

HCM Unsignalized Intersection Capacity Analysis

1: Gibson & West Road

UNM Gibson Commercial District

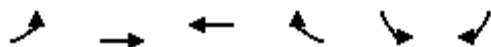
2015 PM Peak Hour - Build - With Left Out at Gibson

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	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)												
pX, platoon unblocked												
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	2969			1561			2669	4538	531	3450	4486	1018
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			0	100	95	100	100	29
cM capacity (veh/h)	116			420			37	23	493	13	24	235
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	58	235			
Volume to Capacity	0.35	0.35	0.21	0.05	0.66	0.66	0.43	1.18	0.71			
Queue Length 95th (ft)	0	0	0	4	0	0	0	145	118			
Control Delay (s)	0.0	0.0	0.0	14.0	0.0	0.0	0.0	294.0	50.9			
Lane LOS				B				F	F			
Approach Delay (s)	0.0			0.1				294.0	50.9			
Approach LOS								F	F			
Intersection Summary												
Average Delay			6.1									
Intersection Capacity Utilization			80.0%			ICU Level of Service			D			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Gibson & Entrance

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



Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations										
Volume (veh/h)	245	1231	2577	159	135	320				
Sign Control		Free	Free		Stop					
Grade		0%	0%		0%					
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				
Hourly flow rate (vph)	253	1269	2657	164	139	330				
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	0.57				0.57	0.57				
vC, conflicting volume	2821				3585	886				
vC1, stage 1 conf vol					2657					
vC2, stage 2 conf vol					928					
vCu, unblocked vol	1549				2892	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 %	0				0	47				
cM capacity (veh/h)	241				0	617				
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1	SB 2
Volume Total	253	423	423	423	886	886	886	164	139	330
Volume Left	253	0	0	0	0	0	0	0	139	0
Volume Right	0	0	0	0	0	0	0	164	0	330
cSH	241	1700	1700	1700	1700	1700	1700	1700	0	617
Volume to Capacity	1.05	0.25	0.25	0.25	0.52	0.52	0.52	0.10	Err	0.53
Queue Length 95th (ft)	262	0	0	0	0	0	0	0	Err	79
Control Delay (s)	115.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Err	17.3
Lane LOS	F								F	C
Approach Delay (s)	19.1				0.0				Err	
Approach LOS									F	
Intersection Summary										
Average Delay			Err							
Intersection Capacity Utilization			80.8%		ICU Level of Service				D	
Analysis Period (min)			15							

HCM Signalized Intersection Capacity Analysis

3: Gibson & University

UNM Gibson Commercial District
2015 PM 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)	113	1165	59	55	2263	190	63	24	55	248	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		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)	231	5085	1583	282	5085	1583	1035	1669		1589	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	1214	61	57	2357	198	66	25	57	258	34	215
RTOR Reduction (vph)	0	0	21	0	0	84	0	51	0	0	0	66
Lane Group Flow (vph)	118	1214	40	57	2357	114	66	31	0	258	34	149
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)	38.0	38.0	45.0	35.2	35.2	39.6	14.2	7.2		9.0	4.6	10.3
Effective Green, g (s)	38.0	38.0	45.0	35.2	35.2	39.6	14.2	7.2		9.0	4.6	10.3
Actuated g/C Ratio	0.55	0.55	0.66	0.51	0.51	0.58	0.21	0.11		0.13	0.07	0.15
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)	256	2821	1132	208	2613	915	290	175		218	123	234
v/s Ratio Prot	0.04	0.24	0.00	0.01	c0.46	0.01	c0.02	0.02		c0.08	0.02	c0.05
v/s Ratio Perm	0.22		0.02	0.13		0.06	0.02			c0.08		0.04
v/c Ratio	0.46	0.43	0.04	0.27	0.90	0.13	0.23	0.18		1.18	0.28	0.64
Uniform Delay, d1	23.0	8.9	4.1	9.2	15.1	6.6	22.4	27.9		29.6	30.4	27.3
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	1.3	0.1	0.0	0.7	4.8	0.1	0.4	0.5		119.4	1.2	5.6
Delay (s)	24.3	9.0	4.1	9.9	19.9	6.6	22.8	28.4		149.0	31.6	32.9
Level of Service	C	A	A	A	B	A	C	C		F	C	C
Approach Delay (s)		10.1			18.7			25.9			91.9	
Approach LOS		B			B			C			F	
Intersection Summary												
HCM Average Control Delay			24.3			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			68.5			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			80.4%			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 - With Left Out at Gibson

