

Table A1 - Typical Sections

Reference Points	Segment	Interchanges Included	Structures Included	# of Lanes	Lane Width	Inside Shoulder	Outside Shoulder	Median Width	Notes
Begin Project to Rocker I/C Bridge	I-15/90	Rocker I/C	Rocker I/C	4	12'	4'	10'	64'	Short Section within Rocker I/C
Rocker I/C Bridge to WB Weigh Station Off-Ramp		-	N/A	5	12'	4'	10'	64'	5th lane is newly constructed auxillary lane from the WB weigh station.
WB Weigh Station Off-Ramp to West Butte I/C Ramps		West Butte I/C	RxR Bridge	4	12'	4'	10'	64'	RxR bridge has 2' shoulders
East Butte Interchange Ramps to MP 124.4		-	2-RxR Bridges each direction	4	12'	4'	10'	Varies	RxR bridges have 2' shoulders, Independent EB & WB alignment.
MP 124.4 to MP127.4		Montana St I/C, Harrison Ave. I/C	RxR Bridge, Montana St I/C, Harrison Ave. I/C	4	12'	4'	10'	28'	RxR bridge is proposed for replacement, Montana and Harrison bridges have 2' shoulder
MP 127.4 to MP 227.8 (I-90)	I-90	East Butte I/C	East Butte I/C	4	12'	4'	10'	28'	East Butte I/C area, I-15 diverges to separate alignment
MP 227.8 to End Project (I-90)		Continental I/C	N/A	4	12'	4'	10'	68'	WB is higher than EB east of the Contiental I/C
MP 127.4 to End Project (I-15)	I-15	-	N/A	3	12'	1'	6'	6'	2 Lanes NB, 1 Lane SB, Raised Median divided section.
West Butte I/C to Excelsior Ave. I/C Ramps	I-115	Excelsior Ave I/C	N/A	4	12'	4'	10'	Varies	EB and WB area on independet alignments
Excelsior Ave. I/C Ramps to End Project (I-115)		-	Excelsior Ave I/C	4	12'	2'	10'	8'	Short section as I-115 transitions to Iron Street

NOTES:

Typical Section segments based on major changes in typical section (i.e. lane #, width, median)

Except for the WB weigh station interchange ramps were ignored.

The MP 127.45 to End Project (I-15) considers the NB and SB loop ramp configuration as mainline for analysis.

CLEAR ZONE: As part of this inventory and review clear zone requirements were reviewed and analyzed. For this corridor a clear zone of 30' was identified as the required mainline tangent clear zone. Deficient clear zones are shown in the geometric plan sheets.

Table A2 - Structures Inventory

Description	Direction	Segment	Reference Pt.	Length (ft)	Width (ft)	Shoulder Widths	Rating	Skew	Clearance	Rating	Notes
Rocker I/C	EB/WB	Rocker	316+52	118	38	4', 10'	Good	0	-	Good	2-Separate structures
RxR Bridge	EB/WB	M-1	401+51	133	28	2', 2'	Poor	0	-	Good	2-Separate structures
I-115 EB Ramp	EB	West Butte	425+90	243.5	28	2', 2'	Poor	0	>16.5'	Good	Over I-15/90 WB
EB RxR Bridge	EB	M-2	435+94	301	28	2', 2'	Poor		-	Good	
EB RxR Bridge	EB	M-2	446+38	442	28	2', 2'	Poor	0	-	Good	On Horizontal Curve
WB RxR Bridge	WB	M-2	443+38	321	28	2', 2'	Poor		-	Good	
WB RxR Bridge	WB	M-2	455+60	488.5	28	2', 2'	Poor	0	-	Good	On Horizontal Curve
RxR Bridge	EB/WB	M-2	496+32	467.5	28	2', 2'	Poor	0	-	Good	2-Separate structures
RxR Bridge (Proposed)	EB/WB	M-2	496+32	255.9 EB	36.7	4', 9.5'	Good	0	-	Good	PROPOSED Replacement Structures, WB=242.8'
Montana Street I/C	EB/WB	Montana	519+81	168	28	2', 2'	Poor	0	>16.5'	Good	2-Separate structures, Over Montana St.
Lexington Ave. Overpass	EB/WB	M-3	546+00	-	-	-	-	-	>16.5'	Good	Over I-15/90
Oregon Ave. Overpass	EB/WB	M-3	570+00	-	-	-	-	-	>16.5'	Good	Over I-15/90
Harrison Avenue I/C	EB/WB	Harrison	605+20	209.5	28(EB), 40 (WB)	2', 2'	Poor		14'-11"	Poor	2-Separate structures, Over Harrison Ave.
Sheridan Ave. Overpass	EB/WB	M-4	653+00	-	-	-	-	-	>16.5'	Good	Over I-15/90
Continental Dr. Overpass	EB/WB	M-4	12+70	-	-	-	-	-	>16.5'	Good	Over I-15/90
East Butte I/C	EB/WB	East Butte	18+90	193	38	4', 10'	Good	0	>16.5'	Good	Over I-15/90
Burlington St. Overpass	EB/WB	M-5	42+87	-	-	-	-	-	>16.5'	Good	2-Separate structures
Continental I/C	EB/WB	Continental	103+55	-	-	-	-	-	>16.5'	Good	Over I-15/90
Excelsior Ave I/C	EB/WB	I-115	473+44	155	68	2', 2'	Poor	N/A	>16.5'	Good	Over Excelsior Avenue, 6' raised median

