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## Operational Analysis

Analyst: NJ  
 Agency/Co.: Florence & Hutcheson  
 Date Performed: 4/4/2011  
 Analysis Time Period: AM  
 Freeway/Dir of Travel: I-85NB  
 Weaving Location: US-276  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

## Inputs

Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	4	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	3687	237	627	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	1024	66	174	0	
Trucks and buses	18	15	15	15	%
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	0.930	0.930	0.930	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	4465	283	749	0	pc/h

Volume ratio, VR 0.188

## 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	68	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	377	lc/h
Total lane changes, LCALL	445	lc/h

## Weaving and Non-Weaving Speeds

Weaving intensity factor, W 0.237

Average weaving speed, SW	51.4	mi/h
Average non-weaving speed, SNW	53.4	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	53.0	mi/h
Weaving segment density, D	25.9	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.689	
Weaving segment flow rate, v	5497	pc/h
Weaving segment capacity, cW	7321	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	4411	420	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1995	c
		Maximum	Analyzed	
v/c ratio		1.00	0.689	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: 4/4/2011  
 Analysis Time Period: AM  
 Freeway/Dir of Travel: I-85SB  
 Weaving Location: US-276  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

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 Inputs
 

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Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	4	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	3588	758	1135	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	997	211	315	0	
Trucks and buses	18	15	15	15	%
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	0.930	0.930	0.930	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	4345	905	1356	0	pc/h

Volume ratio, VR 0.342

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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	68	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	352	lc/h
Total lane changes, LCALL	420	lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W 0.226

Average weaving speed, SW	51.7	mi/h
Average non-weaving speed, SNW	52.1	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	51.9	mi/h
Weaving segment density, D	31.8	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.942	
Weaving segment flow rate, v	6606	pc/h
Weaving segment capacity, cW	6433	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	6042	420	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1870	c
		Maximum	Analyzed	
v/c ratio		1.00	0.942	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: 4/4/2011  
 Analysis Time Period: AM  
 Freeway/Dir of Travel: I-85NB C-D  
 Weaving Location: Woodruff & I-385  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

## 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	636	413	486	122	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	177	115	135	34	
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	770	500	589	148	pc/h
Volume ratio, VR	0.543				

## 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	67	lc/h
Total lane changes, LCALL	149	lc/h

## Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.058
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Average weaving speed, SW	43.4	mi/h
Average non-weaving speed, SNW	41.8	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	42.6	mi/h
Weaving segment density, D	15.7	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.454	
Weaving segment flow rate, v	2007	pc/h
Weaving segment capacity, cW	4058	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	8329	840	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1677	c
		Maximum	Analyzed	
v/c ratio		1.00	0.454	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: 4/4/2011  
 Analysis Time Period: AM  
 Freeway/Dir of Travel: I-85SB C-D  
 Weaving Location: I-385  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

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 Inputs
 

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Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	483	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	529	919	1299	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	147	255	361	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	641	1113	1573	0	pc/h

Volume ratio, VR 0.807

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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	1.191	
Weaving segment flow rate, v	3327	pc/h
Weaving segment capacity, cW	2563	veh/h

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

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	11634	483	a,b
Density-based capacity, cIWL (pc/h/ln)		Maximum 2250	Analyzed 1397	c
v/c ratio		Maximum 1.00	Analyzed 1.191	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: 4/4/2011  
 Analysis Time Period: AM  
 Freeway/Dir of Travel: I-85SB C-D  
 Weaving Location: I-385 & Woodruff  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

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 Inputs
 

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Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	556	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	891	557	615	21	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	248	155	171	6	
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	1079	675	745	25	pc/h

Volume ratio, VR 0.563

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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	25	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	144	lc/h
Total lane changes, LCALL	169	lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W 0.088

Average weaving speed, SW	42.6	mi/h
Average non-weaving speed, SNW	38.9	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	40.9	mi/h
Weaving segment density, D	30.9	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.771	
Weaving segment flow rate, v	2524	pc/h
Weaving segment capacity, cW	3004	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	8567	556	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1637	c
		Maximum	Analyzed	
v/c ratio		1.00	0.771	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: 4/4/2011  
 Analysis Time Period: AM  
 Freeway/Dir of Travel: I-385NB  
 Weaving Location: Woodruff & I-85  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

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 Inputs
 

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Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1240	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	2743	922	1002	217	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	762	256	278	60	
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	3322	1117	1214	263	pc/h
Volume ratio, VR	0.394				

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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	191	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	640	lc/h
Total lane changes, LCALL	831	lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W	0.165
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Average weaving speed, SW	49.3	mi/h
Average non-weaving speed, SNW	47.9	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	48.5	mi/h
Weaving segment density, D	30.5	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.971	
Weaving segment flow rate, v	5916	pc/h
Weaving segment capacity, cW	5588	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	6614	1240	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1839	c
		Maximum	Analyzed	
v/c ratio		1.00	0.971	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: 3/17/2011  
 Analysis Time Period: AM  
 Freeway/Dir of Travel: I-385SB  
 Weaving Location: I-85 & Woodruff  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

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 Inputs
 

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Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	909	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	1907	495	1287	40	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	530	138	358	11	
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	2310	600	1559	48	pc/h
Volume ratio, VR	0.478				

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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	154	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	208	lc/h
Total lane changes, LCALL	362	lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W	0.109
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Average weaving speed, SW	51.1	mi/h
Average non-weaving speed, SNW	49.6	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	50.3	mi/h
Weaving segment density, D	22.5	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.900	
Weaving segment flow rate, v	4517	pc/h
Weaving segment capacity, cW	4607	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	7570	909	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1740	c
		Maximum	Analyzed	
v/c ratio		1.00	0.900	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: 4/4/2011  
 Analysis Time Period: PM  
 Freeway/Dir of Travel: I-85NB  
 Weaving Location: US-276  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

