

Route 3 Arterial Management Plan

Spotsylvania County, Virginia

Volume II: Appendices



Route 3 Arterial Management Plan

Spotsylvania County

APPENDICES

April 11, 2016

Prepared for:

Virginia Department of Transportation



Prepared by:

MICHAEL BAKER INTERNATIONAL



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Section A: Access Point Spacing

Route 3 Arterial Management Plan

Figure 3 Access Points Sheets 1 & 2

Legend

- Access Point
- Crossover
- ⊙ Study Intersection
- 123— Distance Between Access Points (Feet)



Sheet Locator



1 inch = 305 feet

7/3/2014
Data: Baker, VBMP

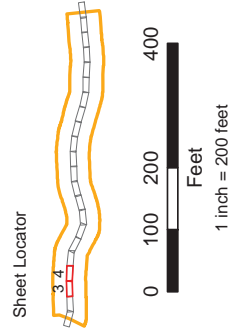
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Route 3 Arterial Management Plan

Figure 3 Access Points Sheets 3 & 4

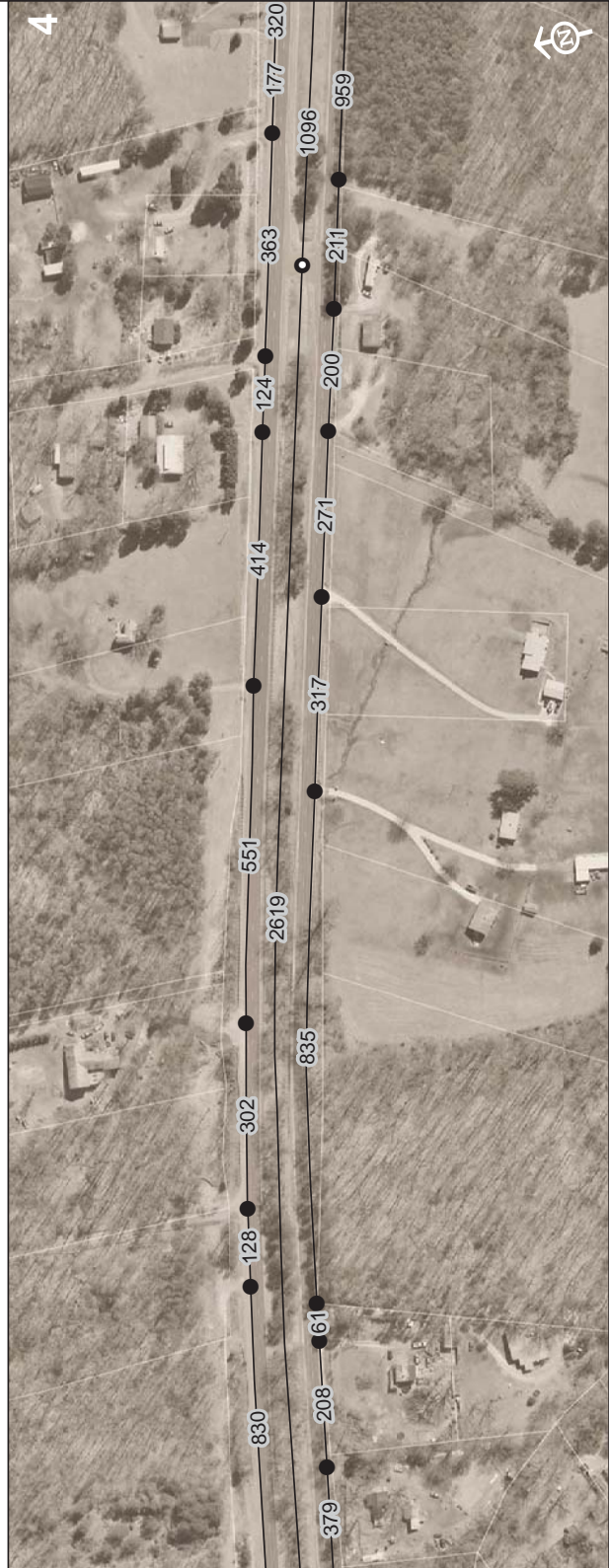
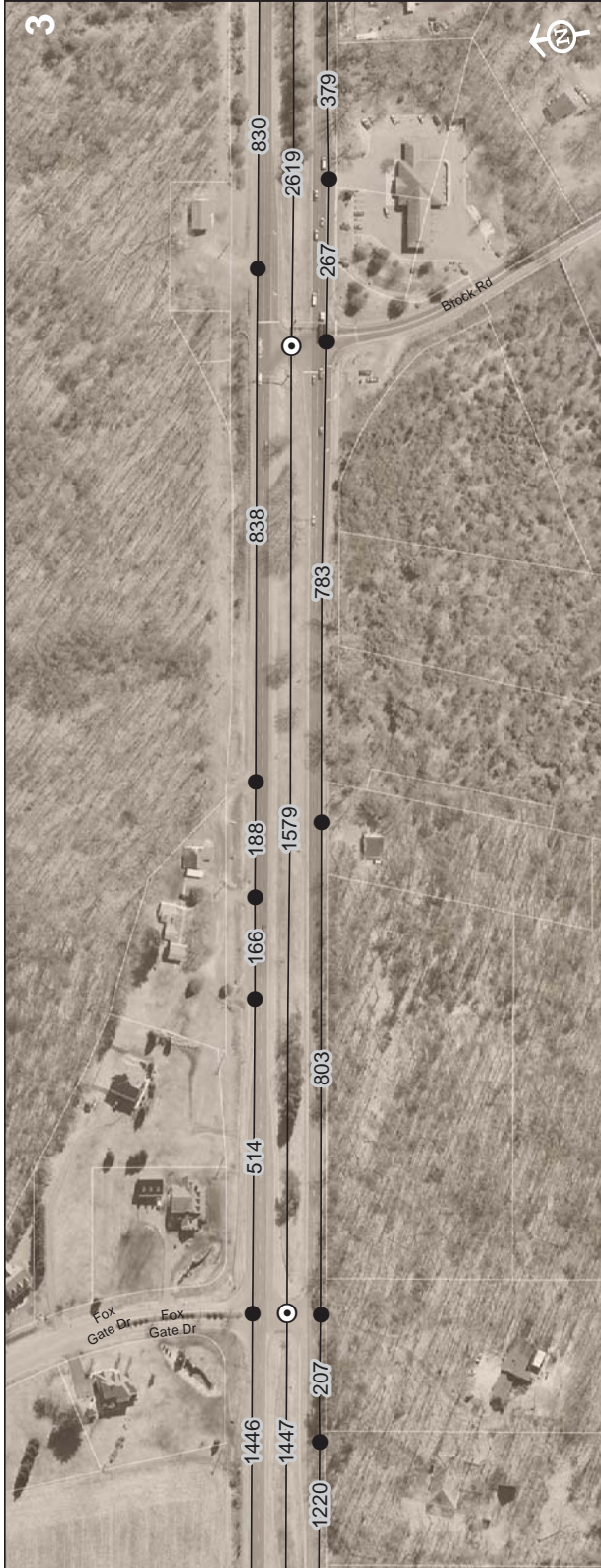
Legend

- Access Point
- Crossover
- ⊙ Study Intersection
- 123— Distance Between Access Points (Feet)



7/3/2014
Data: Baker, VBMP

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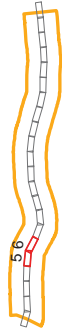
Route 3 Arterial Management Plan

Figure 3 Access Points Sheets 5 & 6

Legend

- Access Point
- Crossover
- ⊙ Study Intersection
- 123— Distance Between Access Points (Feet)

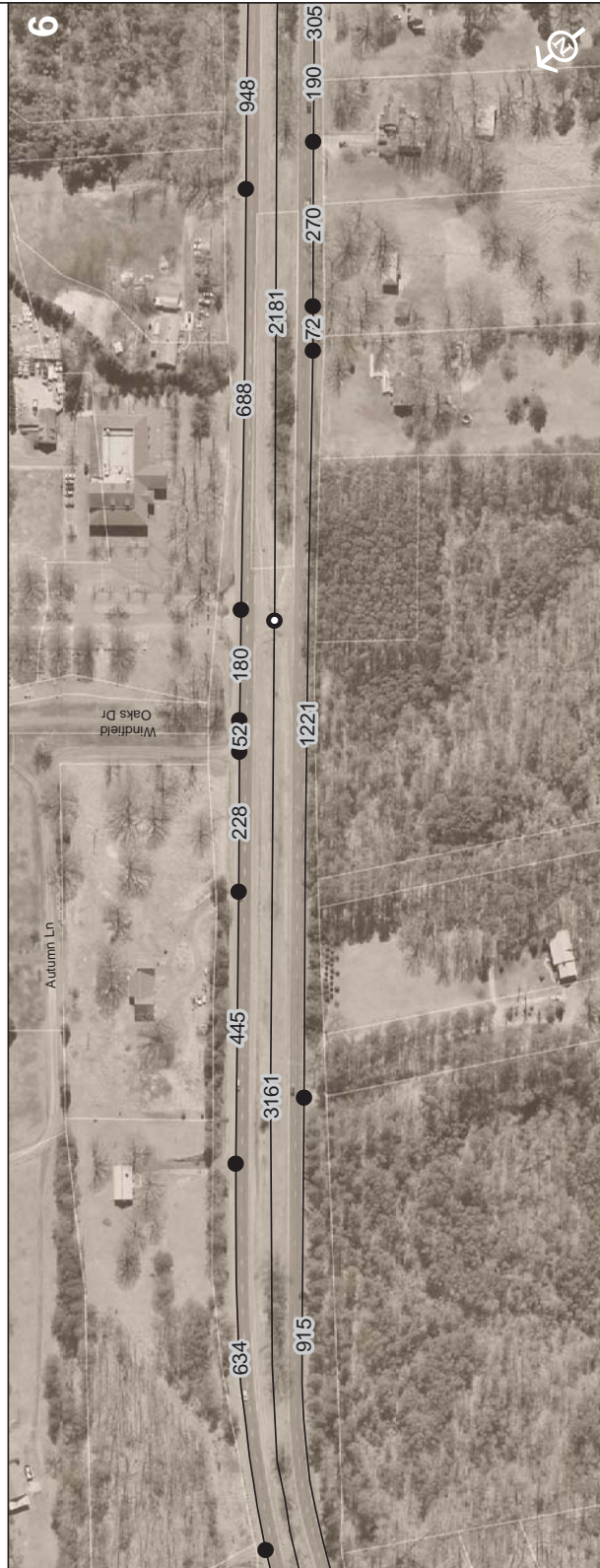
Sheet Locator



1 inch = 200 feet

7/3/2014
Data: Baker, VBMP

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Route 3 Arterial Management Plan

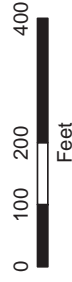
Figure 3 Access Points Sheets 7 & 8

Legend

- Access Point
- Crossover
- ⊙ Study Intersection
- 123— Distance Between Access Points (Feet)



Sheet Locator



1 inch = 200 feet

7/3/2014
Data: Baker, VBMP

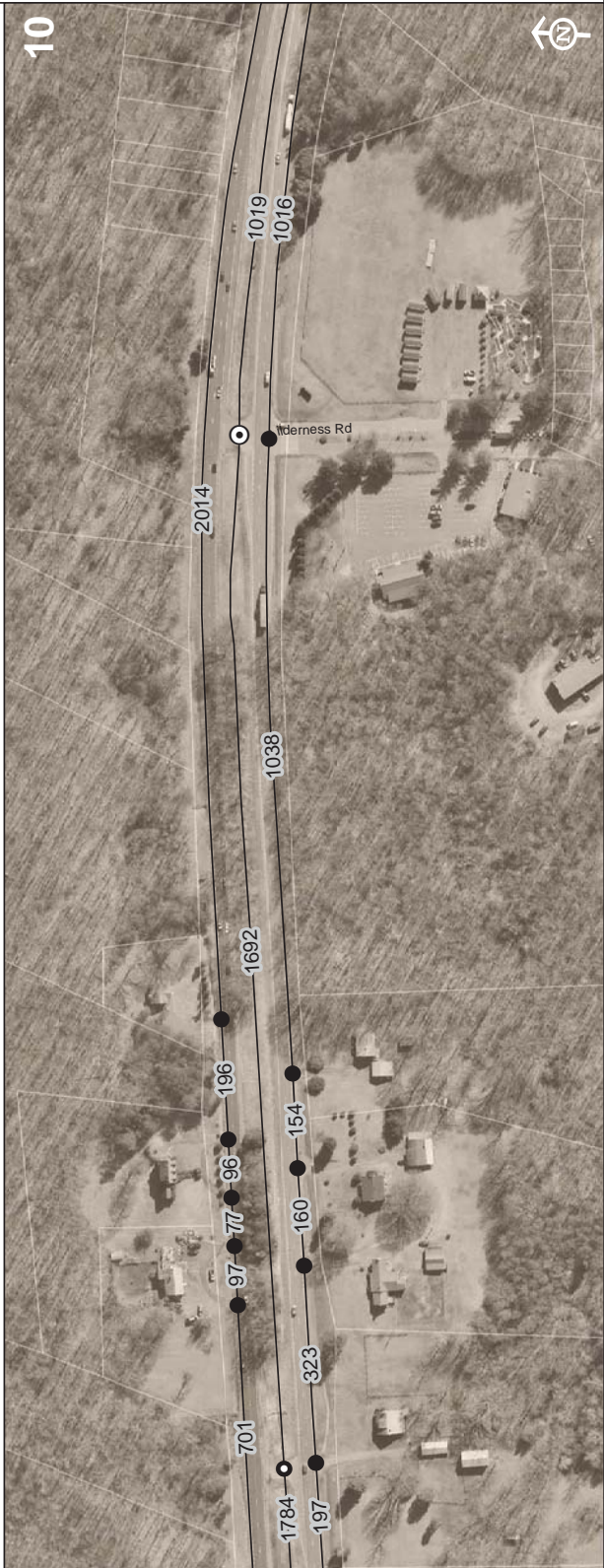
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Route 3 Arterial Management Plan

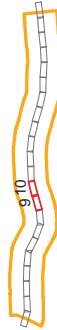
Figure 3 Access Points Sheets 9 & 10

Legend

- Access Point
- Crossover
- ⊙ Study Intersection
- 123— Distance Between Access Points (Feet)



Sheet Locator



7/3/2014
Data: Baker, VBMP

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Route 3 Arterial Management Plan

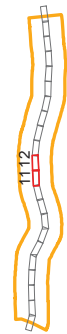
Figure 3 Access Points Sheets 11 & 12

Legend

- Access Point
- Crossover
- ⊙ Study Intersection
- 123— Distance Between Access Points (Feet)



Sheet Locator



1 inch = 200 feet

7/3/2014
Data: Baker, VBMP

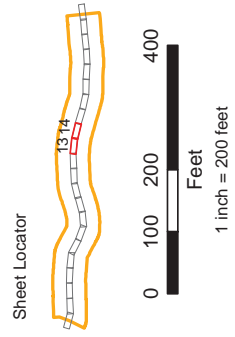
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Route 3 Arterial Management Plan

Figure 3 Access Points Sheets 13 & 14

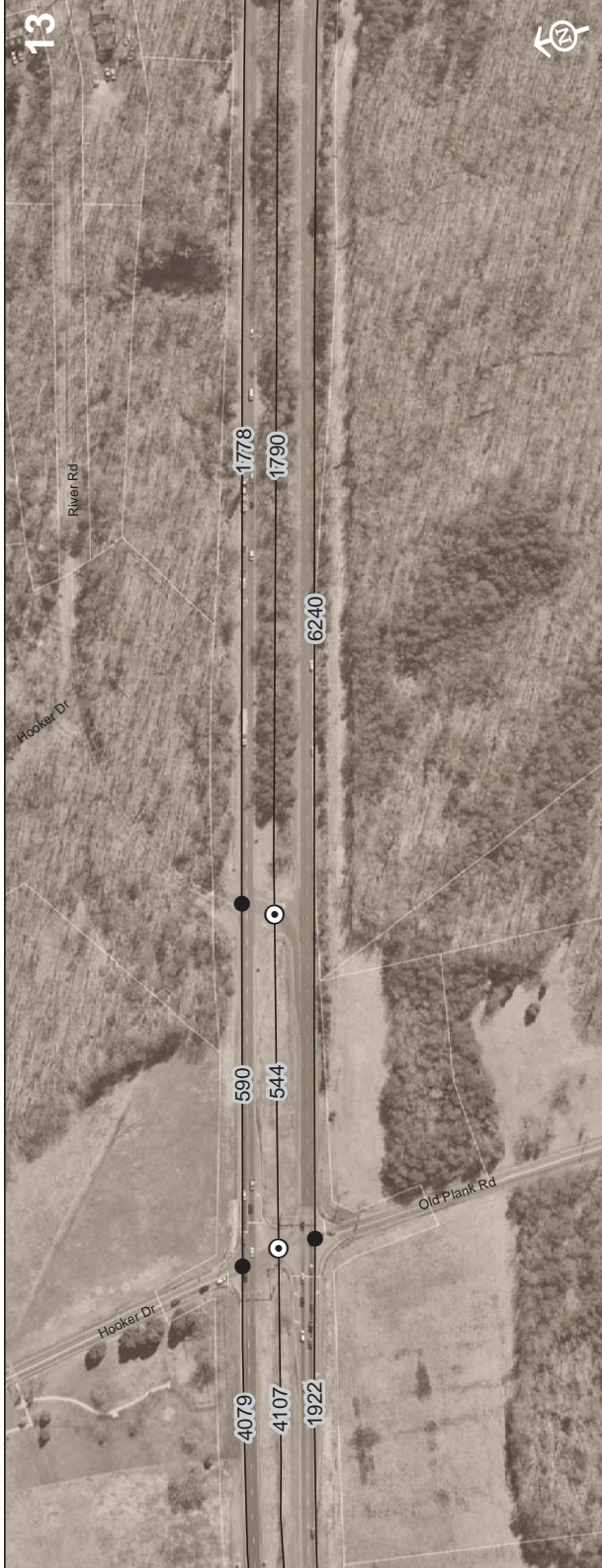
Legend

- Access Point
- Crossover
- ⊙ Study Intersection
- 123— Distance Between Access Points (Feet)



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Data: Baker, VBMP

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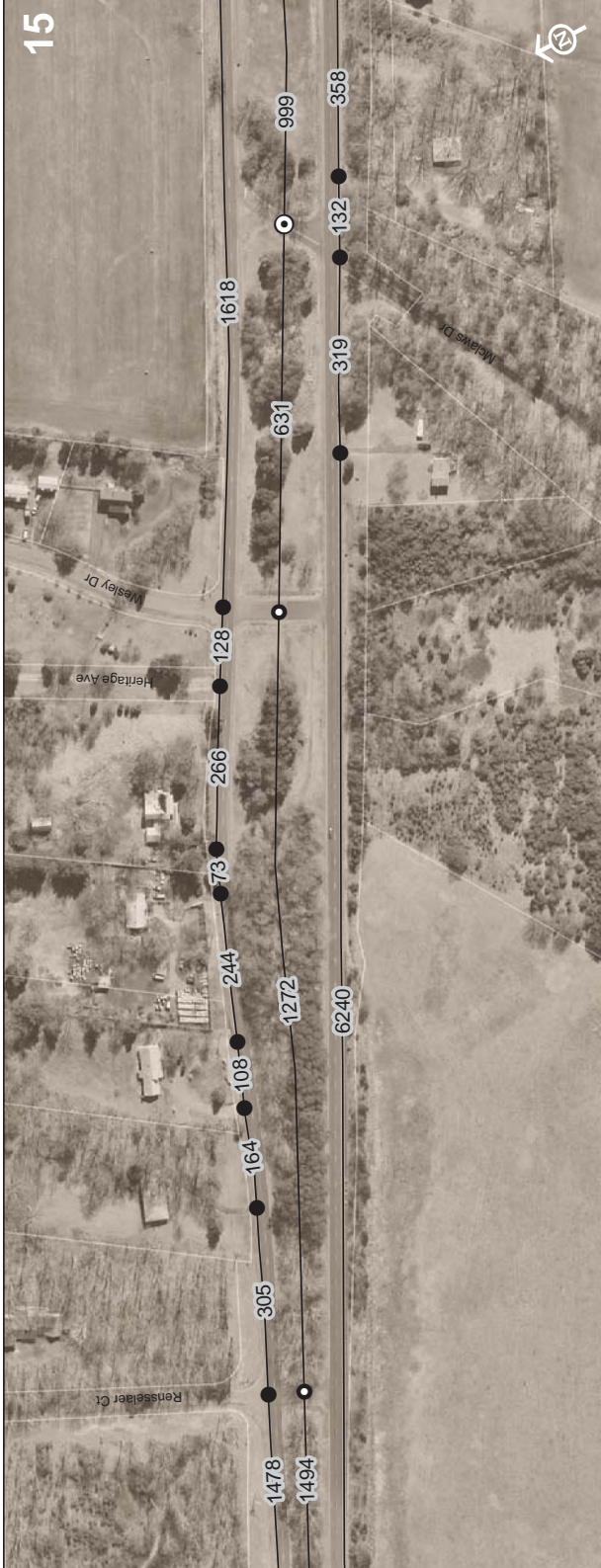


Route 3 Arterial Management Plan

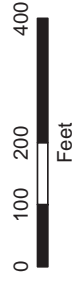
Figure 3 Access Points Sheets 15 & 16

Legend

- Access Point
- Crossover
- ⊙ Study Intersection
- 123— Distance Between Access Points (Feet)



Page Locator



1 inch = 200 feet

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Data: Baker, VBMP

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Route 3 Arterial Management Plan

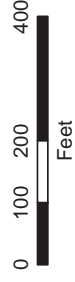
Figure 3 Access Points Sheets 17 & 18

Legend

- Access Point
- Crossover
- ⊙ Study Intersection
- 123— Distance Between Access Points (Feet)



Sheet Locator



1 inch = 200 feet

7/3/2014
Data: Baker, VBMP

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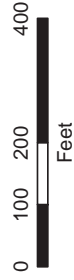
Route 3 Arterial Management Plan

Figure 3 Access Points Sheets 19 & 20

Legend

- Access Point
- Crossover
- ⊙ Study Intersection
- Distance Between Access Points (Feet)

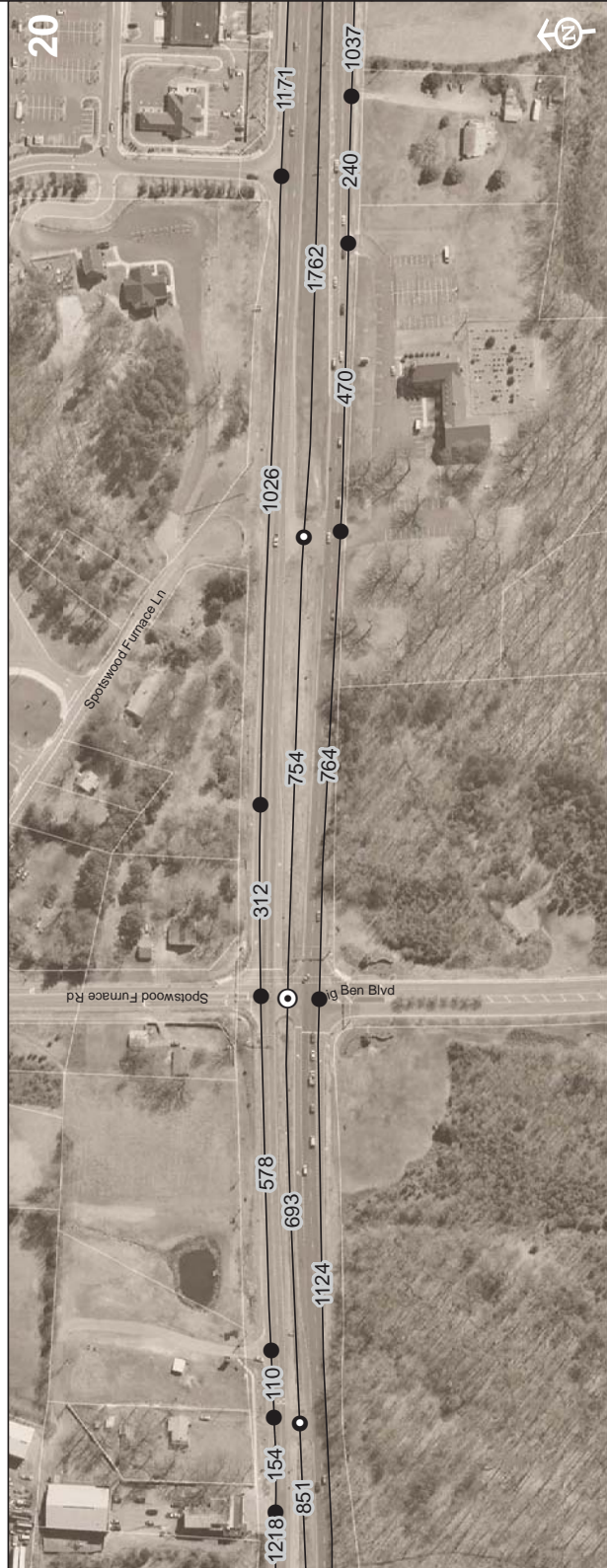
Sheet Locator



1 inch = 200 feet

7/3/2014
Data: Baker, VBMP

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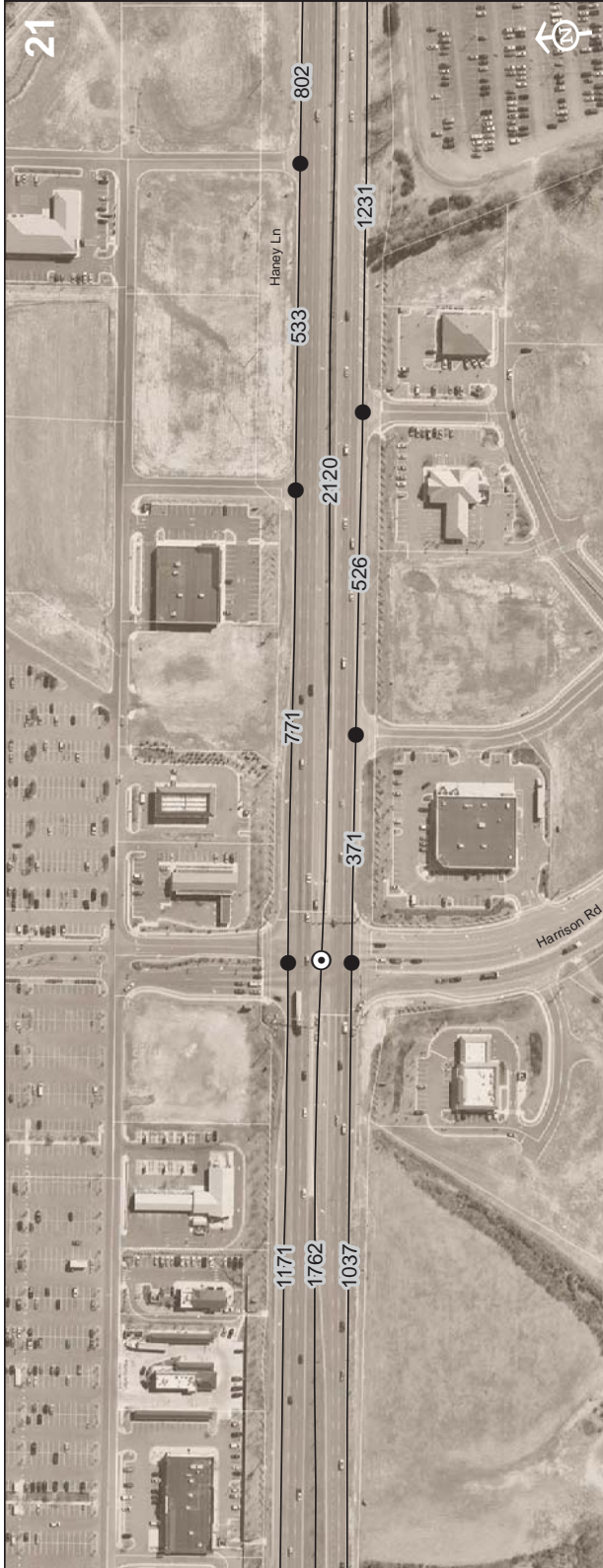


Route 3 Arterial Management Plan

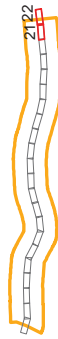
Figure 3 Access Points Sheets 21 & 22

Legend

- Access Point
- Crossover
- ⊙ Study Intersection
- 123— Distance Between Access Points (Feet)



Sheet Locator



1 inch = 200 feet

7/3/2014
Data: Baker, VBMP

Michael Baker
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Appendix B

Future Assumed Land Use

Future Land Use Zone Summary - South

ZONE	Step 1										Step 2										Step 3									
	Zone Summary					Future Land Use*					Percent	KSF/DU/AC	Daily Trips					AM Peak Hour Trips					PM Peak Hour Trips							
	Total Developable Acres	Developable Acres	Density	Developable Units	Acres	Agriculture Open Space	Employment Centers	Commercial	Institutional	Total			Daily Total	Ingress	Egress	AM Total	Ingress	Egress	PM Total	Ingress	Egress									
S1	Zone Summary					Future Land Use*					Percent	KSF/DU/AC	Daily Trips					AM Peak Hour Trips					PM Peak Hour Trips							
	Total Developable Acres					Total							Daily Total					AM Total					PM Total							
	0					0							0					0					0							
	Agriculture Open Space					Agriculture Open Space							0					0					0							
	0					0							0					0					0							
	Employment Centers					Employment Centers							0					0					0							
	0					0							0					0					0							
	Commercial					Commercial							0					0					0							
	0					0							0					0					0							
	Institutional					Institutional							0					0					0							
0					0					0					0					0										
Total					Total					Total					Total					Total										
0					0					0					0					0					0					
High Density Residential					High Density Residential					0					0					0					0					
0					0					0					0					0					0					
Low Density					Low Density					0					0					0					0					
0					0					0					0					0					0					
Rural Residential					Rural Residential					0					0					0					0					
0					0					0					0					0					0					
Total					Total					Total					Total					Total					Total					
0					0					0					0					0					0					
Dwelling Units					Dwelling Units					0					0					0					0					
0					0					0					0					0					0					
Total Additional Trips					Total Additional Trips					0					0					0					0					
0					0					0					0					0					0					
S2	Zone Summary					Future Land Use*					Percent	KSF/DU/AC	Daily Trips					AM Peak Hour Trips					PM Peak Hour Trips							
	Total Developable Acres					Total							Daily Total					AM Total					PM Total							
	0					0							0					0					0							
	Agriculture Open Space					Agriculture Open Space							0					0					0							
	0					0							0					0					0							
	Employment Centers					Employment Centers							0					0					0							
	0					0							0					0					0							
	Commercial					Commercial							0					0					0							
	0					0							0					0					0							
	Institutional					Institutional							0					0					0							
0					0					0					0					0										
Total					Total					Total					Total					Total										
0					0					0					0					0										
High Density Residential					High Density Residential					0					0					0										
0					0					0					0					0										
Low Density					Low Density					0					0					0										
0					0					0					0					0										
Rural Residential					Rural Residential					0					0					0										
0					0					0					0					0										
Total					Total					Total					Total					Total										
0					0					0					0					0										
Dwelling Units					Dwelling Units					0					0					0										
0					0					0					0					0										
Total Additional Trips					Total Additional Trips					0					0					0										
0					0					0					0					0										
S3	Zone Summary					Future Land Use*					Percent	KSF/DU/AC	Daily Trips					AM Peak Hour Trips					PM Peak Hour Trips							
	Total Developable Acres					Total							Daily Total					AM Total					PM Total							
	24					24							48					24					24							
	Agriculture Open Space					Agriculture Open Space							0					0					0							
	0					0							0					0					0							
	Employment Centers					Employment Centers							0					0					0							
	0					0							0					0					0							
	Commercial					Commercial							0					0					0							
	0					0							0					0					0							
	Institutional					Institutional							0					0					0							
0					0					0					0					0										
Total					Total					Total					Total					Total										
0					0					0					0					0										
High Density Residential					High Density Residential					0					0					0										
0					0					0					0					0										
Low Density					Low Density					0					0					0										
0					0					0					0					0										
Rural Residential					Rural Residential					0					0					0										
24					24					48					24					24										
Total					Total					Total					Total					Total										
24					24					48					24					24										
Dwelling Units					Dwelling Units					0					0					0										
0					0					0					0					0										
Total Additional Trips					Total Additional Trips					0					0					0										
0					0					0					0					0										

ZONE	Zone Summary				Future Land Use*	Percent	KSF/DU/AC	Daily Trips		AM Peak Hour Trips		PM Peak Hour Trips						
	Total Developable Acres	Developable Acres	Density	Developable Units				Acres	Acres	Daily Total	Ingress	Egress	AM Total	Ingress	Egress	PM Total	Ingress	Egress
										Daily Total	Ingress	Egress	AM Total	Ingress	Egress	PM Total	Ingress	Egress
S4	Total Developable Acres	11																
	Agriculture	0	0	1	0													
	Open Space	0	0	0	0													
	Total	0	0	0	0 Acres													
	Commercial	0	0	0.15	0.0													
	Employment Centers	0	0	0.1	0													
	Institutional	0	0	0.2	0													
	Total	0	0	0 Acres	0 Acres													
	High Density Residential	0	0	8	0													
	Low Density Residential	0	0	0.5	0													
Rural Residential	11	11	0.20	2														
Total	11	11	0.20	2														
Dwelling Units																		
Total																		
Total Additional Trips																		
Daily Total																		
Ingress																		
Egress																		
AM Total																		
Ingress																		
Egress																		
PM Total																		
Ingress																		
Egress																		
ZONE	Zone Summary				Future Land Use*		Percent	KSF/DU/AC	Daily Trips		AM Peak Hour Trips		PM Peak Hour Trips					
Total Developable Acres	68				Acres	Acres												
Agriculture	0	0	1	0														
Open Space	0	0	0	0														
Total	0	0	0 Acres	0 Acres														
Commercial	0	0	0.15	0.0														
Employment Centers	0	0	0.1	0														
Institutional	0	0	0.2	0														
Total	0	0	0 KSF	0 Acres														
High Density Residential	0	0	8	0														
Low Density Residential	0	0	0.5	0														
Rural Residential	68	68	0.20	34														
Total	68	68	0.20	34														
Dwelling Units																		
Total																		
Total Additional Trips																		
Daily Total																		
Ingress																		
Egress																		
AM Total																		
Ingress																		
Egress																		
PM Total																		
Ingress																		
Egress																		
ZONE	Zone Summary				Future Land Use*		Percent	KSF/DU/AC	Daily Trips		AM Peak Hour Trips		PM Peak Hour Trips					
Total Developable Acres	2				Acres	Acres												
Agriculture	0	0	1	0														
Open Space	0	0	0	0														
Total	0	0	0 KSF	0 Acres														
Commercial	0	0	0.15	0														
Employment Centers	0	0	0.1	0														
Institutional	0	0	0.2	0														
Total	0	0	0 KSF	0 Acres														
High Density Residential	0	0	8	0														
Low Density Residential	0	0	0.5	0														
Rural Residential	2	2	0.20	1														
Total	2	2	0.20	1														
Dwelling Units																		
Total																		
Total Additional Trips																		
Daily Total																		
Ingress																		
Egress																		
AM Total																		
Ingress																		
Egress																		
PM Total																		
Ingress																		
Egress																		

ZONE	Zone Summary			Future Land Use*		Percent	KSF/DU/AC	Daily Trips		AM Peak Hour Trips		PM Peak Hour Trips		
	Developable Acres	Density	Developable Units	Acres	Units			Ingress	Egress	AM Total	Egress	AM Total	Egress	PM Total
S7	Total Developable Acres	2	0					0	0	0	0	0	0	
	Agriculture Open Space	0	1	0		100%	0	0	0	0	0	0	0	
	Open Space	2	0	2		0%	0	0	0	0	0	0	0	
	Total	2	0	2	Employment Centers			0	0	0	0	0	0	0
	Commercial	0	0.15	0				0	0	0	0	0	0	
	Employment Centers	0	0.1	0				0	0	0	0	0	0	
	Institutional	0	0.2	0				0	0	0	0	0	0	
	Total	0	0.45	0	Commercial			0	0	0	0	0	0	0
	High Density Residential	0	8	0				0	0	0	0	0	0	0
	Low Density	0	0.5	0				0	0	0	0	0	0	0
Rural Residential	0	0.20	0				0	0	0	0	0	0	0	
Total	0	8.7	0	Institutional			0	0	0	0	0	0	0	
Total	2	0	2	High Density Residential			0	0	0	0	0	0	0	
Total	2	0	2	Rural & Low Density Residential			0	0	0	0	0	0	0	
Total	2	0	2	Additional County Dwelling Units			86	409	65	16	49	86	54	
Total Additional Trips				Total Additional Trips			818	409	65	16	49	86	54	

ZONE	Zone Summary			Future Land Use*		Percent	KSF/DU/AC	Daily Trips		AM Peak Hour Trips		PM Peak Hour Trips	
	Developable Acres	Density	Developable Units	Acres	Units			Ingress	Egress	AM Total	Egress	AM Total	Egress
S8	Total Developable Acres	0	0					0	0	0	0	0	0
	Agriculture Open Space	0	1	0		100%	0	0	0	0	0	0	0
	Open Space	0	0	0		0%	0	0	0	0	0	0	0
	Total	0	0	0	Employment Centers			0	0	0	0	0	0
	Commercial	0	0.15	0				0	0	0	0	0	0
	Employment Centers	0	0.1	0				0	0	0	0	0	0
	Institutional	0	0.2	0				0	0	0	0	0	0
	Total	0	0.45	0	Commercial			0	0	0	0	0	0
	High Density Residential	0	8	0				0	0	0	0	0	0
	Low Density	0	0.5	0				0	0	0	0	0	0
Rural Residential	0	0.20	0				0	0	0	0	0	0	
Total	0	8.7	0	Institutional			0	0	0	0	0	0	
Total	0	0	0	High Density Residential			0	0	0	0	0	0	
Total	0	0	0	Rural & Low Density Residential			0	0	0	0	0	0	
Total	0	0	0	Additional County Dwelling Units			0	0	0	0	0	0	
Total Additional Trips				Total Additional Trips			0	0	0	0	0	0	

