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 Operational Analysis
 

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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

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 Inputs
 

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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

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 Conversion to pc/h Under Base Conditions
 

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	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

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 Configuration Characteristics
 

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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

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W 0.330

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.

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## Operational Analysis

Analyst: JP  
 Agency/Co.: Florence & Hutcheson  
 Date Performed: 7/8/2011  
 Analysis Time Period: AM  
 Freeway/Dir of Travel: I-85SB  
 Weaving Location: I-85SB @ 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	420	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	5107	1065	1491	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	1419	296	414	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	6185	1290	1806	0	pc/h
Volume ratio, VR	0.334				

## 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		lc/h
Weaving lane changes, LCW		lc/h
Non-weaving vehicle index, INW		
Non-weaving lane change, LCNW		lc/h
Total lane changes, LCALL		lc/h

## Weaving and Non-Weaving Speeds

Weaving intensity factor, W

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

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S		mi/h
Weaving segment density, D		pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	1.290	
Weaving segment flow rate, v	9281	pc/h
Weaving segment capacity, cW	6601	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5947	420	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1877	c
		Maximum	Analyzed	
v/c ratio		1.00	1.290	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.

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 Operational Analysis
 

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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 CD bt Woodruff & I-385  
 Analysis Year: 2035  
 Description: I-85/I-385 Alternate 4A

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 Inputs
 

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Segment Type	C-D Roadway/ Multilane Highways
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

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 Conversion to pc/h Under Base Conditions
 

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	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	921	636	790	181	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	256	177	219	50	
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	1115	770	957	219	pc/h

Volume ratio, VR 0.564

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 Configuration Characteristics
 

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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	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	1727	lc/h
Weaving lane changes, LCW	1809	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	152	lc/h
Total lane changes, LCALL	1961	lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W 0.441

Average weaving speed, SW	35.8	mi/h
Average non-weaving speed, SNW	27.7	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	31.7	mi/h
Weaving segment density, D	32.1	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.720	
Weaving segment flow rate, v	3061	pc/h
Weaving segment capacity, cW	3903	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	8586	840	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1657	c
		Maximum	Analyzed	
v/c ratio		1.00	0.720	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.

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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 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	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	1498	335	1158	7	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	416	93	322	2	
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	1814	406	1402	8	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	16	lc/h
Weaving lane changes, LCW	80	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	1445	lc/h
Total lane changes, LCALL	1525	lc/h

## Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.182
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Average weaving speed, SW	48.8	mi/h
Average non-weaving speed, SNW	46.2	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	46.2	mi/h
Weaving segment density, D	39.3	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.925	
Weaving segment flow rate, v	3630	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	5748	2000	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1963	c
		Maximum	Analyzed	
v/c ratio		1.00	0.925	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.

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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.

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## Operational Analysis

Analyst: JP  
 Agency/Co.: Florence & Hutcheson  
 Date Performed: 7/8/2011  
 Analysis Time Period: PM  
 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	4427	506	617	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	1230	141	171	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	5362	613	747	0	pc/h
Volume ratio, VR		0.202			

## 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	367	lc/h
Total lane changes, LCALL	472	lc/h

## Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.250
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Average weaving speed, SW	51.0	mi/h
Average non-weaving speed, SNW	53.5	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	53.0	mi/h
Weaving segment density, D	25.4	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.678	
Weaving segment flow rate, v	6722	pc/h
Weaving segment capacity, cW	9096	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	4560	416	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1983	c
		Maximum	Analyzed	
v/c ratio		1.00	0.678	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.

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 Operational Analysis
 

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

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 Inputs
 

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Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	5	ln
Weaving segment length, LS	420	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

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 Conversion to pc/h Under Base Conditions
 

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	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	7292	714	891	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	2026	198	248	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	8831	865	1079	0	pc/h
Volume ratio, VR	0.180				

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 Configuration Characteristics
 

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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		lc/h
Weaving lane changes, LCW		lc/h
Non-weaving vehicle index, INW		
Non-weaving lane change, LCNW		lc/h
Total lane changes, LCALL		lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W

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

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S		mi/h
Weaving segment density, D		pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	1.078	
Weaving segment flow rate, v	10775	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	4337	420	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	2000	c
		Maximum	Analyzed	
v/c ratio		1.00	1.078	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.

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 Operational Analysis
 

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Analyst: JP  
 Agency/Co.: Florence & Hutcheson  
 Date Performed: 7/8/2011  
 Analysis Time Period: PM  
 Freeway/Dir of Travel: I-85NB  
 Weaving Location: I-85NB CD bt Woodruff & I-385  
 Analysis Year: 2035  
 Description: I-85/I-385 Alternate 4A

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 Inputs
 

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Segment Type	C-D Roadway/ Multilane Highways
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

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 Conversion to pc/h Under Base Conditions
 

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	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	1596	1047	1140	525	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	443	291	317	146	
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	1933	1268	1381	636	pc/h
Volume ratio, VR	0.508				

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 Configuration Characteristics
 

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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	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN		lc/h
Weaving lane changes, LCW		lc/h
Non-weaving vehicle index, INW		
Non-weaving lane change, LCNW		lc/h
Total lane changes, LCALL		lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W

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

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S		mi/h
Weaving segment density, D		pc/mi/ln
Level of service, LOS	F	
Weaving segment v/c ratio	1.104	
Weaving segment flow rate, v	5218	pc/h
Weaving segment capacity, cW	4337	veh/h

\_\_\_\_\_Limitations on Weaving Segments\_\_\_\_\_

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	7916	840	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1709	c
		Maximum	Analyzed	
v/c ratio		1.00	1.104	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.



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 Operational Analysis
 

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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

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 Inputs
 

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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

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 Conversion to pc/h Under Base Conditions
 

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	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	1619	256	804	76	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	450	71	223	21	
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	1961	310	974	92	pc/h
Volume ratio, VR	0.028				

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 Configuration Characteristics
 

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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	184	lc/h
Weaving lane changes, LCW	248	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	1367	lc/h
Total lane changes, LCALL	1615	lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W	0.191
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Average weaving speed, SW	48.6	mi/h
Average non-weaving speed, SNW	45.7	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	45.7	mi/h
Weaving segment density, D	36.5	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.858	
Weaving segment flow rate, v	3337	pc/h
Weaving segment capacity, cW	3569	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5983	2000	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1945	c
		Maximum	Analyzed	
v/c ratio		1.00	0.858	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.

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 Operational Analysis
 

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Analyst: NJ  
 Agency/Co.: Florence & Hutcheson  
 Date Performed: 4/14/2011  
 Analysis Time Period: PM  
 Freeway/Dir of Travel: I-385 CD SB  
 Weaving Location: I-85 to Woodruff  
 Analysis Year: 2035  
 Description: I-85/I-385 Alternate 4A

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 Inputs
 

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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

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 Conversion to pc/h Under Base Conditions
 

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	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	825	1145	1659	427	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	229	318	461	119	
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	999	1387	2009	517	pc/h
Volume ratio, VR	0.691				

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 Configuration Characteristics
 

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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	3396	lc/h
Weaving lane changes, LCW	3509	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	458	lc/h
Total lane changes, LCALL	3967	lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W	0.534
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Average weaving speed, SW	41.1	mi/h
Average non-weaving speed, SNW	22.7	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	32.9	mi/h
Weaving segment density, D	49.8	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.970	
Weaving segment flow rate, v	4912	pc/h
Weaving segment capacity, cW	4644	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	8582	1335	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1696	c
		Maximum	Analyzed	
v/c ratio		1.00	0.970	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.