

HCM Unsignalized Intersection Capacity Analysis

1: Gibson & West Road

UNM Gibson Commercial District

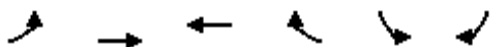
2015 PM Peak Hour - Build - No Left Out at Gibson - Improved

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1450	64	20	2715	165	41	0	26	0	0	162
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	1495	66	21	2799	170	42	0	27	0	0	167
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)					710							
pX, platoon unblocked	0.61						0.61	0.61		0.61	0.61	0.61
vC, conflicting volume	2969			1561			2669	4538	531	3450	4486	1018
vC1, stage 1 conf vol							1528	1528		2925	2925	
vC2, stage 2 conf vol							1141	3010		525	1561	
vCu, unblocked vol	1986			1561			1493	4563	531	2776	4477	0
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			95			57	100	95	100	100	75
cM capacity (veh/h)	175			420			98	39	493	35	42	660
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	598	598	365	21	1120	1120	730	69	167			
Volume Left	0	0	0	21	0	0	0	42	0			
Volume Right	0	0	66	0	0	0	170	27	167			
cSH	1700	1700	1700	420	1700	1700	1700	143	660			
Volume to Capacity	0.35	0.35	0.21	0.05	0.66	0.66	0.43	0.48	0.25			
Queue Length 95th (ft)	0	0	0	4	0	0	0	56	25			
Control Delay (s)	0.0	0.0	0.0	14.0	0.0	0.0	0.0	51.8	12.3			
Lane LOS				B				F	B			
Approach Delay (s)	0.0			0.1				51.8	12.3			
Approach LOS								F	B			
Intersection Summary												
Average Delay				1.2								
Intersection Capacity Utilization				80.0%	ICU Level of Service						D	
Analysis Period (min)				15								

HCM Signalized Intersection Capacity Analysis

2: Gibson & Entrance

UNM Gibson Commercial District
2015 PM Peak Hour - Build - No Left Out at Gibson - Improved



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	245	1231	2577	159	0	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0		4.0
Lane Util. Factor	1.00	0.91	0.91	1.00		1.00
Frt	1.00	1.00	1.00	0.85		0.86
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1770	5085	5085	1583		1611
Flt Permitted	0.06	1.00	1.00	1.00		1.00
Satd. Flow (perm)	104	5085	5085	1583		1611
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	253	1269	2657	164	0	330
RTOR Reduction (vph)	0	0	0	53	0	2
Lane Group Flow (vph)	253	1269	2657	111	0	328
Turn Type	pm+pt			Perm		Over
Protected Phases	7	4	8			7
Permitted Phases	4			8		
Actuated Green, G (s)	96.0	100.0	67.5	67.5		24.5
Effective Green, g (s)	96.0	100.0	67.5	67.5		24.5
Actuated g/C Ratio	0.96	1.00	0.68	0.68		0.24
Clearance Time (s)	4.0	4.0	4.0	4.0		4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	508	5085	3432	1069		395
v/s Ratio Prot	0.12	0.25	c0.52			c0.20
v/s Ratio Perm	0.36			0.07		
v/c Ratio	0.50	0.25	0.77	0.10		0.83
Uniform Delay, d1	24.2	0.0	11.1	5.7		35.8
Progression Factor	1.00	1.00	0.17	0.00		1.00
Incremental Delay, d2	0.8	0.0	1.2	0.1		13.4
Delay (s)	25.0	0.0	3.1	0.1		49.2
Level of Service	C	A	A	A		D
Approach Delay (s)		4.2	2.9		49.2	
Approach LOS		A	A		D	

Intersection Summary

HCM Average Control Delay	6.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

3: Gibson & University

UNM Gibson Commercial District
2015 PM Peak Hour - Build - No Left Out at Gibson - Improved

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	113	1055	59	55	2263	190	63	24	55	358	33	206
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		0.97	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		3367	1827	1553
Flt Permitted	0.08	1.00	1.00	0.19	1.00	1.00	0.73	1.00		0.95	1.00	1.00
Satd. Flow (perm)	145	5085	1583	352	5085	1583	1369	1669		3367	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	2357	198	66	25	57	373	34	215
RTOR Reduction (vph)	0	0	21	0	0	59	0	53	0	0	0	55
Lane Group Flow (vph)	118	1099	40	57	2357	139	66	29	0	373	34	160
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			Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2		1	6	7
Permitted Phases	4		4	8		8	2					6
Actuated Green, G (s)	58.0	58.0	65.5	57.1	57.1	70.0	14.8	7.3		12.9	12.7	19.4
Effective Green, g (s)	58.0	58.0	65.5	57.1	57.1	70.0	14.8	7.3		12.9	12.7	19.4
Actuated g/C Ratio	0.58	0.58	0.66	0.57	0.57	0.70	0.15	0.07		0.13	0.13	0.19
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)	193	2949	1100	283	2904	1108	233	122		434	232	301
v/s Ratio Prot	c0.04	0.22	0.00	0.01	c0.46	0.02	0.02	0.02		c0.11	0.02	c0.04
v/s Ratio Perm	0.31		0.02	0.10		0.07	0.02					0.07
v/c Ratio	0.61	0.37	0.04	0.20	0.81	0.13	0.28	0.24		0.86	0.15	0.53
Uniform Delay, d1	32.1	11.3	6.1	10.3	17.2	4.9	37.7	43.7		42.7	38.8	36.2
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	5.5	0.1	0.0	0.4	2.6	0.1	0.7	1.0		15.5	0.3	1.8
Delay (s)	37.6	11.3	6.1	10.7	19.7	5.0	38.4	44.7		58.1	39.1	38.0
Level of Service	D	B	A	B	B	A	D	D		E	D	D
Approach Delay (s)		13.5			18.4			41.9			50.2	
Approach LOS		B			B			D			D	
Intersection Summary												
HCM Average Control Delay			22.1			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				8.0		
Intersection Capacity Utilization			76.9%			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 PM Peak Hour - Build - No Left Out at Gibson - Improved

