place for four to five years, will be built to connect the bridge structure spanning S Atlantic Street to the existing Viaduct near the Railroad Way Ramps (MP 30.78) while construction for the proposed Deep Bore Tunnel takes place. After the tunnel is opened to traffic, the transition structure and existing Viaduct will be removed. The transition structure is a MOT strategy to maintain traffic on the existing corridor with minimal full closures within the program area. This transition structure will also have south off-ramp and north on-ramp connections because the existing N & S Railroad Way Ramps will be closed during the proposed south portal and tunnel construction. Because this transition structure is only in place for a limited time period, the decision was made to use the existing geometric conditions on the viaduct as the design parameters instead of current full geometric design guidelines, as would have been required if this were a permanent structure.

To promote safer driving conditions during the construction projects, the posted speed limits will be reduced from the existing condition. These posted speeds will be applicable while construction activities take place and the transition structure is operational. The construction posted speeds will promote safer driving conditions by reducing speeds to accommodate anticipated roadway conditions in the project area, such as:

- Motorists distracted by the adjacent construction,
- Unstable traffic flow from congestion,
- Reduced acceleration distance the interim NB ramp to the Transition Structure,
- Minimized roadway geometrics on the Transition Structure, and
- Lane shifts required for various construction staging alignments.

After the construction has completed, the final posted speed limits listed in Table 1 above will be in effect.

Figure 1 is a vicinity map with a graphical representation of the construction speed limits. See Table 2 for a comparison of the existing posted speeds and the minimum construction design speed at various segments within the program limits.

The posted speed during construction will be a combination of regulatory and advisory speed signs appropriate for the given traffic control configuration. Implementation of a reduced regulatory speed for construction is subject to approval of the region traffic engineer.

Table 2 SR 99 Construction Design Speed

SR 99	Existing Posted Speed	Minimum Construction Design Speed
From south of the program limits to S. Lander Street vic.(MP 29.60)	50	50
From S. Lander St to the Western/Elliot Ramps (MP 29.60 to 31.89)	50 (cars) 40 (trucks)	40
From Western/Elliot ramps, through the BST, to the northern program limits (MP 31.89 to 33.08)	40	40 (see note)

Note: Battery Street Tunnel will remain at its existing design speed of 35 mph.

SR 99 Construction Roadway Geometry

Construction detours of mainline SR 99 will be necessary throughout the life of the program. A commitment has been made to keep SR 99 open and functioning as much as possible. To that end, at least two lanes in each direction will be maintained. The minimum roadway geometry during construction will be lanes 11 feet in width with 1 foot of shy to barriers. Opposing lanes of traffic will remain barrier separated.

Construction Corridor Design Considerations

An effective Maintenance of Traffic (MOT) strategy needs to balance the AWV's aggressive construction schedule while limiting the construction impacts on the surrounding areas and is a very important part of the program. Design considerations listed in this section are not considered absolute constraints; however, they can substantially affect the local area and public safety and should only be approved when these effects can be mitigated or offset by corresponding benefits.

The existing SR 99 Viaduct has been in place for over 50 years and during that time, along much of its length, substantial development has occurred adjacent to the highway. With the recent ~~decision~~ recommendation to construct the Deep Bore Tunnel, the direct impacts from construction activities to the central downtown area have been greatly reduced. However, construction activities around the north and south portals for the proposed tunnel along with construction of the Interim Transition Bridge Structure can still heavily impact traffic operations in the surrounding areas if not properly mitigated.

SR 99 within the Holgate to King Stage 2 project limits (MP 29.60 to MP 30.32) is an industrial area with major properties which include the following:

- the Port of Seattle,

- BNSF and Union Pacific Railroad tracks,
- United States Coast Guard,
- Seattle Ferry Terminal,
- Seattle Mariners and Seahawks/FC Sounder Stadiums.

The northern program area (MP 32.78 to MP 33.08) is more urban compared to the south end with numerous businesses and residences in the near vicinity and several direct connections to SR 99 from both city streets and private properties.

