

## **APPENDIX C: CALCULATION WORKSHEETS FOR FREEWAY SEGMENTS AND FREEWAY WEAVE ANALYSIS**

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Basic Freeway Segment Analysis

FREEWAY LEVEL OF SERVICE ANALYSIS (HCM 2010)																																		
SR-65 - NB																																		
WEEKDAY MORNING PEAK HOUR																																		
Segment No.	From	To	Miles	Ramp Density (per mile)	Number of Lanes in One Direction	Lane Width (ft)	Aux Lane ?	HOV Lane?	Right-side Lateral Clearance (ft)	Terrain	Use Measured FFS?	Measured Free Flow Speed (mph)	F <sub>LW</sub> Adj	F <sub>LC</sub> Adj	TRD Adj	Base Free Flow Speed (mph)	FFS Curve	Base Capacity (pc/h/ln)	Total PHV (vph)	HOV Lane Utilization (%)	HOV Lane PHV (vph)	Mixed Flow + HOV PHV (vph)	Peak Hour Factor	% Trucks and Buses	% RV	Driver Population Factor F <sub>P Adj</sub>	F <sub>HV</sub> Adj	Flow Rate V <sub>P</sub> (pc/h/ln)	CAF Default = 1	Segment Speed (mi/h)	Density (pc/mi/ln)	LOS		
	Existing																																	
2	Blue Oaks Off-Ramp	Blue Oaks On-Ramp	0.43	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,162	0.0%	0	2,162	0.85	12.9%	2.0%	1	0.825	1,537	1.00	68.68	22.4	C		
4	Blue Oaks	Sunset	0.62	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,435	0.0%	0	2,435	0.85	12.9%	2.0%	1	0.825	1,731	1.00	66.73	25.9	C		
6	Sunset Off-Ramp	Sunset Loop On-Ramp	0.33	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	1,250	0.0%	0	1,250	0.85	12.9%	2.0%	1	0.825	889	1.00	70.00	12.7	B		
9	Sunset	Twelve Bridges	1.25	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	1,490	0.0%	0	1,490	0.85	12.9%	2.0%	1	0.825	1,059	1.00	70.00	15.1	B		
11	Twelve Bridges Off-Ramp	Twelve Bridges On-Ramp	0.57	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	1,221	0.0%	0	1,221	0.85	12.9%	2.0%	1	0.825	868	1.00	70.00	12.4	B		
13	Old Hwy 65	Ferrari Ranch	0.27	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	929	0.0%	0	929	0.85	12.9%	2.0%	1	0.825	660	1.00	70.00	9.4	A		

FREEWAY LEVEL OF SERVICE ANALYSIS (HCM 2010)																																		
SR-65 - NB																																		
WEEKDAY EVENING PEAK HOUR																																		
Segment No.	From	To	Miles	Ramp Density (per mile)	Number of Lanes in One Direction	Lane Width (ft)	Aux Lane ?	HOV Lane?	Right-side Lateral Clearance (ft)	Terrain	Use Measured FFS?	Measured Free Flow Speed (mph)	F <sub>LW</sub> Adj	F <sub>LC</sub> Adj	TRD Adj	Base Free Flow Speed (mph)	FFS Curve	Base Capacity (pc/h/ln)	Total PHV (vph)	HOV Lane Utilization (%)	HOV Lane PHV (vph)	Mixed Flow PHV (vph)	Peak Hour Factor	% Trucks and Buses	% RV	Driver Population Factor F <sub>P Adj</sub>	F <sub>HV</sub> Adj	Flow Rate V <sub>P</sub> (pc/h/ln)	CAF Default = 1	Segment Speed (mi/h)	Density (pc/mi/ln)	LOS		
	Existing																																	
2	Blue Oaks Off-Ramp	Blue Oaks On-Ramp	0.43	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,618	0.0%	0	2,618	0.94	12.9%	2.0%	1	0.825	1,693	1.00	67.18	25.2	C		
4	Blue Oaks	Sunset	0.62	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	3,097	0.0%	0	3,097	0.94	12.9%	2.0%	1	0.825	2,003	1.00	62.52	32.0	D		
6	Sunset Off-Ramp	Sunset Loop On-Ramp	0.33	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,388	0.0%	0	2,388	0.94	12.9%	2.0%	1	0.825	1,544	1.00	68.62	22.5	C		
9	Sunset	Twelve Bridges	1.25	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,715	0.0%	0	2,715	0.94	12.9%	2.0%	1	0.825	1,756	1.00	66.42	26.4	D		
11	Twelve Bridges Off-Ramp	Twelve Bridges On-Ramp	0.57	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,150	0.0%	0	2,150	0.94	12.9%	2.0%	1	0.825	1,390	1.00	69.58	20.0	C		
13	Old Hwy 65	Ferrari Ranch	0.27	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	1,521	0.0%	0	1,521	0.94	12.9%	2.0%	1	0.825	984	1.00	70.00	14.1	B		

