

Significant Impacts A.M. Peak Hour

Roadway		Jurisdiction	Roadway Type	Roadway Class	Existing Laneage	Adopted LOS	Maximum Directional Volume	Project Traffic			Significance		Significant Impact?			
From	To							% Assignment	Net New Proposed Traffic	Direction (In/Out) NB / EB – SB / WB	NB/EB	SB /WB				
Sample Road																
SR 7	Banks Road	FDOT	Arterial	II	3L/D(EB)	D	2,570	5%	106	I/O	-	106	-	No		
SR 7	Banks Road	FDOT	Arterial	II	3L/D(WB)	D	2,570	7%	160	-	I/O	-	460	-	Yes	
Banks Road	Lyons Road	FDOT	Arterial	II	3L/D(EB)	D	2,570	10%	217	I/O	-	217	-	Yes	-	
Banks Road	Lyons Road	FDOT	Arterial	II	3L/D(WB)	D	2,570	7%	162	-	I/O	-	462	-	Yes	
Lyons Road	Florida's Turnpike	FDOT	Arterial	II	6LD	D	2,570	7%	162	O	↑	77	75	3.0%	No	
SR 7																
Sample Road	Wiles Road	FDOT	Arterial	II	3L/D(EB)	D	2,570	6%	130	I/O	-	130	-	Yes	-	
Sample Road	Wiles Road	FDOT	Arterial	II	3L/D(WB)	D	2,570	5%	109	-	I/O	-	109	-	No	-

Notes:-

Source: Broward County MPO Roadway Capacity and Level of Service Analysis for 2007 and 2030

k161-1p6104227-1000-main street cc dd dd dd cc in 21 am distribution 03 00 00 - 10 percent x file table 4

Significant Impacts
A.M. Peak Hour

Roadway		Jurisdiction	Roadway Type	Roadway Class	Existing Laneage	Adopted LOS	Maximum Directional Volume	% Assignment	Net New Proposed Traffic	Project Traffic			Significance		Significant Impact??	
From	To									Direction (In/Out)	NB / EB	SB / WB	NB/EB	SB/WB	NB / EB	SB / WB
Sample Road																
SR 7		FDOT	Arterial	II	3LD(EB)	D	2,570	5%	107	I/O	-	107	-	-	No	-
SR 7		FDOT	Arterial	II	3LD(WB)	D	2,570	7%	151	-	I/O	-	151	-	5.9%	Yes
Banks Road		FDOT	Banks Road	II	3LD(EB)	D	2,570	10%	218	I/O	-	218	-	8.5%	Yes	-
Banks Road		FDOT	Lyons Road	II	3LD(WB)	D	2,570	7%	153	-	I/O	-	153	-	5.9%	Yes
Lyons Road		FDOT	Florida's Turnpike	II	6LD	D	2,570	15%	327	O	I	165	162	6.4%	Yes	Yes
SR 7																
Sample Road		FDOT	Arterial	II	3LD(EB)	D	2,570	6%	131	I/O	-	131	-	-	Yes	-
Sample Road		FDOT	Arterial	II	3LD(WB)	D	2,570	5%	109	-	I/O	-	109	-	4.2%	No

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Notes:

Source: Broward County MPO Roadway Capacity and Level of Service Analysis for 2007 and 2030
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AM Peak Hour Link Analysis