ZONE	Zone Summary			Future Land Use*		Percent	KSF/DU/AC	Daily Trips		AM Peak Hour Trips		PM Peak Hour Trips	
	Developable Acres	Density	Developable Units	Acres	Units			Ingress	Egress	AM Total	Egress	AM Total	Egress
S9	Total Developable Acres	0	0					0	0	0	0	0	0
	Agriculture Open Space	0	1	0		100%	0	0	0	0	0	0	0
	Open Space	0	0	0		0%	0	0	0	0	0	0	0
	Total	0	0	0	Employment Centers			0	0	0	0	0	0
	Commercial	0	0.15	0				0	0	0	0	0	0
	Employment Centers	0	0.1	0				0	0	0	0	0	0
	Institutional	0	0.2	0				0	0	0	0	0	0
	Total	0	0.45	0	Commercial			0	0	0	0	0	0
	High Density Residential	0	8	0				0	0	0	0	0	0
	Low Density	0	0.5	0				0	0	0	0	0	0
Rural Residential	0	0.20	0				0	0	0	0	0	0	
Total	0	8.7	0	Institutional			0	0	0	0	0	0	
Total	0	0	0	High Density Residential			0	0	0	0	0	0	
Total	0	0	0	Rural & Low Density Residential			0	0	0	0	0	0	
Total	0	0	0	Additional County Dwelling Units			0	0	0	0	0	0	
Total Additional Trips				Total Additional Trips			0	0	0	0	0	0	

ZONE	Zone Summary				Future Land Use*		Percent	KSF/DU/AC	Daily Trips		AM Peak Hour Trips		PM Peak Hour Trips				
	Total Developable Acres	Developable Acres	Density	Developable Units	Acres	Agriculture Open Space			Daily Total	Ingress	Egress	AM Total	Ingress	Egress	PM Total	Ingress	Egress
S13		27.6															
	Agriculture Open Space	0	0	1	0		0	0	0	0	0	0	0	0	0		
	Total	0	0	0	0		396	198	198	59	52	7	55	8	47		
	Commercial	16	0.15	105			396	198	198	59	52	7	55	8	47		
	Employment Centers	8	0.1	35													
	Institutional	1.6	0.2	3													
	Total	25.6		142.1 KSF													
	High Density Residential	0	8				8,216	4,108	4,108	570	322	247	679	325	354		
	Low Density	2	1	2			0	0	0	0	0	0	0	0	0		
	Rural Residential	0	0.20	0			0	0	0	0	0	0	0	0	0		
	Total	2		2			26	13	13	2	1	1	2	1	1		
	High Density Residential						0	0	0	0	0	0	0	0	0		
Rural & Low Density Residential						20	10	10	2	1	2	2	1	1			
Additional County Dwelling Units						0	0	0	0	0	0	0	0	0			
Total Additional Trips						8,658	4,329	4,329	633	376	257	738	335	403			
S14		8.5															
	Agriculture Open Space	0	0	1	0		0	0	0	0	0	0	0	0	0		
	Total	0	0	0	0		396	198	198	59	52	7	55	8	47		
	Commercial	0	0.15	0													
	Employment Centers	8	0.1	35													
	Institutional	0	0.2	0													
	Total	8		34.8 KSF													
	High Density Residential	0	8				0	0	0	0	0	0	0	0	0		
	Low Density	0.5	1	1			0	0	0	0	0	0	0	0	0		
	Rural Residential	0	0.20	0			0	0	0	0	0	0	0	0	0		
	Total	0.5		1			0	0	0	0	0	0	0	0	0		
	High Density Residential						0	0	0	0	0	0	0	0	0		
Rural & Low Density Residential						10	5	5	1	0	1	1	1	1			
Additional County Dwelling Units						0	0	0	0	0	0	0	0	0			
Total Additional Trips						406	203	203	60	52	8	56	9	47			

Future Land Use Zone Summary - North

ZONE	Step 1				Step 2				Step 3			
	Zone Summary		Future Land Use*		Zone Summary		Future Land Use*		Zone Summary		Future Land Use*	
	Developable Acres	Density	Developable Units	Acres	Percent	KSF/DU/AC	Daily Total	Daily Trips	AM Total	AM Peak Hour Trips	PM Total	PM Peak Hour Trips
N1	Total Developable Acres	122.5										
	Agriculture	0	1	0	100%	0	0	0	0	0	0	0
	Open Space	0	0	0	0%	0	0	0	0	0	0	0
	Total	0	0	0	0%	0	0	0	0	0	0	0
	Commercial	6	0.15	39.2	5%	2.0	1,549	775	334	68	66	111
	Employment Centers	18.5	0.1	80.5	20%	7.8	848	424	424	26	20	76
	Institutional	0	0.2	0.0	75%	29.4	1,060	530	60	42	18	40
	Total	24.5	0.2	119.8	75%	29.4	3,461	1,729	-24	-14	-10	-29
	High Density Residential	0	8	0	100%	39.2	3,112	1,556	216	122	94	257
	Low Density Residential	98	0.05	49	0.00%	0	0	0	0	0	0	0
Rural Residential	9	0.20	49	0.00%	0	0	0	0	0	0	0	
Total	99	0.20	49	100.00%	0	0	0	0	0	0	0	
Dwelling Units				High Density Residential	100%	0	0	0	0	0	0	0
				Rural & Low Density Residential	100%	49	466	233	37	9	28	49
				Additional County Dwelling Units	100%	0	0	0	0	0	0	0
				Total Additional Trips			4,406	2,201	372	235	137	419
N2	Total Developable Acres	135										
	Agriculture	0	1	0	100%	0	0	0	0	0	0	0
	Open Space	0	0	0	0%	0	0	0	0	0	0	0
	Total	0	0	0	0%	0	0	0	0	0	0	0
	Commercial	0	0.15	0	5%	0.0	0	0	0	0	0	0
	Employment Centers	0	0.1	0	20%	0.0	0	0	0	0	0	0
	Institutional	0	0.2	0	75%	0.0	0	0	0	0	0	0
	Total	0	0.2	0	75%	0.0	0	0	0	0	0	0
	High Density Residential	0	8	0	100%	0.0	0	0	0	0	0	0
	Low Density Residential	0	0.05	0	0.00%	0	0	0	0	0	0	0
Rural Residential	135	0.20	27	100.00%	0	0	0	0	0	0	0	
Total	135	0.20	27	100.00%	0	0	0	0	0	0	0	
Dwelling Units				High Density Residential	100%	0	0	0	0	0	0	
				Rural & Low Density Residential	100%	27	258	129	20	5	15	27
				Additional County Dwelling Units	100%	0	0	0	0	0	0	0
				Total Additional Trips			2,458	1,229	173	43	130	231
N3	Total Developable Acres	13										
	Agriculture	0	1	0	100%	0	0	0	0	0	0	0
	Open Space	0	0	0	0%	0	0	0	0	0	0	0
	Total	0	0	0	0%	0	0	0	0	0	0	0
	Commercial	0	0.15	0	5%	0.0	0	0	0	0	0	0
	Employment Centers	0	0.1	0	20%	0.0	0	0	0	0	0	0
	Institutional	13	0.2	23	75%	0.0	0	0	0	0	0	0
	Total	13	0.2	23	75%	0.0	0	0	0	0	0	0
	High Density Residential	0	8	0	100%	0.0	0	0	0	0	0	0
	Low Density Residential	0	0.05	0	0.00%	0	0	0	0	0	0	0
Rural Residential	0	0.20	0	0.00%	0	0	0	0	0	0	0	
Total	0	0.20	0	100.00%	0	0	0	0	0	0	0	
Dwelling Units				High Density Residential	100%	0	0	0	0	0	0	
				Rural & Low Density Residential	100%	0	0	0	0	0	0	
				Additional County Dwelling Units	100%	0	0	0	0	0	0	
				Total Additional Trips			210	105	13	8	5	13

ZONE	Zone Summary				Future Land Use*	Percent	KSF/DU/AC	Daily Trips		AM Peak Hour Trips		PM Peak Hour Trips				
	Total Developable Acres	Developable Acres	Density	Developable Units				Daily Total	Ingress	Egress	AM Total	Ingress	Egress	PM Total	Ingress	Egress
	Acres	Acres														
N7	Agriculture	0	1	0	Agricultural Open Space Employment Centers Commercial High Density Residential Rural & Low Density Residential Additional County Dwelling Units Total Additional Trips	100%	0	0	0	0	0	0	0			
	Open Space	0	0	0 Acres		0%	0	0	0	0	0	0	0	0		
	Commercial	0	0.15	0		50%	0	0	0	0	0	0	0	0		
	Employment Centers	0	0.1	0		50%	0	0	0	0	0	0	0	0		
	Institutional	0	0.2	0		100%	0	0	0	0	0	0	0	0		
	Total	0	0.55	0		100%	0.0	0	0	0	0	0	0	0		
	High Density Residential	0	8	0		0.00%	0	0	0	0	0	0	0	0		
	Low Density Residential	0	0.5	0		0.00%	0	0	0	0	0	0	0	0		
	Rural Residential	4.32	0.20	1		100.00%	0	0	0	0	0	0	0	0		
	Total	4.32	9.25	1		100%	0	0	0	0	0	0	0	0		
Dwelling Units								95.2	476	481	100	63	37			
Total Additional Trips								96.2	483	481	101	64	37			
N8	Agriculture	0	1	0	Agricultural Open Space Employment Centers Commercial High Density Residential Rural & Low Density Residential Additional County Dwelling Units Total Additional Trips	100%	0	0	0	0	0	0	0			
	Open Space	0	0	0 Acres		0%	0	0	0	0	0	0	0	0		
	Commercial	0	0.15	0		50%	0	0	0	0	0	0	0	0		
	Employment Centers	0	0.1	0		50%	0	0	0	0	0	0	0	0		
	Institutional	0	0.2	0		100%	0	0	0	0	0	0	0	0		
	Total	0	0.55	0		100%	0.0	0	0	0	0	0	0	0		
	High Density Residential	0	8	0		0.00%	0	0	0	0	0	0	0	0		
	Low Density Residential	0	0.5	0		0.00%	0	0	0	0	0	0	0	0		
	Rural Residential	0	0.20	0		100.00%	0	0	0	0	0	0	0	0		
	Total	0	9.25	0		100%	0	0	0	0	0	0	0	0		
Dwelling Units								95.2	476	481	100	63	37			
Total Additional Trips								96.2	483	481	101	64	37			
N9	Agriculture	0	1	0	Agricultural Open Space Employment Centers Commercial High Density Residential Rural & Low Density Residential Additional County Dwelling Units Total Additional Trips	100%	0	0	0	0	0	0	0			
	Open Space	0	0	0 Acres		0%	0	0	0	0	0	0	0	0		
	Commercial	0	0.15	0		50%	0	0	0	0	0	0	0	0		
	Employment Centers	0	0.1	0		50%	0	0	0	0	0	0	0	0		
	Institutional	0	0.2	0		100%	0	0	0	0	0	0	0	0		
	Total	0	0.55	0		100%	0.0	0	0	0	0	0	0	0		
	High Density Residential	0	8	0		0.00%	0	0	0	0	0	0	0	0		
	Low Density Residential	177	1	177		0.00%	0	0	0	0	0	0	0	0		
	Rural Residential	0	0.20	0		100.00%	0	0	0	0	0	0	0	0		
	Total	177	9.25	177		100%	0	0	0	0	0	0	0	0		
Dwelling Units								1,686	843	843	333	100	112			
Total Additional Trips								1,132	1,566	1,566	247	329	207			
Total Additional Trips								4,818	2,409	2,409	80	285	187			

Appendix C

Synchro Analyses


























C.1

Existing Conditions (2014)

HCM Signalized Intersection Capacity Analysis

1: VA 20/Constitution Hwy & Rte 3















11/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	21	627	33	179	356	18	46	13	373	15	5	20
Future Volume (vph)	21	627	33	179	356	18	46	13	373	15	5	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0	6.0	7.0	6.0		6.5	6.5	6.5		6.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85		0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1805	3471	1302	1703	3360		1736	1900	1568		1736	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (perm)	1805	3471	1302	1703	3360		1736	1900	1568		1736	
Peak-hour factor, PHF	0.91	0.91	0.91	0.88	0.88	0.88	0.89	0.89	0.89	0.91	0.91	0.91
Adj. Flow (vph)	23	689	36	203	405	20	52	15	419	16	5	22
RTOR Reduction (vph)	0	0	23	0	1	0	0	0	370	0	21	0
Lane Group Flow (vph)	23	689	13	203	424	0	52	15	49	0	22	0
Heavy Vehicles (%)	0%	4%	24%	6%	7%	0%	4%	0%	3%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	3.1	34.3	34.3	17.8	49.0		10.9	10.9	10.9		4.3	
Effective Green, g (s)	3.1	34.3	34.3	17.8	49.0		10.9	10.9	10.9		4.3	
Actuated g/C Ratio	0.03	0.37	0.37	0.19	0.53		0.12	0.12	0.12		0.05	
Clearance Time (s)	7.0	6.0	6.0	7.0	6.0		6.5	6.5	6.5		6.5	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0		3.5	3.5	3.5		3.5	
Lane Grp Cap (vph)	59	1276	478	324	1764		202	221	183		80	
v/s Ratio Prot	0.01	c0.20		c0.12	0.13		0.03	0.01			c0.01	
v/s Ratio Perm			0.01						c0.03			
v/c Ratio	0.39	0.54	0.03	0.63	0.24		0.26	0.07	0.27		0.28	
Uniform Delay, d1	44.2	23.3	18.8	34.7	12.0		37.5	36.7	37.6		43.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	4.2	0.8	0.0	3.8	0.1		0.8	0.2	0.9		2.2	
Delay (s)	48.4	24.1	18.9	38.5	12.2		38.3	36.8	38.5		45.2	
Level of Service	D	C	B	D	B		D	D	D		D	
Approach Delay (s)		24.6			20.7			38.4			45.2	
Approach LOS		C			C			D			D	
Intersection Summary												
HCM 2000 Control Delay			27.3			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			93.3	Sum of lost time (s)				26.0				
Intersection Capacity Utilization			60.4%	ICU Level of Service			B					
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Brock Rd & Rte 3




















11/9/2015

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	1	931	106	17	500	123	24
Future Volume (vph)	1	931	106	17	500	123	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	7.0	7.0	8.0	7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1805	3471	1553	1612	3374	1674	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (perm)	1805	3471	1553	1612	3374	1674	
Peak-hour factor, PHF	0.98	0.98	0.98	0.87	0.87	0.90	0.90
Adj. Flow (vph)	1	950	108	20	575	137	27
RTOR Reduction (vph)	0	0	58	0	0	6	0
Lane Group Flow (vph)	1	950	50	20	575	158	0
Heavy Vehicles (%)	0%	4%	4%	12%	7%	7%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Prot	
Protected Phases	5	2		1	6	3	
Permitted Phases			2				
Actuated Green, G (s)	0.8	33.1	33.1	2.3	34.6	13.4	
Effective Green, g (s)	0.8	33.1	33.1	2.3	34.6	13.4	
Actuated g/C Ratio	0.01	0.47	0.47	0.03	0.49	0.19	
Clearance Time (s)	8.0	7.0	7.0	8.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5	3.0	
Lane Grp Cap (vph)	20	1622	726	52	1648	316	
v/s Ratio Prot	0.00	c0.27		c0.01	0.17	c0.09	
v/s Ratio Perm			0.03				
v/c Ratio	0.05	0.59	0.07	0.38	0.35	0.50	
Uniform Delay, d1	34.6	13.8	10.4	33.6	11.2	25.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	0.7	0.1	4.7	0.2	1.2	
Delay (s)	35.7	14.6	10.4	38.2	11.4	26.9	
Level of Service	D	B	B	D	B	C	
Approach Delay (s)		14.2			12.3	26.9	
Approach LOS		B			B	C	
Intersection Summary							
HCM 2000 Control Delay			14.7		HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.55				
Actuated Cycle Length (s)			70.8		Sum of lost time (s)		22.0
Intersection Capacity Utilization			45.7%		ICU Level of Service		A
Analysis Period (min)			15				
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis

5: Orange Plank Rd & Route 3
























11/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	998	6	128	524	0	1	0	515	0	0	0
Future Volume (vph)	1	998	6	128	524	0	1	0	515	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.1	8.1	8.1	3.5	6.7		6.5		6.5			
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00		1.00			
Frt	1.00	1.00	0.85	1.00	1.00		1.00		0.85			
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95		1.00			
Satd. Flow (prot)	1805	3471	1077	1671	3374		1805		1583			
Flt Permitted	0.43	1.00	1.00	0.14	1.00		0.95		1.00			
Satd. Flow (perm)	812	3471	1077	242	3374		1805		1583			
Peak-hour factor, PHF	0.96	0.96	0.96	0.88	0.88	0.88	0.70	0.70	0.70	0.92	0.92	0.92
Adj. Flow (vph)	1	1040	6	145	595	0	1	0	736	0	0	0
RTOR Reduction (vph)	0	0	4	0	0	0	0	0	32	0	0	0
Lane Group Flow (vph)	1	1040	2	145	595	0	1	0	704	0	0	0
Heavy Vehicles (%)	0%	4%	50%	8%	7%	0%	0%	0%	2%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot		pt+ov			
Protected Phases		2		1	6		3		3	1		
Permitted Phases	2		2	6								
Actuated Green, G (s)	41.2	41.2	41.2	76.3	76.3		15.1		51.8			
Effective Green, g (s)	41.2	41.2	41.2	76.3	76.3		15.1		51.8			
Actuated g/C Ratio	0.39	0.39	0.39	0.73	0.73		0.14		0.50			
Clearance Time (s)	8.1	8.1	8.1	3.5	6.7		6.5					
Vehicle Extension (s)	4.5	4.5	4.5	3.5	4.5		2.5					
Lane Grp Cap (vph)	319	1367	424	589	2461		260		783			
v/s Ratio Prot		c0.30		0.07	0.18		0.00		c0.44			
v/s Ratio Perm	0.00		0.00	0.11								
v/c Ratio	0.00	0.76	0.01	0.25	0.24		0.00		0.90			
Uniform Delay, d1	19.2	27.4	19.3	7.8	4.6		38.3		24.0			
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00		1.00			
Incremental Delay, d2	0.0	2.9	0.0	0.3	0.1		0.0		13.1			
Delay (s)	19.2	30.3	19.3	8.1	4.7		38.3		37.1			
Level of Service	B	C	B	A	A		D		D			
Approach Delay (s)		30.2			5.4			37.1			0.0	
Approach LOS		C			A			D			A	
Intersection Summary												
HCM 2000 Control Delay			25.0				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			104.6				Sum of lost time (s)		18.1			
Intersection Capacity Utilization			71.6%				ICU Level of Service				C	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Old Plank Rd/Elys Ford Rd & Route 3

























11/9/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 			 		
Traffic Volume (vph)	20	1327	99	19	568	49	70	50	16	177	57	23	
Future Volume (vph)	20	1327	99	19	568	49	70	50	16	177	57	23	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	7.0	8.0	8.0	7.0	8.0			7.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00			1.00		
Frt	1.00	1.00	0.85	1.00	0.99			0.98			0.99		
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97			0.97		
Satd. Flow (prot)	1641	3505	1583	1492	3317			1534			1757		
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.70			0.61		
Satd. Flow (perm)	1641	3505	1583	1492	3317			1096			1106		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	22	1442	108	21	617	53	76	54	17	192	62	25	
RTOR Reduction (vph)	0	0	54	0	3	0	0	3	0	0	2	0	
Lane Group Flow (vph)	22	1442	54	21	667	0	0	144	0	0	277	0	
Heavy Vehicles (%)	10%	3%	2%	21%	7%	14%	1%	50%	0%	2%	7%	4%	
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA		
Protected Phases	5	2		1	6			8			4		
Permitted Phases			2				8			4			
Actuated Green, G (s)	5.1	81.0	81.0	5.2	81.1			28.2			30.6		
Effective Green, g (s)	5.1	81.0	81.0	5.2	81.1			28.2			30.6		
Actuated g/C Ratio	0.03	0.46	0.46	0.03	0.46			0.16			0.18		
Clearance Time (s)	7.0	8.0	8.0	7.0	8.0			7.0			7.5		
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0			3.5			3.5		
Lane Grp Cap (vph)	47	1626	734	44	1541			177			193		
v/s Ratio Prot	0.01	c0.41		c0.01	0.20								
v/s Ratio Perm			0.03					c0.13			c0.25		
v/c Ratio	0.47	0.89	0.07	0.48	0.43			0.82			1.44		
Uniform Delay, d1	83.4	42.6	25.9	83.3	31.3			70.6			72.0		
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00		
Incremental Delay, d2	7.2	6.7	0.1	7.9	0.4			24.9			223.6		
Delay (s)	90.6	49.3	26.0	91.3	31.7			95.5			295.6		
Level of Service	F	D	C	F	C			F			F		
Approach Delay (s)		48.3			33.5			95.5			295.6		
Approach LOS		D			C			F			F		
Intersection Summary													
HCM 2000 Control Delay			72.7									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.97										
Actuated Cycle Length (s)			174.5									Sum of lost time (s)	29.5
Intersection Capacity Utilization			69.6%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

12: Andora Dr/Corter Ave & Route 3



























11/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	55	1539	20	107	636	49	5	55	322	68	29	11
Future Volume (vph)	55	1539	20	107	636	49	5	55	322	68	29	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.5		7.0	7.5	7.5		7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Flt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	1770	3499		1656	3374	1392		1892	1568	1649	1645	1369
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	1770	3499		1656	3374	1392		1892	1568	1649	1645	1369
Peak-hour factor, PHF	0.93	0.93	0.93	0.86	0.86	0.86	0.86	0.86	0.86	0.90	0.90	0.90
Adj. Flow (vph)	59	1655	22	124	740	57	6	64	374	76	32	12
RTOR Reduction (vph)	0	0	0	0	0	24	0	0	252	0	0	11
Lane Group Flow (vph)	59	1677	0	124	740	33	0	70	122	53	55	1
Heavy Vehicles (%)	2%	3%	0%	9%	7%	16%	0%	0%	3%	4%	10%	18%
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases						6			8			4
Actuated Green, G (s)	11.7	87.0		16.5	91.8	91.8		17.3	17.3	10.7	10.7	10.7
Effective Green, g (s)	11.7	87.0		16.5	91.8	91.8		17.3	17.3	10.7	10.7	10.7
Actuated g/C Ratio	0.07	0.54		0.10	0.57	0.57		0.11	0.11	0.07	0.07	0.07
Clearance Time (s)	7.0	7.5		7.0	7.5	7.5		7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	6.0	5.0		3.0	5.0	5.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	129	1902		170	1935	798		204	169	110	110	91
v/s Ratio Prot	0.03	c0.48		c0.07	c0.22			0.04		0.03	c0.03	
v/s Ratio Perm						0.02			c0.08			0.00
v/c Ratio	0.46	0.88		0.73	0.38	0.04		0.34	0.72	0.48	0.50	0.01
Uniform Delay, d1	71.1	32.0		69.6	18.6	14.9		66.1	69.0	72.0	72.1	69.7
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.1	6.3		14.5	0.6	0.1		1.0	14.3	3.3	3.5	0.0
Delay (s)	78.2	38.3		84.1	19.2	15.0		67.1	83.3	75.3	75.6	69.7
Level of Service	E	D		F	B	B		E	F	E	E	E
Approach Delay (s)		39.6			27.7			80.8			74.9	
Approach LOS		D			C			F			E	
Intersection Summary												
HCM 2000 Control Delay			43.2	HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)				28.5				
Intersection Capacity Utilization			84.4%	ICU Level of Service				E				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

13: Big Ben Blvd/Spotswood Furnace Rd & Route 3


































11/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	134	1800	8	9	716	249	3	95	27	290	0	85
Future Volume (vph)	134	1800	8	9	716	249	3	95	27	290	0	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5	7.0	6.5	6.5		7.0	7.0	7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.95	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	0.98	
Satd. Flow (prot)	1641	3539	1429	1805	3374	1553		1793	1615	1545	1392	
Flt Permitted	0.22	1.00	1.00	0.05	1.00	1.00		1.00	1.00	0.95	0.98	
Satd. Flow (perm)	386	3539	1429	99	3374	1553		1793	1615	1545	1392	
Peak-hour factor, PHF	0.89	0.89	0.89	0.85	0.85	0.85	0.48	0.48	0.48	0.80	0.61	0.61
Adj. Flow (vph)	151	2022	9	11	842	293	6	198	56	362	0	139
RTOR Reduction (vph)	0	0	4	0	0	139	0	0	51	0	137	0
Lane Group Flow (vph)	151	2022	5	11	842	154	0	204	5	258	107	0
Heavy Vehicles (%)	10%	2%	13%	0%	7%	4%	0%	6%	0%	11%	13%	20%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2		2	6		6			8			
Actuated Green, G (s)	96.5	86.6	86.6	79.4	76.5	76.5		14.1	14.1	28.4	28.4	
Effective Green, g (s)	96.5	86.6	86.6	79.4	76.5	76.5		14.1	14.1	28.4	28.4	
Actuated g/C Ratio	0.60	0.54	0.54	0.50	0.48	0.48		0.09	0.09	0.18	0.18	
Clearance Time (s)	7.0	6.5	6.5	7.0	6.5	6.5		7.0	7.0	7.5	7.5	
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0		5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	334	1915	773	80	1613	742		158	142	274	247	
v/s Ratio Prot	c0.04	c0.57		0.00	0.25			c0.11		c0.17	0.08	
v/s Ratio Perm	0.24		0.00	0.07		0.10			0.00			
v/c Ratio	0.45	1.06	0.01	0.14	0.52	0.21		1.29	0.03	0.94	0.43	
Uniform Delay, d1	17.1	36.7	16.9	36.9	29.0	24.2		73.0	66.7	65.0	58.6	
Progression Factor	1.00	1.00	1.00	0.98	0.80	0.57		1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	37.2	0.0	1.0	1.1	0.6		170.0	0.2	39.7	2.5	
Delay (s)	18.5	73.9	16.9	37.3	24.5	14.3		242.9	66.9	104.7	61.1	
Level of Service	B	E	B	D	C	B		F	E	F	E	
Approach Delay (s)		69.8			22.0			205.0			83.5	
Approach LOS		E			C			F			F	
Intersection Summary												
HCM 2000 Control Delay			66.7				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)		28.0			
Intersection Capacity Utilization			88.7%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: Harrison Rd/Harrison & Route 3








11/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 		
Traffic Volume (vph)	120	1615	378	20	614	75	264	114	87	64	40	37
Future Volume (vph)	120	1615	378	20	614	75	264	114	87	64	40	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.5	7.5	7.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	5036	1524	3335	4803	1509	3400	3610	1583	3303	1900	1615
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	5036	1524	3335	4803	1509	3400	3610	1583	3303	1900	1615
Peak-hour factor, PHF	0.85	0.85	0.85	0.92	0.92	0.92	0.72	0.72	0.72	0.90	0.90	0.90
Adj. Flow (vph)	141	1900	445	22	667	82	367	158	121	71	44	41
RTOR Reduction (vph)	0	0	115	0	0	36	0	0	106	0	0	39
Lane Group Flow (vph)	141	1900	330	22	667	46	367	158	15	71	44	2
Heavy Vehicles (%)	1%	3%	6%	5%	8%	7%	3%	0%	2%	6%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	11.8	97.2	97.2	4.8	90.2	90.2	21.5	20.3	20.3	9.2	8.0	8.0
Effective Green, g (s)	11.8	97.2	97.2	4.8	90.2	90.2	21.5	20.3	20.3	9.2	8.0	8.0
Actuated g/C Ratio	0.07	0.61	0.61	0.03	0.56	0.56	0.13	0.13	0.13	0.06	0.05	0.05
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	255	3059	925	100	2707	850	456	458	200	189	95	80
v/s Ratio Prot	c0.04	c0.38		0.01	0.14		c0.11	0.04		0.02	c0.02	
v/s Ratio Perm			0.22			0.03			0.01			0.00
v/c Ratio	0.55	0.62	0.36	0.22	0.25	0.05	0.80	0.34	0.08	0.38	0.46	0.03
Uniform Delay, d1	71.6	19.8	15.7	75.8	17.7	15.7	67.2	63.8	61.6	72.6	73.9	72.3
Progression Factor	1.19	0.50	0.26	0.96	0.97	3.60	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.4	0.5	1.1	0.2	0.1	9.9	0.5	0.2	1.3	3.5	0.1
Delay (s)	86.4	10.2	4.6	73.7	17.4	56.6	77.2	64.2	61.8	73.9	77.5	72.4
Level of Service	F	B	A	E	B	E	E	E	E	E	E	E
Approach Delay (s)		13.5			23.2			71.1			74.5	
Approach LOS		B			C			E			E	
Intersection Summary												
HCM 2000 Control Delay			26.9	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)				28.5				
Intersection Capacity Utilization			70.0%	ICU Level of Service				C				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

15: Gordon Rd & Route 3




















11/9/2015

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⇐	⇐⇐⇐	⇐	⇐	⇐⇐⇐	⇐⇐	⇐⇐
Traffic Volume (vph)	0	1724	34	115	671	30	423
Future Volume (vph)	0	1724	34	115	671	30	423
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	7.5	7.5	7.5	6.5	7.5
Lane Util. Factor		0.91	1.00	1.00	0.91	0.97	0.88
Fr _t		1.00	0.85	1.00	1.00	1.00	0.85
Fl _t Protected		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)		5036	1615	1671	4803	3273	2787
Fl _t Permitted		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)		5036	1615	1671	4803	3273	2787
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.92	0.92
Adj. Flow (vph)	0	2028	40	126	737	33	460
RTOR Reduction (vph)	0	0	14	0	0	0	11
Lane Group Flow (vph)	0	2028	26	126	737	33	449
Heavy Vehicles (%)	0%	3%	0%	8%	8%	7%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Prot	pm+ov
Protected Phases	5	2		1	6	4	1
Permitted Phases			2				4
Actuated Green, G (s)		105.6	105.6	26.5	139.6	6.4	32.9
Effective Green, g (s)		105.6	105.6	26.5	139.6	6.4	32.9
Actuated g/C Ratio		0.66	0.66	0.17	0.87	0.04	0.21
Clearance Time (s)		7.5	7.5	7.5	7.5	6.5	7.5
Vehicle Extension (s)		5.0	5.0	3.0	5.0	3.5	3.0
Lane Grp Cap (vph)		3323	1065	276	4190	130	573
v/s Ratio Prot		c0.40		0.08	0.15	0.01	c0.13
v/s Ratio Perm			0.02				0.03
v/c Ratio		0.61	0.02	0.46	0.18	0.25	0.78
Uniform Delay, d ₁		15.5	9.4	60.3	1.5	74.5	60.2
Progression Factor		1.07	1.87	1.00	1.00	1.00	1.00
Incremental Delay, d ₂		0.7	0.0	1.2	0.1	1.2	6.9
Delay (s)		17.3	17.6	61.4	1.6	75.7	67.1
Level of Service		B	B	E	A	E	E
Approach Delay (s)		17.3			10.4	67.7	
Approach LOS		B			B	E	
Intersection Summary							
HCM 2000 Control Delay			22.8		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.65				
Actuated Cycle Length (s)			160.0		Sum of lost time (s)		21.5
Intersection Capacity Utilization			62.6%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2: Rte 3 & Fox Gate Dr




















11/5/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	3	963	0	2	634	2	0	0	0	36	0	4	
Future Volume (Veh/h)	3	963	0	2	634	2	0	0	0	36	0	4	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.98	0.98	0.92	0.92	0.94	0.94	0.92	0.92	0.92	0.67	0.92	0.67	
Hourly flow rate (vph)	3	983	0	2	674	2	0	0	0	54	0	6	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	Raised			Raised									
Median storage (veh)	2			2									
Upstream signal (ft)													
pX, platoon unblocked													
vC, conflicting volume	676			983			1336			1669			492
vC1, stage 1 conf vol							989			989			678
vC2, stage 2 conf vol							347			680			498
vCu, unblocked vol	676			983			1336			1669			492
tC, single (s)	4.1			5.1			7.5			6.5			6.9
tC, 2 stage (s)							6.5			5.5			6.6
tF (s)	2.2			2.7			3.5			4.0			3.3
p0 queue free %	100			100			100			100			84
cM capacity (veh/h)	925			468			248			269			523
Direction, Lane #													
	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	3	492	492	2	337	337	2	0	60				
Volume Left	3	0	0	2	0	0	0	0	54				
Volume Right	0	0	0	0	0	0	2	0	6				
cSH	925	1700	1700	468	1700	1700	1700	1700	350				
Volume to Capacity	0.00	0.29	0.29	0.00	0.20	0.20	0.00	0.00	0.17				
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	15				
Control Delay (s)	8.9	0.0	0.0	12.7	0.0	0.0	0.0	0.0	17.4				
Lane LOS	A			B			A			C			
Approach Delay (s)	0.0			0.0			0.0			17.4			
Approach LOS							A			C			
Intersection Summary													
Average Delay	0.6												
Intersection Capacity Utilization	36.6%			ICU Level of Service			A						
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis

4: Rte 3 & Black Meadow Rd















11/5/2015

																	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR					
Lane Configurations																	
Traffic Volume (veh/h)	11	949	0	4	524	3	0	0	0	32	0	13					
Future Volume (Veh/h)	11	949	0	4	524	3	0	0	0	32	0	13					
Sign Control	Free			Free			Stop			Stop							
Grade	0%			0%			0%			0%							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.80	0.92	0.80					
Hourly flow rate (vph)	12	1032	0	4	589	3	0	0	0	40	0	16					
Pedestrians																	
Lane Width (ft)																	
Walking Speed (ft/s)																	
Percent Blockage																	
Right turn flare (veh)																	
Median type	Raised			Raised													
Median storage (veh)	2			2													
Upstream signal (ft)																	
pX, platoon unblocked																	
vC, conflicting volume	592		1032			1374		1656		516		1137		1653		294	
vC1, stage 1 conf vol						1056		1056				597		597			
vC2, stage 2 conf vol						318		600				540		1056			
vCu, unblocked vol	592		1032			1374		1656		516		1137		1653		294	
tC, single (s)	4.1		4.1			7.5		6.5		6.9		7.7		6.5		7.2	
tC, 2 stage (s)						6.5		5.5				6.7		5.5			
tF (s)	2.2		2.2			3.5		4.0		3.3		3.6		4.0		3.4	
p0 queue free %	99		99			100		100		100		88		100		98	
cM capacity (veh/h)	994		669			226		259		504		339		258		665	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1								
Volume Total	12	688	344	4	294	294	3	0	56								
Volume Left	12	0	0	4	0	0	0	0	40								
Volume Right	0	0	0	0	0	0	3	0	16								
cSH	994	1700	1700	669	1700	1700	1700	1700	394								
Volume to Capacity	0.01	0.40	0.20	0.01	0.17	0.17	0.00	0.00	0.14								
Queue Length 95th (ft)	1	0	0	0	0	0	0	0	12								
Control Delay (s)	8.7	0.0	0.0	10.4	0.0	0.0	0.0	0.0	15.6								
Lane LOS	A			B			A			C							
Approach Delay (s)	0.1			0.1			0.0			15.6							
Approach LOS	A			A			C			C							
Intersection Summary																	
Average Delay	0.6																
Intersection Capacity Utilization	36.2%			ICU Level of Service			A										
Analysis Period (min)	15																

HCM Unsignalized Intersection Capacity Analysis

6: Wilderness Rd & Route 3




















11/5/2015

								
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations								
Traffic Volume (veh/h)	0	1508	6	1	638	4	2	
Future Volume (Veh/h)	0	1508	6	1	638	4	2	
Sign Control		Free			Free	Stop		
Grade		0%			0%	0%		
Peak Hour Factor	0.92	0.88	0.88	0.83	0.83	0.50	0.50	
Hourly flow rate (vph)	0	1714	7	1	769	8	4	
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		Raised			Raised			
Median storage (veh)		2			2			
Upstream signal (ft)								
pX, platoon unblocked	0.00							
vC, conflicting volume	0			1721		2100	857	
vC1, stage 1 conf vol						1714		
vC2, stage 2 conf vol						386		
vCu, unblocked vol	0			1721		2100	857	
tC, single (s)	0.0			4.1		7.3	6.9	
tC, 2 stage (s)						6.3		
tF (s)	0.0			2.2		3.8	3.3	
p0 queue free %	0			100		92	99	
cM capacity (veh/h)	0			373		99	305	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	857	857	7	0	1	384	384	12
Volume Left	0	0	0	0	1	0	0	8
Volume Right	0	0	7	0	0	0	0	4
cSH	1700	1700	1700	1700	373	1700	1700	128
Volume to Capacity	0.50	0.50	0.00	0.00	0.00	0.23	0.23	0.09
Queue Length 95th (ft)	0	0	0	0	0	0	0	8
Control Delay (s)	0.0	0.0	0.0	0.0	14.7	0.0	0.0	36.0
Lane LOS					B			E
Approach Delay (s)	0.0				0.0			36.0
Approach LOS								E
Intersection Summary								
Average Delay			0.2					
Intersection Capacity Utilization			51.7%		ICU Level of Service			A
Analysis Period (min)			15					

HCM Unsignalized Intersection Capacity Analysis

7: Stuart Dr/Bullock Rd & Route 3

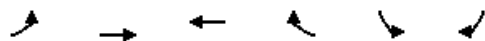
11/5/2015

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Traffic Volume (veh/h)	18	1515	0	0	569	0	0	0	0	0	0	0						
Future Volume (Veh/h)	18	1515	0	0	569	0	0	0	0	0	0	0						
Sign Control	Free			Free			Stop			Stop								
Grade	0%			0%			0%			0%								
Peak Hour Factor	0.83	0.83	0.83	0.79	0.79	0.79	0.92	0.92	0.92	0.92	0.92	0.92						
Hourly flow rate (vph)	22	1825	0	0	720	0	0	0	0	0	0	0						
Pedestrians																		
Lane Width (ft)																		
Walking Speed (ft/s)																		
Percent Blockage																		
Right turn flare (veh)																		
Median type	Raised			Raised														
Median storage (veh)	1			1														
Upstream signal (ft)																		
pX, platoon unblocked																		
vC, conflicting volume	720		1825			2229		2589		912		1676		2589		360		
vC1, stage 1 conf vol						1869		1869		720		720						
vC2, stage 2 conf vol						360		720		956		1869						
vCu, unblocked vol	720		1825			2229		2589		912		1676		2589		360		
tC, single (s)	4.1		4.1			7.5		6.5		6.9		7.5		6.5		6.9		
tC, 2 stage (s)						6.5		5.5		6.5		5.5						
tF (s)	2.2		2.2			3.5		4.0		3.3		3.5		4.0		3.3		
p0 queue free %	98		100			100		100		100		100		100		100		
cM capacity (veh/h)	891		340			64		92		280		174		93		642		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1										
Volume Total	22	1217	608	0	480	240	0	0										
Volume Left	22	0	0	0	0	0	0	0										
Volume Right	0	0	0	0	0	0	0	0										
cSH	891	1700	1700	1700	1700	1700	1700	1700										
Volume to Capacity	0.02	0.72	0.36	0.00	0.28	0.14	0.00	0.00										
Queue Length 95th (ft)	2	0	0	0	0	0	0	0										
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0										
Lane LOS	A							A	A									
Approach Delay (s)	0.1	0.0			0.0			0.0	0.0									
Approach LOS									A	A								
Intersection Summary																		
Average Delay			0.1															
Intersection Capacity Utilization			49.9%			ICU Level of Service						A						
Analysis Period (min)			15															

