

APPENDIX D

WEAVING ANALYSIS

HCS OUTPUT

GENERAL PURPOSE LANES

BUILD

NORTHBOUND

LEVELS OF SERVICE HCS OUTPUT

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	LWC				Freeway/Dir of Travel	Northbound			
Agency/Company	CAI				Weaving Seg Location	Valwood to Beltline			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	5				Volume ratio, VR	0.15			
Weaving seg length, L (ft)	1400				Weaving ratio, R	0.49			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	9573	0.90	3	0	1.5	1.2	0.985	1.00	10796
V_{o2}	0	0.90	3	0	1.5	1.2	0.985	1.00	0
V_{w1}	849	0.90	3	0	1.5	1.2	0.985	1.00	957
V_{w2}	832	0.90	3	0	1.5	1.2	0.985	1.00	938
V_w				1895	V_{nw}				10796
V									12691
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	1.24		0.71						
Weaving and non-weaving speeds, S_i (mi/h)	41.75		50.06						
Number of lanes required for unconstrained operation, N_w					1.33				
Maximum number of lanes, N_w (max)					1.40				
<input checked="" type="checkbox"/> If $N_w < N_w(max)$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	48.61								
Weaving segment density, D (pc/mi/ln)	52.21								
Level of service, LOS	F								
Capacity of base condition, c_b (pc/h)	11029								
Capacity as a 15-minute flow rate, c (veh/h)	10866								
Capacity as a full-hour volume, c_h (veh/h)	9779								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst Agency/Company CAI Date Performed 2/26/2009 Analysis Time Period DHV					Freeway/Dir of Travel Northbound Weaving Seg Location Beltline_Dickerson Jurisdiction Analysis Year 2030				
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type A				
Weaving number of lanes, N 5					Volume ratio, VR 0.16				
Weaving seg length, L (ft) 2250					Weaving ratio, R 0.42				
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	8945	0.90	3	0	1.5	1.2	0.985	1.00	10087
V_{o2}	849	0.90	3	0	1.5	1.2	0.985	1.00	957
V_{w1}	1106	0.90	3	0	1.5	1.2	0.985	1.00	1247
V_{w2}	805	0.90	3	0	1.5	1.2	0.985	1.00	907
V_w				2154	V_{nw}				11044
V									13198
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					2.12		0.31		
Weaving and non-weaving speeds, S_i (mi/h)					34.25		60.65		
Number of lanes required for unconstrained operation, Nw					1.49				
Maximum number of lanes, Nw (max)					1.40				
<input type="checkbox"/> If $N_w < N_w(\max)$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(\max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					53.87				
Weaving segment density, D (pc/mi/ln)					49.00				
Level of service, LOS					F				
Capacity of base condition, c_b (pc/h)					11557				
Capacity as a 15-minute flow rate, c (veh/h)					11386				
Capacity as a full-hour volume, c_h (veh/h)					10247				
Notes									
<p>a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".</p> <p>b. Capacity constrained by basic freeway capacity.</p> <p>c. Capacity occurs under constrained operating conditions.</p> <p>d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.</p> <p>e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.</p> <p>f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).</p> <p>g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.</p> <p>h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.</p> <p>i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.</p>									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst					Freeway/Dir of Travel		Northbound		
Agency/Company CAI					Weaving Seg Location		FM 3040 to Corporate Off		
Date Performed 2/26/2009					Jurisdiction				
Analysis Time Period DHV					Analysis Year		2030		
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type A				
Weaving number of lanes, N 5					Volume ratio, VR 0.21				
Weaving seg length, L (ft) 1610					Weaving ratio, R 0.45				
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	8281	0.90	3	0	1.5	1.2	0.985	1.00	9339
V_{o2}	770	0.90	3	0	1.5	1.2	0.985	1.00	868
V_{w1}	1318	0.90	3	0	1.5	1.2	0.985	1.00	1486
V_{w2}	1088	0.90	3	0	1.5	1.2	0.985	1.00	1227
V_w				2713	V_{nw}				10207
V									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					2.96		0.46		
Weaving and non-weaving speeds, S_i (mi/h)					30.17		56.09		
Number of lanes required for unconstrained operation, Nw					1.67				
Maximum number of lanes, Nw (max)					1.40				
<input type="checkbox"/> If $N_w < N_w(max)$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					47.52				
Weaving segment density, D (pc/mi/ln)					54.38				
Level of service, LOS					F				
Capacity of base condition, c_b (pc/h)					10901				
Capacity as a 15-minute flow rate, c (veh/h)					10740				
Capacity as a full-hour volume, c_h (veh/h)					9666				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst Agency/Company CAI Date Performed 2/26/2009 Analysis Time Period DHV					Freeway/Dir of Travel Northbound Weaving Seg Location Fox to Valley Ridge Jurisdiction Analysis Year 2030				
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type A				
Weaving number of lanes, N 5					Volume ratio, VR 0.19				
Weaving seg length, L (ft) 2060					Weaving ratio, R 0.44				
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	6192	0.90	3	0	1.5	1.2	0.985	1.00	6983
V_{o2}	2663	0.90	3	0	1.5	1.2	0.985	1.00	3003
V_{w1}	1203	0.90	3	0	1.5	1.2	0.985	1.00	1356
V_{w2}	938	0.90	3	0	1.5	1.2	0.985	1.00	1057
V_w				2413	V_{nw}				9986
V									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					2.27		0.34		
Weaving and non-weaving speeds, S_i (mi/h)					33.37		59.62		
Number of lanes required for unconstrained operation, Nw 1.63									
Maximum number of lanes, Nw (max) 1.40									
<input type="checkbox"/> If $N_w < N_w(max)$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					51.70				
Weaving segment density, D (pc/mi/ln)					47.96				