Roadway		Committed- Number of Lanes	Adopted- LOS	Maximum- Directional- Volume	% Assignment	Project Traffic		Existing		Area-Wide- Average- Growth Rate	Background Growth- (Area Growth Rate)		2020 Background Traffic		Adjusted Background- Volume ⁽⁴⁾		2020 Total Peak Hour- Volume		2020 V/C Ratio		2020 Level of Service-			
							NB/EB Project- Trips	SB/WB Project- Trips	PM Peak Volumes		NB/EB	SB/ WB	NB/EB	SB/ WB	NB/EB	SB/ WB	NB/EB	SB/ WB	NB/EB	SB/ WB				
									NB/EB												SB/WB			
Sample Road																								
SR 7		Banks Road	D	2,570	5%	106	-	-	1,828	-	4.3%	343	-	2,171	-	2,047	-	2,153	-	0.84	-	D	-	
		Banks Road	D	2,570	7%	-	150	-	-	2,517	4.3%	-	472	-	-	-	2,993	-	-	4.16	-	F	-	
		Banks Road	D	2,570	10%	217	-	-	1,828	-	4.3%	343	-	2,171	-	2,047	-	2,264	-	0.88	-	D	-	
		Banks Road	D	2,570	7%	-	152	-	-	2,517	4.3%	-	472	-	-	-	2,995	-	-	4.17	-	F	-	
SR 7																								
	Sample Road		D	2,570	6%	130	-	-	1,707	-	4.3%	320	-	2,027	-	2,143	-	2,273	-	0.88	-	D	-	
	Sample Road		D	2,570	5%	-	109	-	-	2,123	4.3%	-	398	-	2,521	-	2,645	-	2,754	4.07	-	-	F	-

Notes:

⁽⁴⁾ Background volumes include adjustment for extension of Wiles Road.

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AM Peak Hour Link Analysis

Roadway		Committed Number of Lanes	Adopted LOS	Maximum Directional Volume	% Assignment	Project Traffic		Existing		Area-Wide Average Growth Rate	Background Growth (Area Growth Rate)		2020 Background Traffic		Adjusted Background Volume ⁽¹⁾		2020 Total Peak Hour Volume		2020 V/C Ratio		2020 Level of Service		
						NB/EB Project Trips	SB/WB Project Trips	PM Peak Volumes	NB/EB		SB/WB	NB / EB	SB / WB	NB / EB	SB / WB	NB / EB	SB / WB	NB / EB	SB / WB	NB / EB	SB / WB	NB / EB	SB / WB
Sample Road																							
	SR 7	3LD (EB)	D	2,570	5%	107	-	1,828	-	1.3%	343	-	2,171	-	2,047	-	2,154	-	0.84	-	D	-	
	SR 7	3 LD (WB)	D	2,570	7%	-	151	-	2,517	1.3%	-	472	-	2,989	-	2,994	-	-	1.16	-	F	-	
	Banks Road	3LD (EB)	D	2,570	10%	218	-	1,828	-	1.3%	343	-	2,171	-	2,047	-	2,265	-	0.88	-	D	-	
	Lyons Road	3LD (WB)	D	2,570	15%	-	153	-	2,517	1.3%	-	472	-	2,989	-	2,843	-	2,996	-	1.17	-	F	-
SR 7																							
	Sample Road	3LD (NB)	D	2,570	6%	131	-	1,707	-	1.3%	320	-	2,027	-	2,143	-	2,274	-	0.88	-	D	-	
	Sample Road	3LD (SB)	D	2,570	5%	-	109	-	2,123	1.3%	-	398	-	2,521	-	2,645	-	2,754	-	1.07	-	F	-

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Notes:

⁽¹⁾ Background volumes include adjustment for extension of Wiles Road.

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**Existing AM Peak Hour
Intersection Level of Service**

Intersection	Type of Signal Control	Intersection LOS	Intersection Delay (sec.)	Approach LOS			
				EB	WB	NB	SB
Sample Rd and SR 7	Signalized	C	20.6	B	B	N/A	N/A
Sample Rd and NW 54th Ave	Signalized	B	16.1	B	B	E	E
Sample Rd and Lyons Rd	Signalized	E	56.3	D	D	E	E
Wiles Rd and SR 7	Signalized	E	57.4	E	E	D	D
NW 31st St and SR 7	Signalized	C	34.9	E	D	B	D
Cullum Rd/Turtle Creek Dr and SR 7	Signalized	B	18.1	E	E	B	B