HCM Unsignalized Intersection Capacity Analysis

9: Route 3 & River Rd

11/5/2015



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	149	1374	604	5	4	27
Future Volume (Veh/h)	149	1374	604	5	4	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.91	0.91	0.70	0.70
Hourly flow rate (vph)	171	1579	664	5	6	39
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage (veh)		2	2			
Upstream signal (ft)		570				
pX, platoon unblocked					0.63	
vC, conflicting volume	669				1798	334
vC1, stage 1 conf vol					666	
vC2, stage 2 conf vol					1132	
vCu, unblocked vol	669				1079	334
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	82				98	94
cM capacity (veh/h)	931				359	667
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	171	790	790	443	226	45
Volume Left	171	0	0	0	0	6
Volume Right	0	0	0	0	5	39
cSH	931	1700	1700	1700	1700	599
Volume to Capacity	0.18	0.46	0.46	0.26	0.13	0.08
Queue Length 95th (ft)	17	0	0	0	0	6
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	11.5
Lane LOS	A					B
Approach Delay (s)	1.0			0.0		11.5
Approach LOS						B
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			48.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

10: Route 3 & 9 Mile Run

11/5/2015



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↕↕	↕↕		↕↕	
Traffic Volume (veh/h)	1	1424	607	6	18	4
Future Volume (Veh/h)	1	1424	607	6	18	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.94	0.94	0.79	0.79
Hourly flow rate (vph)	1	1656	646	6	23	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	652				1479	326
vC1, stage 1 conf vol					649	
vC2, stage 2 conf vol					830	
vCu, unblocked vol	652				1479	326
tC, single (s)	4.1				6.9	6.9
tC, 2 stage (s)					5.9	
tF (s)	2.2				3.6	3.3
p0 queue free %	100				93	99
cM capacity (veh/h)	944				307	676







Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SW 1
Volume Total	553	1104	431	221	28
Volume Left	1	0	0	0	23
Volume Right	0	0	0	6	5
cSH	944	1700	1700	1700	340
Volume to Capacity	0.00	0.65	0.25	0.13	0.08
Queue Length 95th (ft)	0	0	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	16.5
Lane LOS	A				C
Approach Delay (s)	0.0		0.0		16.5
Approach LOS					C

Intersection Summary					
Average Delay			0.2		
Intersection Capacity Utilization			50.1%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis

11: McLaws Dr & Route 3
























11/5/2015

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑	
Traffic Volume (veh/h)	1500	5	12	609	1	40
Future Volume (Veh/h)	1500	5	12	609	1	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.83	0.83	0.49	0.49
Hourly flow rate (vph)	1667	6	14	734	2	82
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised		Raised			
Median storage (veh)	4		4			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1667		2062	834
vC1, stage 1 conf vol					1667	
vC2, stage 2 conf vol					395	
vCu, unblocked vol			1667		2062	834
tC, single (s)			4.3		6.8	7.0
tC, 2 stage (s)					5.8	
tF (s)			2.3		3.5	3.3
p0 queue free %			96		99	74
cM capacity (veh/h)			356		141	310
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	834	834	6	259	489	84
Volume Left	0	0	0	14	0	2
Volume Right	0	0	6	0	0	82
cSH	1700	1700	1700	356	1700	301
Volume to Capacity	0.49	0.49	0.00	0.04	0.29	0.28
Queue Length 95th (ft)	0	0	0	3	0	28
Control Delay (s)	0.0	0.0	0.0	1.5	0.0	21.5
Lane LOS				A	C	
Approach Delay (s)	0.0			0.5	21.5	
Approach LOS					C	
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			51.5%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

20: Glade Dr & Route 3


























11/5/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 					
Traffic Volume (veh/h)	1	1538	1	1	619	1	1	0	1	1	0	1	
Future Volume (Veh/h)	1	1538	1	1	619	1	1	0	1	1	0	1	
Sign Control		Free			Free			Stop			Stop		
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)	1	1672	1	1	673	1	1	0	1	1	0	1	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
2													
Median type													
Raised													
Median storage (veh)													
4													
Upstream signal (ft)													
pX, platoon unblocked													
vC, conflicting volume													
674													
1673													
2013													
2350													
836													
1514													
2350													
336													
vC1, stage 1 conf vol													
1674													
1674													
675													
675													
vC2, stage 2 conf vol													
338													
676													
839													
1675													
vCu, unblocked vol													
674													
1673													
2013													
2350													
836													
1514													
2350													
336													
tC, single (s)													
4.1													
4.1													
7.5													
6.5													
6.9													
7.5													
6.5													
6.9													
tC, 2 stage (s)													
6.5													
5.5													
6.5													
5.5													
tF (s)													
2.2													
2.2													
3.5													
4.0													
3.3													
3.5													
4.0													
3.3													
p0 queue free %													
100													
100													
99													
100													
100													
100													
100													
cM capacity (veh/h)													
913													
380													
99													
150													
310													
299													
148													
659													
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	1	1115	558	1	336	336	1	2	2				
Volume Left	1	0	0	1	0	0	0	1	1				
Volume Right	0	0	1	0	0	0	1	1	1				
cSH	913	1700	1700	380	1700	1700	1700	150	598				
Volume to Capacity	0.00	0.66	0.33	0.00	0.20	0.20	0.00	0.01	0.00				
Queue Length 95th (ft)	0	0	0	0	0	0	0	1	0				
Control Delay (s)	8.9	0.0	0.0	14.5	0.0	0.0	0.0	29.3	13.8				
Lane LOS	A			B				D	B				
Approach Delay (s)	0.0			0.0				29.3	13.8				
Approach LOS								D	B				
Intersection Summary													
Average Delay	0.0												
Intersection Capacity Utilization	52.5%			ICU Level of Service						A			
Analysis Period (min)	15												

HCM Signalized Intersection Capacity Analysis

1: VA 20/Constitution Hwy & Rte 3

11/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	37	620	108	401	699	59	86	19	262	29	22	17
Future Volume (vph)	37	620	108	401	699	59	86	19	262	29	22	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0	6.0	7.0	6.0		6.5	6.5	6.5		6.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1805	3471	1583	1770	3466		1787	1810	1509		1747	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (perm)	1805	3471	1583	1770	3466		1787	1810	1509		1747	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	41	689	120	441	768	65	91	20	276	31	23	18
RTOR Reduction (vph)	0	0	84	0	3	0	0	0	247	0	8	0
Lane Group Flow (vph)	41	689	36	441	830	0	91	20	29	0	64	0
Heavy Vehicles (%)	0%	4%	2%	2%	3%	2%	1%	5%	7%	3%	5%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	7.9	35.6	35.6	36.0	63.7		12.3	12.3	12.3		8.6	
Effective Green, g (s)	7.9	35.6	35.6	36.0	63.7		12.3	12.3	12.3		8.6	
Actuated g/C Ratio	0.07	0.30	0.30	0.30	0.54		0.10	0.10	0.10		0.07	
Clearance Time (s)	7.0	6.0	6.0	7.0	6.0		6.5	6.5	6.5		6.5	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0		3.5	3.5	3.5		3.5	
Lane Grp Cap (vph)	120	1042	475	537	1863		185	187	156		126	
v/s Ratio Prot	0.02	c0.20		c0.25	0.24		c0.05	0.01			c0.04	
v/s Ratio Perm			0.02						0.02			
v/c Ratio	0.34	0.66	0.08	0.82	0.45		0.49	0.11	0.18		0.51	
Uniform Delay, d1	52.8	36.2	29.7	38.3	16.7		50.1	48.1	48.5		52.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	1.7	2.1	0.1	9.8	0.4		2.4	0.3	0.7		3.7	
Delay (s)	54.5	38.3	29.8	48.0	17.0		52.6	48.4	49.2		56.6	
Level of Service	D	D	C	D	B		D	D	D		E	
Approach Delay (s)		37.9			27.8			49.9			56.6	
Approach LOS		D			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			35.2				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			118.5				Sum of lost time (s)			26.0		
Intersection Capacity Utilization			65.2%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Brock Rd & Rte 3

11/9/2015



Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↕↕	↗	↖	↕↕	↘↘	
Traffic Volume (vph)	1	746	192	51	933	175	12
Future Volume (vph)	1	746	192	51	933	175	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	7.0	7.0	8.0	7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1805	3438	1568	1703	3539	1734	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (perm)	1805	3438	1568	1703	3539	1734	
Peak-hour factor, PHF	0.97	0.97	0.97	0.91	0.91	0.92	0.92
Adj. Flow (vph)	1	769	198	56	1025	190	13
RTOR Reduction (vph)	0	0	113	0	0	2	0
Lane Group Flow (vph)	1	769	85	56	1025	201	0
Heavy Vehicles (%)	0%	5%	3%	6%	2%	4%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Prot	
Protected Phases	5	2		1	6	3	
Permitted Phases			2				
Actuated Green, G (s)	0.8	31.7	31.7	4.8	35.7	15.0	
Effective Green, g (s)	0.8	31.7	31.7	4.8	35.7	15.0	
Actuated g/C Ratio	0.01	0.43	0.43	0.07	0.49	0.20	
Clearance Time (s)	8.0	7.0	7.0	8.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.5	4.5	3.0	4.5	3.0	
Lane Grp Cap (vph)	19	1482	676	111	1718	353	
v/s Ratio Prot	0.00	0.22		c0.03	c0.29	c0.12	
v/s Ratio Perm			0.05				
v/c Ratio	0.05	0.52	0.13	0.50	0.60	0.57	
Uniform Delay, d1	36.0	15.3	12.6	33.2	13.7	26.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.5	0.1	3.6	0.8	2.1	
Delay (s)	37.1	15.8	12.7	36.8	14.4	28.4	
Level of Service	D	B	B	D	B	C	
Approach Delay (s)		15.2			15.6	28.4	
Approach LOS		B			B	C	

Intersection Summary

HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	73.5	Sum of lost time (s)	22.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: Orange Plank Rd & Route 3
























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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	754	6	424	1044	0	6	0	250	0	0	0
Future Volume (vph)	0	754	6	424	1044	0	6	0	250	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.1	8.1	3.5	6.7		6.5		3.5			
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00		1.00			
Flt		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)		3471	1615	1787	3539		1543		1583			
Flt Permitted		1.00	1.00	0.29	1.00		0.95		1.00			
Satd. Flow (perm)		3471	1615	542	3539		1543		1583			
Peak-hour factor, PHF	0.95	0.95	0.95	0.89	0.89	0.89	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	794	6	476	1173	0	6	0	260	0	0	0
RTOR Reduction (vph)	0	0	4	0	0	0	0	0	95	0	0	0
Lane Group Flow (vph)	0	794	2	476	1173	0	6	0	165	0	0	0
Heavy Vehicles (%)	0%	4%	0%	1%	2%	0%	17%	0%	2%	0%	0%	0%
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot		pm+ov			
Protected Phases		2		1	6		3		1			
Permitted Phases	2		2	6					3			
Actuated Green, G (s)		22.2	22.2	39.5	39.5		0.9		13.3			
Effective Green, g (s)		22.2	22.2	39.5	39.5		0.9		13.3			
Actuated g/C Ratio		0.41	0.41	0.74	0.74		0.02		0.25			
Clearance Time (s)		8.1	8.1	3.5	6.7		6.5		3.5			
Vehicle Extension (s)		4.5	4.5	3.5	4.5		2.5		3.5			
Lane Grp Cap (vph)		1437	668	687	2608		25		392			
v/s Ratio Prot		0.23		c0.16	0.33		0.00		c0.10			
v/s Ratio Perm			0.00	c0.35					0.01			
v/c Ratio		0.55	0.00	0.69	0.45		0.24		0.42			
Uniform Delay, d1		11.9	9.2	3.3	2.8		26.0		16.9			
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Incremental Delay, d2		0.7	0.0	3.1	0.2		3.6		0.9			
Delay (s)		12.6	9.2	6.5	3.0		29.6		17.8			
Level of Service		B	A	A	A		C		B			
Approach Delay (s)		12.6			4.0			18.0			0.0	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			7.9				HCM 2000 Level of Service		A			
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			53.6				Sum of lost time (s)		18.1			
Intersection Capacity Utilization			61.1%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Old Plank Rd/Elys Ford Rd & Route 3

























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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	20	888	96	14	1376	157	101	27	14	124	30	20
Future Volume (vph)	20	888	96	14	1376	157	101	27	14	124	30	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	8.0	8.0	7.0	8.0			7.0			7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.98			0.99			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97			0.97	
Satd. Flow (prot)	1805	3471	1583	1805	3488			1810			1742	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.67			0.78	
Satd. Flow (perm)	1805	3471	1583	1805	3488			1257			1401	
Peak-hour factor, PHF	0.98	0.98	0.98	0.90	0.90	0.90	0.93	0.93	0.93	0.89	0.89	0.89
Adj. Flow (vph)	20	906	98	16	1529	174	109	29	15	139	34	22
RTOR Reduction (vph)	0	0	50	0	4	0	0	2	0	0	3	0
Lane Group Flow (vph)	20	906	48	16	1699	0	0	151	0	0	192	0
Heavy Vehicles (%)	0%	4%	2%	0%	2%	1%	0%	0%	0%	2%	10%	5%
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)	4.8	86.3	86.3	4.5	86.0			26.4			27.8	
Effective Green, g (s)	4.8	86.3	86.3	4.5	86.0			26.4			27.8	
Actuated g/C Ratio	0.03	0.49	0.49	0.03	0.49			0.15			0.16	
Clearance Time (s)	7.0	8.0	8.0	7.0	8.0			7.0			7.5	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0			3.5			3.5	
Lane Grp Cap (vph)	49	1716	782	46	1719			190			223	
v/s Ratio Prot	c0.01	0.26		0.01	c0.49							
v/s Ratio Perm			0.03					c0.12			c0.14	
v/c Ratio	0.41	0.53	0.06	0.35	0.99			0.80			0.86	
Uniform Delay, d1	83.5	30.2	23.0	83.6	43.8			71.5			71.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	5.5	0.6	0.1	4.5	18.9			20.7			27.9	
Delay (s)	88.9	30.7	23.1	88.1	62.7			92.2			99.4	
Level of Service	F	C	C	F	E			F			F	
Approach Delay (s)		31.1			62.9			92.2			99.4	
Approach LOS		C			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			56.1			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			174.5			Sum of lost time (s)			29.5			
Intersection Capacity Utilization			67.0%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

12: Andora Dr/Corter Ave & Route 3



























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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 								
Traffic Volume (vph)	13	898	12	360	1490	71	12	8	208	56	19	23	
Future Volume (vph)	13	898	12	360	1490	71	12	8	208	56	19	23	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	7.0	7.5		7.0	7.5	7.5		7.0	7.0	7.0	7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00	
Flt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	0.98	1.00	
Satd. Flow (prot)	1805	3434		1805	3574	1455		1845	1599	1545	1631	1553	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.97	1.00	0.95	0.98	1.00	
Satd. Flow (perm)	1805	3434		1805	3574	1455		1845	1599	1545	1631	1553	
Peak-hour factor, PHF	0.98	0.98	0.98	0.93	0.93	0.93	0.93	0.93	0.93	0.84	0.84	0.84	
Adj. Flow (vph)	13	916	12	387	1602	76	13	9	224	67	23	27	
RTOR Reduction (vph)	0	1	0	0	0	22	0	0	212	0	0	26	
Lane Group Flow (vph)	13	927	0	387	1602	54	0	22	12	44	46	1	
Heavy Vehicles (%)	0%	5%	0%	0%	1%	11%	0%	0%	1%	11%	5%	4%	
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm	
Protected Phases	5	2		1	6		8	8		4	4		
Permitted Phases						6			8			4	
Actuated Green, G (s)	3.2	78.5		44.9	120.2	120.2		9.1	9.1	9.0	9.0	9.0	
Effective Green, g (s)	3.2	78.5		44.9	120.2	120.2		9.1	9.1	9.0	9.0	9.0	
Actuated g/C Ratio	0.02	0.46		0.26	0.71	0.71		0.05	0.05	0.05	0.05	0.05	
Clearance Time (s)	7.0	7.5		7.0	7.5	7.5		7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	5.0		6.0	5.0	5.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	33	1585		476	2527	1028		98	85	81	86	82	
v/s Ratio Prot	0.01	0.27		c0.21	c0.45			c0.01		c0.03	0.03		
v/s Ratio Perm						0.04			0.01			0.00	
v/c Ratio	0.39	0.59		0.81	0.63	0.05		0.22	0.14	0.54	0.53	0.02	
Uniform Delay, d1	82.4	33.7		58.6	13.2	7.6		77.1	76.7	78.5	78.5	76.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.6	1.6		12.0	1.2	0.1		1.2	0.8	7.2	6.3	0.1	
Delay (s)	90.0	35.3		70.6	14.4	7.7		78.2	77.5	85.7	84.7	76.4	
Level of Service	F	D		E	B	A		E	E	F	F	E	
Approach Delay (s)		36.1			24.7			77.6			83.2		
Approach LOS		D			C			E			F		
Intersection Summary													
HCM 2000 Control Delay			33.8	HCM 2000 Level of Service						C			
HCM 2000 Volume to Capacity ratio			0.67										
Actuated Cycle Length (s)			170.0	Sum of lost time (s)						28.5			
Intersection Capacity Utilization			72.0%	ICU Level of Service						C			
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

13: Big Ben Blvd/Spotswood Furnace Rd & Route 3



































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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	71	1079	6	75	1774	260	6	8	30	260	0	115
Future Volume (vph)	71	1079	6	75	1774	260	6	8	30	260	0	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.5	6.5	7.0	6.5	6.5		7.0	7.0	7.5	7.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.95	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98	1.00	0.95	0.98	
Satd. Flow (prot)	1736	3471	1615	1805	3539	1583		1860	1615	1715	1593	
Flt Permitted	0.04	1.00	1.00	0.15	1.00	1.00		0.98	1.00	0.95	0.98	
Satd. Flow (perm)	73	3471	1615	285	3539	1583		1860	1615	1715	1593	
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.69	0.69	0.69	0.80	0.80	0.80
Adj. Flow (vph)	82	1240	7	82	1949	286	9	12	43	325	0	144
RTOR Reduction (vph)	0	0	3	0	0	62	0	0	41	0	95	0
Lane Group Flow (vph)	82	1240	4	82	1949	224	0	21	2	244	130	0
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%	0%	0%	0%	0%	0%	1%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Prot	Split	NA	
Protected Phases	5	2		1	6		8	8	8	4	4	
Permitted Phases	2		2	6		6						
Actuated Green, G (s)	109.0	99.9	99.9	109.0	99.9	99.9		7.5	7.5	25.5	25.5	
Effective Green, g (s)	109.0	99.9	99.9	109.0	99.9	99.9		7.5	7.5	25.5	25.5	
Actuated g/C Ratio	0.64	0.59	0.59	0.64	0.59	0.59		0.04	0.04	0.15	0.15	
Clearance Time (s)	7.0	6.5	6.5	7.0	6.5	6.5		7.0	7.0	7.5	7.5	
Vehicle Extension (s)	4.0	5.0	5.0	4.0	5.0	5.0		5.0	5.0	5.0	5.0	
Lane Grp Cap (vph)	135	2039	949	264	2079	930		82	71	257	238	
v/s Ratio Prot	c0.03	0.36		0.02	c0.55			c0.01	0.00	c0.14	0.08	
v/s Ratio Perm	0.35		0.00	0.18		0.14						
v/c Ratio	0.61	0.61	0.00	0.31	0.94	0.24		0.26	0.03	0.95	0.55	
Uniform Delay, d1	41.4	22.5	14.5	15.5	32.2	16.8		78.6	77.8	71.6	66.9	
Progression Factor	1.00	1.00	1.00	1.24	1.19	1.35		1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.7	1.4	0.0	0.8	8.3	0.5		3.4	0.3	42.9	4.4	
Delay (s)	50.0	23.8	14.5	20.1	46.6	23.2		82.0	78.1	114.5	71.3	
Level of Service	D	C	B	C	D	C		F	E	F	E	
Approach Delay (s)		25.4			42.7			79.4			93.8	
Approach LOS		C			D			E			F	
Intersection Summary												
HCM 2000 Control Delay			43.5				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			170.0				Sum of lost time (s)		28.0			
Intersection Capacity Utilization			88.1%				ICU Level of Service		E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: Harrison Rd/Harrison & Route 3








11/9/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Traffic Volume (vph)	168	910	284	157	1478	213	315	182	57	161	200	122
Future Volume (vph)	168	910	284	157	1478	213	315	182	57	161	200	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.5	7.5	7.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	4988	1538	3502	5085	1615	3433	3574	1615	3467	1900	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	4988	1538	3502	5085	1615	3433	3574	1615	3467	1900	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	189	1022	319	169	1589	229	346	200	63	183	227	139
RTOR Reduction (vph)	0	0	163	0	0	85	0	0	51	0	0	103
Lane Group Flow (vph)	189	1022	156	169	1589	144	346	200	12	183	227	36
Heavy Vehicles (%)	1%	4%	5%	0%	2%	0%	2%	1%	0%	1%	0%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	13.7	82.9	82.9	13.1	82.3	82.3	22.0	31.2	31.2	14.3	23.5	23.5
Effective Green, g (s)	13.7	82.9	82.9	13.1	82.3	82.3	22.0	31.2	31.2	14.3	23.5	23.5
Actuated g/C Ratio	0.08	0.49	0.49	0.08	0.48	0.48	0.13	0.18	0.18	0.08	0.14	0.14
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	279	2432	750	269	2461	781	444	655	296	291	262	218
v/s Ratio Prot	c0.05	0.20		0.05	c0.31		c0.10	0.06		0.05	c0.12	
v/s Ratio Perm			0.10			0.09			0.01			0.02
v/c Ratio	0.68	0.42	0.21	0.63	0.65	0.18	0.78	0.31	0.04	0.63	0.87	0.17
Uniform Delay, d1	76.0	28.1	24.8	76.1	32.9	24.8	71.6	60.0	57.1	75.3	71.7	64.6
Progression Factor	1.11	0.73	0.45	0.97	1.14	1.66	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	0.4	0.5	4.2	1.2	0.5	8.4	0.3	0.1	4.2	24.6	0.4
Delay (s)	89.6	21.0	11.6	78.4	38.7	41.8	80.1	60.3	57.1	79.5	96.3	65.0
Level of Service	F	C	B	E	D	D	F	E	E	E	F	E
Approach Delay (s)		27.5			42.5			71.2			82.8	
Approach LOS		C			D			E			F	
Intersection Summary												
HCM 2000 Control Delay			46.1				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			170.0				Sum of lost time (s)			28.5		
Intersection Capacity Utilization			78.5%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

15: Gordon Rd & Route 3




















11/9/2015

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰	↰↰↰	↰	↰	↰↰↰	↰↰	↰↰
Traffic Volume (vph)	0	1065	61	517	1822	109	276
Future Volume (vph)	0	1065	61	517	1822	109	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.5	7.5	7.5	7.5	6.5	7.5
Lane Util. Factor		0.91	1.00	1.00	0.91	0.97	0.88
Fr _t		1.00	0.85	1.00	1.00	1.00	0.85
Fl _t Protected		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)		5036	1583	1787	5136	3467	2814
Fl _t Permitted		1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)		5036	1583	1787	5136	3467	2814
Peak-hour factor, PHF	0.90	0.90	0.90	0.96	0.96	0.84	0.84
Adj. Flow (vph)	0	1183	68	539	1898	130	329
RTOR Reduction (vph)	0	0	36	0	0	0	21
Lane Group Flow (vph)	0	1183	32	539	1898	130	308
Heavy Vehicles (%)	0%	3%	2%	1%	1%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Prot	pm+ov
Protected Phases	5	2		1	6	4	1
Permitted Phases			2				4
Actuated Green, G (s)		79.5	79.5	56.8	143.8	12.2	69.0
Effective Green, g (s)		79.5	79.5	56.8	143.8	12.2	69.0
Actuated g/C Ratio		0.47	0.47	0.33	0.85	0.07	0.41
Clearance Time (s)		7.5	7.5	7.5	7.5	6.5	7.5
Vehicle Extension (s)		5.0	5.0	3.0	5.0	3.5	3.0
Lane Grp Cap (vph)		2355	740	597	4344	248	1142
v/s Ratio Prot		c0.23		c0.30	0.37	c0.04	0.09
v/s Ratio Perm			0.02				0.02
v/c Ratio		0.50	0.04	0.90	0.44	0.52	0.27
Uniform Delay, d ₁		31.5	24.6	54.0	3.2	76.1	33.7
Progression Factor		1.68	4.53	1.00	1.00	1.00	1.00
Incremental Delay, d ₂		0.7	0.1	17.0	0.3	2.3	0.1
Delay (s)		53.6	111.4	70.9	3.5	78.4	33.8
Level of Service		D	F	E	A	E	C
Approach Delay (s)		56.7			18.4	46.4	
Approach LOS		E			B	D	
Intersection Summary							
HCM 2000 Control Delay			33.1		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.66				
Actuated Cycle Length (s)			170.0		Sum of lost time (s)		21.5
Intersection Capacity Utilization			72.1%		ICU Level of Service		C
Analysis Period (min)			15				
c Critical Lane Group							

HCM Unsignalized Intersection Capacity Analysis

2: Rte 3 & Fox Gate Dr
























11/5/2015

																								
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR												
Lane Configurations																								
Traffic Volume (veh/h)	11	896	0	3	1138	19	0	0	0	24	0	8												
Future Volume (Veh/h)	11	896	0	3	1138	19	0	0	0	24	0	8												
Sign Control	Free			Free			Stop			Stop														
Grade	0%			0%			0%			0%														
Peak Hour Factor	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.73	0.92	0.73												
Hourly flow rate (vph)	12	963	0	3	1224	20	0	0	0	33	0	11												
Pedestrians																								
Lane Width (ft)																								
Walking Speed (ft/s)																								
Percent Blockage																								
Right turn flare (veh)																								
Median type	Raised			Raised																				
Median storage (veh)	2			2																				
Upstream signal (ft)																								
pX, platoon unblocked																								
vC, conflicting volume	1244			963			1616			2237			482			1736			2217			612		
vC1, stage 1 conf vol							987			987			1230			1230								
vC2, stage 2 conf vol							629			1250			506			987								
vCu, unblocked vol	1244			963			1616			2237			482			1736			2217			612		
tC, single (s)	4.1			4.1			7.5			6.5			6.9			7.6			6.5			6.9		
tC, 2 stage (s)							6.5			5.5			6.6			5.5								
tF (s)	2.2			2.2			3.5			4.0			3.3			3.5			4.0			3.3		
p0 queue free %	98			100			100			100			100			81			100			98		
cM capacity (veh/h)	567			723			222			184			531			172			192			441		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1															
Volume Total	12	482	482	3	612	612	20	0	44															
Volume Left	12	0	0	3	0	0	0	0	33															
Volume Right	0	0	0	0	0	0	20	0	11															
cSH	567	1700	1700	723	1700	1700	1700	1700	203															
Volume to Capacity	0.02	0.28	0.28	0.00	0.36	0.36	0.01	0.00	0.22															
Queue Length 95th (ft)	2	0	0	0	0	0	0	0	20															
Control Delay (s)	11.5	0.0	0.0	10.0	0.0	0.0	0.0	0.0	27.6															
Lane LOS	B			B			A			D														
Approach Delay (s)	0.1			0.0			0.0			27.6														
Approach LOS							A			D														
Intersection Summary																								
Average Delay	0.6																							
Intersection Capacity Utilization	41.5%			ICU Level of Service			A																	
Analysis Period (min)	15																							

HCM Unsignalized Intersection Capacity Analysis

4: Rte 3 & Black Meadow Rd

















11/5/2015

															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations		 			 				 		 				
Traffic Volume (veh/h)	18	712	0	1	1018	25	0	0	0	12	0	13			
Future Volume (Veh/h)	18	712	0	1	1018	25	0	0	0	12	0	13			
Sign Control	Free			Free			Stop			Stop					
Grade	0%			0%			0%			0%					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.80	0.92	0.80			
Hourly flow rate (vph)	20	774	0	1	1144	28	0	0	0	15	0	16			
Pedestrians															
Lane Width (ft)															
Walking Speed (ft/s)															
Percent Blockage															
Right turn flare (veh)															
Median type	Raised			Raised											
Median storage (veh)	2			2											
Upstream signal (ft)															
pX, platoon unblocked															
vC, conflicting volume	1172			774			1404			1988			387		
vC1, stage 1 conf vol							814			814			1146		
vC2, stage 2 conf vol							590			1174			427		
vCu, unblocked vol	1172			774			1404			1988			387		
tC, single (s)	4.1			4.1			7.5			6.5			6.9		
tC, 2 stage (s)							6.5			5.5			6.7		
tF (s)	2.2			2.2			3.5			4.0			3.3		
p0 queue free %	97			100			100			100			92		
cM capacity (veh/h)	603			837			267			206			611		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1						
Volume Total	20	516	258	1	572	572	28	0	31						
Volume Left	20	0	0	1	0	0	0	0	15						
Volume Right	0	0	0	0	0	0	28	0	16						
cSH	603	1700	1700	837	1700	1700	1700	1700	264						
Volume to Capacity	0.03	0.30	0.15	0.00	0.34	0.34	0.02	0.00	0.12						
Queue Length 95th (ft)	3	0	0	0	0	0	0	0	10						
Control Delay (s)	11.2	0.0	0.0	9.3	0.0	0.0	0.0	0.0	20.4						
Lane LOS	B			A			A			C					
Approach Delay (s)	0.3			0.0			0.0			20.4					
Approach LOS							A			C					
Intersection Summary															
Average Delay	0.4														
Intersection Capacity Utilization	38.1%			ICU Level of Service			A								
Analysis Period (min)	15														

HCM Unsignalized Intersection Capacity Analysis

6: Wilderness Rd & Route 3



















11/5/2015

								
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations								
Traffic Volume (veh/h)	0	999	5	6	1473	4	10	
Future Volume (Veh/h)	0	999	5	6	1473	4	10	
Sign Control		Free			Free	Stop		
Grade		0%			0%	0%		
Peak Hour Factor	0.92	0.98	0.98	0.96	0.96	0.39	0.39	
Hourly flow rate (vph)	0	1019	5	6	1534	10	26	
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		Raised			Raised			
Median storage (veh)		2			2			
Upstream signal (ft)								
pX, platoon unblocked	0.00							
vC, conflicting volume	0			1024		1798	510	
vC1, stage 1 conf vol						1019		
vC2, stage 2 conf vol						779		
vCu, unblocked vol	0			1024		1798	510	
tC, single (s)	0.0			4.4		6.8	6.9	
tC, 2 stage (s)						5.8		
tF (s)	0.0			2.4		3.5	3.3	
p0 queue free %	0			99		96	95	
cM capacity (veh/h)	0			591		253	514	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1
Volume Total	510	510	5	0	6	767	767	36
Volume Left	0	0	0	0	6	0	0	10
Volume Right	0	0	5	0	0	0	0	26
cSH	1700	1700	1700	1700	591	1700	1700	400
Volume to Capacity	0.30	0.30	0.00	0.00	0.01	0.45	0.45	0.09
Queue Length 95th (ft)	0	0	0	0	1	0	0	7
Control Delay (s)	0.0	0.0	0.0	0.0	11.2	0.0	0.0	14.9
Lane LOS					B			B
Approach Delay (s)	0.0				0.0			14.9
Approach LOS								B
Intersection Summary								
Average Delay			0.2					
Intersection Capacity Utilization			50.7%		ICU Level of Service			A
Analysis Period (min)			15					

HCM Unsignalized Intersection Capacity Analysis

7: Stuart Dr/Bullock Rd & Route 3

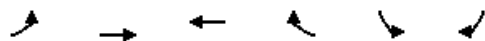
11/5/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	9	999	4	1	1482	0	0	1	1	1	0	2	
Future Volume (Veh/h)	9	999	4	1	1482	0	0	1	1	1	0	2	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.50	0.50	0.50	0.75	0.75	0.75	
Hourly flow rate (vph)	9	1052	4	1	1560	0	0	2	2	1	0	3	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	Raised			Raised									
Median storage veh	1			1									
Upstream signal (ft)													
pX, platoon unblocked													
vC, conflicting volume	1560			1056			1857	2634	528	2109	2636	780	
vC1, stage 1 conf vol							1072	1072		1562	1562		
vC2, stage 2 conf vol							785	1562		547	1074		
vCu, unblocked vol	1560			1056			1857	2634	528	2109	2636	780	
tC, single (s)	4.1			6.1			7.5	6.5	6.9	7.5	6.5	6.9	
tC, 2 stage (s)							6.5	5.5		6.5	5.5		
tF (s)	2.2			3.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	98			100			100	98	100	99	100	99	
cM capacity (veh/h)	430			290			147	106	500	95	109	342	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1					
Volume Total	9	701	355	1	1040	520	4	4					
Volume Left	9	0	0	1	0	0	0	1					
Volume Right	0	0	4	0	0	0	2	3					
cSH	430	1700	1700	290	1700	1700	175	207					
Volume to Capacity	0.02	0.41	0.21	0.00	0.61	0.31	0.02	0.02					
Queue Length 95th (ft)	2	0	0	0	0	0	2	1					
Control Delay (s)	13.6	0.0	0.0	17.5	0.0	0.0	26.1	22.7					
Lane LOS	B			C			D		C				
Approach Delay (s)	0.1			0.0			26.1		22.7				
Approach LOS							D		C				
Intersection Summary													
Average Delay	0.1												
Intersection Capacity Utilization	55.5%			ICU Level of Service					B				
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis

9: Route 3 & River Rd

11/5/2015



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	57	942	1391	5	1	145
Future Volume (Veh/h)	57	942	1391	5	1	145
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.78	0.78
Hourly flow rate (vph)	61	1002	1480	5	1	186
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage (veh)		2	2			
Upstream signal (ft)		570				
pX, platoon unblocked					0.82	
vC, conflicting volume	1485				2106	742
vC1, stage 1 conf vol					1482	
vC2, stage 2 conf vol					623	
vCu, unblocked vol	1485				1915	742
tC, single (s)	4.1				8.8	6.9
tC, 2 stage (s)					7.8	
tF (s)	2.2				4.5	3.3
p0 queue free %	87				99	48
cM capacity (veh/h)	459				68	360
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	61	501	501	987	498	187
Volume Left	61	0	0	0	0	1
Volume Right	0	0	0	0	5	186
cSH	459	1700	1700	1700	1700	352
Volume to Capacity	0.13	0.29	0.29	0.58	0.29	0.53
Queue Length 95th (ft)	11	0	0	0	0	74
Control Delay (s)	14.0	0.0	0.0	0.0	0.0	26.2
Lane LOS	B					D
Approach Delay (s)	0.8			0.0		26.2
Approach LOS						D
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			61.0%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

10: Route 3 & 9 Mile Run

11/5/2015



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↕↕	↕↕		↕↕	
Traffic Volume (veh/h)	0	976	1421	28	15	12
Future Volume (Veh/h)	0	976	1421	28	15	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.93	0.93	0.68	0.68
Hourly flow rate (vph)	0	1006	1528	30	22	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1558				2046	779
vC1, stage 1 conf vol					1543	
vC2, stage 2 conf vol					503	
vCu, unblocked vol	1558				2046	779
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				86	95
cM capacity (veh/h)	430				157	343

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SW 1
Volume Total	335	671	1019	539	40
Volume Left	0	0	0	0	22
Volume Right	0	0	0	30	18
cSH	430	1700	1700	1700	208
Volume to Capacity	0.00	0.39	0.60	0.32	0.19
Queue Length 95th (ft)	0	0	0	0	17
Control Delay (s)	0.0	0.0	0.0	0.0	26.4
Lane LOS					D
Approach Delay (s)	0.0		0.0		26.4
Approach LOS					D

Intersection Summary					
Average Delay			0.4		
Intersection Capacity Utilization			50.2%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis

11: McLaws Dr & Route 3
























11/5/2015

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑	
Traffic Volume (veh/h)	885	4	46	1425	2	22
Future Volume (Veh/h)	885	4	46	1425	2	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Hourly flow rate (vph)	962	4	50	1549	3	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised		Raised			
Median storage (veh)	4		4			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			962	1836		481
vC1, stage 1 conf vol			962			
vC2, stage 2 conf vol			874			
vCu, unblocked vol			962	1836		481
tC, single (s)			4.1	6.8		6.9
tC, 2 stage (s)			5.8			
tF (s)			2.2	3.5		3.3
p0 queue free %			93	99		95
cM capacity (veh/h)			724	286		537
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1
Volume Total	481	481	4	566	1033	32
Volume Left	0	0	0	50	0	3
Volume Right	0	0	4	0	0	29
cSH	1700	1700	1700	724	1700	496
Volume to Capacity	0.28	0.28	0.00	0.07	0.61	0.06
Queue Length 95th (ft)	0	0	0	6	0	5
Control Delay (s)	0.0	0.0	0.0	1.8	0.0	12.8
Lane LOS				A	B	
Approach Delay (s)	0.0		0.7		12.8	
Approach LOS					B	
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			78.5%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