Level of service, LOS					F				
Capacity of base condition, c_b (pc/h)					11332				
Capacity as a 15-minute flow rate, c (veh/h)					11165				
Capacity as a full-hour volume, c_h (veh/h)					10048				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst					Freeway/Dir of Travel		Northbound		
Agency/Company CAI					Weaving Seg Location		FM 1171 to Lake Park Road		
Date Performed 2/26/2009					Jurisdiction				
Analysis Time Period DHV					Analysis Year		2030		
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type A				
Weaving number of lanes, N 5					Volume ratio, VR 0.14				
Weaving seg length, L (ft) 1400					Weaving ratio, R 0.48				
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	6705	0.90	3	0	1.5	1.2	0.985	1.00	7561
V_{o2}	2221	0.90	3	0	1.5	1.2	0.985	1.00	2504
V_{w1}	752	0.90	3	0	1.5	1.2	0.985	1.00	848
V_{w2}	690	0.90	3	0	1.5	1.2	0.985	1.00	778
V_w				1626	V_{nw}				10065
V									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	1.13		0.62						
Weaving and non-weaving speeds, S_i (mi/h)	43.23		52.11						
Number of lanes required for unconstrained operation, N_w					1.26				
Maximum number of lanes, N_w (max)					1.40				
<input checked="" type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					50.66				
Weaving segment density, D (pc/mi/ln)					46.16				
Level of service, LOS					F				
Capacity of base condition, c_b (pc/h)					11104				
Capacity as a 15-minute flow rate, c (veh/h)					10940				
Capacity as a full-hour volume, c_h (veh/h)					9846				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".									
b. Capacity constrained by basic freeway capacity.									
c. Capacity occurs under constrained operating conditions.									
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.									
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.									
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).									
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.									
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.									
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	LWC				Freeway/Dir of Travel	Northbound			
Agency/Company	CAI				Weaving Seg Location	Valley Ridge to Garden Ridge			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	5				Volume ratio, VR	0.18			
Weaving seg length, L (ft)	1400				Weaving ratio, R	0.50			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	6537	0.90	3	0	1.5	1.2	0.985	1.00	7372
V_{o2}	1867	0.90	3	0	1.5	1.2	0.985	1.00	2105
V_{w1}	920	0.90	3	0	1.5	1.2	0.985	1.00	1037
V_{w2}	902	0.90	3	0	1.5	1.2	0.985	1.00	1017
V_w				2054	V_{nw}				9477
V									11531
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					2.79		0.40		
Weaving and non-weaving speeds, S_i (mi/h)					30.83		57.97		
Number of lanes required for unconstrained operation, N_w					1.46				
Maximum number of lanes, N_w (max)					1.40				
<input type="checkbox"/> If $N_w < N_w(max)$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	50.11								
Weaving segment density, D (pc/mi/ln)	46.02								
Level of service, LOS	F								
Capacity of base condition, c_b (pc/h)	10819								
Capacity as a 15-minute flow rate, c (veh/h)	10659								
Capacity as a full-hour volume, c_h (veh/h)	9593								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET										
General Information					Site Information					
Analyst					Freeway/Dir of Travel		Northbound			
Agency/Company CAI					Weaving Seg Location		Hundley On to Dobbs Off			
Date Performed 2/26/2009					Jurisdiction					
Analysis Time Period DHV					Analysis Year		2030			
Inputs										
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type		A			
Weaving number of lanes, N 5					Volume ratio, VR		0.13			
Weaving seg length, L (ft) 1620					Weaving ratio, R		0.45			
Terrain Level										
Conversions to pc/h Under Base Conditions										
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v	
V_{o1}	6119	0.90	3	0	1.5	1.2	0.985	1.00	6900	
V_{o2}	2221	0.90	3	0	1.5	1.2	0.985	1.00	2504	
V_{w1}	664	0.90	3	0	1.5	1.2	0.985	1.00	748	
V_{w2}	540	0.90	3	0	1.5	1.2	0.985	1.00	609	
V_w				1357	V_{nw}				9404	
V										10761
Weaving and Non-Weaving Speeds										
	Unconstrained				Constrained					
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)			
a (Exhibit 24-6)	0.15		0.0035							
b (Exhibit 24-6)	2.20		4.00							
c (Exhibit 24-6)	0.97		1.30							
d (Exhibit 24-6)	0.80		0.75							
Weaving intensity factor, W_i	0.90		0.47							
Weaving and non-weaving speeds, S_i (mi/h)	46.56		55.70							
Number of lanes required for unconstrained operation, N_w					1.19					
Maximum number of lanes, N_w (max)					1.40					
<input checked="" type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation					
Weaving Segment Speed, Density, Level of Service, and Capacity										
Weaving segment speed, S (mi/h)					54.35					
Weaving segment density, D (pc/mi/ln)					39.60					
Level of service, LOS					E					
Capacity of base condition, c_b (pc/h)					11401					
Capacity as a 15-minute flow rate, c (veh/h)					11233					
Capacity as a full-hour volume, c_h (veh/h)					10110					
Notes										
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".										
b. Capacity constrained by basic freeway capacity.										
c. Capacity occurs under constrained operating conditions.										
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.										
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.										
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).										
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.										
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.										
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.										

