

Appendix C

Existing Intersection Capacity Analysis

HCM Unsignalized Intersection Capacity Analysis

UNM Gibson Commercial District

1: Gibson & West Road **Mulberry**

2011 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2338	30	14	1017	7	15	0	21	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	2461	32	15	1071	7	16	0	22	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	1078			2493			2863	3584	836	1946	3596	361
vC1, stage 1 conf vol							2477	2477		1104	1104	
vC2, stage 2 conf vol							386	1107		842	2493	
vCu, unblocked vol	1078			2493			2863	3584	836	1946	3596	361
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			92			41	100	93	100	100	100
cM capacity (veh/h)	643			175			27	45	310	124	34	636
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	984	984	524	15	428	428	221	38	0			
Volume Left	0	0	0	15	0	0	0	16	0			
Volume Right	0	0	32	0	0	0	7	22	0			
cSH	1700	1700	1700	175	1700	1700	1700	57	1700			
Volume to Capacity	0.58	0.58	0.31	0.08	0.25	0.25	0.13	0.66	0.00			
Queue Length 95th (ft)	0	0	0	7	0	0	0	69	0			
Control Delay (s)	0.0	0.0	0.0	27.4	0.0	0.0	0.0	148.5	0.0			
Lane LOS				D				F	A			
Approach Delay (s)	0.0			0.4				148.5	0.0			
Approach LOS								F	A			
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			55.8%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Gibson & University

UNM Gibson Commercial District
2011 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	170	2164	29	25	962	118	59	28	51	153	19	81
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
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	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
Flt Permitted	0.19	1.00	1.00	0.14	1.00	1.00	0.54	1.00		0.70	1.00	1.00
Satd. Flow (perm)	346	5036	1568	250	4988	1553	1000	1666		1246	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)	183	2327	31	27	1034	127	63	30	55	165	20	87
RTOR Reduction (vph)	0	0	11	0	0	62	0	48	0	0	0	69
Lane Group Flow (vph)	183	2327	20	27	1034	65	63	37	0	165	20	18
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)	41.0	35.6	42.2	30.6	29.2	33.6	14.7	8.1		10.3	5.9	13.7
Effective Green, g (s)	41.0	35.6	42.2	30.6	29.2	33.6	14.7	8.1		10.3	5.9	13.7
Actuated g/C Ratio	0.63	0.54	0.64	0.47	0.45	0.51	0.22	0.12		0.16	0.09	0.21
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)	384	2737	1106	149	2224	891	300	206		226	160	408
v/s Ratio Prot	c0.06	c0.46	0.00	0.00	0.21	0.00	c0.02	0.02		c0.05	0.01	0.01
v/s Ratio Perm	0.24		0.01	0.08		0.04	0.03			c0.07		0.01
v/c Ratio	0.48	0.85	0.02	0.18	0.46	0.07	0.21	0.18		0.73	0.12	0.04
Uniform Delay, d1	6.3	12.7	4.2	11.6	12.7	8.1	20.5	25.7		25.9	27.4	20.7
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	0.9	2.7	0.0	0.6	0.2	0.0	0.4	0.4		11.5	0.4	0.0
Delay (s)	7.2	15.4	4.2	12.2	12.8	8.1	20.8	26.1		37.3	27.8	20.7
Level of Service	A	B	A	B	B	A	C	C		D	C	C
Approach Delay (s)		14.7			12.3			23.9			31.3	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay			15.4			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			65.5			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			70.3%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: East Road & University

UNM Gibson Commercial District
2011 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	316	6	16	253	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	340	6	17	272	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	478	653	136	513	649	173	272				346	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	478	653	136	513	649	173	272				346	
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				99	
cM capacity (veh/h)	464	380	888	439	381	840	1253				1202	
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	227	120	17	136	136	0		
Volume Left	0	0	1	0	0	0	17	0	0	0		
Volume Right	0	0	2	0	0	6	0	0	0	0		
cSH	1700	1700	644	1700	1700	1700	1202	1700	1700	1700		
Volume to Capacity	0.00	0.00	0.01	0.00	0.13	0.07	0.01	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	10.6	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	10.6		0.0	0.5							
Approach LOS	A	B										
Intersection Summary												
Average Delay	0.3											
Intersection Capacity Utilization	23.3%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