The Governor gave the Alaskan Way Viaduct Program two fundamental milestones: remove the existing Viaduct by 2012 and substantially complete the program by 2015. In 2007, WSDOT's OSC Program Management signed the Final Project Definition, which approved replacing this seismically vulnerable structure. Although it was later found that removing the entire existing Viaduct by 2012 was infeasible, the program will still remove the southern 40% of the existing Viaduct as part of the Holgate to King Stage 2 project. These milestones have created an aggressive delivery schedule for a program that won't start major construction activities until early 2010.

Large construction staging areas are required to ensure efficient operations and constructability of the proposed tunnel, the two proposed tunnel portals, and the Interim Transition Bridge structure. Limiting staging areas and efficiency increases the risk of longer durations for construction activities, unsafe conditions, and increasing construction costs. One of the goals of the MOT strategy is to minimize major closures and traffic impacts to SR 99 and to the city street system from construction activities.

Areas where construction will affect the Viaduct's operations are expected to occur at the south and north access portals of the tunnel alternative. The following examples show some constraining corridor design considerations while in construction:

- Removing the existing viaduct between S Holgate St to S King St (MP 29.89 to 30.78) while maintaining the Washington Oregon Shipping Cooperative Association (WOSCA) property site for the proposed South Portal Access and Deep Bore Tunnel construction operations creates little space for detours in the area in order to build the Interim Transition Bridge Structure over S Atlantic St until the tunnel is open to traffic. Because of space constraints, 40 mph was the maximum design speed that could be used to design the vertical curves on the transition structure to create a detour.

- Shoulder width, number of lanes, and horizontal stopping sight distance on the transition structure is limited by the existing viaduct columns; however, these design features meet 40 mph design speed. The wider structure width required so that these design elements meet 50mph design speed would require major closures of SR 99, decreasing the MOT plan's efficiency and causing a much larger disruption and delay to the traveling public.

- In the North Portal Access area, available Right of Way is very limited and is one of the major constraints to the design. The limited Right of Way only allows for an

alignment on or near the current SR 99 roadway. The existing super-elevation and horizontal curves are the limiting factors at the North Portal Access detour plans.

The MOT operations plan features several geometric roadway configurations on SR 99 during the various constructions stages of the projects. By adjusting lane striping and barrier locations during the H2K construction, at least two lanes will remain open to traffic in each direction. The most constrained roadway sections are shown in the Roadway Sections (see Appendix C). The "end state" pavement marking plan in the H2K project Contract Plans will remain in place during construction of the other projects. The final channelization plan for SR 99 north of the H2K project limits will be developed during the design phase of the proposed North and South Portal Tunnel Access and Deep Bore Tunnel projects.

Construction Sequencing of Major Projects within the Program

The AWV program will be divided into several projects, which are listed in Appendix A. However, most of the construction impacts will come from four proposed projects. These projects' titles and estimated construction dates are listed below:

- SR 99 Holgate to King Stage 2, February 2010 to July 2013
- South Portal Tunnel Access, October 2013 to December 2015
- SR 99 Deep Bore Tunnel, May 2013 to December 2015
- North Portal Tunnel Access, May 2011 to August 2014

Appendix A contains a list of all the projects in the program and a construction schedule.

Interim Transition Bridge Structure

This section documents the deviated design parameters for the Interim Transition Bridge Structure ("transition structure"), and references the January 2009 *Design Manual* (the edition used for the Holgate to King, Stage 2 project which includes design and construction of the transition structure.) Refer to Appendix B-Trend SS0019R2 for additional information relating to how the preferred alternative was chosen..

A temporary section of roadway will connect the rebuilt section of SR 99 over S. Atlantic St. to the existing viaduct through downtown Seattle, and will be accessed by new ramps (also temporary) replacing the existing ramps at Railroad Way S (which will be closed). This is necessary to achieve the MOT goal of balancing construction zone efficiency and minimizing the effects on the traveling public. The project team looked at various alternatives and concluded that an Interim Transition Bridge Structure ("transition structure") that tied into the west side of the existing viaduct would be the best overall option. The transition structure and its ramps will be constructed during the Holgate to King, Stage 2 project and will be removed after the proposed Deep Bore Tunnel is opened to traffic in 2015.