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst					Freeway/Dir of Travel		Northbound		
Agency/Company CAI					Weaving Seg Location		Corinth to Mayhill		
Date Performed 2/26/2009					Jurisdiction				
Analysis Time Period DHV					Analysis Year		2030		
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type A				
Weaving number of lanes, N 5					Volume ratio, VR 0.20				
Weaving seg length, L (ft) 2210					Weaving ratio, R 0.46				
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	4977	0.90	3	0	1.5	1.2	0.985	1.00	5612
V_{o2}	1832	0.90	3	0	1.5	1.2	0.985	1.00	2066
V_{w1}	894	0.90	3	0	1.5	1.2	0.985	1.00	1008
V_{w2}	761	0.90	3	0	1.5	1.2	0.985	1.00	858
V_w				1866	V_{nw}				7678
V									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					1.67		0.23		
Weaving and non-weaving speeds, S_i (mi/h)					37.51		63.65		
Number of lanes required for unconstrained operation, N_w 1.59									
Maximum number of lanes, N_w (max) 1.40									
<input type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					56.02				
Weaving segment density, D (pc/mi/ln)					34.08				
Level of service, LOS					D				
Capacity of base condition, c_b (pc/h)					11407				
Capacity as a 15-minute flow rate, c (veh/h)					11238				
Capacity as a full-hour volume, c_h (veh/h)					10114				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".									
b. Capacity constrained by basic freeway capacity.									
c. Capacity occurs under constrained operating conditions.									
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.									
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.									
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).									
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.									
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.									
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst					Freeway/Dir of Travel		Northbound		
Agency/Company CAI					Weaving Seg Location		PostOak to Loop 288		
Date Performed 2/26/2009					Jurisdiction				
Analysis Time Period DHV					Analysis Year		2030		
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type		A		
Weaving number of lanes, N 5					Volume ratio, VR		0.14		
Weaving seg length, L (ft) 1800					Weaving ratio, R		0.33		
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	4995	0.90	3	0	1.5	1.2	0.985	1.00	5633
V_{o2}	1911	0.90	3	0	1.5	1.2	0.985	1.00	2155
V_{w1}	743	0.90	3	0	1.5	1.2	0.985	1.00	837
V_{w2}	372	0.90	3	0	1.5	1.2	0.985	1.00	419
V_w				1256	V_{nw}				7788
V									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	0.72		0.37						
Weaving and non-weaving speeds, S_i (mi/h)	49.94		58.93						
Number of lanes required for unconstrained operation, N_w					1.25				
Maximum number of lanes, N_w (max)					1.40				
<input checked="" type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					57.49				
Weaving segment density, D (pc/mi/ln)					31.46				
Level of service, LOS					D				
Capacity of base condition, c_b (pc/h)					11433				
Capacity as a 15-minute flow rate, c (veh/h)					11264				
Capacity as a full-hour volume, c_h (veh/h)					10138				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".									
b. Capacity constrained by basic freeway capacity.									
c. Capacity occurs under constrained operating conditions.									
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.									
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.									
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).									
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.									
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.									
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst Agency/Company CAI Date Performed 2/26/2009 Analysis Time Period DHV					Freeway/Dir of Travel Northbound Weaving Seg Location Mayhill to US 77 Jurisdiction Analysis Year 2030				
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type A				
Weaving number of lanes, N 5					Volume ratio, VR 0.18				
Weaving seg length, L (ft) 1820					Weaving ratio, R 0.47				
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	4668	0.90	3	0	1.5	1.2	0.985	1.00	5264
V_{o2}	2062	0.90	3	0	1.5	1.2	0.985	1.00	2325
V_{w1}	787	0.90	3	0	1.5	1.2	0.985	1.00	887
V_{w2}	699	0.90	3	0	1.5	1.2	0.985	1.00	788
V_w				1675	V_{nw}				7589
V									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					1.84		0.25		
Weaving and non-weaving speeds, S_i (mi/h)					36.13		63.11		
Number of lanes required for unconstrained operation, Nw 1.47									
Maximum number of lanes, Nw (max) 1.40									
<input type="checkbox"/> If $N_w < N_w(max)$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					55.61				
Weaving segment density, D (pc/mi/ln)					33.32				
Level of service, LOS					D				
Capacity of base condition, c_b (pc/h)					11210				
Capacity as a 15-minute flow rate, c (veh/h)					11044				
Capacity as a full-hour volume, c_h (veh/h)					9940				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst					Freeway/Dir of Travel		Northbound		
Agency/Company CAI					Weaving Seg Location		Teasley to McCormick		
Date Performed 2/26/2009					Jurisdiction				
Analysis Time Period DHV					Analysis Year		2030		
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type A				
Weaving number of lanes, N 5					Volume ratio, VR 0.24				
Weaving seg length, L (ft) 1450					Weaving ratio, R 0.48				
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	4782	0.90	3	0	1.5	1.2	0.985	1.00	5393
V_{o2}	566	0.90	3	0	1.5	1.2	0.985	1.00	638
V_{w1}	867	0.90	3	0	1.5	1.2	0.985	1.00	977
V_{w2}	814	0.90	3	0	1.5	1.2	0.985	1.00	918
V_w				1895	V_{nw}				6031
V									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					2.11		0.29		
Weaving and non-weaving speeds, S_i (mi/h)					34.30		61.51		
Number of lanes required for unconstrained operation, Nw					1.67				
Maximum number of lanes, Nw (max)					1.40				
<input type="checkbox"/> If Nw < Nw(max) unconstrained operation					<input checked="" type="checkbox"/> if Nw > Nw (max) constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					51.71				
Weaving segment density, D (pc/mi/ln)					30.66				
Level of service, LOS					D				
Capacity of base condition, c_b (pc/h)					10728				
Capacity as a 15-minute flow rate, c (veh/h)					10569				
Capacity as a full-hour volume, c_h (veh/h)					9512				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst Agency/Company CAI Date Performed 2/26/2009 Analysis Time Period DHV					Freeway/Dir of Travel Northbound Weaving Seg Location US377 to N.Texas Jurisdiction Analysis Year 2030				
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70 Weaving number of lanes, N 5 Weaving seg length, L (ft) 1310 Terrain Level					Weaving type A Volume ratio, VR 0.16 Weaving ratio, R 0.36				
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	5224	0.90	4	0	1.5	1.2	0.980	1.00	5920
V_{o2}	1124	0.90	4	0	1.5	1.2	0.980	1.00	1273
V_{w1}	761	0.90	4	0	1.5	1.2	0.980	1.00	862
V_{w2}	425	0.90	4	0	1.5	1.2	0.980	1.00	481
V_w				1343	V_{nw}				7193
V									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)	Non-Weaving (i = nw)			Weaving (i = w)	Non-Weaving (= nw)			
a (Exhibit 24-6)	0.15	0.0035							
b (Exhibit 24-6)	2.20	4.00							
c (Exhibit 24-6)	0.97	1.30							
d (Exhibit 24-6)	0.80	0.75							
Weaving intensity factor, W_i	0.91	0.46							
Weaving and non-weaving speeds, S_i (mi/h)	46.48	56.12							
Number of lanes required for unconstrained operation, N_w 1.28									
Maximum number of lanes, N_w (max) 1.40									
<input checked="" type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					54.35				
Weaving segment density, D (pc/mi/ln)					31.41				
Level of service, LOS					D				
Capacity of base condition, c_b (pc/h)					10851				
Capacity as a 15-minute flow rate, c (veh/h)					10638				
Capacity as a full-hour volume, c_h (veh/h)					9574				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".									
b. Capacity constrained by basic freeway capacity.									
c. Capacity occurs under constrained operating conditions.									
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.									
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.									
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).									
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.									
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.									
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

