Mainline Design Parameters – *SR99 NB Mainline: NB Line*

This checklist is to confirm interpretation of standards. Your project may require that additional/different/or fewer Design Elements be addressed.

Design Data	**Design Matrix 3, Line 6**			
Design Class	**P2 Urban Divided Highway - Limited Access** WSDOT Design Manual (DM) Fig. 440-6 (May 2008) Established by AWVSRP Corridor Analysis Supplement - TBD			
Design Year	**2030** WSDOT DM Fig. 440-6 (Jan 2009) Note 2			
Design Speed (Posted Speed)	**South of the Royal Brougham Way: 55mph, Posted 50mph** **North of the Royal Brougham Way: 50mph, Posted 45mph** Established by AWVSRP Corridor Analysis Addendum (November 2005)			
Number of Lanes	General Purpose: 2	HOV: 0	Auxiliary:0	
ADT	**Existing – 107,000** **Design Year – 115,000** "Transportation Discipline Report" (January 2008)			
Truck Percentage	**3%-5%** "Transportation Discipline Report" (January 2008)			

Design Element	**Reference**	**Design Standard**	**Existing/Proposed**	**Determination**
Access Control	Limited Access and Managed Access Master Plan for Northwest Region (February 4, 2004)	**Managed Access Class 1 (South of Thomas Street)** **Managed Access Class 3 (North of Thomas Street)**	$U_{M/A}^{-1}$/LA	DNMG
Vertical Clearance (Bridges not a part of the project)	WSDOT DM Section 1120.04(5b-1) (May 2007) over roadway; Fig. 1120-2 (May 2007) over railroad; Section 1020.06(3) (November 2006) over bikeways; Section 1025.05(2) (Jan 2009) over pedestrian path	**16.5 feet over roadway (17.5 feet for pedestrian bridges over roadways); 17.5 feet under signs and sign bridges** **23.5 feet over railroad;** **10 feet over bikeway;** **7 feet over pedestrian path**		MG
Median				

Design Element	Reference	Design Standard	Existing/Proposed	Determination
Median Width	WSDOT DM Fig. 440-9 (May 2008) Note 11, Fig. 440-4 (November 2007) Note 6	**10 feet minimum when median barrier is present; 12 feet desireable**	10' minimum provided	MG
Median Width Transitions	N/A	**N/A**	None	N/A
Median Accident/Barrier Warrant	N/A	**N/A**	None	N/A
Median Width/Barrier Placement	N/A	**N/A**	None	N/A
Median Crossover Design	N/A	**N/A**	None	N/A
Roadway				
Lane Width	WSDOT DM Fig. 440-9 (May 2008) Notes 3,4	**12 feet (may be reduced to 11 feet with justification) ; 12 feet must be provided when truck DDHV is 200 or greater**		MG
Turning Roadway Width	WSDOT DM Section 641.04(2)(4); Fig. 641-2(a)(b) (November 2006)	**Radius of Centerline of Traveled Way 1,000 – 2,999 feet; Design Traveled Way width 25 feet (2-lane)**		MG
Lane Transition	WSDOT DM Section 620.07(1) (May 2004)	**Lane Addition: 1:4 – 1:15; Lane Reduction: Length= VT**		MG
Max. Superelevation	WSDOT DM Section 642.04; Fig. 642-4(c) (November 2007)	**6%**		Per 642.04; need justification to use 6% (see Fig. 642-4(c)). Justification provided by Cliff Mansfield in October, 2007. This justification statement is as follows: The highway is classified as Urban Managed Multilane Divided That falls into the non-freeway category discussed in Design Manual Chapter 642, providing for the use of Figure 642-3b which uses the Max super 6% charts. For 55 MPH, an interpolated super elevation would be about 5.7%. Based on the potential transition to a surface option, use the flattest super elevation rate possible to minimize potential future modifications should the surface option be selected in the future, while still meeting the design criteria for the urban managed multilane divided - highway.

Design Element	Reference	Design Standard	Existing/Proposed	Determination
Superelevation Transition/Runoff	WSDOT DM Fig. 642-6(a,b,c,d,e) (November 2007)	**Varies**		
Lane Cross Slope	WSDOT DM Section 640.04(1) (November 2006)	**2% standard; 1.5%-2.5% slopes acceptable with justification and a hydraulic analysis**	0.5%	DNMG
Shoulders				
Shoulder Width - Inside	WSDOT DM Fig. 440-6 (May 2008)	**4 feet**		**DNMG: Deviation Required -** deviated to match existing conditions
			3 feet	DNMG
				DNMG: Deviation Required - deviated to match existing conditions
Shoulder Width - Outside	WSDOT DM Fig. 440-6 (May 2008)	**10 feet**		**DNMG: Deviation Required -** deviated to match existing conditions
			7 feet	DNMG
				DNMG: Deviation Required - deviated to match existing conditions
Shoulder Cross Slope	WSDOT DM Section 640.04(3) (November 2006)	**Varies 2-6%;** (Maximum difference between lane and shoulder is 8%)	Same as lane cross slope	DNMG
Grade				
Maximum Grade	WSDOT DM Fig. 440-6 (May 2008) Note 30	**7% rolling (50mph design speed); 6% rolling (55mph design speed);** Grades 1% steeper may be used in urban design areas and mountainous terrain with critical right of way controls.		MG

Design Element	Reference	Design Standard	Existing/Proposed	Determination
Minimum Grade	WSDOT DM Section 630.03 (4) (May 2004)	**Meet drainage requirements. Minimum ditch gradients of 0.30% on paved materials and 0.50% on earth**		MG
Length of Grade	WSDOT DM Section 630.05 (5) (May 2004) Fig. 630-1 (May 2004)	**Varies by grade**		DNMG
Horizontal Alignment				
Stopping Sight Distance	WSDOT DM Fig. 650-1,2,3,4,5, & 10 (May 2008)	**Varies with Design Speed**		MG
				MG
				MG
				MG
				MG
				MG
Horizontal Curve Radii	WSDOT DM Fig. 642-4(c) (November 2007)	**840' for 50mph (For 6% superelevation rate)**		MG
				MG
				MG
				MG
				MG
				MG
Vertical Alignment				
Stopping Sight Distance	WSDOT DM Fig. 650-1,2,3,4,&7 (May 2008)	**Varies with Design Speed and Grade Change**	POB to POE	MG
Minimum Length of Vertical Curves	WSDOT DM Fig. 650-1,4,&5 (May 2008)	**Varies with Design Speed and Grade Change**	Possible Comfort Curve Criteria	MG
				MG
				MG
				MG
				MG
				MG
				MG
				MG
Passing Sight Distance	WSDOT DM Fig. 650-14 (May 2008)	**N/A**	None	N/A
Decision Sight Distance	WSDOT DM Fig. 650-10 (May 2008)	**Varies with Design Speed**	None	N/A

Design Element	Reference	Design Standard	Existing/Proposed	Determination
Roadside				
Fill/Ditch Slope	N/A	**N/A**	None	N/A
Ditch Depth	N/A	**N/A**	None	N/A
Back Slope & Cut Slope	N/A	**N/A**	None	N/A
Clear Zone	WSDOT DM Sec. 700.04 (1&2) (May 2006)	**Varies**	Barrier provided as necessary	MG
Shy Distance				
Intersection Design	N/A	**N/A**	None	N/A