Appendix B
Synchro Outputs

Table B-1: Existing Conditions Measures of Effectiveness – AM and PM Peak Hours

Intersection	Movement	Available Turn Bay Storage (feet)	AM Peak						PM Peak					
			Movement Volume	Maximum Queue (95th Percentile)	Approach		Intersection		Movement Volume	Maximum Queue (95th Percentile)	Approach		Intersection	
					Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS
Route 250 (Rockfish Gap Turnpike) at Route 151	EBT	-	107	0	0.0	A	10.2	B	70	0	0.0	A	9.8	A
	EBR	220	118	0					148	0				
	WBL	200	114	8	5.7	A			216	16	5.1	A		
	WBT	-	47	0					140	0				
	NBL	-	169	105	17.6	C			148	102	24.4	C		
	NBR		243						116					
Route 635 (Rockfish School Lane) at Route 151	EBL	-	52	16	14.0	B	2.1	A	21	11	12.5	B	1.6	A
	EBR		21						42					
	NBL	-	27	2	1.0	A			31	2	1.1	A		
	NBT		265						258					
	SBT	-	227	0	0.0	A			300	0	0.0	A		
	SBR		26						51					
Route 6 (River Road) at Route 151	EBL	-	1	1	13.6	B	5.2	A	2	2	18.8	C	5.0	A
	EBT		2						3					
	EBR		2						0					
	WBL	-	32	30	12.7	B			34	29	13.6	B		
	WBT		1						2					
	WBR		136						118					
	NBL	-	0	0	0.0	A			0	0	0.0	A		
	NBT		175						181					
	NBR		41						30					
	SBL	-	117	8	4.5	A			134	9	3.9	A		
	SBT		110						189					
	SBR		5						0					
Route 664 (Beech Grove Road and Glenthorne Loop) at Route 151	EBL	-	41	5	10.0	A	3.5	A	68	11	9.8	A	4.6	A
	EBT		1						1					
	EBR		5						20					
	WBL	-	2	1	9.7	A			5	1	9.6	A		
	WBT		4						2					
	WBR		3						1					
	NBL	-	26	2	3.6	A			9	1	2.1	A		
	NBT		30						22					
	NBR		0						1					
	SBL	-	4	0	0.3	A			2	0	0.2	A		
	SBT		19						40					
	SBR		90						54					

LOS A-C
LOS D
LOS E
LOS F

Table B-2: 2020 No-Build Conditions Measures of Effectiveness – AM and PM Peak Hours

Intersection	Movement	Available Turn Bay Storage (feet)	AM Peak						PM Peak					
			Movement Volume	Maximum Queue (95th Percentile)	Approach		Intersection		Movement Volume	Maximum Queue (95th Percentile)	Approach		Intersection	
					Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS
Route 250 (Rockfish Gap Turnpike) at Route 151	EBT	-	120	0	0.0	A	12.0	B	75	0	0.0	A	13.8	B
	EBR	220	130	0					165	0				
	WBL	200	125	9	8.1	A			240	9	8.5	A		
	WBT	-	50	0					155	0				
	NBL	-	185	140	21.1	C			165	36	36.4	E		
	NBR		270						130					
Route 635 (Rockfish School Lane) at Route 151	EBL	-	55	19	15.1	C	2.2	A	25	13	13.4	B	1.7	A
	EBR		25						45					
	NBL	-	30	2	1.0	A			35	3	1.2	A		
	NBT		295						285					
	SBT	-	250	0	0.0	A			330	0	0.0	A		
	SBR		30						55					
Route 6 (River Road) at Route 151	EBL	-	5	4	16.7	C	5.9	A	5	4	22.5	C	5.7	A
	EBT		5						5					
	EBR		5						0					
	WBL	-	35	40	14.4	B			40	41	15.8	C		
	WBT		5						5					
	WBR		150						130					
	NBL	-	0	0	0.0	A			0	0	0.0	A		
	NBT		195						200					
	NBR		45						35					
	SBL	-	130	10	4.6	A			150	11	4.1	A		
	SBT		120						210					
	SBR		5						0					
Route 664 (Beech Grove Road and Glenthorne Loop) at Route 151	EBL	-	45	7	10.3	B	3.8	A	75	13	10.3	B	4.9	A
	EBT		5						5					
	EBR		5						20					
	WBL	-	5	2	9.8	A			5	2	9.6	A		
	WBT		5						5					
	WBR		5						5					
	NBL	-	30	2	3.6	A			10	1	1.9	A		
	NBT		35						25					
	NBR		0						5					
	SBL	-	5	0	0.3	A			5	0	0.4	A		
	SBT		20						45					
	SBR		100						60					

LOS A-C
LOS D
LOS E
LOS F

Table B-3: 2040 No-Build Conditions Measures of Effectiveness – AM and PM Peak Hours

Intersection	Movement	Available Turn Bay Storage (feet)	AM Peak						PM Peak					
			Movement Volume	Maximum Queue (95th Percentile)	Approach		Intersection		Movement Volume	Maximum Queue (95th Percentile)	Approach		Intersection	
					Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS
Route 250 (Rockfish Gap Turnpike) at Route 151	EBT	-	140	0	0.0	A	21.1	C	85	0	0.0	A	32.4	D
	EBR	220	150	0					190	0				
	WBL	200	145	11	5.9	A			275	24	5.3	A		
	WBT	-	60	0					180	0				
	NBL	-	215	264	38.7	E			190	319	94.7	F		
	NBR		310						150					
Route 635 (Rockfish School Lane) at Route 151	EBL	-	65	29	17.9	C	2.7	A	30	18	15.3	C	1.9	A
	EBR		30						50					
	NBL	-	35	3	1.1	A			40	3	1.3	A		
	NBT		340						330					
	SBT	-	290	0	0.0	A			380	0	0.0	A		
	SBR		35						65					
Route 6 (River Road) at Route 151	EBL	-	5	5	19.7	C	6.8	A	5	4	22.5	C	5.7	A
	EBT		5						5					
	EBR		5						0					
	WBL	-	40	58	16.9	C			45	41	15.8	C		
	WBT		5						5					
	WBR		175						150					
	NBL	-	0	0	0.0	A			0	0	0.0	A		
	NBT		225						230					
	NBR		50						40					
	SBL	-	150	12	4.9	A			175	11	4.1	A		
	SBT		140						240					
	SBR		5						0					
Route 664 (Beech Grove Road and Glenthorne Loop) at Route 151	EBL	-	50	8	10.7	B	3.7	A	85	16	10.5	B	4.9	A
	EBT		5						5					
	EBR		5						25					
	WBL	-	5	2	10.0	A			5	2	9.8	A		
	WBT		5						5					
	WBR		5						5					
	NBL	-	35	2	3.7	A			10	1	1.7	A		
	NBT		40						30					
	NBR		0						5					
	SBL	-	5	0	0.3	A			5	0	0.3	A		
	SBT		25						50					
	SBR		115						70					

LOS A-C
LOS D
LOS E
LOS F

Table B-4: 2020 Build Conditions Measures of Effectiveness – AM and PM Peak Hours

