APPENDIX D

WEAVING ANALSYIS

HCS OUTPUT

GENERAL PURPOSE LANES

BUILD

NORTHBOUND

LEVELS OF SERVICE HCS OUTPUT

			FREEWA	Y WEAV	ING WOR	KSHEE	T			
Genera	Informat	ion			Site Info	rmation				
Analyst Agency/Cor Date Perfor Analysis Tir	med	LWC CAI 2/26/2 DHV	009		Freeway/Dir Weaving Seg Jurisdiction Analysis Yea	Location		bound ood to Beltline)	
Inputs										
Weaving nu Weaving se Terrain					Weaving type Volume ratio Weaving ratio	, VR			A 0.15 0.49	
Conver	sions to p	c/h Unde	1	ondition			1			
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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	
$V_{_{\mathrm{W}}}$				1895	V_{nw}			•	10796	
V									12691	
Weavin	g and No	n-Weavin	g Speeds	S						
			Unconstr	*				trained		
- /F.,hihit 2	1.7	Weaving		·	ving (i = nw)	Weavi	ng (i = w)	Non-Wea	ving (= nw)	
a (Exhibit 24 b (Exhibit 24		0.15 2.20		1	.00					
c (Exhibit 24		0.97		1	.30					
d (Exhibit 24		0.80		1	.75					
Weaving intens		1.24	ļ	0.	.71					
Weaving and no speeds, Si (mi/h		41.7	5	50	0.06					
	anes required umber of lanes	for unconstrair s, Nw (max)	ned operation,	, Nw	1.33 1.40					
1		(max) uncons	trained operat	ion		if Nw > Nv	w (max) consti	rained operat	ion	
Weavin	g Segmei	nt Speed,	Density,	Level o	f Service,	and Cap	oacity			
Weaving se	gment speed,	S (mi/h)		48.61						
	gment density	, D (pc/mi/ln)		52.21						
Level of ser	vice, LOS			F						
Capacity of	base conditior	n, c _b (pc/h)		11029						
Capacity as	a 15-minute fl	ow rate, c (veł	n/h)	10866						
Capacity as	a full-hour vol	ume, c _h (veh/h	n)	9779						
Notes				-						

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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

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

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

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

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

Maganity/Company CA				FREEWA	Y WEAV	ING WOR	KSHEE	T			
Maganity/Company CA	Genera	I Informat	ion			Site Info	rmation				
Freeway free-flow speed, S _{FF} (mil/h) Weaving number of lanes, N Weaving seg length, L (ft) Veaving seg seg length, L	Date Perfor	rmed	2/26/2	2009		Weaving Seg Location Beltline_Dickerson Jurisdiction					
Meaving number of lanes, Name Neaving seg length, L (fi) Very level Very l	Inputs										
Purple P	Weaving nu	Weaving number of lanes, N 5 Weaving seg length, L (ft) 225				Volume ratio,	, VR		0.16		
Vol 1 8945 0.90 3 0 1.5 1.2 0.985 1.00 10087 Vol 2 849 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 1.00 907 V _{W2} 805 0.90 3 0 1.5 1.2 0.985 1.00 907 V _{W2} 805 0.90 3 0 1.5 1.2 0.985 1.00 907 11044 V _{W2} 2154 V _{Nw} 1.2 0.985 1.00 907 11044 V _{W2} 2154 V _{Nw} 1.2 0.985 1.00 907 Weaving and Non-Weaving (i = w) Non-Weaving (i	Conver	sions to p	c/h Unde	er Base C	ondition	ıs			_		
Vo2	(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	V	
Vo2	V _{o1}	8945	0.90	3	0	1.5	1.2	0.985	1.00	10087	
Vivil 1106 0.90 3 0 1.5 1.2 0.985 1.00 1247 Vivil 2154	V_{o2}	849	0.90	3	0	1.5	1.2	0.985	1.00	957	
Vw2 805 0.90 3 0 1.5 1.2 0.985 1.00 907 Www. 2154 Vnw 2154 Vnw 11044 13198 Weaving and Non-Weaving Speeds Weaving (i = w) Non-Weaving (i = nw) Weaving (i = w) Non-Weaving (= nw) a (Exhibit 24-6) Non-Weaving (i = nw) Weaving (i = w) Non-Weaving (= nw) b (Exhibit 24-6) 0.97 1.30 0.75 b (Exhibit 24-6) 0.80 0.75 b (Exhibit 24-6) 0.80 0.75 b (exhibit 24-6) 1.49 0.80 0.80 0.75 b (exhibit 24-6) 1.49 0.80 0.80 0.5 0.65 b (exhibit		1106	0.90	3	0	1.5	1.2	0.985	1.00	1247	
Variable		805	0.90	3	0	1.5	1.2	0.985	1.00	907	
Meaving and Non-Weaving Speeds Unconstrained Constrained Weaving (i = w) Non-Weaving (i = nw) Weaving (i = w) Non-Weaving (i = nw) Non-Weaving (V _w		•	•	2154	V _{nw}		•	•	11044	
Unconstrained Weaving (i = w) Non-Weaving (i = nw) (Exhibit 24-6) (Cignibit 24-6) (Cig	V						l			13198	
Weaving (i = w) Non-Weaving (i = nw) Weaving (i = w) Non-Weaving (= nw)	Weavin	g and No	n-Weavin	g Speeds	5						
The first segment speed, S (mi/h) Weaving segment speed, S (mi/h) Weaving segment density, D (pc/mi/ln) Level of service, LOS Capacity as a full-hour volume, c_h (veh/h)					*				~		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	o /Evhibit 2	1 4 4	Weaving	(i = w)	Non-Wea	ving (i = nw)					
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$,				
Weaving intensity factor, Wi 2.12 0.31 Weaving and non-weaving speeds, Si (mi/h) 34.25 60.65 Number of lanes required for unconstrained operation, Nw Maximum number of lanes, Nw (max) 1.49 Maximum number of lanes, Nw (max) 1.40 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					†				_		
Weaving and non-weaving speeds, Si (mi/h) Number of lanes required for unconstrained operation, Nw Maximum number of lanes, Nw (max) If Nw < Nw(max) unconstrained operation Weaving Segment Speed, Density, Level of Service, and Capacity Weaving segment speed, S (mi/h) Weaving segment density, D (pc/mi/ln) Level of service, LOS F Capacity of base condition, c _b (pc/h) Capacity as a 15-minute flow rate, c (veh/h) 10247	d (Exhibit 2	4-6)					0	.80	0	.75	
Number of lanes required for unconstrained operation, Nw Maximum number of lanes, Nw (max) 1.40 If Nw < Nw(max) unconstrained 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							2	.12	0	.31	
Number of lanes required for unconstrained operation, Nw Maximum number of lanes, Nw (max) If Nw < Nw(max) unconstrained operation Weaving Segment Speed, Density, Level of Service, and Capacity Weaving segment speed, S (mi/h) Weaving segment density, D (pc/mi/ln) Level of service, LOS F Capacity of base condition, c _b (pc/h) Capacity as a 15-minute flow rate, c (veh/h) 11386 Capacity as a full-hour volume, c _h (veh/h) 10247							34	.25	60).65	
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	Maximum r	number of lanes If Nw < Nw	s, Nw (max) (max) uncons	trained operat	ion	1.40		· ,	rained operat	ion	
Weaving segment density, D (pc/mi/ln) Level of service, LOS Capacity of base condition, c _b (pc/h) Capacity as a 15-minute flow rate, c (veh/h) Capacity as a full-hour volume, c _h (veh/h) 10247				Density,		Service,	and Cap	oacity			
Level of service, LOS 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					}						
Capacity of base condition, c _b (pc/h) Capacity as a 15-minute flow rate, c (veh/h) Capacity as a full-hour volume, c _h (veh/h) 10247			, и (рс/пп/п)								
Capacity as a 15-minute flow rate, c (veh/h) Capacity as a full-hour volume, c _h (veh/h) 11386 10247			ı, c. (pc/h)								
Capacity as a full-hour volume, c _h (veh/h) 10247		5									
·				-							
	Notes		2 11 5	•							

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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

