

APPENDIX I
YEAR 2015 AND 2035 ALLEY
INTERSECTION LEVEL OF SERVICE CALCULATION
WORKSHEETS (HCM) – ALTERNATIVE NO. 1

YEAR 2015

TWO-WAY OPERATIONS

HCM Unsignalized Intersection Capacity Analysis
 14 Alley & Blue Lantern

Year 2015 · With Project
 AM Peak Hour Alternative 1



















Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	10	30	54	12	24	41
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	30	54	12	24	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						195
pX, platoon unblocked						
vC, conflicting volume	149	60			66	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	149	60			66	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	97			98	
cM capacity (veh/h)	830	1005			1536	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	40	66	65
Volume Left	10	0	24
Volume Right	30	12	0
cSH	955	1700	1536
Volume to Capacity	0.04	0.04	0.02
Queue Length 95th (ft)	3	0	1
Control Delay (s)	8.9	0.0	2.8
Lane LOS	A		A
Approach Delay (s)	8.9	0.0	2.8
Approach LOS	A		

Intersection Summary			
Average Delay		3.2	
Intersection Capacity Utilization		20.2%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 15 Alley & Ruby Lantern

Year 2015 - With Project
 AM Peak Hour Alternative 1

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	2	3	0	2	4	3	21	2	5	16	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	2	3	0	2	4	3	21	2	5	16	21
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	70	66	26	68	75	22	37			23		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	70	66	26	68	75	22	37			23		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	99	100	100	100	100	100	100			100		
cM capacity (veh/h)	914	821	1049	916	811	1055	1574			1592		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	16	6	26	42								
Volume Left	11	0	3	5								
Volume Right	3	4	2	21								
cSH	923	959	1574	1592								
Volume to Capacity	0.02	0.01	0.00	0.00								
Queue Length 95th (ft)	1	0	0	0								
Control Delay (s)	9.0	8.8	0.9	0.9								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.0	8.8	0.9	0.9								
Approach LOS	A	A										

Intersection Summary

Average Delay	2.8			
Intersection Capacity Utilization	17.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
 16 Alley & Amber Lantern

Year 2015 - With Project
 AM Peak Hour Alternative 1

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	2	5	0	0	6	2	15	2	6	25	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	2	5	0	0	6	2	15	2	6	25	11
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	68	64	30	68	68	16	36			17		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	68	64	30	68	68	16	36			17		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	99	100	100	100	100	99	100			100		
cM capacity (veh/h)	915	823	1044	914	818	1063	1575			1600		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	18	6	19	42
Volume Left	11	0	2	6
Volume Right	5	6	2	11
cSH	936	1063	1575	1600
Volume to Capacity	0.02	0.01	0.00	0.00
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	8.9	8.4	0.8	1.1
Lane LOS	A	A	A	A
Approach Delay (s)	8.9	8.4	0.8	1.1
Approach LOS	A	A		

Intersection Summary			
Average Delay		3.2	
Intersection Capacity Utilization		17.7%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
17 Alley & Violet Lantern

Year 2015 · With Project
AM Peak Hour Alternative 1

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	1	0	2	0	7	1	15	0	7	11	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	1	0	2	0	7	1	15	0	7	11	17
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	58	50	20	51	59	15	28			15		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	58	50	20	51	59	15	28			15		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	99	100	100	100	100	99	100			100		
cM capacity (veh/h)	929	837	1058	944	828	1065	1585			1603		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	8	9	16	35								
Volume Left	7	2	1	7								
Volume Right	0	7	0	17								
cSH	917	1035	1585	1603								
Volume to Capacity	0.01	0.01	0.00	0.00								
Queue Length 95th (ft)	1	1	0	0								
Control Delay (s)	9.0	8.5	0.5	1.5								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.0	8.5	0.5	1.5								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.0									
Intersection Capacity Utilization			14.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 18 Alley & Old Golden Lantern










Year 2015 · With Project
 AM Peak Hour Alternative 1



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	8	1	2	28	5	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	1	2	28	5	6
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	40	8	11			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	40	8	11			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	970	1074	1608			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	9	30	11			
Volume Left	8	2	0			
Volume Right	1	0	6			
cSH	981	1608	1700			
Volume to Capacity	0.01	0.00	0.01			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	8.7	0.5	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.7	0.5	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			13.3%	ICU Level of Service		A
Analysis Period (min)			15			

















