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 Operational Analysis

Analyst: NJ
 Agency/Co.: Florence & Hutcheson
 Date Performed: 4/8/2011
 Analysis Time Period: AM
 Freeway/Dir of Travel: I-85 NB
 Weaving Location: US-276
 Analysis Year: 2035
 Description: I-85/I-385 No-Build

 Inputs

Segment Type	Freeway	
Weaving configuration	One-Sided	
Number of lanes, N	5	ln
Weaving segment length, LS	416	ft
Freeway free-flow speed, FFS	60	mi/h
Minimum segment speed, SMIN	15	mi/h
Freeway maximum capacity, cIFL	2300	pc/h/ln
Terrain type	Level	
Grade	0.00	%
Length	0.00	mi

 Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	5233	330	825	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	1454	92	229	0	
Trucks and buses	18	18	18	18	%
Recreational vehicles	0	0	0	0	%
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2	
Heavy vehicle adjustment, fHV	0.917	0.917	0.917	0.917	
Driver population adjustment, fP	1.00	1.00	1.00	1.00	
Flow rate, v	6338	400	999	0	pc/h

Volume ratio, VR 0.181

 Configuration Characteristics

Number of maneuver lanes, NWL	2	ln
Interchange density, ID	0.00	int/mi
Minimum RF lane changes, LCRF	0	lc/pc
Minimum FR lane changes, LCFR	0	lc/pc
Minimum RR lane changes, LCRR		lc/pc
Minimum weaving lane changes, LCMIN	0	lc/h
Weaving lane changes, LCW	105	lc/h
Non-weaving vehicle index, INW	0	
Non-weaving lane change, LCNW	568	lc/h
Total lane changes, LCALL	673	lc/h

 Weaving and Non-Weaving Speeds

Weaving intensity factor, W 0.330

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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 Date Performed: 4/8/2011
 Analysis Time Period: AM
 Freeway/Dir of Travel: I-85 SB
 Weaving Location: US-276
 Analysis Year: 2035
 Description: I-85/I-385 No-Build

 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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 Agency/Co.: Florence & Hutcheson
 Date Performed: 4/14/2011
 Analysis Time Period: AM
 Freeway/Dir of Travel: I-85NB C-D
 Weaving Location: Woodruff & I-385
 Analysis Year: 2035
 Description: I-85/I-385 No-Build

 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	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

 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	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

 Weaving and Non-Weaving Speeds

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.
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 Analysis Time Period: AM
 Freeway/Dir of Travel: I-85SB C-D
 Weaving Location: I-385
 Analysis Year: 2035
 Description: I-85/I-385 No-Build

 Inputs

Segment Type	C-D Roadway/ Multilane Highways	
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

 Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	839	1183	2065	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	233	329	574	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	1016	1433	2501	0	pc/h

Volume ratio, VR 0.795

 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		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	1.757	
Weaving segment flow rate, v	4950	pc/h
Weaving segment capacity, cW	2585	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	11470	483	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1409	c
		Maximum	Analyzed	
v/c ratio		1.00	1.757	d

- Notes:
- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
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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-85SB C-D
 Weaving Location: I-385 & Woodruff
 Analysis Year: 2035
 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	1221	801	834	115	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	339	223	232	32	
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	1479	970	1010	139	pc/h
Volume ratio, VR	0.550				

 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	1.092	
Weaving segment flow rate, v	3598	pc/h
Weaving segment capacity, cW	3024	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	8420	556	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1648	c
		Maximum	Analyzed	
v/c ratio		1.00	1.092	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: 4/14/2011
 Analysis Time Period: AM
 Freeway/Dir of Travel: I-385NB
 Weaving Location: Woodruff & I-85
 Analysis Year: 2035
 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	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	4244	1429	1498	335	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	1179	397	416	93	
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	5140	1731	1814	406	pc/h
Volume ratio, VR	0.390				

 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	1.477	
Weaving segment flow rate, v	9091	pc/h
Weaving segment capacity, cW	5647	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	6569	1240	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1892	c
		Maximum	Analyzed	
v/c ratio		1.00	1.477	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.
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Operational Analysis