Intersection	Movement	Available Turn Bay Storage (feet)	AM Peak						PM Peak					
			Movement Volume	Maximum Queue (95th Percentile)	Approach		Intersection		Movement Volume	Maximum Queue (95th Percentile)	Approach		Intersection	
					Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS
Route 250 (Rockfish Gap Turnpike) at Route 151 - Opt 1	EBT	-	120	0	0.0	A	7.8	A	75	0	0.0	A	9.8	A
	EBR	220	130	0					165	0				
	WBL	200	125	9	5.8	A			240	19	5.2	A		
	WBT	-	50	0					155	0				
	NBL	-	185	0	13.0	B			165	0	24.0	C		
	NBR	400	270	45					130	104				
Route 250 (Rockfish Gap Turnpike) at Route 151 - Opt 2	EBT	-	120	42	8.9	A	8.4	A	75	29	7.1	A	8.8	A
	EBR	220	130	22					165	24				
	WBL	200	125	47	9.7	A			240	93	8.8	A		
	WBT	-	50	21					155	53				
	NBL	-	185	60	7.7	A			165	78	10.1	B		
	NBR	400	270	31					130	29				
Route 250 (Rockfish Gap Turnpike) at Route 151 - Opt 3	EBT	-	120	1.2	6.7	A	9.0	A	75	1.3	7.8	A	8.0	A
	EBR		130						165					
	WBL	-	125	0.8	6.2	A			240	2.6	9.8	A		
	WBT		50						155					
	NBL	-	185	3	10.2	B			165	1.4	6.8	A		
	NBR		270						130					
Route 635 (Rockfish School Lane) at Route 151	EBL	-	55	19	15.1	C	2.1	A	25	13	13.4	B	1.6	A
	EBR		25						45					
	NBL	250	30	2	0.7	A			35	0	0.9	A		
	NBT	-	295	0					285	0				
	SBT	-	250	0	0.0	A			330	0	0.0	A		
	SBR		30						55					
Route 6 (River Road) at Route 151 - Option 1	EBL	-	5	4	16.7	C	5.7	A	5	4	22.5	C	5.4	A
	EBT		5						5					
	EBR		5						0					
	WBL	-	35	40	14.3	B			40	41	15.8	C		
	WBT		5						5					
	WBR		150						130					
	NBL	-	0	0	0.0	A			0	0	0.0	A		
	NBT		195						200					
	NBR		45						35					
	SBL	250	130	10	4.1	A			150	11	3.4	A		
	SBT	-	120	0					210	0				
	SBR		5						0					
Route 6 (River Road) at Route 151 - Option 2	EBL	-	5	0	4.7	A	6.5	A	5	0	5.3	A	7.0	A
	EBT		5						5					
	EBR		5						0					
	WBL	-	35	1	6.6	A			40	1	6.4	A		
	WBT		5						5					
	WBR		150						130					
	NBL	-	0	1	6.7	A			0	1	6.8	A		
	NBT		195						200					
	NBR		45						35					
	SBL	-	130	1.3	6.5	A			150	2	7.4	A		
	SBT		120						210					
	SBR		5						0					
Route 664 (Beech Grove Road and Glenthorne Loop) at Route 151	EBL	-	45	6	9.8	A	3.6	A	75	12	9.9	A	4.7	A
	EBT		5						5					
	EBR		5						20					
	WBL	-	5	2	9.4	A			5	2	9.4	A		
	WBT		5						5					
	WBR		5						5					
	NBL	-	30	2	3.5	A			10	1	1.9	A		
	NBT		35						25					
	NBR		0						5					
	SBL	-	5	1.5	0.3	A			5	0	0.3	A		
	SBT		20						45					
	SBR	250	100	0					60	0				

LOS A-C
LOS D
LOS E
LOS F

Table B-5: 2040 Build Conditions Measures of Effectiveness – AM and PM Peak Hours

Intersection	Movement	Available Turn Bay Storage (feet)	AM Peak						PM Peak					
			Movement Volume	Maximum Queue (95th Percentile)	Approach		Intersection		Movement Volume	Maximum Queue (95th Percentile)	Approach		Intersection	
					Delay	LOS	Delay	LOS			Delay	LOS	Delay	LOS
Route 250 (Rockfish Gap Turnpike) at Route 151 - Opt 1	EBT	-	140	0	0.0	A	9.1	A	85	0	0.0	A	16.8	C
	EBR	220	150	0					190	0				
	WBL	200	145	11	5.9	A			275	24	5.3	A		
	WBT	-	60	0					180	0				
	NBL	-	215	75	15.4	C			190	222	45.6	E		
	NBR	400	310						150					
Route 250 (Rockfish Gap Turnpike) at Route 151 - Opt 2	EBT	-	140	54	8.9	A	8.8	A	85	34	7.2	A	9.4	A
	EBR	220	150	26					190	26				
	WBL	200	145	62	9.7	A			275	118	9.5	A		
	WBT	-	60	27					180	65				
	NBL	-	215	78	8.3	A			190	99	11.1	B		
	NBR	400	310	36					150	33				
Route 250 (Rockfish Gap Turnpike) at Route 151 - Opt 3	EBT	-	140	1.5	7.5	A	10.9	B	85	1.7	8.9	A	9.2	A
	EBR		150						190					
	WBL	-	145	1	6.9	A			275	3.5	11.9	B		
	WBT		60						180					
	NBL	-	215	4.3	12.7	B			190	1.7	7.6	A		
	NBR		310						150					
Route 635 (Rockfish School Lane) at Route 151	EBL	-	65	29	17.9	C	2.5	A	30	18	15.3	C	1.7	A
	EBR		30						50					
	NBL	250	35	3	0.8	A			40	3	0.9	A		
	NBT	-	340	0					330	0				
	SBT	-	290	0	0.0	A			380	0	0.0	A		
	SBR		35						65					
Route 6 (River Road) at Route 151 - Option 1	EBL	-	5	5	19.7	C	6.5	A	5	4	22.5	C	5.4	A
	EBT		5						5					
	EBR		5						0					
	WBL	-	40	58	16.9	C			45	41	15.8	C		
	WBT		5						5					
	WBR		175						150					
	NBL	-	0	0	0.0	A			0	0	0.0	A		
	NBT		225						230					
	NBR		50						40					
	SBL	250	150	12	4.3	A			175	11	3.4	A		
	SBT	-	140	0					240	0				
	SBR		5						0					
Route 6 (River Road) at Route 151 - Option 2	EBL	-	5	0	5.0	A	7.0	A	5	0	5.8	A	7.8	A
	EBT		5						5					
	EBR		5						0					
	WBL	-	40	1	7.3	A			45	1	7.0	A		
	WBT		5						5					
	WBR		175						150					
	NBL	-	0	1	7.4	A			0	2	7.7	A		
	NBT		225						230					
	NBR		50						40					
	SBL	-	150	1	6.5	A			175	2	8.3	A		
	SBT		140						240					
	SBR		5						0					
Route 664 (Beech Grove Road and Glenthorne Loop) at Route 151	EBL	-	50	7	10.1	B	3.6	A	85	15	10.1	B	4.7	A
	EBT		5						5					
	EBR		5						25					
	WBL	-	5	2	9.5	A			5	2	9.5	A		
	WBT		5						5					
	WBR		5						5					
	NBL	-	35	2	3.5	A			10	1	1.7	A		
	NBT		40						30					
	NBR		0						5					
	SBL	-	5	0	0.1	A			5	0	0.3	A		
	SBT		25						50					
	SBR	250	115	0					70	0				

HCM Unsignalized Intersection Capacity Analysis
3: Patrick Henry Hwy (151) & Beech Grove Road (664)/Glenthorne Loop (627)

2/18/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	41	1	5	2	4	3	26	30	0	4	19	90
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	46	1	6	2	4	3	29	34	0	4	21	101
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	179	173	72	179	224	34	122			34		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	179	173	72	179	224	34	122			34		
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 %	94	100	99	100	99	100	98			100		
cM capacity (veh/h)	761	702	988	762	658	1037	1459			1571		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	53	10	63	127
Volume Left	46	2	29	4
Volume Right	6	3	0	101
cSH	779	776	1459	1571
Volume to Capacity	0.07	0.01	0.02	0.00
Queue Length 95th (ft)	5	1	2	0
Control Delay (s)	10.0	9.7	3.6	0.3
Lane LOS	A	A	A	A
Approach Delay (s)	10.0	9.7	3.6	0.3
Approach LOS	A	A		

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Patrick Henry Hwy (151) & Beech Grove Road (664)/Glenthorne Loop (627)

2/18/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	68	1	20	5	2	1	9	22	1	2	40	54
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	82	1	24	6	2	1	11	27	1	2	48	65
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	137	135	81	159	167	27	113			28		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	137	135	81	159	167	27	113			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 %	90	100	98	99	100	100	99			100		
cM capacity (veh/h)	823	747	977	778	718	1045	1470			1579		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	107	10	39	116
Volume Left	82	6	11	2
Volume Right	24	1	1	65
cSH	852	787	1470	1579
Volume to Capacity	0.13	0.01	0.01	0.00
Queue Length 95th (ft)	11	1	1	0
Control Delay (s)	9.8	9.6	2.1	0.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.8	9.6	2.1	0.2
Approach LOS	A	A		

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151)/Rockfish Valley Hwy (151 and 6) & Driveway (Gravel)/River Road (6)