The design team selected the design class Urban Managed Access-1 ($U_{M/A}$-1) and 50mph design speed for the transition structure as this is the design class and design speed for the existing SR 99 viaduct through downtown Seattle. All geometric elements meet current Full design criteria as

shown in Figure 440-9 (January 2009) for this design class except for the elements shown in Table 3; however, all the design elements listed in Table 3 satisfy 40mph design speed criteria or existing conditions except as noted. The transition structure meets or exceeds the design construction speed limit as described in this document. The Interim Bridge Transition Structure plan sheets in Appendix C are used to help reference these deviated design elements and show the plan and profiles of this structure.

Alternative 1

This alternative is a new bridge structure connecting the reconstructed SR 99 structure spanning S Atlantic Street with an inline approach that tied directly into the existing viaduct ends at Bent 121 (just south of the existing Railroad Way ramps). This alternative is an interim structure, and would be removed after the proposed Deep Bore Tunnel is opened to traffic.

Advantages of Alternative 1 include a higher design speed (45 mph), minimal structural modifications to the existing viaduct, increased shoulder width compared to existing conditions, and improved channelization of three lanes at the tie in locations in both directions by reducing potential driver disruptions.

Disadvantages include a full closure of SR 99 for at least 6 months, expected major congestion for 1st Ave S. throughout the construction period, major disruptions to businesses on 1st Ave. and stadium/event traffic (stadium and major events are scheduled 100 days per year). Past studies have shown that increased congestion increases the collision rates on facilities.

WSDOT Program Management decided that this alternative was not feasible because neither the minimum 6 month, full closure required of SR 99 nor the increased risk of collisions resulting from the significant congestion caused by diverting SR 99 traffic on parallel routes were acceptable.

A preliminary cost estimate for this alternative is around $35 Million.

Alternatives 2a - 2e—the "WOSCA detour"

The design team evaluated five other alternatives in addition to Alternative 1 and the preferred Alternative 3; however, these were rejected because they either required a construction detour through the WOSCA property (an adjacent property acquired by WSDOT) or detoured traffic through the active work zone onto 1st Ave for several months. These alternatives were more difficult to construct and would likely result in reduced safety for workers and motorists, higher bids, and possible delays during construction. After the "WOSCA detour" was operational, a separate roadway similar to Alternative 1 would be built, and then removed after the proposed Deep Bore Tunnel was opened to traffic. Most of these WOSCA detour alternatives were quickly dismissed as undesirable due to schedule and cost concerns.

The most feasible of the Alternative 2 scenarios through the WOSCA property created a detour using the Railroad Ave ramps and tying into the reconstructed SR 99 structure spanning over S. Atlantic Street. After this detour is in place, a configuration similar to Alternative 1 would be built to facilitate traffic through this area during construction of the proposed tunnel. Advantages of this alternative include: a shorter, single month closure of SR 99, building to current roadway design criteria, and limited impacts to city streets when compared to Alternative 1. Disadvantages include

additional construction costs, a detour requiring posted speed of 25 mph for approximately 1 year duration, and potentially delaying the rest of the program's project milestones due to constructability issues in coordinating proposed South Portal Access and Deep Bore Tunnel construction.

WSDOT Program Management rejected all iterations of the WOSCA detour because they created an unacceptable risk of either setting back the Governor- mandated milestone of fully opening of the recommended tunnel alternative to traffic by the end of 2015, decreasing safety to workers and motorists, or significantly impacting 1st Ave traffic operations. All iterations of Alternative 2 could also create constructability issues for the program which would increase costs and increase the construction duration. For these reasons any alternatives that implemented a detour through the WOSCA property were not considered acceptable for the success of the program.

Alternative 3 - Preferred

The preferred alternative is a new roadway section connecting between the reconstructed SR 99 to the west side of the existing Viaduct near S. Dearborn St (MP 30.32). This option is preferred because it can be constructed without any significant impacts to existing traffic operations or require any long-term full closures to SR 99. This is the also the only alternative that maintains existing SR 99 traffic on the SR 99 roadway and out of the work zone. The preferred alternative limits the structural modifications to the Viaduct and requires ~~only once~~approximately five short-term closures of SR 99 for the final tie into the existing Viaduct structure. In addition, the vertical clearance of the existing Viaduct is maintained.