		FREEWA	Y WEAV	ING WOR	KSHEE	Τ		
General Informa	tion			Site Info	rmation			
Analyst Agency/Company Date Performed Analysis Time Period	CAI 2/26/2 DHV	2009		Weaving Seg Jurisdiction	Freeway/Dir of Travel Northbound Weaving Seg Location FM 3040 to Corporate C Jurisdiction Analysis Year 2030			ate Off
Inputs				•				
Freeway free-flow speed, Weaving number of lanes Weaving seg length, L (ft) Terrain	70 5 161 Lev		Weaving type Volume ratio, Weaving ratio	, VR		A 0.21 0.45		
Conversions to	pc/h Unde	er Base C	ondition	_				
(pc/h) V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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				IIVV	l			12920
Weaving and No	n-Weavin	a Speeds	 S					
		Unconstr				Cons	strained	
(5 LHH 0.4 ()	Weaving	(i = w)	Non-Wea	ving (i = nw)		ng (i = w)		ving (= nw)
a (Exhibit 24-6) b (Exhibit 24-6)						0.35 0.00 2.20 4.0		.00 .00
c (Exhibit 24-6)			 		0.		+	.30
d (Exhibit 24-6)					0.			.75
Weaving intensity factor, Wi					2.			.46
Weaving and non-weaving speeds, Si (mi/h)					30	.17	56	.09
Number of lanes required		ned operation,	, Nw	1.67			1	
Maximum number of lane	, ,			1.40				
If Nw < Nv						v (max) consti	rained operat	ion
Weaving Segme Weaving segment speed,	nt Speed,	Density,	47.52	service,	and Cap	acity		
			54.38					
Weaving segment density Level of service, LOS	r, υ (μα/ππ/π)		54.38 F					
Capacity of base condition	n c. (nc/h)		10901					
Capacity as a 15-minute f		h/h)	10740					
Capacity as a full-hour vo			9666					
Notes		7	7000					

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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

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

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

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

[.] 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

			FREEWA	Y WEAV	ING WOR	KSHEE	Τ			
General	Informat	ion			Site Info	rmation				
Analyst Agency/Con Date Perforr Analysis Tim	ned	CAI 2/26/2 DHV	009		Freeway/Dir Weaving Seg Jurisdiction Analysis Yea	Location	Northl Fox to 2030	oound Valley Ridge	<u> </u>	
Inputs					1					
Weaving nui Weaving seq Terrain				el	Weaving type Volume ratio, Weaving ratio	, VR			A 0.19 0.44	
Convers	sions to p	c/h Unde	r Base C	ondition			•			
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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	
$V_{_{ m W}}$	1			2413	V_{nw}		•	•	9986	
V	1								12399	
Weaving	g and No	n-Weavin	g Speeds	5						
			Unconstr	A-				trained	. , .	
a (Exhibit 24	(6)	Weaving	(i = W)	Non-Weav	*		ng (i = w) 35	1	ving (= nw)	
b (Exhibit 24							20	0.0020 4.00		
c (Exhibit 24							97		.30	
d (Exhibit 24							80		.75	
Weaving intensit Weaving and no							27		.34	
speeds, Si (mi/h)			<u> </u>	1.10	33	.37	59	2.62	
Maximum nu	umber of lanes	for unconstrair s, Nw (max) ı(max) uncons			1.63 1.40	if Nw > Nv	v (max) constr	ained operat	ion	
		, ,			f Service,		, ,			
		S (mi/h)	- · y ,	51.70			<u> </u>			
	gment density,			47.96						
Level of serv	/ice, LOS			F						
Capacity of I	base condition	n, c _b (pc/h)		11332						
Capacity as	a 15-minute fl	ow rate, c (veł	n/h)	11165						
Capacity as	a full-hour vol	ume, c _h (veh/h	1)	10048						
Notes										

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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

			FREEWA	Y WEAV	ING WOF	RKSHEE	T		
Genera	I Informat	ion			Site Info	rmation			
Analyst Agency/Co Date Perfo Analysis Ti	rmed	CAI 2/26/2 DHV	009		Freeway/Dir Weaving Seg Jurisdiction Analysis Yea	g Location	Northl FM 11 2030	bound 171 to Lake P	'ark Road
Inputs					1				
Weaving no Weaving se Terrain	ee-flow speed, umber of lanes, eg length, L (ft)	, N	70 5 140 Lev	el	Weaving type Volume ratio Weaving ratio	, VR		A 0.14 0.48	
Conver	sions to p	c/h Unde	r Base C	ondition	7		1		_
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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
$V_{_{ m W}}$		•		1626	V_{nw}		•	•	10065
V	7					1			11691
Weavin	ng and No	n-Weavin	g Speeds	3					_
			Unconstr	A				trained	
a (Exhibit 2	24.6)	Weaving 0.15		Non-Weaving (i = nw) Weaving (i = w) N 0.0035			Non-Wea	iving (= nw)	
b (Exhibit 2		2.20			.00			 	
c (Exhibit 2	<u> </u>	0.97		!	30				
d (Exhibit 2		0.80)	0.	75				
Weaving intentions Weaving and r		1.13			62			ļ	
speeds, Si (mi	/h)	43.2			11				
Maximum r	lanes required number of lanes If Nw < Nw	s, Nw (max) /(max) unconst	rained operat	ion	1.26 1.40		v (max) constr	rained operat	ion
	ng Segment speed,			50.66	Service,	anu Cap	Dacity		
	egment density			46.16					
	rvice, LOS	, D (POIIIIIII)		F					
	f base condition	n, c _h (pc/h)		11104					
	s a 15-minute fl		n/h)	10940					
	s a full-hour vol			9846					
Notes		11							
144 .		0500.6		1.7.1					

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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

			FREEWA	Y WEAV	ING WOR	KSHEE	T		
Genera	l Informat	tion			Site Info	rmation			
Analyst Agency/Co Date Perfor Analysis Tii	med	LWC CAI 2/26/2 DHV	2009		Freeway/Dir of Weaving Seg Jurisdiction Analysis Yea	Location		bound y Ridge to Ga	rden Ridge
Inputs									
Weaving nu Weaving se Terrain					Weaving type Volume ratio, Weaving ratio	, VR		A 0.18 0.50	
Conver	sions to p	c/h Unde	er Base C	ondition			•		
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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
$V_{\rm w}$	1	•	•	2054	V_{nw}		•	•	9477
V									11531
Weavin	g and No	n-Weavin	g Speeds	 S					
			Unconstr					trained	
- /F.,b;b;t 0	4 ()	Weaving	(i = w)	Non-Wea	ving (i = nw)		ng (i = w)	·	ving (= nw)
a (Exhibit 2 b (Exhibit 2		 		 			35 20	 	020
c (Exhibit 2	<u> </u>						97	 	30
d (Exhibit 2	<u> </u>					-	80	-	75
Weaving intens						2.	79	0.	40
Weaving and n speeds, Si (mi/						30	.83	57	.97
Number of Maximum r	anes required umber of lanes	s, Nw (max)	·		1.46 1.40	if Nw > Nv	v (max) const	rained operati	ion
		,			f Service,			,	
Weaving se	gment speed,	S (mi/h)		50.11					
	gment density			46.02					
Level of ser	vice, LOS			F					
Capacity of	base condition	n, c _b (pc/h)		10819					
Capacity as	a 15-minute fl	ow rate, c (ve	h/h)	10659					
Capacity as	a full-hour vol	ume, c _h (veh/l	n)	9593					
Notes									

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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

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

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

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

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

			FREEWA	Y WEAV	ING WOR	KSHEE	Т		
Genera	Informat	ion			Site Info	rmation			
Analyst Agency/Cor Date Perfor Analysis Tir	med	CAI 2/26/2 DHV	009		Weaving Seg Jurisdiction	Freeway/Dir of Travel Northbound Weaving Seg Location Hundley On to Dobb Jurisdiction Analysis Year 2030			obs Off
Inputs									
Weaving nu Weaving se Terrain					Weaving type Volume ratio Weaving ratio	, VR			13 45
-	sions to p	oc/h Unde	1	1	1		1		1
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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				L		ı			10761
Weavin	g and No	n-Weavin	g Speeds	 S					
			Unconstr	*				trained	
- /E-1-1-1-0	4.7	Weaving			ving (i = nw)	Weavii	ng (i = w)	Non-Wea	ving (= nw)
a (Exhibit 24 b (Exhibit 24		0.15 2.20		0.0035 4.00					
c (Exhibit 2		0.97		1	.30				
d (Exhibit 2		0.80		1	.75			1	
Weaving intens		0.90		 	.47				
Weaving and no speeds, Si (mi/l		46.5	6	55	5.70				
Number of I	anes required		ned operation,	, Nw	1.19				
1	umber of lanes If Nw < Nw		trained enerat	ion	1.40	if Nlw > Nl	w (max) consti	rained enerat	ion
		<u> </u>			f Service,			ameu uperat	1011
Weaving se	gment speed,	S (mi/h)	Deliaity,	54.35	. Joi vide,	una vap	Jaoney		
	gment density,			39.60					
Level of ser	<u> </u>	, ,		Е					
	base condition	n, c _h (pc/h)		11401					
	apacity as a 15-minute flow rate, c (veh/h)								
Capacity as	pacity as a full-hour volume, c _h (veh/h)								
Notes		.1							

