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Operational Analysis

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

Inputs

Segment Type	C-D Roadway/ Multilane Highways	
Weaving configuration	Two-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	2000	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	908	231	914	5	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	252	64	254	1	
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	1100	280	1107	6	pc/h
Volume ratio, VR	0.002				

Configuration Characteristics

Number of maneuver lanes, NWL	0	ln
Interchange density, ID	0.00	int/mi
Minimum RF lane changes, LCRF		lc/pc
Minimum FR lane changes, LCFR		lc/pc
Minimum RR lane changes, LCRR	2	lc/pc
Minimum weaving lane changes, LCMIN	12	lc/h
Weaving lane changes, LCW	76	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	1211	lc/h
Total lane changes, LCALL	1287	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.160
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Average weaving speed, SW	49.5	mi/h
Average non-weaving speed, SNW	48.9	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	48.9	mi/h
Weaving segment density, D	25.5	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.635	
Weaving segment flow rate, v	2493	pc/h
Weaving segment capacity, cW	3602	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5750	2000	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1963	c
		Maximum	Analyzed	
v/c ratio		1.00	0.635	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.