GENERAL PURPOSE LANES

BUILD

SOUTHBOUND

LEVELS OF SERVICE HCS OUTPUT

FREEWAY WEAVING WORKSHEET										
General Information					Site Information					
Analyst					Freeway/Dir of Travel		Southbound			
Agency/Company CAI					Weaving Seg Location		Dickerson to Beltline			
Date Performed 2/26/2009					Jurisdiction					
Analysis Time Period DHV					Analysis Year		2030			
Inputs										
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type		A			
Weaving number of lanes, N 5					Volume ratio, VR		0.13			
Weaving seg length, L (ft) 1680					Weaving ratio, R		0.38			
Terrain Level										
Conversions to pc/h Under Base Conditions										
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v	
V_{o1}	9044	0.90	3	0	1.5	1.2	0.985	1.00	10199	
V_{o2}	637	0.90	3	0	1.5	1.2	0.985	1.00	718	
V_{w1}	929	0.90	3	0	1.5	1.2	0.985	1.00	1047	
V_{w2}	566	0.90	3	0	1.5	1.2	0.985	1.00	638	
V_w				1685	V_{nw}				10917	
V										12602
Weaving and Non-Weaving Speeds										
	Unconstrained				Constrained					
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)			
a (Exhibit 24-6)	0.15		0.0035							
b (Exhibit 24-6)	2.20		4.00							
c (Exhibit 24-6)	0.97		1.30							
d (Exhibit 24-6)	0.80		0.75							
Weaving intensity factor, W_i	1.04		0.58							
Weaving and non-weaving speeds, S_i (mi/h)	44.48		52.92							
Number of lanes required for unconstrained operation, N_w					1.26					
Maximum number of lanes, N_w (max)					1.40					
<input checked="" type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation					
Weaving Segment Speed, Density, Level of Service, and Capacity										
Weaving segment speed, S (mi/h)					51.61					
Weaving segment density, D (pc/mi/ln)					48.83					
Level of service, LOS					F					
Capacity of base condition, c_b (pc/h)					11388					
Capacity as a 15-minute flow rate, c (veh/h)					11220					
Capacity as a full-hour volume, c_h (veh/h)					10098					
Notes										
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".										
b. Capacity constrained by basic freeway capacity.										
c. Capacity occurs under constrained operating conditions.										
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.										
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.										
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).										
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.										
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.										
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.										

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst					Freeway/Dir of Travel		Southbound		
Agency/Company CAI					Weaving Seg Location		Beltline to Valwood		
Date Performed 2/26/2009					Jurisdiction				
Analysis Time Period DHV					Analysis Year		2030		
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type		A		
Weaving number of lanes, N 5					Volume ratio, VR		0.11		
Weaving seg length, L (ft) 1880					Weaving ratio, R		0.42		
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	9698	0.90	3	0	1.5	1.2	0.985	1.00	10937
V_{o2}	1301	0.90	3	0	1.5	1.2	0.985	1.00	1467
V_{w1}	779	0.90	3	0	1.5	1.2	0.985	1.00	878
V_{w2}	566	0.90	3	0	1.5	1.2	0.985	1.00	638
V_w				1516	V_{nw}				12404
V									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	0.99		0.56						
Weaving and non-weaving speeds, S_i (mi/h)	45.11		53.53						
Number of lanes required for unconstrained operation, N_w					1.15				
Maximum number of lanes, N_w (max)					1.40				
<input checked="" type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					52.46				
Weaving segment density, D (pc/mi/ln)					53.07				
Level of service, LOS					F				
Capacity of base condition, c_b (pc/h)					11644				
Capacity as a 15-minute flow rate, c (veh/h)					11472				
Capacity as a full-hour volume, c_h (veh/h)					10325				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".									
b. Capacity constrained by basic freeway capacity.									
c. Capacity occurs under constrained operating conditions.									
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.									
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.									
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).									
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.									
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.									
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET										
General Information					Site Information					
Analyst Agency/Company CAI Date Performed 2/26/2009 Analysis Time Period DHV					Freeway/Dir of Travel Southbound Weaving Seg Location Dobbs to Hundley Jurisdiction Analysis Year 2030					
Inputs										
Freeway free-flow speed, S _{FF} (mi/h) 70 Weaving number of lanes, N 5 Weaving seg length, L (ft) 2320 Terrain Level					Weaving type A Volume ratio, VR 0.15 Weaving ratio, R 0.47					
Conversions to pc/h Under Base Conditions										
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f _{HV}	f _p	v	
V _{o1}	6267	0.90	3	0	1.5	1.2	0.985	1.00	7067	
V _{o2}	1327	0.90	3	0	1.5	1.2	0.985	1.00	1496	
V _{w1}	708	0.90	3	0	1.5	1.2	0.985	1.00	798	
V _{w2}	628	0.90	3	0	1.5	1.2	0.985	1.00	708	
V _w				1506	V _{nw}				8563	
V										10069
Weaving and Non-Weaving Speeds										
	Unconstrained				Constrained					
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)			
a (Exhibit 24-6)	0.15		0.0035							
b (Exhibit 24-6)	2.20		4.00							
c (Exhibit 24-6)	0.97		1.30							
d (Exhibit 24-6)	0.80		0.75							
Weaving intensity factor, W _i	0.66		0.36							
Weaving and non-weaving speeds, S _i (mi/h)	51.07		59.09							
Number of lanes required for unconstrained operation, N _w					1.37					
Maximum number of lanes, N _w (max)					1.40					
<input checked="" type="checkbox"/> If N _w < N _w (max) unconstrained operation					<input type="checkbox"/> if N _w > N _w (max) constrained operation					
Weaving Segment Speed, Density, Level of Service, and Capacity										
Weaving segment speed, S (mi/h)					57.73					
Weaving segment density, D (pc/mi/ln)					34.88					
Level of service, LOS					D					
Capacity of base condition, c _b (pc/h)					11640					
Capacity as a 15-minute flow rate, c (veh/h)					11468					
Capacity as a full-hour volume, c _h (veh/h)					10321					
Notes										
<p>a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".</p> <p>b. Capacity constrained by basic freeway capacity.</p> <p>c. Capacity occurs under constrained operating conditions.</p> <p>d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.</p> <p>e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.</p> <p>f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).</p> <p>g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.</p> <p>h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.</p> <p>i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.</p>										

