

Interstate 80 Reconstruction

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	JRE				Freeway/Dir of Travel	Int. 307 to 308 EB Weave			
Agency/Company	AECOM				Weaving Segment Location				
Date Performed	9/11/2014				Analysis Year	Alt B1 Ph II 2045			
Analysis Time Period	A.M. Peak Hour								
Project Description <i>Interstate 80 Reconstruction</i>									
Inputs									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	4				Freeway minimum speed, S_{MIN}	15			
Weaving segment length, L_S	2025ft				Freeway maximum capacity, C_{IFL}	2400			
Freeway free-flow speed, FFS	70 mph				Terrain type	Rolling			
Conversions to pc/h Under Base Conditions									
	V (veh/h)	PHF	Truck (%)	RV (%)	E_T	E_R	f_{HV}	f_p	v (pc/h)
V_{FF}	2559	0.97	13	0	2.5	2.0	0.837	0.95	3319
V_{RF}	989	0.97	10	0	2.5	2.0	0.870	0.95	1234
V_{FR}	187	0.97	2	0	2.5	2.0	0.971	0.95	209
V_{RR}	95	0.97	13	0	2.5	2.0	0.837	0.95	3319
V_{NW}	3425							V =	4868
V_W	1443								
VR	0.296								
Configuration Characteristics									
Minimum maneuver lanes, N_{WL}	2 lc				Minimum weaving lane changes, LC_{MIN}	1443 lc/h			
Interchange density, ID	1.70 int/mi				Weaving lane changes, LC_W	2017 lc/h			
Minimum RF lane changes, LC_{RF}	1 lc/pc				Non-weaving lane changes, LC_{NW}	1033 lc/h			
Minimum FR lane changes, LC_{FR}	1 lc/pc				Total lane changes, LC_{ALL}	3050 lc/h			
Minimum RR lane changes, LC_{RR}	lc/pc				Non-weaving vehicle index, I_{NW}	0.312			
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment flow rate, v	4868 pc/h				Weaving intensity factor, W	0.312			
Weaving segment capacity, c_w	6437 veh/h				Weaving segment speed, S	54.7 mph			
Weaving segment v/c ratio	0.601				Average weaving speed, S_W	56.9 mph			
Weaving segment density, D	22.3 pc/mi/ln				Average non-weaving speed, S_{NW}	53.8 mph			
Level of Service, LOS	C				Maximum weaving length, L_{MAX}	5546 ft			
Notes									
a. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments".									
b. For volumes that exceed the weaving segment capacity, the level of service is "F".									

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FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	JRE				Freeway/Dir of Travel	Int. 307 to 308 EB Weave			
Agency/Company	AECOM				Weaving Segment Location				
Date Performed	9/11/2014				Analysis Year	Alt B1 Ph II 2045			
Analysis Time Period	P.M. Peak Hour								
Project Description <i>Interstate 80 Reconstruction</i>									
Inputs									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	4				Freeway minimum speed, S_{MIN}	15			
Weaving segment length, L_S	2025ft				Freeway maximum capacity, C_{IFL}	2400			
Freeway free-flow speed, FFS	70 mph				Terrain type	Rolling			
Conversions to pc/h Under Base Conditions									
	V (veh/h)	PHF	Truck (%)	RV (%)	E_T	E_R	f_{HV}	f_p	v (pc/h)
V_{FF}	3370	0.97	13	0	2.5	2.0	0.837	0.95	4370
V_{RF}	725	0.97	10	0	2.5	2.0	0.870	0.95	905
V_{FR}	211	0.97	2	0	2.5	2.0	0.971	0.95	236
V_{RR}	110	0.97	13	0	2.5	2.0	0.837	0.95	4370
V_{NW}	4493							V =	5634
V_W	1141								
VR	0.203								
Configuration Characteristics									
Minimum maneuver lanes, N_{WL}	2 lc				Minimum weaving lane changes, LC_{MIN}	1141 lc/h			
Interchange density, ID	1.70 int/mi				Weaving lane changes, LC_W	1715 lc/h			
Minimum RF lane changes, LC_{RF}	1 lc/pc				Non-weaving lane changes, LC_{NW}	1799 lc/h			
Minimum FR lane changes, LC_{FR}	1 lc/pc				Total lane changes, LC_{ALL}	3514 lc/h			
Minimum RR lane changes, LC_{RR}	lc/pc				Non-weaving vehicle index, I_{NW}	0.349			
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment flow rate, v	5634 pc/h				Weaving intensity factor, W	0.349			
Weaving segment capacity, c_w	7015 veh/h				Weaving segment speed, S	55.2 mph			
Weaving segment v/c ratio	0.638				Average weaving speed, S_W	55.8 mph			
Weaving segment density, D	25.5 pc/mi/ln				Average non-weaving speed, S_{NW}	55.0 mph			
Level of Service, LOS	C				Maximum weaving length, L_{MAX}	4562 ft			
Notes									
a. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments".									
b. For volumes that exceed the weaving segment capacity, the level of service is "F".									