FREEWAY LEVEL OF SERVICE ANALYSIS (HCM 2010)																																		
SR-65 - SB																																		
WEEKDAY MORNING PEAK HOUR																																		
Segment No.	From	To	Miles	Ramp Density (per mile)	Number of Lanes in One Direction	Lane Width (ft)	Aux Lane ?	HOV Lane?	Right-side Lateral Clearance (ft)	Terrain	Use Measured FFS?	Measured Free Flow Speed (mph)	F <sub>LW</sub> Adj	F <sub>LC</sub> Adj	TRD Adj	Base Free Flow Speed (mph)	FFS Curve	Base Capacity (pc/h/ln)	Total PHV (vph)	HOV Lane Utilization (%)	HOV Lane PHV (vph)	Mixed Flow PHV (vph)	Peak Hour Factor	% Trucks and Buses	% RV	Driver Population Factor F <sub>P Adj</sub>	F <sub>HV</sub> Adj	Flow Rate V <sub>P</sub> (pc/h/ln)	CAF Default = 1	Segment Speed (mi/h)	Density (pc/mi/ln)	LOS		
	Existing																																	
14	Ferrari Ranch	Old Hwy 65	0.21	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,218	0.0%	0	2,218	0.94	12.9%	2.0%	1	0.825	1,437	1.00	69.35	20.7	C		
16	Twelve Bridges Off-Ramp	Twelve Bridges On-Ramp	0.31	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,672	0.0%	0	2,672	0.94	12.9%	2.0%	1	0.825	1,731	1.00	66.73	25.9	C		
18	Twelve Bridges	Sunset	1.46	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	3,263	0.0%	0	3,263	0.94	12.9%	2.0%	1	0.825	2,114	1.00	60.31	35.0	E		
20	Sunset Off-Ramp	Sunset On-Ramp	0.32	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,891	0.0%	0	2,891	0.94	12.9%	2.0%	1	0.825	1,873	1.00	64.75	28.9	D		
23	Sunset	Blue Oaks	0.19	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	3,600	0.0%	0	3,600	0.94	12.9%	2.0%	1	0.825	2,332	1.00	55.13	42.3	E		
25	Blue Oaks Off-Ramp	Blue Oaks Loop On-Ramp	0.31	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	3,055	0.0%	0	3,055	0.94	12.9%	2.0%	1	0.825	1,979	1.00	62.96	31.4	D		