2/18/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	1	2	2	32	1	136	0	175	41	117	110	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	2	2	36	1	151	0	194	46	130	122	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	754	625	125	606	605	217	128			240		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	754	625	125	606	605	217	128			240		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	100	99	100	90	100	81	100			90		
cM capacity (veh/h)	243	360	923	366	363	805	1452			1309		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	188	240	258
Volume Left	1	36	0	130
Volume Right	2	151	46	6
cSH	422	653	1452	1309
Volume to Capacity	0.01	0.29	0.00	0.10
Queue Length 95th (ft)	1	30	0	8
Control Delay (s)	13.6	12.7	0.0	4.5
Lane LOS	B	B		A
Approach Delay (s)	13.6	12.7	0.0	4.5
Approach LOS	B	B		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151)/Rockfish Valley Hwy (151 and 6) & Driveway (Gravel)/River Road (6)

2/18/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	3	0	34	2	118	0	181	30	134	189	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	3	0	37	2	128	0	197	33	146	205	0
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	839	726	205	711	710	213	205			229		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	839	726	205	711	710	213	205			229		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	99	99	100	88	99	84	100			89		
cM capacity (veh/h)	218	311	833	308	312	810	1360			1321		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	167	229	351
Volume Left	2	37	0	146
Volume Right	0	128	33	0
cSH	266	586	1360	1321
Volume to Capacity	0.02	0.29	0.00	0.11
Queue Length 95th (ft)	2	29	0	9
Control Delay (s)	18.8	13.6	0.0	3.9
Lane LOS	C	B		A
Approach Delay (s)	18.8	13.6	0.0	3.9
Approach LOS	C	B		

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151 and 6) & Rockfish School Lane (635)

2/18/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	52	21	27	265	227	26
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	60	24	31	308	264	30
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	650	279	294			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	650	279	294			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	97	97			
cM capacity (veh/h)	421	757	1250			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	85	340	294
Volume Left	60	31	0
Volume Right	24	0	30
cSH	483	1250	1700
Volume to Capacity	0.18	0.03	0.17
Queue Length 95th (ft)	16	2	0
Control Delay (s)	14.0	1.0	0.0
Lane LOS	B	A	
Approach Delay (s)	14.0	1.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151 and 6) & Rockfish School Lane (635)

2/18/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	21	42	31	258	300	51
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	46	34	280	326	55
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	702	354	382			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	702	354	382			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	93	97			
cM capacity (veh/h)	391	688	1161			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	68	314	382
Volume Left	23	34	0
Volume Right	46	0	55
cSH	549	1161	1700
Volume to Capacity	0.12	0.03	0.22
Queue Length 95th (ft)	11	2	0
Control Delay (s)	12.5	1.1	0.0
Lane LOS	B	A	
Approach Delay (s)	12.5	1.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Rockfish Gap Tpke (250)

2/18/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	107	118	114	47	169	243
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	114	126	121	50	180	259
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			239		406	114
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			239		406	114
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		67	72
cM capacity (veh/h)			1310		540	931

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	114	126	121	50	438
Volume Left	0	0	121	0	180
Volume Right	0	126	0	0	259
cSH	1700	1700	1310	1700	718
Volume to Capacity	0.07	0.07	0.09	0.03	0.61
Queue Length 95th (ft)	0	0	8	0	105
Control Delay (s)	0.0	0.0	8.0	0.0	17.6
Lane LOS			A		C
Approach Delay (s)	0.0		5.7		17.6
Approach LOS					C

Intersection Summary			
Average Delay	10.2		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Rockfish Gap Tpke (250)

2/18/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	70	148	216	140	148	116
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	161	235	152	161	126
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			237		698	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			237		698	76
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			82		51	87
cM capacity (veh/h)			1313		330	977

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	76	161	235	152	287
Volume Left	0	0	235	0	161
Volume Right	0	161	0	0	126
cSH	1700	1700	1313	1700	466
Volume to Capacity	0.04	0.09	0.18	0.09	0.62
Queue Length 95th (ft)	0	0	16	0	102
Control Delay (s)	0.0	0.0	8.3	0.0	24.4
Lane LOS			A		C
Approach Delay (s)	0.0		5.1		24.4
Approach LOS					C

Intersection Summary			
Average Delay	9.8		
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Patrick Henry Hwy (151) & Beech Grove Road (664)/Glenthorne Loop (627)

3/28/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	5	5	5	5	5	30	35	0	5	20	100
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	51	6	6	6	6	6	34	39	0	6	22	112
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	205	197	79	205	253	39	135			39		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	205	197	79	205	253	39	135			39		
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 %	93	99	99	99	99	99	98			100		
cM capacity (veh/h)	726	678	979	726	631	1029	1443			1564		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	62	17	73	140
Volume Left	51	6	34	6
Volume Right	6	6	0	112
cSH	739	763	1443	1564
Volume to Capacity	0.08	0.02	0.02	0.00
Queue Length 95th (ft)	7	2	2	0
Control Delay (s)	10.3	9.8	3.6	0.3
Lane LOS	B	A	A	A
Approach Delay (s)	10.3	9.8	3.6	0.3
Approach LOS	B	A		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Patrick Henry Hwy (151) & Beech Grove Road (664)/Glenthorne Loop (627)

3/28/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	75	5	20	5	5	5	10	25	5	5	45	60
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	90	6	24	6	6	6	12	30	6	6	54	72
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	169	163	90	187	196	33	127			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	169	163	90	187	196	33	127			36		
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 %	88	99	98	99	99	99	99			100		
cM capacity (veh/h)	776	719	965	741	689	1037	1454			1568		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	120	18	48	133
Volume Left	90	6	12	6
Volume Right	24	6	6	72
cSH	804	797	1454	1568
Volume to Capacity	0.15	0.02	0.01	0.00
Queue Length 95th (ft)	13	2	1	0
Control Delay (s)	10.3	9.6	1.9	0.4
Lane LOS	B	A	A	A
Approach Delay (s)	10.3	9.6	1.9	0.4
Approach LOS	B	A		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151)/Rockfish Valley Hwy (151 and 6) & Driveway (Gravel)/River Road (6)

3/28/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	35	5	150	0	195	45	130	125	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	6	39	6	167	0	217	50	144	139	6
Pedestrians											5	
Lane Width (ft)											12.0	
Walking Speed (ft/s)											4.0	
Percent Blockage											0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	847	697	142	681	675	247	144			267		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	847	697	142	681	675	247	144			267		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	97	98	99	88	98	78	100			89		
cM capacity (veh/h)	198	322	903	319	325	772	1432			1280		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	211	267	289
Volume Left	6	39	0	144
Volume Right	6	167	50	6
cSH	324	595	1432	1280
Volume to Capacity	0.05	0.36	0.00	0.11
Queue Length 95th (ft)	4	40	0	10
Control Delay (s)	16.7	14.4	0.0	4.6
Lane LOS	C	B		A
Approach Delay (s)	16.7	14.4	0.0	4.6
Approach LOS	C	B		

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151)/Rockfish Valley Hwy (151 and 6) & Driveway (Gravel)/River Road (6)

3/28/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	0	40	5	130	0	200	35	150	210	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	0	43	5	141	0	217	38	163	228	0
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	935	810	228	793	791	236	228			255		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	935	810	228	793	791	236	228			255		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	97	98	100	84	98	82	100			87		
cM capacity (veh/h)	179	273	809	265	274	786	1334			1292		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	190	255	391
Volume Left	5	43	0	163
Volume Right	0	141	38	0
cSH	216	523	1334	1292
Volume to Capacity	0.05	0.36	0.00	0.13
Queue Length 95th (ft)	4	41	0	11
Control Delay (s)	22.5	15.8	0.0	4.1
Lane LOS	C	C		A
Approach Delay (s)	22.5	15.8	0.0	4.1
Approach LOS	C	C		

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151 and 6) & Rockfish School Lane (635)

3/28/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	55	25	30	295	250	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	64	29	35	343	291	35
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	721	308	326			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	721	308	326			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	96	97			
cM capacity (veh/h)	381	730	1217			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	93	378	326
Volume Left	64	35	0
Volume Right	29	0	35
cSH	448	1217	1700
Volume to Capacity	0.21	0.03	0.19
Queue Length 95th (ft)	19	2	0
Control Delay (s)	15.1	1.0	0.0
Lane LOS	C	A	
Approach Delay (s)	15.1	1.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151 and 6) & Rockfish School Lane (635)

