

Appendix E

2015 No Build Intersection Capacity

Analysis

HCM Unsignalized Intersection Capacity Analysis

1: Gibson & West Road **Mulberry**

UNM Gibson Commercial District

2015 No Build AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2469	32	15	1074	7	16	0	22	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	2599	34	16	1131	7	17	0	23	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1138			2633			3024	3785	883	2055	3798	381
vC1, stage 1 conf vol							2616	2616		1166	1166	
vC2, stage 2 conf vol							408	1169		889	2633	
vCu, unblocked vol	1138			2633			3024	3785	883	2055	3798	381
tC, single (s)	4.1			4.2			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			90			22	100	92	100	100	100
cM capacity (veh/h)	610			154			22	38	289	111	27	617
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	1040	1040	553	16	452	452	233	40	0			
Volume Left	0	0	0	16	0	0	0	17	0			
Volume Right	0	0	34	0	0	0	7	23	0			
cSH	1700	1700	1700	154	1700	1700	1700	47	1700			
Volume to Capacity	0.61	0.61	0.33	0.10	0.27	0.27	0.14	0.86	0.00			
Queue Length 95th (ft)	0	0	0	8	0	0	0	87	0			
Control Delay (s)	0.0	0.0	0.0	31.1	0.0	0.0	0.0	224.7	0.0			
Lane LOS				D				F	A			
Approach Delay (s)	0.0			0.4				224.7	0.0			
Approach LOS								F	A			
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			58.4%			ICU Level of Service			B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Gibson & University

UNM Gibson Commercial District
2015 No Build AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	180	2285	31	26	1016	125	62	30	54	162	20	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Flt Protected	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	5036	1568	1736	4988	1553	1752	1666		1687	1776	1509
Satd. Flow (perm)	332	5036	1568	219	4988	1553	1371	1666		1241	1776	1509
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	194	2457	33	28	1092	134	67	32	58	174	22	92
RTOR Reduction (vph)	0	0	12	0	0	61	0	52	0	0	0	71
Lane Group Flow (vph)	194	2457	21	28	1092	73	67	38	0	174	22	21
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	3%	3%	3%	7%	7%	7%
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)	45.8	40.4	44.8	34.8	33.4	37.8	11.9	7.5		11.9	7.5	15.9
Effective Green, g (s)	45.8	40.4	44.8	34.8	33.4	37.8	11.9	7.5		11.9	7.5	15.9
Actuated g/C Ratio	0.66	0.58	0.64	0.50	0.48	0.54	0.17	0.11		0.17	0.11	0.23
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	389	2919	1098	140	2390	931	258	179		240	191	431
v/s Ratio Prot	c0.06	c0.49	0.00	0.00	0.22	0.00	0.02	0.02		c0.05	0.01	0.01
v/s Ratio Perm	0.27		0.01	0.10		0.04	0.03			c0.08		0.01
v/c Ratio	0.50	0.84	0.02	0.20	0.46	0.08	0.26	0.21		0.72	0.12	0.05
Uniform Delay, d1	5.9	12.0	4.5	11.4	12.1	7.6	24.9	28.4		26.9	28.1	21.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	2.4	0.0	0.7	0.1	0.0	0.5	0.6		10.4	0.3	0.0
Delay (s)	7.0	14.4	4.5	12.1	12.2	7.7	25.5	29.0		37.2	28.4	21.0
Level of Service	A	B	A	B	B	A	C	C		D	C	C
Approach Delay (s)		13.7			11.7			27.5			31.4	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay			14.8			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			69.7			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			73.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: East Road & University

UNM Gibson Commercial District
2015 No Build AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	1	0	2	0	334	6	17	267	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	0	1	0	2	0	359	6	18	287	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	505	689	144	542	686	183	287				366	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	505	689	144	542	686	183	287				366	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2				4.2	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.3				2.2	
p0 queue free %	100	100	100	100	100	100	100				98	
cM capacity (veh/h)	443	361	878	418	363	828	1236				1182	
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4		
Volume Total	0	0	3	0	239	126	18	144	144	0		
Volume Left	0	0	1	0	0	0	18	0	0	0		
Volume Right	0	0	2	0	0	6	0	0	0	0		
cSH	1700	1700	624	1700	1700	1700	1182	1700	1700	1700		
Volume to Capacity	0.00	0.00	0.01	0.00	0.14	0.07	0.02	0.08	0.08	0.00		
Queue Length 95th (ft)	0	0	0	0	0	0	1	0	0	0		
Control Delay (s)	0.0	0.0	10.8	0.0	0.0	0.0	8.1	0.0	0.0	0.0		
Lane LOS	A	A	B				A					
Approach Delay (s)	0.0	10.8		0.0	0.5							
Approach LOS	A	B										
Intersection Summary												
Average Delay	0.3											
Intersection Capacity Utilization	24.1%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