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Table A3 - Pedestrian Facility Inventory & Assessment

Interchange	Terminal Intersection	ADA Ramps	Rating (3)	Sidewalk Facilities	Rating (4)	Notes
Rocker Interchange	All	None	Poor	None	Poor	No pedestrian facilities at or near interchange
Excelsior Interchange	All	None	Poor	None	Poor	No pedestrian facilities at or near interchange
Montana Street Interchange (1)	Rowe	Yes - colored concrete	Fair	5'	Fair	Newer sidewalk and ramps
	EB ramps	Yes	Poor	5'	Fair	No marked crossing across Montana Street
	WB ramps	Yes	Poor	5'	Fair	No marked crossing across Montana Street
Harrison Avenue Interchange (2)	Amherst	Yes - colored concrete	Fair	5'	Fair	Newer sidewalk and ramps
	Cornell	Yes	Poor	5'	Fair	Old ramps, poor configuration
	WB ramps	Yes	Poor	5'	Fair	Old ramps, one is asphalt
	EB off-ramp	Yes	Poor	5'	Fair	Old ramps, one is asphalt
	Dewey	Yes - colored concrete	Fair	5'	Fair	Newer sidewalk and ramps on NE corner
	EB ramps	Yes	Poor	5'	Fair	ADA ramps are in poor shape, sign pole inhibits sidewalk & ramp
Continental Drive Interchange	All	None	Poor	None	Poor	No pedestrian facilities at or near interchange

NOTE: All local road overpass structures have at least a 5' wide sidewalk on one side of the bridge, except the Burlington overpass, which does not have any pedestrian facilities.

NOTES:

- (1) Montana Street is lacking safe pedestrian crossing locations. The only permitted crossing location is the Montana St./Rowe Rd. Intersection
- (2) Harrison Avenue has pedestrian crossings at Amherst (both sides), Westbound Ramps (north), Dewey (south), but then the next crossing is 1/2 mile south.
- (3) Good = Truncated Domes, Fair = Color Contrast, Poor = None/not to standard
- (4) Good = wider than 5 ft, Fair = 3-5 ft, Poor = None/less than 3 ft

Table A4 - Horizontal Information

Reference (PI Station)	Segment	Direction	Radius (ft)	Length (ft)	Direction	Superelevation	Rating (3)	Design Speed	Rating	Notes
I-15/90										
316+54	Rocker	EB/WB	11460	1730	LT	2%	Good	> 70	Good	
412+92	West Butte	EB	1637	1349	RT	6%	Poor	60	Fair	Curve on left hand EB I-115 ramp
449+64	M-2	EB	2910	972	LT	6%	Good	> 70	Good	
422+01	West Butte	WB	2865	2894	RT	2%	Good	> 70	Good	Curve at West Butte I/C WB on-ramp
459+72	M-2	WB	1910	1084	RT	7%	Good	65	Fair	See note (2)
449+60	M-3	EB	1910	10026	LT	7%	Good	65	Fair	See note (2)
538+68	M-3	EB/WB	2292	929	RT	6%	Fair	> 70	Good	
583+00	Harrison	EB/WB	5730	1181	LT	2%	Good	> 70	Good	
607+86	M-4	EB/WB	2292	1984	RT	6%	Fair	> 70	Good	
633+55	M-4	EB/WB	1910	2259	LT	6%	Poor	65	Fair	See note (2)
654+59	M-4	EB/WB	2865	938.3	RT	6%	Good	> 70	Good	
I-90										
20+47	East Butte	EB/WB	1910	22261	RT	6%	Poor	65	Fair	See note (2), East Butte I/C
42+89	M-5	EB/WB	2865	760	RT	6%	Good	> 70	Good	
70+33	M-6	EB/WB	7639	1435	LT	2%	Good	> 70	Good	
157+47	M-6	EB/WB	2865	1740	LT	6%	Good	> 70	Good	
173+54	M-6	EB/WB	2865	921	RT	6%	Good	> 70	Good	
I-115										
413+73	I-115	EB	1432	400	LT	6%	Poor	60	Fair	
429+74	I-116	EB	1146	458	RT	7%	Fair	55	Fair	
442+78	I-117	EB	1146	1205	LT	8%	Good	55	Fair	
458+26	I-118	EB	5730	1043	RT	2%	Good	> 70	Good	
414+12	I-119	WB	2865	294	LT	6%	Good	> 70	Good	
422+01	I-120	WB	2865	535	RT	6%	Good	> 70	Good	
446+72	I-121	WB	5730	3143	LT	2%	Good	> 70	Good	

