

Interstate 80 Reconstruction

<b>FREEWAY WEAVING WORKSHEET</b>									
<b>General Information</b>					<b>Site Information</b>				
Analyst	JRE				Freeway/Dir of Travel	Int. 307 to 308 EB Weave			
Agency/Company	AECOM				Weaving Segment Location	Alt B1 Ph II 2045			
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>									
<b>Inputs</b>									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	4				Freeway minimum speed, S <sub>MIN</sub>	15			
Weaving segment length, L <sub>S</sub>	2025ft				Freeway maximum capacity, C <sub>IFL</sub>	2400			
Freeway free-flow speed, FFS	70 mph				Terrain type	Rolling			
<b>Conversions to pc/h Under Base Conditions</b>									
	V (veh/h)	PHF	Truck (%)	RV (%)	E <sub>T</sub>	E <sub>R</sub>	f <sub>HV</sub>	f <sub>p</sub>	v (pc/h)
V <sub>FF</sub>	2559	0.97	13	0	2.5	2.0	0.837	0.95	3319
V <sub>RF</sub>	989	0.97	10	0	2.5	2.0	0.870	0.95	1234
V <sub>FR</sub>	187	0.97	2	0	2.5	2.0	0.971	0.95	209
V <sub>RR</sub>	95	0.97	13	0	2.5	2.0	0.837	0.95	3319
V <sub>NW</sub>	3425							V =	4868
V <sub>W</sub>	1443								
VR	0.296								
<b>Configuration Characteristics</b>									
Minimum maneuver lanes, N <sub>WL</sub>	2 lc				Minimum weaving lane changes, LC <sub>MIN</sub>	1443 lc/h			
Interchange density, ID	1.70 int/mi				Weaving lane changes, LC <sub>W</sub>	2017 lc/h			
Minimum RF lane changes, LC <sub>RF</sub>	1 lc/pc				Non-weaving lane changes, LC <sub>NW</sub>	1033 lc/h			
Minimum FR lane changes, LC <sub>FR</sub>	1 lc/pc				Total lane changes, LC <sub>ALL</sub>	3050 lc/h			
Minimum RR lane changes, LC <sub>RR</sub>	lc/pc				Non-weaving vehicle index, I <sub>NW</sub>	0.312			
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
Weaving segment flow rate, v	4868 pc/h				Weaving intensity factor, W	0.312			
Weaving segment capacity, c <sub>w</sub>	6437 veh/h				Weaving segment speed, S	54.7 mph			
Weaving segment v/c ratio	0.601				Average weaving speed, S <sub>W</sub>	56.9 mph			
Weaving segment density, D	22.3 pc/mi/ln				Average non-weaving speed, S <sub>NW</sub>	53.8 mph			
Level of Service, LOS	C				Maximum weaving length, L <sub>MAX</sub>	5546 ft			
<b>Notes</b>									
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

<b>FREEWAY WEAVING WORKSHEET</b>									
<b>General Information</b>					<b>Site Information</b>				
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>									
<b>Inputs</b>									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	4				Freeway minimum speed, S <sub>MIN</sub>	15			
Weaving segment length, L <sub>S</sub>	2025ft				Freeway maximum capacity, C <sub>IFL</sub>	2400			
Freeway free-flow speed, FFS	70 mph				Terrain type	Rolling			
<b>Conversions to pc/h Under Base Conditions</b>									
	V (veh/h)	PHF	Truck (%)	RV (%)	E <sub>T</sub>	E <sub>R</sub>	f <sub>HV</sub>	f <sub>p</sub>	v (pc/h)
V <sub>FF</sub>	3370	0.97	13	0	2.5	2.0	0.837	0.95	4370
V <sub>RF</sub>	725	0.97	10	0	2.5	2.0	0.870	0.95	905
V <sub>FR</sub>	211	0.97	2	0	2.5	2.0	0.971	0.95	236
V <sub>RR</sub>	110	0.97	13	0	2.5	2.0	0.837	0.95	4370
V <sub>NW</sub>	4493							V =	5634
V <sub>W</sub>	1141								
VR	0.203								
<b>Configuration Characteristics</b>									
Minimum maneuver lanes, N <sub>WL</sub>	2 lc				Minimum weaving lane changes, LC <sub>MIN</sub>	1141 lc/h			
Interchange density, ID	1.70 int/mi				Weaving lane changes, LC <sub>W</sub>	1715 lc/h			
Minimum RF lane changes, LC <sub>RF</sub>	1 lc/pc				Non-weaving lane changes, LC <sub>NW</sub>	1799 lc/h			
Minimum FR lane changes, LC <sub>FR</sub>	1 lc/pc				Total lane changes, LC <sub>ALL</sub>	3514 lc/h			
Minimum RR lane changes, LC <sub>RR</sub>	lc/pc				Non-weaving vehicle index, I <sub>NW</sub>	0.349			
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
Weaving segment flow rate, v	5634 pc/h				Weaving intensity factor, W	0.349			
Weaving segment capacity, c <sub>w</sub>	7015 veh/h				Weaving segment speed, S	55.2 mph			
Weaving segment v/c ratio	0.638				Average weaving speed, S <sub>W</sub>	55.8 mph			
Weaving segment density, D	25.5 pc/mi/ln				Average non-weaving speed, S <sub>NW</sub>	55.0 mph			
Level of Service, LOS	C				Maximum weaving length, L <sub>MAX</sub>	4562 ft			
<b>Notes</b>									
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