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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

			FREEWA	Y WEAV	ING WOR	KSHEE	T		
Genera	Informat	ion			Site Info	rmation			
Analyst Agency/Cor Date Perfor Analysis Tir	med	CAI 2/26/2 DHV	2009		Freeway/Dir of Weaving Seg Jurisdiction Analysis Yea	Location		bound th to Mayhill	
Inputs									
Weaving nu Weaving se Terrain					Weaving type Volume ratio, Weaving ratio	, VR		A 0.20 0.46	
Conver	sions to p	1	1	1	1			1	
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f _{HV}	fp	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
$V_{_{\mathrm{W}}}$			•	1866	V _{nw}		•		7678
V									9544
Weavin	g and No	n-Weavin	g Speeds	S					
			Unconstr	*				trained	
a /F.,hihit 0	1.()	Weaving	J (i = W)	Non-Wea	ving (i = nw)		ng (i = w)		ving (= nw)
a (Exhibit 24 b (Exhibit 24							35 20		.00
c (Exhibit 2	<u> </u>						97		.30
d (Exhibit 2		ĺ					80	7	.75
Weaving intens	•					1.	67	0.	.23
Weaving and no speeds, Si (mi/l						37	.51	63	3.65
Number of I Maximum n	anes required umber of lanes	s, Nw (max)	•		1.59 1.40	if Nw > Nv	v (max) consti	rained operati	ion
		,			f Service,				
	gment speed,			56.02					
	gment density			34.08					
Level of ser	vice, LOS			D					
Capacity of	base condition	ı, c _b (pc/h)		11407					
Capacity as	a 15-minute fl	ow rate, c (ve	h/h)	11238					
Capacity as	a full-hour vol	ume, c _h (veh/l	n)	10114					
Notes				-					

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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

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

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

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

[.] 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

			FREEWA	Y WEAV	ING WOR	KSHEE	T		
General	Informat	ion			Site Info	rmation			
Analyst Agency/Con Date Perforr Analysis Tin	med	CAI 2/26/2 DHV	009		Freeway/Dir of Weaving Seg Jurisdiction Analysis Yea	Location	North PostC 2030	bound Oak to Loop 2	88
Inputs					i				
Weaving nu Weaving se Terrain					Weaving type Volume ratio, Weaving ratio	, VR			14 33
Convers	sions to p	c/h Unde	1	ondition	1	i	1	T	
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	V
V ₀₁	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
$V_{_{\mathrm{W}}}$		•		1256	V_{nw}				7788
V	1					l			9044
Weaving	g and No	n-Weavin	g Speeds	5					
			Unconstr	*				trained	
o (Eyhibit 2)	1.4\	Weaving 0.15		k	ving (i = nw) 1035	Weavii	ng (i = w)	Non-Wea	ving (= nw)
a (Exhibit 24 b (Exhibit 24		2.20		!	.00				
c (Exhibit 24	<u> </u>	0.97		}	.30				
d (Exhibit 24	<u> </u>	0.80)	0.	.75				
Weaving intensi		0.72	2	0.	.37				
Weaving and no speeds, Si (mi/h		49.9	4	58	3.93				
Maximum nı	umber of lanes		·		1.25 1.40				
		(max) uncons			Г		v (max) consti	rained operat	ion
					f Service,	and Cap	pacity		
		S (mi/h)		57.49					
	gment density	, レ (pc/mi/ln)		31.46					
Level of serv		2 0 (no/h)		D					
	base condition	<u> </u>	- //- \	11433					
		ow rate, c (veh	•	11264					
	a iuii-nour vol	ume, c _h (veh/h	1)	10138					
Notes									

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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

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

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

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

[.] 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

			FREEWA	Y WEAV	ING WOR	KSHEE	Γ		
General Inf	format	ion			Site Info	rmation			
Analyst Agency/Compan Date Performed Analysis Time Pe	-	CAI 2/26/2 DHV	009		Weaving Seg Jurisdiction	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 number of lanes, N 5 Weaving seg length, L (ft) 182 Terrain Lev					Weaving type Volume ratio, Weaving ratio	, VR		A 0. 0.	
Conversion	ns to p	c/h Unde	er Base C	ondition	_				
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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					IIVV				9264
Weaving a	nd Nor	า-Weavin	a Speeds	 S					
			Unconstr				Cons	trained	
(=		Weaving	(i = w)	Non-Wea	ving (i = nw)		ng (i = w)		ving (= nw)
a (Exhibit 24-6) b (Exhibit 24-6)							0.35 0.0020 2.20 4.00		
c (Exhibit 24-6)						0.9		}	30
d (Exhibit 24-6)						0.			75
Weaving intensity fact	or, Wi					1.5		}	25
Weaving and non-wea speeds, Si (mi/h)	aving					36	.13	63	.11
Number of lanes			ned operation,	Nw	1.47				
Maximum numbe		. ,			1.40	- ICAL			
		` ,	trained operat				(max) constr	ained operati	on
Weaving S Weaving segmer	eginer	it Speed,	Density,	55.61	Service,	anu Cap	acity		
Weaving segmen				33.32					
Level of service,		D (permini)		D					
Capacity of base		, c, (pc/h)		11210					
Capacity as a 15		ъ -	n/h)	11044					
Capacity as a ful				9940					
Notes		, II C	•						

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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

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

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

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

[.] 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

			FREEWA	Y WEAV	ING WOR	KSHEE	T			
Genera	Informat	ion			Site Info	rmation				
Analyst Agency/Cor Date Perfor Analysis Tir	med	CAI 2/26/2 DHV	2009					hbound sley to McCormick		
Inputs										
Weaving nu Weaving se Terrain	e-flow speed, mber of lanes, g length, L (ft)	N	70 5 145 Lev	el Weaving ratio, K				A 0.24 0.48		
Conver	sions to p	í	1	î				1		
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f _{HV}	fp	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									7926	
Weavin	g and No	n-Weavin	g Speeds	 S						
			Unconstr	*				trained		
/F 1 11 11 0	1.()	Weaving	(i = w)	Non-Wea	ving (i = nw)		ng (i = w)		ving (= nw)	
a (Exhibit 24 b (Exhibit 24							35 20		.00	
c (Exhibit 24		<u> </u>		 			97		.30	
d (Exhibit 24							80	7	.75	
Weaving intens						2.	11	0.	29	
Weaving and no speeds, Si (mi/h						34	.30	61	.51	
Maximum n	anes required umber of lanes	s, Nw (max)			1.67 1.40	if Nw > Nv	v (max) consti	rained onerati	ion	
		` '			f Service,			amou oporuti		
	gment speed,			51.71			-			
	gment density,			30.66						
Level of ser		· ·		D						
Capacity of	base conditior	n, c _b (pc/h)		10728						
Capacity as	a 15-minute fl	ow rate, c (ve	h/h)	10569						
Capacity as	a full-hour vol	ume, c _h (veh/ł	۱)	9512						
Notes				•						

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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