NOTES:

- (1) Superelevation identified through as-built drawings and 2' GIS contours. Many as-builts were not specific to superelevation so the GIS contours were used.
- (2) Although 1910' meets the requirements for a Good rating it was given a FAIR rating because the existing superelevation correlates to a sub-70 MPH design speed.
- (3) Based on AASHTO Procedure for Development of Method 5 Superelevation Distribution

Table A5 - Mainline Vertical Information

Reference Location	Direction	Segment	Length	Grade1	Grade2	Rating (1)	Type	Vertical Curve	K-Value	Design Speed	Rating	Notes
290+80 to 294+80	EB/WB	Rocker		-1.7	0.2	Good	Sag	800	408	>70	Good	EB direction shown
294+80 to 331+00	EB/WB	Rocker		0.2	4.1	Good	Sag	800	208	>70	Good	EB direction shown
331+00 to 343+00	EB/WB	M-1	1200	4.1	5.5	Poor	Sag	800	563	>70	Good	EB direction shown
343+00 to 359+50	EB/WB	M-1	1650	5.5	-0.5	Poor	Crest	1500	250	>70	Good	EB direction shown
359+50 to 372+00	EB/WB	M-1		-0.5	1.6	Good	Sag	400	190	>70	Good	EB direction shown
372+00 to 402+12	EB/WB	M-1		1.6	-2.3	Good	Crest	1000	256	>70	Good	EB direction shown
402+12 to 426+00	EB	East Butte	2388	-3.1	-2.9	Fair	Crest	800	4000	>70	Good	
426+00 to 443+50	EB	M-2		-2.9	0.8	Good	Sag	950	260	>70	Good	
443+50 to 461+50	EB	M-2		0.8	-1.2	Good	Crest	800	410	>70	Good	
402+12 to 433+00	WB	East Butte		-2.6	-1.9	Good	Sag	800	1143	>70	Good	
433+00 to 454+00	WB	M-2		-1.9	0.6	Good	Sag	800	320	>70	Good	
454+00 to 462+50	WB	M-2		0.6	-1.2	Good	Crest	899	499	>70	Good	
461+50 to 478+00	EB/WB	M-2		-1.2	2.5	Good	Sag	800	217	>70	Good	
478+00 to 496+25	EB/WB	M-2		2.5	-3.2	Good	Crest	1000	177	60	Fair	Will be fixed with Butte Area Structures project
478+00 to 496+25 (Proposed)	EB/WB	M-2		2.2	-2.2	Good	Crest	2165	494	>70	Good	PROPOSED crest curve as part of Butte Area Structures
496+25 to 511+50	EB/WB	Montana	1475	-3.2	3.0	Fair	Sag	800	129	55	Fair	Will be improved as part of Butte Area Structures
511+50 to 519+81	EB/WB	Montana	831	3.0	-3.0	Fair	Crest	1100	185	60	Fair	Montana Street Interchange
519+81 to 531+00	EB/WB	Montana	1119	-3.0	0.2	Fair	Sag	800	254	>70	Good	
531+00 to 584+00	EB/WB	M-3		0.2	-0.5	Good	Crest	400	571	>70	Good	
584+00 to 605+00	EB/WB	M-3		-0.5	1.2	Good	Sag	400	234	>70	Good	
605+00 to 622+00	EB/WB	Harrison		1.2	-1.1	Good	Crest	800	351	>70	Good	
622+00 to 636+00	EB/WB	M-4		-1.1	1.9	Good	Sag	800	266	>70	Good	
636+00 to 653+00	EB/WB	M-4		1.9	1.1	Good	Crest	800	952	>70	Good	
653+00 to 662+82	EB/WB	M-4		1.1	1.8	Good	Sag	1000	1408	>70	Good	
0+00 to 4+00	EB/WB	M-4		1.1	1.8	Good	Sag	1000	1408	>70	Good	
4+00 to 31+50	EB/WB	East Butte		1.8	3.1	Good	Sag	300	227	>70	Good	
31+50 to 55+00	EB/WB	M-5	2350	3.1	-0.7	Fair	Crest	1000	263	>70	Good	East Butte Interchange
55+00 to 75+00	EB/WB	M-5		-0.7	-1.7	Good	Crest	400	412	>70	Good	
75+00 to 99+00	EB/WB	M-5		-1.7	0.8	Good	Sag	800	324	>70	Good	
99+00 to 116+50	EB/WB	M-6		0.8	-0.4	Good	Crest	800	696	>70	Good	
116+50 to 138+00	EB/WB	M-6		-0.4	2.2	Good	Sag	800	314	>70	Good	
138+00 to 156+00	EB/WB	M-6		2.2	1.8	Good	Crest	400	1000	>70	Good	
I-15												
35+00 to 55+00	SB	East Butte	2000	5.8	4.7	Poor	-	-	-	-	-	I-15 - climb towards Elk Park Pass
0+00 to 11+18	NB	East Butte	1118	3.8	4.9	Fair	Sag	300	275	>70	Good	I-15 - climb towards Elk Park Pass
11+18 to 55+00	NB	East Butte	4382	4.9	5.5	Poor	-	-	-	-	-	I-15 - climb towards Elk Park Pass
I-115												