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	LWC				Freeway/Dir of Travel	Southbound			
Agency/Company	CAI				Weaving Seg Location	FM 1171 to BUS 121			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	5				Volume ratio, VR	0.19			
Weaving seg length, L (ft)	1580				Weaving ratio, R	0.45			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	7124	0.90	3	0	1.5	1.2	0.985	1.00	8034
V_{o2}	1885	0.90	3	0	1.5	1.2	0.985	1.00	2125
V_{w1}	1177	0.90	3	0	1.5	1.2	0.985	1.00	1327
V_{w2}	964	0.90	3	0	1.5	1.2	0.985	1.00	1087
V_w				2414	V_{nw}				10159
V									12573
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					2.83		0.42		
Weaving and non-weaving speeds, S_i (mi/h)					30.68		57.12		
Number of lanes required for unconstrained operation, N_w					1.57				
Maximum number of lanes, N_w (max)					1.40				
<input type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	49.01								
Weaving segment density, D (pc/mi/ln)	51.31								
Level of service, LOS	F								
Capacity of base condition, c_b (pc/h)	10927								
Capacity as a 15-minute flow rate, c (veh/h)	10766								
Capacity as a full-hour volume, c_h (veh/h)	9689								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	LWC				Freeway/Dir of Travel	Southbound			
Agency/Company	CAI				Weaving Seg Location	BUS 121 to FM 3040			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	5				Volume ratio, VR	0.20			
Weaving seg length, L (ft)	2400				Weaving ratio, R	0.37			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	7566	0.90	3	0	1.5	1.2	0.985	1.00	8532
V_{o2}	1495	0.90	3	0	1.5	1.2	0.985	1.00	1686
V_{w1}	1469	0.90	3	0	1.5	1.2	0.985	1.00	1656
V_{w2}	867	0.90	3	0	1.5	1.2	0.985	1.00	977
V_w				2633	V_{nw}				10218
V									12851
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					2.12		0.33		
Weaving and non-weaving speeds, S_i (mi/h)					34.25		60.01		
Number of lanes required for unconstrained operation, Nw					1.72				
Maximum number of lanes, Nw (max)					1.40				
<input type="checkbox"/> If $N_w < N_w(\max)$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(\max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	52.00								
Weaving segment density, D (pc/mi/ln)	49.43								
Level of service, LOS	F								
Capacity of base condition, c_b (pc/h)	11491								
Capacity as a 15-minute flow rate, c (veh/h)	11321								
Capacity as a full-hour volume, c_h (veh/h)	10189								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst Agency/Company CAI Date Performed 2/26/2009 Analysis Time Period DHV					Freeway/Dir of Travel Southbound Weaving Seg Location Fox to Corporate Jurisdiction Analysis Year 2030				
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type A				
Weaving number of lanes, N 5					Volume ratio, VR 0.16				
Weaving seg length, L (ft) 1700					Weaving ratio, R 0.46				
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	7256	0.90	3	0	1.5	1.2	0.985	1.00	8183
V_{o2}	2292	0.90	3	0	1.5	1.2	0.985	1.00	2584
V_{w1}	991	0.90	3	0	1.5	1.2	0.985	1.00	1117
V_{w2}	832	0.90	3	0	1.5	1.2	0.985	1.00	938
V_w				2055	V_{nw}				10767
V									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					2.56		0.37		
Weaving and non-weaving speeds, S_i (mi/h)					31.85		58.80		
Number of lanes required for unconstrained operation, Nw					1.42				
Maximum number of lanes, Nw (max)					1.40				
<input type="checkbox"/> If $N_w < N_w(\max)$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(\max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					51.78				
Weaving segment density, D (pc/mi/ln)					49.53				
Level of service, LOS					F				
Capacity of base condition, c_b (pc/h)					11235				
Capacity as a 15-minute flow rate, c (veh/h)					11069				
Capacity as a full-hour volume, c_h (veh/h)					9962				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst					Freeway/Dir of Travel		Southbound		
Agency/Company CAI					Weaving Seg Location		NTexas to US 377		
Date Performed 2/26/2009					Jurisdiction				
Analysis Time Period DHV					Analysis Year		2030		
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type		A		
Weaving number of lanes, N 5					Volume ratio, VR		0.33		
Weaving seg length, L (ft) 1400					Weaving ratio, R		0.34		
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	4248	0.90	4	0	1.5	1.2	0.980	1.00	4814
V_{o2}	318	0.90	4	0	1.5	1.2	0.980	1.00	360
V_{w1}	1495	0.90	4	0	1.5	1.2	0.980	1.00	1694
V_{w2}	770	0.90	4	0	1.5	1.2	0.980	1.00	872
V_w				2566	V_{nw}				5174
V									
7740									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					2.48		0.39		
Weaving and non-weaving speeds, S_i (mi/h)					32.23		58.32		
Number of lanes required for unconstrained operation, Nw 2.04									
Maximum number of lanes, Nw (max) 1.40									
<input type="checkbox"/> If $N_w < N_w(max)$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					45.98				
Weaving segment density, D (pc/mi/ln)					33.67				
Level of service, LOS					D				
Capacity of base condition, c_b (pc/h)					10660				
Capacity as a 15-minute flow rate, c (veh/h)					10451				
Capacity as a full-hour volume, c_h (veh/h)					9406				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions".									
b. Capacity constrained by basic freeway capacity.									
c. Capacity occurs under constrained operating conditions.									