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

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

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

[.] 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

			FREEWA	Y WEAV	ING WOR	KSHEE	T			
Genera	Informat	ion			Site Info	rmation				
Analyst Agency/Cor Date Perfori Analysis Tin	med	CAI 2/26/2 DHV	009		Freeway/Dir of Travel Northby Weaving Seg Location US377 Jurisdiction Analysis Year 2030			bound 7 to N.Texas		
Inputs										
Weaving nu Weaving se Terrain	e-flow speed, mber of lanes, g length, L (ft)	N	70 5 131 Lev	el Weaving ratio, ix				A 0.16 0.36		
Conver	-	c/h Unde	1	1	1		1	1		
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f _{HV}	fp	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	
$V_{_{ m W}}$				1343	V_{nw}				7193	
V									8536	
Weavin	g and No	n-Weavin	g Speeds	S						
			Unconstr	*				trained		
o /Eyhihit O	1./\	Weaving		·	ving (i = nw)	Weavii	ng (i = w)	Non-Wea	ving (= nw)	
a (Exhibit 24 b (Exhibit 24		0.15 2.20		0.0035 4.00						
c (Exhibit 24		0.97		1	.30					
d (Exhibit 24		0.80		1	.75					
Weaving intensi		0.91		0.	.46					
Weaving and no speeds, Si (mi/h		46.4	8	56	.12					
	anes required umber of lanes	for unconstrains, Nw (max)	ned operation,	, Nw	1.28 1.40					
		(max) uncons			Г		v (max) constr	rained operat	ion	
					f Service,	and Cap	oacity			
		S (mi/h)		54.35						
<u>_</u>	gment density	, D (pc/mi/ln)		31.41						
Level of ser		/ "		D						
	base condition	<u> </u>		10851 10638						
	apacity as a 15-minute flow rate, c (veh/h) apacity as a full-hour volume, c _h (veh/h)									
	a full-hour vol	ume, c _h (veh/h	1)	9574						
Notes										

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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

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

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

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

[.] 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

GENERAL PURPOSE LANES

BUILD

SOUTHBOUND

LEVELS OF SERVICE HCS OUTPUT

			FREEWA	Y WEAV	ING WOF	RKSHEE	T				
Genera	I Informat	ion			Site Info	rmation					
Analyst Agency/Co Date Perfo Analysis Ti	rmed	CAI 2/26/2 DHV	009		Freeway/Dir of Travel Southbound Weaving Seg Location Dickerson to Jurisdiction Analysis Year 2030			bound rson to Beltlir	ne		
Inputs											
Weaving no Weaving se Terrain	ee-flow speed, umber of lanes, eg length, L (ft)	, N	70 5 168 Lev	IVVEAVIIIO IAIIO. K				A 0.13 0.38			
Conver	sions to p	c/h Unde	r Base C	ondition	7		1				
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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		
$V_{\rm w}$		•		1685	V_{nw}		•	•	10917		
V	7					1			12602		
Weavin	g and No	n-Weavin	g Speeds	5							
			Unconstr	A				trained			
a (Exhibit 2	14.6	Weaving 0.15		4	ving (i = nw)	Weavir	ng (i = w)	Non-Wea	ving (= nw)		
b (Exhibit 2		2.20		0.0035 4.00				 			
c (Exhibit 2		0.97		!	30						
d (Exhibit 2		0.80)	7	.75						
Weaving intentions Weaving and r		1.04			58			ļ			
speeds, Si (mi	/h)	44.4			.92						
Maximum r	lanes required number of lanes	s, Nw (max) /(max) unconst	rained operat	ion	1.26 1.40		v (max) constr	rained operat	ion		
	ıg Segmei				Service,	and Cap	acity				
	egment speed,			51.61							
Level of se	egment density	, ט (pc/mi/in)		48.83 F							
		n c (nc/h)		11388							
	apacity of base condition, c _b (pc/h) apacity as a 15-minute flow rate, c (veh/h)				11220						
	apacity as a full-hour volume, c _h (veh/h)										
Notes	C a lun nour voi			10098							
140162											

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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

			FREEWA	Y WEAV	ING WOR	KSHEE	T			
Genera	Informat	ion			Site Info	rmation				
Analyst Agency/Cor Date Perfor Analysis Tir	med	CAI 2/26/2 DHV	009					thbound line to Valwood 0		
Inputs										
Weaving nu Weaving se Terrain	e-flow speed, mber of lanes, g length, L (ft)	N	70 5 188 Lev	el Weaving ratio, R				A 0.11 0.42		
Conver	sions to p	c/h Unde	1	ondition			1			
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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	
$V_{_{\mathrm{W}}}$		•	•	1516	V _{nw}		•	•	12404	
V				L					13920	
Weavin	g and No	n-Weavin	g Speeds	 S						
		[Unconstr	*				trained		
o /F./hihit 0	1.()	Weaving		k	ving (i = nw)	Weavi	ng (i = w)	Non-Wea	ving (= nw)	
a (Exhibit 24 b (Exhibit 24		0.15 2.20		!	.00			<u> </u>		
c (Exhibit 2	<u> </u>	0.97		}	.30					
d (Exhibit 2		0.80		1	.75					
Weaving intens		0.99)	0.	.56					
Weaving and no speeds, Si (mi/l		45.1	1	53	3.53					
Number of I		for unconstrair s, Nw (max)	ned operation,	, Nw	1.15 1.40					
		(max) uncons					w (max) consti	rained operat	ion	
					f Service,	and Cap	oacity			
Weaving se	gment speed,	S (mi/h)		52.46						
	gment density	, D (pc/mi/ln)		53.07						
Level of ser				F						
	base conditior	<u> </u>		11644						
		ow rate, c (veł		11472						
	a full-hour vol	ume, c _h (veh/h	1)	10325						
Notes										

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4/7/2009

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

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

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

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

[.] 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

			FREEWA	Y WEAV	ING WOF	RKSHEE	T				
Genera	I Informat	ion			Site Info	rmation					
Analyst Agency/Co Date Perfor Analysis Ti	med	CAI 2/26/2 DHV	009		Freeway/Dir of Travel Southbou Weaving Seg Location Dobbs to Jurisdiction Analysis Year 2030			bound s to Hundley			
Inputs											
Weaving no Weaving se Terrain	ee-flow speed, umber of lanes, eg length, L (ft)	N	70 5 232 Lev	IVVEAVIIIQ IAIIQ. K				A 0.15 0.47			
Conver	sions to p	c/h Unde	r Base C	ondition	7		1				
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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		
$V_{\rm w}$				1506	V_{nw}		•	•	8563		
V						1			10069		
Weavin	g and No	n-Weavin	g Speeds	3							
			Unconstr	A-				trained	. , .		
a (Exhibit 2	1.6)	Weaving 0.15		4	ving (i = nw)	Weavir	ng (i = w)	Non-Wea	ving (= nw)		
b (Exhibit 2		2.20		0.0035 4.00				 			
c (Exhibit 2		0.97		!	30						
d (Exhibit 2		0.80)	7	75						
Weaving intens Weaving and n		0.66			36						
speeds, Si (mi/	h)	51.0			.09]			
Maximum r	lanes required number of lanes If Nw < Nw g Segmei	s, Nw (max) (max) unconst	rained operat	ion	1.37 1.40		v (max) constr	rained operat	ion		
	egment speed,			57.73		-	<u>-</u>				
	egment density			34.88							
Level of ser	<u> </u>	. ,		D							
Capacity of	base condition	n, c _b (pc/h)		11640							
Capacity as	apacity as a 15-minute flow rate, c (veh/h)				11468						
Capacity as	s a full-hour vol	ume, c _h (veh/h)	10321							
Notes											
144		11 0500 1		1							

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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

			FREEWA	Y WEAV	ING WOR	KSHEE	T			
Genera	Informat	ion			Site Info	rmation				
Analyst Agency/Cor Date Perfor Analysis Tir	med	LWC CAI 2/26/2 DHV	2009					nbound 171 to BUS 121		
Inputs										
Weaving nu Weaving se Terrain	e-flow speed, mber of lanes, g length, L (ft)	N	70 5 158 Lev	el Weaving ratio, K				A 0.19 0.45		
Conver	sions to p	í	1	1				1	1	
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	V	
V_{o1}	7124	0.90	3	0	1.5	1.2	0.985	1.00	8034	
V_{02}	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	
$V_{_{\mathrm{W}}}$			•	2414	V_{nw}		•		10159	
V						l			12573	
Weavin	g and No	n-Weavin	g Speeds	5						
			Unconstr	*				strained		
a (Exhibit 2	1.6)	Weaving) (i = W)	Non-Wea	ving (i = nw)		ng (i = w) 35	1	ving (= nw) 020	
b (Exhibit 2		 		 			20		.00	
c (Exhibit 24	<u> </u>						97	+	.30	
d (Exhibit 2	1-6)					0.	80	0	.75	
Weaving intens						2.	83	0	.42	
Weaving and no speeds, Si (mi/l	1)					30	.68	57	'.12	
Maximum n	anes required umber of lanes	s, Nw (max)			1.57 1.40	if Nw > Nv	v (max) const	rained onerat	ion	
		` '			f Service,		, ,	.a.riou oporut		
	gment speed,			49.01	20. 1.00,		-			
	gment density			51.31						
Level of ser	vice, LOS			F						
Capacity of	base condition	n, c _b (pc/h)		10927						
Capacity as	Capacity as a 15-minute flow rate, c (veh/h)				10766					
Capacity as	a full-hour vol	ume, c _h (veh/l	n)	9689						
Notes				-						