The preferred alternative roadway section, alignment, and profiles are shown in Appendix C.

In this Alternative, the existing on- and off-ramps at Railroad Way and First Ave S. will be removed and replaced. The northbound transition structure on-ramp will be between Royal Brougham Way and the E. Frontage Road (west of First Ave S.). The southbound transition structure off-ramp will connect at street level to S. Atlantic Street, just east of Alaskan Way S. (see Appendix C)

The preferred alternative balances the MOT plan requirements and roadway design guidelines. When compared against Alternative 1, the preferred alternative minimizes the amount of significant disruptions to traffic because the required full closures can be restricted to weekends and two other short term closures ~~only~~. In addition, the preferred alternative reduces impacts to 1st Ave S. by keeping SR 99 open, and has fewer disruptions to businesses and industries in the area. Disadvantages of the preferred alternative include a lower design and posted speed, and some roadway geometric criteria that do not meet 50 mph design speed criteria for a $U_{M/A}$-1 roadway (listed in Table 3).

The estimated cost for the preferred alternative is approximately $35 million.

Justifications

The design team requests approval of the preferred alternative because it:

- Minimizes long-term full closures of SR 99 needed for Alternative 1,

- If the tunnel alternative is selected, it k~~K~~eeps SR 99 open while construction of the S. Portal Access and Deep Bore Tunnel projects are underway,
- Provides adequate construction staging area for the proposed South Portal Access and Deep Bore Tunnel, greatly reducing the risk of increased construction costs and schedule delays,
- Reduces the known construction risks which preclude meeting the 2015 milestone of opening the Executive's recommended Deep Bore Tunnel to traffic,
- Has the same construction cost compared to Alternative 1,
- Maintains existing minimum lane and shoulder widths, and vertical clearance of the existing Viaduct
- Minimizes traffic disruptions to stadium area activities and other local businesses, and
- Decreases work zone safety risks to both workers and motorists during the program's construction phases.

Deviated Design Elements for the Preferred Alternative

The design class for the transition structure and the northbound on- and southbound off-ramps is $U_{M/A}$-1 with a 50 mph design speed, which is the design and posted speed for both reconstructed and existing sections of SR 99. This construction corridor analysis sets the design speed at 40mph.

Table 3 (below) identifies the design elements on the Interim Bridge Transition Structure that do not meet current design guidelines for a $U_{M/A}$-1 roadway with a 50 mph design speed. However, this does not diminish driver expectations on this roadway because the geometric elements on the mainline alignment meet or exceed the conditions on the existing SR 99 alignment with the exception of the length of one vertical curve which does not meet the 40mph construction design speed.

20-35mph design speed range is used for the northbound ramp, supported by Exhibit 10-56 in the Green Book (Figure 940-4 in the DM lists the range of design speeds for ramps but doesn't address mainline design speeds less than 50mph.). The southbound ramp functions as a slip ramp, and uses the 25-40mph design speed range.

Justifications for Length of Vertical Curve

The proposed 100' vertical curve is located near the north end of the DTNB alignment as the northbound traffic lanes transition to match the Viaduct's existing upper deck. This curve is shorter than WSDOT guidelines for this design speed, but the curve does not create a sight obstruction and required stopping sight distance is met. The shortened vertical curve in this vicinity is justified through structural concerns for the existing viaduct. Initial concepts for the structural connection between the transition structure and existing Viaduct had assumed that a curb could be safely removed from the existing structure. However, subsequent as-built research and structural analysis confirmed that removal of reinforcing steel within the existing curb would endanger the structure. Consequently, the new transition bridge profile was adjusted to preserve and protect the existing reinforcing steel, thereby requiring a deck overlay up to 9-inches thick on the existing upper deck. Additional structural concerns regarding the weight of the overlay material have necessitated an alternative approach to the final grade transition. A typical bridge deck overlay would taper the new material to match the existing surface with a 0.2% maximum longitudinal slope in accordance with

WSDOT Standard Plan A-60.30-00 (11/8/07). This approach would require a total overlay length of approximately 360-feet for this situation. However, the structural analysis confirmed that the seismic response of the existing Viaduct would not be acceptable with this amount of additional material. The proposed vertical curve design will significantly reduce the total overlay length to 155-feet with a corresponding reduction in the volume and weight of material. A structural analysis found that the existing Viaduct structure would perform safely with the reduced weight of overlay material.