<b>FREEWAY WEAVING WORKSHEET</b>									
<b>General Information</b>					<b>Site Information</b>				
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>									
<b>Inputs</b>									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	4				Freeway minimum speed, S <sub>MIN</sub>	15			
Weaving segment length, L <sub>S</sub>	2200ft				Freeway maximum capacity, C <sub>IFL</sub>	2400			
Freeway free-flow speed, FFS	70 mph				Terrain type	Rolling			
<b>Conversions to pc/h Under Base Conditions</b>									
	V (veh/h)	PHF	Truck (%)	RV (%)	E <sub>T</sub>	E <sub>R</sub>	f <sub>HV</sub>	f <sub>p</sub>	v (pc/h)
V <sub>FF</sub>	2198	0.97	13	0	2.5	2.0	0.837	0.95	2850
V <sub>RF</sub>	329	0.97	10	0	2.5	2.0	0.870	0.95	411
V <sub>FR</sub>	569	0.97	2	0	2.5	2.0	0.971	0.95	636
V <sub>RR</sub>	65	0.97	13	0	2.5	2.0	0.837	0.95	2850
V <sub>NW</sub>	2923							V =	3970
V <sub>W</sub>	1047								
VR	0.264								
<b>Configuration Characteristics</b>									
Minimum maneuver lanes, N <sub>WL</sub>	2 lc				Minimum weaving lane changes, LC <sub>MIN</sub>	1047 lc/h			
Interchange density, ID	1.70 int/mi				Weaving lane changes, LC <sub>W</sub>	1649 lc/h			
Minimum RF lane changes, LC <sub>RF</sub>	1 lc/pc				Non-weaving lane changes, LC <sub>NW</sub>	1024 lc/h			
Minimum FR lane changes, LC <sub>FR</sub>	1 lc/pc				Total lane changes, LC <sub>ALL</sub>	2673 lc/h			
Minimum RR lane changes, LC <sub>RR</sub>	lc/pc				Non-weaving vehicle index, I <sub>NW</sub>	0.264			
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
Weaving segment flow rate, v	3970 pc/h				Weaving intensity factor, W	0.264			
Weaving segment capacity, c <sub>w</sub>	6904 veh/h				Weaving segment speed, S	57.9 mph			
Weaving segment v/c ratio	0.457				Average weaving speed, S <sub>W</sub>	58.5 mph			
Weaving segment density, D	17.1 pc/mi/ln				Average non-weaving speed, S <sub>NW</sub>	57.7 mph			
Level of Service, LOS	B				Maximum weaving length, L <sub>MAX</sub>	5198 ft			
<b>Notes</b>									
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