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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

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

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

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

[.] 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

			FREEWA	Y WEAV	ING WOR	KSHEE	Γ			
Genera	Informat	ion			Site Info	rmation				
Analyst Agency/Cor Date Perfor Analysis Tin	med	LWC CAI 2/26/2 DHV	2009		Freeway/Dir of Travel Weaving Seg Location Jurisdiction Analysis Year Southbound BUS 121 to 2030			abound 121 to FM 30	40	
Inputs					•					
Weaving nu				IVVEAVIIII IAIIU K			A 0.20 0.37			
Conver	sions to p	c/h Unde	er Base C	ondition	_		1			
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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					TIVV	I			12851	
Weavin	g and No	n-Weavin	g Speeds	S						
			Unconstr	ained			Cons	trained		
/E	. ()	Weaving	(i = w)	Non-Wea	ving (i = nw)		ng (i = w)		ving (= nw)	
a (Exhibit 24 b (Exhibit 24				-		0.3 2.3		, 	.00	
c (Exhibit 24						0.9			.30	
d (Exhibit 24				1		0.		* 	.75	
Weaving intensi						2.			.33	
Weaving and no speeds, Si (mi/h						34	.25	60).01	
Number of I	anes required		ned operation,	, Nw	1.72			,		
1	umber of lanes		tualmant !	i	1.40	✓ SENIO - N	. (·	
	If Nw < Nw	<u> </u>			f Service,		v (max) const	raineu operat	IUI1	
Weaving se	g Segmen gment speed,	s (mi/h)	Density,	52.00	Jei vice,	anu Cap	acity			
	gment density,			49.43						
Level of ser	<u> </u>	- (ke)		F						
	base condition	, c _h (pc/h)		11491						
	Capacity as a 15-minute flow rate, c (veh/h)				11321					
	a full-hour vol			10189						
Notes		11 '	-							

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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

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

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

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

[.] 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

			FREEWA	Y WEAV	ING WOR	KSHEE	T			
Genera	Informat	ion			Site Info	rmation				
Analyst Agency/Cor Date Perfor Analysis Tir	med	CAI 2/26/2 DHV	2009					nbound o Corporate		
Inputs										
Weaving nu Weaving se Terrain	e-flow speed, mber of lanes, g length, L (ft)	N	70 5 170 Lev	el weaving ratio, K				A 0.16 0.46		
Conver	sions to p	1	1	1				1		
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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	
$V_{_{\mathrm{W}}}$			•	2055	V_{nw}		•		10767	
V						l			12822	
Weavin	g and No	n-Weavin	g Speeds	5						
			Unconstr	*				strained		
a (Exhibit 24	1.6)	Weaving	(i = w)	Non-Wea	ving (i = nw)		ng (i = w) 35	1	ving (= nw) 0020	
b (Exhibit 2				 			20		.00	
c (Exhibit 24	<u> </u>						97	+	.30	
d (Exhibit 24							80	0	.75	
Weaving intens	•			ļ			56		.37	
Weaving and no speeds, Si (mi/h	1)					31	.85	58	3.80	
Maximum n	anes required umber of lanes If Nw < Nw	s, Nw (max) (max) uncons	trained operat	ion			v (max) const	rained operat	ion	
			Density,	Level of	Service,	and Cap	pacity			
	gment speed,			51.78						
Weaving se Level of ser	gment density	, υ (pc/mi/in)		49.53 F						
	base condition	n c (nc/h)		11235						
	a 15-minute fl	υ·	h/h)	11069						
	a full-hour vol			9962						
Notes	a full flour VOI	unic, ch (vcii/i	'/	7702						
INOIGO										

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4/7/2009

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

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

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

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

[.] 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

		FREEWA	Y WEAV	ING WOR	KSHEE	Г			
General Inform	ation			Site Info	rmation				
Analyst Agency/Company Date Performed Analysis Time Period	CAI 2/26/2 DHV	2009		Freeway/Dir of Travel Southbound Weaving Seg Location NTexas to Utility Jurisdiction Analysis Year 2030					
Inputs									
Weaving number of land				IVVEAVIDICIANO K			A 0.33 0.34		
Conversions to	pc/h Unde	er Base C	ondition	าร					
(pc/h) V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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		1	2566	V _{nw}				5174	
V				TIVV	I			7740	
Weaving and N	on-Weavin	g Speeds	 S						
		Unconstr	ained			Cons	trained		
(E	Weaving	J (i = w)	Non-Wea	ving (i = nw)		ig (i = w)		ving (= nw)	
a (Exhibit 24-6) b (Exhibit 24-6)					0.3 2.3		}	020 00	
c (Exhibit 24-6)					0.9		}	30	
d (Exhibit 24-6)					0.			75	
Weaving intensity factor, Wi					2.			39	
Weaving and non-weaving speeds, Si (mi/h)					32	23	58	.32	
Number of lanes require		ned operation,	, Nw	2.04					
Maximum number of lar	, ,			1.40		, ,			
	Nw(max) uncons					(max) constr	ained operati	on	
Weaving Segm Weaving segment spee	ent Speed	, pensity,	45.98	s Service,	and Cap	acity			
									
Weaving segment dens Level of service, LOS	ity, D (pc/IIII/III)		33.67 D						
Capacity of base conditi	on c. (pc/h)		10660						
Capacity as a 15-minute	ъ .	h/h)	10451						
Capacity as a full-hour v			9406						
Notes	3o, oh (*oii/i	7	7 100						

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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

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

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

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

		FREEWA	Y WEAV	ING WOR	KSHEET	Ī					
General Informati	on			Site Info	rmation						
Analyst Agency/Company Date Performed Analysis Time Period	CAI 2/26/2 DHV	2009					nbound ormick to Teasly Ln				
Inputs											
Freeway free-flow speed, S _{FF} (mi/h) 70 Weaving number of lanes, N 5 Weaving seg length, L (ft) 130 Terrain Lev			IVVEAVIIII I AIIO K			A 0.28 0.38					
Conversions to po	c/h Unde	er Base C	ondition								
(pc/h) V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	V			
V _{o1} 4549	0.90	3	0	1.5	1.2	0.985	1.00	5130			
V ₀₂ 292	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				1100				7613			
Weaving and Non	-Weavin	a Speeds	 S								
		Unconstr				Cons	trained				
(= 1 H H 2 1 1)	Weaving	J (i = W)	Non-Wea	ving (i = nw)		g (i = w)		ving (= nw)			
a (Exhibit 24-6) b (Exhibit 24-6)					0.3 2.2			020 00			
c (Exhibit 24-6)					0.9		}	30			
d (Exhibit 24-6)					0.8			75			
Weaving intensity factor, Wi					2.:			34			
Weaving and non-weaving speeds, Si (mi/h)					32.	71	59	.66			
Number of lanes required for		ned operation,	Nw	1.82							
Maximum number of lanes,			_	1.40							
If Nw < Nw(r						(max) constr	ained operati	on			
Weaving Segment Weaving segment speed, S	τ Speed,	Density,	48.38	s Service,	and Cap	acity					
			31.47								
Weaving segment density, I Level of service, LOS	(pc/m/m)		D D								
Capacity of base condition,	c. (pc/h)		10525								
	Capacity as a 15-minute flow rate, c (veh/h)				10369						
Capacity as a full-hour volui			9332								

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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