See Appendix C for the Interim Bridge Transition Structure plan sheets which show the design elements that correspond to Table 3. Appendix C also contains the alignment and profile plans for these interim alignments.

Vertical Clearance through the Transition Section

The southbound off-ramp will be constructed between Bents 118-120 on the existing Viaduct. The minimum vertical clearance over the traveled way on this exit ramp where it passes under the unmodified edge beam is 14.342 ft, which is lower than WSDOT design guidelines for an existing structure. More crucially, it is lower than the existing vertical clearance (14.449') from the Elliot Ave on-ramp (southbound) and over the traveled way of the mainline. The minimum clearance is located along a lateral beam, which has different structure structural design parameters from the crossbeams, and these lateral beams are not designed to be struck. Although overheight vehicles are not permitted on the Viaduct and the roadway is signed as 14.0 ft vertical clearance, there is a possibility that an overheight vehicle could enter via the Elliot Ave. ramp and strike this lateral beam.

The design team evaluated several options of mitigating this situation, which are summarized in a white paper (diagrams and full text are shown in Appendix D). The preferred option is to retrofit the lateral beam by replacing a portion of the bottom section of the existing beam (approx. 2 inches) with a 3/16" bent steel plate. The plate will armor the lateral beam from strikes, as well as increase the available vertical clearance from a low point of 14.342' to 14.451' at this same location.

The white paper and AWV Program Design Manager concurrence are found in Appendix D.

Table 3 – Interim Transition Bridge Structure Mainline and Ramps Deviated Design Elements

Mainline (DTNB and DTSB alignment)	$U_{M/A}$-1 50 mph Design Speed per Design Manual (Final SR 99 Configuration Alt #1)	40 mph Construction Design Speed—$U_{M/A}$-1 Design class per Design Manual	Existing Condition	Alternative 3 Interim Transition Structure—Preferred 40 mph design speed	Reference (1)—
1. Vertical Clearance	15.5 ft	15.5 ft	14.342 ft	14.35 ft	1120.04(5)(c)
2. Inside Shoulder	4 ft	4 ft	2 ft	2 ft	Fig 440-9
3. Outside Shoulder	10 ft	10 ft	2 ft	2 ft	Fig 440-9
4. Lane Reduction	600 ft	480 ft	None	506 ft	620.07(b)
5. Lane Width	12 ft	12 ft	11 ft	11 ft	Fig 440-9
6. Horizontal Stopping Sight Distance	425 ft	305 ft	300 ft	320 ft	Fig 650-10
7. Crest Vertical Curve Stopping Sight Distance	474 ft	333 ft	N/A	337 ft	Fig 650-5
8. Minimum Length of Vertical Curve	150 ft	120 ft	N/A	100 ft	630.03(2)
On-Ramp—Northbound (DNBR alignment)					
9. Design Speed	25-45	N/A	N/A	20-35 mph (2)	Green Book—Exhibit 10-56, DM 642.04, Fig. 642-5
10. Inside Shoulder	2 ft	2 ft	N/A	1 ft	Fig 940-6
11. Acceleration Lane Length	610 ft	270 ft	N/A	328 ft	Fig 940-9
12. On-Ramp Configuration	(3)	(3)	N/A	(3)	Fig 940-13a
Off-Ramp—Southbound (DSBR alignment)					
13. Design Speed			N/A	25-40 mph (2)	Green Book—Exhibit 10-56, DM 642.04, Fig. 642-5
14. Outside Shoulders	8 ft	8 ft	N/A	2 ft	Fig 940-6
15. Deceleration Length	315 ft	185 ft	N/A	185 ft min.	Fig 940-10
16. Gore Configuration	12 ft	12 ft.	N/A	8.5 ft (4)	940-11a
17. Off Ramp Configuration	(5)	(5)	N/A	(5)	940-14a
18. Lane Width	12 ft	12 ft	N/A	11 ft	Fig 940-6

(1) All references are from the WSDOT *Design Manual*, Jan. 2009, unless otherwise noted
(2) The Green Book provides guidance for ramp design speed when the mainline is 40mph and lower; DM 642.04 and Fig. 642-5 provide superelevation rates for ramps with these lower design speeds.