3/28/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	25	45	35	285	330	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	49	38	310	359	60
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	774	389	418			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	389	418			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	93	97			
cM capacity (veh/h)	353	657	1125			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	76	348	418
Volume Left	27	38	0
Volume Right	49	0	60
cSH	503	1125	1700
Volume to Capacity	0.15	0.03	0.25
Queue Length 95th (ft)	13	3	0
Control Delay (s)	13.4	1.2	0.0
Lane LOS	B	A	
Approach Delay (s)	13.4	1.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Rockfish Gap Tpke (250)

3/28/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	120	130	125	50	180	270
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	128	138	133	53	191	287
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			266		447	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			266		447	128
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		62	69
cM capacity (veh/h)			1281		505	914

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	128	138	133	53	479
Volume Left	0	0	133	0	191
Volume Right	0	138	0	0	287
cSH	1700	1700	1281	1700	691
Volume to Capacity	0.08	0.08	0.10	0.03	0.69
Queue Length 95th (ft)	0	0	9	0	140
Control Delay (s)	0.0	0.0	8.1	0.0	21.1
Lane LOS			A		C
Approach Delay (s)	0.0		5.8		21.1
Approach LOS					C

Intersection Summary			
Average Delay	12.0		
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Rockfish Gap Tpke (250)

3/28/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	75	165	240	155	165	130
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	179	261	168	179	141
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			261		772	82
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			261		772	82
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			80		38	85
cM capacity (veh/h)			1286		290	970

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	82	179	261	168	321
Volume Left	0	0	261	0	179
Volume Right	0	179	0	0	141
cSH	1700	1700	1286	1700	420
Volume to Capacity	0.05	0.11	0.20	0.10	0.76
Queue Length 95th (ft)	0	0	19	0	160
Control Delay (s)	0.0	0.0	8.5	0.0	36.4
Lane LOS			A		E
Approach Delay (s)	0.0		5.2		36.4
Approach LOS					E

Intersection Summary			
Average Delay	13.8		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Patrick Henry Hwy (151) & Beech Grove Road (664)/Glenthorne Loop (627)

3/28/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	5	5	5	5	5	35	40	0	5	25	115
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	56	6	6	6	6	6	39	45	0	6	28	129
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	236	228	93	236	292	45	157			45		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	236	228	93	236	292	45	157			45		
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 %	92	99	99	99	99	99	97			100		
cM capacity (veh/h)	691	649	962	691	598	1022	1416			1557		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	67	17	84	163
Volume Left	56	6	39	6
Volume Right	6	6	0	129
cSH	703	732	1416	1557
Volume to Capacity	0.10	0.02	0.03	0.00
Queue Length 95th (ft)	8	2	2	0
Control Delay (s)	10.7	10.0	3.7	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	10.7	10.0	3.7	0.3
Approach LOS	B	B		

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Patrick Henry Hwy (151) & Beech Grove Road (664)/Glenthorne Loop (627)

3/28/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	5	25	5	5	5	10	30	5	5	50	70
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	102	6	30	6	6	6	12	36	6	6	60	84
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	187	181	102	211	220	39	145			42		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	187	181	102	211	220	39	145			42		
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 %	86	99	97	99	99	99	99			100		
cM capacity (veh/h)	755	703	950	709	668	1030	1432			1560		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	139	18	54	151
Volume Left	102	6	12	6
Volume Right	30	6	6	84
cSH	787	774	1432	1560
Volume to Capacity	0.18	0.02	0.01	0.00
Queue Length 95th (ft)	16	2	1	0
Control Delay (s)	10.5	9.8	1.7	0.3
Lane LOS	B	A	A	A
Approach Delay (s)	10.5	9.8	1.7	0.3
Approach LOS	B	A		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	27.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151)/Rockfish Valley Hwy (151 and 6) & Driveway (Gravel)/River Road (6)

3/28/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	40	5	175	0	225	50	150	140	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	6	44	6	194	0	250	56	167	156	6
Pedestrians											5	
Lane Width (ft)											12.0	
Walking Speed (ft/s)											4.0	
Percent Blockage											0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	972	797	158	778	772	283	161			306		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	972	797	158	778	772	283	161			306		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	96	98	99	83	98	74	100			87		
cM capacity (veh/h)	150	275	884	268	279	737	1412			1238		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	244	306	328
Volume Left	6	44	0	167
Volume Right	6	194	56	6
cSH	262	544	1412	1238
Volume to Capacity	0.06	0.45	0.00	0.13
Queue Length 95th (ft)	5	58	0	12
Control Delay (s)	19.7	16.9	0.0	4.9
Lane LOS	C	C		A
Approach Delay (s)	19.7	16.9	0.0	4.9
Approach LOS	C	C		

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151)/Rockfish Valley Hwy (151 and 6) & Driveway (Gravel)/River Road (6)

3/28/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	0	40	5	130	0	200	35	150	210	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	0	43	5	141	0	217	38	163	228	0
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	935	810	228	793	791	236	228			255		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	935	810	228	793	791	236	228			255		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	97	98	100	84	98	82	100			87		
cM capacity (veh/h)	179	273	809	265	274	786	1334			1292		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	190	255	391
Volume Left	5	43	0	163
Volume Right	0	141	38	0
cSH	216	523	1334	1292
Volume to Capacity	0.05	0.36	0.00	0.13
Queue Length 95th (ft)	4	41	0	11
Control Delay (s)	22.5	15.8	0.0	4.1
Lane LOS	C	C		A
Approach Delay (s)	22.5	15.8	0.0	4.1
Approach LOS	C	C		

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151 and 6) & Rockfish School Lane (635)

3/28/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	65	30	35	340	290	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	76	35	41	395	337	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)						
pX, platoon unblocked						
vC, conflicting volume	834	358	378			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	834	358	378			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	77	95	97			
cM capacity (veh/h)	325	684	1164			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	110	436	378
Volume Left	76	41	0
Volume Right	35	0	41
cSH	390	1164	1700
Volume to Capacity	0.28	0.03	0.22
Queue Length 95th (ft)	29	3	0
Control Delay (s)	17.9	1.1	0.0
Lane LOS	C	A	
Approach Delay (s)	17.9	1.1	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151 and 6) & Rockfish School Lane (635)

3/28/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	50	40	330	380	65
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	54	43	359	413	71
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	894	448	484			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	894	448	484			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	91	96			
cM capacity (veh/h)	298	608	1064			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	87	402	484
Volume Left	33	43	0
Volume Right	54	0	71
cSH	437	1064	1700
Volume to Capacity	0.20	0.04	0.28
Queue Length 95th (ft)	18	3	0
Control Delay (s)	15.3	1.3	0.0
Lane LOS	C	A	
Approach Delay (s)	15.3	1.3	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Rockfish Gap Tpke (250)

3/28/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	140	150	145	60	215	310
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	149	160	154	64	229	330
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			309		521	149
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			309		521	149
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			88		49	63
cM capacity (veh/h)			1235		447	890

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	149	160	154	64	559
Volume Left	0	0	154	0	229
Volume Right	0	160	0	0	330
cSH	1700	1700	1235	1700	633
Volume to Capacity	0.09	0.09	0.12	0.04	0.88
Queue Length 95th (ft)	0	0	11	0	264
Control Delay (s)	0.0	0.0	8.3	0.0	38.7
Lane LOS			A		E
Approach Delay (s)	0.0		5.9		38.7
Approach LOS					E

Intersection Summary			
Average Delay	21.1		
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Rockfish Gap Tpke (250)

3/28/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	85	190	275	180	190	150
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	92	207	299	196	207	163
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			299		886	92
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			299		886	92
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			76		13	83
cM capacity (veh/h)			1245		237	957

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	92	207	299	196	370
Volume Left	0	0	299	0	207
Volume Right	0	207	0	0	163
cSH	1700	1700	1245	1700	354
Volume to Capacity	0.05	0.12	0.24	0.12	1.04
Queue Length 95th (ft)	0	0	24	0	319
Control Delay (s)	0.0	0.0	8.8	0.0	94.7
Lane LOS			A		F
Approach Delay (s)	0.0		5.3		94.7
Approach LOS					F

Intersection Summary			
Average Delay	32.4		
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Patrick Henry Hwy (151) & Beech Grove Road (664)/Glenthorne Loop (627)