d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases.									
e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases.									
f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C).									
g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases.									
h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases.									
i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst Agency/Company CAI Date Performed 2/26/2009 Analysis Time Period DHV					Freeway/Dir of Travel Southbound Weaving Seg Location McCormick to Teasley Ln Jurisdiction Analysis Year 2030				
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type A				
Weaving number of lanes, N 5					Volume ratio, VR 0.28				
Weaving seg length, L (ft) 1300					Weaving ratio, R 0.38				
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	4549	0.90	3	0	1.5	1.2	0.985	1.00	5130
V_{o2}	292	0.90	3	0	1.5	1.2	0.985	1.00	329
V_{w1}	1194	0.90	3	0	1.5	1.2	0.985	1.00	1346
V_{w2}	717	0.90	3	0	1.5	1.2	0.985	1.00	808
V_w				2154	V_{nw}				5459
V									
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					2.39		0.34		
Weaving and non-weaving speeds, S_i (mi/h)					32.71		59.66		
Number of lanes required for unconstrained operation, Nw 1.82									
Maximum number of lanes, Nw (max) 1.40									
<input type="checkbox"/> If $N_w < N_w(\max)$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(\max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					48.38				
Weaving segment density, D (pc/mi/ln)					31.47				
Level of service, LOS					D				
Capacity of base condition, c_b (pc/h)					10525				
Capacity as a 15-minute flow rate, c (veh/h)					10369				
Capacity as a full-hour volume, c_h (veh/h)					9332				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	LWC				Freeway/Dir of Travel	Southbound			
Agency/Company	CAI				Weaving Seg Location	Loop 288 to Post Oak			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	5				Volume ratio, VR	0.17			
Weaving seg length, L (ft)	1800				Weaving ratio, R	0.26			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	4902	0.90	3	0	1.5	1.2	0.985	1.00	5528
V_{o2}	1646	0.90	3	0	1.5	1.2	0.985	1.00	1856
V_{w1}	991	0.90	3	0	1.5	1.2	0.985	1.00	1117
V_{w2}	345	0.90	3	0	1.5	1.2	0.985	1.00	389
V_w				1506	V_{nw}				7384
V									8890
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					1.75		0.23		
Weaving and non-weaving speeds, S_i (mi/h)					36.86		63.89		
Number of lanes required for unconstrained operation, Nw					1.41				
Maximum number of lanes, Nw (max)					1.40				
<input type="checkbox"/> If $N_w < N_w(\max)$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(\max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	56.83								
Weaving segment density, D (pc/mi/ln)	31.29								
Level of service, LOS	D								
Capacity of base condition, c_b (pc/h)	11258								
Capacity as a 15-minute flow rate, c (veh/h)	11092								
Capacity as a full-hour volume, c_h (veh/h)	9983								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	LWC				Freeway/Dir of Travel	Southbound			
Agency/Company	CAI				Weaving Seg Location	Mayhill On to Corinth Off			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	5				Volume ratio, VR	0.19			
Weaving seg length, L (ft)	2350				Weaving ratio, R	0.35			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	5363	0.90	3	0	1.5	1.2	0.985	1.00	6048
V_{o2}	1159	0.90	3	0	1.5	1.2	0.985	1.00	1307
V_{w1}	1018	0.90	3	0	1.5	1.2	0.985	1.00	1148
V_{w2}	540	0.90	3	0	1.5	1.2	0.985	1.00	609
V_w				1757	V_{nw}				7355
V									9112
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					1.51		0.21		
Weaving and non-weaving speeds, S_i (mi/h)					38.92		64.67		
Number of lanes required for unconstrained operation, N_w					1.58				
Maximum number of lanes, N_w (max)					1.40				
<input type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	57.35								
Weaving segment density, D (pc/mi/ln)	31.77								
Level of service, LOS	D								
Capacity of base condition, c_b (pc/h)	11491								
Capacity as a 15-minute flow rate, c (veh/h)	11321								
Capacity as a full-hour volume, c_h (veh/h)	10189								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	LWC				Freeway/Dir of Travel	Southbound			
Agency/Company	CAI				Weaving Seg Location	Post Oak to Meadow Oaks			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	5				Volume ratio, VR	0.19			
Weaving seg length, L (ft)	2200				Weaving ratio, R	0.23			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	6311	0.90	3	0	1.5	1.2	0.985	1.00	7117
V_{o2}	921	0.90	3	0	1.5	1.2	0.985	1.00	1038
V_{w1}	1310	0.90	3	0	1.5	1.2	0.985	1.00	1477
V_{w2}	389	0.90	3	0	1.5	1.2	0.985	1.00	438
V_w				1915	V_{nw}				8155
V									10070
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					1.74		0.25		
Weaving and non-weaving speeds, S_i (mi/h)					36.87		63.13		
Number of lanes required for unconstrained operation, N_w					1.57				
Maximum number of lanes, N_w (max)					1.40				
<input type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	55.60								
Weaving segment density, D (pc/mi/ln)	36.22								
Level of service, LOS	E								
Capacity of base condition, c_b (pc/h)	11424								
Capacity as a 15-minute flow rate, c (veh/h)	11255								
Capacity as a full-hour volume, c_h (veh/h)	10129								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY LANES