5: Cesar Chavez & University

UNM Gibson Commercial District
2015 No Build AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	411	385	161	27	314	91	59	208	36	67	173	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	4860		1770	3420		1770	3539	1583	1770	3539	1583
Flt Permitted	0.32	1.00		0.41	1.00		0.63	1.00	1.00	0.61	1.00	1.00
Satd. Flow (perm)	590	4860		761	3420		1180	3539	1583	1143	3539	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	462	433	181	30	353	102	63	221	38	73	188	83
RTOR Reduction (vph)	0	98	0	0	41	0	0	0	30	0	0	49
Lane Group Flow (vph)	462	516	0	30	414	0	63	221	8	73	188	34
Turn Type	pm+pt			pm+pt			pm+pt		pm+ov	pm+pt		pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	30.7	24.6		15.5	13.4		10.7	8.6	10.7	10.7	8.6	21.9
Effective Green, g (s)	30.7	24.6		15.5	13.4		10.7	8.6	10.7	10.7	8.6	21.9
Actuated g/C Ratio	0.57	0.46		0.29	0.25		0.20	0.16	0.20	0.20	0.16	0.41
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	633	2239		261	858		260	570	436	254	570	768
v/s Ratio Prot	c0.18	0.11		0.00	0.12		0.01	c0.06	0.00	c0.01	0.05	0.01
v/s Ratio Perm	c0.24			0.03			0.04		0.00	0.05		0.01
v/c Ratio	0.73	0.23		0.11	0.48		0.24	0.39	0.02	0.29	0.33	0.04
Uniform Delay, d1	7.2	8.7		13.7	17.0		17.7	20.0	17.1	17.8	19.8	9.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.2	0.1		0.2	0.4		0.5	0.4	0.0	0.6	0.3	0.0
Delay (s)	11.5	8.7		13.9	17.5		18.2	20.5	17.1	18.4	20.2	9.5
Level of Service	B	A		B	B		B	C	B	B	C	A
Approach Delay (s)	9.9			17.3			19.6			17.2		
Approach LOS	A			B			B			B		
Intersection Summary												
HCM Average Control Delay			14.0	HCM Level of Service			B					
HCM Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			53.4	Sum of lost time (s)			12.0					
Intersection Capacity Utilization			57.2%	ICU Level of Service			B					
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

6: Cesar Chavez & Langham

UNM Gibson Commercial District
2015 No Build AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (veh/h)	408	1092	19	4	465	2	40	1	14	1	0	77
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	474	1270	22	5	541	2	47	1	16	1	0	90
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	543			1292			2509	2782	434	1940	2792	181
vC1, stage 1 conf vol							2230	2230		551	551	
vC2, stage 2 conf vol							279	552		1389	2241	
vCu, unblocked vol	543			1292			2509	2782	434	1940	2792	181
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	54			99			0	95	97	98	100	89
cM capacity (veh/h)	1022			532			20	22	570	61	32	830
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	474	508	508	276	5	216	216	110	47	17	1	90
Volume Left	474	0	0	0	5	0	0	0	47	0	1	0
Volume Right	0	0	0	22	0	0	0	2	0	16	0	90
cSH	1022	1700	1700	1700	532	1700	1700	1700	20	212	61	830
Volume to Capacity	0.46	0.30	0.30	0.16	0.01	0.13	0.13	0.06	2.32	0.08	0.02	0.11
Queue Length 95th (ft)	63	0	0	0	1	0	0	0	154	7	1	9
Control Delay (s)	11.5	0.0	0.0	0.0	11.8	0.0	0.0	0.0	1008.6	23.5	65.3	9.9
Lane LOS	B				B				F	C	F	A
Approach Delay (s)	3.1				0.1				739.9		10.6	
Approach LOS									F		B	
Intersection Summary												
Average Delay				21.8								
Intersection Capacity Utilization			50.5%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