5: Cesar Chavez & University

UNM Gibson Commercial District

2011 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	366	365	152	26	297	86	54	197	34	63	164	68
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	0.96		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	4861		1770	3420		1770	3539	1583	1770	3539	1583
Flt Permitted	0.35	1.00		0.42	1.00		0.64	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	652	4861		787	3420		1191	3539	1583	1155	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)	411	410	171	29	334	97	57	210	36	68	178	74
RTOR Reduction (vph)	0	103	0	0	45	0	0	0	28	0	0	48
Lane Group Flow (vph)	411	478	0	29	386	0	57	210	8	68	178	26
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)	24.8	18.7		14.6	12.5		10.2	8.1	10.2	10.2	8.1	16.4
Effective Green, g (s)	24.8	18.7		14.6	12.5		10.2	8.1	10.2	10.2	8.1	16.4
Actuated g/C Ratio	0.53	0.40		0.31	0.27		0.22	0.17	0.22	0.22	0.17	0.35
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)	541	1934		288	910		284	610	478	278	610	687
v/s Ratio Prot	c0.13	0.10		0.00	0.11		0.01	c0.06	0.00	c0.01	0.05	0.01
v/s Ratio Perm	c0.27			0.03			0.03		0.00	0.04		0.01
v/c Ratio	0.76	0.25		0.10	0.42		0.20	0.34	0.02	0.24	0.29	0.04
Uniform Delay, d1	7.3	9.4		11.4	14.3		14.9	17.1	14.5	15.0	17.0	10.1
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	6.1	0.1		0.2	0.3		0.3	0.3	0.0	0.5	0.3	0.0
Delay (s)	13.4	9.5		11.5	14.6		15.2	17.5	14.5	15.4	17.2	10.1
Level of Service	B	A		B	B		B	B	B	B	B	B
Approach Delay (s)		11.1			14.4			16.7			15.2	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM Average Control Delay			13.3			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			47.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			53.5%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

6: Cesar Chavez & Langham

UNM Gibson Commercial District
2011 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Volume (veh/h)	386	1023	18	4	418	1	10	0	3	1	0	73
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)	449	1190	21	5	486	1	12	0	3	1	0	85
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	487			1210			2354	2594	407	1794	2604	163
vC1, stage 1 conf vol							2098	2098		496	496	
vC2, stage 2 conf vol							256	497		1298	2108	
vCu, unblocked vol	487			1210			2354	2594	407	1794	2604	163
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 %	58			99			56	100	99	99	100	90
cM capacity (veh/h)	1072			572			27	37	593	80	42	853
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	449	476	476	259	5	194	194	98	12	3	1	85
Volume Left	449	0	0	0	5	0	0	0	12	0	1	0
Volume Right	0	0	0	21	0	0	0	1	0	3	0	85
cSH	1072	1700	1700	1700	572	1700	1700	1700	27	593	80	853
Volume to Capacity	0.42	0.28	0.28	0.15	0.01	0.11	0.11	0.06	0.44	0.01	0.01	0.10
Queue Length 95th (ft)	53	0	0	0	1	0	0	0	34	0	1	8
Control Delay (s)	10.8	0.0	0.0	0.0	11.3	0.0	0.0	0.0	220.4	11.1	50.8	9.7
Lane LOS	B				B				F	B	F	A
Approach Delay (s)	2.9				0.1				172.1		10.2	
Approach LOS									F		B	
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			46.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