20: Glade Dr & Route 3

11/5/2015

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 					
Traffic Volume (veh/h)	0	907	0	0	1471	0	0	0	0	0	0	0	
Future Volume (Veh/h)	0	907	0	0	1471	0	0	0	0	0	0	0	
Sign Control	Free			Free			Stop			Stop			
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)	0	986	0	0	1599	0	0	0	0	0	0	0	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
2													
Median type													
Raised													
Median storage (veh)													
4													
Upstream signal (ft)													
pX, platoon unblocked													
vC, conflicting volume	1599			986			1786			2585			800
vC1, stage 1 conf vol							986			1599			1599
vC2, stage 2 conf vol							800			1599			493
vCu, unblocked vol	1599			986			1786			2585			800
tC, single (s)	4.1			4.1			7.5			6.5			6.9
tC, 2 stage (s)							6.5			5.5			6.5
tF (s)	2.2			2.2			3.5			4.0			3.3
p0 queue free %	100			100			100			100			100
cM capacity (veh/h)	406			696			245			160			522
Direction, Lane #													
	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	0	657	329	0	800	800	0	0	0				
Volume Left	0	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	0	0	0	0	0	0				
cSH	1700	1700	1700	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.00	0.39	0.19	0.00	0.47	0.47	0.00	0.00	0.00				
Queue Length 95th (ft)	0	0	0	0	0	0	0	0	0				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS									A	A			
Approach Delay (s)	0.0			0.0						0.0	0.0		
Approach LOS									A	A			
Intersection Summary													
Average Delay	0.0												
Intersection Capacity Utilization	44.0%			ICU Level of Service						A			
Analysis Period (min)	15												

























C.2

2040 Minimally Managed

HCM Signalized Intersection Capacity Analysis

1: VA 20/Constitution Hwy & Rte 3

4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	23	920	43	194	882	18	46	7	393	29	22	20
Future Volume (vph)	23	920	43	194	882	18	46	7	393	29	22	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0		7.0	7.0	7.0		7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1805	3471	1583	1770	3495		1787	1810	1509		1743	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (perm)	1805	3471	1583	1770	3495		1787	1810	1509		1743	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	1000	47	211	959	20	50	8	427	32	24	22
RTOR Reduction (vph)	0	0	29	0	1	0	0	0	229	0	9	0
Lane Group Flow (vph)	25	1000	18	211	978	0	50	8	198	0	69	0
Heavy Vehicles (%)	0%	4%	2%	2%	3%	2%	1%	5%	7%	3%	5%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	3.0	46.0	46.0	20.6	63.6		20.7	20.7	20.7		8.6	
Effective Green, g (s)	3.0	46.0	46.0	20.6	63.6		20.7	20.7	20.7		8.6	
Actuated g/C Ratio	0.02	0.38	0.38	0.17	0.53		0.17	0.17	0.17		0.07	
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0		7.0	7.0	7.0		7.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	44	1320	602	301	1838		305	309	258		123	
v/s Ratio Prot	0.01	c0.29		c0.12	0.28		0.03	0.00			c0.04	
v/s Ratio Perm			0.01						c0.13			
v/c Ratio	0.57	0.76	0.03	0.70	0.53		0.16	0.03	0.77		0.56	
Uniform Delay, d1	58.3	32.6	23.5	47.2	18.9		42.7	41.7	47.8		54.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	15.7	2.5	0.0	7.2	0.3		0.3	0.0	12.9		5.4	
Delay (s)	74.0	35.1	23.5	54.4	19.2		43.0	41.7	60.7		59.7	
Level of Service	E	D	C	D	B		D	D	E		E	
Approach Delay (s)		35.5			25.4			58.5			59.7	
Approach LOS		D			C			E			E	
Intersection Summary												
HCM 2000 Control Delay			35.9			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			120.9			Sum of lost time (s)			25.0			
Intersection Capacity Utilization			71.2%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Brock Rd & Rte 3

4/11/2016



Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰	↷		↰	↷	↷	
Traffic Volume (vph)	1	1335	106	18	923	124	26
Future Volume (vph)	1	1335	106	18	923	124	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	7.0		8.0	7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	
Frt	1.00	0.99		1.00	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	0.96	
Satd. Flow (prot)	1805	3405		1703	3539	1725	
Flt Permitted	0.95	1.00		0.95	1.00	0.96	
Satd. Flow (perm)	1805	3405		1703	3539	1725	
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	1376	109	20	1003	135	28
RTOR Reduction (vph)	0	4	0	0	0	7	0
Lane Group Flow (vph)	1	1481	0	20	1003	156	0
Heavy Vehicles (%)	0%	5%	3%	6%	2%	4%	0%
Turn Type	Prot	NA		Prot	NA	Prot	
Protected Phases	5	2		1	6	3	
Permitted Phases							
Actuated Green, G (s)	0.9	51.0		2.6	52.7	13.8	
Effective Green, g (s)	0.9	51.0		2.6	52.7	13.8	
Actuated g/C Ratio	0.01	0.57		0.03	0.59	0.15	
Clearance Time (s)	8.0	7.0		8.0	7.0	7.0	
Vehicle Extension (s)	3.0	4.5		3.0	4.5	3.0	
Lane Grp Cap (vph)	18	1942		49	2086	266	
v/s Ratio Prot	0.00	c0.43		c0.01	0.28	c0.09	
v/s Ratio Perm							
v/c Ratio	0.06	0.76		0.41	0.48	0.59	
Uniform Delay, d1	43.8	14.6		42.6	10.5	35.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	1.3	2.1		5.5	0.3	3.3	
Delay (s)	45.1	16.7		48.1	10.8	38.4	
Level of Service	D	B		D	B	D	
Approach Delay (s)		16.7			11.5	38.4	
Approach LOS		B			B	D	

























Intersection Summary

HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	89.4	Sum of lost time (s)	22.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: Orange Plank Rd & Route 3
























4/11/2016

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 								
Traffic Volume (vph)	158	1399	10	160	922	22	13	8	574	64	11	23	
Future Volume (vph)	158	1399	10	160	922	22	13	8	574	64	11	23	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	8.1	8.1	8.1	5.0	6.7			6.5	5.0	5.5	5.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.90		
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97	1.00	0.95	1.00		
Satd. Flow (prot)	1805	3471	1615	1787	3528			1662	1583	1805	1707		
Flt Permitted	0.27	1.00	1.00	0.95	1.00			0.97	1.00	0.95	1.00		
Satd. Flow (perm)	512	3471	1615	1787	3528			1662	1583	1805	1707		
Peak-hour factor, PHF	0.95	0.95	0.95	0.89	0.89	0.89	0.96	0.96	0.96	0.92	0.92	0.92	
Adj. Flow (vph)	166	1473	11	180	1036	25	14	8	598	70	12	25	
RTOR Reduction (vph)	0	0	5	0	1	0	0	0	75	0	24	0	
Lane Group Flow (vph)	166	1473	6	180	1060	0	0	22	523	70	13	0	
Heavy Vehicles (%)	0%	4%	0%	1%	2%	0%	17%	0%	2%	0%	0%	0%	
Turn Type	Perm	NA	Perm	Prot	NA		Split	NA	pm+ov	Split	NA		
Protected Phases		2		1	6		3	3	1	4	4		
Permitted Phases	2		2						3				
Actuated Green, G (s)	58.5	58.5	58.5	18.8	83.7			4.2	23.0	4.9	4.9		
Effective Green, g (s)	58.5	58.5	58.5	18.8	83.7			4.2	23.0	4.9	4.9		
Actuated g/C Ratio	0.52	0.52	0.52	0.17	0.75			0.04	0.21	0.04	0.04		
Clearance Time (s)	8.1	8.1	8.1	5.0	6.7			6.5	5.0	5.5	5.5		
Vehicle Extension (s)	4.5	4.5	4.5	3.5	4.5			2.5	3.5	3.0	3.0		
Lane Grp Cap (vph)	268	1821	847	301	2648			62	326	79	75		
v/s Ratio Prot		c0.42		0.10	0.30			0.01	c0.27	c0.04	0.01		
v/s Ratio Perm	0.32		0.00						0.06				
v/c Ratio	0.62	0.81	0.01	0.60	0.40			0.35	1.61	0.89	0.17		
Uniform Delay, d1	18.7	21.9	12.6	42.9	5.0			52.3	44.2	53.0	51.4		
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00		
Incremental Delay, d2	5.4	3.1	0.0	3.4	0.2			2.5	286.4	63.8	1.1		
Delay (s)	24.1	25.0	12.6	46.2	5.1			54.9	330.6	116.8	52.5		
Level of Service	C	C	B	D	A			D	F	F	D		
Approach Delay (s)		24.8			11.1			320.9			94.6		
Approach LOS		C			B			F			F		
Intersection Summary													
HCM 2000 Control Delay			72.9									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			1.02										
Actuated Cycle Length (s)			111.5									Sum of lost time (s)	25.1
Intersection Capacity Utilization			93.3%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

8: Old Plank Rd/Elys Ford Rd & Route 3

4/11/2016



























													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 			 		
Traffic Volume (vph)	26	1755	100	29	969	61	80	50	48	177	57	23	
Future Volume (vph)	26	1755	100	29	969	61	80	50	48	177	57	23	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00			1.00		
Frt	1.00	1.00	0.85	1.00	0.99			0.96			0.99		
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98			0.97		
Satd. Flow (prot)	1770	3539	1583	1770	3508			1755			1779		
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.98			0.97		
Satd. Flow (perm)	1770	3539	1583	1770	3508			1755			1779		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	28	1908	109	32	1053	66	87	54	52	192	62	25	
RTOR Reduction (vph)	0	0	52	0	3	0	0	3	0	0	2	0	
Lane Group Flow (vph)	28	1908	57	32	1116	0	0	190	0	0	277	0	
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA		
Protected Phases	5	2		1	6		3	3		4	4		
Permitted Phases			2										
Actuated Green, G (s)	7.0	86.5	86.5	7.3	86.8			24.2			30.7		
Effective Green, g (s)	7.0	86.5	86.5	7.3	86.8			24.2			30.7		
Actuated g/C Ratio	0.04	0.49	0.49	0.04	0.49			0.14			0.17		
Clearance Time (s)	7.0	7.0	7.0	7.0	7.0			7.0			7.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0			3.0		
Lane Grp Cap (vph)	70	1732	774	73	1723			240			309		
v/s Ratio Prot	0.02	c0.54		c0.02	0.32			c0.11			c0.16		
v/s Ratio Perm			0.04										
v/c Ratio	0.40	1.10	0.07	0.44	0.65			0.79			0.90		
Uniform Delay, d1	82.8	45.1	23.9	82.7	33.5			73.8			71.5		
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00		
Incremental Delay, d2	3.7	55.1	0.2	4.2	1.9			16.3			26.7		
Delay (s)	86.5	100.2	24.1	86.9	35.4			90.1			98.1		
Level of Service	F	F	C	F	D			F			F		
Approach Delay (s)		95.9			36.9			90.1			98.1		
Approach LOS		F			D			F			F		
Intersection Summary													
HCM 2000 Control Delay			77.3									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.98										
Actuated Cycle Length (s)			176.7									Sum of lost time (s)	28.0
Intersection Capacity Utilization			81.0%									ICU Level of Service	D
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Andora Dr/Corter Ave & Route 3



























4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	95	2132	20	106	1663	129	5	55	323	197	30	42
Future Volume (vph)	95	2132	20	106	1663	129	5	55	323	197	30	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.5	7.5	7.0	7.5	7.5		7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1805	3438	1615	1805	3574	1455		1893	1599	1545	1591	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	1805	3438	1615	1805	3574	1455		1893	1599	1545	1591	1553
Peak-hour factor, PHF	0.98	0.98	0.98	0.93	0.93	0.93	0.93	0.93	0.93	0.84	0.84	0.84
Adj. Flow (vph)	97	2176	20	114	1788	139	5	59	347	235	36	50
RTOR Reduction (vph)	0	0	8	0	0	51	0	0	113	0	0	47
Lane Group Flow (vph)	97	2176	12	114	1788	88	0	64	234	134	137	3
Heavy Vehicles (%)	0%	5%	0%	0%	1%	11%	0%	0%	1%	11%	5%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	10.0	95.5	95.5	8.0	93.5	93.5		17.0	17.0	11.0	11.0	11.0
Effective Green, g (s)	10.0	95.5	95.5	8.0	93.5	93.5		17.0	17.0	11.0	11.0	11.0
Actuated g/C Ratio	0.06	0.60	0.60	0.05	0.58	0.58		0.11	0.11	0.07	0.07	0.07
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5	7.5		7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	6.0	5.0	5.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	112	2052	963	90	2088	850		201	169	106	109	106
v/s Ratio Prot	0.05	c0.63		c0.06	0.50			0.03		c0.09	0.09	
v/s Ratio Perm			0.01			0.06			c0.15			0.00
v/c Ratio	0.87	1.06	0.01	1.27	0.86	0.10		0.32	1.39	1.26	1.26	0.03
Uniform Delay, d1	74.3	32.2	13.1	76.0	27.7	14.7		66.1	71.5	74.5	74.5	69.5
Progression Factor	1.00	1.00	1.00	0.97	0.74	1.58		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	45.8	38.2	0.0	168.2	3.5	0.2		0.9	206.3	174.3	170.4	0.1
Delay (s)	120.2	70.4	13.1	241.7	23.9	23.5		67.1	277.8	248.8	244.9	69.7
Level of Service	F	E	B	F	C	C		E	F	F	F	E
Approach Delay (s)		72.0			36.0			245.0			219.2	
Approach LOS		E			D			F			F	
Intersection Summary												
HCM 2000 Control Delay			80.9			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.13									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			28.5			
Intersection Capacity Utilization			103.1%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

13: Big Ben & Route 3

4/11/2016

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 						 		
Traffic Volume (vph)	159	2481	12	68	1505	328	11	117	46	347	30	99	
Future Volume (vph)	159	2481	12	68	1505	328	11	117	46	347	30	99	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.95	0.95		
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	0.94		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	0.98		
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583		1855	1583	1681	1621		
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	0.98		
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583		1855	1583	1681	1621		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	173	2697	13	74	1636	357	12	127	50	377	33	108	
RTOR Reduction (vph)	0	0	5	0	0	103	0	0	45	0	16	0	
Lane Group Flow (vph)	173	2697	8	74	1636	254	0	139	5	264	238	0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA		
Protected Phases	5	2		1	6		4	4		8	8		
Permitted Phases			2			6			4				
Actuated Green, G (s)	11.0	94.0	94.0	5.0	88.0	88.0		15.0	15.0	22.0	22.0		
Effective Green, g (s)	11.0	94.0	94.0	5.0	88.0	88.0		15.0	15.0	22.0	22.0		
Actuated g/C Ratio	0.07	0.59	0.59	0.03	0.55	0.55		0.09	0.09	0.14	0.14		
Clearance Time (s)	6.0	6.0	6.0	6.0	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		3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	121	2079	930	55	1946	870		173	148	231	222		
v/s Ratio Prot	c0.10	c0.76		0.04	0.46			c0.07		c0.16	0.15		
v/s Ratio Perm			0.00			0.16			0.00				
v/c Ratio	1.43	1.30	0.01	1.35	0.84	0.29		0.80	0.03	1.14	1.07		
Uniform Delay, d1	74.5	33.0	13.7	77.5	30.1	19.3		71.1	65.9	69.0	69.0		
Progression Factor	0.96	0.84	1.00	0.89	0.64	0.71		1.00	1.00	1.00	1.00		
Incremental Delay, d2	197.7	134.1	0.0	225.8	2.8	0.2		23.0	0.1	103.1	80.3		
Delay (s)	269.2	161.8	13.7	294.5	22.1	13.8		94.0	66.0	172.1	149.3		
Level of Service	F	F	B	F	C	B		F	E	F	F		
Approach Delay (s)		167.6			30.4			86.6			160.9		
Approach LOS		F			C			F			F		
Intersection Summary													
HCM 2000 Control Delay			114.2	HCM 2000 Level of Service						F			
HCM 2000 Volume to Capacity ratio			1.26										
Actuated Cycle Length (s)			160.0	Sum of lost time (s)						24.0			
Intersection Capacity Utilization			107.4%	ICU Level of Service						G			
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: Harrison Rd/Harrison & Route 3































4/11/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	2371	399	274	1575	112	284	175	190	147	86	42
Future Volume (vph)	134	2371	399	274	1575	112	284	175	190	147	86	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.5	7.5	7.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	4988	1538	3502	5085	1615	3433	3574	1615	3467	1900	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	4988	1538	3502	5085	1615	3433	3574	1615	3467	1900	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	151	2664	448	295	1694	120	312	192	209	167	98	48
RTOR Reduction (vph)	0	0	113	0	0	49	0	0	113	0	0	45
Lane Group Flow (vph)	151	2664	335	295	1694	71	312	192	96	167	98	3
Heavy Vehicles (%)	1%	4%	5%	0%	2%	0%	2%	1%	0%	1%	0%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	11.2	92.5	92.5	14.0	95.3	95.3	16.0	16.0	16.0	9.0	9.0	9.0
Effective Green, g (s)	11.2	92.5	92.5	14.0	95.3	95.3	16.0	16.0	16.0	9.0	9.0	9.0
Actuated g/C Ratio	0.07	0.58	0.58	0.09	0.60	0.60	0.10	0.10	0.10	0.06	0.06	0.06
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	242	2883	889	306	3028	961	343	357	161	195	106	89
v/s Ratio Prot	0.04	c0.53		c0.08	c0.33		c0.09	0.05		0.05	c0.05	
v/s Ratio Perm			0.22			0.04			c0.06			0.00
v/c Ratio	0.62	0.92	0.38	0.96	0.56	0.07	0.91	0.54	0.59	0.86	0.92	0.03
Uniform Delay, d1	72.4	30.6	18.2	72.7	19.6	13.7	71.3	68.5	68.9	74.9	75.2	71.4
Progression Factor	0.92	0.91	1.41	1.39	0.15	0.03	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.7	0.1	34.0	0.5	0.1	26.8	1.6	5.8	28.9	63.3	0.1
Delay (s)	67.1	28.6	25.8	135.5	3.5	0.5	98.0	70.0	74.7	103.8	138.5	71.5
Level of Service	E	C	C	F	A	A	F	E	E	F	F	E
Approach Delay (s)		30.0			21.8			83.6			109.7	
Approach LOS		C			C			F			F	
Intersection Summary												
HCM 2000 Control Delay			37.2				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			28.5		
Intersection Capacity Utilization			92.1%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

15: Gordon Rd & Route 3

4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  				 		 	
Traffic Volume (vph)	134	2550	46	201	2116	90	36	23	464	88	10	88
Future Volume (vph)	134	2550	46	201	2116	90	36	23	464	88	10	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5	7.5	6.5	6.5	7.5	6.5	6.5	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	5036	1583	1787	5136	1583	1787	1863	2814	1770	1612	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	5036	1583	1787	5136	1583	1787	1863	2814	1770	1612	
Peak-hour factor, PHF	0.92	0.90	0.90	0.96	0.96	0.92	0.84	0.92	0.84	0.92	0.92	0.92
Adj. Flow (vph)	146	2833	51	209	2204	98	43	25	552	96	11	96
RTOR Reduction (vph)	0	0	24	0	0	40	0	0	100	0	89	0
Lane Group Flow (vph)	146	2833	27	209	2204	58	43	25	452	96	18	0
Heavy Vehicles (%)	2%	3%	2%	1%	1%	2%	1%	2%	1%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	17.1	84.4	84.4	27.1	94.4	94.4	8.1	5.3	32.4	15.2	12.4	
Effective Green, g (s)	17.1	84.4	84.4	27.1	94.4	94.4	8.1	5.3	32.4	15.2	12.4	
Actuated g/C Ratio	0.11	0.53	0.53	0.17	0.59	0.59	0.05	0.03	0.20	0.09	0.08	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5	6.5	6.5	7.5	6.5	6.5	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.5	3.5	
Lane Grp Cap (vph)	189	2656	835	302	3030	933	90	61	569	168	124	
v/s Ratio Prot	0.08	c0.56		0.12	c0.43		0.02	0.01	c0.13	c0.05	0.01	
v/s Ratio Perm			0.02			0.04			0.03			
v/c Ratio	0.77	1.07	0.03	0.69	0.73	0.06	0.48	0.41	0.79	0.57	0.15	
Uniform Delay, d1	69.6	37.8	18.2	62.5	23.6	14.0	73.9	75.8	60.6	69.3	68.9	
Progression Factor	0.96	0.94	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.7	33.8	0.0	6.7	1.6	0.1	4.0	4.4	7.5	5.0	0.7	
Delay (s)	74.5	69.3	18.2	69.2	25.1	14.1	77.9	80.3	68.1	74.3	69.5	
Level of Service	E	E	B	E	C	B	E	F	E	E	E	
Approach Delay (s)		68.7			28.4			69.3			71.8	
Approach LOS		E			C			E			E	
Intersection Summary												
HCM 2000 Control Delay			52.9				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			28.0		
Intersection Capacity Utilization			89.9%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

20: Glade Dr/New E & Route 3

4/11/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	2015	23	163	1029	38	7	1	47	115	1	27
Future Volume (vph)	9	2015	23	163	1029	38	7	1	47	115	1	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583		1783	1583		1775	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583		1783	1583		1775	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	2190	25	177	1118	41	8	1	51	125	1	29
RTOR Reduction (vph)	0	0	8	0	0	8	0	0	47	0	0	7
Lane Group Flow (vph)	10	2190	17	177	1118	33	0	9	4	0	126	22
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	custom
Protected Phases	5	2		1	6	8	4	4	1	8	8	
Permitted Phases			2			6			4			6
Actuated Green, G (s)	0.7	89.6	89.6	9.2	98.1	104.2		1.3	10.5		6.1	98.1
Effective Green, g (s)	0.7	89.6	89.6	9.2	98.1	104.2		1.3	10.5		6.1	98.1
Actuated g/C Ratio	0.01	0.69	0.69	0.07	0.75	0.80		0.01	0.08		0.05	0.75
Clearance Time (s)	6.0	6.0	6.0	6.0	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		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	9	2435	1089	242	2666	1266		17	127		83	1192
v/s Ratio Prot	0.01	c0.62		c0.05	0.32	0.00		c0.01	0.00		c0.07	
v/s Ratio Perm			0.01			0.02			0.00			0.01
v/c Ratio	1.11	0.90	0.02	0.73	0.42	0.03		0.53	0.03		1.52	0.02
Uniform Delay, d1	64.8	16.6	6.4	59.3	5.8	2.7		64.1	55.2		62.0	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	342.2	4.9	0.0	10.8	0.1	0.0		26.7	0.1		285.1	0.0
Delay (s)	407.0	21.5	6.4	70.1	5.9	2.7		90.8	55.3		347.1	4.0
Level of Service	F	C	A	E	A	A		F	E		F	A
Approach Delay (s)		23.1			14.3			60.6			282.9	
Approach LOS		C			B			E			F	

Intersection Summary



























HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.2	Sum of lost time (s)	24.0
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: New F & Route 3

4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 						 	
Traffic Volume (vph)	1	2131	46	490	1210	1	19	1	93	1	1	1
Future Volume (vph)	1	2131	46	490	1210	1	19	1	93	1	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583		1778	1583		1750	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.98	
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583		1778	1583		1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	2316	50	533	1315	1	21	1	101	1	1	1
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	54	0	1	0
Lane Group Flow (vph)	1	2316	33	533	1315	1	0	22	47	0	2	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			6			4			
Actuated Green, G (s)	0.7	98.3	98.3	21.1	118.7	118.7		4.7	25.8		0.4	
Effective Green, g (s)	0.7	98.3	98.3	21.1	118.7	118.7		4.7	25.8		0.4	
Actuated g/C Ratio	0.00	0.66	0.66	0.14	0.80	0.80		0.03	0.17		0.00	
Clearance Time (s)	6.0	6.0	6.0	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		3.0	3.0		3.0	
Lane Grp Cap (vph)	8	2342	1047	487	2828	1265		56	338		4	
v/s Ratio Prot	0.00	c0.65		c0.16	0.37			c0.01	0.02		c0.00	
v/s Ratio Perm			0.02			0.00			0.01			
v/c Ratio	0.12	0.99	0.03	1.09	0.46	0.00		0.39	0.14		0.50	
Uniform Delay, d1	73.6	24.6	8.7	63.7	4.8	3.0		70.5	52.0		74.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	6.9	16.2	0.1	68.9	0.6	0.0		4.5	0.2		74.5	
Delay (s)	80.5	40.7	8.7	132.6	5.3	3.0		75.0	52.1		148.5	
Level of Service	F	D	A	F	A	A		E	D		F	
Approach Delay (s)		40.1			42.0			56.2			148.5	
Approach LOS		D			D			E			F	

Intersection Summary

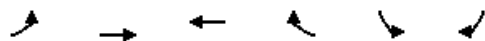
HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	148.5	Sum of lost time (s)	24.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

293: Rte 3 & New A

4/11/2016



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↕↕	↕↕	↰	↰↰	↰
Traffic Volume (vph)	40	825	523	185	112	23
Future Volume (vph)	40	825	523	185	112	23
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	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	897	568	201	122	25
RTOR Reduction (vph)	0	0	0	109	0	22
Lane Group Flow (vph)	43	897	568	92	122	3
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases				2		8
Actuated Green, G (s)	1.8	29.4	21.6	21.6	5.7	5.7
Effective Green, g (s)	1.8	29.4	21.6	21.6	5.7	5.7
Actuated g/C Ratio	0.04	0.62	0.46	0.46	0.12	0.12
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)	67	2209	1622	725	415	191
v/s Ratio Prot	0.02	c0.25	0.16		c0.04	
v/s Ratio Perm				0.06		0.00
v/c Ratio	0.64	0.41	0.35	0.13	0.29	0.02
Uniform Delay, d1	22.3	4.5	8.2	7.3	18.9	18.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.1	0.1	0.1	0.1	0.4	0.0
Delay (s)	41.4	4.6	8.4	7.4	19.3	18.3
Level of Service	D	A	A	A	B	B
Approach Delay (s)		6.3	8.1		19.1	
Approach LOS		A	A		B	

Intersection Summary

HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	47.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Rte 3 & Fox Gate Dr

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑		↔	↑↑	↔		↔			↔	
Volume (veh/h)	7	1306	0	2	1010	35	0	0	2	135	0	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.73	0.92	0.73
Hourly flow rate (vph)	8	1404	0	2	1086	38	0	0	2	185	0	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1124			1404			1989	2547	702	1810	2510	543
vC1, stage 1 conf vol							1419	1419		1090	1090	
vC2, stage 2 conf vol							569	1128		719	1419	
vCu, unblocked vol	1124			1404			1989	2547	702	1810	2510	543
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	99	3	100	96
cM capacity (veh/h)	629			492			133	155	381	192	158	489

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	8	702	702	2	543	543	38	2	207
Volume Left	8	0	0	2	0	0	0	0	185
Volume Right	0	0	0	0	0	0	38	2	22
cSH	629	1700	1700	492	1700	1700	1700	381	205
Volume to Capacity	0.01	0.41	0.41	0.00	0.32	0.32	0.02	0.01	1.01
Queue Length 95th (ft)	1	0	0	0	0	0	0	0	224
Control Delay (s)	10.8	0.0	0.0	12.3	0.0	0.0	0.0	14.5	114.4
Lane LOS	B			B				B	F
Approach Delay (s)	0.1			0.0				14.5	114.4
Approach LOS								B	F

Intersection Summary

Average Delay	8.7
Intersection Capacity Utilization	57.9%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

4: Rte 3 & Black Meadow Rd

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	1350	0	4	928	5	0	0	0	35	1	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.80	0.92	0.80
Hourly flow rate (vph)	16	1467	0	4	1043	6	0	0	0	44	1	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1048			1467			2048	2557	734	1818	2551	521
vC1, stage 1 conf vol							1500	1500		1051	1051	
vC2, stage 2 conf vol							548	1057		766	1500	
vCu, unblocked vol	1048			1467			2048	2557	734	1818	2551	521
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.7	6.5	7.2
tC, 2 stage (s)							6.5	5.5		6.7	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	98			99			100	100	100	76	99	96
cM capacity (veh/h)	672			456			118	147	363	185	147	467

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	16	978	489	4	521	521	6	62
Volume Left	16	0	0	4	0	0	0	44
Volume Right	0	0	0	0	0	0	6	18
cSH	672	1700	1700	456	1700	1700	1700	222
Volume to Capacity	0.02	0.58	0.29	0.01	0.31	0.31	0.00	0.28
Queue Length 95th (ft)	2	0	0	1	0	0	0	28
Control Delay (s)	10.5	0.0	0.0	13.0	0.0	0.0	0.0	27.4
Lane LOS	B			B				D
Approach Delay (s)	0.1			0.1				27.4
Approach LOS								D

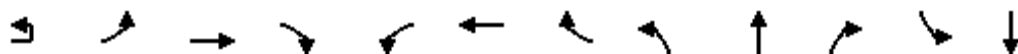
Intersection Summary

Average Delay	0.7
Intersection Capacity Utilization	47.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

6: Wilderness Rd & Route 3

2/3/2016



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↑	↗	↘	↑↑		↖	↗			↔
Volume (veh/h)	0	0	2031	6	1	1099	0	4	0	2	0	0
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.92	0.92	0.98	0.98	0.96	0.96	0.92	0.39	0.92	0.39	0.92	0.92
Hourly flow rate (vph)	0	0	2072	6	1	1145	0	10	0	5	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised			Raised						
Median storage (veh)			2			2						
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	1145			2079			2647	3219	1036	2188	3225
vC1, stage 1 conf vol								2072	2072		1147	1147
vC2, stage 2 conf vol								574	1147		1041	2079
vCu, unblocked vol	0	1145			2079			2647	3219	1036	2188	3225
tC, single (s)	0.0	4.1			4.4			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	0.0	2.2			2.4			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			100			81	100	98	100	100
cM capacity (veh/h)	0	606			215			55	86	232	154	85

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	1036	1036	6	0	1	572	572	10	5	0
Volume Left	0	0	0	0	1	0	0	10	0	0
Volume Right	0	0	6	0	0	0	0	0	5	0
cSH	1700	1700	1700	1700	215	1700	1700	55	232	1700
Volume to Capacity	0.61	0.61	0.00	0.00	0.00	0.34	0.34	0.19	0.02	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0	15	2	0
Control Delay (s)	0.0	0.0	0.0	0.0	21.8	0.0	0.0	85.0	20.9	0.0
Lane LOS					C			F	C	A
Approach Delay (s)	0.0				0.0			63.6		0.0
Approach LOS								F		A

Intersection Summary

Average Delay	0.3
Intersection Capacity Utilization	66.1%
ICU Level of Service	C
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

6: Wilderness Rd & Route 3

2/3/2016



Movement	SBR
Lane Configurations	
Volume (veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	572
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	572
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	463
Direction, Lane #	

HCM Unsignalized Intersection Capacity Analysis

7: Stuart Dr/Bullock Rd & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	2014	9	4	1095	0	5	0	11	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.50	0.50	0.50	0.75	0.75	0.75
Hourly flow rate (vph)	19	2120	9	4	1153	0	10	0	22	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1153			2129			2747	3324	1065	2281	3328	576
vC1, stage 1 conf vol							2163	2163		1161	1161	
vC2, stage 2 conf vol							585	1161		1120	2167	
vCu, unblocked vol	1153			2129			2747	3324	1065	2281	3328	576
tC, single (s)	4.1			6.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			3.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			94			75	100	90	100	100	100
cM capacity (veh/h)	613			68			41	60	222	97	58	465

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	19	1413	716	4	768	384	32	0
Volume Left	19	0	0	4	0	0	10	0
Volume Right	0	0	9	0	0	0	22	0
cSH	613	1700	1700	68	1700	1700	93	1700
Volume to Capacity	0.03	0.83	0.42	0.06	0.45	0.23	0.34	0.00
Queue Length 95th (ft)	2	0	0	5	0	0	33	0
Control Delay (s)	11.1	0.0	0.0	61.5	0.0	0.0	62.8	0.0
Lane LOS	B			F			F	A
Approach Delay (s)	0.1			0.2			62.8	0.0
Approach LOS							F	A

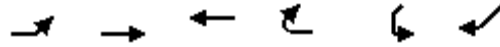
Intersection Summary

Average Delay	0.7
Intersection Capacity Utilization	72.2%
ICU Level of Service	C
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

10: Route 3 & 9 Mile Run

2/3/2016



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↑↑	↑↑		↘	
Volume (veh/h)	2	1982	1055	10	30	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.93	0.93	0.68	0.68
Hourly flow rate (vph)	2	2043	1134	11	44	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1145				2166	573
vC1, stage 1 conf vol					1140	
vC2, stage 2 conf vol					1026	
vCu, unblocked vol	1145				2166	573
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				78	98
cM capacity (veh/h)	617				201	468













Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SW 1
Volume Total	683	1362	756	389	51
Volume Left	2	0	0	0	44
Volume Right	0	0	0	11	7
cSH	617	1700	1700	1700	219
Volume to Capacity	0.00	0.80	0.44	0.23	0.23
Queue Length 95th (ft)	0	0	0	0	22
Control Delay (s)	0.1	0.0	0.0	0.0	26.4
Lane LOS	A				D
Approach Delay (s)	0.0		0.0		26.4
Approach LOS					D

Intersection Summary					
Average Delay			0.4		
Intersection Capacity Utilization			66.2%	ICU Level of Service	C
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis

11: McLaws & Route 3

2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑	↑		↑↑				↑			
Volume (veh/h)	0	2007	5	0	1064	0	0	0	40	0	0	0
Sign Control		Free			Free			Stop			Stop	
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)	0	2182	5	0	1157	0	0	0	43	0	0	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)					978							
pX, platoon unblocked	0.88						0.88	0.88		0.88	0.88	0.88
vC, conflicting volume	1157			2187			2760	3338	1091	2291	3343	578
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	910			2187			2728	3383	1091	2196	3389	254
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	79	100	100	100
cM capacity (veh/h)	656			239			9	7	210	17	6	657
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NE 1						
Volume Total	1091	1091	5	578	578	43						
Volume Left	0	0	0	0	0	0						
Volume Right	0	0	5	0	0	43						
cSH	1700	1700	1700	1700	1700	210						
Volume to Capacity	0.64	0.64	0.00	0.34	0.34	0.21						
Queue Length 95th (ft)	0	0	0	0	0	19						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	26.6						
Lane LOS						D						
Approach Delay (s)	0.0			0.0		26.6						
Approach LOS						D						
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization			65.5%		ICU Level of Service		C					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

27: Route 3 & River Rd.