FREEWAY LEVEL OF SERVICE ANALYSIS (HCM 2010)																																		
SR-65 - SB																																		
WEEKDAY EVENING PEAK HOUR																																		
Segment No.	From	To	Miles	Ramp Density (per mile)	Number of Lanes in One Direction	Lane Width (ft)	Aux Lane ?	HOV Lane?	Right-side Lateral Clearance (ft)	Terrain	Use Measured FFS?	Measured Free Flow Speed (mph)	F <sub>LW</sub> Adj	F <sub>LC</sub> Adj	TRD Adj	Base Free Flow Speed (mph)	FFS Curve	Base Capacity (pc/h/ln)	Total PHV (vph)	HOV Lane Utilization (%)	HOV Lane PHV (vph)	Mixed Flow PHV (vph)	Peak Hour Factor	% Trucks and Buses	% RV	Driver Population Factor F <sub>P Adj</sub>	F <sub>HV</sub> Adj	Flow Rate V <sub>P</sub> (pc/h/ln)	CAF Default = 1	Segment Speed (mi/h)	Density (pc/mi/ln)	LOS		
	Existing																																	
14	Ferrari Ranch	Old Hwy 65	0.21	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	1,703	0.0%	0	1,703	0.90	12.9%	2.0%	1	0.825	1,141	1.00	70.00	16.3	B		
16	Twelve Bridges Off-Ramp	Twelve Bridges On-Ramp	0.31	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,141	0.0%	0	2,141	0.90	12.9%	2.0%	1	0.825	1,435	1.00	69.36	20.7	C		
18	Twelve Bridges	Sunset	1.46	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,530	0.0%	0	2,530	0.90	12.9%	2.0%	1	0.825	1,695	1.00	67.15	25.2	C		
20	Sunset Off-Ramp	Sunset On-Ramp	0.32	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,263	0.0%	0	2,263	0.90	12.9%	2.0%	1	0.825	1,516	1.00	68.84	22.0	C		
23	Sunset	Blue Oaks	0.19	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	3,452	0.0%	0	3,452	0.90	12.9%	2.0%	1	0.825	2,313	1.00	55.62	41.6	E		
25	Blue Oaks Off-Ramp	Blue Oaks Loop On-Ramp	0.31	1	2	12	0	0	10	R	No	70	0.00	0.00	1.00	72.2	70.0	2,400	2,835	0.0%	0	2,835	0.90	12.9%	2.0%	1	0.825	1,900	1.00	64.32	29.5	D		



## Freeway Merge Analysis - AM Peak Hour

## Freeway Merge Analysis - PM Peak Hour

## Freeway Diverge Analysis - AM Peak Hour

### Freeway Diverge Analysis - PM Peak Hour

[illegible]

FREEWAY WEAVING WORKSHEET									
<b>General Information</b>					<b>Site Information</b>				
Analyst		VK			Freeway/Dir of Travel		SR-65 NB		
Agency/Company		Kittelson & Associates			Weaving Segment Location		Twelve Bridges to Old Hwy 65		
Date Performed		5/13/2015			Analysis Year		2015		
Analysis Time Period		AM Peak							
Project Description Sunset Industrial Area Plan Update									
<b>Inputs</b>									
Weaving configuration				One-Sided		Segment type		Freeway	
Weaving number of lanes, N				3		Freeway minimum speed, $S_{MIN}$		35	
Weaving segment length, $L_S$				1700ft		Freeway maximum capacity, $C_{IFL}$		2400	
Freeway free-flow speed, FFS				70 mph		Terrain type		Level	
<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)
$V_{FF}$	705	0.85	13	2	1.5	1.2	0.935	1.00	887
$V_{RF}$	224	0.92	5	2	1.5	1.2	0.972	1.00	251
$V_{FR}$	516	0.92	5	2	1.5	1.2	0.972	1.00	577
$V_{RR}$	12	0.92	5	2	1.5	1.2	0.972	1.00	13
$V_{NW}$	900							V =	1728
$V_W$	828								
VR	0.479								
<b>Configuration Characteristics</b>									
Minimum maneuver lanes, $N_{WL}$				2 lc		Minimum weaving lane changes, $LC_{MIN}$		828 lc/h	
Interchange density, ID				1.0 int/mi		Weaving lane changes, $LC_W$		1057 lc/h	
Minimum RF lane changes, $LC_{RF}$				1 lc/pc		Non-weaving lane changes, $LC_{NW}$		529 lc/h	
Minimum FR lane changes, $LC_{FR}$				1 lc/pc		Total lane changes, $LC_{ALL}$		1586 lc/h	
Minimum RR lane changes, $LC_{RR}$				lc/pc		Non-weaving vehicle index, $I_{NW}$		153	
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
Weaving segment flow rate, v				1647 veh/h		Weaving intensity factor, W		0.214	
Weaving segment capacity, $c_w$				4685 veh/h		Weaving segment speed, S		62.5 mph	
Weaving segment v/c ratio				0.352		Average weaving speed, $S_W$		63.8 mph	
Weaving segment density, D				9.2 pc/mi/ln		Average non-weaving speed, $S_{NW}$		61.3 mph	
Level of Service, LOS				A		Maximum weaving length, $L_{MAX}$		7584 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".									