Reference Location	Direction	Segment	Length	Grade1	Grade2	Rating (1)	Type	Vertical Curve	K-Value	Design Speed	Rating	Notes
416+00 to 430+20	EB	West Bute		0.6	-3.5	Good	Crest	600	146	55	Fair	
430+20 to 441+50	EB	I-115	1130	-3.5	0.5	Fair	Sag	800	202	>70	Good	
441+50 to 465+50	EB	I-115		0.5	2.5	Good	Sag	600	308	>70	Good	
418+00 to 421+00	WB	West Bute	300	4.3	-1.1	Poor	Crest	400	75	45	Poor	Approaching I-15/90 Merge, SSD 315'
421+00 to 426+00	WB	I-115		-1.1	-2.9	Good	Sag	400	216	>70	Good	
426+00 to 435+00	WB	I-115		-2.9	0.2	Good	Sag	400	128	55	Fair	
435+00 to 447+00	WB	I-115		0.2	-3.2	Good	Sag	800	233	>70	Good	
447+00 to 456+00	WB	I-115	900	-3.2	0.6	Fair	Crest	800	213	65	Fair	

Notes: (1) Rating is on Grade 1

Table A6 - Interchange Vertical Information

Reference Location	Direction	Grade	Grade	Type	Vertical Curve	K-Value	Design Speed	Rating	Notes
ROCKER									
E1 - WB on-ramp	WB	-0.42	-3.73	Crest	300	90.6	50	Fair	
E2 - WB off-ramp	WB	3.586	2.12	Crest	400	272.9	>70	Fair	
E3 - EB on-ramp	EB	5.23	0.22	Crest	500	99.8	50	Fair	
E4 - EB off-ramp	EB	0	-4.52	Crest	400	88.5	50	Fair	
E2 - WB off-ramp (@terminal)	WB	0	3.586	Sag	300	83.7	45	-	Approaching Rocker Road
E4 - EB off-ramp (@terminal)	EB	0	-4.52	Sag	300	66.4	40	-	Approaching Rocker Road
West Butte I/C									
A3 - EB off-ramp 01	EB	-1	0.63	Sag	400	245.4	>70	Fair	
A3 -EB off-ramp 02	EB	0.63	-3.47	Crest	600	146.3	55	Good	
A4 - WB on-ramp 01	WB	1	4.31	Sag	400	120.8	55	Poor	On EB I-115 mainline
A4 - WB on-ramp 02	WB	4.31	-1.09	Crest	400	74.1	45	Poor	On WB I-115 mainline
Montana Street I/C									
G1 - WB on-ramp	WB	-2.2	-4.82	Crest	200	76.3	45	Poor	
G2 - WB off-ramp	WB	2.4	-2.67	Crest	300	59.2	40	Fair	
G3 - EB off-ramp	EB	-0.43	-3.14	Crest	200	73.8	45	Good	
G4 - EB on-ramp	EB	1.78	-2.5	Crest	300	70.1	45	Good	
Harrison Avenue I/C									
E1 - WB on-ramp (loop)	WB	-1.54	-2.37	Crest	200	241.0	>70	Good	
E2 - WB off-ramp	WB	0.25	-2.78	Crest	200	66.0	45	Good	
E3 - EB on-ramp	EB	1.33	-0.8	Crest	250	117.4	55	Good	
E4 - EB off-ramp (loop)	EB	-2	-2.88	Crest	200	227.3	65	Good	
E5 - EB off-ramp	EB	2.63	-3.47	Crest	400	65.6	45	Good	
E6 - WB on-ramp	WB	1.02	-3.88	Crest	300	61.2	45	Poor	
East Butte I/C									
B1 - I-15/90 EB to I-15N	EB	1.78	4.96	Sag	400	125.8	55	Good	
B2 - I15SB to I-15/90 WB	WB	1.78	3.77	Sag	300	150.8	65	Good	