2/3/2016



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	144	1836	1027	5	4	27
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)	157	1996	1116	5	4	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh		2	2			
Upstream signal (ft)		534				
pX, platoon unblocked					0.51	
vC, conflicting volume	1122				2430	561
vC1, stage 1 conf vol					1119	
vC2, stage 2 conf vol					1311	
vCu, unblocked vol	1122				1890	561
tC, single (s)	4.1				*8.8	6.9
tC, 2 stage (s)					7.8	
tF (s)	2.2				*4.5	3.3
p0 queue free %	75				96	94
cM capacity (veh/h)	618				115	471

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	157	998	998	744	378	34
Volume Left	157	0	0	0	0	4
Volume Right	0	0	0	0	5	29
cSH	618	1700	1700	1700	1700	337
Volume to Capacity	0.25	0.59	0.59	0.44	0.22	0.10
Queue Length 95th (ft)	25	0	0	0	0	8
Control Delay (s)	12.8	0.0	0.0	0.0	0.0	16.9
Lane LOS	B					C
Approach Delay (s)	0.9			0.0		16.9
Approach LOS						C

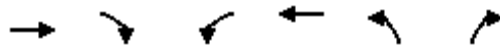
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			92.6%		ICU Level of Service	F
Analysis Period (min)			15			

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis

130: Route 3

2/3/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Volume (veh/h)	722	1	0	1044	0	1
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)	785	1	0	1135	0	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			786		1353	393
vC1, stage 1 conf vol					785	
vC2, stage 2 conf vol					567	
vCu, unblocked vol			786		1353	393
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			829		342	606

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	523	263	567	567	1
Volume Left	0	0	0	0	0
Volume Right	0	1	0	0	1
cSH	1700	1700	1700	1700	606
Volume to Capacity	0.31	0.15	0.33	0.33	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	11.0
Lane LOS					B
Approach Delay (s)	0.0		0.0		11.0
Approach LOS					B

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			32.2%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis

131: Route 3

2/3/2016



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↗
Volume (veh/h)	0	723	1043	1	0	1
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)	0	786	1134	1	0	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1135				1527	567
vC1, stage 1 conf vol					1134	
vC2, stage 2 conf vol					393	
vCu, unblocked vol	1135				1527	567
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	611				253	466













Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	393	393	756	379	1
Volume Left	0	0	0	0	0
Volume Right	0	0	0	1	1
cSH	1700	1700	1700	1700	466
Volume to Capacity	0.23	0.23	0.44	0.22	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	12.7
Lane LOS					B
Approach Delay (s)	0.0		0.0		12.7
Approach LOS					B

Intersection Summary					
Average Delay			0.0		
Intersection Capacity Utilization			38.9%	ICU Level of Service	A
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis

287: New D & Rte 3

3/31/2016

									
Movement	EBR	EBR2	NWL2	NWL	NEL	NER			
Lane Configurations									
Volume (veh/h)	1369	12	59	899	50	188			
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)	1488	13	64	977	54	204			
Pedestrians									
Lane Width (ft)									
Walking Speed (ft/s)									
Percent Blockage									
Right turn flare (veh)									
Median type	None			Raised					
Median storage veh				1					
Upstream signal (ft)									
pX, platoon unblocked									
vC, conflicting volume			1501			2105	744		
vC1, stage 1 conf vol					1488				
vC2, stage 2 conf vol					617				
vCu, unblocked vol			1501			2105	744		
tC, single (s)			4.1			6.8	6.9		
tC, 2 stage (s)					5.8				
tF (s)			2.2			3.5	3.3		
p0 queue free %			86			57	43		
cM capacity (veh/h)			442			126	357		
Direction, Lane #	EB 1	EB 2	EB 3	NW 1	NW 2	NW 3	NE 1	NE 2	
Volume Total	744	744	13	64	489	489	54	204	
Volume Left	0	0	0	64	0	0	54	0	
Volume Right	0	0	13	0	0	0	0	204	
cSH	1700	1700	1700	442	1700	1700	126	357	
Volume to Capacity	0.44	0.44	0.01	0.14	0.29	0.29	0.43	0.57	
Queue Length 95th (ft)	0	0	0	13	0	0	47	85	
Control Delay (s)	0.0	0.0	0.0	14.5	0.0	0.0	53.4	27.7	
Lane LOS				B			F	D	
Approach Delay (s)	0.0			0.9		33.1			
Approach LOS						D			
Intersection Summary									
Average Delay			3.4						
Intersection Capacity Utilization			66.2%		ICU Level of Service			C	
Analysis Period (min)			15						

HCM Unsignalized Intersection Capacity Analysis

290: Rte 3 & New B

2/3/2016



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗	↘	↘
Volume (veh/h)	0	1293	888	139	20	12
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)	0	1405	965	151	22	13
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	1116				1668	483
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1116				1668	483
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				75	98
cM capacity (veh/h)	621				87	530













Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	703	703	483	483	151	22	13
Volume Left	0	0	0	0	0	22	0
Volume Right	0	0	0	0	151	0	13
cSH	1700	1700	1700	1700	1700	87	530
Volume to Capacity	0.41	0.41	0.28	0.28	0.09	0.25	0.02
Queue Length 95th (ft)	0	0	0	0	0	22	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	59.5	12.0
Lane LOS						F	B
Approach Delay (s)	0.0		0.0			41.7	
Approach LOS						E	

Intersection Summary							
Average Delay			0.6				
Intersection Capacity Utilization			45.7%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

297: New C & Rte 3

2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗		↕	
Volume (veh/h)	0	1361	0	0	940	2	0	0	2	2	0	1
Sign Control		Free			Free			Stop			Stop	
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)	0	1479	0	0	1022	2	0	0	2	2	0	1
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	1024			1479			1991	2503	740	1764	2501	511
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1024			1479			1991	2503	740	1764	2501	511
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	96	100	100
cM capacity (veh/h)	674			451			36	28	359	53	28	508
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	740	740	0	511	511	2	2	3				
Volume Left	0	0	0	0	0	0	0	2				
Volume Right	0	0	0	0	0	2	2	1				
cSH	1700	1700	1700	1700	1700	1700	359	76				
Volume to Capacity	0.44	0.44	0.00	0.30	0.30	0.00	0.01	0.04				
Queue Length 95th (ft)	0	0	0	0	0	0	0	3				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	15.1	54.7				
Lane LOS							C	F				
Approach Delay (s)	0.0			0.0			15.1	54.7				
Approach LOS							C	F				
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			54.3%			ICU Level of Service			A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

319: New G & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑	↗						↗
Volume (veh/h)	0	2652	0	0	1891	84	0	0	0	0	0	7
Sign Control		Free			Free			Stop			Stop	
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)	0	2883	0	0	2055	91	0	0	0	0	0	8
Pedestrians		17										
Lane Width (ft)		12.0										
Walking Speed (ft/s)		4.0										
Percent Blockage		1										
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		746										
pX, platoon unblocked				0.41			0.41	0.41	0.41	0.41	0.41	0.41
vC, conflicting volume	2147			2883			3935	5029	1441	3497	4938	1045
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2147			2714			5280	7948	0	4211	7725	1045
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	97
cM capacity (veh/h)	248			60			0	0	445	0	0	222

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1
Volume Total	1441	1441	1028	1028	91	8
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	91	8
cSH	1700	1700	1700	1700	1700	222
Volume to Capacity	0.85	0.85	0.60	0.60	0.05	0.03
Queue Length 95th (ft)	0	0	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	21.8
Lane LOS						C
Approach Delay (s)	0.0		0.0			21.8
Approach LOS						C













Intersection Summary

Average Delay	0.0
Intersection Capacity Utilization	76.6%
ICU Level of Service	D
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

322: New H & Route 3

























2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑↑				↗			
Volume (veh/h)	0	2866	8	0	1901	0	0	0	38	0	0	0
Sign Control		Free			Free			Stop			Stop	
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)	0	3115	9	0	2066	0	0	0	41	0	0	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)		1023										
pX, platoon unblocked				0.42			0.42	0.42	0.42	0.42	0.42	0.42
vC, conflicting volume	2066			3124			3804	5182	1558	3665	5190	689
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2066			3295			4915	8196	0	4584	8216	689
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	91	100	100	100
cM capacity (veh/h)	266			36			0	0	455	0	0	388
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1					
Volume Total	1558	1558	9	689	689	689	41					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	9	0	0	0	41					
cSH	1700	1700	1700	1700	1700	1700	455					
Volume to Capacity	0.92	0.92	0.01	0.41	0.41	0.41	0.09					
Queue Length 95th (ft)	0	0	0	0	0	0	7					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.7					
Lane LOS							B					
Approach Delay (s)	0.0			0.0			13.7					
Approach LOS							B					
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			89.2%	ICU Level of Service					E			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

1: VA 20/Constitution Hwy & Rte 3

4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	37	910	118	421	1569	59	86	19	282	29	22	17
Future Volume (vph)	37	910	118	421	1569	59	86	19	282	29	22	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0	6.0	6.5	6.0		6.5	6.5	6.5		6.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1805	3471	1583	1770	3487		1787	1810	1509		1747	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.43	1.00	1.00		0.85	
Satd. Flow (perm)	1805	3471	1583	1770	3487		813	1810	1509		1519	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	41	1011	131	463	1724	65	91	20	297	31	23	18
RTOR Reduction (vph)	0	0	86	0	1	0	0	0	237	0	8	0
Lane Group Flow (vph)	41	1011	45	463	1788	0	91	20	60	0	64	0
Heavy Vehicles (%)	0%	4%	2%	2%	3%	2%	1%	5%	7%	3%	5%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			3				4
Permitted Phases			2				3		3	4		
Actuated Green, G (s)	7.3	47.8	47.8	35.9	75.9		20.1	20.1	20.1		11.2	
Effective Green, g (s)	7.3	47.8	47.8	35.9	75.9		20.1	20.1	20.1		11.2	
Actuated g/C Ratio	0.05	0.34	0.34	0.26	0.54		0.14	0.14	0.14		0.08	
Clearance Time (s)	7.0	6.0	6.0	6.5	6.0		6.5	6.5	6.5		6.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	93	1180	538	452	1883		116	258	215		121	
v/s Ratio Prot	0.02	0.29		c0.26	c0.51			0.01				
v/s Ratio Perm			0.03				c0.11		0.04		c0.04	
v/c Ratio	0.44	0.86	0.08	1.02	0.95		0.78	0.08	0.28		0.53	
Uniform Delay, d1	64.6	43.2	31.5	52.3	30.5		58.1	52.2	53.8		62.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	
Incremental Delay, d2	3.3	6.3	0.1	48.7	11.0		28.5	0.1	0.7		4.1	
Delay (s)	67.9	49.5	31.5	101.0	41.5		86.6	52.3	54.5		66.2	
Level of Service	E	D	C	F	D		F	D	D		E	
Approach Delay (s)		48.1			53.7			61.5			66.2	
Approach LOS		D			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			53.1			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			140.5			Sum of lost time (s)			26.0			
Intersection Capacity Utilization			75.3%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Brock Rd & Rte 3

4/11/2016



Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↕↕		↔	↕↕	↔↔	
Traffic Volume (vph)	1	1067	193	54	1600	175	13
Future Volume (vph)	1	1067	193	54	1600	175	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		8.0	7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	
Frt	1.00	0.98		1.00	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	0.96	
Satd. Flow (prot)	1805	3369		1703	3539	1734	
Flt Permitted	0.10	1.00		0.95	1.00	0.96	
Satd. Flow (perm)	189	3369		1703	3539	1734	
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	1100	199	59	1739	190	14
RTOR Reduction (vph)	0	17	0	0	0	3	0
Lane Group Flow (vph)	1	1282	0	59	1739	201	0
Heavy Vehicles (%)	0%	5%	3%	6%	2%	4%	0%
Turn Type	Perm	NA		Prot	NA	Prot	
Protected Phases		2		1	6	3	
Permitted Phases	2						
Actuated Green, G (s)	41.6	41.6		3.1	52.7	14.2	
Effective Green, g (s)	41.6	41.6		3.1	52.7	14.2	
Actuated g/C Ratio	0.51	0.51		0.04	0.65	0.18	
Clearance Time (s)	7.0	7.0		8.0	7.0	7.0	
Vehicle Extension (s)	4.5	4.5		3.0	4.5	3.0	
Lane Grp Cap (vph)	97	1732		65	2305	304	
v/s Ratio Prot		0.38		0.03	c0.49	c0.12	
v/s Ratio Perm	0.01						
v/c Ratio	0.01	0.74		0.91	0.75	0.66	
Uniform Delay, d1	9.6	15.4		38.8	9.7	31.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.1	2.0		78.9	1.6	5.3	
Delay (s)	9.7	17.4		117.7	11.3	36.4	
Level of Service	A	B		F	B	D	
Approach Delay (s)		17.4			14.8	36.4	
Approach LOS		B			B	D	

Intersection Summary

HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.9	Sum of lost time (s)	22.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

5: Orange Plank Rd & Route 3
























4/11/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	1101	30	530	1790	77	42	13	285	60	9	12
Future Volume (vph)	17	1101	30	530	1790	77	42	13	285	60	9	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	8.1	8.1	6.5	8.2			6.5	6.5	5.5	5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3471	1615	1787	3520			1621	1583	1805	1739	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3471	1615	1787	3520			1621	1583	1805	1739	
Peak-hour factor, PHF	0.95	0.95	0.95	0.89	0.89	0.89	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	18	1159	32	596	2011	87	44	14	297	65	10	13
RTOR Reduction (vph)	0	0	20	0	2	0	0	0	56	0	12	0
Lane Group Flow (vph)	18	1159	12	596	2096	0	0	58	241	65	11	0
Heavy Vehicles (%)	0%	4%	0%	1%	2%	0%	17%	0%	2%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		3	3	1	4	4	
Permitted Phases			2						3			
Actuated Green, G (s)	1.5	46.4	46.4	43.0	90.3			6.1	49.1	6.5	6.5	
Effective Green, g (s)	1.5	46.4	46.4	43.0	90.3			6.1	49.1	6.5	6.5	
Actuated g/C Ratio	0.01	0.36	0.36	0.33	0.70			0.05	0.38	0.05	0.05	
Clearance Time (s)	4.0	8.1	8.1	6.5	8.2			6.5	6.5	5.5	5.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.5	4.5			2.5	3.5	3.0	3.0	
Lane Grp Cap (vph)	21	1252	582	597	2471			76	604	91	87	
v/s Ratio Prot	0.01	c0.33		c0.33	0.60			c0.04	0.13	c0.04	0.01	
v/s Ratio Perm			0.01						0.02			
v/c Ratio	0.86	0.93	0.02	1.00	0.85			0.76	0.40	0.71	0.12	
Uniform Delay, d1	63.4	39.4	26.5	42.8	14.1			60.5	29.0	60.1	58.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	129.6	11.9	0.0	36.2	3.1			34.4	0.5	23.2	0.6	
Delay (s)	193.0	51.4	26.5	78.9	17.2			94.9	29.5	83.3	59.0	
Level of Service	F	D	C	E	B			F	C	F	E	
Approach Delay (s)		52.8			30.9			40.2			77.0	
Approach LOS		D			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			38.7			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			128.6			Sum of lost time (s)			26.6			
Intersection Capacity Utilization			87.1%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Old Plank Rd/Elys Ford Rd & Route 3

4/11/2016


























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	97	1458	23	26	2215	186	102	27	21	132	30	21
Future Volume (vph)	97	1458	23	26	2215	186	102	27	21	132	30	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0			6.0			6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00			1.00	
Frt	1.00	1.00	0.85	1.00	0.99			0.98			0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97			0.97	
Satd. Flow (prot)	1770	3539	1583	1770	3498			1767			1770	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.97			0.97	
Satd. Flow (perm)	1770	3539	1583	1770	3498			1767			1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	105	1585	25	28	2408	202	111	29	23	143	33	23
RTOR Reduction (vph)	0	0	11	0	3	0	0	4	0	0	3	0
Lane Group Flow (vph)	105	1585	14	28	2607	0	0	159	0	0	196	0
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA		Split	NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases			2									
Actuated Green, G (s)	14.3	96.3	96.3	6.9	88.9			20.8			23.7	
Effective Green, g (s)	14.3	96.3	96.3	6.9	88.9			20.8			23.7	
Actuated g/C Ratio	0.08	0.56	0.56	0.04	0.52			0.12			0.14	
Clearance Time (s)	6.0	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			3.0	
Lane Grp Cap (vph)	147	1984	887	71	1811			214			244	
v/s Ratio Prot	c0.06	c0.45		0.02	c0.75			c0.09			c0.11	
v/s Ratio Perm			0.01									
v/c Ratio	0.71	0.80	0.02	0.39	1.44			0.75			0.80	
Uniform Delay, d1	76.7	30.0	16.7	80.4	41.4			72.9			71.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2	15.2	3.5	0.0	3.6	201.0			13.2			17.3	
Delay (s)	91.9	33.5	16.7	83.9	242.4			86.0			89.1	
Level of Service	F	C	B	F	F			F			F	
Approach Delay (s)		36.8			240.7			86.0			89.1	
Approach LOS		D			F			F			F	
Intersection Summary												
HCM 2000 Control Delay			154.8			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.18									
Actuated Cycle Length (s)			171.7			Sum of lost time (s)		24.0				
Intersection Capacity Utilization			99.5%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

12: Andora Dr/Corter Ave & Route 3



























4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	48	2040	12	360	2612	225	12	12	200	135	21	36
Future Volume (vph)	48	2040	12	360	2612	225	12	12	200	135	21	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.5	7.5	7.0	7.5	7.5		7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1805	3438	1615	1805	3574	1455		1854	1599	1545	1591	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.98	1.00	0.95	0.96	1.00
Satd. Flow (perm)	1805	3438	1615	1805	3574	1455		1854	1599	1545	1591	1553
Peak-hour factor, PHF	0.98	0.98	0.98	0.93	0.93	0.93	0.93	0.93	0.93	0.84	0.84	0.84
Adj. Flow (vph)	49	2082	12	387	2809	242	13	13	215	161	25	43
RTOR Reduction (vph)	0	0	6	0	0	44	0	0	207	0	0	40
Lane Group Flow (vph)	49	2082	6	387	2809	198	0	26	8	92	94	3
Heavy Vehicles (%)	0%	5%	0%	0%	1%	11%	0%	0%	1%	11%	5%	4%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	5.0	87.5	87.5	38.0	120.5	120.5		6.0	6.0	10.0	10.0	10.0
Effective Green, g (s)	5.0	87.5	87.5	38.0	120.5	120.5		6.0	6.0	10.0	10.0	10.0
Actuated g/C Ratio	0.03	0.51	0.51	0.22	0.71	0.71		0.04	0.04	0.06	0.06	0.06
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5	7.5		7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	6.0	5.0	5.0		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	53	1769	831	403	2533	1031		65	56	90	93	91
v/s Ratio Prot	0.03	c0.61		c0.21	c0.79			c0.01		c0.06	0.06	
v/s Ratio Perm			0.00			0.14			0.00			0.00
v/c Ratio	0.92	1.18	0.01	0.96	1.11	0.19		0.40	0.14	1.02	1.01	0.03
Uniform Delay, d1	82.3	41.2	20.1	65.3	24.8	8.3		80.2	79.5	80.0	80.0	75.4
Progression Factor	1.00	1.00	1.00	0.88	1.25	2.58		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	95.3	85.9	0.0	6.9	49.7	0.0		4.0	1.1	101.0	96.3	0.1
Delay (s)	177.6	127.1	20.1	64.5	80.7	21.6		84.2	80.6	181.0	176.3	75.5
Level of Service	F	F	C	E	F	C		F	F	F	F	E
Approach Delay (s)		127.7			74.7			81.0			159.3	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			96.9				HCM 2000 Level of Service		F			
HCM 2000 Volume to Capacity ratio			1.12									
Actuated Cycle Length (s)			170.0				Sum of lost time (s)		28.5			
Intersection Capacity Utilization			105.2%				ICU Level of Service		G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

13: Big Ben & Route 3


































4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	88	2274	10	125	3067	309	22	40	61	354	26	130
Future Volume (vph)	88	2274	10	125	3067	309	22	40	61	354	26	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00	0.95	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98	1.00	0.95	0.98	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583		1830	1583	1681	1601	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.79	1.00	0.95	0.85	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583		1479	1583	1681	1385	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	2472	11	136	3334	336	24	43	66	385	28	141
RTOR Reduction (vph)	0	0	4	0	0	52	0	0	60	0	20	0
Lane Group Flow (vph)	96	2472	7	136	3334	284	0	67	6	285	249	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			
Actuated Green, G (s)	7.0	104.0	104.0	8.0	105.0	105.0		20.0	16.0	18.0	40.0	
Effective Green, g (s)	7.0	104.0	104.0	8.0	105.0	105.0		20.0	16.0	18.0	40.0	
Actuated g/C Ratio	0.04	0.61	0.61	0.05	0.62	0.62		0.12	0.09	0.11	0.24	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	
Lane Grp Cap (vph)	72	2165	968	83	2185	977		182	148	177	348	
v/s Ratio Prot	0.05	0.70		c0.08	c0.94			0.01		c0.17	0.08	
v/s Ratio Perm			0.00			0.18		0.03	0.00		c0.09	
v/c Ratio	1.33	1.14	0.01	1.64	1.53	0.29		0.37	0.04	1.61	0.72	
Uniform Delay, d1	81.5	33.0	12.9	81.0	32.5	15.2		69.2	70.0	76.0	59.8	
Progression Factor	0.99	0.59	1.00	0.94	0.61	1.07		1.00	1.00	1.00	1.00	
Incremental Delay, d2	158.5	64.4	0.0	292.3	236.9	0.1		5.6	0.5	299.2	11.9	
Delay (s)	238.8	83.8	12.9	368.0	256.6	16.2		74.8	70.6	375.2	71.7	
Level of Service	F	F	B	F	F	B		E	E	F	E	
Approach Delay (s)		89.3			239.4			72.7			227.8	
Approach LOS		F			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			180.6			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.47									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			126.3%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: Harrison Rd/Harrison & Route 3






























4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 		
Traffic Volume (vph)	181	2262	302	328	3022	243	351	282	222	257	285	129
Future Volume (vph)	181	2262	302	328	3022	243	351	282	222	257	285	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.5	7.5	7.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	4988	1538	3502	5085	1615	3433	3574	1615	3467	1900	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	4988	1538	3502	5085	1615	3433	3574	1615	3467	1900	1583
Peak-hour factor, PHF	0.89	0.89	0.89	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	203	2542	339	353	3249	261	386	310	244	292	324	147
RTOR Reduction (vph)	0	0	85	0	0	52	0	0	142	0	0	127
Lane Group Flow (vph)	203	2542	254	353	3249	209	386	310	102	292	324	20
Heavy Vehicles (%)	1%	4%	5%	0%	2%	0%	2%	1%	0%	1%	0%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	8.0	86.5	86.5	16.0	94.5	94.5	16.0	22.4	22.4	16.6	23.0	23.0
Effective Green, g (s)	8.0	86.5	86.5	16.0	94.5	94.5	16.0	22.4	22.4	16.6	23.0	23.0
Actuated g/C Ratio	0.05	0.51	0.51	0.09	0.56	0.56	0.09	0.13	0.13	0.10	0.14	0.14
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5	7.5	7.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	163	2538	782	329	2826	897	323	470	212	338	257	214
v/s Ratio Prot	0.06	0.51		c0.10	c0.64		c0.11	0.09		0.08	c0.17	
v/s Ratio Perm			0.17			0.13			0.06			0.01
v/c Ratio	1.25	1.00	0.32	1.07	1.15	0.23	1.20	0.66	0.48	0.86	1.26	0.09
Uniform Delay, d1	81.0	41.8	24.6	77.0	37.8	19.3	77.0	70.2	68.4	75.6	73.5	64.4
Progression Factor	0.83	1.10	1.63	1.30	0.28	0.04	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	115.3	5.7	0.1	38.9	67.8	0.1	114.0	3.3	1.7	19.8	144.8	0.2
Delay (s)	182.7	51.6	40.1	139.1	78.2	0.8	191.0	73.5	70.1	95.4	218.3	64.6
Level of Service	F	D	D	F	E	A	F	E	E	F	F	E
Approach Delay (s)		58.9			78.5			120.9			141.6	
Approach LOS		E			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			81.7			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			170.0			Sum of lost time (s)			28.5			
Intersection Capacity Utilization			113.8%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

15: Gordon Rd & Route 3

4/11/2016

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  			  				 				
Traffic Volume (vph)	166	2540	68	565	3438	75	120	60	341	90	10	90	
Future Volume (vph)	166	2540	68	565	3438	75	120	60	341	90	10	90	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5	7.5	6.5	6.5	7.5	6.5	6.5		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	0.88	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1770	5036	1583	1787	5136	1583	1787	1863	2814	1770	1612		
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1770	5036	1583	1787	5136	1583	1787	1863	2814	1770	1612		
Peak-hour factor, PHF	0.92	0.90	0.90	0.96	0.96	0.92	0.84	0.92	0.84	0.92	0.92	0.92	
Adj. Flow (vph)	180	2822	76	589	3581	82	143	65	406	98	11	98	
RTOR Reduction (vph)	0	0	44	0	0	32	0	0	80	0	92	0	
Lane Group Flow (vph)	180	2822	32	589	3581	50	143	65	326	98	17	0	
Heavy Vehicles (%)	2%	3%	2%	1%	1%	2%	1%	2%	1%	2%	2%	2%	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		
Protected Phases	5	2		1	6		3	8	1	7	4		
Permitted Phases			2			6			8				
Actuated Green, G (s)	12.5	72.4	72.4	43.7	103.6	103.6	16.2	11.9	55.6	14.0	9.7		
Effective Green, g (s)	12.5	72.4	72.4	43.7	103.6	103.6	16.2	11.9	55.6	14.0	9.7		
Actuated g/C Ratio	0.07	0.43	0.43	0.26	0.61	0.61	0.10	0.07	0.33	0.08	0.06		
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5	6.5	6.5	7.5	6.5	6.5		
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	3.0	3.0	3.5	3.5		
Lane Grp Cap (vph)	130	2144	674	459	3129	964	170	130	920	145	91		
v/s Ratio Prot	0.10	c0.56		c0.33	0.70		c0.08	c0.03	0.09	0.06	0.01		
v/s Ratio Perm			0.02			0.03			0.02				
v/c Ratio	1.38	1.32	0.05	1.28	1.14	0.05	0.84	0.50	0.35	0.68	0.18		
Uniform Delay, d1	78.8	48.8	28.6	63.1	33.2	13.4	75.6	76.2	43.5	75.8	76.4		
Progression Factor	1.05	1.08	5.66	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	187.0	143.3	0.0	143.3	69.3	0.1	29.5	3.0	0.2	12.2	1.1		
Delay (s)	269.9	196.0	161.9	206.4	102.5	13.5	105.2	79.2	43.8	88.0	77.5		
Level of Service	F	F	F	F	F	B	F	E	D	F	E		
Approach Delay (s)		199.5			115.2			61.8			82.5		
Approach LOS		F			F			E			F		
Intersection Summary													
HCM 2000 Control Delay			142.1									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.20										
Actuated Cycle Length (s)			170.0									Sum of lost time (s)	28.0
Intersection Capacity Utilization			111.6%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

20: Glade Dr/New E & Route 3

4/11/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	1433	10	52	2367	134	21	3	154	79	2	13
Future Volume (vph)	23	1433	10	52	2367	134	21	3	154	79	2	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583		1784	1583		1776	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583		1784	1583		1776	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	1558	11	57	2573	146	23	3	167	86	2	14
RTOR Reduction (vph)	0	0	3	0	0	28	0	0	99	0	0	13
Lane Group Flow (vph)	25	1558	8	57	2573	118	0	26	68	0	88	1
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	2.3	103.4	103.4	8.6	109.7	109.7		3.4	12.0		8.0	8.0
Effective Green, g (s)	2.3	103.4	103.4	8.6	109.7	109.7		3.4	12.0		8.0	8.0
Actuated g/C Ratio	0.02	0.70	0.70	0.06	0.74	0.74		0.02	0.08		0.05	0.05
Clearance Time (s)	6.0	6.0	6.0	6.0	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		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	27	2482	1110	200	2633	1178		41	193		96	85
v/s Ratio Prot	0.01	c0.44		0.02	c0.73			0.01	c0.02		c0.05	
v/s Ratio Perm			0.00			0.07			0.02			0.00
v/c Ratio	0.93	0.63	0.01	0.28	0.98	0.10		0.63	0.35		0.92	0.01
Uniform Delay, d1	72.5	11.7	6.6	66.5	17.7	5.2		71.4	64.0		69.4	65.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	139.9	0.5	0.0	0.8	12.5	0.0		27.9	1.1		64.7	0.0
Delay (s)	212.3	12.2	6.6	67.2	30.2	5.2		99.2	65.1		134.1	66.0
Level of Service	F	B	A	E	C	A		F	E		F	E
Approach Delay (s)		15.3			29.7			69.7			124.8	
Approach LOS		B			C			E			F	

Intersection Summary



























HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	147.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

21: New F & Route 3

4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 						 	
Traffic Volume (vph)	1	1645	19	156	2503	1	65	2	309	1	1	1
Future Volume (vph)	1	1645	19	156	2503	1	65	2	309	1	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583		1776	1583		1750	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.98	
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583		1776	1583		1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	1788	21	170	2721	1	71	2	336	1	1	1
RTOR Reduction (vph)	0	0	7	0	0	0	0	0	79	0	1	0
Lane Group Flow (vph)	1	1788	14	170	2721	1	0	73	257	0	2	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Split	NA	
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			6			2			
Actuated Green, G (s)	0.7	99.7	99.7	11.4	110.4	110.4		9.3	111.1		0.7	
Effective Green, g (s)	0.7	99.7	99.7	11.4	110.4	110.4		9.3	111.1		0.7	
Actuated g/C Ratio	0.00	0.69	0.69	0.08	0.76	0.76		0.06	0.77		0.00	
Clearance Time (s)	6.0	6.0	6.0	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		3.0	3.0		3.0	
Lane Grp Cap (vph)	8	2431	1087	269	2692	1204		113	1277		8	
v/s Ratio Prot	0.00	0.51		c0.05	c0.77			c0.04	0.02		c0.00	
v/s Ratio Perm			0.01			0.00			0.15			
v/c Ratio	0.12	0.74	0.01	0.63	1.01	0.00		0.65	0.20		0.25	
Uniform Delay, d1	71.9	14.4	7.2	64.8	17.3	4.2		66.3	4.7		71.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	6.9	2.0	0.0	4.8	20.0	0.0		12.0	0.1		15.8	
Delay (s)	78.8	16.4	7.2	69.6	37.4	4.2		78.3	4.8		87.8	
Level of Service	E	B	A	E	D	A		E	A		F	
Approach Delay (s)		16.3			39.3			17.9			87.8	
Approach LOS		B			D			B			F	

Intersection Summary

HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	145.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

293: Rte 3 & New A

4/11/2016



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↗	↖	↖	↖
Traffic Volume (vph)	17	799	1026	138	217	25
Future Volume (vph)	17	799	1026	138	217	25
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	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	3539	3539	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	868	1115	150	236	27
RTOR Reduction (vph)	0	0	0	76	0	22
Lane Group Flow (vph)	18	868	1115	74	236	5
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	1	6	2		3	
Permitted Phases				2		8
Actuated Green, G (s)	0.7	34.3	27.6	27.6	9.7	9.7
Effective Green, g (s)	0.7	34.3	27.6	27.6	9.7	9.7
Actuated g/C Ratio	0.01	0.61	0.49	0.49	0.17	0.17
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)	22	2167	1744	780	594	274
v/s Ratio Prot	0.01	c0.25	c0.32		c0.07	
v/s Ratio Perm				0.05		0.00
v/c Ratio	0.82	0.40	0.64	0.09	0.40	0.02
Uniform Delay, d1	27.6	5.6	10.5	7.6	20.6	19.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	109.6	0.1	0.8	0.1	0.4	0.0
Delay (s)	137.1	5.7	11.3	7.6	21.0	19.2
Level of Service	F	A	B	A	C	B
Approach Delay (s)		8.4	10.9		20.8	
Approach LOS		A	B		C	

Intersection Summary




















HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	56.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

2: Rte 3 & Fox Gate Dr

4/11/2016

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	19	1171	0	3	1641	131	0	0	1	89	0	13	
Future Volume (Veh/h)	19	1171	0	3	1641	131	0	0	1	89	0	13	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.73	0.92	0.73	
Hourly flow rate (vph)	20	1259	0	3	1765	141	0	0	1	122	0	18	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	Raised			Raised									
Median storage (veh)	2			2									
Upstream signal (ft)													
pX, platoon unblocked													
vC, conflicting volume	1906			1259			2206	3211	630	2442	3070	882	
vC1, stage 1 conf vol							1299	1299		1771	1771		
vC2, stage 2 conf vol							906	1912		670	1299		
vCu, unblocked vol	1906			1259			2206	3211	630	2442	3070	882	
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	6.9	
tC, 2 stage (s)							6.5	5.5		6.6	5.5		
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3	
p0 queue free %	94			99			100	100	100	0	100	94	
cM capacity (veh/h)	316			559			132	83	425	80	108	293	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1				
Volume Total	20	630	630	3	882	882	141	1	140				
Volume Left	20	0	0	3	0	0	0	0	122				
Volume Right	0	0	0	0	0	0	141	1	18				
cSH	316	1700	1700	559	1700	1700	1700	425	88				
Volume to Capacity	0.06	0.37	0.37	0.01	0.52	0.52	0.08	0.00	1.59				
Queue Length 95th (ft)	5	0	0	0	0	0	0	0	279				
Control Delay (s)	17.2	0.0	0.0	11.5	0.0	0.0	0.0	13.5	394.2				
Lane LOS	C			B				B	F				
Approach Delay (s)	0.3			0.0				13.5	394.2				
Approach LOS								B	F				
Intersection Summary													
Average Delay	16.7												
Intersection Capacity Utilization	64.4%			ICU Level of Service						C			
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis

4: Rte 3 & Black Meadow Rd

4/11/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Traffic Volume (veh/h)	22	1062	0	1	1641	26	0	0	0	14	1	14						
Future Volume (Veh/h)	22	1062	0	1	1641	26	0	0	0	14	1	14						
Sign Control	Free			Free			Stop			Stop								
Grade	0%			0%			0%			0%								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.80	0.92	0.80						
Hourly flow rate (vph)	24	1154	0	1	1844	29	0	0	0	18	1	18						
Pedestrians																		
Lane Width (ft)																		
Walking Speed (ft/s)																		
Percent Blockage																		
Right turn flare (veh)																		
Median type	Raised			Raised														
Median storage (veh)	2			2														
Upstream signal (ft)																		
pX, platoon unblocked																		
vC, conflicting volume	1873			1154			2144		3077		577		2471		3048		922	
vC1, stage 1 conf vol							1202		1202		1846		1846					
vC2, stage 2 conf vol							942		1875		625		1202					
vCu, unblocked vol	1873			1154			2144		3077		577		2471		3048		922	
tC, single (s)	4.1			4.1			7.5		6.5		6.9		7.7		6.5		7.2	
tC, 2 stage (s)							6.5		5.5		6.7		5.5					
tF (s)	2.2			2.2			3.5		4.0		3.3		3.6		4.0		3.4	
p0 queue free %	93			100			100		100		100		73		99		93	
cM capacity (veh/h)	326			601			140		85		460		68		105		249	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1										
Volume Total	24	769	385	1	922	922	29	37										
Volume Left	24	0	0	1	0	0	0	18										
Volume Right	0	0	0	0	0	0	29	18										
cSH	326	1700	1700	601	1700	1700	1700	106										
Volume to Capacity	0.07	0.45	0.23	0.00	0.54	0.54	0.02	0.35										
Queue Length 95th (ft)	6	0	0	0	0	0	0	35										
Control Delay (s)	16.9	0.0	0.0	11.0	0.0	0.0	0.0	55.9										
Lane LOS	C			B			F											
Approach Delay (s)	0.3			0.0			55.9											
Approach LOS							F											
Intersection Summary																		
Average Delay	0.8																	
Intersection Capacity Utilization	55.4%			ICU Level of Service					B									
Analysis Period (min)	15																	

HCM Unsignalized Intersection Capacity Analysis

6: Wilderness Rd & Route 3

4/11/2016

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations													
Traffic Volume (veh/h)	0	0	1440	6	6	2395	0	4	0	10	0	0	
Future Volume (Veh/h)	0	0	1440	6	6	2395	0	4	0	10	0	0	
Sign Control			Free			Free			Stop			Stop	
Grade			0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.98	0.98	0.96	0.96	0.92	0.39	0.92	0.39	0.92	0.92	
Hourly flow rate (vph)	0	0	1469	6	6	2495	0	10	0	26	0	0	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type			Raised				Raised						
Median storage (veh)			2				2						
Upstream signal (ft)													
pX, platoon unblocked	0.00												
vC, conflicting volume	0	2495			1475			2728	3976	734	3268	3982	
vC1, stage 1 conf vol								1469	1469		2507	2507	
vC2, stage 2 conf vol								1260	2507		760	1475	
vCu, unblocked vol	0	2495			1475			2728	3976	734	3268	3982	
tC, single (s)	0.0	4.1			4.4			7.5	6.5	6.9	7.5	6.5	
tC, 2 stage (s)								6.5	5.5		6.5	5.5	
tF (s)	0.0	2.2			2.4			3.5	4.0	3.3	3.5	4.0	
p0 queue free %	0	100			98			90	100	93	100	100	
cM capacity (veh/h)	0	180			385			103	51	367	28	51	
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1			
Volume Total	734	734	6	0	6	1248	1248	10	26	0			
Volume Left	0	0	0	0	6	0	0	10	0	0			
Volume Right	0	0	6	0	0	0	0	0	26	0			
cSH	1700	1700	1700	1700	385	1700	1700	103	367	1700			
Volume to Capacity	0.43	0.43	0.00	0.00	0.02	0.73	0.73	0.10	0.07	0.00			
Queue Length 95th (ft)	0	0	0	0	1	0	0	8	6	0			
Control Delay (s)	0.0	0.0	0.0	0.0	14.5	0.0	0.0	43.5	15.6	0.0			
Lane LOS					B			E	C	A			
Approach Delay (s)	0.0				0.0			23.3		0.0			
Approach LOS								C		A			
Intersection Summary													
Average Delay			0.2										
Intersection Capacity Utilization			76.2%				ICU Level of Service				D		
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 6: Wilderness Rd & Route 3

4/11/2016



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	0
Future Volume (Veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	1248
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	1248
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	165
Direction, Lane #	

HCM Unsignalized Intersection Capacity Analysis

7: Stuart Dr/Bullock Rd & Route 3

4/11/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Traffic Volume (veh/h)	9	1432	9	13	2396	1	3	1	8	1	0	2						
Future Volume (Veh/h)	9	1432	9	13	2396	1	3	1	8	1	0	2						
Sign Control		Free			Free			Stop			Stop							
Grade		0%			0%			0%			0%							
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.50	0.50	0.50	0.75	0.75	0.75						
Hourly flow rate (vph)	9	1507	9	14	2522	1	6	2	16	1	0	3						
Pedestrians																		
Lane Width (ft)																		
Walking Speed (ft/s)																		
Percent Blockage																		
Right turn flare (veh)																		
Median type		Raised			Raised													
Median storage veh		1			1													
Upstream signal (ft)																		
pX, platoon unblocked																		
vC, conflicting volume	2523			1516			2822		4080		758		3339		4084		1262	
vC1, stage 1 conf vol							1530		1530				2550		2550			
vC2, stage 2 conf vol							1292		2551				788		1534			
vCu, unblocked vol	2523			1516			2822		4080		758		3339		4084		1262	
tC, single (s)	4.1			6.1			7.5		6.5		6.9		7.5		6.5		6.9	
tC, 2 stage (s)							6.5		5.5				6.5		5.5			
tF (s)	2.2			3.2			3.5		4.0		3.3		3.5		4.0		3.3	
p0 queue free %	95			91			91		94		95		95		100		98	
cM capacity (veh/h)	181			157			63		31		354		22		35		164	
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1										
Volume Total	9	1005	511	14	1681	842	24	4										
Volume Left	9	0	0	14	0	0	6	1										
Volume Right	0	0	9	0	0	1	16	3										
cSH	181	1700	1700	157	1700	1700	117	62										
Volume to Capacity	0.05	0.59	0.30	0.09	0.99	0.50	0.20	0.06										
Queue Length 95th (ft)	4	0	0	7	0	0	18	5										
Control Delay (s)	25.9	0.0	0.0	30.2	0.0	0.0	43.4	66.9										
Lane LOS	D			D			E	F										
Approach Delay (s)	0.2			0.2			43.4	66.9										
Approach LOS							E	F										
Intersection Summary																		
Average Delay				0.5														
Intersection Capacity Utilization				83.6%			ICU Level of Service			E								
Analysis Period (min)				15														

HCM Unsignalized Intersection Capacity Analysis

10: Route 3 & 9 Mile Run

4/11/2016















Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↕↕	↕↕		↕↕	
Traffic Volume (veh/h)	2	1430	2369	32	22	13
Future Volume (Veh/h)	2	1430	2369	32	22	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.93	0.93	0.68	0.68
Hourly flow rate (vph)	2	1474	2547	34	32	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2581				3305	1290
vC1, stage 1 conf vol					2564	
vC2, stage 2 conf vol					741	
vCu, unblocked vol	2581				3305	1290
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	99				27	88
cM capacity (veh/h)	172				44	157
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SW 1	
Volume Total	493	983	1698	883	51	
Volume Left	2	0	0	0	32	
Volume Right	0	0	0	34	19	
cSH	172	1700	1700	1700	60	
Volume to Capacity	0.01	0.58	1.00	0.52	0.86	
Queue Length 95th (ft)	1	0	0	0	97	
Control Delay (s)	0.5	0.0	0.0	0.0	188.8	
Lane LOS	A				F	
Approach Delay (s)	0.2		0.0		188.8	
Approach LOS					F	
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			76.5%		ICU Level of Service	D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: McLaws & Route 3

4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑	↑		↑↑				↑			
Traffic Volume (veh/h)	0	1451	4	0	2401	0	0	0	14	0	0	0
Future Volume (Veh/h)	0	1451	4	0	2401	0	0	0	14	0	0	0
Sign Control		Free			Free			Stop			Stop	
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)	0	1577	4	0	2610	0	0	0	15	0	0	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)	978											
pX, platoon unblocked	0.27						0.27	0.27		0.27	0.27	0.27
vC, conflicting volume	2610			1581			2882	4187	788	3414	4191	1305
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1552			1581			2562	7408	788	4535	7422	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	96	100	100	100
cM capacity (veh/h)	114			412			4	0	334	0	0	292
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NE 1						
Volume Total	788	788	4	1305	1305	15						
Volume Left	0	0	0	0	0	0						
Volume Right	0	0	4	0	0	15						
cSH	1700	1700	1700	1700	1700	334						
Volume to Capacity	0.46	0.46	0.00	0.77	0.77	0.04						
Queue Length 95th (ft)	0	0	0	0	0	4						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	16.3						
Lane LOS							C					
Approach Delay (s)	0.0				0.0				16.3			
Approach LOS							C					
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			69.7%	ICU Level of Service		C						
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

27: Route 3 & River Rd.