UNM Gibson Commercial District

1: Gibson & West Road **Mulberry**

2011 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1166	61	19	2399	0	39	0	25	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	1202	63	20	2473	0	40	0	26	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	2473			1265			2097	3746	432	2939	3777	824
vC1, stage 1 conf vol							1234	1234		2512	2512	
vC2, stage 2 conf vol							864	2512		426	1265	
vCu, unblocked vol	2473			1265			2097	3746	432	2939	3777	824
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			66	100	95	100	100	100
cM capacity (veh/h)	184			545			118	42	572	24	41	316
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	481	481	303	20	989	989	495	66	0			
Volume Left	0	0	0	20	0	0	0	40	0			
Volume Right	0	0	63	0	0	0	0	26	0			
cSH	1700	1700	1700	545	1700	1700	1700	171	1700			
Volume to Capacity	0.28	0.28	0.18	0.04	0.58	0.58	0.29	0.39	0.00			
Queue Length 95th (ft)	0	0	0	3	0	0	0	42	0			
Control Delay (s)	0.0	0.0	0.0	11.8	0.0	0.0	0.0	38.6	0.0			
Lane LOS				B				E	A			
Approach Delay (s)	0.0			0.1				38.6	0.0			
Approach LOS								E	A			
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			56.7%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Gibson & University

UNM Gibson Commercial District
2011 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Volume (vph)	107	999	56	52	2009	169	60	23	52	190	31	156
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
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	1.00	0.85
Flt Protected	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
Flt Permitted	0.12	1.00	1.00	0.24	1.00	1.00	0.56	1.00		0.89	1.00	1.00
Satd. Flow (perm)	222	5085	1583	454	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)	111	1041	58	54	2093	176	62	24	54	198	32	162
RTOR Reduction (vph)	0	0	21	0	0	75	0	48	0	0	0	74
Lane Group Flow (vph)	111	1041	37	54	2093	101	62	30	0	198	32	88
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)	37.6	33.6	40.6	34.2	31.9	36.3	14.1	7.1		8.9	4.5	8.5
Effective Green, g (s)	37.6	33.6	40.6	34.2	31.9	36.3	14.1	7.1		8.9	4.5	8.5
Actuated g/C Ratio	0.59	0.53	0.64	0.54	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	2695	1114	293	2559	1006	313	187		236	130	306
v/s Ratio Prot	c0.03	0.20	0.00	0.01	c0.41	0.01	c0.02	0.02		c0.06	0.02	0.02
v/s Ratio Perm	0.26		0.02	0.09		0.06	0.02			c0.06		0.04
v/c Ratio	0.48	0.39	0.03	0.18	0.82	0.10	0.20	0.16		0.84	0.25	0.29
Uniform Delay, d1	9.9	8.8	4.2	7.0	13.3	6.1	19.9	25.5		26.5	27.8	24.7
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	1.6	0.1	0.0	0.3	2.1	0.0	0.3	0.4		22.2	1.0	0.5
Delay (s)	11.5	8.9	4.2	7.3	15.4	6.2	20.2	25.9		48.6	28.8	25.2
Level of Service	B	A	A	A	B	A	C	C		D	C	C
Approach Delay (s)		8.9			14.6			23.4			37.3	
Approach LOS		A			B			C			D	
Intersection Summary												
HCM Average Control Delay			15.4			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			63.4			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			71.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: East Road & University

UNM Gibson Commercial District
2011 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	18	0	299	3	11	377	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	19	0	311	3	11	393	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	590	730	196	532	729	157	393				315	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	590	730	196	532	729	157	393				315	
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)	380	344	812	427	345	860	1148				1242	
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	23	0	208	107	11	196	196	0		
Volume Left	0	0	4	0	0	0	11	0	0	0		
Volume Right	0	0	19	0	0	3	0	0	0	0		
cSH	1700	1700	726	1700	1700	1700	1242	1700	1700	1700		
Volume to Capacity	0.00	0.00	0.03	0.00	0.12	0.06	0.01	0.12	0.12	0.00		
Queue Length 95th (ft)	0	0	2	0	0	0	1	0	0	0		
Control Delay (s)	0.0	0.0	10.1	0.0	0.0	0.0	7.9	0.0	0.0	0.0		
Lane LOS	A	A	B				A					
Approach Delay (s)	0.0	10.1		0.0	0.2							
Approach LOS	A	B										
Intersection Summary												
Average Delay	0.4											
Intersection Capacity Utilization	20.4%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Signalized Intersection Capacity Analysis

