

Phone: (803)254-5800

Fax: (803)929-0334

E-mail:

 Operational Analysis

Analyst: JP
 Agency/Co.: Florence & Hutcheson
 Date Performed: 9/28/2011
 Analysis Time Period: AM
 Freeway/Dir of Travel: I-85NB
 Weaving Location: I-85NB @ US276
 Analysis Year: 2015
 Description: I-85/I-385 Alternate 4A

 Inputs

Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	4	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	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	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	4465	287	759	0	pc/h

Volume ratio, VR 0.190

 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	67	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	375	lc/h
Total lane changes, LCALL	442	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	26.0	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.691	
Weaving segment flow rate, v	5511	pc/h
Weaving segment capacity, cW	7314	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	4432	416	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1993	c
		Maximum	Analyzed	
v/c ratio		1.00	0.691	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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 Freeway/Dir of Travel: I-85SB
 Weaving Location: I-85SB @ US276
 Analysis Year: 2015
 Description: I-85/I-385 Alternate 4A

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	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	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	4345	918	1375	0	pc/h

Volume ratio, VR 0.345

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	352	lc/h
Total lane changes, LCALL	420	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W 0.226

Average weaving speed, SW	51.7	mi/h
Average non-weaving speed, SNW	52.0	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	51.9	mi/h
Weaving segment density, D	32.0	pc/mi/ln
Level of service, LOS	D	
Weaving segment v/c ratio	0.955	
Weaving segment flow rate, v	6638	pc/h
Weaving segment capacity, cW	6374	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	6076	420	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1867	c
		Maximum	Analyzed	
v/c ratio		1.00	0.955	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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 Freeway/Dir of Travel: I-85NB
 Weaving Location: I-85NB CD bt Woodruff & I-385
 Analysis Year: 2015
 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	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

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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 Date Performed: 9/28/2011
 Analysis Time Period: AM
 Freeway/Dir of Travel: I-385 NB C-D
 Weaving Location: Woodruff to I-85
 Analysis Year: 2015
 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	908	231	914	5	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	252	64	254	1	
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	1100	280	1107	6	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	12	lc/h
Weaving lane changes, LCW	76	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	1211	lc/h
Total lane changes, LCALL	1287	lc/h

 Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.160
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Average weaving speed, SW	49.5	mi/h
Average non-weaving speed, SNW	48.9	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	48.9	mi/h
Weaving segment density, D	25.5	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.635	
Weaving segment flow rate, v	2493	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	5750	2000	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1963	c
		Maximum	Analyzed	
v/c ratio		1.00	0.635	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
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- 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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 Date Performed: 9/28/2011
 Analysis Time Period: AM
 Freeway/Dir of Travel: I-385 SB C-D
 Weaving Location: I-85 to Woodruff
 Analysis Year: 2015
 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	536	474	1286	61	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	149	132	357	17	
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	649	574	1557	74	pc/h

Volume ratio, VR 0.747

 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	2131	lc/h
Weaving lane changes, LCW	2244	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	295	lc/h
Total lane changes, LCALL	2539	lc/h

 Weaving and Non-Weaving Speeds

Weaving intensity factor, W 0.375

Average weaving speed, SW	44.1	mi/h
Average non-weaving speed, SNW	35.1	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	41.4	mi/h
Weaving segment density, D	23.0	pc/mi/ln
Level of service, LOS	B	
Weaving segment v/c ratio	0.609	
Weaving segment flow rate, v	2854	pc/h
Weaving segment capacity, cW	4300	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	9283	1335	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1642	c
		Maximum	Analyzed	
v/c ratio		1.00	0.609	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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 Date Performed: 9/28/2011
 Analysis Time Period: PM
 Freeway/Dir of Travel: I-85NB
 Weaving Location: I-85NB @ US276
 Analysis Year: 2015
 Description: I-85/I-385 Alternate 4A

 Inputs

Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	4	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	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	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	3751	466	544	0	pc/h
Volume ratio, VR		0.212			

 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	67	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	228	lc/h
Total lane changes, LCALL	295	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	22.0	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.603	
Weaving segment flow rate, v	4761	pc/h
Weaving segment capacity, cW	7248	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	4661	416	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1975	c
		Maximum	Analyzed	
v/c ratio		1.00	0.603	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
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 Freeway/Dir of Travel: I-85SB
 Weaving Location: I-85SB @ US276
 Analysis Year: 2015
 Description: I-85/I-385 Alternate 4A

 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	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	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	6447	597	820	0	pc/h

Volume ratio, VR 0.180

 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	785	lc/h
Total lane changes, LCALL	853	lc/h

 Weaving and Non-Weaving Speeds

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	49.9	mi/h
Weaving segment density, D	39.4	pc/mi/ln
Level of service, LOS	E	
Weaving segment v/c ratio	0.983	
Weaving segment flow rate, v	7864	pc/h
Weaving segment capacity, cW	7343	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	4335	420	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	2001	c
		Maximum	Analyzed	
v/c ratio		1.00	0.983	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."
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 Freeway/Dir of Travel: I-85NB
 Weaving Location: I-85NB CD bt Woodruff & I-385
 Analysis Year: 2015
 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	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	D	
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.

Phone: (803)254-5800

Fax: (803)929-0334

E-mail:

Operational Analysis

Analyst: JP
 Agency/Co.: Florence & Hutcheson
 Date Performed: 9/28/2011
 Analysis Time Period: PM
 Freeway/Dir of Travel: I-385 NB C-D
 Weaving Location: Woodruff to I-85
 Analysis Year: 2015
 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	1049	165	767	63	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	291	46	213	18	
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	1270	200	929	76	pc/h
Volume ratio, VR	0.031				

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	152	lc/h
Weaving lane changes, LCW	216	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	1193	lc/h
Total lane changes, LCALL	1409	lc/h

Weaving and Non-Weaving Speeds

Weaving intensity factor, W	0.171
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Average weaving speed, SW	49.1	mi/h
Average non-weaving speed, SNW	48.0	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	48.0	mi/h
Weaving segment density, D	25.8	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.637	
Weaving segment flow rate, v	2475	pc/h
Weaving segment capacity, cW	3565	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	6012	2000	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1943	c
		Maximum	Analyzed	
v/c ratio		1.00	0.637	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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Fax: (803)929-0334

E-mail:

 Operational Analysis

Analyst: JP
 Agency/Co.: Florence & Hutcheson
 Date Performed: 9/28/2011
 Analysis Time Period: PM
 Freeway/Dir of Travel: I-385 CD SB
 Weaving Location: I-85 to Woodruff
 Analysis Year: 2015
 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	613	790	1003	228	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	170	219	279	63	
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	742	957	1215	276	pc/h

Volume ratio, VR 0.681

 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	2172	lc/h
Weaving lane changes, LCW	2285	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	355	lc/h
Total lane changes, LCALL	2640	lc/h

 Weaving and Non-Weaving Speeds

Weaving intensity factor, W 0.387

Average weaving speed, SW	43.8	mi/h
Average non-weaving speed, SNW	34.3	mi/h

_____Weaving Segment Speed, Density, Level of Service and Capacity_____		
Weaving segment speed, S	40.2	mi/h
Weaving segment density, D	26.4	pc/mi/ln
Level of service, LOS	C	
Weaving segment v/c ratio	0.623	
Weaving segment flow rate, v	3190	pc/h
Weaving segment capacity, cW	4695	veh/h

_____Limitations on Weaving Segments_____				
If limit reached, see note.				

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	8450	1335	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1706	c
		Maximum	Analyzed	
v/c ratio		1.00	0.623	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.