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Operational Analysis

Analyst: NJ
 Agency/Co.: Florence & Hutcheson
 Date Performed: 4/14/2011
 Analysis Time Period: AM
 Freeway/Dir of Travel: I-385 SB C-D
 Weaving Location: I-85 to Woodruff
 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	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	1051	730	1832	87	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	292	203	509	24	
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	1273	884	2219	105	pc/h
Volume ratio, VR	0.692				

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	3103	lc/h
Weaving lane changes, LCW	3216	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	430	lc/h
Total lane changes, LCALL	3646	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.499
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Average weaving speed, SW	41.7	mi/h
Average non-weaving speed, SNW	25.5	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	34.9	mi/h
Weaving segment density, D	42.8	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.887	
Weaving segment flow rate, v	4481	pc/h
Weaving segment capacity, cW	4637	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	8596	1335	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1695	c
		Maximum	Analyzed	
v/c ratio		1.00	0.887	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.