HCM Unsignalized Intersection Capacity Analysis
 14 Alley & Blue Lantern

Year 2015 · With Project
 PM Peak Hour Alternative 1

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	3	22	112	5	15	46
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	22	112	5	15	46
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						195
pX, platoon unblocked						
vC, conflicting volume	190	114			117	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	190	114			117	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			99	
cM capacity (veh/h)	790	938			1471	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	25	117	61			
Volume Left	3	0	15			
Volume Right	22	5	0			
cSH	917	1700	1471			
Volume to Capacity	0.03	0.07	0.01			
Queue Length 95th (ft)	2	0	1			
Control Delay (s)	9.0	0.0	1.9			
Lane LOS	A		A			
Approach Delay (s)	9.0	0.0	1.9			
Approach LOS	A					
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			19.9%	ICU Level of Service		A
Analysis Period (min)			15			













HCM Unsignalized Intersection Capacity Analysis
15 Alley & Ruby Lantern

Year 2015 - With Project
PM Peak Hour Alternative 1

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	2	4	1	4	16	3	19	2	16	30	27
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	15	2	4	1	4	16	3	19	2	16	30	27
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	120	102	44	106	115	20	57			21		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	120	102	44	106	115	20	57			21		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	98	100	100	100	99	98	100			99		
cM capacity (veh/h)	832	778	1027	860	766	1058	1547			1595		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	21	21	24	73								
Volume Left	15	1	3	16								
Volume Right	4	16	2	27								
cSH	857	976	1547	1595								
Volume to Capacity	0.02	0.02	0.00	0.01								
Queue Length 95th (ft)	2	2	0	1								
Control Delay (s)	9.3	8.8	0.9	1.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.3	8.8	0.9	1.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			21.2%	ICU Level of Service	A							
Analysis Period (min)			15									

















HCM Unsignalized Intersection Capacity Analysis
 16 Alley & Amber Lantern

Year 2015 - With Project
 PM Peak Hour Alternative 1

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	30	0	4	1	0	13	5	25	3	11	15	36
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	30	0	4	1	0	13	5	25	3	11	15	36
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	104	93	33	96	110	26	51			28		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	104	93	33	96	110	26	51			28		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	97	100	100	100	100	99	100			99		
cM capacity (veh/h)	858	789	1041	877	773	1049	1555			1585		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	34	14	33	62								
Volume Left	30	1	5	11								
Volume Right	4	13	3	36								
cSH	876	1035	1555	1585								
Volume to Capacity	0.04	0.01	0.00	0.01								
Queue Length 95th (ft)	3	1	0	1								
Control Delay (s)	9.3	8.5	1.1	1.3								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.3	8.5	1.1	1.3								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.9									
Intersection Capacity Utilization			20.3%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
17 Alley & Violet Lantern

Year 2015 · With Project
PM Peak Hour Alternative 1

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	0	1	2	1	26	1	24	0	22	53	22
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	25	0	1	2	1	26	1	24	0	22	53	22
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	160	134	64	135	145	24	75			24		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	160	134	64	135	145	24	75			24		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	97	100	100	100	100	98	100			99		
cM capacity (veh/h)	776	746	1000	826	735	1052	1524			1591		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	26	29	25	97								
Volume Left	25	2	1	22								
Volume Right	1	26	0	22								
cSH	782	1018	1524	1591								
Volume to Capacity	0.03	0.03	0.00	0.01								
Queue Length 95th (ft)	3	2	0	1								
Control Delay (s)	9.8	8.6	0.3	1.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.8	8.6	0.3	1.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			26.8%	ICU Level of Service						A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 18 Alley & Old Golden Lantern

Year 2015 - With Project
 PM Peak Hour Alternative 1



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↓	
Volume (veh/h)	30	1	0	20	13	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	30	1	0	20	13	20
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	43	23	33			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43	23	33			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	968	1054	1579			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	31	20	33
Volume Left	30	0	0
Volume Right	1	0	20
cSH	970	1579	1700
Volume to Capacity	0.03	0.00	0.02
Queue Length 95th (ft)	2	0	0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		