Reference Location	Direction	Grade	Grade	Type	Vertical Curve	K-Value	Design Speed	Rating	Notes
B3 - I15 SB to I-90 EB	EB	-1.59	3.97	Sag	300	54.0	35	Good	
B4 - I90WB to I-15NB - 01	NB	-1	-4.07	Crest	400	130.3	55	Good	
B4 - I90WB to I-15NB - 02	NB	-4.07	4	Sag	500	62.0	35	Poor	
Contiental I/C									
R1 - WB on-ramp	WB	0.2	3.98	Sag	700	185.2	70	Fair	
R2 - WB off-ramp	WB	-3.785	-0.2	Sag	400	111.6	50	Fair	
R3 - EB on-ramp	EB	-1.26	-0.3	Sag	400	416.7	>70	Poor	
R4 - EB off-ramp	EB	0.4	2.73	Sag	400	171.7	65	Good	
Excelsior Avenue I/C									
E1 - WB on-ramp	WB	4.97	6	Crest	200	194.2	65	Good	
E1 - WB off-ramp (@terminal)	WB	0.62	4.97	Sag	360	82.8	45	-	
E2 - WB off-ramp	WB	0.53	-6.43	Crest	500	71.8	45	Good	
E2 - WB off-ramp (@terminal)	WB	-6.43	3.34	Sag	500	51.2	35	-	
E3 - EB off-ramp	EB	1.69	5.5	Crest	250	65.6	45	Good	
E3 - EB off-ramp (@terminal)	EB	-0.97	5.5	Sag	200	30.9	25	-	
E4 - EB off-ramp	EB	-0.36	-4.88	Crest	300	66.4	50	Good	
E4 - EB off-ramp (@terminal)	EB	-4.88	-0.4	Sag	200	44.6	30	-	

NOTES:

Rating is based on comparison of vertical curvature to ramp horizontal curvature design speed. Good - <=5 mph, Fair - <= 10 mph, Poor - >10 mph (differences between horizontal and vertical)