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FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	JRE				Freeway/Dir of Travel	Int. 307 to 308 EB Weave			
Agency/Company	AECOM				Weaving Segment Location				
Date Performed	9/11/2014				Analysis Year	Alt B1 Ph II 2045			
Analysis Time Period	A.M. Peak Hour								
Project Description <i>Interstate 80 Reconstruction</i>									
Inputs									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	4				Freeway minimum speed, S_{MIN}	15			
Weaving segment length, L_S	2200ft				Freeway maximum capacity, C_{IFL}	2400			
Freeway free-flow speed, FFS	70 mph				Terrain type	Rolling			
Conversions to pc/h Under Base Conditions									
	V (veh/h)	PHF	Truck (%)	RV (%)	E_T	E_R	f_{HV}	f_p	v (pc/h)
V_{FF}	2198	0.97	13	0	2.5	2.0	0.837	0.95	2850
V_{RF}	329	0.97	10	0	2.5	2.0	0.870	0.95	411
V_{FR}	569	0.97	2	0	2.5	2.0	0.971	0.95	636
V_{RR}	65	0.97	13	0	2.5	2.0	0.837	0.95	2850
V_{NW}	2923							V =	3970
V_W	1047								
VR	0.264								
Configuration Characteristics									
Minimum maneuver lanes, N_{WL}	2 lc				Minimum weaving lane changes, LC_{MIN}	1047 lc/h			
Interchange density, ID	1.70 int/mi				Weaving lane changes, LC_W	1649 lc/h			
Minimum RF lane changes, LC_{RF}	1 lc/pc				Non-weaving lane changes, LC_{NW}	1024 lc/h			
Minimum FR lane changes, LC_{FR}	1 lc/pc				Total lane changes, LC_{ALL}	2673 lc/h			
Minimum RR lane changes, LC_{RR}	lc/pc				Non-weaving vehicle index, I_{NW}	0.264			
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment flow rate, v	3970 pc/h				Weaving intensity factor, W	0.264			
Weaving segment capacity, c_w	6904 veh/h				Weaving segment speed, S	57.9 mph			
Weaving segment v/c ratio	0.457				Average weaving speed, S_W	58.5 mph			
Weaving segment density, D	17.1 pc/mi/ln				Average non-weaving speed, S_{NW}	57.7 mph			
Level of Service, LOS	B				Maximum weaving length, L_{MAX}	5198 ft			
Notes									
a. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments".									
b. For volumes that exceed the weaving segment capacity, the level of service is "F".									

Interstate 80 Reconstruction

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	JRE				Freeway/Dir of Travel	Int. 308 to 307 WB Weave			
Agency/Company	AECOM				Weaving Segment Location				
Date Performed	9/11/2014				Analysis Year	Alt B1 Ph II 2045			
Analysis Time Period	P.M. Peak Hour								
Project Description <i>Interstate 80 Reconstruction</i>									
Inputs									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	4				Freeway minimum speed, S_{MIN}	15			
Weaving segment length, L_S	2200ft				Freeway maximum capacity, C_{IFL}	2400			
Freeway free-flow speed, FFS	70 mph				Terrain type	Rolling			
Conversions to pc/h Under Base Conditions									
	V (veh/h)	PHF	Truck (%)	RV (%)	E_T	E_R	f_{HV}	f_p	v (pc/h)
V_{FF}	4803	0.97	13	0	2.5	2.0	0.837	0.95	6229
V_{RF}	373	0.97	2	0	2.5	2.0	0.971	0.95	417
V_{FR}	1157	0.97	10	0	2.5	2.0	0.870	0.95	1444
V_{RR}	132	0.97	13	0	2.5	2.0	0.837	0.95	6229
V_{NW}	6377							V =	8238
V_W	1861								
VR	0.226								
Configuration Characteristics									
Minimum maneuver lanes, N_{WL}	2 lc				Minimum weaving lane changes, LC_{MIN}	1861 lc/h			
Interchange density, ID	1.70 int/mi				Weaving lane changes, LC_W	2463 lc/h			
Minimum RF lane changes, LC_{RF}	1 lc/pc				Non-weaving lane changes, LC_{NW}	3111 lc/h			
Minimum FR lane changes, LC_{FR}	1 lc/pc				Total lane changes, LC_{ALL}	5574 lc/h			
Minimum RR lane changes, LC_{RR}	lc/pc				Non-weaving vehicle index, I_{NW}	0.471			
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment flow rate, v	8238 pc/h				Weaving intensity factor, W	0.471			
Weaving segment capacity, c_w	6999 veh/h				Weaving segment speed, S	47.9 mph			
Weaving segment v/c ratio	0.936				Average weaving speed, S_W	52.4 mph			
Weaving segment density, D	43.0 pc/mi/ln				Average non-weaving speed, S_{NW}	46.7 mph			
Level of Service, LOS	E				Maximum weaving length, L_{MAX}	4803 ft			
Notes									
a. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments".									
b. For volumes that exceed the weaving segment capacity, the level of service is "F".									