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	142	0	150	4	0	19	14	313	3	12	472	136
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)	148	0	156	4	0	20	15	326	3	12	492	142
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	729	875	246	784	1015	165	633			329		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	729	875	246	784	1015	165	633			329		
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 %	50	100	79	98	100	98	98			99		
cM capacity (veh/h)	298	279	754	220	231	851	932			1227		
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	SB 4		
Volume Total	148	156	24	15	217	112	12	246	246	142		
Volume Left	148	0	4	15	0	0	12	0	0	0		
Volume Right	0	156	20	0	0	3	0	0	0	142		
cSH	298	754	568	932	1700	1700	1227	1700	1700	1700		
Volume to Capacity	0.50	0.21	0.04	0.02	0.13	0.07	0.01	0.14	0.14	0.08		
Queue Length 95th (ft)	65	19	3	1	0	0	1	0	0	0		
Control Delay (s)	28.5	11.0	11.6	8.9	0.0	0.0	8.0	0.0	0.0	0.0		
Lane LOS	D	B	B	A			A					
Approach Delay (s)	19.5		11.6	0.4			0.2					
Approach LOS	C		B									
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			34.2%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

5: Cesar Chavez & University

UNM Gibson Commercial District
2015 PM Peak Hour - Build - No Left Out at Gibson - Improved

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	387	476	143	95	506	122	159	325	74	138	370	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	4909		1770	3436		1770	3539	1583	1770	3539	1583
Flt Permitted	0.25	1.00		0.33	1.00		0.36	1.00	1.00	0.52	1.00	1.00
Satd. Flow (perm)	461	4909		623	3436		678	3539	1583	961	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)	425	523	157	104	556	134	175	357	81	152	407	376
RTOR Reduction (vph)	0	77	0	0	31	0	0	0	57	0	0	55
Lane Group Flow (vph)	425	603	0	104	659	0	175	357	24	152	407	321
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)	35.1	26.3		22.6	17.8		19.2	14.7	19.5	16.6	13.4	26.7
Effective Green, g (s)	35.1	26.3		22.6	17.8		19.2	14.7	19.5	16.6	13.4	26.7
Actuated g/C Ratio	0.54	0.40		0.35	0.27		0.30	0.23	0.30	0.26	0.21	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)	517	1986		301	941		276	800	475	285	730	650
v/s Ratio Prot	c0.17	0.12		0.03	0.19		c0.04	0.10	0.00	0.03	0.11	0.10
v/s Ratio Perm	c0.28			0.09			c0.14		0.01	0.11		0.10
v/c Ratio	0.82	0.30		0.35	0.70		0.63	0.45	0.05	0.53	0.56	0.49
Uniform Delay, d1	17.1	13.1		17.9	21.2		18.5	21.6	16.2	20.0	23.1	14.2
Progression Factor	0.61	0.13		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.7	0.3		0.7	4.3		4.7	0.4	0.0	1.9	0.9	0.6
Delay (s)	19.1	2.0		18.6	25.5		23.2	22.0	16.2	21.9	24.1	14.8
Level of Service	B	A		B	C		C	C	B	C	C	B
Approach Delay (s)		8.6			24.6			21.6			20.0	
Approach LOS		A			C			C			B	
Intersection Summary												
HCM Average Control Delay			17.7			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			71.7%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

6: Cesar Chavez & Langham

UNM Gibson Commercial District
2015 PM Peak Hour - Build - No Left Out at Gibson - Improved

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	128	1039	134	4	1256	1	136	1	33	6	0	205
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	
Lane Util. Factor	1.00	0.91		1.00	0.91		1.00	1.00		1.00	1.00	
Flt	1.00	0.98		1.00	1.00		1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	4998		1770	5085		1770	1590		1770	1583	
Flt Permitted	0.22	1.00		0.22	1.00		0.46	1.00		0.73	1.00	
Satd. Flow (perm)	401	4998		401	5085		863	1590		1362	1583	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	151	1222	158	5	1478	1	160	1	39	7	0	241
RTOR Reduction (vph)	0	25	0	0	0	0	0	26	0	0	165	0
Lane Group Flow (vph)	151	1355	0	5	1479	0	160	14	0	7	76	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.0	25.0		19.4	19.4		25.6	22.4		20.8	20.0	
Effective Green, g (s)	25.0	25.0		19.4	19.4		25.6	22.4		20.8	20.0	
Actuated g/C Ratio	0.38	0.38		0.30	0.30		0.39	0.34		0.32	0.31	
Clearance Time (s)	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	
Lane Grp Cap (vph)	289	1922		137	1518		385	548		441	487	
v/s Ratio Prot	0.05	c0.27		0.00	c0.29		c0.02	0.01		0.00	0.05	
v/s Ratio Perm	0.15			0.01			c0.14			0.00		
v/c Ratio	0.52	0.70		0.04	0.97		0.42	0.03		0.02	0.16	
Uniform Delay, d1	23.0	16.9		17.7	22.6		14.1	14.1		15.1	16.4	
Progression Factor	1.00	1.00		0.85	0.77		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	2.2		0.1	16.1		0.7	0.1		0.0	0.7	
Delay (s)	24.7	19.1		15.2	33.5		14.8	14.2		15.1	17.0	
Level of Service	C	B		B	C		B	B		B	B	
Approach Delay (s)		19.6			33.5			14.7			17.0	
Approach LOS		B			C			B			B	
Intersection Summary												
HCM Average Control Delay			25.1			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			64.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												