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

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

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

			FREEWA	Y WEAV	/ING WOR	KSHEE	Γ			
Genera	l Informat	ion			Site Info	rmation				
Analyst Agency/Cor Date Perfor Analysis Tir	med	LWC CAI 2/26/2 DHV	009		Freeway/Dir of Travel Weaving Seg Location Jurisdiction Analysis Year Southbot Loop 28 2030			bound 288 to Post C)ak	
Inputs					•					
Weaving nu				IVVEAVIOU FAILU F				A 0.17 0.26		
Conver	sions to p	c/h Unde	er Base C	ondition	_				_	
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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						1			8890	
Weavin	g and No	n-Weavin	g Speeds	3						
			Unconstr	4				trained		
- (F.,hihit 0	4 ()	Weaving	(i = w)	Non-Wea	ving (i = nw)		ng (i = w)		ving (= nw)	
a (Exhibit 2) b (Exhibit 2)		<u> </u>		<u> </u>		0.	35 20	}	020	
c (Exhibit 2							97	}	.30	
d (Exhibit 2						-	80	 	.75	
Weaving intens	ity factor, Wi	1		Î		1.	75	0.	.23	
Weaving and no speeds, Si (mi/l						36	.86	63	.89	
Number of I Maximum n	anes required umber of lanes	s, Nw (max)	'		1.41 1.40	if Niva > Niv	v (max) consti	rained operati	ion	
		<u> </u>			f Service,		<u> </u>	ameu operati	IOH	
Weaving se	gment speed,	S (mi/h)	Delibity,	56.83	. 301 1106,	una oap	aoity			
	gment density			31.29						
Level of ser		, ,		D						
	base condition	n, c _b (pc/h)		11258						
	Capacity as a 15-minute flow rate, c (veh/h)				11092					
Capacity as	a full-hour vol	ume, c _h (veh/h	1)	9983						
Notes										

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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

			FREEWA	Y WEAV	ING WOR	KSHEE	T			
Genera	Informat	ion			Site Info	rmation				
Analyst Agency/Cor Date Perfor Analysis Tir	med	LWC CAI 2/26/2 DHV	2009		Freeway/Dir of Travel Weaving Seg Location Jurisdiction Analysis Year			Southbound Mayhill On to Corinth Off 2030		
Inputs										
Weaving nu Weaving se Terrain	e-flow speed, mber of lanes, g length, L (ft)	N	70 5 235 Lev	vel vveaving ratio, K		, VR	A 0.19 0.35			
Conver	sions to p	í	1	î				1		
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f _{HV}	fp	V	
V _{o1}	5363	0.90	3	0	1.5	1.2	0.985	1.00	6048	
V_{02}	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	
$V_{_{\mathrm{W}}}$		•	•	1757	V_{nw}		•	•	7355	
V V						l			9112	
Weavin	g and No	n-Weavin	g Speeds	 S						
			Unconstr	*				trained		
/F 1 !! !! 0	4.7	Weaving	(i = w)	Non-Wea	ving (i = nw)		ng (i = w)	†	ving (= nw)	
a (Exhibit 24 b (Exhibit 24		 		 			.35 0.0020 .20 4.00			
c (Exhibit 2	<u> </u>	<u> </u>		 			97			
d (Exhibit 2							80	1	.75	
Weaving intens						1.	51	0.	21	
Weaving and no speeds, Si (mi/l						38	.92	64	.67	
Maximum n	anes required umber of lanes If Nw < Nw	s, Nw (max) (max) uncons	trained operat	ion			v (max) consti	rained operat	ion	
					f Service,	and Cap	acity			
	gment speed,			57.35						
Weaving se Level of ser	gment density	, ט (pc/mi/ln)		31.77						
		o (nc/h)		D 11401						
	base condition		h/h)	11491						
	a 15-minute fl			11321						
	a full-hour vol	ume, c _h (ven/i	IJ.	10189						
Notes										

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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

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

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

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

[.] 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

			FREEWA	Y WEAV	ING WOR	KSHEE	Т			
Genera	l Informat	tion			Site Info	rmation				
Analyst Agency/Cor Date Perfor Analysis Tir	med	LWC CAI 2/26/2 DHV	2009		Freeway/Dir Weaving Seg Jurisdiction Analysis Yea	g Location		Southbound Post Oak to Meadow Oaks 2030		
Inputs										
Weaving nu	ee-flow speed, Imber of lanes, Ig length, L (ft)	• •	70 5 220 Lev	el weaving railo, K			A 0.19 0.23			
Conver	sions to p	c/h Unde	er Base C	ondition	1	•	•			
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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				1.5	1.2	0.985	1.00	1477	
V_{w2}	w2 389 0.90 3				1.5	1.2	0.985	1.00	438	
$V_{\rm w}$					V _{nw}		•	•	8155	
V	1					ı			10070	
Weavin	g and No	n-Weavin	g Speeds	3					•	
			Unconstr	/				strained		
a (Exhibit 2	1 6)	Weaving	(i = w)	Non-Weaving (i = nw)			ng (i = w)		ving (= nw) 020	
b (Exhibit 2		 					0.35 2.20		.00	
c (Exhibit 2		†		1			97	}	.30	
d (Exhibit 2	4-6)					0.	80	0	.75	
Weaving intens						1.	74	0	.25	
Weaving and no speeds, Si (mi/l						36	.87	63	3.13	
Number of I Maximum n	anes required umber of lanes	s, Nw (max)	·		1.57 1.40	if Nw > Nv	v (max) const	rained operat	ion	
Weavin	g Segmei	nt Speed,			f Service,		<u> </u>	· · ·		
Weaving se	gment speed,	S (mi/h)		55.60		<u> </u>				
	gment density			36.22						
Level of ser	vice, LOS			E						
Capacity of	base condition	n, c _b (pc/h)		11424						
Capacity as	a 15-minute fl	ow rate, c (vel	h/h)	11255						
Capacity as	a full-hour vol	ume, c _h (veh/h	1)	10129						
Notes										

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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

FREEWAY LANES

NO-BUILD

NORTHBOUND

LEVELS OF SERVICE HCS OUTPUT

		FREEWA	Y WEAV	ING WOR	KSHEE	Т		
General Inform	nation			Site Info	rmation			
Analyst Agency/Company Date Performed Analysis Time Period	LWC CAI 2/26/2 DHV	2009		Freeway/Dir Weaving Sec Jurisdiction Analysis Yea	Location		Northbound Valwood to Crosby 2030	
Inputs								
Freeway free-flow spe Weaving number of lar Weaving seg length, L Terrain	nes, N (ft)	70 4 800 Lev	rel	Weaving type Volume ratio Weaving ratio	, VR		A 0.11 0.41	
Conversions to	o pc/h Unde	er Base C	ondition	_		•	•	
(pc/h) V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	V
V _{o1} 11988	0.90	3	0	1.5	1.2	0.985	1.00	13519
V ₀₂ 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						•	ļ	13519
V				V_{nw}	ı			15154
Weaving and N	lon-Weavin	g Speeds	 S					
_		Unconstr	A				trained	
a (F.,h.;h.;k 24 ()	Weaving		Non-Weaving (i = nw) 0.0035		Weavii	ng (i = w)	Non-Wea	ving (= nw)
a (Exhibit 24-6) b (Exhibit 24-6)	0.1			.00				
c (Exhibit 24-6)	0.9		-	.30				
d (Exhibit 24-6)	0.8		}	.75			1	
Weaving intensity factor, Wi	2.6		7	.57				
Weaving and non-weaving speeds, Si (mi/h)	31.4	6	38	3.32				
Number of lanes requi		ned operation	, Nw	0.88				
Maximum number of la		trained anerat	lian	1.40	= :f N N .	u (mau) aanat	rainad anarat	lon
Weaving Segm	Nw(max) uncons					w (max) consti	raineu operat	IUII
Weaving segment spe	ed S (mi/h)	Density,	37.44	i Gei vice,	anu Cap	Jacity		
Weaving segment den	101.20							
Level of service, LOS	21 (I. z)		F					
Capacity of base cond	8252							
Capacity as a 15-minu	D -	h/h)	8130					
Capacity as a full-hour			7317					
Notes	11							

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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

