Mainline Design Parameters – *SR99 SB Mainline: SB 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 7**			
Design Class	**Principal Arterial, Divided Mutlilane Highway, P-1** WSDOT Design Manual (DM) Fig. 440-6 (May 2008)			
Design Year	**2030** WSDOT DM Fig. 440-6 (May 2008) Note 2			
Design Speed (Posted Speed)	**50mph/50mph** Established by AWVSRP Corridor Analysis (2009)			
Number of Lanes	General Purpose: 3	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	WSDOT Design Manual (DM) Fig. 440-6 (May 2008) note 5	**Full**	M1 Managed Access/M1 Managed Access	DNMG--deviation #3
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) (May	**16.5 feet over roadway (17.5 feet for pedestrian bridges over roadways); 23.5 feet over railroad; 10 feet over bikeway; 7 feet over pedestrian path**	SB 141+94 to 177+64	MG
Median				
Median Width	WSDOT DM Fig. 440-6 (May 2008) , Fig. 440-4 (May 2008)	**10 feet minimum when median barrier is present; 12 feet desireable**	10 feet with Conc. Barrier	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

Design Element	Reference	Design Standard	Existing/Proposed	Determination
Roadway				
Lane Width	WSDOT Section 440.08 WSDOT DM Fig. 440-6 (May 2008)	**12 feet**	SB 141+94 to 177+ 64; (12 feet)	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)**	SB 151+64 to 157+30; Radius of 1120 traveled way width of 37 feet (three lane)	MG
Lane Transition	WSDOT DM Section 620.07(1) (May 2004)	**Lane Addition: 1:4 – 1:15; Lane Reduction: Length= VT; 1:25 lane width change is sufficient**	SB 151+10 to 151+65; (1:55)	MG
			SB 157+30 to 157+85; (1:55)	MG
Max. Superelevation	WSDOT DM Section 642.04; Fig. 642-4(c) (November 2007)	**6%**	SB 142+17 to 145+58; (2%)	MG
			SB 152+35 to 156+61; (6%)	DNMG - Deviation #4 provided for use of 6% max chart (Fig 642-4c). The design classification was changed after 90% from UMA-1 to P1 which only allows for use of the 8% max charts.
			SB 161+36 to 165+36; (4%)	DNMG
Superelevation Transition/Runoff	WSDOT DM Fig. 642-6(a,b,c,d,e) (November 2007)	**Varies**	SB 141+94 to 142+20; (26')	Match existing
			SB 149+25 to 152+35; (310')	MG
			SB 156+61 to 161+36; (475')	MG
			SB 165+36 to 166+11; (75')	MG
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**	2%	MG
Shoulders				
Shoulder Width - Inside	WSDOT DM Fig. 440-9 (May 2008) Note 19	**10 feet**	SB 141+94 to 150+68.10; (1-4 feet)	**DNMG: Deviation Prepared -** deviated to match existing conditions
			SB 150+67 to 177+64; (4 feet min.)	**DNMG: Deviation Prepared**
Shoulder Width - Outside	WSDOT DM fig. 440-6 (May 2008) note19	**10 feet**	SB 141+94 to 149+80; (6-10 feet)	**DNMG: Deviation Prepared -** deviated to match existing conditions

Design Element	Reference	Design Standard	Existing/Proposed	Determination
	note19		SB 149+80 to 177+64(10 feet)	MG
Shoulder Cross Slope	WSDOT DM Section 640.04(3) (November 2006)	**Varies 2-6%;** (Maximum difference between lane and shoulder is 8%)	SB 141+94 to 196+10; (2%-6%) (Same as lane cross slope)	MG

Design Element	Reference	Design Standard	Existing/Proposed	Determination
Grade				
Maximum Grade	WSDOT DM Fig. 440-6 (May 2008) Note 30	**6% rolling (50mph design speed); 5% rolling (55mph design speed);** Grades 1% steeper may be used in urban design areas and mountainous terrain with critical right of way controls.	SB 141+94 to 196+10; (6% max. grade)	MG
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**	SB 141+94 to 196+10; (0.3% minimum)	MG
Length of Grade	WSDOT DM Section 630.05 (5) (May 2004) Fig. 630-1 (May 2004)	**Varies by grade**	SB 141+94 to 196+10	MG
Horizontal Alignment				
Stopping Sight Distance	WSDOT DM Fig. 650-1,2,&7 (May 2008)	**Varies with Design Speed**	SB PI 143+88: (976'; 495' required) SB PI 154+54; (465'; 542' required); SB Sta 149+50 to 159+50 SB PI 163+37; (618'; 542' required)	MG **DNMG: Deviation Prepared**. Meets or exceeds 50mph criteria. MG
Horizontal Curve Radii	WSDOT DM Fig. 642-4(c) (November 2007)	**840' for 50mph; 1065' for 55mph; (For 6% superelevation rate and 6% max chart)**	SB PI 143+88 (9940') SB PI 154+54 (1120') SB PI 163+37 (3025')	MG MG MG
Vertical Alignment				
Stopping Sight Distance	WSDOT DM Fig. 650-1,2,3,4,&5 (May 2008)	**Varies with Design Speed**	POB to POE	MG

Design Element	Reference	Design Standard	Existing/Proposed	Determination
Minimum Length of Vertical Curves	WSDOT DM Fig. 650-1,4,&5 (May 2008)	**Varies with Design Speed and Grade Change**	SB PVI 143+00; (200'; 58' required)	MG
			SB PVI 145+00; (200'; 184' required)	MG
			SB PVI 148+00; (300'; 163' required)	MG
			SB PVI 155+13; (800'; 522' required)	MG
			SB PVI 166+80; (1400'; 1361' required)	MG
			SB PVI 179+30; (610'; 609' required)	MG
			SB PVI 188+00; (530'; 525' required)	MG
			SB PVI 193+35; (530'; 524' required)	MG
Passing Sight Distance	WSDOT DM Fig. 650-14 (May 2008)	**1835' for 50mph; 1985' for 55mph**	None	N/A
Decision Sight Distance	WSDOT DM Fig. 650-10 (May 2008)	**Varies with Design Speed**	None	N/A
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 Fig. 700.04 (1&2) (May 2006)	**Varies**	Barrier provided as necessary	MG
Intersection Design	N/A	**N/A**	None	N/A