1: Gibson & West Road **Mulberry**

UNM Gibson Commercial District

2015 No Build PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑			↔				↵
Volume (veh/h)	0	1231	64	20	2533	0	41	0	26	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	1269	66	21	2611	0	42	0	27	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2611			1335			2214	3955	456	3102	3988	870
vC1, stage 1 conf vol							1302	1302		2653	2653	
vC2, stage 2 conf vol							912	2653		450	1335	
vCu, unblocked vol	2611			1335			2214	3955	456	3102	3988	870
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			96			60	100	95	100	100	100
cM capacity (veh/h)	162			513			107	35	551	20	34	295
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	508	508	320	21	1045	1045	522	69	0			
Volume Left	0	0	0	21	0	0	0	42	0			
Volume Right	0	0	66	0	0	0	0	27	0			
cSH	1700	1700	1700	513	1700	1700	1700	156	1700			
Volume to Capacity	0.30	0.30	0.19	0.04	0.61	0.61	0.31	0.44	0.00			
Queue Length 95th (ft)	0	0	0	3	0	0	0	50	0			
Control Delay (s)	0.0	0.0	0.0	12.3	0.0	0.0	0.0	45.4	0.0			
Lane LOS				B				E	A			
Approach Delay (s)	0.0			0.1				45.4	0.0			
Approach LOS								E	A			
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			59.5%			ICU Level of Service			B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Gibson & University

UNM Gibson Commercial District
2015 No Build PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	113	1055	59	55	2122	178	63	24	55	201	33	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00		1.00	1.00	1.00
Flt Protected	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1669		1736	1827	1553
Satd. Flow (perm)	226	5085	1583	408	5085	1583	1049	1669		1624	1827	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	118	1099	61	57	2210	185	66	25	57	209	34	172
RTOR Reduction (vph)	0	0	23	0	0	79	0	51	0	0	0	74
Lane Group Flow (vph)	118	1099	38	57	2210	106	66	31	0	209	34	98
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	pm+pt		pm+ov	pm+pt		pm+ov	pm+pt			pm+pt		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)	37.0	33.0	40.0	34.8	31.9	36.3	14.1	7.1		8.9	4.5	8.5
Effective Green, g (s)	37.0	33.0	40.0	34.8	31.9	36.3	14.1	7.1		8.9	4.5	8.5
Actuated g/C Ratio	0.58	0.52	0.63	0.55	0.50	0.57	0.22	0.11		0.14	0.07	0.13
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	229	2647	1099	286	2559	1006	313	187		236	130	306
v/s Ratio Prot	0.03	0.22	0.00	0.01	c0.43	0.01	c0.02	0.02		c0.06	0.02	c0.02
v/s Ratio Perm	0.27		0.02	0.10		0.06	0.02			c0.06		0.04
v/c Ratio	0.52	0.42	0.04	0.20	0.86	0.11	0.21	0.17		0.89	0.26	0.32
Uniform Delay, d1	10.8	9.3	4.4	6.8	13.8	6.2	20.0	25.5		26.7	27.9	24.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.0	0.1	0.0	0.3	3.3	0.0	0.3	0.4		30.1	1.1	0.6
Delay (s)	12.7	9.4	4.4	7.1	17.1	6.2	20.3	25.9		56.8	29.0	25.4
Level of Service	B	A	A	A	B	A	C	C		E	C	C
Approach Delay (s)		9.5			16.1			23.4			41.5	
Approach LOS		A			B			C			D	
Intersection Summary												
HCM Average Control Delay			16.8			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			63.4			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			75.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: East Road & University

UNM Gibson Commercial District
2015 No Build PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	4	0	19	0	316	3	12	398	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	0	0	4	0	20	0	329	3	12	415	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	624	772	207	563	770	166	415				332	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	624	772	207	563	770	166	415				332	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	99	100	98	100				99	
cM capacity (veh/h)	358	325	799	406	326	849	1127				1224	
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4		
Volume Total	0	0	24	0	219	113	12	207	207	0		
Volume Left	0	0	4	0	0	0	12	0	0	0		
Volume Right	0	0	20	0	0	3	0	0	0	0		
cSH	1700	1700	713	1700	1700	1700	1224	1700	1700	1700		
Volume to Capacity	0.00	0.00	0.03	0.00	0.13	0.07	0.01	0.12	0.12	0.00		
Queue Length 95th (ft)	0	0	3	0	0	0	1	0	0	0		
Control Delay (s)	0.0	0.0	10.2	0.0	0.0	0.0	8.0	0.0	0.0	0.0		
Lane LOS	A	A	B				A					
Approach Delay (s)	0.0	10.2		0.0	0.2							
Approach LOS	A	B										
Intersection Summary												
Average Delay	0.4											
Intersection Capacity Utilization	21.0%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