4/21/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	5	5	5	5	5	30	35	0	5	20	100
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	51	6	6	6	6	6	34	39	0	6	22	112
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	149	140	22	149	140	39	22			39		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	149	140	22	149	140	39	22			39		
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 %	94	99	99	99	99	99	98			100		
cM capacity (veh/h)	792	730	1052	792	730	1029	1586			1564		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	62	17	73	28	112
Volume Left	51	6	34	6	0
Volume Right	6	6	0	0	112
cSH	804	833	1586	1564	1700
Volume to Capacity	0.08	0.02	0.02	0.00	0.07
Queue Length 95th (ft)	6	2	2	0	0
Control Delay (s)	9.8	9.4	3.5	1.5	0.0
Lane LOS	A	A	A	A	
Approach Delay (s)	9.8	9.4	3.5	0.3	
Approach LOS	A	A			

Intersection Summary				
Average Delay		3.6		
Intersection Capacity Utilization		23.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
3: Patrick Henry Hwy (151) & Beech Grove Road (664)/Glenthorne Loop (627)

4/21/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	75	5	20	5	5	5	10	25	5	5	45	60
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	90	6	24	6	6	6	12	30	6	6	54	72
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	133	127	54	151	123	33	54			36		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	133	127	54	151	123	33	54			36		
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 %	89	99	98	99	99	99	99			100		
cM capacity (veh/h)	820	753	1010	783	756	1037	1545			1568		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	120	18	48	60	72
Volume Left	90	6	12	6	0
Volume Right	24	6	6	0	72
cSH	848	842	1545	1568	1700
Volume to Capacity	0.14	0.02	0.01	0.00	0.04
Queue Length 95th (ft)	12	2	1	0	0
Control Delay (s)	9.9	9.4	1.9	0.8	0.0
Lane LOS	A	A	A	A	
Approach Delay (s)	9.9	9.4	1.9	0.3	
Approach LOS	A	A			

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	27.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151)/Rockfish Valley Hwy (151 and 6) & Driveway (Gravel)/River Road (6)

4/3/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	35	5	150	0	195	45	130	125	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	6	39	6	167	0	217	50	144	139	6
Pedestrians											5	
Lane Width (ft)											12.0	
Walking Speed (ft/s)											4.0	
Percent Blockage											0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	847	697	142	678	675	247	144			267		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	847	697	142	678	675	247	144			267		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	97	98	99	88	98	78	100			89		
cM capacity (veh/h)	198	322	903	320	325	772	1432			1280		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	17	211	267	144	144
Volume Left	6	39	0	144	0
Volume Right	6	167	50	0	6
cSH	324	595	1432	1280	1700
Volume to Capacity	0.05	0.35	0.00	0.11	0.08
Queue Length 95th (ft)	4	40	0	10	0
Control Delay (s)	16.7	14.3	0.0	8.2	0.0
Lane LOS	C	B		A	
Approach Delay (s)	16.7	14.3	0.0	4.1	
Approach LOS	C	B			

Intersection Summary				
Average Delay		5.7		
Intersection Capacity Utilization		43.1%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151)/Rockfish Valley Hwy (151 and 6) & Driveway (Gravel)/River Road (6)

4/3/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	0	40	5	130	0	200	35	150	210	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	0	43	5	141	0	217	38	163	228	0
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	935	810	228	793	791	236	228			255		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	935	810	228	793	791	236	228			255		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	97	98	100	84	98	82	100			87		
cM capacity (veh/h)	179	273	809	265	274	786	1334			1292		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	11	190	255	163	228
Volume Left	5	43	0	163	0
Volume Right	0	141	38	0	0
cSH	216	523	1334	1292	1700
Volume to Capacity	0.05	0.36	0.00	0.13	0.13
Queue Length 95th (ft)	4	41	0	11	0
Control Delay (s)	22.5	15.8	0.0	8.2	0.0
Lane LOS	C	C		A	
Approach Delay (s)	22.5	15.8	0.0	3.4	
Approach LOS	C	C			

Intersection Summary				
Average Delay	5.4			
Intersection Capacity Utilization	44.7%	ICU Level of Service	A	
Analysis Period (min)	15			

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*GLu*	Intersection	*Rt151 and Rt6*
Agency or Co.		E/W Street Name	*Route 250*
Date Performed	*4/21/2013*	N/S Street Name	*Route 6*
Time Period	*AM*	Analysis Year	*2020*
		Project ID	

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*	
Volume (V), veh/h	*5*	*5*	*5*	*0*	*35*	*5*	*150*	*0*	*0*	*195*	*45*	*0*	*130*	*120*	*45*	*0*
Heavy Veh. Adj. (f_{HV}), %	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Peak Hour Factor (PHF)	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*319*			*224*			*158*			*45*		
Exiting Flow (V_{ex}), pc/h	*202*			*56*			*392*			*179*		
Entry Flow (V_e), pc/h		*18*			*213*			*268*			*330*	
Entry Volume veh/h		*17*			*207*			*260*			*320*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*821*			*903*			*965*			*1080*	
Capacity (c), veh/h		*797*			*877*			*937*			*1049*	
v/c Ratio (X)		*0.02*			*0.24*			*0.28*			*0.31*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*4.7*			*6.5*			*6.7*			*6.5*	
Lane LOS		*A*			*A*			*A*			*A*	
Lane 95% Queue		*0.1*			*0.9*			*1.1*			*1.3*	
Approach Delay, s/veh	*4.73*			*6.55*			*6.70*			*6.46*		
Approach LOS, s/veh	*A*			*A*			*A*			*A*		
Intersection Delay, s/veh	*6.52*											
Intersection LOS	*A*											

Copyright © 2010 University of Florida, All Rights Reserved *HCS+*™ 2010 6.1 Roundabouts Generated: 4/22/2013 1:30 PM

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*GLu*	Intersection	*Rt151 and Rt6*
Agency or Co.		E/W Street Name	*Route 250*
Date Performed	*4/21/2013*	N/S Street Name	*Route 6*
Time Period	*PM*	Analysis Year	*2020*
		Project ID	

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*	
Volume (V), veh/h	*5*	*5*	*0*	*0*	*40*	*5*	*130*	*0*	*0*	*200*	*35*	*0*	*150*	*210*	*0*	*0*
Heavy Veh. Adj. (f_{HV}), %	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Peak Hour Factor (PHF)	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*448*			*230*			*180*			*51*		
Exiting Flow (V_{ex}), pc/h	*213*			*6*			*376*			*280*		
Entry Flow (V_e), pc/h		*12*			*197*			*263*			*403*	
Entry Volume veh/h		*12*			*191*			*255*			*391*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*722*			*898*			*944*			*1074*	
Capacity (c), veh/h		*701*			*872*			*917*			*1043*	
v/c Ratio (X)		*0.02*			*0.22*			*0.28*			*0.38*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*5.3*			*6.4*			*6.8*			*7.4*	
Lane LOS		*A*			*A*			*A*			*A*	
Lane 95% Queue		*0.1*			*0.8*			*1.1*			*1.8*	
Approach Delay, s/veh	*5.31*			*6.38*			*6.83*			*7.38*		
Approach LOS, s/veh	*A*			*A*			*A*			*A*		
Intersection Delay, s/veh	*6.96*											
Intersection LOS	*A*											

Copyright © 2010 University of Florida, All Rights Reserved *HCS+*™ 2010 6.1 Roundabouts Generated: 4/22/2013 1:27 PM

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151 and 6) & Rockfish School Lane (635)

4/21/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	55	25	30	295	250	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	64	29	35	343	291	35
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	721	308	326			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	721	308	326			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	96	97			
cM capacity (veh/h)	381	730	1217			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	93	35	343	326
Volume Left	64	35	0	0
Volume Right	29	0	0	35
cSH	448	1217	1700	1700
Volume to Capacity	0.21	0.03	0.20	0.19
Queue Length 95th (ft)	19	2	0	0
Control Delay (s)	15.1	8.0	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	15.1	0.7		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151 and 6) & Rockfish School Lane (635)

4/21/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	25	45	35	285	330	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	49	38	310	359	60
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	774	389	418			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	389	418			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	93	97			
cM capacity (veh/h)	353	657	1125			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	76	38	310	418
Volume Left	27	38	0	0
Volume Right	49	0	0	60
cSH	503	1125	1700	1700
Volume to Capacity	0.15	0.03	0.18	0.25
Queue Length 95th (ft)	13	3	0	0
Control Delay (s)	13.4	8.3	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	13.4	0.9		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Rockfish Gap Tpke (250)

4/21/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	120	130	125	50	180	270
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	128	138	133	53	191	287
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						16
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			266		447	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			266		447	128
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		62	69
cM capacity (veh/h)			1281		505	914