			FREEWA	Y WEAV	ING WOR	KSHEE	Т		
General Inf	ormati	ion			Site Info	rmation			
Analyst Agency/Company Date Performed Analysis Time Pe	•	CAI 2/26/20 DHV	009		Freeway/Dir Weaving Sec Jurisdiction Analysis Yea	Location	Northbound BUS 121 to Fox 2030		
Inputs									
Freeway free-flov Weaving number Weaving seg leno Terrain	of lanes, gth, L (ft)	N	70 4 206 Lev	el	Weaving type Volume ratio Weaving ratio	, VR		A 0.10 0.37	
Conversion	ns to p	c/h Unde	r Base C	ondition	_		•		
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	V
V _{o1} 1	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				1.5	1.2	0.985	1.00	499
V _w					V _{nw}				11564
V					TIW				12920
Weaving ar	nd Nor	n-Weavin	g Speeds	S					
			Unconstr				Cons	trained	
(F. L. II. II. O. A. ()		Weaving		†	ving (i = nw)	Weavir	ng (i = w)	Non-Wea	ving (= nw)
a (Exhibit 24-6) b (Exhibit 24-6)		0.15 2.20			.00				
c (Exhibit 24-6)		0.97		ł	.30				
d (Exhibit 24-6)		0.80		1	.75				
Weaving intensity factor	or, Wi	1.06		}	.62				
Weaving and non-wear speeds, Si (mi/h)	ving	44.10	6	51	.98				
Number of lanes			ned operation,	, Nw	0.93				
Maximum numbe		, ,			1.40	= :e N N.	(·
		max) unconst					v (max) const	ameu operat	IUII
Weaving Somen Weaving segment	t snead S	(mi/h)	Density,	51.04	i Seivice,	anu Cap	Jacity		
Weaving segmen				63.29					
Level of service,		Σ (ροπιίπι)		F					
Capacity of base		c _h (pc/h)		9387					
Capacity as a 15-		D -	n/h)	9248					
Capacity as a full				8323					
Notes		11.	-						

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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

			FREEWA	Y WEAV	/ING WOR	KSHEE	Т		
Genera	l Informat	ion			Site Info	rmation			
Analyst Agency/Co Date Perfor Analysis Tir	med	CAI 2/26/2 DHV	009		Freeway/Dir of Weaving Seg Jurisdiction Analysis Yea	Location	Southbound Crosby to Valwood 2030		
Inputs									
Weaving nu Weaving se Terrain	ee-flow speed, sumber of lanes, eg length, L (ft)	N	70 4 800 Lev	el	Weaving type Volume ratio, Weaving ratio	, VR	A 0.11 0.47		
Conver	sions to p	c/h Unde	r Base C	ondition	าร		4		_
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	V
V_{o1}	11856	0.90	3	0	1.5	1.2	0.985	1.00	13370
V_{02}	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				1.5	1.2	0.985	1.00	778
V _w					V _{nw}		•	•	13370
V	7					l			15026
Weavin	g and No	n-Weavin	g Speeds	3					
			Unconstr	*				trained	
/F 0	4.()	Weaving			iving (i = nw)	Weavi	ng (i = w)	Non-Wea	ving (= nw)
a (Exhibit 2 b (Exhibit 2		0.15 2.20		<u> </u>	.00				
c (Exhibit 2		0.97		<u> </u>	.30				
d (Exhibit 2		0.80		1	.75			 	
Weaving intens		2.64		}	.57				
Weaving and n speeds, Si (mi/	on-weaving	31.5			3.36				
Number of Maximum n	lanes required to the sumber of lanes	s, Nw (max)	·		0.89 1.40	- 16 N N	()		
	If Nw < Nw	<u> </u>			f Service,		w (max) const	raineu operat	IUH
	g Segmen egment speed,		Density,	37.46	i Sei Vice,	anu Ca	Jacity		
	egment density,			100.29					
Level of ser		/L		F					
	base condition	ı, c _h (pc/h)		8235					
	a 15-minute fl	<u> </u>	n/h)	8113					
	a full-hour volu			7302					
Notes		···							

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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

		FREEWA	Y WEAV	ING WOR	KSHEE	Τ			
General Informati	ion			Site Info	rmation				
Analyst Agency/Company Date Performed Analysis Time Period	EJP CAI 2/26/2 DHV	009		Freeway/Dir of Travel Weaving Seg Location Jurisdiction Analysis Year			Northbound US 377 to McCormick 2030		
Inputs									
Freeway free-flow speed, S Weaving number of lanes, Weaving seg length, L (ft) Terrain	N	70 3 800 Lev	rel weaving ratio, K		VR	A 0.21 0.48			
Conversions to p	1	1	î						
(pc/h) V	PHF	Truck %	RV %	E _T	E _R	f _{HV}	fp	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 Nor	n-Weavin	g Speeds	3						
		Unconstr	*				trained		
- (F.,L;L;L;L;A, ()	Weaving		k	ving (i = nw)	Weavii	ng (i = w)	Non-Wea	ving (= nw)	
a (Exhibit 24-6) b (Exhibit 24-6)	0.15 2.20		0.0035 4.00						
c (Exhibit 24-6)	0.97		ł	.30					
d (Exhibit 24-6)	0.80		1	.75					
Weaving intensity factor, Wi	2.41		1.	.52					
Weaving and non-weaving speeds, Si (mi/h)	32.6	1	38	3.80					
Number of lanes required f		ned operation,	, Nw	0.95			,		
Maximum number of lanes				1.40	■ :EN NI.	(·	
If Nw < Nw(` '			(Comico		v (max) constr	rained operati	ion	
Weaving Segmen Weaving segment speed, S			37.31	i Service,	anu Cap	Jacity			
Weaving segment density,			75.27						
Level of service, LOS	2 (po////////)		F						
Capacity of base condition,	, c _h (pc/h)		5649						
Capacity as a 15-minute flo	<u>.</u>	n/h)	5566						
Capacity as a full-hour volu			5009						
Notes	1111		1						

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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

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

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

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

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

			FREEWA	Y WEAV	ING WOR	KSHEE	Т				
Genera	l Informat	ion			Site Information						
Analyst Agency/Cor Date Perfor Analysis Tir	med	EJP CAI 2/26/2 DHV	009		Freeway/Dir of Weaving Seg Jurisdiction Analysis Yea	Location		Northbound McCormick to N Texas 2030			
Inputs					•						
Weaving nu	ee-flow speed, sumber of lanes, eg length, L (ft)		70 3 700 Lev	el weaving ratio, r		VR	VR 0		A).08).17		
Conver	sions to p	c/h Unde	r Base C	ondition			_	_	,		
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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					V _{nw}				7028		
v. V	1				11W				7607		
Weavin	g and No	n-Weavin	g Speeds	S							
	•		Unconstr	ained			Cons	strained			
		Weaving		Non-Weaving (i = nw)		Weavi	ng (i = w)	Non-Wea	ving (= nw)		
a (Exhibit 2		0.15		0.0035				<u> </u>			
b (Exhibit 24		2.20		ł	00			-			
c (Exhibit 24 d (Exhibit 24		0.97 0.80		1	.30 .75			 			
Weaving intens		1.87		}	.92			 			
Weaving and no	on-weaving	35.9			.28			1			
speeds, Si (mi/t Number of I	anes required				0.49			<u> </u>			
	umber of lanes			,	1.40						
	If Nw < Nw	<u> </u>					v (max) consti	rained operati	on		
Weavin	g Segmer	nt Speed,	Density,		f Service,	and Cap	pacity				
Weaving se	gment speed,	S (mi/h)		45.28							
Weaving se	gment density,	D (pc/mi/ln)		56.00							
Level of ser	vice, LOS			F							
Capacity of	base condition	, c _b (pc/h)		6090							
Capacity as	a 15-minute fl	ow rate, c (veh	n/h)	6000							
Capacity as	a full-hour vol	ume, c _h (veh/h)	5400							
Notes											

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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

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

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

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

			FREEWA	Y WEAV	ING WOR	KSHEE	T			
General Ir	nformat	ion			Site Info	rmation				
Analyst Agency/Compa Date Performed Analysis Time F	ď	EJP CAI 2/26/2 DHV	009		Freeway/Dir of Weaving Seg Jurisdiction Analysis Year	Location		Northbound N Texas to IH 35W 2030		
Inputs					!					
Freeway free-floweaving numbo Weaving seg le Terrain	er of lanes,	11 1	70 3 120 Lev		Volume ratio,	Weaving type Volume ratio, VR Weaving ratio, R		A 0.39 0.04		
Conversion	ons to p	c/h Unde	r Base C	ondition	าร		_	_	_	
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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					TIVV				7227	
Weaving a	and Noi	n-Weavin	g Speeds	 S						
			Unconstr	ained			Cons	strained		
(=		Weaving	(i = w)	Non-Wea	ving (i = nw)		ng (i = w)		ving (= nw)	
a (Exhibit 24-6) b (Exhibit 24-6)							35 20	}	020 00	
c (Exhibit 24-6)		 					97		30	
d (Exhibit 24-6)							80		75	
Weaving intensity fac	ctor, Wi						78		93	
Weaving and non-we speeds, Si (mi/h)	eaving					25	.39	46	.17	
Number of lane Maximum numb	oer of lanes	, Nw (max)	ned operation, trained operat		1.45 1.40	if Nw < N	v (max) consti	rained operati	on	
Weaving S		<u> </u>					· ,	ramou operati		
Weaving segme	ent speed,	S (mi/h)	<u>,</u>	34.89						
Weaving segme				69.05						
Level of service		. ,		F						
Capacity of bas	e condition	, c _b (pc/h)		5238						
Capacity as a 1		<u> </u>	n/h)	5161						
Capacity as a fu				4645						
Notes		.,								