5: Cesar Chavez & University

UNM Gibson Commercial District
2015 No Build PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	361	461	108	35	506	122	159	233	26	138	257	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Flt	1.00	0.97		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	4940		1770	3436		1770	3539	1583	1770	3539	1583
Flt Permitted	0.21	1.00		0.40	1.00		0.58	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	390	4940		752	3436		1078	3539	1583	1105	3539	1583
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	397	507	119	38	556	134	175	256	29	152	282	376
RTOR Reduction (vph)	0	56	0	0	33	0	0	0	23	0	0	90
Lane Group Flow (vph)	397	570	0	38	657	0	175	256	6	152	282	286
Turn Type	pm+pt			pm+pt			pm+pt		pm+ov	pm+pt		pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	28.2	22.0		18.2	16.0		12.4	9.4	11.6	12.4	9.4	17.6
Effective Green, g (s)	28.2	22.0		18.2	16.0		12.4	9.4	11.6	12.4	9.4	17.6
Actuated g/C Ratio	0.54	0.42		0.35	0.30		0.24	0.18	0.22	0.24	0.18	0.33
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	424	2066		303	1045		294	632	469	298	632	650
v/s Ratio Prot	c0.15	0.12		0.01	0.19		c0.03	0.07	0.00	0.03	0.08	0.07
v/s Ratio Perm	c0.36			0.04			c0.11		0.00	0.09		0.11
v/c Ratio	0.94	0.28		0.13	0.63		0.60	0.41	0.01	0.51	0.45	0.44
Uniform Delay, d1	9.3	10.1		11.5	15.7		17.2	19.1	16.0	16.8	19.3	13.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	28.0	0.1		0.2	1.2		3.2	0.4	0.0	1.5	0.5	0.5
Delay (s)	37.3	10.1		11.7	16.9		20.4	19.6	16.0	18.3	19.8	14.1
Level of Service	D	B		B	B		C	B	B	B	B	B
Approach Delay (s)		20.7			16.7			19.7			16.9	
Approach LOS		C			B			B			B	
Intersection Summary												
HCM Average Control Delay			18.5			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			52.6			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			67.1%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

