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 Operational Analysis

Analyst: NJ
 Agency/Co.: Florence & Hutcheson
 Date Performed: 7/8/2011
 Analysis Time Period: AM
 Freeway/Dir of Travel: I-85NB
 Weaving Location: I-85NB @ US276
 Analysis Year: 2035
 Description: I-85/I-385 Alternate 4A

 Inputs

Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	5	ln
Weaving segment length, LS	416	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	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	5233	330	825	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	1454	92	229	0	
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	6338	400	999	0	pc/h
Volume ratio, VR		0.181			

 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	105	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	568	lc/h
Total lane changes, LCALL	673	lc/h

 Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.330
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Average weaving speed, SW	48.8	mi/h
Average non-weaving speed, SNW	52.6	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	51.9	mi/h
Weaving segment density, D	29.8	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.774	
Weaving segment flow rate, v	7737	pc/h
Weaving segment capacity, cW	9174	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	4341	416	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	2000	c
		Maximum	Analyzed	
v/c ratio		1.00	0.774	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.