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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

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

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

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

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

FREEWAY LANES

NO-BUILD

SOUTHBOUND

LEVELS OF SERVICE HCS OUTPUT

			FREEWA	Y WEAV	ING WOR	KSHEE	Т		
Genera	Informat	ion			Site Info	rmation			
Analyst Agency/Cor Date Perfor Analysis Tir	med	LWC CAI 2/26/2 DHV	009		Freeway/Dir Weaving Seg Jurisdiction Analysis Yea	g Location		Southbound FM 1171 to Fox 2030	
Inputs									
Weaving nu Weaving se Terrain	e-flow speed, mber of lanes, g length, L (ft)	Ň	70 4 100 Lev	el	Weaving type Volume ratio Weaving ratio	, VR		A 0.13 0.31	
Conver	sions to p	c/h Unde	r Base C	ondition		•	•		
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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					V _{nw}		•	•	11018
V						ı			12605
Weavin	g and No	n-Weavin	g Speeds	 S					
			Unconstr	*				trained	
a /F.,hihit 0	1.()	Weaving		Non-Weaving (i = nw) We 0.0035		Weavii	ng (i = w)	Non-Wea	ving (= nw)
a (Exhibit 24 b (Exhibit 24		0.15 2.20			.00			<u> </u>	
c (Exhibit 2		0.97		1	.30				
d (Exhibit 2		0.80		1	.75				
Weaving intens		1.92		1	.12				
Weaving and no speeds, Si (mi/l		35.5	6	43	3.34				
Number of I	anes required		ned operation,	, Nw	0.96				
1	umber of lanes If Nw < Nw	, ,	trained onerat	ion	1.40	if Nlw > Nl	v (max) consti	rainad anarat	ion
		<u> </u>			f Service,			amed operat	1011
Weaving se	gment speed.	S (mi/h)	,	42.18	. 50. 1100,	<u> </u>			
	Weaving segment speed, S (mi/h) Weaving segment density, D (pc/mi/ln)								
	Level of service, LOS								
	Capacity of base condition, c _b (pc/h)								
Capacity as	a 15-minute fl	ow rate, c (veh	n/h)	8380					
Capacity as	a full-hour vol	ume, c _h (veh/h	1)	7542					
Notes		··							

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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

			FREEWA	Y WEAV	/ING WOR	RKSHEE	Т			
General	Informat	ion			Site Information					
Analyst LWC Agency/Company CAI Date Performed 2/26/2009 Analysis Time Period DHV				Weaving Seg Location For Jurisdiction			outhbound ox to BUS 121 030			
Inputs										
Freeway free-flow speed, S_{FF} (mi/h) 70 Weaving number of lanes, N 4 Weaving seg length, L (ft) 120 Terrain Leve			el	Weaving type Volume ratio, VR Weaving ratio, R			A 0.18 0.46			
Convers	sions to p	c/h Unde	r Base C	ondition	_		•	•		
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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}		•	ļ	10779	
V				L	,	ı			13223	
Weaving	g and No	n-Weavin	g Speeds	S						
			Unconstr	*				Constrained		
o /Eyhihit O/	Weaving (i = w)			Non-Weaving (i = nw) 0.0035		Weavi	ng (i = w)	Non-Wea	ving (= nw)	
a (Exhibit 24 b (Exhibit 24		0.15 2.20		4.00						
	c (Exhibit 24-6)		0.97		1.30					
d (Exhibit 24-6)		0.80		0.75						
Weaving intensity factor, Wi		1.94		1.27						
Weaving and no speeds, Si (mi/h	Veaving and non-weaving 35.39		41	1.41						
Number of Ia	anes required	for unconstrair	ned operation,	, Nw	1.24	,		•		
1	umber of lanes	s, Nw (max) (max) unconst	trained anerat	ion	1.40	if Nhw > Nh	w (max) const	rainad anarat	ion	
		,			f Service,		<u> </u>	rairieu operat	1011	
Weaving se	g Geginei	S (mi/h)	Density,	40.15	i Jei vice,	unu va	Jacity			
Weaving segment speed, S (mi/h) 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 vol	ume, c _h (veh/h)	7368						
Notes		.1								

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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

			FREEWA	Y WEAV	ING WOR	KSHEE	Γ			
Genera	Informat	ion			Site Information					
Analyst EJP Agency/Company CAI Date Performed 2/26/2009 Analysis Time Period DHV				Weaving Seg Location Jurisdiction			Southbound N Texas to McCormick 2030			
Inputs										
Weaving number of lanes, N 3 Weaving seg length, L (ft) 70			70 3 700 Lev	el Weaving ratio, K		, VR	A 0.23 0.05			
Conver	sions to p	c/h Unde	r Base C	ondition	_				_	
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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	
Weavin	g and No	n-Weavin	g Speeds	 S						
			Unconstr	ained			Constrained			
/E	Weaving (i = w)			Non-Weaving (i = nw)		Weavir	ng (i = w)	Non-Wea	ving (= nw)	
a (Exhibit 24		0.15 2.20		0.0035 4.00						
b (Exhibit 24-6) c (Exhibit 24-6)		0.97		1.30						
d (Exhibit 24-6)		0.80		0.75						
Weaving intensity factor, Wi		2.55		1.60						
Weaving and no speeds, Si (mi/h	Veaving and non-weaving		38	3.09						
Number of I	anes required		ned operation,	, Nw	0.97			,		
1	umber of lanes	. ,	landa ad an anad	t	1.40	■ 16 Nb Nb.	. (
	If Nw < Nw	<u> </u>			f Service,		v (max) const	aineu operat	IUI1	
Weaving se	g Segillei ament sneed	s (mi/h)	Density,	36.46	i Seivice,	anu Cap	acity			
Weaving segment speed, S (mi/h) Weaving segment density, D (pc/mi/ln)				70.65						
Level of service, LOS				F						
Capacity of base condition, c _h (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		11.		<u> </u>						

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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

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

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

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

			FREEWA	Y WEAV	ING WOR	KSHEE	T			
General Information					Site Information					
Analyst EJP Agency/Company CAI Date Performed 2/26/2009 Analysis Time Period DHV				Freeway/Dir Weaving Seg Jurisdiction Analysis Yea	g Location	Southbound McCormick to US 377 2030				
Inputs					•					
Freeway free-flow speed, S _{FF} (mi/h) 70 Weaving number of lanes, N 3 Weaving seg length, L (ft) 120 Terrain Leve			IVVEAVIIIQ IAIIO. K		A 0.20 0.48					
Conver	sions to p	c/h Unde	r Base C	ondition	ıs					
(pc/h)	V	PHF	Truck %	RV %	E _T	E _R	f_{HV}	fp	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		ı	1	1676	V _{nw}				6770	
V	7				TIVV	I			8446	
Weavin	g and No	n-Weavin	a Speeds	 S						
	<u> </u>		Unconstr					Constrained		
	Weaving (i = w)			Non-Weaving (i = nw)		Weaving (i = w) Non-W		Non-Wea	eaving (= nw)	
a (Exhibit 2		0.15		0.0035						
b (Exhibit 2		2.20		4.00 1.30						
c (Exhibit 24-6)		0.97 0.80		0.75				 		
d (Exhibit 24-6) Weaving intensity factor, Wi		1.71		1.08				 		
Weaving and n	on-weaving	37.1		1	3.84					
speeds, Si (mi/l	h) lanes required				0.95					
	number of lanes		ica operation,	, 1444	1.40					
	If Nw < Nw	(max) uncons	trained operat	ion		if Nw > Nv	v (max) consti	rained operat	on	
Weavin	g Segmei	nt Speed,	Density,	Level o	f Service,	and Cap	acity			
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	Capacity as a full-hour volume, c _h (veh/h)									
Notes		· ·		•						

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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

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

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

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

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