FREEWAY WEAVING WORKSHEET									
<b>General Information</b>					<b>Site Information</b>				
Analyst	VK				Freeway/Dir of Travel	SR-65 NB			
Agency/Company	Kittelson & Associates				Weaving Segment Location	Twelve Bridges to Old Hwy 65			
Date Performed	5/13/2015				Analysis Year	2015			
Analysis Time Period	PM Peak								
Project Description Sunset Industrial Area Plan Update									
<b>Inputs</b>									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	3				Freeway minimum speed, $S_{MIN}$	35			
Weaving segment length, $L_S$	1700ft				Freeway maximum capacity, $C_{IFL}$	2400			
Freeway free-flow speed, FFS	70 mph				Terrain type	Level			
<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)
$V_{FF}$	1226	0.94	13	2	1.5	1.2	0.935	1.00	1394
$V_{RF}$	295	0.92	5	2	1.5	1.2	0.972	1.00	330
$V_{FR}$	924	0.92	5	2	1.5	1.2	0.972	1.00	1033
$V_{RR}$	16	0.92	5	2	1.5	1.2	0.972	1.00	18
$V_{NW}$	1412							V =	2775
$V_W$	1363								
VR	0.491								
<b>Configuration Characteristics</b>									
Minimum maneuver lanes, $N_{WL}$	2 lc				Minimum weaving lane changes, $LC_{MIN}$	1363 lc/h			
Interchange density, ID	1.0 int/mi				Weaving lane changes, $LC_W$	1592 lc/h			
Minimum RF lane changes, $LC_{RF}$	1 lc/pc				Non-weaving lane changes, $LC_{NW}$	634 lc/h			
Minimum FR lane changes, $LC_{FR}$	1 lc/pc				Total lane changes, $LC_{ALL}$	2226 lc/h			
Minimum RR lane changes, $LC_{RR}$	lc/pc				Non-weaving vehicle index, $I_{NW}$	240			
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
Weaving segment flow rate, v	2647 veh/h				Weaving intensity factor, W	0.280			
Weaving segment capacity, $c_w$	4571 veh/h				Weaving segment speed, S	58.8 mph			
Weaving segment v/c ratio	0.579				Average weaving speed, $S_W$	62.4 mph			
Weaving segment density, D	15.7 pc/mi/ln				Average non-weaving speed, $S_{NW}$	55.7 mph			
Level of Service, LOS	B				Maximum weaving length, $L_{MAX}$	7723 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".									

FREEWAY WEAVING WORKSHEET									
<b>General Information</b>					<b>Site Information</b>				
Analyst		VK			Freeway/Dir of Travel		SR-65 SB		
Agency/Company		Kittelson & Associates			Weaving Segment Location		Old Hwy 65 to Twelve Bridges		
Date Performed		5/13/2015			Analysis Year		2015		
Analysis Time Period		AM Peak							
Project Description Sunset Industrial Area Plan Update									
<b>Inputs</b>									
Weaving configuration				One-Sided		Segment type			
Weaving number of lanes, N				3		Freeway			
Weaving segment length, $L_s$				2000ft		Freeway minimum speed, $S_{MIN}$			
Freeway free-flow speed, FFS				70 mph		Freeway maximum capacity, $C_{IFL}$			
						Terrain type			
						Level			
<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)
$V_{FF}$	1932	0.94	13	2	1.5	1.2	0.935	1.00	2197
$V_{RF}$	740	0.92	5	2	1.5	1.2	0.972	1.00	828
$V_{FR}$	286	0.92	5	2	1.5	1.2	0.972	1.00	320
$V_{RR}$	39	0.92	5	2	1.5	1.2	0.972	1.00	44
$V_{NW}$	2241							V =	3389
$V_W$	1148								
VR	0.339								
<b>Configuration Characteristics</b>									
Minimum maneuver lanes, $N_{WL}$				2 lc		Minimum weaving lane changes, $LC_{MIN}$			
Interchange density, ID				1.0 int/mi		Weaving lane changes, $LC_W$			
Minimum RF lane changes, $LC_{RF}$				1 lc/pc		Non-weaving lane changes, $LC_{NW}$			
Minimum FR lane changes, $LC_{FR}$				1 lc/pc		Total lane changes, $LC_{ALL}$			
Minimum RR lane changes, $LC_{RR}$				lc/pc		Non-weaving vehicle index, $I_{NW}$			
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
Weaving segment flow rate, v				3213 veh/h		Weaving intensity factor, W			
Weaving segment capacity, $c_w$				5877 veh/h		Weaving segment speed, S			
Weaving segment v/c ratio				0.547		Average weaving speed, $S_W$			
Weaving segment density, D				19.4 pc/mi/ln		Average non-weaving speed, $S_{NW}$			
Level of Service, LOS				B		Maximum weaving length, $L_{MAX}$			
<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".									