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	128	138	133	53	479
Volume Left	0	0	133	0	191
Volume Right	0	138	0	0	287
cSH	1700	1700	1281	1700	1263
Volume to Capacity	0.08	0.08	0.10	0.03	0.38
Queue Length 95th (ft)	0	0	9	0	45
Control Delay (s)	0.0	0.0	8.1	0.0	13.0
Lane LOS			A		B
Approach Delay (s)	0.0		5.8		13.0
Approach LOS					B

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Rockfish Gap Tpke (250)

4/21/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	75	165	240	155	165	130
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	82	179	261	168	179	141
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			261		772	82
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			261		772	82
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			80		38	85
cM capacity (veh/h)			1286		290	970

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	82	179	261	168	321
Volume Left	0	0	261	0	179
Volume Right	0	179	0	0	141
cSH	1700	1700	1286	1700	518
Volume to Capacity	0.05	0.11	0.20	0.10	0.62
Queue Length 95th (ft)	0	0	19	0	104
Control Delay (s)	0.0	0.0	8.5	0.0	24.0
Lane LOS			A		C
Approach Delay (s)	0.0		5.2		24.0
Approach LOS					C

Intersection Summary			
Average Delay	9.8		
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
4: Rockfish Gap Tpke (250)

4/22/2013

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	128	138	133	53	191	287
v/c Ratio	0.25	0.26	0.39	0.10	0.32	0.40
Control Delay	9.9	3.7	12.7	8.7	10.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	3.7	12.7	8.7	10.4	3.5
Queue Length 50th (ft)	14	0	15	6	22	0
Queue Length 95th (ft)	42	22	47	21	60	31
Internal Link Dist (ft)	551			580	475	
Turn Bay Length (ft)		230	200			400
Base Capacity (vph)	1765	1503	1191	1765	1719	1538
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.09	0.11	0.03	0.11	0.19

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	120	130	125	50	180	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1810	1538	1719	1810	1719	1538
Flt Permitted	1.00	1.00	0.67	1.00	0.95	1.00
Satd. Flow (perm)	1810	1538	1221	1810	1719	1538
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	128	138	133	53	191	287
RTOR Reduction (vph)	0	99	0	0	0	188
Lane Group Flow (vph)	128	39	133	53	191	99
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	NA	Perm	Perm	NA	NA	Perm
Protected Phases	4			8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	9.0	9.0	9.0	9.0	11.1	11.1
Effective Green, g (s)	9.0	9.0	9.0	9.0	11.1	11.1
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.35	0.35
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	507	431	342	507	594	531
v/s Ratio Prot	0.07			0.03	c0.11	
v/s Ratio Perm		0.03	c0.11			0.06
v/c Ratio	0.25	0.09	0.39	0.10	0.32	0.19
Uniform Delay, d1	8.9	8.5	9.3	8.6	7.7	7.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.7	0.1	0.3	0.2
Delay (s)	9.2	8.6	10.1	8.7	8.0	7.5
Level of Service	A	A	B	A	A	A
Approach Delay (s)	8.9			9.7	7.7	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	32.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Rockfish Gap Tpke (250)

4/22/2013

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	82	179	261	168	179	141
v/c Ratio	0.12	0.26	0.55	0.25	0.39	0.27
Control Delay	7.8	2.8	13.7	8.7	14.2	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	2.8	13.7	8.7	14.2	4.6
Queue Length 50th (ft)	9	0	35	19	26	0
Queue Length 95th (ft)	29	24	93	53	78	29
Internal Link Dist (ft)	551			580	475	
Turn Bay Length (ft)		230	200			300
Base Capacity (vph)	1810	1538	1274	1810	1486	1349
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.12	0.20	0.09	0.12	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	75	165	240	155	165	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1810	1538	1719	1810	1719	1538
Flt Permitted	1.00	1.00	0.70	1.00	0.95	1.00
Satd. Flow (perm)	1810	1538	1273	1810	1719	1538
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	179	261	168	179	141
RTOR Reduction (vph)	0	111	0	0	0	102
Lane Group Flow (vph)	82	68	261	168	179	39
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	NA	Perm	Perm	NA	NA	Perm
Protected Phases	4			8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	13.0	13.0	13.0	13.0	9.4	9.4
Effective Green, g (s)	13.0	13.0	13.0	13.0	9.4	9.4
Actuated g/C Ratio	0.38	0.38	0.38	0.38	0.27	0.27
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	684	581	481	684	469	420
v/s Ratio Prot	0.05			0.09	c0.10	
v/s Ratio Perm		0.04	c0.20			0.03
v/c Ratio	0.12	0.12	0.54	0.25	0.38	0.09
Uniform Delay, d1	7.0	7.0	8.4	7.3	10.1	9.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.1	1.3	0.2	0.5	0.1
Delay (s)	7.1	7.1	9.6	7.5	10.7	9.4
Level of Service	A	A	A	A	B	A
Approach Delay (s)	7.1			8.8	10.1	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	34.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*GLu*	Intersection	*Rt151 and Rt250*
Agency or Co.		E/W Street Name	*Route 250*
Date Performed	*4/21/2013*	N/S Street Name	*Route 151*
Time Period	*AM*	Analysis Year	*2020*
		Project ID	

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*	
Volume (V), veh/h	*0*	*120*	*130*	*0*	*125*	*50*	*0*	*0*	*180*	*0*	*270*	*0*	*0*	*0*	*0*	*0*
Heavy Veh. Adj. (f_{HV}), %	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Peak Hour Factor (PHF)	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*140*			*202*			*134*			*398*		
Exiting Flow (V_{ex}), pc/h	*436*			*258*			*0*			*286*		
Entry Flow (V_e), pc/h		*280*			*196*			*504*				
Entry Volume veh/h		*272*			*190*			*489*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*982*			*923*			*988*			*759*	
Capacity (c), veh/h		*953*			*896*			*959*			*737*	
v/c Ratio (X)		*0.29*			*0.21*			*0.51*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*6.7*			*6.2*			*10.1*				
Lane LOS		*A*			*A*			*B*				
Lane 95% Queue		*1.2*			*0.8*			*3.0*				
Approach Delay, s/veh	*6.70*			*6.16*			*10.15*					
Approach LOS, s/veh	*A*			*A*			*B*					
Intersection Delay, s/veh	*8.97*											
Intersection LOS	*A*											

Copyright © 2010 University of Florida, All Rights Reserved *HCS+*™ 2010 6.1 Roundabouts Generated: 4/22/2013 12:47 AM

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*GLu*	Intersection	*Rt151 and Rt250*
Agency or Co.		E/W Street Name	*Route 250*
Date Performed	*4/21/2013*	N/S Street Name	*Route 151*
Time Period	*PM*	Analysis Year	*2020*
		Project ID	

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*	
Volume (V), veh/h	*0*	*75*	*165*	*0*	*240*	*155*	*0*	*0*	*165*	*0*	*130*	*0*	*0*	*0*	*0*	*0*
Heavy Veh. Adj. (f_{HV}), %	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Peak Hour Factor (PHF)	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*269*			*185*			*84*			*628*		
Exiting Flow (V_{ex}), pc/h	*230*			*359*			*0*			*454*		
Entry Flow (V_e), pc/h		*269*			*443*			*331*				
Entry Volume veh/h		*261*			*430*			*321*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*863*			*939*			*1039*			*603*	
Capacity (c), veh/h		*838*			*912*			*1009*			*585*	
v/c Ratio (X)		*0.31*			*0.47*			*0.32*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*7.8*			*9.8*			*6.8*				
Lane LOS		*A*			*A*			*A*				
Lane 95% Queue		*1.3*			*2.6*			*1.4*				
Approach Delay, s/veh	*7.79*			*9.78*			*6.82*					
Approach LOS, s/veh	*A*			*A*			*A*					
Intersection Delay, s/veh	*7.96*											
Intersection LOS	*A*											

Copyright © 2010 University of Florida, All Rights Reserved *HCS+*™ 2010 6.1 Roundabouts Generated: 4/22/2013 12:46 AM

HCM Unsignalized Intersection Capacity Analysis
3: Patrick Henry Hwy (151) & Beech Grove Road (664)/Glenthorne Loop (627)