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	142	0	40	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	42	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	669	1015	165	633				329	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	729	875	246	669	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	94	99	100	98	98				99	
cM capacity (veh/h)	298	279	754	318	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	42	24	15	217	112	12	246	246	142		
Volume Left	148	0	4	15	0	0	12	0	0	0		
Volume Right	0	42	20	0	0	3	0	0	0	142		
cSH	298	754	659	932	1700	1700	1227	1700	1700	1700		
Volume to Capacity	0.50	0.06	0.04	0.02	0.13	0.07	0.01	0.14	0.14	0.08		
Queue Length 95th (ft)	65	4	3	1	0	0	1	0	0	0		
Control Delay (s)	28.5	10.1	10.7	8.9	0.0	0.0	8.0	0.0	0.0	0.0		
Lane LOS	D	B	B	A				A				
Approach Delay (s)	24.4	10.7		0.4	0.2							
Approach LOS	C	B										
Intersection Summary												
Average Delay	4.3											
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 - With Left Out at Gibson

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	387	476	143	104	506	122	159	325	74	138	386	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	0.22	1.00		0.30	1.00		0.37	1.00	1.00	0.51	1.00	1.00
Satd. Flow (perm)	419	4909		563	3436		687	3539	1583	950	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	114	556	134	175	357	81	152	424	376
RTOR Reduction (vph)	0	92	0	0	33	0	0	0	48	0	0	52
Lane Group Flow (vph)	425	588	0	114	657	0	175	357	33	152	424	324
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)	31.7	17.8		26.1	15.0		18.2	14.2	25.3	16.4	13.3	27.2
Effective Green, g (s)	31.7	17.8		26.1	15.0		18.2	14.2	25.3	16.4	13.3	27.2
Actuated g/C Ratio	0.51	0.29		0.42	0.24		0.29	0.23	0.41	0.26	0.21	0.44
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)	515	1405		452	829		271	808	644	291	757	692
v/s Ratio Prot	c0.18	0.12		0.05	0.19		c0.04	0.10	0.01	0.03	0.12	0.10
v/s Ratio Perm	c0.24			0.06			c0.15		0.01	0.11		0.10
v/c Ratio	0.83	0.42		0.25	0.79		0.65	0.44	0.05	0.52	0.56	0.47
Uniform Delay, d1	17.4	18.0		14.7	22.1		18.0	20.6	11.2	18.7	21.8	12.4
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	10.4	0.2		0.3	5.2		5.2	0.4	0.0	1.7	1.0	0.5
Delay (s)	27.8	18.2		15.0	27.4		23.2	21.0	11.2	20.4	22.8	12.9
Level of Service	C	B		B	C		C	C	B	C	C	B
Approach Delay (s)		21.9			25.6			20.3			18.5	
Approach LOS		C			C			C			B	
Intersection Summary												
HCM Average Control Delay			21.6			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			62.2			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			72.1%			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 PM 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)	128	1039	134	4	1256	1	136	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	1222	158	5	1478	1	160	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			1380			2345	3091	486	2236	3169	493
vC1, stage 1 conf vol							1602	1602		1488	1488	
vC2, stage 2 conf vol							743	1488		748	1681	
vCu, unblocked vol	1479			1380			2345	3091	486	2236	3169	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	95	93	91	100	54
cM capacity (veh/h)	451			493			30	26	527	81	60	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	489	489	402	5	591	591	297	160	40	7	241
Volume Left	151	0	0	0	5	0	0	0	160	0	7	0
Volume Right	0	0	0	158	0	0	0	1	0	39	0	241
cSH	451	1700	1700	1700	493	1700	1700	1700	30	336	81	522
Volume to Capacity	0.33	0.29	0.29	0.24	0.01	0.35	0.35	0.17	5.37	0.12	0.09	0.46
Queue Length 95th (ft)	36	0	0	0	1	0	0	0	Err	10	7	60
Control Delay (s)	16.9	0.0	0.0	0.0	12.4	0.0	0.0	0.0	Err	17.2	53.7	17.7
Lane LOS	C				B				F	C	F	C
Approach Delay (s)	1.7				0.0				8002.6		18.7	
Approach LOS									F		C	
Intersection Summary												
Average Delay			464.4									
Intersection Capacity Utilization			64.9%		ICU Level of Service					C		
Analysis Period (min)			15									