FREEWAY WEAVING WORKSHEET									
<b>General Information</b>					<b>Site Information</b>				
Analyst		VK			Freeway/Dir of Travel		SR-65 SB		
Agency/Company		Kittelson & Associates			Weaving Segment Location		Old Hwy 65 to Twelve Bridges		
Date Performed		5/13/2015			Analysis Year		2015		
Analysis Time Period		PM Peak							
Project Description Sunset Industrial Area Plan Update									
<b>Inputs</b>									
Weaving configuration				One-Sided		Segment type			
Weaving number of lanes, N				3		Freeway			
Weaving segment length, $L_s$				2000ft		Freeway minimum speed, $S_{MIN}$			
Freeway free-flow speed, FFS				70 mph		Freeway maximum capacity, $C_{IFL}$			
						Terrain type			
						Level			
<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)
$V_{FF}$	1539	0.90	13	2	1.5	1.2	0.935	1.00	1828
$V_{RF}$	602	0.92	5	2	1.5	1.2	0.972	1.00	673
$V_{FR}$	164	0.92	5	2	1.5	1.2	0.972	1.00	183
$V_{RR}$	32	0.92	5	2	1.5	1.2	0.972	1.00	36
$V_{NW}$	1864							V =	2720
$V_W$	856								
VR	0.315								
<b>Configuration Characteristics</b>									
Minimum maneuver lanes, $N_{WL}$				2 lc		Minimum weaving lane changes, $LC_{MIN}$			
Interchange density, ID				1.0 int/mi		Weaving lane changes, $LC_W$			
Minimum RF lane changes, $LC_{RF}$				1 lc/pc		Non-weaving lane changes, $LC_{NW}$			
Minimum FR lane changes, $LC_{FR}$				1 lc/pc		Total lane changes, $LC_{ALL}$			
Minimum RR lane changes, $LC_{RR}$				lc/pc		Non-weaving vehicle index, $I_{NW}$			
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
Weaving segment flow rate, v				2578 veh/h		Weaving intensity factor, W			
Weaving segment capacity, $c_w$				5933 veh/h		Weaving segment speed, S			
Weaving segment v/c ratio				0.434		Average weaving speed, $S_W$			
Weaving segment density, D				14.9 pc/mi/ln		Average non-weaving speed, $S_{NW}$			
Level of Service, LOS				B		Maximum weaving length, $L_{MAX}$			
<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".									



