

Phone: (803)254-5800

Fax: (803)929-0334

E-mail:

Operational Analysis

Analyst: JP
 Agency/Co.: Florence & Hutcheson
 Date Performed: 9/28/2011
 Analysis Time Period: AM
 Freeway/Dir of Travel: I-385 SB C-D
 Weaving Location: I-85 to Woodruff
 Analysis Year: 2015
 Description: I-85/I-385 Alternate 4A

Inputs

Segment Type	C-D Roadway/ Multilane Highways
Weaving configuration	One-Sided
Number of lanes, N	3 ln
Weaving segment length, LS	1335 ft
Freeway free-flow speed, FFS	55 mi/h
Minimum segment speed, SMIN	15 mi/h
Freeway maximum capacity, cIFL	2250 pc/h/ln
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	536	474	1286	61	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	149	132	357	17	
Trucks and buses	18	18	18	18	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.917	0.917	0.917	0.917	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	649	574	1557	74	pc/h
Volume ratio, VR	0.747				

Configuration Characteristics

Number of maneuver lanes, NWL	3	ln
Interchange density, ID	0.00	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	2131	lc/h
Weaving lane changes, LCW	2244	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	295	lc/h
Total lane changes, LCALL	2539	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.375
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Average weaving speed, SW	44.1	mi/h
Average non-weaving speed, SNW	35.1	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	41.4	mi/h
Weaving segment density, D	23.0	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.609	
Weaving segment flow rate, v	2854	pc/h
Weaving segment capacity, cW	4300	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	9283	1335	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1642	c
		Maximum	Analyzed	
v/c ratio		1.00	0.609	d

- Notes:
- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
 - 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."
 - The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
 - Volumes exceed the weaving segment capacity. The level of service is F.