4/11/2016









Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Volume (veh/h)	114	1497	2	2280	10	18	145
Future Volume (Veh/h)	114	1497	2	2280	10	18	145
Sign Control		Free		Free		Stop	
Grade		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	124	1627	0	2478	11	20	158
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type		Raised		Raised			
Median storage (veh)		2		2			
Upstream signal (ft)		534					
pX, platoon unblocked			0.00			0.64	
vC, conflicting volume	2489		0			3545	1244
vC1, stage 1 conf vol						2484	
vC2, stage 2 conf vol						1062	
vCu, unblocked vol	2489		0			3852	1244
tC, single (s)	4.1		0.0			*8.8	6.9
tC, 2 stage (s)						7.8	
tF (s)	2.2		0.0			*4.5	3.3
p0 queue free %	32		0			0	5
cM capacity (veh/h)	181		0			12	166
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1	
Volume Total	124	814	814	1652	837	178	
Volume Left	124	0	0	0	0	20	
Volume Right	0	0	0	0	11	158	
cSH	181	1700	1700	1700	1700	67	
Volume to Capacity	0.68	0.48	0.48	0.97	0.49	2.67	
Queue Length 95th (ft)	103	0	0	0	0	443	
Control Delay (s)	59.4	0.0	0.0	0.0	0.0	890.9	
Lane LOS	F					F	
Approach Delay (s)	4.2			0.0		890.9	
Approach LOS						F	
Intersection Summary							
Average Delay			37.6				
Intersection Capacity Utilization			111.4%		ICU Level of Service		H
Analysis Period (min)			15				
* User Entered Value							

HCM Unsignalized Intersection Capacity Analysis

287: New D & Rte 3

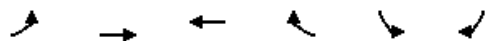
4/11/2016

									
Movement	EBT	EBR	WBL	WBT	NEL	NER			
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑			
Traffic Volume (veh/h)	1027	43	181	1663	38	119			
Future Volume (Veh/h)	1027	43	181	1663	38	119			
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)	1116	47	197	1808	41	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			1163			2414	558		
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol			1163			2414	558		
tC, single (s)			4.1			6.8	6.9		
tC, 2 stage (s)									
tF (s)			2.2			3.5	3.3		
p0 queue free %			67			0	73		
cM capacity (veh/h)			596			18	473		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NE 1	NE 2	
Volume Total	558	558	47	197	904	904	41	129	
Volume Left	0	0	0	197	0	0	41	0	
Volume Right	0	0	47	0	0	0	0	129	
cSH	1700	1700	1700	596	1700	1700	18	473	
Volume to Capacity	0.33	0.33	0.03	0.33	0.53	0.53	2.25	0.27	
Queue Length 95th (ft)	0	0	0	36	0	0	140	27	
Control Delay (s)	0.0	0.0	0.0	14.0	0.0	0.0	1014.8	15.4	
Lane LOS				B				F	C
Approach Delay (s)	0.0			1.4		256.5			
Approach LOS						F			
Intersection Summary									
Average Delay			13.9						
Intersection Capacity Utilization			56.0%		ICU Level of Service		B		
Analysis Period (min)			15						

HCM Unsignalized Intersection Capacity Analysis

290: Rte 3 & New B

4/11/2016















Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		↑↑	↑↑	↗	↘	↗	
Traffic Volume (veh/h)	0	1172	1623	31	18	5	
Future Volume (Veh/h)	0	1172	1623	31	18	5	
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)	0	1274	1764	34	20	5	
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	1798				2401	882	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1798				2401	882	
tC, single (s)	4.1				6.8	6.9	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				28	98	
cM capacity (veh/h)	339				28	289	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	637	637	882	882	34	20	5
Volume Left	0	0	0	0	0	20	0
Volume Right	0	0	0	0	34	0	5
cSH	1700	1700	1700	1700	1700	28	289
Volume to Capacity	0.37	0.37	0.52	0.52	0.02	0.72	0.02
Queue Length 95th (ft)	0	0	0	0	0	57	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	286.9	17.7
Lane LOS						F	C
Approach Delay (s)	0.0		0.0			233.0	
Approach LOS						F	
Intersection Summary							
Average Delay			1.9				
Intersection Capacity Utilization			54.9%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

297: New C & Rte 3













4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗		↕	
Traffic Volume (veh/h)	0	1080	0	0	1653	2	0	0	1	2	0	1
Future Volume (Veh/h)	0	1080	0	0	1653	2	0	0	1	2	0	1
Sign Control		Free			Free			Stop			Stop	
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)	0	1174	0	0	1797	2	0	0	1	2	0	1
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	1799			1174			2074	2973	587	2385	2971	898
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1799			1174			2074	2973	587	2385	2971	898
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	89	100	100
cM capacity (veh/h)	339			591			31	14	453	18	14	282
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	587	587	0	898	898	2	1	3				
Volume Left	0	0	0	0	0	0	0	2				
Volume Right	0	0	0	0	0	2	1	1				
cSH	1700	1700	1700	1700	1700	1700	453	26				
Volume to Capacity	0.35	0.35	0.00	0.53	0.53	0.00	0.00	0.12				
Queue Length 95th (ft)	0	0	0	0	0	0	0	9				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.0	161.1				
Lane LOS							B	F				
Approach Delay (s)	0.0			0.0			13.0	161.1				
Approach LOS							B	F				
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			55.7%			ICU Level of Service			B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

319: New G & Route 3













4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑	↑						↑
Traffic Volume (veh/h)	0	2372	0	0	3180	39	0	0	0	0	0	17
Future Volume (Veh/h)	0	2372	0	0	3180	39	0	0	0	0	0	17
Sign Control		Free			Free			Stop			Stop	
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)	0	2578	0	0	3457	42	0	0	0	0	0	18
Pedestrians		17										
Lane Width (ft)		12.0										
Walking Speed (ft/s)		4.0										
Percent Blockage		1										
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		746										
pX, platoon unblocked				0.49			0.49	0.49	0.49	0.49	0.49	
vC, conflicting volume	3499			2578			4342	6077	1289	4746	6035	1746
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3499			2142			5727	9255	0	6549	9170	1746
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	76
cM capacity (veh/h)	71			122			0	0	533	0	0	74
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1						
Volume Total	1289	1289	1728	1728	42	18						
Volume Left	0	0	0	0	0	0						
Volume Right	0	0	0	0	42	18						
cSH	1700	1700	1700	1700	1700	74						
Volume to Capacity	0.76	0.76	1.02	1.02	0.02	0.24						
Queue Length 95th (ft)	0	0	0	0	0	21						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	68.3						
Lane LOS						F						
Approach Delay (s)	0.0		0.0			68.3						
Approach LOS						F						
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			102.2%		ICU Level of Service				G			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

322: New H & Route 3

4/11/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑				↗			
Traffic Volume (veh/h)	0	2681	9	0	3502	0	0	0	62	0	0	0
Future Volume (Veh/h)	0	2681	9	0	3502	0	0	0	62	0	0	0
Sign Control		Free			Free			Stop			Stop	
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)	0	2914	10	0	3807	0	0	0	67	0	0	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)		1023										
pX, platoon unblocked				0.43			0.43	0.43	0.43	0.43	0.43	
vC, conflicting volume	3807			2924			4183	6721	971	4845	6731	1269
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3807			866			3769	9621	0	5296	9644	1269
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	86	100	100	100
cM capacity (veh/h)	53			335			1	0	470	0	0	159
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1				
Volume Total	971	971	971	10	1269	1269	1269	67				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	10	0	0	0	67				
cSH	1700	1700	1700	1700	1700	1700	1700	470				
Volume to Capacity	0.57	0.57	0.57	0.01	0.75	0.75	0.75	0.14				
Queue Length 95th (ft)	0	0	0	0	0	0	0	12				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.9				
Lane LOS								B				
Approach Delay (s)	0.0				0.0			13.9				
Approach LOS								B				
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			71.0%		ICU Level of Service				C			
Analysis Period (min)			15									

C.3

2040 Recommendation Build

HCM Signalized Intersection Capacity Analysis

3: Brock Rd & Rte 3

2/3/2016



Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰	↕↗		↰	↕↗	↰	↗
Volume (vph)	1	1335	106	18	923	124	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		8.0	7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	
Frt	1.00	0.99		1.00	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	0.96	
Satd. Flow (prot)	1805	3405		1703	3539	1725	
Flt Permitted	0.28	1.00		0.95	1.00	0.96	
Satd. Flow (perm)	537	3405		1703	3539	1725	
Peak-hour factor, PHF	0.97	0.97	0.97	0.91	0.91	0.92	0.92
Adj. Flow (vph)	1	1376	109	20	1014	135	28
RTOR Reduction (vph)	0	5	0	0	0	6	0
Lane Group Flow (vph)	1	1480	0	20	1014	157	0
Heavy Vehicles (%)	0%	5%	3%	6%	2%	4%	0%
Turn Type	Perm	NA		Prot	NA	Prot	
Protected Phases		2		1	6	3	
Permitted Phases	2						
Actuated Green, G (s)	53.6	53.6		1.8	63.4	14.4	
Effective Green, g (s)	53.6	53.6		1.8	63.4	14.4	
Actuated g/C Ratio	0.58	0.58		0.02	0.69	0.16	
Clearance Time (s)	7.0	7.0		8.0	7.0	7.0	
Vehicle Extension (s)	4.5	4.5		3.0	4.5	3.0	
Lane Grp Cap (vph)	313	1988		33	2444	270	
v/s Ratio Prot		c0.43		0.01	c0.29	c0.09	
v/s Ratio Perm	0.00						
v/c Ratio	0.00	0.74		0.61	0.41	0.58	
Uniform Delay, d1	8.0	14.1		44.6	6.2	35.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.0	1.8		27.6	0.2	3.2	
Delay (s)	8.0	15.8		72.2	6.4	39.1	
Level of Service	A	B		E	A	D	
Approach Delay (s)		15.8			7.6	39.1	
Approach LOS		B			A	D	

Intersection Summary

HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	22.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Orange Plank Rd & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	158	1399	10	160	922	22	13	8	574	64	11	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	8.1	8.1	6.5	8.2			5.5	6.5	5.5	5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	0.88	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3471	1615	1787	3528			1662	2787	1805	1707	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3471	1615	1787	3528			1662	2787	1805	1707	
Peak-hour factor, PHF	0.95	0.95	0.95	0.89	0.89	0.89	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	166	1473	11	180	1036	25	14	8	598	70	12	25
RTOR Reduction (vph)	0	0	5	0	1	0	0	0	61	0	24	0
Lane Group Flow (vph)	166	1473	6	180	1060	0	0	22	537	70	13	0
Heavy Vehicles (%)	0%	4%	0%	1%	2%	0%	17%	0%	2%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	16.8	62.0	62.0	22.3	67.4			4.3	26.6	6.3	6.3	
Effective Green, g (s)	16.8	62.0	62.0	22.3	67.4			4.3	26.6	6.3	6.3	
Actuated g/C Ratio	0.14	0.51	0.51	0.19	0.56			0.04	0.22	0.05	0.05	
Clearance Time (s)	6.5	8.1	8.1	6.5	8.2			5.5	6.5	5.5	5.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.5	4.5			3.0	3.5	3.0	3.0	
Lane Grp Cap (vph)	251	1785	830	330	1973			59	615	94	89	
v/s Ratio Prot	0.09	c0.42		0.10	c0.30			0.01	c0.16	c0.04	0.01	
v/s Ratio Perm			0.00						0.03			
v/c Ratio	0.66	0.83	0.01	0.55	0.54			0.37	0.87	0.74	0.15	
Uniform Delay, d1	49.2	24.7	14.3	44.5	16.7			56.8	45.3	56.3	54.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	6.4	3.6	0.0	2.0	0.4			3.9	13.3	27.0	0.8	
Delay (s)	55.6	28.2	14.3	46.6	17.2			60.7	58.6	83.3	55.3	
Level of Service	E	C	B	D	B			E	E	F	E	
Approach Delay (s)		30.9			21.4			58.7			73.6	
Approach LOS		C			C			E			E	

Intersection Summary

HCM 2000 Control Delay	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.5	Sum of lost time (s)	25.7
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: Old Plank Rd/Elys Ford Rd & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	170	1755	100	29	969	61	80	50	48	181	57	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.93		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1726		1770	1733	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1726		1770	1733	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	1908	109	32	1053	66	87	54	52	197	62	54
RTOR Reduction (vph)	0	0	49	0	0	30	0	35	0	0	31	0
Lane Group Flow (vph)	185	1908	60	32	1053	36	87	71	0	197	85	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6	3	7	4		3	8	
Permitted Phases			2			6						
Actuated Green, G (s)	14.2	54.2	54.2	2.3	42.3	53.4	6.8	6.6		11.1	10.9	
Effective Green, g (s)	14.2	54.2	54.2	2.3	42.3	53.4	6.8	6.6		11.1	10.9	
Actuated g/C Ratio	0.14	0.55	0.55	0.02	0.43	0.54	0.07	0.07		0.11	0.11	
Clearance Time (s)	6.0	6.0	6.0	6.0	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	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	255	1953	873	41	1524	957	122	116		200	192	
v/s Ratio Prot	c0.10	c0.54		0.02	0.30	0.00	0.05	0.04		c0.11	c0.05	
v/s Ratio Perm			0.04			0.02						
v/c Ratio	0.73	0.98	0.07	0.78	0.69	0.04	0.71	0.61		0.98	0.44	
Uniform Delay, d1	40.1	21.4	10.2	47.7	22.7	10.4	44.7	44.5		43.5	40.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.8	15.6	0.2	62.4	2.6	0.0	17.8	8.7		58.9	1.6	
Delay (s)	50.0	37.0	10.4	110.1	25.2	10.4	62.6	53.3		102.3	42.4	
Level of Service	D	D	B	F	C	B	E	D		F	D	
Approach Delay (s)		36.8			26.8			57.5			80.1	
Approach LOS		D			C			E			F	

Intersection Summary

HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	98.2	Sum of lost time (s)	24.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: Andora Dr/Corter Ave & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘↗	↑↑↑	↗		↗	↗	↘	↗	↗
Volume (vph)	95	2132	20	106	1663	129	5	55	323	197	30	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.5	7.5	7.0	7.5	7.0		7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1805	4940	1615	3502	5136	1455		1893	1599	1545	1591	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	1805	4940	1615	3502	5136	1455		1893	1599	1545	1591	1553
Peak-hour factor, PHF	0.98	0.98	0.98	0.93	0.93	0.93	0.93	0.93	0.93	0.84	0.84	0.84
Adj. Flow (vph)	97	2176	20	114	1788	139	5	59	347	235	36	50
RTOR Reduction (vph)	0	0	10	0	0	45	0	0	63	0	0	44
Lane Group Flow (vph)	97	2176	10	114	1788	94	0	64	284	134	137	6
Heavy Vehicles (%)	0%	5%	0%	0%	1%	11%	0%	0%	1%	11%	5%	4%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	5	2		1	6	4	8	8	1	4	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	13.3	81.1	81.1	21.6	89.4	108.7		9.5	31.1	19.3	19.3	19.3
Effective Green, g (s)	13.3	81.1	81.1	21.6	89.4	108.7		9.5	31.1	19.3	19.3	19.3
Actuated g/C Ratio	0.08	0.51	0.51	0.14	0.56	0.68		0.06	0.19	0.12	0.12	0.12
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5	7.0		7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	6.0	5.0	3.0		3.0	6.0	3.0	3.0	3.0
Lane Grp Cap (vph)	150	2503	818	472	2869	988		112	380	186	191	187
v/s Ratio Prot	0.05	c0.44		0.03	c0.35	0.01		0.03	c0.10	c0.09	0.09	
v/s Ratio Perm			0.01			0.05			0.08			0.00
v/c Ratio	0.65	0.87	0.01	0.24	0.62	0.10		0.57	0.75	0.72	0.72	0.03
Uniform Delay, d1	71.1	34.8	19.6	61.9	23.9	8.8		73.3	60.8	67.8	67.7	62.1
Progression Factor	1.00	1.00	1.00	0.89	1.11	1.54		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.2	4.4	0.0	0.7	0.9	0.0		6.9	10.4	12.9	12.1	0.1
Delay (s)	80.3	39.2	19.6	55.5	27.4	13.6		80.1	71.1	80.6	79.8	62.2
Level of Service	F	D	B	E	C	B		F	E	F	E	E
Approach Delay (s)		40.8			28.0			72.5			77.4	
Approach LOS		D			C			E			E	

Intersection Summary

HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.5
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Big Ben/Spotswood Furnace & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑	↗		↖	↗	↖	↗	↖
Volume (vph)	159	2481	12	68	1505	328	11	117	46	347	30	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583		1855	1583	1681	1698	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	0.96	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583		1855	1583	1681	1698	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	173	2697	13	74	1636	357	12	127	50	377	33	108
RTOR Reduction (vph)	0	0	6	0	0	78	0	0	46	0	0	93
Lane Group Flow (vph)	173	2697	7	74	1636	279	0	139	5	204	206	15
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6	8	4	4		8	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	20.0	92.3	92.3	7.8	80.1	101.6		14.4	14.4	21.5	21.5	21.5
Effective Green, g (s)	20.0	92.3	92.3	7.8	80.1	101.6		14.4	14.4	21.5	21.5	21.5
Actuated g/C Ratio	0.12	0.58	0.58	0.05	0.50	0.63		0.09	0.09	0.13	0.13	0.13
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	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		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	221	2933	913	86	2545	1005		166	142	225	228	212
v/s Ratio Prot	c0.10	c0.53		0.04	0.32	0.04		c0.07		c0.12	0.12	
v/s Ratio Perm			0.00			0.14			0.00			0.01
v/c Ratio	0.78	0.92	0.01	0.86	0.64	0.28		0.84	0.03	0.91	0.90	0.07
Uniform Delay, d1	67.9	30.5	14.4	75.6	29.4	12.9		71.6	66.4	68.3	68.2	60.5
Progression Factor	1.16	0.54	1.00	0.81	1.07	1.82		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.2	3.7	0.0	46.0	0.4	0.1		29.1	0.1	35.4	34.6	0.1
Delay (s)	89.1	20.2	14.4	106.9	31.8	23.7		100.7	66.5	103.7	102.8	60.6
Level of Service	F	C	B	F	C	C		F	E	F	F	E
Approach Delay (s)		24.3			33.1			91.7			94.4	
Approach LOS		C			C			F			F	


































Intersection Summary

HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

14: Harrison Rd/Harrison & Route 3

2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Volume (vph)	134	2371	399	274	1575	112	284	175	190	147	86	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.5	7.0	7.0	7.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	4988	1538	3502	5085	1615	3433	3574	1615	3467	3410	3410
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	4988	1538	3502	5085	1615	3433	3574	1615	3467	3410	3410
Peak-hour factor, PHF	0.89	0.89	0.89	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	151	2664	448	295	1694	120	312	192	209	167	98	48
RTOR Reduction (vph)	0	0	24	0	0	25	0	0	64	0	37	0
Lane Group Flow (vph)	151	2664	424	295	1694	95	312	192	145	167	109	0
Heavy Vehicles (%)	1%	4%	5%	0%	2%	0%	2%	1%	0%	1%	0%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	NA
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	11.2	93.5	109.5	14.0	96.3	106.3	16.0	14.0	28.0	10.0	8.0	
Effective Green, g (s)	11.2	93.5	109.5	14.0	96.3	106.3	16.0	14.0	28.0	10.0	8.0	
Actuated g/C Ratio	0.07	0.58	0.68	0.09	0.60	0.66	0.10	0.09	0.18	0.06	0.05	
Clearance Time (s)	7.0	7.5	7.0	7.0	7.5	7.0	7.0	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	6.0	3.0	3.0	6.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	242	2914	1052	306	3060	1072	343	312	353	216	170	
v/s Ratio Prot	0.04	c0.53	0.04	c0.08	c0.33	0.01	c0.09	c0.05	0.04	0.05	0.03	
v/s Ratio Perm			0.24			0.05			0.05			
v/c Ratio	0.62	0.91	0.40	0.96	0.55	0.09	0.91	0.62	0.41	0.77	0.64	
Uniform Delay, d1	72.4	29.7	11.0	72.7	19.0	9.6	71.3	70.4	58.7	73.9	74.6	
Progression Factor	0.96	0.81	0.52	1.05	0.65	0.47	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.4	2.9	0.1	35.0	0.5	0.0	26.8	3.6	0.8	15.7	8.0	
Delay (s)	71.9	27.1	5.9	111.3	12.9	4.5	98.0	74.0	59.4	89.6	82.6	
Level of Service	E	C	A	F	B	A	F	E	E	F	F	
Approach Delay (s)		26.3			26.2			80.2			86.3	
Approach LOS		C			C			F			F	
Intersection Summary												
HCM 2000 Control Delay			35.2			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			160.0	Sum of lost time (s)				28.5				
Intersection Capacity Utilization			92.1%	ICU Level of Service				F				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Gordon Rd & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	134	2550	46	201	2116	90	36	23	464	88	10	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5	7.5	6.5	6.5	7.5	6.5	6.5	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	1.00	0.88	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5036	1583	3467	5136	1583	1787	1863	2814	1770	1612	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5036	1583	3467	5136	1583	1787	1863	2814	1770	1612	
Peak-hour factor, PHF	0.92	0.90	0.90	0.96	0.96	0.92	0.84	0.92	0.84	0.92	0.92	0.92
Adj. Flow (vph)	146	2833	51	209	2204	98	43	25	552	96	11	96
RTOR Reduction (vph)	0	0	21	0	0	36	0	0	63	0	90	0
Lane Group Flow (vph)	146	2833	30	209	2204	62	43	25	489	96	17	0
Heavy Vehicles (%)	2%	3%	2%	1%	1%	2%	1%	2%	1%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	14.1	94.3	94.3	21.0	101.2	101.2	6.8	4.9	25.9	11.8	9.9	
Effective Green, g (s)	14.1	94.3	94.3	21.0	101.2	101.2	6.8	4.9	25.9	11.8	9.9	
Actuated g/C Ratio	0.09	0.59	0.59	0.13	0.63	0.63	0.04	0.03	0.16	0.07	0.06	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5	6.5	6.5	7.5	6.5	6.5	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.5	3.0	3.0	3.0	3.5	
Lane Grp Cap (vph)	302	2968	932	455	3248	1001	75	57	455	130	99	
v/s Ratio Prot	0.04	c0.56		0.06	0.43		0.02	0.01	c0.14	c0.05	c0.01	
v/s Ratio Perm			0.02			0.04			0.03			
v/c Ratio	0.48	0.95	0.03	0.46	0.68	0.06	0.57	0.44	1.08	0.74	0.17	
Uniform Delay, d1	69.5	30.8	13.8	64.3	18.9	11.2	75.2	76.2	67.0	72.6	71.2	
Progression Factor	0.72	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	4.7	0.0	0.7	1.2	0.1	10.9	5.3	63.8	19.5	1.0	
Delay (s)	50.6	29.4	13.8	65.0	20.1	11.4	86.1	81.5	130.8	92.1	72.1	
Level of Service	D	C	B	E	C	B	F	F	F	F	E	
Approach Delay (s)		30.1			23.5			125.7			81.6	
Approach LOS		C			C			F			F	

Intersection Summary

HCM 2000 Control Delay	38.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Glade Dr/New E & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘↗	↑↑	↗		↘	↗		↘	↗
Volume (vph)	9	2015	23	163	1029	38	7	1	49	115	1	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583		1783	1583		1775	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583		1783	1583		1775	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	2190	25	177	1118	41	8	1	53	125	1	29
RTOR Reduction (vph)	0	0	8	0	0	8	0	0	49	0	0	7
Lane Group Flow (vph)	10	2190	17	177	1118	33	0	9	4	0	126	22
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	custom
Protected Phases	5	2		1	6	8	4	4	1	8	8	
Permitted Phases			2			6			4			6
Actuated Green, G (s)	0.7	89.6	89.6	9.2	98.1	104.2		1.3	10.5		6.1	98.1
Effective Green, g (s)	0.7	89.6	89.6	9.2	98.1	104.2		1.3	10.5		6.1	98.1
Actuated g/C Ratio	0.01	0.69	0.69	0.07	0.75	0.80		0.01	0.08		0.05	0.75
Clearance Time (s)	6.0	6.0	6.0	6.0	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		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	9	2435	1089	242	2666	1266		17	127		83	1192
v/s Ratio Prot	0.01	c0.62		c0.05	0.32	0.00		c0.01	0.00		c0.07	
v/s Ratio Perm			0.01			0.02			0.00			0.01
v/c Ratio	1.11	0.90	0.02	0.73	0.42	0.03		0.53	0.03		1.52	0.02
Uniform Delay, d1	64.8	16.6	6.4	59.3	5.8	2.7		64.1	55.2		62.0	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	342.2	4.9	0.0	10.8	0.1	0.0		26.7	0.1		285.1	0.0
Delay (s)	407.0	21.5	6.4	70.1	5.9	2.7		90.8	55.3		347.1	4.0
Level of Service	F	C	A	E	A	A		F	E		F	A
Approach Delay (s)		23.1			14.3			60.4			282.9	
Approach LOS		C			B			E			F	

Intersection Summary

HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	130.2	Sum of lost time (s)	24.0
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

21: New Corp. Center Ent. & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	2131	45	490	1210	1	19	1	93	1	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583		1778	1583		1750	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.98	
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583		1778	1583		1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	2316	49	533	1315	1	21	1	101	1	1	1
RTOR Reduction (vph)	0	0	17	0	0	0	0	0	54	0	1	0
Lane Group Flow (vph)	1	2316	32	533	1315	1	0	22	47	0	2	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			6			4			
Actuated Green, G (s)	0.7	98.3	98.3	21.1	118.7	118.7		4.7	25.8		0.4	
Effective Green, g (s)	0.7	98.3	98.3	21.1	118.7	118.7		4.7	25.8		0.4	
Actuated g/C Ratio	0.00	0.66	0.66	0.14	0.80	0.80		0.03	0.17		0.00	
Clearance Time (s)	6.0	6.0	6.0	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		3.0	3.0		3.0	
Lane Grp Cap (vph)	8	2342	1047	487	2828	1265		56	338		4	
v/s Ratio Prot	0.00	c0.65		c0.16	0.37			c0.01	0.02		c0.00	
v/s Ratio Perm			0.02			0.00			0.01			
v/c Ratio	0.12	0.99	0.03	1.09	0.46	0.00		0.39	0.14		0.50	
Uniform Delay, d1	73.6	24.6	8.7	63.7	4.8	3.0		70.5	52.0		74.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	6.9	16.2	0.1	68.9	0.6	0.0		4.5	0.2		74.5	
Delay (s)	80.5	40.7	8.7	132.6	5.3	3.0		75.0	52.1		148.5	
Level of Service	F	D	A	F	A	A		E	D		F	
Approach Delay (s)		40.1			42.0			56.2			148.5	
Approach LOS		D			D			E			F	

Intersection Summary

HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	148.5	Sum of lost time (s)	24.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

293: New A & Rte 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	825	33	194	523	185	46	7	20	108	4	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1658		3433	1622	
Flt Permitted	0.44	1.00	1.00	0.14	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	817	3539	1583	267	3539	1583	1770	1658		3433	1622	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	897	36	211	568	201	50	8	22	117	4	25
RTOR Reduction (vph)	0	0	24	0	0	89	0	19	0	0	22	0
Lane Group Flow (vph)	43	897	12	211	568	112	50	11	0	117	7	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2	3	7	4		3	8	
Permitted Phases	6		6	2		2						
Actuated Green, G (s)	30.4	27.1	27.1	44.2	36.9	45.0	7.3	10.4		8.1	11.2	
Effective Green, g (s)	30.4	27.1	27.1	44.2	36.9	45.0	7.3	10.4		8.1	11.2	
Actuated g/C Ratio	0.38	0.34	0.34	0.55	0.46	0.56	0.09	0.13		0.10	0.14	
Clearance Time (s)	4.0	6.0	6.0	4.0	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	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	346	1188	531	390	1618	1000	160	213		344	225	
v/s Ratio Prot	0.01	c0.25		c0.09	0.16	0.01	0.03	c0.01		c0.03	0.00	
v/s Ratio Perm	0.04		0.01	0.21		0.06						
v/c Ratio	0.12	0.76	0.02	0.54	0.35	0.11	0.31	0.05		0.34	0.03	
Uniform Delay, d1	16.1	23.8	17.9	12.2	14.2	8.4	34.4	30.8		33.8	30.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.8	0.0	1.5	0.1	0.0	1.1	0.1		0.6	0.1	
Delay (s)	16.2	26.6	18.0	13.7	14.3	8.5	35.5	30.9		34.4	30.1	
Level of Service	B	C	B	B	B	A	D	C		C	C	
Approach Delay (s)		25.8			13.0			33.8			33.6	
Approach LOS		C			B			C			C	













Intersection Summary

HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	80.7	Sum of lost time (s)	22.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

1: VA 20/Constitution Hwy & Rte 3

2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑				↗			↗
Volume (veh/h)	0	920	10	0	882	18	0	0	373	0	0	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Hourly flow rate (vph)	0	1022	11	0	969	20	0	0	393	0	0	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		971										
pX, platoon unblocked				0.77			0.77	0.77	0.77	0.77	0.77	0.77
vC, conflicting volume	989			1022			1528	2011	511	1883	2001	495
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	989			448			1101	1724	0	1558	1711	495
tC, single (s)	4.1			4.1			7.5	6.6	7.0	7.6	6.6	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			100			100	100	53	100	100	96
cM capacity (veh/h)	707			859			125	66	828	31	67	526
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	511	511	11	646	343	393	21					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	11	0	20	393	21					
cSH	1700	1700	1700	1700	1700	828	526					
Volume to Capacity	0.30	0.30	0.01	0.38	0.20	0.47	0.04					
Queue Length 95th (ft)	0	0	0	0	0	65	3					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.2	12.1					
Lane LOS						B	B					
Approach Delay (s)	0.0			0.0		13.2	12.1					
Approach LOS						B	B					
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			55.2%		ICU Level of Service		B					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Rte 3 & Fox Gate Dr

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑		↔	↑↑	↔		↔			↔	
Volume (veh/h)	7	1306	0	2	1010	35	0	0	2	135	0	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.73	0.92	0.73
Hourly flow rate (vph)	8	1404	0	2	1086	38	0	0	2	185	0	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1124			1404			1989	2547	702	1810	2510	543
vC1, stage 1 conf vol							1419	1419		1090	1090	
vC2, stage 2 conf vol							569	1128		719	1419	
vCu, unblocked vol	1124			1404			1989	2547	702	1810	2510	543
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	99	3	100	96
cM capacity (veh/h)	629			492			133	155	381	192	158	489

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	8	702	702	2	543	543	38	2	207
Volume Left	8	0	0	2	0	0	0	0	185
Volume Right	0	0	0	0	0	0	38	2	22
cSH	629	1700	1700	492	1700	1700	1700	381	205
Volume to Capacity	0.01	0.41	0.41	0.00	0.32	0.32	0.02	0.01	1.01
Queue Length 95th (ft)	1	0	0	0	0	0	0	0	224
Control Delay (s)	10.8	0.0	0.0	12.3	0.0	0.0	0.0	14.5	114.4
Lane LOS	B			B				B	F
Approach Delay (s)	0.1			0.0				14.5	114.4
Approach LOS								B	F

Intersection Summary

Average Delay	8.7
Intersection Capacity Utilization	57.9%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

4: Rte 3 & Black Meadow Rd

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	1350	0	4	928	5	0	0	0	35	1	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.80	0.92	0.80
Hourly flow rate (vph)	16	1467	0	4	1043	6	0	0	0	44	1	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1048			1467			2048	2557	734	1818	2551	521
vC1, stage 1 conf vol							1500	1500		1051	1051	
vC2, stage 2 conf vol							548	1057		766	1500	
vCu, unblocked vol	1048			1467			2048	2557	734	1818	2551	521
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.7	6.5	7.2
tC, 2 stage (s)							6.5	5.5		6.7	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	98			99			100	100	100	76	99	96
cM capacity (veh/h)	672			456			118	147	363	185	147	467

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	16	978	489	4	521	521	6	62
Volume Left	16	0	0	4	0	0	0	44
Volume Right	0	0	0	0	0	0	6	18
cSH	672	1700	1700	456	1700	1700	1700	222
Volume to Capacity	0.02	0.58	0.29	0.01	0.31	0.31	0.00	0.28
Queue Length 95th (ft)	2	0	0	1	0	0	0	28
Control Delay (s)	10.5	0.0	0.0	13.0	0.0	0.0	0.0	27.4
Lane LOS	B			B				D
Approach Delay (s)	0.1			0.1				27.4
Approach LOS								D

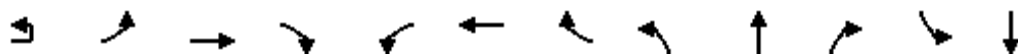
Intersection Summary

Average Delay	0.7
Intersection Capacity Utilization	47.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

6: Wilderness Rd & Route 3

2/3/2016



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑↑	↗	↘	↑↑		↖	↗			↔
Volume (veh/h)	0	0	2031	6	1	1099	0	4	0	2	0	0
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.92	0.92	0.98	0.98	0.96	0.96	0.92	0.39	0.92	0.39	0.92	0.92
Hourly flow rate (vph)	0	0	2072	6	1	1145	0	10	0	5	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised			Raised						
Median storage (veh)			2			2						
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	1145			2079			2647	3219	1036	2188	3225
vC1, stage 1 conf vol								2072	2072		1147	1147
vC2, stage 2 conf vol								574	1147		1041	2079
vCu, unblocked vol	0	1145			2079			2647	3219	1036	2188	3225
tC, single (s)	0.0	4.1			4.4			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	0.0	2.2			2.4			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			100			81	100	98	100	100
cM capacity (veh/h)	0	606			215			55	86	232	154	85

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	1036	1036	6	0	1	572	572	10	5	0
Volume Left	0	0	0	0	1	0	0	10	0	0
Volume Right	0	0	6	0	0	0	0	0	5	0
cSH	1700	1700	1700	1700	215	1700	1700	55	232	1700
Volume to Capacity	0.61	0.61	0.00	0.00	0.00	0.34	0.34	0.19	0.02	0.00
Queue Length 95th (ft)	0	0	0	0	0	0	0	15	2	0
Control Delay (s)	0.0	0.0	0.0	0.0	21.8	0.0	0.0	85.0	20.9	0.0
Lane LOS					C			F	C	A
Approach Delay (s)	0.0				0.0			63.6		0.0
Approach LOS								F		A

Intersection Summary

Average Delay	0.3
Intersection Capacity Utilization	66.1%
ICU Level of Service	C
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

6: Wilderness Rd & Route 3

2/3/2016



Movement	SBR
Lane Configurations	
Volume (veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	572
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	572
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	463
Direction, Lane #	

HCM Unsignalized Intersection Capacity Analysis

7: Stuart Dr/Bullock Rd & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	2014	9	4	1095	0	5	0	11	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.50	0.50	0.50	0.75	0.75	0.75
Hourly flow rate (vph)	19	2120	9	4	1153	0	10	0	22	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1153			2129			2747	3324	1065	2281	3328	576
vC1, stage 1 conf vol							2163	2163		1161	1161	
vC2, stage 2 conf vol							585	1161		1120	2167	
vCu, unblocked vol	1153			2129			2747	3324	1065	2281	3328	576
tC, single (s)	4.1			6.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			3.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			94			75	100	90	100	100	100
cM capacity (veh/h)	613			68			41	60	222	97	58	465

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	19	1413	716	4	768	384	32	0
Volume Left	19	0	0	4	0	0	10	0
Volume Right	0	0	9	0	0	0	22	0
cSH	613	1700	1700	68	1700	1700	93	1700
Volume to Capacity	0.03	0.83	0.42	0.06	0.45	0.23	0.34	0.00
Queue Length 95th (ft)	2	0	0	5	0	0	33	0
Control Delay (s)	11.1	0.0	0.0	61.5	0.0	0.0	62.8	0.0
Lane LOS	B			F			F	A
Approach Delay (s)	0.1			0.2			62.8	0.0
Approach LOS							F	A

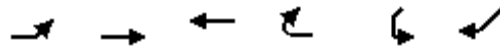
Intersection Summary

Average Delay	0.7
Intersection Capacity Utilization	72.2%
ICU Level of Service	C
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

10: Route 3 & 9 Mile Run

2/3/2016



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↑↑	↑↑		↘	
Volume (veh/h)	2	1982	1055	10	30	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.93	0.93	0.68	0.68
Hourly flow rate (vph)	2	2043	1134	11	44	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage (veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1145				2166	573
vC1, stage 1 conf vol					1140	
vC2, stage 2 conf vol					1026	
vCu, unblocked vol	1145				2166	573
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	100				78	98
cM capacity (veh/h)	617				201	468

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SW 1
Volume Total	683	1362	756	389	51
Volume Left	2	0	0	0	44
Volume Right	0	0	0	11	7
cSH	617	1700	1700	1700	219
Volume to Capacity	0.00	0.80	0.44	0.23	0.23
Queue Length 95th (ft)	0	0	0	0	22
Control Delay (s)	0.1	0.0	0.0	0.0	26.4
Lane LOS	A				D
Approach Delay (s)	0.0		0.0		26.4
Approach LOS					D

Intersection Summary					
Average Delay			0.4		
Intersection Capacity Utilization			66.2%	ICU Level of Service	C
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis

11: McLaws & Route 3













2/3/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations		↑↑	↑		↑↑				↑				
Volume (veh/h)	0	2007	5	0	1064	0	0	0	40	0	0	0	
Sign Control		Free			Free			Stop			Stop		
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)	0	2182	5	0	1157	0	0	0	43	0	0	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)						978							
pX, platoon unblocked	0.88						0.88	0.88			0.88	0.88	0.88
vC, conflicting volume	1157						2187	2760	3338	1091	2291	3343	578
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	910						2187	2728	3383	1091	2196	3389	254
tC, single (s)	4.1						4.1	7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)													
tF (s)	2.2						2.2	3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100						100	100	100	79	100	100	100
cM capacity (veh/h)	656						239	9	7	210	17	6	657
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NE 1							
Volume Total	1091	1091	5	578	578	43							
Volume Left	0	0	0	0	0	0							
Volume Right	0	0	5	0	0	43							
cSH	1700	1700	1700	1700	1700	210							
Volume to Capacity	0.64	0.64	0.00	0.34	0.34	0.21							
Queue Length 95th (ft)	0	0	0	0	0	19							
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	26.6							
Lane LOS							D						
Approach Delay (s)	0.0						0.0						26.6
Approach LOS							D						
Intersection Summary													
Average Delay			0.3										
Intersection Capacity Utilization			65.5%		ICU Level of Service				C				
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis

287: New D & Rte 3

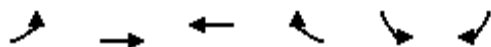
3/31/2016

									
Movement	EBR	EBR2	NWL2	NWL	NEL	NER			
Lane Configurations									
Volume (veh/h)	1369	12	59	899	50	188			
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)	1488	13	64	977	54	204			
Pedestrians									
Lane Width (ft)									
Walking Speed (ft/s)									
Percent Blockage									
Right turn flare (veh)									
Median type	None			Raised					
Median storage (veh)				1					
Upstream signal (ft)									
pX, platoon unblocked									
vC, conflicting volume			1501			2105	744		
vC1, stage 1 conf vol					1488				
vC2, stage 2 conf vol					617				
vCu, unblocked vol			1501			2105	744		
tC, single (s)			4.1			6.8	6.9		
tC, 2 stage (s)					5.8				
tF (s)			2.2			3.5	3.3		
p0 queue free %			86			57	43		
cM capacity (veh/h)			442			126	357		
Direction, Lane #	EB 1	EB 2	EB 3	NW 1	NW 2	NW 3	NE 1	NE 2	
Volume Total	744	744	13	64	489	489	54	204	
Volume Left	0	0	0	64	0	0	54	0	
Volume Right	0	0	13	0	0	0	0	204	
cSH	1700	1700	1700	442	1700	1700	126	357	
Volume to Capacity	0.44	0.44	0.01	0.14	0.29	0.29	0.43	0.57	
Queue Length 95th (ft)	0	0	0	13	0	0	47	85	
Control Delay (s)	0.0	0.0	0.0	14.5	0.0	0.0	53.4	27.7	
Lane LOS				B			F	D	
Approach Delay (s)	0.0			0.9		33.1			
Approach LOS						D			
Intersection Summary									
Average Delay			3.4						
Intersection Capacity Utilization			66.2%		ICU Level of Service			C	
Analysis Period (min)			15						

HCM Unsignalized Intersection Capacity Analysis

290: Rte 3 & New B

2/3/2016



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗	↘	↘
Volume (veh/h)	0	1293	888	139	20	12
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)	0	1405	965	151	22	13
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	1116				1668	483
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1116				1668	483
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				75	98
cM capacity (veh/h)	621				87	530













Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	703	703	483	483	151	22	13
Volume Left	0	0	0	0	0	22	0
Volume Right	0	0	0	0	151	0	13
cSH	1700	1700	1700	1700	1700	87	530
Volume to Capacity	0.41	0.41	0.28	0.28	0.09	0.25	0.02
Queue Length 95th (ft)	0	0	0	0	0	22	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	59.5	12.0
Lane LOS						F	B
Approach Delay (s)	0.0		0.0			41.7	
Approach LOS						E	

Intersection Summary							
Average Delay			0.6				
Intersection Capacity Utilization			45.7%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis

297: New C & Rte 3

2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗		↕	
Volume (veh/h)	0	1361	0	0	940	2	0	0	2	2	0	1
Sign Control		Free			Free			Stop			Stop	
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)	0	1479	0	0	1022	2	0	0	2	2	0	1
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	1024			1479			1991	2503	740	1764	2501	511
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1024			1479			1991	2503	740	1764	2501	511
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	99	96	100	100
cM capacity (veh/h)	674			451			36	28	359	53	28	508
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	740	740	0	511	511	2	2	3				
Volume Left	0	0	0	0	0	0	0	2				
Volume Right	0	0	0	0	0	2	2	1				
cSH	1700	1700	1700	1700	1700	1700	359	76				
Volume to Capacity	0.44	0.44	0.00	0.30	0.30	0.00	0.01	0.04				
Queue Length 95th (ft)	0	0	0	0	0	0	0	3				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	15.1	54.7				
Lane LOS							C	F				
Approach Delay (s)	0.0			0.0			15.1	54.7				
Approach LOS							C	F				
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			54.3%			ICU Level of Service		A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

319: New G & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑	↑						↑
Volume (veh/h)	0	2652	0	0	1891	84	0	0	0	0	0	7
Sign Control		Free			Free			Stop			Stop	
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)	0	2883	0	0	2055	91	0	0	0	0	0	8
Pedestrians		17										
Lane Width (ft)		12.0										
Walking Speed (ft/s)		4.0										
Percent Blockage		1										
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		746										
pX, platoon unblocked				0.50			0.50	0.50	0.50	0.50	0.50	
vC, conflicting volume	2147			2883			3592	5029	1441	3497	4938	702
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2147			2766			4179	7040	0	3989	6859	702
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	98
cM capacity (veh/h)	248			71			0	0	545	0	0	375

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	1441	1441	685	685	685	91	8
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	91	8
cSH	1700	1700	1700	1700	1700	1700	375
Volume to Capacity	0.85	0.85	0.40	0.40	0.40	0.05	0.02
Queue Length 95th (ft)	0	0	0	0	0	0	2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.8
Lane LOS							B
Approach Delay (s)	0.0		0.0				14.8
Approach LOS							B













Intersection Summary

Average Delay	0.0
Intersection Capacity Utilization	76.6%
ICU Level of Service	D
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

322: New H & Route 3

2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑↑				↗			
Volume (veh/h)	0	2866	8	0	1901	0	0	0	38	0	0	0
Sign Control		Free			Free			Stop			Stop	
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)	0	3115	9	0	2066	0	0	0	41	0	0	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)		1023										
pX, platoon unblocked				0.43			0.43	0.43	0.43	0.43	0.43	0.43
vC, conflicting volume	2066			3124			3804	5182	1558	3665	5190	689
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2066			3289			4878	8095	0	4554	8115	689
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	91	100	100	100
cM capacity (veh/h)	266			37			0	0	464	0	0	388
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1					
Volume Total	1558	1558	9	689	689	689	41					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	9	0	0	0	41					
cSH	1700	1700	1700	1700	1700	1700	464					
Volume to Capacity	0.92	0.92	0.01	0.41	0.41	0.41	0.09					
Queue Length 95th (ft)	0	0	0	0	0	0	7					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.5					
Lane LOS							B					
Approach Delay (s)	0.0			0.0			13.5					
Approach LOS							B					
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			89.2%	ICU Level of Service	E							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

3: Brock Rd & Rte 3

2/3/2016



Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↑↑		↔	↑↑	↔	
Volume (vph)	1	1067	193	54	1600	175	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		4.0	7.0	7.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	
Frt	1.00	0.98		1.00	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	0.96	
Satd. Flow (prot)	1805	3369		1703	3539	1734	
Flt Permitted	0.09	1.00		0.95	1.00	0.96	
Satd. Flow (perm)	174	3369		1703	3539	1734	
Peak-hour factor, PHF	0.97	0.97	0.97	0.91	0.91	0.92	0.92
Adj. Flow (vph)	1	1100	199	59	1758	190	14
RTOR Reduction (vph)	0	15	0	0	0	3	0
Lane Group Flow (vph)	1	1284	0	59	1758	201	0
Heavy Vehicles (%)	0%	5%	3%	6%	2%	4%	0%
Turn Type	Perm	NA		Prot	NA	Prot	
Protected Phases		2		1	6	3	
Permitted Phases	2						
Actuated Green, G (s)	47.9	47.9		3.9	55.8	14.2	
Effective Green, g (s)	47.9	47.9		3.9	55.8	14.2	
Actuated g/C Ratio	0.57	0.57		0.05	0.66	0.17	
Clearance Time (s)	7.0	7.0		4.0	7.0	7.0	
Vehicle Extension (s)	4.5	4.5		3.0	4.5	3.0	
Lane Grp Cap (vph)	99	1921		79	2350	293	
v/s Ratio Prot		0.38		0.03	c0.50	c0.12	
v/s Ratio Perm	0.01						
v/c Ratio	0.01	0.67		0.75	0.75	0.68	
Uniform Delay, d1	7.8	12.5		39.6	9.4	32.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.1	1.1		31.4	1.5	6.5	
Delay (s)	7.9	13.6		71.0	10.9	39.3	
Level of Service	A	B		E	B	D	
Approach Delay (s)		13.6			12.9	39.3	
Approach LOS		B			B	D	

Intersection Summary

HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: Orange Plank Rd & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	1101	30	530	1790	77	42	13	285	60	9	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	8.1	8.1	6.5	8.2			5.5	6.5	5.5	5.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	0.88	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3471	1615	1787	3520			1621	2787	1805	1739	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (perm)	1805	3471	1615	1787	3520			1621	2787	1805	1739	
Peak-hour factor, PHF	0.95	0.95	0.95	0.89	0.89	0.89	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	18	1159	32	596	2011	87	44	14	297	65	10	13
RTOR Reduction (vph)	0	0	20	0	2	0	0	0	50	0	12	0
Lane Group Flow (vph)	18	1159	12	596	2096	0	0	58	247	65	11	0
Heavy Vehicles (%)	0%	4%	0%	1%	2%	0%	17%	0%	2%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA		Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		8	8	1	4	4	
Permitted Phases			2						8			
Actuated Green, G (s)	1.5	49.5	49.5	45.0	92.9			8.5	53.5	6.5	6.5	
Effective Green, g (s)	1.5	49.5	49.5	45.0	92.9			8.5	53.5	6.5	6.5	
Actuated g/C Ratio	0.01	0.37	0.37	0.33	0.69			0.06	0.40	0.05	0.05	
Clearance Time (s)	6.5	8.1	8.1	6.5	8.2			5.5	6.5	5.5	5.5	
Vehicle Extension (s)	3.0	4.5	4.5	3.5	4.5			3.0	3.5	3.0	3.0	
Lane Grp Cap (vph)	20	1271	591	595	2420			101	1103	86	83	
v/s Ratio Prot	0.01	c0.33		c0.33	0.60			c0.04	0.07	c0.04	0.01	
v/s Ratio Perm			0.01						0.01			
v/c Ratio	0.90	0.91	0.02	1.00	0.87			0.57	0.22	0.76	0.13	
Uniform Delay, d1	66.7	40.7	27.3	45.0	16.3			61.5	27.0	63.5	61.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	153.9	10.4	0.0	37.3	3.8			7.7	0.1	30.9	0.7	
Delay (s)	220.6	51.1	27.3	82.4	20.1			69.2	27.2	94.4	62.3	
Level of Service	F	D	C	F	C			E	C	F	E	
Approach Delay (s)		53.0			33.9			34.0			86.0	
Approach LOS		D			C			C			F	























Intersection Summary

HCM 2000 Control Delay	40.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	135.1	Sum of lost time (s)	25.7
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 8: Old Plank Rd/Elys Ford Rd & Route 3

2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	1263	97	49	2142	191	102	27	35	133	30	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1704		1770	1627	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1770	1704		1770	1627	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	1373	105	53	2328	208	111	29	38	145	33	180
RTOR Reduction (vph)	0	0	37	0	0	49	0	31	0	0	86	0
Lane Group Flow (vph)	87	1373	68	53	2328	159	111	36	0	145	127	0
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	8.0	98.6	98.6	7.6	98.2	113.2	10.0	7.2		15.0	12.2	
Effective Green, g (s)	8.0	98.6	98.6	7.6	98.2	113.2	10.0	7.2		15.0	12.2	
Actuated g/C Ratio	0.05	0.65	0.65	0.05	0.64	0.74	0.07	0.05		0.10	0.08	
Clearance Time (s)	6.0	6.0	6.0	6.0	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	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	92	2289	1024	88	2280	1238	116	80		174	130	
v/s Ratio Prot	c0.05	0.39		0.03	c0.66	0.01	0.06	0.02		c0.08	c0.08	
v/s Ratio Perm			0.04			0.09						
v/c Ratio	0.95	0.60	0.07	0.60	1.02	0.13	0.96	0.44		0.83	0.97	
Uniform Delay, d1	72.0	15.5	9.9	70.9	27.1	5.6	71.0	70.7		67.5	69.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	75.4	1.2	0.1	11.1	24.4	0.0	69.3	3.9		27.5	70.2	
Delay (s)	147.4	16.7	10.0	82.0	51.5	5.6	140.3	74.6		95.0	140.1	
Level of Service	F	B	B	F	D	A	F	E		F	F	
Approach Delay (s)		23.5			48.4			115.5			121.9	
Approach LOS		C			D			F			F	

Intersection Summary

HCM 2000 Control Delay	48.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	152.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	98.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: Andora Dr/Corter Ave & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘↗	↑↑↑	↗		↑	↗	↘	↑	↗
Volume (vph)	48	2040	12	360	2612	225	12	12	200	135	21	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.5	7.5	7.0	7.5	7.0		7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1805	4940	1615	3502	5136	1455		1854	1599	1545	1591	1553
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.98	1.00	0.95	0.96	1.00
Satd. Flow (perm)	1805	4940	1615	3502	5136	1455		1854	1599	1545	1591	1553
Peak-hour factor, PHF	0.98	0.98	0.98	0.93	0.93	0.93	0.93	0.93	0.93	0.84	0.84	0.84
Adj. Flow (vph)	49	2082	12	387	2809	242	13	13	215	161	25	43
RTOR Reduction (vph)	0	0	5	0	0	56	0	0	60	0	0	39
Lane Group Flow (vph)	49	2082	7	387	2809	186	0	26	155	92	94	4
Heavy Vehicles (%)	0%	5%	0%	0%	1%	11%	0%	0%	1%	11%	5%	4%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	Perm
Protected Phases	5	2		1	6	4	8	8	1	4	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	6.5	94.2	94.2	29.0	116.7	130.8		4.2	33.2	14.1	14.1	14.1
Effective Green, g (s)	6.5	94.2	94.2	29.0	116.7	130.8		4.2	33.2	14.1	14.1	14.1
Actuated g/C Ratio	0.04	0.55	0.55	0.17	0.69	0.77		0.02	0.20	0.08	0.08	0.08
Clearance Time (s)	7.0	7.5	7.5	7.0	7.5	7.0		7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	5.0	5.0	6.0	5.0	3.0		3.0	6.0	3.0	3.0	3.0
Lane Grp Cap (vph)	69	2737	894	597	3525	1119		45	378	128	131	128
v/s Ratio Prot	0.03	0.42		c0.11	c0.55	0.01		0.01	c0.07	c0.06	0.06	
v/s Ratio Perm			0.00			0.11			0.03			0.00
v/c Ratio	0.71	0.76	0.01	0.65	0.80	0.17		0.58	0.41	0.72	0.72	0.03
Uniform Delay, d1	80.8	29.2	17.0	65.7	18.4	5.2		82.0	59.8	76.0	76.0	71.7
Progression Factor	1.00	1.00	1.00	0.86	1.09	3.42		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	29.0	2.1	0.0	1.1	0.5	0.0		16.7	2.0	17.5	17.1	0.1
Delay (s)	109.8	31.3	17.0	57.8	20.6	17.8		98.7	61.9	93.5	93.1	71.7
Level of Service	F	C	B	E	C	B		F	E	F	F	E
Approach Delay (s)		33.0			24.6			65.9			89.2	
Approach LOS		C			C			E			F	

Intersection Summary




























HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	28.5
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: Big Ben & Route 3

2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Volume (vph)	88	2274	10	125	3067	309	22	40	61	354	26	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98	1.00	0.95	0.96	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583		1830	1583	1681	1696	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.98	1.00	0.95	0.96	1.00
Satd. Flow (perm)	1770	5085	1583	1770	5085	1583		1830	1583	1681	1696	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	2472	11	136	3334	336	24	43	66	385	28	141
RTOR Reduction (vph)	0	0	4	0	0	33	0	0	64	0	0	118
Lane Group Flow (vph)	96	2472	7	136	3334	303	0	67	2	204	209	23
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6	8	4	4		8	8	
Permitted Phases			2			6			4			8
Actuated Green, G (s)	9.0	101.5	101.5	17.5	110.0	131.0		6.0	6.0	21.0	21.0	21.0
Effective Green, g (s)	9.0	101.5	101.5	17.5	110.0	131.0		6.0	6.0	21.0	21.0	21.0
Actuated g/C Ratio	0.05	0.60	0.60	0.10	0.65	0.77		0.04	0.04	0.12	0.12	0.12
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	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		3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	93	3036	945	182	3290	1219		64	55	207	209	195
v/s Ratio Prot	0.05	0.49		c0.08	c0.66	0.03		c0.04		0.12	c0.12	
v/s Ratio Perm			0.00			0.16			0.00			0.01
v/c Ratio	1.03	0.81	0.01	0.75	1.01	0.25		1.05	0.04	0.99	1.00	0.12
Uniform Delay, d1	80.5	26.9	13.9	74.1	30.0	5.5		82.0	79.2	74.3	74.5	66.2
Progression Factor	1.03	0.50	1.00	0.90	0.79	1.44		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	88.7	1.9	0.0	1.5	8.6	0.0		126.1	0.3	57.9	62.3	0.3
Delay (s)	171.5	15.2	13.9	68.1	32.3	8.0		208.1	79.5	132.3	136.8	66.5
Level of Service	F	B	B	E	C	A		F	E	F	F	E
Approach Delay (s)		21.1			31.5			144.3			117.2	
Approach LOS		C			C			F			F	

Intersection Summary

HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	96.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

14: Harrison Rd/Harrison & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	181	2262	302	328	3022	243	351	282	222	257	285	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.5	6.5	7.0	7.5	7.0	6.5	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	0.95
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	4988	1538	3502	5085	1615	3433	3574	1615	3467	3420	3420
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	4988	1538	3502	5085	1615	3433	3574	1615	3467	3420	3420
Peak-hour factor, PHF	0.89	0.89	0.89	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	203	2542	339	353	3249	261	386	310	244	292	324	147
RTOR Reduction (vph)	0	0	43	0	0	23	0	0	59	0	31	0
Lane Group Flow (vph)	203	2542	296	353	3249	238	386	310	185	292	440	0
Heavy Vehicles (%)	1%	4%	5%	0%	2%	0%	2%	1%	0%	1%	0%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	NA
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	
Permitted Phases			2			6			8			
Actuated Green, G (s)	9.0	91.5	107.0	18.0	100.5	115.5	15.5	17.0	35.0	15.0	17.0	
Effective Green, g (s)	9.0	91.5	107.0	18.0	100.5	115.5	15.5	17.0	35.0	15.0	17.0	
Actuated g/C Ratio	0.05	0.54	0.63	0.11	0.59	0.68	0.09	0.10	0.21	0.09	0.10	
Clearance Time (s)	7.0	7.5	6.5	7.0	7.5	7.0	6.5	7.0	7.0	7.0	7.0	
Vehicle Extension (s)	3.0	6.0	3.0	3.0	6.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	183	2684	968	370	3006	1097	313	357	399	305	342	
v/s Ratio Prot	0.06	0.51	0.03	c0.10	c0.64	0.02	c0.11	0.09	0.05	0.08	c0.13	
v/s Ratio Perm			0.16			0.13			0.07			
v/c Ratio	1.11	0.95	0.31	0.95	1.08	0.22	1.23	0.87	0.46	0.96	1.29	
Uniform Delay, d1	80.5	37.0	14.5	75.6	34.8	10.2	77.2	75.4	59.3	77.2	76.5	
Progression Factor	0.99	0.84	0.76	1.26	0.52	0.06	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	84.1	5.8	0.1	6.4	37.1	0.0	129.6	19.4	0.9	39.7	149.8	
Delay (s)	163.8	36.9	11.1	101.3	55.3	0.6	206.8	94.8	60.1	116.9	226.3	
Level of Service	F	D	B	F	E	A	F	F	E	F	F	
Approach Delay (s)		42.4			55.8			131.8			184.4	
Approach LOS		D			E			F			F	

Intersection Summary

HCM 2000 Control Delay	70.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	28.5
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Gordon Rd & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	2540	68	565	3438	75	120	60	341	90	10	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.5	7.5	7.5	7.5	7.5	7.5	6.5	6.5	7.5	6.5	6.5	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	1.00	0.88	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5036	1583	3467	5136	1583	1787	1863	2814	1770	1612	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	5036	1583	3467	5136	1583	1787	1863	2814	1770	1612	
Peak-hour factor, PHF	0.92	0.90	0.90	0.96	0.96	0.92	0.84	0.92	0.84	0.92	0.92	0.92
Adj. Flow (vph)	180	2822	76	589	3581	82	143	65	406	98	11	98
RTOR Reduction (vph)	0	0	33	0	0	27	0	0	94	0	80	0
Lane Group Flow (vph)	180	2822	43	589	3581	55	143	65	312	98	29	0
Heavy Vehicles (%)	2%	3%	2%	1%	1%	2%	1%	2%	1%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	5	2		1	6		3	7	1	8	4	
Permitted Phases			2			6			7			
Actuated Green, G (s)	9.0	95.5	95.5	27.6	114.1	114.1	11.5	7.6	35.2	11.3	7.4	
Effective Green, g (s)	9.0	95.5	95.5	27.6	114.1	114.1	11.5	7.6	35.2	11.3	7.4	
Actuated g/C Ratio	0.05	0.56	0.56	0.16	0.67	0.67	0.07	0.04	0.21	0.07	0.04	
Clearance Time (s)	7.5	7.5	7.5	7.5	7.5	7.5	6.5	6.5	7.5	6.5	6.5	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.5	3.0	3.0	3.0	3.5	
Lane Grp Cap (vph)	181	2829	889	562	3447	1062	120	83	582	117	70	
v/s Ratio Prot	0.05	c0.56		0.17	c0.70		c0.08	c0.03	0.09	0.06	0.02	
v/s Ratio Perm			0.03			0.03			0.02			
v/c Ratio	0.99	1.00	0.05	1.05	1.04	0.05	1.19	0.78	0.54	0.84	0.41	
Uniform Delay, d1	80.5	37.1	16.8	71.2	28.0	9.5	79.2	80.4	60.1	78.4	79.2	
Progression Factor	0.89	0.77	3.02	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	40.0	10.0	0.0	51.2	26.7	0.1	142.6	37.0	1.0	38.0	4.6	
Delay (s)	112.0	38.6	50.7	122.4	54.6	9.6	221.9	117.4	61.1	116.4	83.7	
Level of Service	F	D	D	F	D	A	F	F	E	F	F	
Approach Delay (s)		43.2			63.1			104.5			99.2	
Approach LOS		D			E			F			F	

Intersection Summary

HCM 2000 Control Delay	59.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	170.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

20: Glade Dr/New E & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	1433	10	52	2367	134	21	3	154	79	2	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583		1784	1583		1776	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.96	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583		1784	1583		1776	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	1558	11	57	2573	146	23	3	167	86	2	14
RTOR Reduction (vph)	0	0	3	0	0	30	0	0	99	0	0	4
Lane Group Flow (vph)	25	1558	8	57	2573	116	0	26	68	0	88	10
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	custom
Protected Phases	5	2		1	6	8	4	4	1	8	8	
Permitted Phases			2			6			4			6
Actuated Green, G (s)	2.3	101.0	101.0	10.0	108.7	116.7		3.4	13.4		8.0	108.7
Effective Green, g (s)	2.3	101.0	101.0	10.0	108.7	116.7		3.4	13.4		8.0	108.7
Actuated g/C Ratio	0.02	0.69	0.69	0.07	0.74	0.80		0.02	0.09		0.05	0.74
Clearance Time (s)	6.0	6.0	6.0	6.0	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		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	27	2441	1092	120	2627	1326		41	144		97	1175
v/s Ratio Prot	0.01	c0.44		0.03	c0.73	0.00		c0.01	0.03		c0.05	
v/s Ratio Perm			0.00			0.07			0.01			0.01
v/c Ratio	0.93	0.64	0.01	0.47	0.98	0.09		0.63	0.47		0.91	0.01
Uniform Delay, d1	72.0	12.6	7.1	65.7	17.8	3.2		70.9	63.1		68.8	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	139.9	0.6	0.0	2.9	13.0	0.0		27.9	2.4		61.6	0.0
Delay (s)	211.8	13.1	7.1	68.6	30.7	3.3		98.7	65.6		130.4	4.9
Level of Service	F	B	A	E	C	A		F	E		F	A
Approach Delay (s)		16.2			30.1			70.0			113.2	
Approach LOS		B			C			E			F	

Intersection Summary

HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	146.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

21: New F & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1645	19	156	2503	1	65	2	309	1	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	5.5	6.0	6.0		5.5	5.5		6.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.98	
Satd. Flow (prot)	1770	3539	1583	3433	3539	1583		1776	1583		1750	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.98	
Satd. Flow (perm)	1770	3539	1583	3433	3539	1583		1776	1583		1750	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	1788	21	170	2721	1	71	2	336	1	1	1
RTOR Reduction (vph)	0	0	7	0	0	0	0	0	54	0	1	0
Lane Group Flow (vph)	1	1788	14	170	2721	1	0	73	282	0	2	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	pm+ov	Split	NA	
Protected Phases	5	2		1	6		4	4	1	3	3	
Permitted Phases			2			6			4			
Actuated Green, G (s)	0.4	85.0	85.0	12.6	96.7	96.7		9.1	21.7		2.0	
Effective Green, g (s)	0.4	85.0	85.0	12.6	96.7	96.7		9.1	21.7		2.0	
Actuated g/C Ratio	0.00	0.65	0.65	0.10	0.73	0.73		0.07	0.16		0.02	
Clearance Time (s)	6.0	6.0	6.0	5.5	6.0	6.0		5.5	5.5		6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	5	2284	1021	328	2598	1162		122	326		26	
v/s Ratio Prot	0.00	0.51		0.05	c0.77			0.04	c0.08		c0.00	
v/s Ratio Perm			0.01			0.00			0.10			
v/c Ratio	0.20	0.78	0.01	0.52	1.05	0.00		0.60	0.86		0.08	
Uniform Delay, d1	65.5	16.7	8.4	56.7	17.5	4.7		59.5	53.6		63.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	18.8	1.8	0.0	1.4	31.6	0.0		7.7	20.4		1.3	
Delay (s)	84.3	18.6	8.4	58.0	49.1	4.7		67.2	74.0		65.2	
Level of Service	F	B	A	E	D	A		E	E		E	
Approach Delay (s)		18.5			49.6			72.8			65.2	
Approach LOS		B			D			E			E	

Intersection Summary

HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	131.7	Sum of lost time (s)	23.5
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

293: New A & Rte 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	799	108	421	1026	138	86	12	20	199	18	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00		0.97	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	1687		3433	1702	
Flt Permitted	0.26	1.00	1.00	0.11	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	476	3539	1583	214	3539	1583	1770	1687		3433	1702	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	868	117	458	1115	150	93	13	22	216	20	27
RTOR Reduction (vph)	0	0	81	0	0	47	0	20	0	0	25	0
Lane Group Flow (vph)	18	868	36	458	1115	103	93	15	0	216	22	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2	3	7	4		3	8	
Permitted Phases	6		6	2		2						
Actuated Green, G (s)	35.1	33.0	33.0	69.0	62.9	74.0	11.3	9.3		11.1	9.1	
Effective Green, g (s)	35.1	33.0	33.0	69.0	62.9	74.0	11.3	9.3		11.1	9.1	
Actuated g/C Ratio	0.33	0.31	0.31	0.64	0.59	0.69	0.11	0.09		0.10	0.08	
Clearance Time (s)	4.0	6.0	6.0	6.0	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	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	180	1087	486	572	2072	1179	186	146		354	144	
v/s Ratio Prot	0.00	0.25		c0.22	0.32	0.01	0.05	0.01		c0.06	c0.01	
v/s Ratio Perm	0.03		0.02	c0.29		0.06						
v/c Ratio	0.10	0.80	0.07	0.80	0.54	0.09	0.50	0.10		0.61	0.15	
Uniform Delay, d1	24.6	34.1	26.4	25.9	13.5	5.5	45.4	45.2		46.1	45.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	4.2	0.1	7.9	0.3	0.0	2.1	0.3		3.1	0.5	
Delay (s)	24.8	38.3	26.4	33.8	13.7	5.6	47.5	45.5		49.2	46.1	
Level of Service	C	D	C	C	B	A	D	D		D	D	
Approach Delay (s)		36.7			18.4			46.9			48.6	
Approach LOS		D			B			D			D	













Intersection Summary

HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	107.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

1: VA 20/Constitution Hwy & Rte 3

2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑				↗			↗
Volume (veh/h)	0	910	10	0	1569	59	0	0	262	0	0	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.95	0.95	0.95	0.94	0.94	0.94
Hourly flow rate (vph)	0	1011	11	0	1724	65	0	0	276	0	0	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		971										
pX, platoon unblocked				0.78			0.78	0.78	0.78	0.78	0.78	0.78
vC, conflicting volume	1789			1011			1891	2800	506	2538	2768	895
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1789			462			1585	2745	0	2410	2704	895
tC, single (s)	4.1			4.1			7.5	6.6	7.0	7.6	6.6	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.4	3.5	4.0	3.3
p0 queue free %	100			100			100	100	67	100	100	94
cM capacity (veh/h)	351			859			54	15	837	9	16	288
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1					
Volume Total	506	506	11	1149	640	276	18					
Volume Left	0	0	0	0	0	0	0					
Volume Right	0	0	11	0	65	276	18					
cSH	1700	1700	1700	1700	1700	837	288					
Volume to Capacity	0.30	0.30	0.01	0.68	0.38	0.33	0.06					
Queue Length 95th (ft)	0	0	0	0	0	36	5					
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	11.4	18.3					
Lane LOS						B	C					
Approach Delay (s)	0.0			0.0		11.4	18.3					
Approach LOS						B	C					
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			55.2%		ICU Level of Service		B					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Rte 3 & Fox Gate Dr

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	19	1171	0	3	1641	131	0	0	1	89	0	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.92	0.92	0.73	0.92	0.73
Hourly flow rate (vph)	20	1259	0	3	1765	141	0	0	1	122	0	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1905			1259			2207	3212	630	2442	3071	882
vC1, stage 1 conf vol							1300	1300		1771	1771	
vC2, stage 2 conf vol							907	1912		672	1300	
vCu, unblocked vol	1905			1259			2207	3212	630	2442	3071	882
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.6	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			99			100	100	100	0	100	94
cM capacity (veh/h)	316			559			132	82	425	80	108	293

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	20	630	630	3	882	882	141	1	140
Volume Left	20	0	0	3	0	0	0	0	122
Volume Right	0	0	0	0	0	0	141	1	18
cSH	316	1700	1700	559	1700	1700	1700	425	88
Volume to Capacity	0.06	0.37	0.37	0.01	0.52	0.52	0.08	0.00	1.59
Queue Length 95th (ft)	5	0	0	0	0	0	0	0	279
Control Delay (s)	17.2	0.0	0.0	11.5	0.0	0.0	0.0	13.5	394.0
Lane LOS	C			B				B	F
Approach Delay (s)	0.3			0.0				13.5	394.0
Approach LOS								B	F




















Intersection Summary

Average Delay	16.7
Intersection Capacity Utilization	64.4%
ICU Level of Service	C
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

4: Rte 3 & Black Meadow Rd

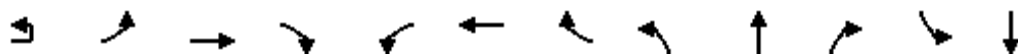
2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	1062	0	1	1641	26	0	0	0	14	1	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.89	0.89	0.92	0.92	0.92	0.80	0.92	0.80
Hourly flow rate (vph)	24	1154	0	1	1844	29	0	0	0	18	1	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage (veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1873			1154			2144	3077	577	2471	3048	922
vC1, stage 1 conf vol							1202	1202		1846	1846	
vC2, stage 2 conf vol							942	1875		625	1202	
vCu, unblocked vol	1873			1154			2144	3077	577	2471	3048	922
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.7	6.5	7.2
tC, 2 stage (s)							6.5	5.5		6.7	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.0	3.4
p0 queue free %	93			100			100	100	100	74	99	93
cM capacity (veh/h)	326			601			140	85	460	68	105	249
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	SB 1				
Volume Total	24	770	385	1	922	922	29	36				
Volume Left	24	0	0	1	0	0	0	18				
Volume Right	0	0	0	0	0	0	29	18				
cSH	326	1700	1700	601	1700	1700	1700	106				
Volume to Capacity	0.07	0.45	0.23	0.00	0.54	0.54	0.02	0.34				
Queue Length 95th (ft)	6	0	0	0	0	0	0	33				
Control Delay (s)	16.9	0.0	0.0	11.0	0.0	0.0	0.0	55.3				
Lane LOS	C			B				F				
Approach Delay (s)	0.3			0.0				55.3				
Approach LOS								F				
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			55.4%		ICU Level of Service			B				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

6: Wilderness Rd & Route 3

2/3/2016



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕↕	↗	↘	↕↕		↖	↗			↕↕
Volume (veh/h)	0	0	1440	6	6	2395	0	4	0	10	0	0
Sign Control			Free			Free			Stop			Stop
Grade			0%			0%			0%			0%
Peak Hour Factor	0.92	0.92	0.98	0.98	0.96	0.96	0.92	0.39	0.92	0.39	0.92	0.92
Hourly flow rate (vph)	0	0	1469	6	6	2495	0	10	0	26	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type			Raised			Raised						
Median storage veh			2			2						
Upstream signal (ft)												
pX, platoon unblocked	0.00											
vC, conflicting volume	0	2495			1476			2729	3977	735	3268	3983
vC1, stage 1 conf vol								1469	1469		2507	2507
vC2, stage 2 conf vol								1260	2507		760	1476
vCu, unblocked vol	0	2495			1476			2729	3977	735	3268	3983
tC, single (s)	0.0	4.1			4.4			7.5	6.5	6.9	7.5	6.5
tC, 2 stage (s)								6.5	5.5		6.5	5.5
tF (s)	0.0	2.2			2.4			3.5	4.0	3.3	3.5	4.0
p0 queue free %	0	100			98			90	100	93	100	100
cM capacity (veh/h)	0	180			385			103	51	367	28	51

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	735	735	6	0	6	1247	1247	10	26	0
Volume Left	0	0	0	0	6	0	0	10	0	0
Volume Right	0	0	6	0	0	0	0	0	26	0
cSH	1700	1700	1700	1700	385	1700	1700	103	367	1700
Volume to Capacity	0.43	0.43	0.00	0.00	0.02	0.73	0.73	0.10	0.07	0.00
Queue Length 95th (ft)	0	0	0	0	1	0	0	8	6	0
Control Delay (s)	0.0	0.0	0.0	0.0	14.5	0.0	0.0	43.6	15.6	0.0
Lane LOS					B			E	C	A
Approach Delay (s)	0.0				0.0			23.6		0.0
Approach LOS								C		A

Intersection Summary

Average Delay	0.2
Intersection Capacity Utilization	76.2%
ICU Level of Service	D
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

6: Wilderness Rd & Route 3

2/3/2016



Movement	SBR
Lane Configurations	
Volume (veh/h)	0
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	0
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage (veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume	1247
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	1247
tC, single (s)	6.9
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	100
cM capacity (veh/h)	165
Direction, Lane #	

HCM Unsignalized Intersection Capacity Analysis

7: Stuart Dr/Bullock Rd & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	1432	9	13	2396	1	3	1	8	1	0	2
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.50	0.50	0.50	0.75	0.75	0.75
Hourly flow rate (vph)	9	1507	9	14	2522	1	6	2	16	1	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	2523			1517			2822	4082	758	3340	4086	1262
vC1, stage 1 conf vol							1531	1531		2550	2550	
vC2, stage 2 conf vol							1291	2551		790	1536	
vCu, unblocked vol	2523			1517			2822	4082	758	3340	4086	1262
tC, single (s)	4.1			6.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			3.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			91			91	93	95	94	100	98
cM capacity (veh/h)	181			157			63	31	354	22	35	164

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	9	1005	512	14	1681	842	24	4
Volume Left	9	0	0	14	0	0	6	1
Volume Right	0	0	9	0	0	1	16	3
cSH	181	1700	1700	157	1700	1700	117	52
Volume to Capacity	0.05	0.59	0.30	0.09	0.99	0.50	0.21	0.08
Queue Length 95th (ft)	4	0	0	7	0	0	18	6
Control Delay (s)	25.9	0.0	0.0	30.1	0.0	0.0	43.6	80.6
Lane LOS	D			D			E	F
Approach Delay (s)	0.2			0.2			43.6	80.6
Approach LOS							E	F

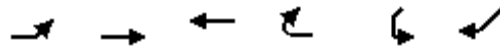
Intersection Summary

Average Delay	0.5
Intersection Capacity Utilization	83.6%
ICU Level of Service	E
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

10: Route 3 & 9 Mile Run

2/3/2016



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↑↑	↑↑		↘	
Volume (veh/h)	2	1430	2369	32	22	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.93	0.93	0.68	0.68
Hourly flow rate (vph)	2	1474	2547	34	32	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		Raised	Raised			
Median storage veh		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2582				3306	1291
vC1, stage 1 conf vol					2565	
vC2, stage 2 conf vol					741	
vCu, unblocked vol	2582				3306	1291
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	99				26	88
cM capacity (veh/h)	172				44	157













Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SW 1
Volume Total	493	983	1698	884	51
Volume Left	2	0	0	0	32
Volume Right	0	0	0	34	19
cSH	172	1700	1700	1700	60
Volume to Capacity	0.01	0.58	1.00	0.52	0.87
Queue Length 95th (ft)	1	0	0	0	98
Control Delay (s)	0.5	0.0	0.0	0.0	191.6
Lane LOS	A				F
Approach Delay (s)	0.2		0.0		191.6
Approach LOS					F

Intersection Summary					
Average Delay			2.5		
Intersection Capacity Utilization			76.5%	ICU Level of Service	D
Analysis Period (min)			15		

HCM Unsignalized Intersection Capacity Analysis

11: McLaws & Route 3

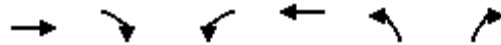
2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↑↑	↑		↑↑				↑			
Volume (veh/h)	0	1451	4	0	2401	0	0	0	14	0	0	0
Sign Control		Free			Free			Stop			Stop	
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)	0	1577	4	0	2610	0	0	0	15	0	0	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)					978							
pX, platoon unblocked	0.27						0.27	0.27		0.27	0.27	0.27
vC, conflicting volume	2610			1582			2882	4187	789	3414	4191	1305
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1560			1582			2565	7381	789	4527	7397	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	95	100	100	100
cM capacity (veh/h)	114			412			4	0	334	0	0	294
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NE 1						
Volume Total	789	789	4	1305	1305	15						
Volume Left	0	0	0	0	0	0						
Volume Right	0	0	4	0	0	15						
cSH	1700	1700	1700	1700	1700	334						
Volume to Capacity	0.46	0.46	0.00	0.77	0.77	0.05						
Queue Length 95th (ft)	0	0	0	0	0	4						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	16.3						
Lane LOS						C						
Approach Delay (s)	0.0			0.0		16.3						
Approach LOS						C						
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			69.7%		ICU Level of Service		C					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