5: Cesar Chavez & University

UNM Gibson Commercial District

2011 PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			 			 			 		
Volume (vph)	327	437	102	33	479	116	142	221	25	131	243	305	
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	0.97		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	4941		1770	3436		1770	3539	1583	1770	3539	1583	
Flt Permitted	0.23	1.00		0.42	1.00		0.59	1.00	1.00	0.60	1.00	1.00	
Satd. Flow (perm)	424	4941		778	3436		1094	3539	1583	1119	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)	359	480	112	36	526	127	156	243	27	144	267	335	
RTOR Reduction (vph)	0	56	0	0	34	0	0	0	21	0	0	103	
Lane Group Flow (vph)	359	536	0	36	619	0	156	243	6	144	267	232	
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)	27.9	21.7		17.9	15.7		12.2	9.2	11.4	12.2	9.2	17.4	
Effective Green, g (s)	27.9	21.7		17.9	15.7		12.2	9.2	11.4	12.2	9.2	17.4	
Actuated g/C Ratio	0.54	0.42		0.34	0.30		0.23	0.18	0.22	0.23	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)	439	2058		309	1035		295	625	468	300	625	650	
v/s Ratio Prot	c0.13	0.11		0.00	0.18		c0.03	0.07	0.00	0.03	0.08	0.06	
v/s Ratio Perm	c0.31			0.04			c0.09		0.00	0.08		0.09	
v/c Ratio	0.82	0.26		0.12	0.60		0.53	0.39	0.01	0.48	0.43	0.36	
Uniform Delay, d1	8.4	9.9		11.5	15.5		16.8	19.0	15.9	16.7	19.1	13.1	
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	11.3	0.1		0.2	0.9		1.7	0.4	0.0	1.2	0.5	0.3	
Delay (s)	19.7	10.0		11.6	16.5		18.5	19.4	16.0	17.9	19.6	13.5	
Level of Service	B	B		B	B		B	B	B	B	B	B	
Approach Delay (s)		13.7			16.2			18.8			16.5		
Approach LOS		B			B			B			B		
Intersection Summary													
HCM Average Control Delay			15.8	HCM Level of Service			B						
HCM Volume to Capacity ratio			0.71										
Actuated Cycle Length (s)			52.1	Sum of lost time (s)			12.0						
Intersection Capacity Utilization			63.0%	ICU Level of Service			B						
Analysis Period (min)			15										
c Critical Lane Group													