**Buildout AM Peak Hour
Intersection and Approach Level of Service**

Intersection	Non-Project						With Project					
	Intersection- LOS	Intersection- Delay (sec.)	Approach-LOS				Intersection- LOS	Intersection- Delay (sec.)	Approach-LOS			
			EB	WB	NB	SB			EB	WB	NB	SB
Sample Rd and SR 7	C	23.7	C	B	N/A	N/A	C	25.2	C	B	N/A	N/A
Sample Rd and NW 54th Ave	B	19.3	B	B	E	E	C	23.6	C	B	E	E
Sample Rd and Lyons Rd	F	85.8	F	D	E	F	F	112.1	F	D	E	F
Wiles Rd and SR 7	F	91.5	F	E	D	F	F	117.3	F	E	E	F
NW 31st St and SR 7	D	44.3	E	D	C	D	D	46.1	E	D	C	E
Cullum Rd/Turtle Creek Dr and SR 7	C	22.7	E	D	C	B	C	25.5	E	D	C	B

Project Access Locations

Intersection	With Project					
	Intersection- LOS	Intersection- Delay (sec.)	Approach LOS			
			EB	WB	NB	SB
Sample Road and Banks Road	B	13.5	B	A	E	D
Cullum Road and Lyons Road	A	6.7	F	F	A	A
Jardin Driveway and Lyons Road	A	5.5	E	N/A	A	A
Uptown Driveway and Lyons Road	A	8.5	E	N/A	A	A
Wiles Road and Banks Road	C	26.9	D	A	D	N/A
Fisherman's Landing Driveway and Lyons Road	A	5.8	A	A	N/A	E

Notes:

⁽¹⁾ Overall LOS at two-way stop controlled intersections; one-way stop-controlled intersections, or traffic circles is not defined.

⁽²⁾ Approach reflects the left turn movement only; the through movement operates under free-flow conditions.

⁽³⁾ Approach operates under free-flow conditions. LOS is not defined.

⁽⁴⁾ Proposed signalization with project.

**Buildout AM Peak Hour
Intersection and Approach Level of Service**

Intersection	Non-Project						With Project					
	Intersection LOS	Intersection Delay (sec.)	Approach LOS				Intersection LOS	Intersection Delay (sec.)	Approach LOS			
			EB	WB	NB	SB			EB	WB	NB	SB
Sample Rd and SR 7	C	23.7	C	B	N/A	N/A	C	26.8	C	B	N/A	N/A
Sample Rd and NW 54th Ave	B	19.3	B	B	E	E	C	25.2	C	B	E	E
Sample Rd and Lyons Rd	F	85.8	F	D	E	F	F	119.5	F	D	E	F
Wiles Rd and SR 7	F	91.5	F	E	D	F	F	131.3	F	E	E	F
NW 31st St and SR 7	D	44.3	E	D	C	D	D	46.1	E	D	C	E
Cullum Rd/Turtle Creek Dr and SR 7	C	22.7	E	D	C	B	C	28.9	E	D	C	B

Project Access Locations

Intersection	With Project			
	Intersection LOS	Intersection Delay (sec.)	Approach LOS	
Sample Road and Banks Road	B	15.0	EB	SB
Cullum Road and Lyons Road	A	8.9	WB	NB
Jardin Driveway and Lyons Road	A	7.0	EB	SB
Uptown Driveway and Lyons Road	B	12.3	WB	NB
Wiles Road and Banks Road	D	40.7	EB	SB
Sample Road and Fisherman's Landing Driveway	A	6.7	WB	NB

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Notes:

- (1) Overall LOS at two-way stop controlled intersections, one way stop-controlled intersections, or traffic circles is not defined.
- (2) Approach reflects the left-turn movement only, the through movement operates under free-flow conditions.
- (3) Approach operates under free-flow conditions. LOS is not defined.
- (4) Proposed signalization with project.