(3) 5.2' width provided between the mainline lane and the ramp lane at PT of ramp transition curve. (12' per Fig 940-13a)

(4) Measured from edge of mainline to point of physical nose, and can accommodate either a Quadguard Elite or REACT 350 impact attenuator.

(5) 6.5' width between the mainline lane and beginning of inside lane edge. (16' per Fig 940-14a)

Recommendation

This document serves two purposes: to set posted speeds within the program corridor during the various construction projects and to document the Interim Transition Bridge Structure geometrics.

A major goal of WSDOT Program Management and partner agencies is minimizing the impacts on traffic and freight operations through Seattle during the ambitious construction schedule for these several large-scale projects. A major feature is to reduce the posted speed on SR 99 between the transition structure area and existing Battery Street Tunnel during the construction periods in order to balance Maintenance of Traffic requirements with operational safety.

Upon completion of the proposed Deep Bore Tunnel and the associated north and south Access portals, traffic will be shifted to the ultimate SR 99 corridor alignment (scheduled for December 2015) and all temporary construction speeds outlined in this document will no longer apply to this corridor. The posted speed limits set in the SR 99 Corridor Analysis (approved July 2009) will then take effect.

The Interim Transition Bridge Structure is also a fundamental part of the Maintenance of Traffic strategy because it connects the reconstructed SR 99 south of downtown Seattle to the existing Viaduct through Seattle's Central Waterfront area, while maintaining traffic on the existing SR 99 alignment while the proposed Deep Bore Tunnel and North and South Access Portals are being constructed. This transition structure will only be opened to traffic until the proposed tunnel is operational; after which it will be removed. Several geometric elements do not meet current design guidelines for a new facility; however, the mainline design elements meet 40 mph design speed criteria and/or match into existing conditions on the Viaduct.

The design teams requests approval of the Construction Design Speeds and Interim Transition Bridge Structure design criteria.

Appendix A - Alaskan Way Proposed Program by Project*

Project Name	Major items of work	Current Construction Dates
Holgate to King, Stage 2	Removing and replacing the southern end of the existing Viaduct; building the Transition Structure and the "U-Tube"	February 2010 – July 2013
North Portal Tunnel Access	Constructing bridges and/or lids over SR 99 and ramps	May 2011 – August 2014
Ground Replacement	Replacing unsuitable material with controlled density fill in the South Portal Tunnel Access area,	August 2011 – June 2012
Tunnel Boring Machine Substation	Constructing a power supply substation for the TBM	August 2011 – October 2011
North Portal Detour and Utility Relocation	Constructing a detour roadway which connects with Battery Street Tunnel	February 2012 – December 2015
Deep Bore Tunnel	Constructing a Deep Bore Tunnel underneath downtown Seattle	May 2013 – December 2015
South Portal Tunnel Access	Creating on- and off- connections between 1st Ave and the Deep Bore Tunnel	October 2013 – December 2015
ITS Signage	Constructing and installing ITS infrastructure along SR 99 within the program limits	February 2015 – December 2015
South End Surface Improvement	Demolishing the Transition Structure	After South Portal Tunnel Access is completed
North End Surface Improvement	Remove north detour roadway and restore surfaces	After North Portal Tunnel Access is completed
Alaskan Way Demolition	Demolishing the Alaskan Way Viaduct and ramps through downtown Seattle and decommissioning the Battery Street Tunnel	After Deep Bore Tunnel is completed and opened to traffic

*This project list is based on the selection of the Deep Bore Tunnel alternative; if another alternative is recommended, this list will be revised.

Appendix B—Trend SS0019R2 Stage 2 Contract Alignment w/Proposed Bored Tunnel Alternative