Intersection Summary			
Average Delay		3.3	
Intersection Capacity Utilization		13.3%	ICU Level of Service
Analysis Period (min)		15	A

YEAR 2035

TWO-WAY OPERATIONS

HCM Unsignalized Intersection Capacity Analysis
 14 Alley & Blue Lantern

Year 2035 - With Project
 AM Peak Hour Alternative 1

















						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	11	31	60	13	24	45
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	31	60	13	24	45
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						195
pX, platoon unblocked						
vC, conflicting volume	160	66			73	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	160	66			73	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	97			98	
cM capacity (veh/h)	818	997			1527	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	42	73	69
Volume Left	11	0	24
Volume Right	31	13	0
cSH	943	1700	1527
Volume to Capacity	0.04	0.04	0.02
Queue Length 95th (ft)	3	0	1
Control Delay (s)	9.0	0.0	2.7
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	2.7
Approach LOS	A		

Intersection Summary			
Average Delay		3.0	
Intersection Capacity Utilization		20.4%	ICU Level of Service A
Analysis Period (min)		15	













HCM Unsignalized Intersection Capacity Analysis
 15 Alley & Ruby Lantern

Year 2035 - With Project
 AM Peak Hour Alternative 1

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	2	3	0	2	4	3	23	2	6	18	23
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	11	2	3	0	2	4	3	23	2	6	18	23
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	76	72	30	76	83	24	41			25		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	76	72	30	76	83	24	41			25		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	99	100	100	100	100	100	100			100		
cM capacity (veh/h)	904	813	1045	906	803	1052	1568			1589		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	16	6	28	47								
Volume Left	11	0	3	6								
Volume Right	3	4	2	23								
cSH	914	954	1568	1589								
Volume to Capacity	0.02	0.01	0.00	0.00								
Queue Length 95th (ft)	1	0	0	0								
Control Delay (s)	9.0	8.8	0.8	1.0								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.0	8.8	0.8	1.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			18.0%		ICU Level of Service					A		
Analysis Period (min)			15									













HCM Unsignalized Intersection Capacity Analysis
 16 Alley & Amber Lantern

Year 2035 · With Project
 AM Peak Hour Alternative 1

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	12	2	6	0	0	7	2	17	2	7	27	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	12	2	6	0	0	7	2	17	2	7	27	12
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	76	70	33	76	75	18	39			19		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	76	70	33	76	75	18	39			19		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	99	100	99	100	100	99	100			100		
cM capacity (veh/h)	904	816	1041	903	811	1061	1571			1597		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	20	7	21	46								
Volume Left	12	0	2	7								
Volume Right	6	7	2	12								
cSH	930	1061	1571	1597								
Volume to Capacity	0.02	0.01	0.00	0.00								
Queue Length 95th (ft)	2	0	0	0								
Control Delay (s)	9.0	8.4	0.7	1.1								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.0	8.4	0.7	1.1								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			18.4%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 17 Alley & Violet Lantern

Year 2035 - With Project
 AM Peak Hour Alternative 1

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (veh/h)	8	1	0	2	0	7	1	16	0	7	12	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	1	0	2	0	7	1	16	0	7	12	19
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	60	54	22	54	63	16	31			16		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	60	54	22	54	63	16	31			16		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	99	100	100	100	100	99	100			100		
cM capacity (veh/h)	925	834	1056	940	824	1063	1582			1602		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	9	9	17	38								
Volume Left	8	2	1	7								
Volume Right	0	7	0	19								
cSH	914	1033	1582	1602								
Volume to Capacity	0.01	0.01	0.00	0.00								
Queue Length 95th (ft)	1	1	0	0								
Control Delay (s)	9.0	8.5	0.4	1.4								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.0	8.5	0.4	1.4								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.0									
Intersection Capacity Utilization			14.4%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 18 Alley & Old Golden Lantern