Interstate 80 Reconstruction

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	JRE				Freeway/Dir of Travel	Int. 304 to 303 WB			
Agency/Company	AECOM				Weaving Segment Location	CD - double FF and FR numbers			
Date Performed	9/11/2014				Analysis Year	Alt B1 2045			
Analysis Time Period	A.M. Peak Hour								
Project Description <i>Interstate 80 Reconstruction</i>									
Inputs									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	2				Freeway minimum speed, S_{MIN}	15			
Weaving segment length, L_S	1000ft				Freeway maximum capacity, C_{IFL}	2250			
Freeway free-flow speed, FFS	50 mph				Terrain type	Rolling			
Conversions to pc/h Under Base Conditions									
	V (veh/h)	PHF	Truck (%)	RV (%)	E_T	E_R	f_{HV}	f_p	v (pc/h)
V_{FF}	112	0.97	13	0	2.5	2.0	0.837	0.95	145
V_{RF}	328	0.97	2	0	2.5	2.0	0.971	0.95	367
V_{FR}	96	0.97	2	0	2.5	2.0	0.971	0.95	107
V_{RR}	10	0.97	13	0	2.5	2.0	0.837	0.95	145
V_{NW}	156							V =	630
V_W	474								
VR	0.752								
Configuration Characteristics									
Minimum maneuver lanes, N_{WL}	2 lc				Minimum weaving lane changes, LC_{MIN}	474 lc/h			
Interchange density, ID	1.70 int/mi				Weaving lane changes, LC_W	565 lc/h			
Minimum RF lane changes, LC_{RF}	1 lc/pc				Non-weaving lane changes, LC_{NW}	189 lc/h			
Minimum FR lane changes, LC_{FR}	1 lc/pc				Total lane changes, LC_{ALL}	754 lc/h			
Minimum RR lane changes, LC_{RR}	lc/pc				Non-weaving vehicle index, I_{NW}	0.181			
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment flow rate, v	630 pc/h				Weaving intensity factor, W	0.181			
Weaving segment capacity, c_w	2371 veh/h				Weaving segment speed, S	44.7 mph			
Weaving segment v/c ratio	0.211				Average weaving speed, S_W	44.6 mph			
Weaving segment density, D	7.0 pc/mi/ln				Average non-weaving speed, S_{NW}	45.1 mph			
Level of Service, LOS	A				Maximum weaving length, L_{MAX}	10922 ft			
Notes									
a. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments".									
b. For volumes that exceed the weaving segment capacity, the level of service is "F".									

Interstate 80 Reconstruction

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	JRE				Freeway/Dir of Travel	Int. 304 to 303 WB			
Agency/Company	AECOM				Weaving Segment Location	CD - double FF and FR			
Date Performed	8/1/2013				Analysis Year	Alt B1 2045			
Analysis Time Period	P.M. Peak Hour								
Project Description <i>Interstate 80 Reconstruction</i>									
Inputs									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	2				Freeway minimum speed, S_{MIN}	15			
Weaving segment length, L_S	1200ft				Freeway maximum capacity, C_{IFL}	2250			
Freeway free-flow speed, FFS	50 mph				Terrain type	Rolling			
Conversions to pc/h Under Base Conditions									
	V (veh/h)	PHF	Truck (%)	RV (%)	E_T	E_R	f_{HV}	f_p	v (pc/h)
V_{FF}	20	0.97	13	0	2.5	2.0	0.837	0.95	26
V_{RF}	486	0.97	2	0	2.5	2.0	0.971	0.95	543
V_{FR}	178	0.97	2	0	2.5	2.0	0.971	0.95	199
V_{RR}	26	0.97	13	0	2.5	2.0	0.837	0.95	26
V_{NW}	55							V =	797
V_W	742								
VR	0.931								
Configuration Characteristics									
Minimum maneuver lanes, N_{WL}	2 lc				Minimum weaving lane changes, LC_{MIN}	742 lc/h			
Interchange density, ID	1.70 int/mi				Weaving lane changes, LC_W	846 lc/h			
Minimum RF lane changes, LC_{RF}	1 lc/pc				Non-weaving lane changes, LC_{NW}	277 lc/h			
Minimum FR lane changes, LC_{FR}	1 lc/pc				Total lane changes, LC_{ALL}	1123 lc/h			
Minimum RR lane changes, LC_{RR}	lc/pc				Non-weaving vehicle index, I_{NW}	0.214			
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment flow rate, v	797 pc/h				Weaving intensity factor, W	0.214			
Weaving segment capacity, c_w	2049 veh/h				Weaving segment speed, S	43.7 mph			
Weaving segment v/c ratio	0.309				Average weaving speed, S_W	43.8 mph			
Weaving segment density, D	9.1 pc/mi/ln				Average non-weaving speed, S_{NW}	42.7 mph			
Level of Service, LOS	A				Maximum weaving length, L_{MAX}	13283 ft			
Notes									
a. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments".									
b. For volumes that exceed the weaving segment capacity, the level of service is "F".									