FREEWAY WEAVING WORKSHEET									
<b>General Information</b>					<b>Site Information</b>				
Analyst	VK				Freeway/Dir of Travel	SR-65 SB			
Agency/Company	Kittelsohn & Associates				Weaving Segment Location	Blue Oaks to Pleasant Grove			
Date Performed	5/13/2015				Analysis Year	2015			
Analysis Time Period	AM Peak								
Project Description Sunset Industrial Area Plan Update									
<b>Inputs</b>									
Weaving configuration	One-Sided				Segment type	Freeway			
Weaving number of lanes, N	3				Freeway minimum speed, $S_{MIN}$	35			
Weaving segment length, $L_S$	2400ft				Freeway maximum capacity, $C_{IFL}$	2400			
Freeway free-flow speed, FFS	70 mph				Terrain type	Level			
<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)
$V_{FF}$	2829	0.94	13	2	1.5	1.2	0.935	1.00	3217
$V_{RF}$	828	0.92	5	2	1.5	1.2	0.972	1.00	926
$V_{FR}$	558	0.92	5	2	1.5	1.2	0.972	1.00	624
$V_{RR}$	44	0.92	5	2	1.5	1.2	0.972	1.00	49
$V_{NW}$	3266							V =	4816
$V_W$	1550								
VR	0.322								
<b>Configuration Characteristics</b>									
Minimum maneuver lanes, $N_{WL}$	2 lc				Minimum weaving lane changes, $LC_{MIN}$	1550 lc/h			
Interchange density, ID	1.0 int/mi				Weaving lane changes, $LC_W$	1830 lc/h			
Minimum RF lane changes, $LC_{RF}$	1 lc/pc				Non-weaving lane changes, $LC_{NW}$	1396 lc/h			
Minimum FR lane changes, $LC_{FR}$	1 lc/pc				Total lane changes, $LC_{ALL}$	3226 lc/h			
Minimum RR lane changes, $LC_{RR}$	lc/pc				Non-weaving vehicle index, $I_{NW}$	784			
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
Weaving segment flow rate, v	4564 veh/h				Weaving intensity factor, W	0.285			
Weaving segment capacity, $c_w$	6000 veh/h				Weaving segment speed, S	54.2 mph			
Weaving segment v/c ratio	0.761				Average weaving speed, $S_W$	62.2 mph			
Weaving segment density, D	29.6 pc/mi/ln				Average non-weaving speed, $S_{NW}$	51.1 mph			
Level of Service, LOS	D				Maximum weaving length, $L_{MAX}$	5819 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".									

FREEWAY WEAVING WORKSHEET									
<b>General Information</b>					<b>Site Information</b>				
Analyst		VK			Freeway/Dir of Travel		SR-65 SB		
Agency/Company		Kittelson & Associates			Weaving Segment Location		Blue Oaks to Pleasant Grove		
Date Performed		5/13/2015			Analysis Year		2015		
Analysis Time Period		PM Peak							
Project Description Sunset Industrial Area Plan Update									
<b>Inputs</b>									
Weaving configuration				One-Sided		Segment type		Freeway	
Weaving number of lanes, N				3		Freeway minimum speed, $S_{MIN}$		35	
Weaving segment length, $L_S$				2400ft		Freeway maximum capacity, $C_{IFL}$		2400	
Freeway free-flow speed, FFS				70 mph		Terrain type		Level	
<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)
$V_{FF}$	2695	0.90	13	2	1.5	1.2	0.935	1.00	3201
$V_{RF}$	883	0.92	5	2	1.5	1.2	0.972	1.00	988
$V_{FR}$	518	0.92	5	2	1.5	1.2	0.972	1.00	579
$V_{RR}$	46	0.92	5	2	1.5	1.2	0.972	1.00	51
$V_{NW}$	3252							V =	4819
$V_W$	1567								
VR	0.325								
<b>Configuration Characteristics</b>									
Minimum maneuver lanes, $N_{WL}$				2 lc		Minimum weaving lane changes, $LC_{MIN}$		1567 lc/h	
Interchange density, ID				1.0 int/mi		Weaving lane changes, $LC_W$		1847 lc/h	
Minimum RF lane changes, $LC_{RF}$				1 lc/pc		Non-weaving lane changes, $LC_{NW}$		1393 lc/h	
Minimum FR lane changes, $LC_{FR}$				1 lc/pc		Total lane changes, $LC_{ALL}$		3240 lc/h	
Minimum RR lane changes, $LC_{RR}$				lc/pc		Non-weaving vehicle index, $I_{NW}$		780	
<b>Weaving Segment Speed, Density, Level of Service, and Capacity</b>									
Weaving segment flow rate, v				4568 veh/h		Weaving intensity factor, W		0.286	
Weaving segment capacity, $c_w$				5994 veh/h		Weaving segment speed, S		54.2 mph	
Weaving segment v/c ratio				0.762		Average weaving speed, $S_W$		62.2 mph	
Weaving segment density, D				29.6 pc/mi/ln		Average non-weaving speed, $S_{NW}$		51.0 mph	
Level of Service, LOS				D		Maximum weaving length, $L_{MAX}$		5855 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".									