~~A.M. Peak Hour Arterial Level of Service~~
~~Future Total Traffic Conditions~~

Arterial Segment	Direction	Arterial Speed- (mph)	Level of Service
Sample Road from SR 7 to Lyons Road	EB	F	13.0
	WB	D	20.7
SR 7 from Sample Road to Lyons Road	NB	D	23.0
	SB	E	17.3

**A.M. Peak Hour Arterial Level of Service
Future Total Traffic Conditions**

Arterial Segment	Direction	Arterial Speed (mph)	Level of Service
Sample Road from SR 7 to Lyons Road	EB	F	13.0
	WB	D	20.7
SR 7 from Sample Road to Lyons Road	NB	D	23.0
	SB	E	17.3

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~~TRAFFIC VOLUMES~~ ~~AT STUDY INTERSECTIONS~~

INTERSECTION:
COUNT DATE:
TIME PERIOD:
PEAK HOUR FACTOR:

Sample Road and SR 7
November 13, 2008
AM Period
0.97

"EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Raw Turning Movements			192	2,004	124		132	917	198		64		173		405		96
Peak Season Correction Factor		1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
EXISTING CONDITIONS			204	2,124	131		140	972	210		68		183		429		102
"BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
TOTAL "VESTED" TRAFFIC			0	0	0		0	0	0		0		0		0		0
Years To Buildout		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Yearly Growth Rate		1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
BACKGROUND TRAFFIC GROWTH			34	366	22		23	163	36		11		31		72		17
ADJUSTMENT FOR WILES ROAD EXTENSION (%) ¹⁷			6.70%	-5.70%				-4.90%									4.90%
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME) ¹⁸			2	-20	0		0	-8	0		0		0		0		1
NON-PROJECT TRAFFIC		0	240	2,460	153	0	163	1,127	245	0	79	0	214	0	504	0	120
"PROJECT DISTRIBUTION"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
LAND USE	Pass-By Distribution																
	Entering																
	Exiting																
	Net New		4.0%	7.0%									1.0%	4.0%	1.0%		
LAND USE	Project Trips																
	Pass-By																
	Net New		43	75			33	87	22				11	43	11		33
	TOTAL PROJECT TRAFFIC	0	43	75	0	0	33	87	22	0	0	0	11	43	11	0	33
TOTAL TRAFFIC		0	283	2,535	153	0	196	1,214	267	0	79	0	225	43	512	0	153

Application for Development Approval

Sample Road and SR 7

November 13, 2008

AM Period

0.97

21-N-6-A

TRAFFIC VOLUMES AT STUDY INTERSECTIONS

INTERSECTION:
COUNT DATE:
TIME PERIOD:
PEAK HOUR FACTOR:

Sample Road and NW 54th Avenue
November 12, 2008
AM Period
0.94

"EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Raw Turning Movements			62	2,065	23		139	1,143	119		36	53	158		68	38	34
Peak Season Correction Factor		1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
EXISTING CONDITIONS			66	2,189	24		147	1,212	126		38	56	167		72	40	36
"BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
TOTAL "VESTED" TRAFFIC			0	0	0		0	0	0		0	0	0		0	0	0
Years To Buildout		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Yearly Growth Rate		1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
BACKGROUND TRAFFIC GROWTH			11	367	4		26	203	21		6	9	28		12	7	6
ADJUSTMENT FOR WILES ROAD EXTENSION (%)(*)				-5.70%				-4.90%									
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME)(*)			0	-21	0		0	-10	0		0	0	0		0	0	0
NON-PROJECT TRAFFIC		0	77	2,535	28	0	172	1,405	147	0	44	65	195	0	84	47	42
"PROJECT DISTRIBUTION"		TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBR
LAND USE	Pass-By Distribution	Entering		7.0%	-7.0%				-7.0%	7.0%							
		Exiting													7.0%		7.0%
	Net New Distribution	Entering		3.0%	6.0%					4.0%							
		Exiting							9.0%						4.0%		4.0%
"PROJECT TRAFFIC"		TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBR
LAND USE	Project Trips	Pass-By		6	-6				-6	6					3		3
		Net New		32	65				98	43					44		44
TOTAL PROJECT TRAFFIC			0	38	59	0	0	0	92	49	0	0	0	0	47	0	47
TOTAL TRAFFIC			0	115	2,594	28	0	172	1,497	196	0	44	65	195	0	131	47

TRAFFIC VOLUMES AT STUDY INTERSECTIONS

INTERSECTION:
COUNT DATE:
TIME PERIOD:
PEAK HOUR FACTOR:

Sample Road and NW 54th Avenue
November 12, 2008
AM Period
0.94

"EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Raw Turning Movements			62	2,065	23		139	1,143	119		36	53	158		68	38	34
	Peak Season Correction Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
EXISTING CONDITIONS			66	2,189	24		147	1,212	126		38	56	167		72	40	36
"BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
TOTAL "VESTED" TRAFFIC			0	0	0		0	0	0		0	0	0		0	0	0
Years To Buildout		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Yearly Growth Rate		1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
BACKGROUND TRAFFIC GROWTH			11	367	4		25	203	21		6	9	28		12	7	6
ADJUSTMENT FOR WILES ROAD EXTENSION (%) ^(c)				-5.70%				-4.90%									
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME) ^(c)			0	-21	0		0	-10	0		0	0	0		0	0	0
NON-PROJECT TRAFFIC		0	77	2,535	28	0	172	1,405	147	0	44	65	195	0	84	47	42
"PROJECT DISTRIBUTION"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Land Use	Pass-By Distribution		7.0%	-7.0%				-7.0%	7.0%								
	Entering																
	Exiting														7.0%		7.0%
	Net New Distribution		3.0%	6.0%					4.0%								
PROJECT TRAFFIC								9.0%							4.0%		4.0%
"PROJECT TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Project Trips	Pass - By		6	-6				-6	6						3		3
	Net New		72	144				107	96						47		47
TOTAL PROJECT TRAFFIC		0	78	138	0	0	0	101	102	0	0	0	0	0	50	0	50
TOTAL TRAFFIC		0	155	2,673	28	0	172	1,506	249	0	44	65	195	0	134	47	92

~~TRAFFIC VOLUMES~~ AT STUDY INTERSECTIONS

INTERSECTION:
COUNT DATE:
TIME PERIOD:
PEAK HOUR FACTOR:

Sample Road and Lyons Road
November 13, 2008
AM Period
0.97

"EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBT	SBR
Raw Turning Movements			229	1,941	327		418	1,116	297		274	697	164	548	1,105	197
Peak Season Correction Factor		1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
EXISTING CONDITIONS			243	2,057	347		425	1,183	315		290	739	174	581	1,171	209
"BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBT	SBR
TOTAL "VESTED" TRAFFIC			0	0	0		0	0	0		0	0	0	0	0	0
Years To Buildout		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Yearly Growth Rate		1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
BACKGROUND TRAFFIC GROWTH			41	345	58		21	198	53		49	124	29	97	196	35
ADJUSTMENT FOR WILES ROAD EXTENSION (%T) ¹⁷				-5.70%			-0.40%	-4.90%	-0.40%				-0.57%			-0.57%
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME) ¹⁷			0	-20	0		0	-10	0		0	0	0	0	0	0
NON-PROJECT TRAFFIC		0	284	2,382	405	0	146	1,374	368	0	339	863	203	678	1,367	244
"PROJECT DISTRIBUTION"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBT	SBR
LAND USE	Pass-By Distribution															
	Entering															
	Exiting															
	Net New Distribution															
PROJECT TRAFFIC			44	409	44			9.0%	6.0%		6.0%	6.0%				
TOTAL PROJECT TRAFFIC		0	44	409	44	0	0	97	65	0	65	54	0	55	77	0
TOTAL TRAFFIC		0	328	2,491	449	0	146	1,468	433	0	404	917	203	733	1,444	244

TRAFFIC VOLUMES AT STUDY INTERSECTIONS

INTERSECTION:
COUNT DATE:
TIME PERIOD:
PEAK HOUR FACTOR:

Sample Road and Lyons Road
November 13, 2008
AM Period
0.97

"EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Raw Turning Movements			229	1,941	327		118	1,116	297		274	697	164		548	1,105	197
Peak Season Correction Factor		1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
EXISTING CONDITIONS			243	2,057	347		125	1,183	315		290	739	174		581	1,171	209
"BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
TOTAL "VESTED" TRAFFIC			0	0	0		0	0	0		0	0	0		0	0	0
Years To Buildout		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Yearly Growth Rate		1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
BACKGROUND TRAFFIC GROWTH			41	345	58		21	198	53		49	124	29		97	196	35
ADJUSTMENT FOR WILES ROAD EXTENSION (%) ^(c)				-5.70%			-0.48%	-4.90%	-0.49%				-0.57%				-0.57%
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME) ^(c)			0	-20	0		0	-10	0		0	0	0		0	0	0
NON-PROJECT TRAFFIC		0	284	2,382	405	0	146	1,371	368	0	339	863	203	0	678	1,367	244
"PROJECT DISTRIBUTION"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
LAND USE	Pass-By Distribution																
	Entering																
	Exiting																
	Net New Distribution																
PROJECT TRAFFIC			47	119	47			9.0%	6.0%		6.0%	5.0%			5.0%	7.0%	
TOTAL PROJECT TRAFFIC		0	47	119	47	0	0	216	144	0	144	120	0	0	59	83	0
TOTAL TRAFFIC		0	331	2,501	452	0	146	1,587	512	0	483	983	203	0	737	1,450	244

~~TRAFFIC VOLUMES~~

~~INTERSECTION:~~
~~COUNT DATE:~~
~~TIME PERIOD:~~
~~PEAK HOUR FACTOR:~~

~~Cullum Road and SR 7~~
~~November 13, 2008~~
~~AM Period~~
~~0.9~~

"EXISTING TRAFFIC"																
Raw Turning Movements	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
	463	27	49		5	45	47		34	435	40	43	412	1,937	402	
Peak Season Correction Factor	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060	4.060
EXISTING CONDITIONS																
	473	29	20		5	46	50		36	4,624	44	44	449	2,053	408	
"BACKGROUND TRAFFIC"																
	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
TOTAL "VESTED" TRAFFIC																
		0	0	0		0	0	0		0	0	0	0	0	0	0
Years To Buildout																
Yearly Growth Rate	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
BACKGROUND TRAFFIC GROWTH																
		29	5	3		4	3	8		6	265	2	2	344	48	
ADJUSTMENT FOR WILES ROAD EXTENSION (%) ^(*)																
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME) ^(*)																
		0	0	0		0	0	0		0	45	0	0	0	47	0
NON-PROJECT TRAFFIC																
0	202	34	23	0	6	19	58	0	42	4,794	43	46	439	2,444	426	
"PROJECT DISTRIBUTION"																
LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBR
Pass-By Distribution	Entering												9.0%		5.0%	
	Exiting						6.0%		9.0%							
	Net-New			4.0%								2.0%			5.0%	
Distribution	Exiting						4.0%	1.0%	4.0%			6.0%				
"PROJECT TRAFFIC"																
LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBR
Project Trips	Pass-By						3		5				6		4	
	Net-New		44				44	44	44			55	22		54	54
TOTAL PROJECT TRAFFIC		0	0	44	0	0	47	44	49	0	0	55	28	0	58	0
TOTAL TRAFFIC		0	202	45	23	0	53	30	407	0	42	4,846	44	46	497	2,468

Application for Development Approval

Cullum Road and SR 7
November 13, 2008
AM Period
0.9

21-N-9-A

~~TRAFFIC VOLUMES~~ AT STUDY INTERSECTIONS

INTERSECTION: Wiles Road and SR 7
COUNT DATE: November 13, 2008
TIME PERIOD: AM Period
PEAK-HOUR FACTOR: 0.9

"EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
LAND USE	Raw Turning Movements		753	599	498		435	303	249	16	195	1,234	144	25	189	1,508	435
	Peak Season Correction Factor	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060	1.060
EXISTING CONDITIONS			777	635	528		443	321	264	47	207	1,305	149	27	200	1,598	461
"BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
TOTAL "VESTED" TRAFFIC			0	0	0		0	0	0	0	0	0	0	0	0	0	0
Years To Buildout		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Yearly Growth Rate		4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
BACKGROUND TRAFFIC GROWTH			130	106	89		24	54	44	3	35	219	25	6	34	268	77
ADJUSTMENT FOR WILES ROAD EXTENSION (%)(*)								4.90%					6.70%				
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME)(*)			0	0	0		0	3	0	0	0	0	1	0	0	0	0
NON-PROJECT TRAFFIC		0	907	741	647	0	167	378	308	20	242	1,624	175	32	234	1,866	538
"PROJECT DISTRIBUTION"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
LAND USE	Pass-By Distribution																
	Entering																
	Exiting																
	Net New Distribution			3.0%	2.0%										3.0%		
PROJECT TRAFFIC								2.0%	5.0%		3.0%	6.0%					
"PROJECT TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
LAND USE	Pass-By Trips			32	22			22	55		33	66			32	86	
	Net New																
TOTAL PROJECT TRAFFIC		0	0	32	22	0	0	22	55	0	33	66	0	0	32	86	0
TOTAL TRAFFIC		0	907	773	639	0	167	400	363	20	275	1,590	175	32	266	1,952	538

Application for Development Approval

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"EXISTING TRAFFIC"						
Raw Turning Movements	EBU	EBL	EBT	EBR	WBU	WBL
	733	599	498		135	303
Peak Season Correction Factor	1,060	1,060	1,060	1,060	1,060	1,060
EXISTING CONDITIONS						
	777	635	528		143	321
					264	17
"BACKGROUND TRAFFIC"						
	EBU	EBL	EBT	EBR	WBU	WBL
					WBR	WBT
					NBU	NBL
					NBT	NBR
					SBU	SBL
					SBT	SBR
TOTAL "VESTED" TRAFFIC		0	0	0	0	0
Years To Buildout	12	12	12	12	12	12
Yearly Growth Rate	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
BACKGROUND TRAFFIC GROWTH		130	106	89	3	35
ADJUSTMENT FOR WILES ROAD EXTENSION (%)^(c)						
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME) ^(c)		0	0	0	0	0
NON-PROJECT TRAFFIC						
	0	907	741	617	0	167
					378	308
					20	242
					175	1,524
					234	1,866
					538	
"PROJECT DISTRIBUTION"						
LAND USE	EBU	EBL	EBT	EBR	WBU	WBL
Pass-By Distribution					WBR	WBT
Exiting Distribution					NBU	NBL
Net New Distribution			3.0%	2.0%		
					5.0%	2.0%
					6.0%	
"PROJECT TRAFFIC"						
LAND USE	EBU	EBL	EBT	EBR	WBU	WBL
Project Trips					WBR	WBT
					NBU	NBL
Total Project Traffic	0	0	72	48	0	36
					71	0
					72	192
					0	0
					306	2,058
					538	

TRAFFIC VOLUMES AT STUDY INTERSECTIONS

INTERSECTION:
COUNT DATE:
TIME PERIOD:
PEAK HOUR FACTOR:

NW 34th Street and SR 7
March 12, 2009
AM Period
0.95

"EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Raw Turning Movements			40	25	394		102	23	41		179	1,280	66		17	1,849	34
Peak Season Correction Factor		0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980
EXISTING CONDITIONS			39	25	386		100	23	40		175	1,254	65		17	1,812	33
"BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
TOTAL "VESTED" TRAFFIC			0	0	0		0	0	0		0	0	0		0	0	0
Years To Buildout		11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Yearly Growth Rate		1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
BACKGROUND TRAFFIC GROWTH			6	4	69		16	4	6		27	101	10		3	277	6
ADJUSTMENT FOR WILES ROAD EXTENSION (%) ^{1/2}																	
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME) ^{1/2}			0	0	0		0	0	0		0	0	0		0	0	0
NON-PROJECT TRAFFIC		0	45	29	445	0	115	27	46	0	202	1,445	75	0	20	2,089	38
"PROJECT DISTRIBUTION"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
LAND USE	Pass-By Distribution																
	Entering																
	Exiting																
	Net New Distribution											4.0%					4.0%
"PROJECT TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
LAND USE	Project Trips																
	Pass-By																
	Net New											43				44	
TOTAL PROJECT TRAFFIC		0	0	0	0	0	0	0	0	0	0	43	0	0	0	44	0
TOTAL TRAFFIC		0	45	29	445	0	115	27	46	0	202	1,488	75	0	20	2,133	38