<b>FREEWAY WEAVING WORKSHEET</b>									
<b>General Information</b>					<b>Site Information</b>				
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>									
<b>Inputs</b>									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	4				Freeway minimum speed, S <sub>MIN</sub>	15			
Weaving segment length, L <sub>S</sub>	2200ft				Freeway maximum capacity, C <sub>IFL</sub>	2400			
Freeway free-flow speed, FFS	70 mph				Terrain type	Rolling			
<b>Conversions to pc/h Under Base Conditions</b>									
	V (veh/h)	PHF	Truck (%)	RV (%)	E <sub>T</sub>	E <sub>R</sub>	f <sub>HV</sub>	f <sub>p</sub>	v (pc/h)
V <sub>FF</sub>	4803	0.97	13	0	2.5	2.0	0.837	0.95	6229
V <sub>RF</sub>	373	0.97	2	0	2.5	2.0	0.971	0.95	417
V <sub>FR</sub>	1157	0.97	10	0	2.5	2.0	0.870	0.95	1444
V <sub>RR</sub>	132	0.97	13	0	2.5	2.0	0.837	0.95	6229
V <sub>NW</sub>	6377							V =	8238
V <sub>W</sub>	1861								
VR	0.226								
<b>Configuration Characteristics</b>									
Minimum maneuver lanes, N <sub>WL</sub>	2 lc				Minimum weaving lane changes, LC <sub>MIN</sub>	1861 lc/h			
Interchange density, ID	1.70 int/mi				Weaving lane changes, LC <sub>W</sub>	2463 lc/h			
Minimum RF lane changes, LC <sub>RF</sub>	1 lc/pc				Non-weaving lane changes, LC <sub>NW</sub>	3111 lc/h			
Minimum FR lane changes, LC <sub>FR</sub>	1 lc/pc				Total lane changes, LC <sub>ALL</sub>	5574 lc/h			
Minimum RR lane changes, LC <sub>RR</sub>	lc/pc				Non-weaving vehicle index, I <sub>NW</sub>	0.471			
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
Weaving segment flow rate, v	8238 pc/h				Weaving intensity factor, W	0.471			
Weaving segment capacity, c <sub>w</sub>	6999 veh/h				Weaving segment speed, S	47.9 mph			
Weaving segment v/c ratio	0.936				Average weaving speed, S <sub>W</sub>	52.4 mph			
Weaving segment density, D	43.0 pc/mi/ln				Average non-weaving speed, S <sub>NW</sub>	46.7 mph			
Level of Service, LOS	E				Maximum weaving length, L <sub>MAX</sub>	4803 ft			
<b>Notes</b>									
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

<b>FREEWAY WEAVING WORKSHEET</b>									
<b>General Information</b>					<b>Site Information</b>				
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>									
<b>Inputs</b>									
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			
<b>Conversions to pc/h Under Base Conditions</b>									
	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								
<b>Configuration Characteristics</b>									
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			
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
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			
<b>Notes</b>									
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

<b>FREEWAY WEAVING WORKSHEET</b>									
<b>General Information</b>					<b>Site Information</b>				
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>									
<b>Inputs</b>									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	2				Freeway minimum speed, S <sub>MIN</sub>	15			
Weaving segment length, L <sub>S</sub>	1200ft				Freeway maximum capacity, C <sub>IFL</sub>	2250			
Freeway free-flow speed, FFS	50 mph				Terrain type	Rolling			
<b>Conversions to pc/h Under Base Conditions</b>									
	V (veh/h)	PHF	Truck (%)	RV (%)	E <sub>T</sub>	E <sub>R</sub>	f <sub>HV</sub>	f <sub>p</sub>	v (pc/h)
V <sub>FF</sub>	20	0.97	13	0	2.5	2.0	0.837	0.95	26
V <sub>RF</sub>	486	0.97	2	0	2.5	2.0	0.971	0.95	543
V <sub>FR</sub>	178	0.97	2	0	2.5	2.0	0.971	0.95	199
V <sub>RR</sub>	26	0.97	13	0	2.5	2.0	0.837	0.95	26
V <sub>NW</sub>	55							V =	797
V <sub>W</sub>	742								
VR	0.931								
<b>Configuration Characteristics</b>									
Minimum maneuver lanes, N <sub>WL</sub>	2 lc				Minimum weaving lane changes, LC <sub>MIN</sub>	742 lc/h			
Interchange density, ID	1.70 int/mi				Weaving lane changes, LC <sub>W</sub>	846 lc/h			
Minimum RF lane changes, LC <sub>RF</sub>	1 lc/pc				Non-weaving lane changes, LC <sub>NW</sub>	277 lc/h			
Minimum FR lane changes, LC <sub>FR</sub>	1 lc/pc				Total lane changes, LC <sub>ALL</sub>	1123 lc/h			
Minimum RR lane changes, LC <sub>RR</sub>	lc/pc				Non-weaving vehicle index, I <sub>NW</sub>	0.214			
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
Weaving segment flow rate, v	797 pc/h				Weaving intensity factor, W	0.214			
Weaving segment capacity, c <sub>w</sub>	2049 veh/h				Weaving segment speed, S	43.7 mph			
Weaving segment v/c ratio	0.309				Average weaving speed, S <sub>W</sub>	43.8 mph			
Weaving segment density, D	9.1 pc/mi/ln				Average non-weaving speed, S <sub>NW</sub>	42.7 mph			
Level of Service, LOS	A				Maximum weaving length, L <sub>MAX</sub>	13283 ft			
<b>Notes</b>									
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".									