## Inputs

Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	4	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	3097	385	449	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	860	107	125	0	
Trucks and buses	18	15	15	15	%
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	0.930	0.930	0.930	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	3751	460	536	0	pc/h
Volume ratio, VR		0.210			

## 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	68	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	230	lc/h
Total lane changes, LCALL	298	lc/h

## Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.172
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Average weaving speed, SW	53.4	mi/h
Average non-weaving speed, SNW	54.3	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	54.1	mi/h
Weaving segment density, D	21.9	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.600	
Weaving segment flow rate, v	4747	pc/h
Weaving segment capacity, cW	7255	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	4637	420	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1977	c
		Maximum	Analyzed	
v/c ratio		1.00	0.600	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: 4/4/2011  
 Analysis Time Period: PM  
 Freeway/Dir of Travel: I-85SB  
 Weaving Location: US-276  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

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 Inputs
 

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Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	4	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	5323	493	677	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	1479	137	188	0	
Trucks and buses	18	15	15	15	%
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	0.930	0.930	0.930	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	6447	589	809	0	pc/h

Volume ratio, VR 0.178

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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	68	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	785	lc/h
Total lane changes, LCALL	853	lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W 0.395

Average weaving speed, SW	47.3	mi/h
Average non-weaving speed, SNW	50.6	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	50.0	mi/h
Weaving segment density, D	39.3	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.980	
Weaving segment flow rate, v	7845	pc/h
Weaving segment capacity, cW	7347	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	4315	420	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	2002	c
		Maximum	Analyzed	
v/c ratio		1.00	0.980	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: 4/4/2011  
 Analysis Time Period: PM  
 Freeway/Dir of Travel: I-85NB C-D  
 Weaving Location: Woodruff & I-385  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

## 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	1048	670	707	348	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	291	186	196	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	1269	811	856	421	pc/h

Volume ratio, VR 0.497

## 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	1	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	1667	lc/h
Weaving lane changes, LCW	1749	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	226	lc/h
Total lane changes, LCALL	1975	lc/h

## Weaving and Non-Weaving Speeds

Weaving intensity factor, W 0.444

Average weaving speed, SW	35.8	mi/h
Average non-weaving speed, SNW	27.6	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	31.2	mi/h
Weaving segment density, D	35.9	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.695	
Weaving segment flow rate, v	3357	pc/h
Weaving segment capacity, cW	4434	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	7786	840	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1719	c
		Maximum	Analyzed	
v/c ratio		1.00	0.695	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: 4/4/2011  
 Analysis Time Period: PM  
 Freeway/Dir of Travel: I-85SB C-D  
 Weaving Location: I-385  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

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 Inputs
 

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Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	483	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	254	750	830	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	71	208	231	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	308	908	1005	0	pc/h
Volume ratio, VR	0.861				

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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	21	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	0	lc/h
Total lane changes, LCALL	21	lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W	0.019
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Average weaving speed, SW	44.4	mi/h
Average non-weaving speed, SNW	39.7	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	43.7	mi/h
Weaving segment density, D	25.4	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.828	
Weaving segment flow rate, v	2221	pc/h
Weaving segment capacity, cW	2462	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	12346	483	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1342	c
		Maximum	Analyzed	
v/c ratio		1.00	0.828	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: 4/4/2011  
 Analysis Time Period: PM  
 Freeway/Dir of Travel: I-85SB C-D  
 Weaving Location: I-385 & Woodruff  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

## Inputs

Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	2	ln
Weaving segment length, LS	556	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	678	406	812	135	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	188	113	226	38	
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	821	492	983	164	pc/h
Volume ratio, VR	0.600				

## 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	25	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	119	lc/h
Total lane changes, LCALL	144	lc/h

## Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.078
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Average weaving speed, SW	42.8	mi/h
Average non-weaving speed, SNW	39.1	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	41.3	mi/h
Weaving segment density, D	29.8	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.767	
Weaving segment flow rate, v	2460	pc/h
Weaving segment capacity, cW	2941	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	9014	556	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1603	c
		Maximum	Analyzed	
v/c ratio		1.00	0.767	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: 4/4/2011  
 Analysis Time Period: PM  
 Freeway/Dir of Travel: I-385NB  
 Weaving Location: Woodruff & I-85  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

## Inputs

Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	1240	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	3235	950	1033	181	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	899	264	287	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	3918	1151	1251	219	pc/h

Volume ratio, VR 0.367

## 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	1.001	
Weaving segment flow rate, v	6539	pc/h
Weaving segment capacity, cW	5994	veh/h

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

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	6317	1240	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1862	c
		Maximum	Analyzed	
v/c ratio		1.00	1.001	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: 4/4/2011  
 Analysis Time Period: AM  
 Freeway/Dir of Travel: I-385SB  
 Weaving Location: I-85 & Woodruff  
 Analysis Year: 2015  
 Description: I-85/I-385 No-Build

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 Inputs
 

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Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	4	ln
Weaving segment length, LS	909	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	3763	750	851	268	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	1045	208	236	74	
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	4557	908	1031	325	pc/h

Volume ratio, VR 0.284

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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	154	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	728	lc/h
Total lane changes, LCALL	882	lc/h

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 Weaving and Non-Weaving Speeds
 

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Weaving intensity factor, W 0.221

Average weaving speed, SW	47.8	mi/h
Average non-weaving speed, SNW	46.8	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	47.1	mi/h
Weaving segment density, D	36.2	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.895	
Weaving segment flow rate, v	6821	pc/h
Weaving segment capacity, cW	6991	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5416	909	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1905	c
		Maximum	Analyzed	
v/c ratio		1.00	0.895	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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