

HCM Unsignalized Intersection Capacity Analysis

1: Gibson & West Road

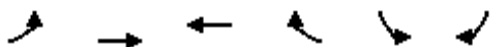
UNM Gibson Commercial District
2015 AM Peak Hour - Build - With Left Out at Gibson

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	2523	32	15	1058	171	16	0	22	0	0	157
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	2656	34	16	1114	180	17	0	23	0	0	165
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	1294			2689			3241	3998	902	2144	3925	461
vC1, stage 1 conf vol							2673	2673		1235	1235	
vC2, stage 2 conf vol							568	1325		908	2689	
vCu, unblocked vol	1294			2689			3241	3998	902	2144	3925	461
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			89			13	100	92	100	100	70
cM capacity (veh/h)	532			146			19	35	281	102	24	547
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1			
Volume Total	1062	1062	565	16	445	445	403	40	165			
Volume Left	0	0	0	16	0	0	0	17	0			
Volume Right	0	0	34	0	0	0	180	23	165			
cSH	1700	1700	1700	146	1700	1700	1700	42	547			
Volume to Capacity	0.62	0.62	0.33	0.11	0.26	0.26	0.24	0.95	0.30			
Queue Length 95th (ft)	0	0	0	9	0	0	0	94	32			
Control Delay (s)	0.0	0.0	0.0	32.7	0.0	0.0	0.0	272.6	14.4			
Lane LOS				D				F	B			
Approach Delay (s)	0.0			0.4				272.6	14.4			
Approach LOS								F	B			
Intersection Summary												
Average Delay			3.3									
Intersection Capacity Utilization			59.5%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Gibson & Entrance

UNM Gibson Commercial District
2015 AM Peak Hour - Build - With Left Out at Gibson



Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations										
Volume (veh/h)	54	2491	1174	46	33	71				
Sign Control		Free	Free		Stop					
Grade		0%	0%		0%					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				
Hourly flow rate (vph)	57	2622	1236	48	35	75				
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)			718							
pX, platoon unblocked	0.87				0.87	0.87				
vC, conflicting volume	1284				2224	412				
vC1, stage 1 conf vol					1236					
vC2, stage 2 conf vol					988					
vCu, unblocked vol	806				1885	0				
tC, single (s)	4.1				6.8	6.9				
tC, 2 stage (s)					5.8					
tF (s)	2.2				3.5	3.3				
p0 queue free %	92				80	92				
cM capacity (veh/h)	709				173	944				
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1	SB 2
Volume Total	57	874	874	874	412	412	412	48	35	75
Volume Left	57	0	0	0	0	0	0	0	35	0
Volume Right	0	0	0	0	0	0	0	48	0	75
cSH	709	1700	1700	1700	1700	1700	1700	1700	173	944
Volume to Capacity	0.08	0.51	0.51	0.51	0.24	0.24	0.24	0.03	0.20	0.08
Queue Length 95th (ft)	7	0	0	0	0	0	0	0	18	6
Control Delay (s)	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.0	9.1
Lane LOS	B								D	A
Approach Delay (s)	0.2				0.0				16.1	
Approach LOS									C	
Intersection Summary										
Average Delay			0.6							
Intersection Capacity Utilization			58.1%		ICU Level of Service				B	
Analysis Period (min)			15							

HCM Signalized Intersection Capacity Analysis

3: Gibson & University

UNM Gibson Commercial District
2015 AM Peak Hour - Build - With Left Out at Gibson

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	180	2291	31	26	1098	130	62	30	54	200	20	127
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	0.16	1.00	1.00	0.12	1.00	1.00	0.74	1.00		0.70	1.00	1.00
Satd. Flow (perm)	290	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	2463	33	28	1181	140	67	32	58	215	22	137
RTOR Reduction (vph)	0	0	12	0	0	64	0	52	0	0	0	76
Lane Group Flow (vph)	194	2463	21	28	1181	76	67	38	0	215	22	61
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)	367	2919	1098	140	2390	931	258	179		240	191	431
v/s Ratio Prot	c0.06	c0.49	0.00	0.00	0.24	0.01	0.02	0.02		c0.06	0.01	0.02
v/s Ratio Perm	0.28		0.01	0.10		0.04	0.03			c0.10		0.02
v/c Ratio	0.53	0.84	0.02	0.20	0.49	0.08	0.26	0.21		0.90	0.12	0.14
Uniform Delay, d1	6.4	12.1	4.5	11.5	12.4	7.6	24.9	28.4		27.8	28.1	21.5
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	1.4	2.4	0.0	0.7	0.2	0.0	0.5	0.6		31.7	0.3	0.2
Delay (s)	7.7	14.5	4.5	12.2	12.5	7.7	25.5	29.0		59.5	28.4	21.6
Level of Service	A	B	A	B	B	A	C	C		E	C	C
Approach Delay (s)		13.8			12.0			27.5			43.8	
Approach LOS		B			B			C			D	
Intersection Summary												
HCM Average Control Delay			16.2			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			69.7			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			75.3%			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 AM Peak Hour - Build - With Left Out at Gibson