4/22/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	5	5	5	5	5	35	40	0	5	25	115
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	56	6	6	6	6	6	39	45	0	6	28	129
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	171	163	28	171	163	45	28			45		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	171	163	28	171	163	45	28			45		
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 %	93	99	99	99	99	99	98			100		
cM capacity (veh/h)	764	707	1044	764	707	1022	1579			1557		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	67	17	84	34	129
Volume Left	56	6	39	6	0
Volume Right	6	6	0	0	129
cSH	776	810	1579	1557	1700
Volume to Capacity	0.09	0.02	0.02	0.00	0.08
Queue Length 95th (ft)	7	2	2	0	0
Control Delay (s)	10.1	9.5	3.5	1.2	0.0
Lane LOS	B	A	A	A	
Approach Delay (s)	10.1	9.5	3.5	0.3	
Approach LOS	B	A			

Intersection Summary				
Average Delay		3.6		
Intersection Capacity Utilization		24.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
3: Patrick Henry Hwy (151) & Beech Grove Road (664)/Glenthorne Loop (627)

4/22/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	5	25	5	5	5	10	30	5	5	50	70
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	102	6	30	6	6	6	12	36	6	6	60	84
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	145	139	60	169	136	39	60			42		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	145	139	60	169	136	39	60			42		
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 %	87	99	97	99	99	99	99			100		
cM capacity (veh/h)	805	742	1002	757	745	1030	1537			1560		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	139	18	54	66	84
Volume Left	102	6	12	6	0
Volume Right	30	6	6	0	84
cSH	838	825	1537	1560	1700
Volume to Capacity	0.17	0.02	0.01	0.00	0.05
Queue Length 95th (ft)	15	2	1	0	0
Control Delay (s)	10.1	9.5	1.7	0.7	0.0
Lane LOS	B	A	A	A	
Approach Delay (s)	10.1	9.5	1.7	0.3	
Approach LOS	B	A			

Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	28.8%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151)/Rockfish Valley Hwy (151 and 6) & Driveway (Gravel)/River Road (6)

4/12/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	40	5	175	0	225	50	150	140	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	6	44	6	194	0	250	56	167	156	6
Pedestrians											5	
Lane Width (ft)											12.0	
Walking Speed (ft/s)											4.0	
Percent Blockage											0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	972	797	158	775	772	283	161			306		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	972	797	158	775	772	283	161			306		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	96	98	99	83	98	74	100			87		
cM capacity (veh/h)	150	275	884	269	279	737	1412			1238		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	17	244	306	167	161
Volume Left	6	44	0	167	0
Volume Right	6	194	56	0	6
cSH	262	544	1412	1238	1700
Volume to Capacity	0.06	0.45	0.00	0.13	0.09
Queue Length 95th (ft)	5	58	0	12	0
Control Delay (s)	19.7	16.9	0.0	8.4	0.0
Lane LOS	C	C		A	
Approach Delay (s)	19.7	16.9	0.0	4.3	
Approach LOS	C	C			

Intersection Summary				
Average Delay		6.5		
Intersection Capacity Utilization		48.2%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151)/Rockfish Valley Hwy (151 and 6) & Driveway (Gravel)/River Road (6)

4/12/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	0	40	5	130	0	200	35	150	210	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	0	43	5	141	0	217	38	163	228	0
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	935	810	228	793	791	236	228			255		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	935	810	228	793	791	236	228			255		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	97	98	100	84	98	82	100			87		
cM capacity (veh/h)	179	273	809	265	274	786	1334			1292		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	11	190	255	163	228
Volume Left	5	43	0	163	0
Volume Right	0	141	38	0	0
cSH	216	523	1334	1292	1700
Volume to Capacity	0.05	0.36	0.00	0.13	0.13
Queue Length 95th (ft)	4	41	0	11	0
Control Delay (s)	22.5	15.8	0.0	8.2	0.0
Lane LOS	C	C		A	
Approach Delay (s)	22.5	15.8	0.0	3.4	
Approach LOS	C	C			

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*GLu*	Intersection	*Rt151 and Rt6*
Agency or Co.		E/W Street Name	*Route 250*
Date Performed	*4/21/2013*	N/S Street Name	*Route 6*
Time Period	*AM*	Analysis Year	*2040*
		Project ID	

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*	
Volume (V), veh/h	*5*	*5*	*5*	*0*	*40*	*5*	*175*	*0*	*0*	*225*	*50*	*0*	*150*	*140*	*5*	*0*
Heavy Veh. Adj. (f_{HV}), %	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Peak Hour Factor (PHF)	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*370*			*258*			*180*			*51*		
Exiting Flow (V_{ex}), pc/h	*230*			*12*			*454*			*208*		
Entry Flow (V_e), pc/h		*18*			*247*			*308*			*331*	
Entry Volume veh/h		*17*			*240*			*299*			*321*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*781*			*873*			*944*			*1074*	
Capacity (c), veh/h		*758*			*848*			*917*			*1043*	
v/c Ratio (X)		*0.02*			*0.28*			*0.33*			*0.31*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*5.0*			*7.3*			*7.4*			*6.5*	
Lane LOS		*A*			*A*			*A*			*A*	
Lane 95% Queue		*0.1*			*1.2*			*1.4*			*1.3*	
Approach Delay, s/veh	*4.98*			*7.32*			*7.44*			*6.52*		
Approach LOS, s/veh	*A*			*A*			*A*			*A*		
Intersection Delay, s/veh	*7.03*											
Intersection LOS	*A*											

Copyright © 2010 University of Florida, All Rights Reserved *HCS+*™ 2010 6.1 Roundabouts Generated: 4/22/2013 1:36 PM

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*GLu*	Intersection	*Rt151 and Rt6*
Agency or Co.		E/W Street Name	*Route 250*
Date Performed	*4/21/2013*	N/S Street Name	
Time Period	*PM*	Analysis Year	*2040*
		Project ID	

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*	
Volume (V), veh/h	*5*	*5*	*5*	*0*	*45*	*5*	*150*	*0*	*0*	*230*	*40*	*0*	*175*	*240*	*0*	*0*
Heavy Veh. Adj. (f_{HV}), %	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Peak Hour Factor (PHF)	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*515*			*264*			*208*			*56*		
Exiting Flow (V_{ex}), pc/h	*247*			*6*			*432*			*325*		
Entry Flow (V_e), pc/h		*18*			*224*			*303*			*465*	
Entry Volume veh/h		*17*			*217*			*294*			*451*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*675*			*868*			*918*			*1068*	
Capacity (c), veh/h		*655*			*843*			*891*			*1037*	
v/c Ratio (X)		*0.03*			*0.26*			*0.33*			*0.44*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*5.8*			*7.0*			*7.7*			*8.3*	
Lane LOS		*A*			*A*			*A*			*A*	
Lane 95% Queue		*0.1*			*1.0*			*1.5*			*2.2*	
Approach Delay, s/veh	*5.78*			*7.04*			*7.67*			*8.30*		
Approach LOS, s/veh	*A*			*A*			*A*			*A*		
Intersection Delay, s/veh	*7.79*											
Intersection LOS	*A*											

Copyright © 2010 University of Florida, All Rights Reserved *HCS+*™ 2010 6.1 Roundabouts Generated: 4/28/2013 11:56 PM

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151 and 6) & Rockfish School Lane (635)

4/22/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	65	30	35	340	290	35
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	76	35	41	395	337	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)						
pX, platoon unblocked						
vC, conflicting volume	834	358	378			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	834	358	378			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	77	95	97			
cM capacity (veh/h)	325	684	1164			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	110	41	395	378
Volume Left	76	41	0	0
Volume Right	35	0	0	41
cSH	390	1164	1700	1700
Volume to Capacity	0.28	0.03	0.23	0.22
Queue Length 95th (ft)	29	3	0	0
Control Delay (s)	17.9	8.2	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	17.9	0.8		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Rockfish Valley Hwy (151 and 6) & Rockfish School Lane (635)

4/22/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	30	50	40	330	380	65
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	33	54	43	359	413	71
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	894	448	484			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	894	448	484			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	91	96			
cM capacity (veh/h)	298	608	1064			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	87	43	359	484
Volume Left	33	43	0	0
Volume Right	54	0	0	71
cSH	437	1064	1700	1700
Volume to Capacity	0.20	0.04	0.21	0.28
Queue Length 95th (ft)	18	3	0	0
Control Delay (s)	15.3	8.5	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	15.3	0.9		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Rockfish Gap Tpke (250)