6: Cesar Chavez & Langham

UNM Gibson Commercial District
2015 No Build PM Peak Hour

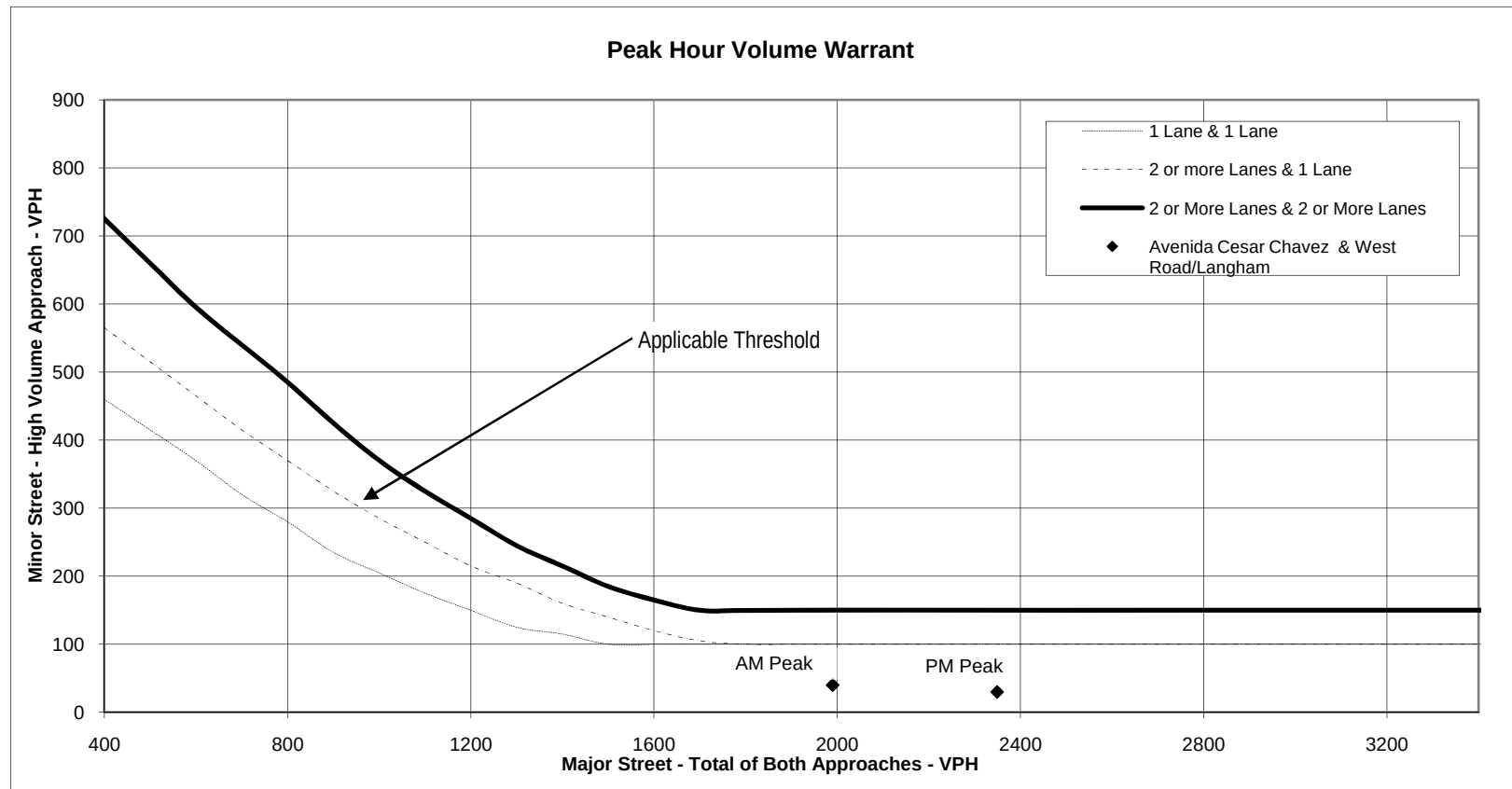
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Volume (veh/h)	128	963	0	4	1256	1	30	1	33	6	0	205
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	151	1133	0	5	1478	1	35	1	39	7	0	241
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	Raised			Raised								
Median storage veh	1			1								
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1479			1133			2177	2922	378	2206	2922	493
vC1, stage 1 conf vol							1434	1434		1488	1488	
vC2, stage 2 conf vol							743	1488		718	1434	
vCu, unblocked vol	1479			1133			2177	2922	378	2206	2922	493
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	67			99			0	96	94	91	100	54
cM capacity (veh/h)	451			612			33	27	620	83	73	522
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	151	453	453	227	5	591	591	297	35	40	7	241
Volume Left	151	0	0	0	5	0	0	0	35	0	7	0
Volume Right	0	0	0	0	0	0	0	1	0	39	0	241
cSH	451	1700	1700	1700	612	1700	1700	1700	33	379	83	522
Volume to Capacity	0.33	0.27	0.27	0.13	0.01	0.35	0.35	0.17	1.06	0.11	0.09	0.46
Queue Length 95th (ft)	36	0	0	0	1	0	0	0	94	9	7	60
Control Delay (s)	16.9	0.0	0.0	0.0	10.9	0.0	0.0	0.0	355.0	15.6	52.5	17.7
Lane LOS	C				B				F	C	F	C
Approach Delay (s)	2.0				0.0				174.7		18.7	
Approach LOS									F		C	
Intersection Summary												
Average Delay	6.6											
Intersection Capacity Utilization	60.7%			ICU Level of Service			B					
Analysis Period (min)	15											

PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

				Left Out Unsignalized Delays		AM Peak	PM Peak	
				SB Left		0.02	0.09	hours
Scenario:	2015 No Build	Right Turns Excluded		NB Left		11.20	2.96	hours
Intersection:	Avenida Cesar Chavez & West Road/Langham							
Type:	2 Lane/1 Lane							
Major Street (Orientation):	ACC (E/W)							
Minor Street (Orientation):	West Road (N/S)							

	Minor Street Approach Volume			Major Street Approach Volume			Sat
Time	NB	SB	High Vol Approach	EB	WB	EB + WB	Warra
AM Peak	40	1	40	1,519	471	1,990	N

	Minor Street Approach Volume			Major Street Approach Volume			Satisfies
Time	NB	SB	High Vol Approach	EB	WB	EB + WB	Warrant 11?
AM Peak	40	1	40	1,519	471	1,990	NO
PM Peak	30	6	30	1,091	1,258	2,349	NO



Note: 150 VPH applies as the lower threshold for minor street approach with 2 or more lanes & 100 VPH as the threshold for a minor street approach with one lane