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	41	0	4	1	0	2	5	334	6	17	343	58
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)	44	0	4	1	0	2	5	359	6	18	369	62
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	598	782	184	598	841	183	431			366		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	598	782	184	598	841	183	431			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 %	88	100	99	100	100	100	100			98		
cM capacity (veh/h)	379	318	826	378	294	828	1090			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	44	4	3	5	239	126	18	184	184	62		
Volume Left	44	0	1	5	0	0	18	0	0	0		
Volume Right	0	4	2	0	0	6	0	0	0	62		
cSH	379	826	593	1090	1700	1700	1182	1700	1700	1700		
Volume to Capacity	0.12	0.01	0.01	0.00	0.14	0.07	0.02	0.11	0.11	0.04		
Queue Length 95th (ft)	10	0	0	0	0	0	1	0	0	0		
Control Delay (s)	15.7	9.4	11.1	8.3	0.0	0.0	8.1	0.0	0.0	0.0		
Lane LOS	C	A	B	A			A					
Approach Delay (s)	15.2		11.1	0.1			0.3					
Approach LOS	C		B									
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			26.5%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

5: Cesar Chavez & University

UNM Gibson Commercial District
2015 AM Peak Hour - Build - With Left Out at Gibson

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	437	399	195	62	314	91	59	235	50	67	238	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
Flt Protected	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	4835		1770	3420		1770	3539	1583	1770	3539	1583
Satd. Flow (perm)	588	4835		721	3420		1102	3539	1583	1112	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)	491	448	219	70	353	102	63	250	53	73	259	83
RTOR Reduction (vph)	0	119	0	0	41	0	0	0	41	0	0	48
Lane Group Flow (vph)	491	548	0	70	414	0	63	250	12	73	259	35
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)	31.0	24.3		16.3	13.6		11.3	9.2	11.9	11.3	9.2	22.6
Effective Green, g (s)	31.0	24.3		16.3	13.6		11.3	9.2	11.9	11.3	9.2	22.6
Actuated g/C Ratio	0.57	0.45		0.30	0.25		0.21	0.17	0.22	0.21	0.17	0.42
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)	627	2164		269	857		255	600	464	257	600	775
v/s Ratio Prot	c0.19	0.11		0.01	0.12		0.01	0.07	0.00	c0.01	c0.07	0.01
v/s Ratio Perm	c0.25			0.07			0.04		0.01	0.05		0.01
v/c Ratio	0.78	0.25		0.26	0.48		0.25	0.42	0.03	0.28	0.43	0.04
Uniform Delay, d1	7.7	9.3		13.8	17.4		17.7	20.2	16.6	17.8	20.2	9.4
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	6.3	0.1		0.5	0.4		0.5	0.5	0.0	0.6	0.5	0.0
Delay (s)	14.0	9.4		14.4	17.8		18.2	20.6	16.7	18.4	20.7	9.5
Level of Service	B	A		B	B		B	C	B	B	C	A
Approach Delay (s)		11.4			17.3			19.6			18.0	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM Average Control Delay			15.0			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			54.3			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			59.3%			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 AM Peak Hour - Build - With Left Out at Gibson

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (veh/h)	408	1166	97	4	465	2	41	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	1356	113	5	541	2	48	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			1469			2640	2913	508	1969	2969	181
vC1, stage 1 conf vol							2361	2361		551	551	
vC2, stage 2 conf vol							279	552		1418	2417	
vCu, unblocked vol	543			1469			2640	2913	508	1969	2969	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	94	97	98	100	89
cM capacity (veh/h)	1022			455			17	19	510	58	26	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	542	542	384	5	216	216	110	48	17	1	90
Volume Left	474	0	0	0	5	0	0	0	48	0	1	0
Volume Right	0	0	0	113	0	0	0	2	0	16	0	90
cSH	1022	1700	1700	1700	455	1700	1700	1700	17	190	58	830
Volume to Capacity	0.46	0.32	0.32	0.23	0.01	0.13	0.13	0.06	2.87	0.09	0.02	0.11
Queue Length 95th (ft)	63	0	0	0	1	0	0	0	165	7	2	9
Control Delay (s)	11.5	0.0	0.0	0.0	13.0	0.0	0.0	0.0	1319.7	25.8	68.4	9.9
Lane LOS	B				B				F	D	F	A
Approach Delay (s)	2.8				0.1				973.1		10.6	
Approach LOS									F		B	
Intersection Summary												
Average Delay				26.4								
Intersection Capacity Utilization			50.6%		ICU Level of Service				A			
Analysis Period (min)			15									