NO-BUILD

NORTHBOUND

LEVELS OF SERVICE HCS OUTPUT

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	LWC				Freeway/Dir of Travel	Northbound			
Agency/Company	CAI				Weaving Seg Location	Valwood to Crosby			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	4				Volume ratio, VR	0.11			
Weaving seg length, L (ft)	800				Weaving ratio, R	0.41			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	11988	0.90	3	0	1.5	1.2	0.985	1.00	13519
V_{o2}	0	0.90	3	0	1.5	1.2	0.985	1.00	0
V_{w1}	602	0.90	3	0	1.5	1.2	0.985	1.00	678
V_{w2}	849	0.90	3	0	1.5	1.2	0.985	1.00	957
V_w				1635	V_{nw}				13519
V									15154
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	2.65		1.57						
Weaving and non-weaving speeds, S_i (mi/h)	31.46		38.32						
Number of lanes required for unconstrained operation, N_w	0.88								
Maximum number of lanes, N_w (max)	1.40								
<input checked="" type="checkbox"/> If $N_w < N_w(max)$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	37.44								
Weaving segment density, D (pc/mi/ln)	101.20								
Level of service, LOS	F								
Capacity of base condition, c_b (pc/h)	8252								
Capacity as a 15-minute flow rate, c (veh/h)	8130								
Capacity as a full-hour volume, c_h (veh/h)	7317								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst Agency/Company CAI Date Performed 2/26/2009 Analysis Time Period DHV					Freeway/Dir of Travel Northbound Weaving Seg Location BUS 121 to Fox Jurisdiction Analysis Year 2030				
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type A				
Weaving number of lanes, N 4					Volume ratio, VR 0.10				
Weaving seg length, L (ft) 2060					Weaving ratio, R 0.37				
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	10254	0.90	3	0	1.5	1.2	0.985	1.00	11564
V_{o2}	0	0.90	3	0	1.5	1.2	0.985	1.00	0
V_{w1}	760	0.90	3	0	1.5	1.2	0.985	1.00	857
V_{w2}	443	0.90	3	0	1.5	1.2	0.985	1.00	499
V_w				1356	V_{nw}				11564
V									12920
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	1.06		0.62						
Weaving and non-weaving speeds, S_i (mi/h)	44.16		51.98						
Number of lanes required for unconstrained operation, N_w					0.93				
Maximum number of lanes, N_w (max)					1.40				
<input checked="" type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					51.04				
Weaving segment density, D (pc/mi/ln)					63.29				
Level of service, LOS					F				
Capacity of base condition, c_b (pc/h)					9387				
Capacity as a 15-minute flow rate, c (veh/h)					9248				
Capacity as a full-hour volume, c_h (veh/h)					8323				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst					Freeway/Dir of Travel		Southbound		
Agency/Company CAI					Weaving Seg Location		Crosby to Valwood		
Date Performed 2/26/2009					Jurisdiction				
Analysis Time Period DHV					Analysis Year		2030		
Inputs									
Freeway free-flow speed, S_{FF} (mi/h) 70					Weaving type		A		
Weaving number of lanes, N 4					Volume ratio, VR		0.11		
Weaving seg length, L (ft) 800					Weaving ratio, R		0.47		
Terrain Level									
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	11856	0.90	3	0	1.5	1.2	0.985	1.00	13370
V_{o2}	0	0.90	3	0	1.5	1.2	0.985	1.00	0
V_{w1}	779	0.90	3	0	1.5	1.2	0.985	1.00	878
V_{w2}	690	0.90	3	0	1.5	1.2	0.985	1.00	778
V_w				1656	V_{nw}				13370
V									15026
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	2.64		1.57						
Weaving and non-weaving speeds, S_i (mi/h)	31.50		38.36						
Number of lanes required for unconstrained operation, N_w					0.89				
Maximum number of lanes, N_w (max)					1.40				
<input checked="" type="checkbox"/> If $N_w < N_w(max)$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)					37.46				
Weaving segment density, D (pc/mi/ln)					100.29				
Level of service, LOS					F				
Capacity of base condition, c_b (pc/h)					8235				
Capacity as a 15-minute flow rate, c (veh/h)					8113				
Capacity as a full-hour volume, c_h (veh/h)					7302				
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	EJP				Freeway/Dir of Travel	Northbound			
Agency/Company	CAI				Weaving Seg Location	US 377 to McCormick			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	3				Volume ratio, VR	0.21			
Weaving seg length, L (ft)	800				Weaving ratio, R	0.48			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	5896	0.90	3	0	1.5	1.2	0.985	1.00	6649
V_{o2}	0	0.90	3	0	1.5	1.2	0.985	1.00	0
V_{w1}	814	0.90	3	0	1.5	1.2	0.985	1.00	918
V_{w2}	761	0.90	3	0	1.5	1.2	0.985	1.00	858
V_w				1776	V_{nw}				6649
V									8425
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	2.41		1.52						
Weaving and non-weaving speeds, S_i (mi/h)	32.61		38.80						
Number of lanes required for unconstrained operation, N_w	0.95								
Maximum number of lanes, N_w (max)	1.40								
<input checked="" type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	37.31								
Weaving segment density, D (pc/mi/ln)	75.27								
Level of service, LOS	F								
Capacity of base condition, c_b (pc/h)	5649								
Capacity as a 15-minute flow rate, c (veh/h)	5566								
Capacity as a full-hour volume, c_h (veh/h)	5009								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	EJP				Freeway/Dir of Travel	Northbound			
Agency/Company	CAI				Weaving Seg Location	McCormick to N Texas			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	3				Volume ratio, VR	0.08			
Weaving seg length, L (ft)	700				Weaving ratio, R	0.17			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	6232	0.90	3	0	1.5	1.2	0.985	1.00	7028
V_{o2}	0	0.90	3	0	1.5	1.2	0.985	1.00	0
V_{w1}	425	0.90	3	0	1.5	1.2	0.985	1.00	479
V_{w2}	89	0.90	3	0	1.5	1.2	0.985	1.00	100
V_w				579	V_{nw}				7028
V									7607
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	1.87		0.92						
Weaving and non-weaving speeds, S_i (mi/h)	35.90		46.28						
Number of lanes required for unconstrained operation, N_w	0.49								
Maximum number of lanes, N_w (max)	1.40								
<input checked="" type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	45.28								
Weaving segment density, D (pc/mi/ln)	56.00								
Level of service, LOS	F								
Capacity of base condition, c_b (pc/h)	6090								
Capacity as a 15-minute flow rate, c (veh/h)	6000								
Capacity as a full-hour volume, c_h (veh/h)	5400								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	EJP				Freeway/Dir of Travel	Northbound			
Agency/Company	CAI				Weaving Seg Location	N Texas to IH 35W			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	3				Volume ratio, VR	0.39			
Weaving seg length, L (ft)	1200				Weaving ratio, R	0.04			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	3878	0.90	3	0	1.5	1.2	0.985	1.00	4373
V_{o2}	0	0.90	3	0	1.5	1.2	0.985	1.00	0
V_{w1}	2442	0.90	3	0	1.5	1.2	0.985	1.00	2754
V_{w2}	89	0.90	3	0	1.5	1.2	0.985	1.00	100
V_w				2854	V_{nw}				4373
V									7227
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)					0.35		0.0020		
b (Exhibit 24-6)					2.20		4.00		
c (Exhibit 24-6)					0.97		1.30		
d (Exhibit 24-6)					0.80		0.75		
Weaving intensity factor, W_i					4.78		0.93		
Weaving and non-weaving speeds, S_i (mi/h)					25.39		46.17		
Number of lanes required for unconstrained operation, N_w					1.45				
Maximum number of lanes, N_w (max)					1.40				
<input type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input checked="" type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	34.89								
Weaving segment density, D (pc/mi/ln)	69.05								
Level of service, LOS	F								
Capacity of base condition, c_b (pc/h)	5238								
Capacity as a 15-minute flow rate, c (veh/h)	5161								
Capacity as a full-hour volume, c_h (veh/h)	4645								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY LANES