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 Date Performed: 4/14/2011
 Analysis Time Period: AM
 Freeway/Dir of Travel: I-385SB
 Weaving Location: I-85 & Woodruff
 Analysis Year: 2035
 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	909	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	3293	730	1802	87	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	915	203	501	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	3988	884	2182	105	pc/h
Volume ratio, VR		0.428			

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	1.278	
Weaving segment flow rate, v	7159	pc/h
Weaving segment capacity, cW	5141	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	7000	909	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1834	c
		Maximum	Analyzed	
v/c ratio		1.00	1.278	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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 Analysis Time Period: PM
 Freeway/Dir of Travel: I-85 NB
 Weaving Location: US-276
 Analysis Year: 2035
 Description: I-85/I-385 No-Build

 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

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

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: 2035
 Description: I-85/I-385 No-Build

 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	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			

 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	1.078	
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

Analyst: NJ
 Agency/Co.: Florence & Hutcheson
 Date Performed: 4/14/2011
 Analysis Time Period: PM
 Freeway/Dir of Travel: I-85NB C-D
 Weaving Location: Woodruff & I-385
 Analysis Year: 2035
 Description: I-85/I-385 No-Build

 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	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				

 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		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	1.104	
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

Analyst: NJ
 Agency/Co.: Florence & Hutcheson
 Date Performed: 4/14/2011
 Analysis Time Period: PM
 Freeway/Dir of Travel: I-85SB C-D
 Weaving Location: I-385
 Analysis Year: 2035
 Description: I-85/I-385 No-Build

 Inputs

Segment Type	C-D Roadway/ Multilane Highways	
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

 Conversion to pc/h Under Base Conditions

	Volume Components				
	VFF	VRF	VFR	VRR	
Volume, V	416	1001	1172	0	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	116	278	326	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	504	1212	1419	0	pc/h
Volume ratio, VR	0.839				

 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		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	1.148	
Weaving segment flow rate, v	3135	pc/h
Weaving segment capacity, cW	2505	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	12053	483	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1365	c
		Maximum	Analyzed	
v/c ratio		1.00	1.148	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: PM
 Freeway/Dir of Travel: I-85SB C-D
 Weaving Location: I-385 & Woodruff
 Analysis Year: 2035
 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	880	537	1112	344	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	244	149	309	96	
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	1066	650	1347	417	pc/h
Volume ratio, VR	0.574				

 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	1.070	
Weaving segment flow rate, v	3480	pc/h
Weaving segment capacity, cW	2985	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	8702	556	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2250	1627	c
		Maximum	Analyzed	
v/c ratio		1.00	1.070	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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 Operational Analysis

Analyst: NJ
 Agency/Co.: Florence & Hutcheson
 Date Performed: 4/14/2011
 Analysis Time Period: PM
 Freeway/Dir of Travel: I-385NB
 Weaving Location: Woodruff & I-85
 Analysis Year: 2035
 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	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	4966	1393	1619	256	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	1379	387	450	71	
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	6014	1687	1961	310	pc/h
Volume ratio, VR	0.366				

 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	1.520	
Weaving segment flow rate, v	9972	pc/h
Weaving segment capacity, cW	6019	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	6301	1240	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1913	c
		Maximum	Analyzed	
v/c ratio		1.00	1.520	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-385SB
 Weaving Location: I-85 & Woodruff
 Analysis Year: 2035
 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	909	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	5865	1145	1487	427	veh/h
Peak hour factor, PHF	0.90	0.90	0.90	0.90	
Peak 15-min volume, v15	1629	318	413	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	7103	1387	1801	517	pc/h
Volume ratio, VR	0.295				

 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	1.389	
Weaving segment flow rate, v	10808	pc/h
Weaving segment capacity, cW	7141	veh/h

_____Limitations on Weaving Segments_____

If limit reached, see note.

	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	5530	909	a,b
		Maximum	Analyzed	
Density-based capacity, cIWL (pc/h/ln)		2300	1946	c
		Maximum	Analyzed	
v/c ratio		1.00	1.389	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.