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Operational Analysis

Analyst: NJ
 Agency/Co.: Florence & Hutcheson
 Date Performed: 4/14/2011
 Analysis Time Period: PM
 Freeway/Dir of Travel: I-385 NB C-D
 Weaving Location: Woodruff to I-85
 Analysis Year: 2035
 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	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	804	76	1619	256	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	223	21	450	71	
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	974	92	1961	310	pc/h

Volume ratio, VR 0.615

Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.00	int/mi
Minimum RF lane changes, LCRF	1	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	92	lc/h
Weaving lane changes, LCW	237	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	771	lc/h
Total lane changes, LCALL	1008	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W 0.132

Average weaving speed, SW	50.3	mi/h
Average non-weaving speed, SNW	49.0	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	49.8	mi/h
Weaving segment density, D	22.3	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.855	
Weaving segment flow rate, v	3337	pc/h
Weaving segment capacity, cW	3579	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	9204	2000	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1699	c
		Maximum	Analyzed	
v/c ratio		1.00	0.855	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.