Table A7 - Ramp Feature Analysis

Interchange	Ramp	Diverge Angle (Degree)	Rating	Measured Values			Required La/Ld (ft)	Rating	Notes
				Type	Initial Governing Element (D.S. MPH)	La or Ld (ft)			
Rocker	E3 - EB on-ramp	N/A	N/A	Acceleration	20 (2)	300	2250 (1)	Poor	(2) Assumed 20 MPH D.S. based on field observations of trucks on ramp
	E2 - WB off-ramp	4.5	Good	Deceleration	60	~400	-	Good	2-lane exit (1-auxillary and one exit ramp)
	E4 - EB off-ramp	4.5	Good	Deceleration	60	382.6	540	Good	
	E1 - WB on-ramp	N/A	N/A	Acceleration	60	300	-	Good	
West Butte	A3 - EB off-ramp	6 (3)	Poor	Deceleration	60	-	-	N/A	(3) Turning roadway diverge area, system-to-system interchange
	A4 - WB on-ramp	N/A	N/A	Acceleration	60	-	-	N/A	System-to-system interchange
Montana Street	G1 - WB on-ramp	4.5	Good	Acceleration	6	300	-	Good	Did not apply grade factor (for 3%) because of planned project
	G2 - WB off-ramp	N/A	N/A	Deceleration	5	354.6	340	Good	
	G3 - EB off-ramp	N/A	N/A	Deceleration	45	275.6	390	Poor	Did not apply grade factor (for 3%) because of planned project
	G4 - EB on-ramp	4.5	Good	Acceleration	50	300	580	Poor	
Harrison Avenue	E1 - WB on-ramp (loop)	N/A	N/A	Acceleration	20	236.6	1520	Poor	
	E2 - WB off-ramp	4.0	Good	Deceleration	45	262.2	390	Poor	Loop ramp
	E3 - EB on-ramp	250' taper (Parallel)	Poor	Acceleration	30	512.1	1350	Poor	Parallel Type on-ramp
	E4 - EB off-ramp (loop)	7.9 (3)	Poor	Deceleration	25	~50'	550	Poor	(3) Turning roadway diverge area, two curves, Loop ramp
	E5 - EB off-ramp	4.5	Good	Deceleration	50	401.8	340	Good	
	E6 - WB on-ramp	N/A	N/A	Acceleration	60	300	-	Good	
East Butte	B1 - I-15/90 EB to I-15N	4.25	Good	Deceleration	45	293.2	390	Poor	
	B2 - I15SB to I-15/90 WB	N/A	N/A	Acceleration	50	1109.9	580	Good	
	B3 - I15 SB to I-90 EB	N/A	N/A	Acceleration	25	300	2201 (2)	Poor	
	B4 - I90WB to I-15NB	4.0	Good	Deceleration	60	820.3	-	Good	
Continental	R1 - WB on-ramp	N/A	N/A	Acceleration	60	300	-	Good	
	R2 - WB off-ramp	4.5	Good	Deceleration	60	295.7	-	Good	
	R3 - EB on-ramp	N/A	N/A	Acceleration	45	300	820	Poor	
	R4 - EB off-ramp	4.5	Good	Deceleration	60	324.7	-	Good	
Excelsior Ave	E1 - WB on-ramp	4.5	Good	Acceleration	40	300	1000	Poor	
	E2 - WB off-ramp	N/A	N/A	Deceleration	25	312.1	550	Poor	Loop ramp
	E3 - EB off-ramp	4.5	Good	Acceleration	25	300	1429	Poor	1/2 Loop ramp
	E4 - EB off-ramp	N/A	N/A	Deceleration	30	321.3	520	Poor	1/2 Loop ramp
WB Weigh Station	WB off-ramp	213.5' taper (Parallel)	Fair	Deceleration	50	672.5	340	Good	Parallel Type off-ramp
	WB on-ramp	N/A	N/A	Acceleration	N/A	N/A	N/A	N/A	Continuous Auxillary Lane

NOTES:

(1) Applied grade adjustment factor of 1.5 (for upgrade of 3-4%)

Table A8 - Interchange Ramp Spacing

Segment	Type			Rating	Notes
	EN-EN or EX-EX	EN-EX	EX-EN		
Rocker EB off-ramp to on-ramp			2605	Good	
Rocker WB off-ramp to on-ramp			3090	Good	
WB Weigh Station on-ramp to Rocker EB off-ramp		2780		Good	Continuous Auxillary Lane
WB I-115 On-ramp to WB Weigh Station		3090		Good	System to Service Interchange
MT EB off-ramp to on-ramp			2320	Good	
MT WB off-ramp to on-ramp			2540	Good	
Harrison EB off-ramp to loop off-ramp	1340			Good	Exit 127A to 127B
Harrison EB loop off-ramp to EB on-ramp			1080	Good	
Harrison WB loop on-ramp to on-ramp	1330			Good	
Harrison WB off-ramp to loop on-ramp			855	Good	
West Butte EB off-ramp to on-ramp			1655	Good	
West Butte WB off-ramp to on-ramp			2610	Good	
Continental EB off-ramp to on-ramp			2725	Good	
Continental WB off-ramp to on-ramp			3125	Good	
Excelsior EB off-ramp to on-ramp			870	Good	
Excelsior WB off-ramp to on-ramp			850	Good	

NOTES:

Ratings are based on Geometric Design Criteria only; spacing was also analyzed for weaving criteria

Table A9 - Ramp Terminal and Frontage Road Spacing

Interchange	Location	Existing	Required	Rating	Notes
Rocker I/C	EB off/on-ramp and South Frontage Rd.	~40	100'	Poor	
	WB off/on-ramp and North Frontage Rd.	~40	100'	Poor	
Montana St. I/C	EB off-Ramp & Montana	310	377'	Poor	Ramp/continuous frontage road
	EB on-ramp & Montana	310	500' (1)	Poor	Ramp/continuous frontage road
	WB on-ramp & Montana	380	500' (1)	Poor	Ramp/continuous frontage road
	EB off/on-ramp & Rowe Road	360	100'	Good	
Harrison Ave. I/C	EB off/on-ramp & Oxford Street	85	100'	Poor	
	EB off-ramp & Dewey Blvd.	~40	100'	Poor	
	WB off-ramp & Cornell Ave.	250	100'	Good	
	EB off/on-ramp & Hotel Approach	155	100'	Good	
Contiental I/C	EB on/off-ramps & Continental Dr.	195	100'	Good	
	WB on/off-ramps & Saddle Rock Dr.	55	100'	Poor	

NOTES:

Measurements are from P.C. to P.C. along cross road.