Year 2035 - With Project
 AM Peak Hour Alternative 1



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↓	
Volume (veh/h)	9	1	2	30	5	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	9	1	2	30	5	6
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	42	8	11			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	42	8	11			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	968	1074	1608			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	32	11
Volume Left	9	2	0
Volume Right	1	0	6
cSH	978	1608	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.7	0.5	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	0.5	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		1.9	
Intersection Capacity Utilization		13.3%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 14 Alley & Blue Lantern

Year 2035 · With Project
 PM Peak Hour Alternative 1

















	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↖		↑			↗↘
Volume (veh/h)	3	23	123	5	15	51
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	3	23	123	5	15	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						195
pX, platoon unblocked						
vC, conflicting volume	206	126			128	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	206	126			128	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			99	
cM capacity (veh/h)	774	925			1458	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	26	128	66			
Volume Left	3	0	15			
Volume Right	23	5	0			
cSH	905	1700	1458			
Volume to Capacity	0.03	0.08	0.01			
Queue Length 95th (ft)	2	0	1			
Control Delay (s)	9.1	0.0	1.8			
Lane LOS	A		A			
Approach Delay (s)	9.1	0.0	1.8			
Approach LOS	A					
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			23.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

Year 2035 · With Project

15 Alley & Ruby Lantern

PM Peak Hour Alternative 1

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	2	4	1	5	17	3	21	2	17	32	29
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	15	2	4	1	5	17	3	21	2	17	32	29
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	128	110	46	114	123	22	61			23		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	128	110	46	114	123	22	61			23		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	98	100	100	100	99	98	100			99		
cM capacity (veh/h)	819	771	1023	850	758	1055	1542			1592		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	21	23	26	78								
Volume Left	15	1	3	17								
Volume Right	4	17	2	29								
cSH	846	963	1542	1592								
Volume to Capacity	0.02	0.02	0.00	0.01								
Queue Length 95th (ft)	2	2	0	1								
Control Delay (s)	9.4	8.8	0.9	1.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.4	8.8	0.9	1.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			22.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 16 Alley & Amber Lantern

Year 2035 · With Project
 PM Peak Hour Alternative 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	32	0	4	1	0	14	5	27	3	12	17	38
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	32	0	4	1	0	14	5	27	3	12	17	38
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	112	100	36	102	118	28	55			30		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	112	100	36	102	118	28	55			30		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	96	100	100	100	100	99	100			99		
cM capacity (veh/h)	846	782	1037	867	764	1046	1550			1583		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	36	15	35	67								
Volume Left	32	1	5	12								
Volume Right	4	14	3	38								
cSH	864	1032	1550	1583								
Volume to Capacity	0.04	0.01	0.00	0.01								
Queue Length 95th (ft)	3	1	0	1								
Control Delay (s)	9.3	8.5	1.1	1.4								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.3	8.5	1.1	1.4								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.9									
Intersection Capacity Utilization			21.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 17 Alley & Violet Lantern

Year 2035 · With Project
 PM Peak Hour Alternative 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	27	0	1	2	1	27	1	26	0	23	57	24
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	27	0	1	2	1	27	1	26	0	23	57	24
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	170	143	69	144	155	26	81			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	170	143	69	144	155	26	81			26		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			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 %	96	100	100	100	100	97	100			99		
cM capacity (veh/h)	763	737	994	815	726	1050	1517			1588		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	28	30	27	104								
Volume Left	27	2	1	23								
Volume Right	1	27	0	24								
cSH	769	1015	1517	1588								
Volume to Capacity	0.04	0.03	0.00	0.01								
Queue Length 95th (ft)	3	2	0	1								
Control Delay (s)	9.9	8.7	0.3	1.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.9	8.7	0.3	1.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			27.3%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 18 Alley & Old Golden Lantern

Year 2035 - With Project
 PM Peak Hour Alternative 1



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↑	
Volume (veh/h)	31	1	0	22	14	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	31	1	0	22	14	20
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	46	24	34			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	46	24	34			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	964	1052	1578			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	32	22	34
Volume Left	31	0	0
Volume Right	1	0	20
cSH	967	1578	1700
Volume to Capacity	0.03	0.00	0.02
Queue Length 95th (ft)	3	0	0
Control Delay (s)	8.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.9	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		3.2	
Intersection Capacity Utilization		13.3%	ICU Level of Service
Analysis Period (min)		15	A