HCM Unsignalized Intersection Capacity Analysis

6: Cesar Chavez & Langham

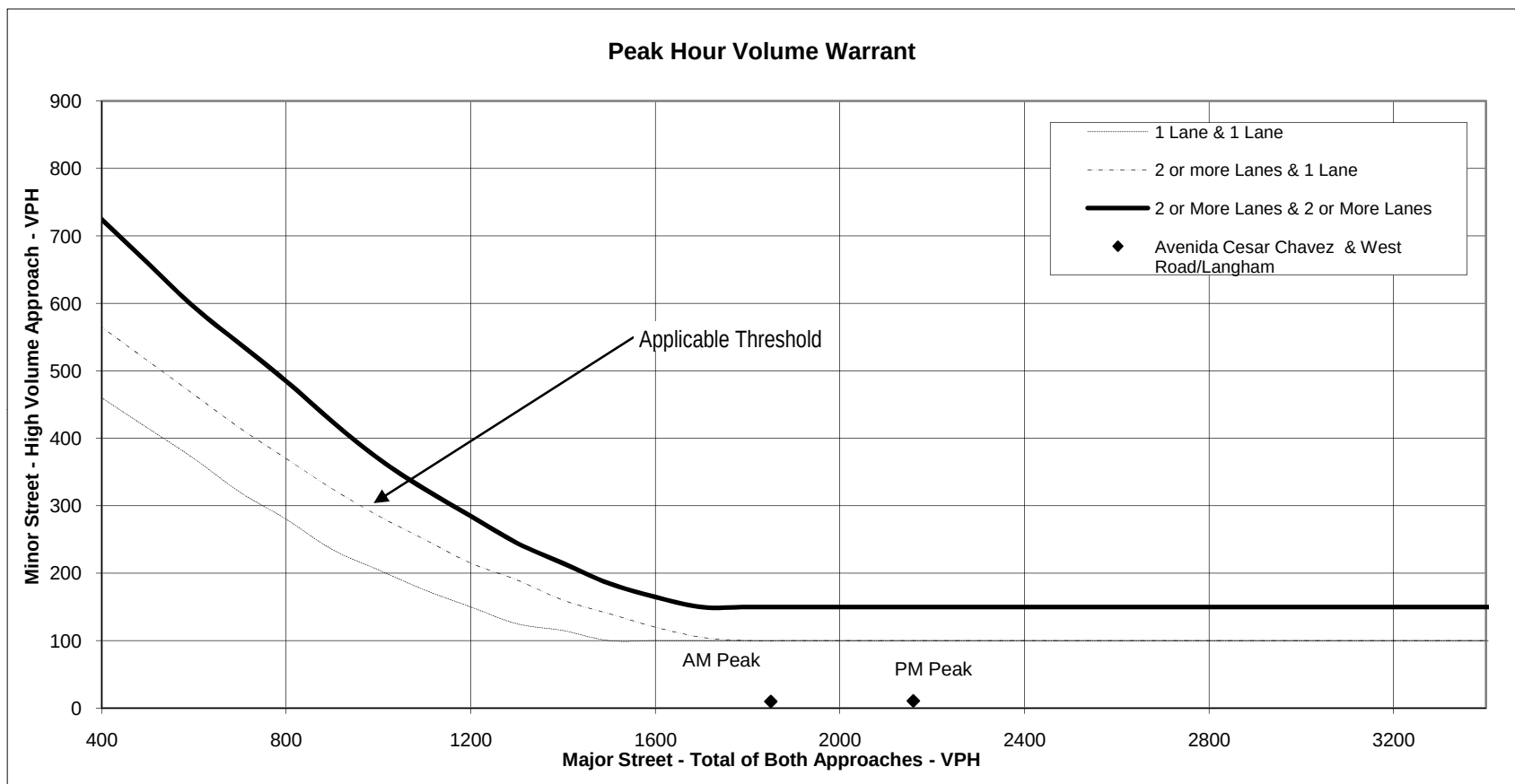
UNM Gibson Commercial District
2011 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Volume (veh/h)	121	858	0	4	1175	1	11	0	25	4	0	194
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)	142	1009	0	5	1382	1	13	0	29	5	0	228
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	1384			1009			1993	2687	336	2043	2686	461
vC1, stage 1 conf vol							1294	1294		1392	1392	
vC2, stage 2 conf vol							698	1393		651	1294	
vCu, unblocked vol	1384			1009			1993	2687	336	2043	2686	461
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 %	71			99			76	100	96	95	100	58
cM capacity (veh/h)	491			682			54	47	659	99	89	547
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	142	404	404	202	5	553	553	278	13	29	5	228
Volume Left	142	0	0	0	5	0	0	0	13	0	5	0
Volume Right	0	0	0	0	0	0	0	1	0	29	0	228
cSH	491	1700	1700	1700	682	1700	1700	1700	54	659	99	547
Volume to Capacity	0.29	0.24	0.24	0.12	0.01	0.33	0.33	0.16	0.24	0.04	0.05	0.42
Queue Length 95th (ft)	30	0	0	0	1	0	0	0	21	3	4	51
Control Delay (s)	15.3	0.0	0.0	0.0	10.3	0.0	0.0	0.0	92.4	10.7	43.3	16.2
Lane LOS	C				B				F	B	E	C
Approach Delay (s)	1.9				0.0				35.7		16.8	
Approach LOS									E		C	
Intersection Summary												
Average Delay				2.7								
Intersection Capacity Utilization			51.4%		ICU Level of Service					A		
Analysis Period (min)			15									

PEAK HOUR VOLUME SIGNAL WARRANT ANALYSIS

Scenario: 2011 Existing
 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			Satisfies
Time	NB	SB	High Vol Approach	EB	WB	EB + WB	Warrant 11?
AM Peak	10	1	10	1,427	423	1,850	NO
PM Peak	11	4	11	979	1,180	2,159	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