










# **TECHNICAL APPENDIX**

# FIGURES

**CAPACITY ANALYSIS RESULTS  
FUTURE CONDITIONS  
WITH ADJACENT DEVELOPMENT**

6: Lystra Road & Site Driveway #1  
Booth Mountain

Future (2011) AM Peak Hour  
With HS, Brier Chapel, Chatham Downs

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	277	7	9	205	22	28
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	308	8	10	228	24	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			316		559	312
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			316		559	312
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		95	96
cM capacity (veh/h)			1245		486	729
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	316	238	56			
Volume Left	0	10	24			
Volume Right	8	0	31			
cSH	1700	1245	597			
Volume to Capacity	0.19	0.01	0.09			
Queue Length (ft)	0	1	8			
Control Delay (s)	0.0	0.4	11.6			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.4	11.6			
Approach LOS			B			
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			26.7%	ICU Level of Service		A










6: Lystra Road & Site Driveway #1  
Booth Mountain

Future (2011) PM Peak Hour  
With HS, Brier Chapel, Chatham Downs

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↓	↘	↙
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	197	25	31	265	15	18
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	219	28	34	294	17	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			247		596	233
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			247		596	233
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		96	98
cM capacity (veh/h)			1319		454	806
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	247	329	37			
Volume Left	0	34	17			
Volume Right	28	0	20			
cSH	1700	1319	596			
Volume to Capacity	0.15	0.03	0.06			
Queue Length (ft)	0	2	5			
Control Delay (s)	0.0	1.0	11.4			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.0	11.4			
Approach LOS			B			
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			43.9%	ICU Level of Service		A










2: Jack Bennett Road & Site Driveway #2  
Booth Mountain

Future (2011) AM Peak Hour  
With HS, Brier Chapel, Chatham Downs

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	4	730	337	5	16	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	4	811	374	6	18	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	380				1197	377
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	380				1197	377
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				91	98
cM capacity (veh/h)	1178				204	669
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	816	380	32			
Volume Left	4	0	18			
Volume Right	0	6	14			
cSH	1178	1700	297			
Volume to Capacity	0.00	0.22	0.11			
Queue Length (ft)	0	0	9			
Control Delay (s)	0.1	0.0	18.6			
Lane LOS	A		C			
Approach Delay (s)	0.1	0.0	18.6			
Approach LOS			C			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization		56.1%		ICU Level of Service		A










2: Jack Bennett Road & Site Driveway #2  
Booth Mountain

Future (2011) PM Peak Hour  
With HS, Brier Chapel, Chatham Downs

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	15	205	358	18	11	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	17	228	398	20	12	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	418				669	408
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	418				669	408
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	98
cM capacity (veh/h)	1141				417	643
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	244	418	22			
Volume Left	17	0	12			
Volume Right	0	20	10			
cSH	1141	1700	495			
Volume to Capacity	0.01	0.25	0.04			
Queue Length (ft)	1	0	4			
Control Delay (s)	0.7	0.0	12.6			
Lane LOS	A		B			
Approach Delay (s)	0.7	0.0	12.6			
Approach LOS			B			
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			32.1%	ICU Level of Service		A

3: Jack Bennett Road & Site Driveway #3  
Booth Mountain







Future (2011) AM Peak Hour  
With HS, Brier Chapel, Chatham Downs

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	3	506	569	4	12	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	3	562	632	4	13	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	637				1203	634
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	637				1203	634
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	98
cM capacity (veh/h)	947				203	479
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	566	637	24			
Volume Left	3	0	13			
Volume Right	0	4	11			
cSH	947	1700	275			
Volume to Capacity	0.00	0.37	0.09			
Queue Length (ft)	0	0	7			
Control Delay (s)	0.1	0.0	19.4			
Lane LOS	A		C			
Approach Delay (s)	0.1	0.0	19.4			
Approach LOS			C			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization		43.5%		ICU Level of Service		A



3: Jack Bennett Road & Site Driveway #3  
Booth Mountain

Future (2011) PM Peak Hour  
With HS, Brier Chapel, Chatham Downs

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	12	204	369	14	8	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	13	227	410	16	9	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	426				671	418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	426				671	418
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	1134				417	635
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	240	426	17			
Volume Left	13	0	9			
Volume Right	0	16	8			
cSH	1134	1700	496			
Volume to Capacity	0.01	0.25	0.03			
Queue Length (ft)	1	0	3			
Control Delay (s)	0.6	0.0	12.5			
Lane LOS	A		B			
Approach Delay (s)	0.6	0.0	12.5			
Approach LOS			B			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization		32.5%		ICU Level of Service		A