Ratings are based on meeting standard = Good or NOT meeting standard = Poor

(1) MDT guidelines say this distance will be determined on case-by-case basis. Typically 500' is used for planning purposes for weaving requirements

Table A10 - Intersection Sight Distance (ISD)

Interchange	Location	Type	Sight Distance (ft)	Rating (1)	Obstruction/Notes
Rocker I/C	EB off-ramp (looking north)	Approach	290	Poor	Bridge Pier
	WB off-ramp (looking south)	Approach	250	Poor	Bridge Pier
Montana St. I/C	WB off-ramp (looking north)	Approach	>800	Good	
	WB off-ramp (looking south)	Approach	300	Poor	Bridge Pier
	EB off-ramp (looking north)	Approach	300	Poor	Bridge Pier
	EB off-ramp (looking south)	Approach	430	Fair	Rowe Rd/Montana St Intersection
	Montana St. at WB on-ramp NB left turn lane	<i>Left Turn</i>	>800	Good	
	Montana St. at EB on-ramp SB left turn lane	<i>Left Turn</i>	500	Good	Rowe Rd/Montana St Intersection
Harrison Ave. I/C	EB-off ramp (looking north)	Approach	280	Poor	Bridge Pier and Large Bush
	Harrison Avenue at Dewey Blvd NB left turn	Approach	650	Good	Looking through Bridge span
	EB off-ramp (loop) (looking south)	Approach	460	Fair	Looking through sign pole, 240' ISD to Approach Intersection
	EB off-ramp (loop) (looking north)	Approach	330	Poor	Dewey Blvd/Harrison St Intersection
	WB on/off-ramp (looking south)	Approach	540	Good	Dewey Blvd/Harrison St Intersection
	Harrison Ave. at Amherst Avenue (looking south)	Approach	250	Poor	Adjacent property parking lot, Cornell Avenue Intersection
	Harrison Ave. at Amherst Avenue SB left turn	<i>Left Turn</i>	~800	Good	Good sight distance to Bridge
Contienental I/C	WB on/off-ramp (looking west)	Approach	420	Fair	280' to corner of bridge rail which will inhibit low profile vehicles
	WB on/off-ramp (looking west)	Approach	380	Fair	5% upgrade, 300' to corner of bridge rail
Excelsior Ave. I/C	EB off-ramp (looking north)	Approach	440	Fair	Bridge Pier
	EB off-ramp (looking south)	Approach	1050	Good	

NOTES:

(1) Ratings are based on passenger car criteria

Ratings: (Approach) Good - >500', Fair - 499' to 391', Poor < 390'; (Left Turns, 2-lanes) Good - 400, Poor - 310

Approach is turning from side road, Left turn is for turning too sideroad.

Measurements are 14.4' back from cross road travel line and too the first obstruction point

Semitrailer Trucks for 45 MPH Design Speed: Approach = 765', (2-Lane Left Turn) = 545'