NO-BUILD

SOUTHBOUND

LEVELS OF SERVICE HCS OUTPUT

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	LWC				Freeway/Dir of Travel	Southbound			
Agency/Company	CAI				Weaving Seg Location	FM 1171 to Fox			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	4				Volume ratio, VR	0.13			
Weaving seg length, L (ft)	1000				Weaving ratio, R	0.31			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	9770	0.90	3	0	1.5	1.2	0.985	1.00	11018
V_{o2}	0	0.90	3	0	1.5	1.2	0.985	1.00	0
V_{w1}	965	0.90	3	0	1.5	1.2	0.985	1.00	1088
V_{w2}	443	0.90	3	0	1.5	1.2	0.985	1.00	499
V_w				1587	V_{nw}				11018
V									12605
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	1.92		1.12						
Weaving and non-weaving speeds, S_i (mi/h)	35.56		43.34						
Number of lanes required for unconstrained operation, N_w					0.96				
Maximum number of lanes, N_w (max)					1.40				
<input checked="" type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	42.18								
Weaving segment density, D (pc/mi/ln)	74.71								
Level of service, LOS	F								
Capacity of base condition, c_b (pc/h)	8506								
Capacity as a 15-minute flow rate, c (veh/h)	8380								
Capacity as a full-hour volume, c_h (veh/h)	7542								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	LWC				Freeway/Dir of Travel	Southbound			
Agency/Company	CAI				Weaving Seg Location	Fox to BUS 121			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	4				Volume ratio, VR	0.18			
Weaving seg length, L (ft)	1200				Weaving ratio, R	0.46			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	9558	0.90	3	0	1.5	1.2	0.985	1.00	10779
V_{o2}	0	0.90	3	0	1.5	1.2	0.985	1.00	0
V_{w1}	991	0.90	3	0	1.5	1.2	0.985	1.00	1117
V_{w2}	1177	0.90	3	0	1.5	1.2	0.985	1.00	1327
V_w				2444	V_{nw}				10779
V									13223
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	1.94		1.27						
Weaving and non-weaving speeds, S_i (mi/h)	35.39		41.41						
Number of lanes required for unconstrained operation, N_w					1.24				
Maximum number of lanes, N_w (max)					1.40				
<input checked="" type="checkbox"/> If $N_w < N_w(max)$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(max)$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	40.15								
Weaving segment density, D (pc/mi/ln)	82.34								
Level of service, LOS	F								
Capacity of base condition, c_b (pc/h)	8310								
Capacity as a 15-minute flow rate, c (veh/h)	8187								
Capacity as a full-hour volume, c_h (veh/h)	7368								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET									
General Information					Site Information				
Analyst	EJP				Freeway/Dir of Travel	Southbound			
Agency/Company	CAI				Weaving Seg Location	N Texas to McCormick			
Date Performed	2/26/2009				Jurisdiction				
Analysis Time Period	DHV				Analysis Year	2030			
Inputs									
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A			
Weaving number of lanes, N	3				Volume ratio, VR	0.23			
Weaving seg length, L (ft)	700				Weaving ratio, R	0.05			
Terrain	Level								
Conversions to pc/h Under Base Conditions									
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v
V_{o1}	5278	0.90	3	0	1.5	1.2	0.985	1.00	5952
V_{o2}	0	0.90	3	0	1.5	1.2	0.985	1.00	0
V_{w1}	80	0.90	3	0	1.5	1.2	0.985	1.00	90
V_{w2}	1495	0.90	3	0	1.5	1.2	0.985	1.00	1686
V_w				1776	V_{nw}				5952
V									7728
Weaving and Non-Weaving Speeds									
	Unconstrained				Constrained				
	Weaving (i = w)		Non-Weaving (i = nw)		Weaving (i = w)		Non-Weaving (= nw)		
a (Exhibit 24-6)	0.15		0.0035						
b (Exhibit 24-6)	2.20		4.00						
c (Exhibit 24-6)	0.97		1.30						
d (Exhibit 24-6)	0.80		0.75						
Weaving intensity factor, W_i	2.55		1.60						
Weaving and non-weaving speeds, S_i (mi/h)	31.91		38.09						
Number of lanes required for unconstrained operation, N_w					0.97				
Maximum number of lanes, N_w (max)					1.40				
<input checked="" type="checkbox"/> If $N_w < N_w(\text{max})$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(\text{max})$ constrained operation				
Weaving Segment Speed, Density, Level of Service, and Capacity									
Weaving segment speed, S (mi/h)	36.46								
Weaving segment density, D (pc/mi/ln)	70.65								
Level of service, LOS	F								
Capacity of base condition, c_b (pc/h)	5421								
Capacity as a 15-minute flow rate, c (veh/h)	5341								
Capacity as a full-hour volume, c_h (veh/h)	4807								
Notes									
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.									

FREEWAY WEAVING WORKSHEET											
General Information					Site Information						
Analyst	EJP				Freeway/Dir of Travel	Southbound					
Agency/Company	CAI				Weaving Seg Location	McCormick to US 377					
Date Performed	2/26/2009				Jurisdiction						
Analysis Time Period	DHV				Analysis Year	2030					
Inputs											
Freeway free-flow speed, S_{FF} (mi/h)	70				Weaving type	A					
Weaving number of lanes, N	3				Volume ratio, VR	0.20					
Weaving seg length, L (ft)	1200				Weaving ratio, R	0.48					
Terrain	Level										
Conversions to pc/h Under Base Conditions											
(pc/h)	V	PHF	Truck %	RV %	E_T	E_R	f_{HV}	f_p	v		
V_{o1}	6003	0.90	3	0	1.5	1.2	0.985	1.00	6770		
V_{o2}	0	0.90	3	0	1.5	1.2	0.985	1.00	0		
V_{w1}	770	0.90	3	0	1.5	1.2	0.985	1.00	868		
V_{w2}	717	0.90	3	0	1.5	1.2	0.985	1.00	808		
V_w				1676	V_{nw}				6770		
V									8446		
Weaving and Non-Weaving Speeds											
	Unconstrained				Constrained						
	Weaving (i = w)				Non-Weaving (i = nw)		Weaving (i = w)			Non-Weaving (= nw)	
a (Exhibit 24-6)	0.15				0.0035						
b (Exhibit 24-6)	2.20				4.00						
c (Exhibit 24-6)	0.97				1.30						
d (Exhibit 24-6)	0.80				0.75						
Weaving intensity factor, W_i	1.71				1.08						
Weaving and non-weaving speeds, S_i (mi/h)	37.18				43.84						
Number of lanes required for unconstrained operation, N_w					0.95						
Maximum number of lanes, N_w (max)					1.40						
<input checked="" type="checkbox"/> If $N_w < N_w(max)$ unconstrained operation					<input type="checkbox"/> if $N_w > N_w(max)$ constrained operation						
Weaving Segment Speed, Density, Level of Service, and Capacity											
Weaving segment speed, S (mi/h)	42.34										
Weaving segment density, D (pc/mi/ln)	66.50										
Level of service, LOS	F										
Capacity of base condition, c_b (pc/h)	6161										
Capacity as a 15-minute flow rate, c (veh/h)	6070										
Capacity as a full-hour volume, c_h (veh/h)	5463										
Notes											
a. Weaving segments longer than 2500 ft. are treated as isolated merge and diverge areas using the procedures of Chapter 25, "Ramps and Ramp Junctions". b. Capacity constrained by basic freeway capacity. c. Capacity occurs under constrained operating conditions. d. Three-lane Type A segments do not operate well at volume ratios greater than 0.45. Poor operations and some local queuing are expected in such cases. e. Four-lane Type A segments do not operate well at volume ratios greater than 0.35. Poor operations and some local queuing are expected in such cases. f. Capacity constrained by maximum allowable weaving flow rate: 2,800 pc/h (Type A), 4,000 (Type B), 3,500 (Type C). g. Five-lane Type A segments do not operate well at volume ratios greater than 0.20. Poor operations and some local queuing are expected in such cases. h. Type B weaving segments do not operate well at volume ratios greater than 0.80. Poor operations and some local queuing are expected in such cases. i. Type C weaving segments do not operate well at volume ratios greater than 0.50. Poor operations and some local queuing are expected in such cases.											