215: Ashleigh Park Blvd Ext. & Route 3

2/3/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑↑		↗
Volume (veh/h)	1945	10	0	2660	0	155
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)	2114	11	0	2891	0	168
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	Raised			Raised		
Median storage veh	3			3		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2114			3078 1057
vC1, stage 1 conf vol						2114
vC2, stage 2 conf vol						964
vCu, unblocked vol			2114			3078 1057
tC, single (s)			4.1			6.8 6.9
tC, 2 stage (s)						5.8
tF (s)			2.2			3.5 3.3
p0 queue free %			100			100 24
cM capacity (veh/h)			255			77 221

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1
Volume Total	1057	1057	11	964	964	964	168
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	11	0	0	0	168
cSH	1700	1700	1700	1700	1700	1700	221
Volume to Capacity	0.62	0.62	0.01	0.57	0.57	0.57	0.76
Queue Length 95th (ft)	0	0	0	0	0	0	133
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	59.6
Lane LOS							F
Approach Delay (s)	0.0			0.0			59.6
Approach LOS							F

Intersection Summary			
Average Delay			1.9
Intersection Capacity Utilization	70.0%		ICU Level of Service C
Analysis Period (min)			15

HCM Unsignalized Intersection Capacity Analysis

287: New D & Rte 3

3/31/2016



Movement	EBR	EBR2	NWL2	NWL	NEL	NER
Lane Configurations	↗↗	↗	↖	↖↖	↖	↗
Volume (veh/h)	1369	12	59	899	50	188
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)	1488	13	64	977	54	204
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			Raised		
Median storage (veh)	1					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1501		2105	744
vC1, stage 1 conf vol					1488	
vC2, stage 2 conf vol					617	
vCu, unblocked vol			1501		2105	744
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			86		57	43
cM capacity (veh/h)			442		126	357

Direction, Lane #	EB 1	EB 2	EB 3	NW 1	NW 2	NW 3	NE 1	NE 2	
Volume Total	744	744	13	64	489	489	54	204	
Volume Left	0	0	0	64	0	0	54	0	
Volume Right	0	0	13	0	0	0	0	204	
cSH	1700	1700	1700	442	1700	1700	126	357	
Volume to Capacity	0.44	0.44	0.01	0.14	0.29	0.29	0.43	0.57	
Queue Length 95th (ft)	0	0	0	13	0	0	47	85	
Control Delay (s)	0.0	0.0	0.0	14.5	0.0	0.0	53.4	27.7	
Lane LOS				B				F	D
Approach Delay (s)	0.0			0.9			33.1		
Approach LOS							D		

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

290: Rte 3 & New B

2/3/2016



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↗	↘	↗
Volume (veh/h)	0	1172	1623	31	18	5
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)	0	1274	1764	34	20	5
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	1798				2401	882
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1798				2401	882
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				29	98
cM capacity (veh/h)	339				28	289













Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	637	637	882	882	34	20	5
Volume Left	0	0	0	0	0	20	0
Volume Right	0	0	0	0	34	0	5
cSH	1700	1700	1700	1700	1700	28	289
Volume to Capacity	0.37	0.37	0.52	0.52	0.02	0.71	0.02
Queue Length 95th (ft)	0	0	0	0	0	56	1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	282.3	17.7
Lane LOS						F	C
Approach Delay (s)	0.0		0.0			224.8	
Approach LOS						F	

Intersection Summary			
Average Delay		1.8	
Intersection Capacity Utilization		54.9%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

297: New C & Rte 3

2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗		↑↑	↗			↗		↕	
Volume (veh/h)	0	1080	0	0	1653	2	0	0	1	2	0	1
Sign Control		Free			Free			Stop			Stop	
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)	0	1174	0	0	1797	2	0	0	1	2	0	1
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	1799			1174			2073	2973	587	2385	2971	898
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1799			1174			2073	2973	587	2385	2971	898
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	88	100	100
cM capacity (veh/h)	339			591			31	14	453	18	14	282
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
Volume Total	587	587	0	898	898	2	1	3				
Volume Left	0	0	0	0	0	0	0	2				
Volume Right	0	0	0	0	0	2	1	1				
cSH	1700	1700	1700	1700	1700	1700	453	26				
Volume to Capacity	0.35	0.35	0.00	0.53	0.53	0.00	0.00	0.13				
Queue Length 95th (ft)	0	0	0	0	0	0	0	10				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	13.0	162.7				
Lane LOS							B	F				
Approach Delay (s)	0.0			0.0			13.0	162.7				
Approach LOS							B	F				
Intersection Summary												
Average Delay			0.2									
Intersection Capacity Utilization			55.7%			ICU Level of Service		B				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

319: New G & Route 3

2/3/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑	↑						↑
Volume (veh/h)	0	2372	0	0	3180	39	0	0	0	0	0	17
Sign Control		Free			Free			Stop			Stop	
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)	0	2578	0	0	3457	42	0	0	0	0	0	18
Pedestrians		17										
Lane Width (ft)		12.0										
Walking Speed (ft/s)		4.0										
Percent Blockage		1										
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		746										
pX, platoon unblocked				0.46			0.46	0.46	0.46	0.46	0.46	
vC, conflicting volume	3499			2578			3766	6077	1289	4746	6035	1169
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3499			2074			4682	9756	0	6833	9663	1169
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	90
cM capacity (veh/h)	71			121			0	0	494	0	0	183













Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	WB 4	SB 1
Volume Total	1289	1289	1152	1152	1152	42	18
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	42	18
cSH	1700	1700	1700	1700	1700	1700	183
Volume to Capacity	0.76	0.76	0.68	0.68	0.68	0.02	0.10
Queue Length 95th (ft)	0	0	0	0	0	0	8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	26.8
Lane LOS							D
Approach Delay (s)	0.0		0.0				26.8
Approach LOS							D

Intersection Summary		
Average Delay		0.1
Intersection Capacity Utilization	75.8%	ICU Level of Service
Analysis Period (min)		15
		D

HCM Unsignalized Intersection Capacity Analysis

322: New H & Route 3

2/3/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑				↗			
Volume (veh/h)	0	2681	9	0	3502	0	0	0	62	0	0	0
Sign Control		Free			Free			Stop			Stop	
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)	0	2914	10	0	3807	0	0	0	67	0	0	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)		1023										
pX, platoon unblocked				0.60			0.60	0.60	0.60	0.60	0.60	0.60
vC, conflicting volume	3807			2924			4183	6721	971	4845	6730	1269
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3807			1876			3972	8197	0	5075	8213	1269
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	90	100	100	100
cM capacity (veh/h)	53			190			1	0	651	0	0	159
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	NB 1				
Volume Total	971	971	971	10	1269	1269	1269	67				
Volume Left	0	0	0	0	0	0	0	0				
Volume Right	0	0	0	10	0	0	0	67				
cSH	1700	1700	1700	1700	1700	1700	1700	651				
Volume to Capacity	0.57	0.57	0.57	0.01	0.75	0.75	0.75	0.10				
Queue Length 95th (ft)	0	0	0	0	0	0	0	9				
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2				
Lane LOS								B				
Approach Delay (s)	0.0				0.0			11.2				
Approach LOS								B				
Intersection Summary												
Average Delay			0.1									
Intersection Capacity Utilization			71.0%		ICU Level of Service				C			
Analysis Period (min)			15									

Appendix D

Public Comments & Responses

Route 3 Arterial Management Plan
COMMENT SHEET

Wednesday, January 13, 2016
Chancellor Ruritan Club
5994 Plank Road
Fredericksburg, Virginia

Name: *Patsy Braswell*

Address:

Email:

1. Tonight you have been informed of the Route 3 Arterial Management Plan recommendations and projected future traffic conditions. Is there anything else you would like for the study team to consider?

Please consider the historic significance of the area. Spotsylvania has enough gaudy, tacky commercialization, & many buildings stand empty. Orange County's development of Rt. 3 should not influence Spotsylvania's vision for the remainder of Rt. 3.

2. Do you have any concerns about specific items that were shown at tonight's meeting? Are there concepts or items shown that you could not support? Why?

Who is the driving force behind the push to develop the rest of Rt 3? The Board of Supervisors? The county should be in the driver's seat as to zoning/land usage - Not the developers.

3. Are there any other comments or information about this Plan that you would like to share with us at this time?

*Traffic lights do not enhance traffic flow!
There are currently 14 traffic lights between 95 and Chancellor Elem. School.*

4. Any Other Comments or Suggestions?

Proposed traffic lights for the "Battlefield" general store & the Ryan development access across from Glade Dr. would yield 16 traffic lights within 6 miles, leading to "stop & go" traffic. Not an improvement - but more of a nightmare

5. How did you hear about this meeting?

Newspaper Internet Other

Please leave this comment sheet at the designated location or mail your comments
WITHIN 21 DAYS (postmarked by February 3, 2016) to the addressee on the reverse side or by
emailing: robertj.williams@vdot.virginia.gov

Responses to Ms. Patsy Bradwell

1. Through communication and coordination with local National Parks Service representatives, areas of cultural significance were identified and excluded from assumed development for the 2040 trip generation and volume calculations. These areas were agreed upon by the NPS, VDOT and Spotsylvania County.
2. The desire for development will be primarily from private entities and any rezoning would require the approval of the Spotsylvania County Board of Supervisors.
3. Traffic signals can be warranted based on a variety of criteria within the Manual on Uniform Traffic Control Devices (MUTCD). These include side street and mainline turn volumes. While there is a disruption to traffic flow due to a traffic signal, one may be required so that the intersection can operate more safely than an un-signalized intersection. Typically when there are multiple traffic signals along a corridor, such as Rte. 3, their signal timings are coordinated to maximize efficiency and flow through the corridor.
4. A traffic signal is not being suggested just for the General Store but based on traffic volumes that would result from development in Zone S10. The intent was not to locate said signal at the General Store entrance. That signal and the signal at the Ryan Homes development would be implemented based on warrant criteria from the MUTCD. VDOT and Spotsylvania County would have to approve of any new traffic signal installation. The signals would be implemented so that the intersections may operate safely for everyone traveling through those intersections. As mentioned above, it is likely that these signals would be placed in coordination with the other signals along Rte. 3 to minimize “stop-and-go” traffic.

Good Afternoon Mr. Williams,

I am contacting you in regards to the McLaws Dr./Route 3 recommendation to convert crossover to right in/ right out.

Comment Sheet

Name: Michelle & Travis Early

Address:

Email:

1.) Tonight you have been informed of the Rt. 3 Arterial Management Plan recommendation and projected future traffic conditions. Is there anything else you would like for the study team to consider?

Please consider that traffic on Route 3 is re-routed to the McLaws Dr. crossover anytime there is an accident just past our turn that causes back-up's. This allows local commuting residents to use McLaws Drive, essentially to become a cut through to Old Plank Road, virtually looping the residents around the accident and reliving congestion on Rt.3. It also, is essential for the Chancellor Fire Department to gain quick access to homes or residents in an emergency that are located off McLaws Dr. or Old Plank Rd. Closing the intersection will not only add to the congestion, but add minutes onto EMS travel should they be needed. This is NOT something I nor, anyone else, on our street is willing to be flexible with.

2.) Do you have any concerns about the specific items that were shown at tonight's meeting? Are there concepts or items that you could not support? Why?

I am a resident that lives at 8308 South McLaws Place and my family uses the Route 3 crossover multiple times daily to gain access to our street and home. Closing this crossover and forcing the residents to travel down to Ely's Ford Rd./ Old Plank Rd. light to access our homes it adds additional travel time of 8 minutes, but also causes us to use more gas and add unavoidable mileage each time we come back home, since it's an additional 2.5 miles out of our way. This is absolutely ludicrous, to force the residents that live off McLaws Drive to travel further, use more gas and fight what already is a congested Rt. 3, when we currently have quick access to our street. The old saying , "Don't fix it, if it isn't broke" applies here!

Q): What is the need for this closer? What will it improve and who will benefit from the closer?

A): No need for closer. No improvement and no one will benefit.

3.) Are there any other comments or information about this Plan that you would like to share with us at this time?

The possibility of closing McLaws Dr. crossover seems to be a direct correlation to the Ryan homes neighborhood, Chancellorsville Crossing, being built adjacent to the McLaws Drive

crossover turn. This has not been up for discussion prior to the construction, but suddenly is now on the chopping block. Closing this turn due to the neighborhood is not a well thought out plan and one that needs serious consideration before bowing down to yet another neighborhood full of McMansions. If anything, the turning lane for crossover to McLaws Dr. needs to be extended to allow residents and sightseer's the capability to access the turn without fear of getting rear-ended. Keeping the crossover open will again, relieve congestion being brought on by the thousands of new home owners, local commuters, residents and EMS personal that travel down Rt. 3 West.

4.) Any other comments or suggestions?

Taking into consideration how much use this crossover provides to us local residents as well as commuters, and EMS, it would be a complete fail on Spotsylvania County if converted to right-in/right-out. How does the county propose to redirect traffic given an accident on Rt. 3 West or redirect sightseer's coming to view the Chancellorsville Battlefield? These are just a few of the things that will be effected by the closing of the crossover. What effect will the crossover closing have on our personal property value? Have there been studies on this? If not, then there needs to be prior to the closer and it needs to be provided to the local residents living off McLaws Drive. This is NOT just a crossover closing, it is disrupting our way of life and possibly the value of our property. A builder nor the county should be able to dictate the outcome of these questions without looking further into how this and the impacts on residents.

5.) How did you hear about this meeting?

Other - Neighbor informed me about the meeting and the convert to right-in/right-out of the crossover to McLaws Dr.

Thank you,

Michelle Early
Resident and concerned neighbor

Responses to Ms. Michelle Early

1. In an effort to meet VDOT Access Management Standards, the study proposes to close the crossover on Rte. 3 at McLaws Dr. This is due to its proximity to Wesley Dr. and Glade Dr. Additionally, there are some sight distance limitations for motorists in the crossover due to the vertical curves along Rte. 3. Any effects from the closing should be minimal, as the study also proposes to improve the crossover at Wesley Dr. by adding left-turn lanes in both directions along Rte. 3.
2. The study proposes to improve the crossover at Wesley Dr. which would be a nearby and safe location to U-turn and gain access to McLaws Dr. The reason for the closure is to comply with VDOT Access Management Standards. Everyone travelling the corridor will benefit from limiting access points as this will help with congestion and safety. Improving and limiting access points will result in a reduction in slowdowns for entering and exiting traffic and reduce the number of rear-end crashes.
3. Should a traffic signal be built at Glade Dr., the crossover at McLaws Dr. would not meet VDOT Access Management Standards and should be closed. Limiting crossing and access points along the corridor helps preserve traffic flow and increase safety for everyone traveling the corridor. The study also proposes improvements to the crossover at Wesley Dr.
4. Should traffic need to be redirected, the improved crossover at Wesley Dr. could be used as well as access to Old Plank Rd. via Andora Dr. Currently no information has been presented to suggest that the closure of the crossover at McLaws and improvement at Wesley Dr. would adversely affect property values along and off McLaws Dr. Studying this issue was not part of the study scope.

Route 3 Arterial Management Plan
COMMENT SHEET

Wednesday, January 13, 2016
Chancellor Ruritan Club
5994 Plank Road
Fredericksburg, Virginia

Name: FRED WRIGHT

Address:

Email:

1. Tonight you have been informed of the Route 3 Arterial Management Plan recommendations and projected future traffic conditions. Is there anything else you would like for the study team to consider?

I live in BATTLEFIELD ESTATES OFF OF RT640.
We have been ON LIST AS #2 for over 30 years
to have our roads paved + accepted STATE
MAINTAINED. Do our ROADS.

2. Do you have any concerns about specific items that were shown at tonight's meeting? Are there concepts or items shown that you could not support? Why?

We know VDOT CANT CONTROL THE TRAFFIC
SIGNALS, WHY ADD MORE?

3. Are there any other comments or information about this Plan that you would like to share with us at this time?

4. Any Other Comments or Suggestions?

I HAVE WORKED FOR THE SMITHSONIAN INSTITUTION
FOR OVER 38 YRS AS A CONSTRUCTION MANAGER.
IF YOU DO NOTHING TO RT 3, I BET THE ~~best~~ BUILDERS
WOULD WHEN THEY DONT SELL THEIR HOMES.

5. How did you hear about this meeting?

Newspaper Internet Other

Please leave this comment sheet at the designated location or mail your comments
WITHIN 21 DAYS (postmarked by February 3, 2016) to the addressee on the reverse side or by
emailing: robertj.williams@vdot.virginia.gov

Responses to Mr. Fred Wright

1. Comment does not appear to be directed toward the study. The issue should be discussed with VDOT directly.
2. Typically when there are multiple traffic signals along a corridor, such as Rte. 3, their signal timings are coordinated to maximize efficiency and flow through the corridor. VDOT will ensure any additional traffic signals will be incorporated into the existing system if necessary.
3. N/A – No question from commenter.
4. Any developments along Rte. 3 that incur adverse impacts would be remedied by the developers at the direction of Spotsylvania County and VDOT. The vast majority of the improvements shown in the study would be developer based improvements to be instituted by the developers at the County and VDOT's direction. The purpose of the study and its recommendations is to provide the County and VDOT with a guide to managing the development and preservation of the corridor.

Route 3 Arterial Management Plan
COMMENT SHEET

Wednesday, January 13, 2016
Chancellor Ruritan Club
5994 Plank Road
Fredericksburg, Virginia

Name: JOHN VERG ERES

Address:

Email:

1. Tonight you have been informed of the Route 3 Arterial Management Plan recommendations and projected future traffic conditions. Is there anything else you would like for the study team to consider?

ORANGE CO HAS A GWAP PLAN TO DEVELOP HAVE A LARGE COMMERCIAL DEVELOPMENT FROM RT 20 TO THE CULPEPER LINE. HAS ALL THIS ADDITIONAL TRAFFIC BEEN TAKEN INTO CONSIDERATION? PEOPLE ARE GOING IN THE OPPOSITE DIRECTION

2. Do you have any concerns about specific items that were shown at tonight's meeting? Are there concepts or items shown that you could not support? Why?

TO SHOP THERE RATHER THAN FIGHT TRAFFIC EAST INTO TOWN OR CENTRAL PARK.

3. Are there any other comments or information about this Plan that you would like to share with us at this time?

4. Any Other Comments or Suggestions?

HAVE ORGANIZED DEER HUNTS ON PARK SERVICE LAND BY HUNT CLUBS TO REDUCE COLLISIONS WITH DEER. AVERAGE IS ABOUT 2-3 PER WEEK

5. How did you hear about this meeting?

Newspaper

Internet

Other

Please leave this comment sheet at the designated location or mail your comments WITHIN 21 DAYS (postmarked by February 3, 2016) to the addressee on the reverse side or by emailing: robertj.williams@vdot.virginia.gov

Responses to Mr. John Vergeres

1. Yes this development and the associated generated trips have been included in the study. Zone N1 represent this area.
2. N/A– No question from commenter.
3. N/A– No question from commenter.
4. This comment cannot be addressed within the study. Citizen may want to engage local officials from the National Park Service, Spotsylvania County and/or Virginia Department of Game and Inland Fisheries.

Route 3 Arterial Management Plan
COMMENT SHEET

Wednesday, January 13, 2016
Chancellor Ruritan Club
5994 Plank Road
Fredericksburg, Virginia

Name: RAYMOND BURNS

Address:

Email:

1. Tonight you have been informed of the Route 3 Arterial Management Plan recommendations and projected future traffic conditions. Is there anything else you would like for the study team to consider?

* X

WISH YOU HAD DONE THIS FOR THE
EXIT #126/ MASSABOWMAN AREA YEARS AGO.
~7,000 UNITS APPROVED, ROADS/RT. 1 ALREADY BAD.

2. Do you have any concerns about specific items that were shown at tonight's meeting? Are there concepts or items shown that you could not support? Why?

NO - GOOD PRESENTATION - WENT MUCH QUICKER
THAN I ANTICIPATED - ^{BIG}BOARDS HELPED!

3. Are there any other comments or information about this Plan that you would like to share with us at this time?

IS THE BRIEF AVAILABLE VIA LINK/EMAIL?

4. Any Other Comments or Suggestions?

WELL DONE - GLAD NPS WAS THERE TO EXPLAIN THE
POTENTIAL FOR MOVING THE ELI FORD/ RT. 3 INTERSECTION.

5. How did you hear about this meeting?

Newspaper Internet Other

Thanks, R.M. Burns

Please leave this comment sheet at the designated location or mail your comments
WITHIN 21 DAYS (postmarked by February 3, 2016) to the addressee on the reverse side or by
emailing: robertj.williams@vdot.virginia.gov

Responses to Mr. Raymond Burns

1. The concern for the Rte. 1 / Exit 126 area has been noted.
2. N/A – No question from commenter.
3. Presentations and display boards are available for download at the VDOT project website:
http://www.vdot.virginia.gov/projects/fredericksburg/route_3_corridor_transportation_plan.asp
4. N/A – No question from commenter.

Route 3 Arterial Management Plan
COMMENT SHEET

Wednesday, January 13, 2016
Chancellor Ruritan Club
5994 Plank Road
Fredericksburg, Virginia

Name: JACK SWILMA

Address:

Email:

1. Tonight you have been informed of the Route 3 Arterial Management Plan recommendations and projected future traffic conditions. Is there anything else you would like for the study team to consider?

~~NO~~ In addition to auto traffic considerations, pedestrian and bicycle use should be planned for. Will the current plans allow for resumption of bike lanes and side walks

2. Do you have any concerns about specific items that were shown at tonight's meeting? Are there concepts or items shown that you could not support? Why?

NO

3. Are there any other comments or information about this Plan that you would like to share with us at this time?

None

4. Any Other Comments or Suggestions?

None

5. How did you hear about this meeting?

Newspaper Internet Other

Please leave this comment sheet at the designated location or mail your comments WITHIN 21 DAYS (postmarked by February 3, 2016) to the addressee on the reverse side or by emailing: robertj.williams@vdot.virginia.gov

Responses to Mr. Jack Sulima

1. The study did not specifically evaluate the introduction of bike facilities and increased pedestrian facilities and the traffic that may be removed from Rte. 3. However, new or upgrade pedestrian and bike facilities have been included in the list of potential toolbox options for future consideration within the area.
2. N/A – No question from commenter.
3. N/A – No question from commenter.
4. N/A – No question from commenter.

Name: Marge Barellis

Comment: "a reconfiguration of Elys Ford and River Road would draw more traffic. Elys Ford Road is a major bicycle route and carries a significant amount of bikers. The additional traffic from a realignment would endanger the bike riders. Elys Ford Road is very curvy and dangerous enough without adding additional traffic which would result if the road was altered."

Response to Ms. Marge Barellis

1. Presently no decision has been made on the realignment of Elys Ford Road and River Road. Any project done by the County or VDOT will have a public involvement process. Concerns and wishes for the project can be expressed to the appropriate entities at the appropriate time should such project move forward. While the study did not specifically evaluate biking accommodations, new or upgraded bike facilities are included in the list of potential toolbox options for future consideration within the area.

**Route 3 Arterial Management Plan
COMMENT SHEET**

Wednesday, January 13, 2016
Chancellor Ruritan Club
5994 Plank Road
Fredericksburg, Virginia

Name:

Address:

Email:

1. Tonight you have been informed of the Route 3 Arterial Management Plan recommendations and projected future traffic conditions. Is there anything else you would like for the study team to consider? Right & left turn lanes into feeder roads

2. Do you have any concerns about specific items that were shown at tonight's meeting? Are there concepts or items shown that you could not support? Why?

3. Are there any other comments or information about this Plan that you would like to share with us at this time?

4. Any Other Comments or Suggestions?

5. How did you hear about this meeting?

Newspaper Internet Other

Please leave this comment sheet at the designated location or mail your comments
WITHIN 21 DAYS (postmarked by February 3, 2016) to the addressee on the reverse side or by
emailing: robertj.williams@vdot.virginia.gov

Response to Unknown Citizen

1. The installation and/or improvement of right and left-turn lanes was evaluated and incorporated based on anticipated volumes and guidelines within the VDOT Road Design Manual. New, additional or improved turn lanes have been incorporated throughout the study area.

**Route 3 Arterial Management Plan
COMMENT SHEET**

Tuesday, July 21, 2015
Chancellor Community Center
7300 Plank Road
Fredericksburg, Virginia

Name:

Address:

Email:

1. Tonight you have been informed of the Route 3 Arterial Management Plan and the purpose of the study. You have had the chance to review the existing traffic conditions and projected future conditions. Is there anything else you would like for the study team to consider as they develop the Draft Plan?

Stakeholders should include: RETAIL & UTILITIES
RT 3 Corridor Pilot Study should extend to Rappahannock River
→ Orange County Comp Plan has significant growth
Projected than soon dev on RT 3 Corridor

44

2. Do you have any concerns about specific items that were shown at tonight's meeting? Are there concepts or items shown that you could not support? Why?

3. Are there any other comments or information about this Plan that you would like to share with us at this time?

4. Any Other Comments or Suggestions?

5. How did you hear about this meeting?
Newspaper Internet Other

Please leave this comment sheet at the designated location or mail your comments
WITHIN 21 DAYS (postmarked by August 11, 2015) to the addressee on the reverse side or by
emailing: robertj.williams@vdot.virginia.gov

Response to Unknown Citizen

1. The study work group members for this project include VDOT, Spotsylvania County, and The National Park Service. All citizens of Spotsylvania County are considered stakeholders and are welcome to attend the public meetings and provide input.



CIVIL WAR TRUST

*Saving America's
Civil War Battlefields*

Civilwar.org

January 13, 2016

Rob Williams
Virginia Department of Transportation
Central Office
1401 East Broad Street
Richmond, VA 23219

Dear Mr. Williams:

I am writing on behalf of the Civil War Trust, the nation's premier nonprofit organization devoted to the preservation of America's hallowed battlegrounds. Although primarily focused on the protection of Civil War battlefields, through its Campaign 1776 initiative, the Trust also seeks to save the battlefields connected to the Revolutionary War and War of 1812. To date, the Trust has preserved more than 41,000 acres of battlefield land in 21 states, including 22,038 acres in the Commonwealth of Virginia.

The purpose of this letter is to formally convey the Trust's great disappointment with, and strong disapproval of, both the process and results of the Route 3 Corridor Transportation Plan (alternatively referred to as the Route 3 Arterial Management Plan). Described by the Virginia Department of Transportation (VDOT) as a Spotsylvania County-centered study that "will identify ways to optimize traffic flow, minimize delays, and improve safety" along "the Route 3 corridor from Gordon Road to the Orange County line," recommendations recently released by VDOT extend outside the project's purported study area, calling for a relocation of the intersection of Route 3 and Route 20 in Orange County which the National Park Service (NPS), the Trust and the greater preservation community have long warned could have severe repercussions for the historic Wilderness Battlefield and related resources.

VDOT's approach to this initiative has been disappointing from the outset, with the project team neglecting throughout to perform the type of genuine and consistent outreach necessary to achieving a positive and mutually beneficial outcome for all involved. In July, for instance, it was only *after* VDOT's initial public meeting on this project that the Trust first became aware of it, in spite of our status as both a major landowner and stakeholder in the purported study area. Our organization communicated our disappointment to VDOT's Craig Van Dussen on this matter on July 28, exactly one week following VDOT's July 21 meeting.

Together with our partners at NPS as well as the Central Virginia Battlefields Trust (CVBT), the Civil War Trust quickly extended an olive branch, requesting a separate meeting with VDOT to better understand the impetus for the Route 3 Corridor Transportation Plan and what VDOT hoped to achieve in pursuing the project. This meeting took place on August 26 at VDOT's Fredericksburg District Office, and was jointly led by Craig Van Dussen and Craig Eddy of Michael Baker International; representatives of NPS, CVBT and the Trust were in attendance. All spoke to the uniqueness of

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* Chairman Emeritus

the portion of the Route 3 corridor under study, emphasizing the need to take fully into account the resources and near-ubiquitous presence of publicly and privately preserved lands tied to the storied Civil War battles at Chancellorsville and the Wilderness.

When the Trust straightforwardly inquired of VDOT and its consultant at the meeting if a goal of the project was to examine the potential of expanding or realigning major roadways in the project area, VDOT demurred, stating that its goal was the opposite — to avoid future widenings or realignments in this area, and instead “get as much out of the existing pavement as possible.”

As cited at the beginning of this letter, the recommendations advanced by VDOT earlier this month — which, as we learned only this morning, are to be debuted locally at a meeting later today about which the Trust received no direct prior notification or invitation — have since demonstrated that VDOT has not been totally transparent in its representations of the project or ultimate goals. Further, any suggested realignment of the intersection of Route 3 and Route 20 falls outside the project’s purported study area within Spotsylvania County, creating still more consternation on the part of the Trust and others who sought to coordinate with VDOT and its consultant in good faith.

In light of the information detailed hereinabove, it is incumbent on the Civil War Trust to weigh in firmly against the Route 3 Corridor Transportation Plan in its present form. To ensure the publication of a plan which appropriately and adequately acknowledges and incorporates input from the full breadth of stakeholders along the Route 3 corridor, we encourage VDOT to begin renewed outreach to NPS and the greater preservation community, as well as to additional stakeholders both within and inclusive of Orange County itself (the government of which is, strikingly, not listed among the “work group members” consulted by VDOT and Michael Baker International to date). The current plan, put simply, falls short — in its approach and execution — and threatens to put the world-renowned historic resources in this region unnecessarily at risk.

Please do not hesitate to contact us with any questions at (202) 367-1861, and thank you for the opportunity to provide these comments. We look forward to hearing from you.

Sincerely,

A handwritten signature in black ink, appearing to read "O. James Lighthizer". The signature is fluid and cursive, with a large initial "O" and a long, sweeping underline.

O. James Lighthizer, President



CIVIL WAR TRUST

*Saving America's
Civil War Battlefields*

Civilwar.org

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** Chairman Emeritus*

February 3, 2016

Rob Williams
Virginia Department of Transportation
Central Office
1401 East Broad Street
Richmond, VA 23219

Dear Mr. Williams:

Thank you for your recent reply to my letter of January 13. Once again, I am writing on behalf of the Civil War Trust, the nation's premier nonprofit organization devoted to the preservation of America's hallowed battlegrounds. Although primarily focused on the protection of Civil War battlefields, through its Campaign 1776 initiative, the Trust also seeks to save the battlefields connected to the Revolutionary War and War of 1812. To date, the Trust has preserved more than 42,000 acres of battlefield land in 22 states, including 22,107 acres in the Commonwealth of Virginia.

We appreciate your assurance that, in drafting the Route 3 Arterial Management Plan, the Virginia Department of Transportation's (VDOT's) "goal is to ensure that any improvements made along the Route 3 corridor are limited to the existing footprint." As emphasized in our previous comments, a shared commitment to achieving context-sensitive solutions along this corridor is crucial given the near-ubiquitous presence of publicly and privately preserved lands tied to the storied Civil War battles at Chancellorsville and the Wilderness.

We are also appreciative of your confirmation that the "Arterial Management Plan only applies to the portion of Route 3 that lies within Spotsylvania County" — and that "the relocation of Route 20 in Orange County ... is included in [VDOT's] plan to aid in the traffic forecast, but is not a recommendation generated as part of [VDOT's] study." However: While it is correct that, as you note, this potential relocation is referenced in the "Germanna-Wilderness Area Plan [GWAP] that has been adopted into, and is part of, the approved Orange County Comprehensive Plan," VDOT has heretofore failed to cite a critical caveat concurrently adopted by Orange County.

Any potential relocation or realignment of the intersection of Route 3 and Route 20 is far from final. On page 70 of the adopted version of GWAP, Orange County acknowledges this point explicitly, writing of the need for additional collaboration with VDOT, the National Park Service, the Virginia Department of Historic Resources, our organization and others to "assess the **viability and advisability** of realigning ... the Germanna Highway (Route 3) and Constitution Highway (Route 20) intersection [emphasis mine]." By illustrating such a realignment in the Route 3 Arterial Management Plan without properly outlining the background, context or commitments associated with it, VDOT is inadvertently offering the idea its official imprimatur — or, at the

very least, creating that perception among those who will consult and cite this plan moving forward.

Accordingly, the Trust believes that it is vital for VDOT to make clear in the final version of the Arterial Management Plan that any potential relocation or realignment of the intersection of Route 3 and Route 20 is but one idea of many in assessing the future of where these two roads meet — and not simply a foregone conclusion or inevitability. This will help prevent further confusion on this front, as well as more fully and accurately reflect the consensus reached regarding this intersection forged over the course of many years (as acknowledged by Orange County in GWAP).

Thank you again for your attention to our concerns. We ask that — as with our prior correspondence — this letter also be added to the permanent record for the Route 3 Arterial Management Plan, and our requested clarification centering on the intersection of Route 3 and Route 20 be incorporated within the plan as detailed hereinabove. We look forward to your continued consultation with the Civil War Trust and the preservation community writ large on this project in the days ahead. Please do not hesitate to contact us with any questions at (202) 367-1861.

Sincerely,

A handwritten signature in black ink, appearing to read "O. James Lighthizer". The signature is fluid and cursive, with a large initial "O" and a long, sweeping underline.

O. James Lighthizer, President



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Fredericksburg and Spotsylvania
National Military Park
120 Chatham Lane
Fredericksburg, Virginia 22405

February 12, 2016

Mr. Craig Van Dussen
Planning Manager, Fredericksburg District
Virginia Department of Transportation
87 Deacon Road
Fredericksburg, VA 22405

Dear Craig:

We appreciate your efforts to engage us in the process of developing the Route 3 Arterial Management Plan. What follows are our comments on the document—so far as we have seen it. Our comments are confined to the brief, graphic summaries of the plan available online (the link that I suspect included the full plan was repeatedly not available) and the maps (presumably since updated) presented in November. We have not, therefore, seen the entire plan, which presumably includes verbiage that matters a great deal to us. We would appreciate the opportunity to review and comment on that as well.

Our comments track the recommendations for which we have concerns from west to east along Route 3:

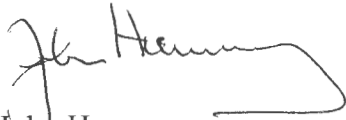
- Route 20/Route 3: While we understand that the portrayal of the relocated Route 3/Route 20 intersection reflects what appears in Orange County's Comprehensive Plan, and that that plan includes numerous caveats related to the relocation, we are duty-bound to reiterate that the National Park Service does not concur with that proposal. The repeated portrayal of such an idea in graphic form takes the appearance of a foregone conclusion. Given that the scope of this study is confined to Spotsylvania, we would prefer it not appear here. It merely raises rather than answers questions.
- D Zone N4/Zone N5/ Route 3: The proposal to construct a signalized intersection here, where no intersection presently exists, on the very edge of the National Park, when land to the north and south is largely embodied in preserved ground is puzzling and, we believe, unnecessary. If this intersection is intended to, eventually, provide access to the to-be-built development on the former Binns property to the north, we would object rather strenuously. In the interest of preservation and reduced impacts on the park, the developer has planned an access to that subdivision farther west. The proposal here would undo that effort and put stop-and-go traffic within a sensitive NPS area. We ask that this improvement be removed from the plan.

- 5 Orange Plan Road/Route 3: This historic intersection sits at the heart of the lands associated with Jackson's flank attack at Chancellorsville—a key visitor destination. The proposal here clearly envisions a significant reconfiguration of the crossroads with a road heading north from the existing intersection. While this land—the Hawkins Farm—is presently privately owned, it lies within the authorized park boundary. Moreover, the land immediately north of it is slated for conveyance to the Civil War Trust for perpetual preservation. We can see no rationale for northbound through lanes serving these lands to the north or the left-hand turn lane in the eastbound lanes. If the intent is to serve the subdivision on the former Binns property, we rather vehemently object to the placement of access here. As mentioned above, we worked closely with the developer to locate access to that development outside the national park area. This proposal would once again seem to undo that effort. We ask that this element be removed from the plan.
- 6 & 7 & 10: While we do not object to identifying the need for improvements here, we do request that the plan cite the need to consult with the NPS on the design and placement of any improvements that have the potential to impact how visitors access or exit NPS roads or facilities.
- 11 McLaws Drive: We concur with the need to carefully manage this crossover, but cannot at this point endorse the idea to make this right-turn-in and right-turn-out only. Once again, we ask that the plan identify the need and commit to consultation with the NPS without defining a specific solution. Bear in mind: the NPS owns land beneath the eastbound lands on Route 3 at this crossover.
- E Route 3/Glade Road. This proposed signalized intersection lies amidst lands managed for the purposes of preservation by the Civil War Trust. We would only caution that planning here should engage the Trust and other interested parties.

As mentioned, we did not have access to the full plan, and so please consider these comments incomplete.

We of course stand ready to work with VDOT to ensure that the improvements in the Route 3 corridor serve the needs of the area without adversely affecting the nationally significant preserved lands that lie within it. This offer is sincerely made. Please do not hesitate to call on us.

Sincerely,



John Hennessy
Acting Superintendent

Response to February 12, 2016 letter from Mr. John Hennessy of the National Park Service

Route 20/Route 3

The relocation of Rte. 20, as depicted, reflects the Germana-Wilderness Plan which was adopted by Orange County and included in their recent Comprehensive Plan update. Its inclusion is for informational and traffic forecasting purposes. The study is not intended to serve as an endorsement for the relocation, but merely an acknowledgement of what Orange County is planning. Our final report will include additional clarification to explain its inclusion in the Route 3 Arterial Management Plan.

D Zone N4/Zone N5/Route 3

We have reviewed plans for the development and the location of Intersection D will be reviewed to coincide with the development plans.

Orange Plank Road/Route 3

Recommendations included in the Route 3 AMP are based on the potential build-out of development in undeveloped parcels along the corridor. Should this area north of the intersection be included in the Civil War Trust in the future and deemed undevelopable, then any recommendation to add a north leg to the property would be moot. It will be noted in the report that historical preservation of the property would make the addition of a north leg unnecessary.

6 & 7 & 10

Text will be added to the document that will state “input from the National Park Service should be solicited in situations where recommendations may impact NPS property”

11 McLaws Drive

The concerns of the NPS have been noted. As stated above, the report will note that input from the NPS should be solicited when potential improvements may impact NPS property.

E Route 3/Glade Road

The concerns of the NPS have been noted. Any improvements contemplated at this intersection should be discussed with all potentially affected parties, including the Civil War Trust.