4/22/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	140	150	145	60	215	310
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	149	160	154	64	229	330
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						16
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			309		521	149
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			309		521	149
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			88		49	63
cM capacity (veh/h)			1235		447	890

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	149	160	154	64	559
Volume Left	0	0	154	0	229
Volume Right	0	160	0	0	330
cSH	1700	1700	1235	1700	1090
Volume to Capacity	0.09	0.09	0.12	0.04	0.51
Queue Length 95th (ft)	0	0	11	0	75
Control Delay (s)	0.0	0.0	8.3	0.0	15.4
Lane LOS			A		C
Approach Delay (s)	0.0		5.9		15.4
Approach LOS					C

Intersection Summary			
Average Delay	9.1		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Rockfish Gap Tpke (250)

4/22/2013

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	85	190	275	180	190	150
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	92	207	299	196	207	163
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						12
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			299		886	92
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			299		886	92
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			76		13	83
cM capacity (veh/h)			1245		237	957

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	92	207	299	196	370
Volume Left	0	0	299	0	207
Volume Right	0	207	0	0	163
cSH	1700	1700	1245	1700	423
Volume to Capacity	0.05	0.12	0.24	0.12	0.87
Queue Length 95th (ft)	0	0	24	0	222
Control Delay (s)	0.0	0.0	8.8	0.0	45.6
Lane LOS			A		E
Approach Delay (s)	0.0		5.3		45.6
Approach LOS					E

Intersection Summary			
Average Delay	16.8		
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		

Queues
4: Rockfish Gap Tpke (250)

4/22/2013

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	149	160	154	64	229	330
v/c Ratio	0.28	0.28	0.44	0.12	0.39	0.45
Control Delay	10.6	3.8	14.0	9.3	11.4	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.6	3.8	14.0	9.3	11.4	3.7
Queue Length 50th (ft)	18	0	19	7	29	0
Queue Length 95th (ft)	54	26	62	27	78	36
Internal Link Dist (ft)	551			580	475	
Turn Bay Length (ft)		230	200			400
Base Capacity (vph)	1757	1498	1163	1757	1718	1537
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.11	0.13	0.04	0.13	0.21

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	140	150	145	60	215	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1810	1538	1719	1810	1719	1538
Flt Permitted	1.00	1.00	0.66	1.00	0.95	1.00
Satd. Flow (perm)	1810	1538	1198	1810	1719	1538
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	149	160	154	64	229	330
RTOR Reduction (vph)	0	112	0	0	0	218
Lane Group Flow (vph)	149	48	154	64	229	112
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	NA	Perm	Perm	NA	NA	Perm
Protected Phases	4			8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	9.9	9.9	9.9	9.9	11.3	11.3
Effective Green, g (s)	9.9	9.9	9.9	9.9	11.3	11.3
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.34	0.34
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	539	458	357	539	585	523
v/s Ratio Prot	0.08			0.04	c0.13	
v/s Ratio Perm		0.03	c0.13			0.07
v/c Ratio	0.28	0.10	0.43	0.12	0.39	0.21
Uniform Delay, d1	8.9	8.4	9.4	8.5	8.3	7.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.1	0.8	0.1	0.4	0.2
Delay (s)	9.2	8.5	10.2	8.6	8.8	8.0
Level of Service	A	A	B	A	A	A
Approach Delay (s)	8.9			9.7	8.3	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	33.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
4: Rockfish Gap Tpke (250)

4/22/2013

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	92	207	299	196	207	163
v/c Ratio	0.13	0.28	0.60	0.27	0.44	0.30
Control Delay	8.0	2.7	15.1	9.1	16.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	2.7	15.1	9.1	16.0	4.7
Queue Length 50th (ft)	11	0	44	25	33	0
Queue Length 95th (ft)	34	26	118	65	99	33
Internal Link Dist (ft)	551			580	475	
Turn Bay Length (ft)		230	200			300
Base Capacity (vph)	1778	1514	1238	1778	1383	1269
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.14	0.24	0.11	0.15	0.13

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	85	190	275	180	190	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1810	1538	1719	1810	1719	1538
Flt Permitted	1.00	1.00	0.70	1.00	0.95	1.00
Satd. Flow (perm)	1810	1538	1262	1810	1719	1538
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	207	299	196	207	163
RTOR Reduction (vph)	0	124	0	0	0	117
Lane Group Flow (vph)	92	83	299	196	207	46
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Turn Type	NA	Perm	Perm	NA	NA	Perm
Protected Phases	4			8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	15.2	15.2	15.2	15.2	10.6	10.6
Effective Green, g (s)	15.2	15.2	15.2	15.2	10.6	10.6
Actuated g/C Ratio	0.40	0.40	0.40	0.40	0.28	0.28
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	727	618	507	727	482	431
v/s Ratio Prot	0.05			0.11	c0.12	
v/s Ratio Perm		0.05	c0.24			0.03
v/c Ratio	0.13	0.13	0.59	0.27	0.43	0.11
Uniform Delay, d1	7.1	7.1	8.9	7.6	11.1	10.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.1	1.8	0.2	0.6	0.1
Delay (s)	7.2	7.2	10.6	7.8	11.7	10.2
Level of Service	A	A	B	A	B	B
Approach Delay (s)	7.2			9.5	11.1	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	37.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*GLu*	Intersection	*Rt151 and Rt250*
Agency or Co.		E/W Street Name	*Route 250*
Date Performed	*4/21/2013*	N/S Street Name	*Route 151*
Time Period	*AM*	Analysis Year	*2040*
		Project ID	

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*	
Volume (V), veh/h	*0*	*140*	*150*	*0*	*145*	*60*	*0*	*0*	*215*	*0*	*310*	*0*	*0*	*0*	*0*	*0*
Heavy Veh. Adj. (f_{HV}), %	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Peak Hour Factor (PHF)	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*162*			*241*			*157*			*470*		
Exiting Flow (V_{ex}), pc/h	*504*			*308*			*0*			*330*		
Entry Flow (V_e), pc/h		*325*			*229*			*588*				
Entry Volume veh/h		*316*			*222*			*571*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*961*			*888*			*966*			*706*	
Capacity (c), veh/h		*933*			*862*			*938*			*685*	
v/c Ratio (X)		*0.34*			*0.26*			*0.61*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*7.5*			*6.9*			*12.7*				
Lane LOS		*A*			*A*			*B*				
Lane 95% Queue		*1.5*			*1.0*			*4.3*				
Approach Delay, s/veh	*7.51*			*6.91*			*12.66*					
Approach LOS, s/veh	*A*			*A*			*B*					
Intersection Delay, s/veh	*10.93*											
Intersection LOS	*B*											

Copyright © 2010 University of Florida, All Rights Reserved *HCS+*™ 2010 6.1 Roundabouts Generated: 4/22/2013 12:51 AM

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*GLu*	Intersection	*Rt151 and Rt250*
Agency or Co.		E/W Street Name	*Route 250*
Date Performed	*4/21/2013*	N/S Street Name	*Route 151*
Time Period	*PM*	Analysis Year	*2040*
		Project ID	

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*1*	*0*		*0*	*0*	*0*	
Volume (V), veh/h	*0*	*85*	*190*	*0*	*275*	*180*	*0*	*0*	*190*	*0*	*150*	*0*	*0*	*0*	*0*	*0*
Heavy Veh. Adj. (f_{HV}), %	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Peak Hour Factor (PHF)	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*308*			*213*			*95*			*723*		
Exiting Flow (V_{ex}), pc/h	*263*			*415*			*0*			*521*		
Entry Flow (V_e), pc/h		*308*			*510*			*381*				
Entry Volume veh/h		*299*			*495*			*370*				

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*830*			*913*			*1028*			*548*	
Capacity (*c*), veh/h		*806*			*886*			*998*			*532*	
v/c Ratio (X)		*0.37*			*0.56*			*0.37*				

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*8.9*			*11.9*			*7.6*				
Lane LOS		*A*			*B*			*A*				
Lane 95% Queue		*1.7*			*3.5*			*1.7*				
Approach Delay, s/veh	*8.93*			*11.88*			*7.57*					
Approach LOS, s/veh	*A*			*B*			*A*					
Intersection Delay, s/veh	*9.23*											
Intersection LOS	*A*											

Copyright © 2010 University of Florida, All Rights Reserved *HCS+*™ 2010 6.1 Roundabouts Generated: 4/22/2013 12:52 AM