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 Operational Analysis

Analyst: NJ
 Agency/Co.: Florence & Hutcheson
 Date Performed: 4/4/2011
 Analysis Time Period: PM
 Freeway/Dir of Travel: I-85NB C-D
 Weaving Location: b/t Woodruff & I-385
 Analysis Year: 2010
 Description: I-85/I-385 Existing

 Inputs

Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	3	ln
Weaving segment length, LS	840	ft
Freeway free-flow speed, FFS	45	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	955	531	555	348	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	265	148	154	97	
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	1157	643	672	421	pc/h

Volume ratio, VR 0.455

 Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.00	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	0	lc/h
Weaving lane changes, LCW	82	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	203	lc/h
Total lane changes, LCALL	285	lc/h

 Weaving and Non-Weaving Speeds

Weaving intensity factor, W 0.096

Average weaving speed, SW	42.4	mi/h
Average non-weaving speed, SNW	40.4	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	41.3	mi/h
Weaving segment density, D	23.4	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.549	
Weaving segment flow rate, v	2893	pc/h
Weaving segment capacity, cW	4833	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	7300	840	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1756	c
		Maximum	Analyzed	
v/c ratio		1.00	0.549	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.