Table A11 - Guardrail Length of Need Calculation

Milepost	Direction	Protecting Feature	Side	Flare	Existing Length	Required Length	Rating	Notes
313+00	EB	Rocker Bridge	Inside	Flare	250	292	POOR	
320+00	WB	Rocker Bridge	Inside	Flare	275	292	POOR	
360+00	EB	Overhead Sign	Inside	Parallel	345	219	OK	
361+00	EB	Overhead Sign/Slope	Outside	Parallel	275	97	OK	
396+00	EB	Overhead Sign	Inside	Parallel	245	219	OK	
396+00	EB	Overhead Sign/Slope	Outside	Parallel	295	97	OK	
405+00	WB	Railroad Bridge	Inside	Parallel	295	292	OK	
409+00	EB	Overhead Sign	Inside	Parallel	335	219	OK	
410+00	EB	Overhead Sign/Slope	Outside	Parallel	235	97	OK	
I-115 EB	EB	Bridge over I-15/90	Inside	Parallel	160	292	POOR	I-115 Eastbound
I-115 EB	EB	Bridge over I-15/90	Outside	Parallel	175	231	POOR	I-115 Eastbound
427+00	EB	I-115 EB Overpass	Inside	Parallel	200	219	POOR	
427+00	EB	I-115 EB Overpass	Outside	Parallel	265	231	OK	
432+00	EB	Railroad Bridge	Inside	Parallel	350	292	OK	
431+00	EB	Railroad Bridge	Outside	Parallel	300	231	OK	
459+00	WB	Railroad Bridge	Outside	Parallel	245	231	OK	
I-115 EB	EB	Drainage Structure	Inside	Flare	170	292	POOR	I-115 Eastbound
I-115 EB	EB	Drainage Structure	Outside	Flare	170	231	POOR	I-115 Eastbound
I-115 WB	WB	Drainage Structure	Inside	Parallel	130	292	POOR	I-115 Westbound
I-115 WB	WB	Drainage Structure	Outside	Flare	140	231	POOR	I-115 Westbound
I-115 EB	EB	Excelsior Bridge	Outside	Flare	265	231	OK	I-115 Eastbound
I-115 WB	WB	Excelsior Bridge	Outside	Flare	265	231	OK	I-115 Westbound
516+00	EB	Montana St Bridge	Inside	Parallel	300	292	OK	
524+00	WB	Montana St Bridge	Inside	Parallel	294	292	OK	
543+00	EB	Lexington Overpass	Inside	Parallel	275	219	OK	
543+00	EB	Lexington Overpass	Outside	Parallel	275	231	OK	
549+00	WB	Lexington Overpass	Inside	Parallel	195	219	POOR	
550+00	WB	Lexington Overpass	Outside	Parallel	405	231	OK	
560+00	EB	Drainage Structure	Outside	Parallel	235	231	OK	
566+00	WB	Drainage Structure	Outside	Parallel	305	231	OK	

Milepost	Direction	Protecting Feature	Side	Flare	Existing Length	Required Length	Rating	Notes
568+00	EB	Oregon Overpass	Inside	Parallel	265	219	OK	
569+00	EB	Oregon Overpass	Outside	Parallel	145	231	POOR	
573+00	WB	Oregon Overpass	Inside	Parallel	275	219	OK	
573+00	WB	Oregon Overpass	Outside	Parallel	285	231	OK	
594+00	EB	Overhead Sign	Inside	Parallel	345	219	OK	
595+00	EB	Overhead Sign/Slope	Outside	Parallel	245	97	OK	
609+00	WB	Harrison Ave Bridge	Inside	Parallel	205	292	POOR	
625+00	EB	Overhead Sign	Inside	Parallel	335	219	OK	
626+00	EB	Overhead Sign/Slope	Outside	Parallel	205	97	OK	
635+00	WB	Drainage Structure	Outside	Parallel	200	231	POOR	
648+00	EB	Overhead Sign	Inside	Parallel	245	219	OK	
648+00	EB	Overhead Sign/Slope	Outside	Parallel	235	97	OK	
655+00	WB	Sheridan Overpass	Inside	Parallel	185	219	POOR	
655+00	WB	Sheridan Overpass	Outside	Parallel	195	231	POOR	
664+00	EB	Continental Overpass	Inside	Parallel	215	183	OK	
665+00	EB	Continental Overpass	Outside	Parallel	135	97	OK	I-15 NORTH RAMP
669+00	WB	Continental Overpass	Inside	Parallel	195	146	OK	
669+00	WB	Continental Overpass	Outside	Parallel	225	231	POOR	
682+00	EB	I-15/90 Int. Bridge	Inside	Parallel	295	292	OK	
689+00	WB	I-15/90 Int. Bridge	Inside	Parallel	300	292	OK	
690+00	WB	I-15/90 Int. Bridge	Outside	Parallel	245	231	OK	
697+00	WB	Overhead Sign	Outside	Parallel	235	97	OK	
703+00	EB	Burlington Overpass	Inside	Parallel	225	219	OK	
703+00	EB	Burlington Overpass	Outside	Parallel	245	231	OK	
710+00	WB	Burlington Overpass	Inside	Parallel	205	219	POOR	
710+00	WB	Burlington Overpass	Outside	Parallel	215	231	POOR	
756+00	EB	Continental Int. Overpass	Inside	Parallel	275	219	OK	
756+00	EB	Continental Int. Overpass	Outside	Parallel	265	231	OK	
763+00	WB	Continental Int. Overpass	Inside	Parallel	265	219	OK	
763+00	WB	Continental Int. Overpass	Outside	Parallel	275	231	OK	