TRAFFIC VOLUMES AT STUDY INTERSECTIONS

INTERSECTION: NW 31st Street and SR 7
COUNT DATE: March 12, 2009
TIME PERIOD: AM Period
PEAK HOUR FACTOR: 0.95

"EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Raw Turning Movements			40	25	394		102	23	41		179	1,280	66		17	1,849	34
Peak Season Correction Factor		0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980
EXISTING CONDITIONS			39	25	386		100	23	40		175	1,254	65		17	1,812	33
"BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
TOTAL "VESTED" TRAFFIC			0	0	0		0	0	0		0	0	0		0	0	0
Years To Buildout		11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Yearly Growth Rate		1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
BACKGROUND TRAFFIC GROWTH			6	4	59		15	4	6		27	191	10		3	277	5
ADJUSTMENT FOR WILES ROAD EXTENSION (%) ^{1/2}																	
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME) ^{1/2}			0	0	0		0	0	0		0	0	0		0	0	0
NON-PROJECT TRAFFIC		0	45	29	445	0	115	27	46	0	202	1,445	75	0	20	2,089	38
"PROJECT DISTRIBUTION"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
LAND USE	Pass-By Distribution																
	Entering																
	Exiting																
	Net New Distribution											4.0%					4.0%
"PROJECT TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
LAND USE	Project Trips																
	Pass - By																
	Net New											96				47	
TOTAL PROJECT TRAFFIC		0	0	0	0	0	0	0	0	0	0	96	0	0	0	47	0
TOTAL TRAFFIC		0	45	29	445	0	115	27	46	0	202	1,541	75	0	20	2,136	38

INTERSECTION: Sample Road and Banks Road
COUNT DATE: November 13, 2008
TIME PERIOD: AM Period
PEAK HOUR FACTOR: 0.97

Based on volumes at Lyons Road and Sample Road

INTERSECTION: Sample Road and Banks Road
COUNT DATE: November 13, 2008
TIME PERIOD: AM Period
PEAK HOUR FACTOR: 0.97

Based on volumes at Lyons Road and Sample Road

~~TRAFFIC VOLUMES~~

~~INTERSECTION:~~
~~COUNT DATE:~~
~~TIME PERIOD:~~
~~PEAK HOUR FACTOR:~~

"EXISTING TRAFFIC"																
LAND-USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBR
		1,000	1,000	2,647	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Raw Turning Movements								4,682								
Peak Season Correction Factor								1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
EXISTING CONDITIONS																
				2,647				4,682								
"BACKGROUND TRAFFIC"																
LAND-USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBR
TOTAL "VESTED" TRAFFIC				0				0								
Years To Buildout		42	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Yearly Growth Rate		4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
BACKGROUND TRAFFIC GROWTH																
				444				282								
ADJUSTMENT FOR WILES ROAD EXTENSION (%)**				-6.70%	0		0	-14	0		0	0	0		0	0
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME)**			0	-26												
NON-PROJECT TRAFFIC																
		0	0	3,066	0	0	0	1,950	0	0	0	0	0	0	0	0
"PROJECT DISTRIBUTION"																
LAND-USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBR
	Pass-By Distribution		7.0%	-7.0%				-7.0%	7.0%							
	Net New Distribution		2.0%					11.0%	4.0%						7.0%	7.0%
	Exiting			11.0%											7.0%	4.0%
"PROJECT TRAFFIC"																
LAND-USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBR
Project Trips	Pass-By		6	-6				-6	6						3	3
	Net New		22	120				119	43						77	44
TOTAL PROJECT TRAFFIC		0	28	114	0	0	0	113	49	0	0	0	0	0	80	47
TOTAL TRAFFIC		0	28	3,180	0	0	0	2,063	49	0	0	0	0	0	80	47

Based on volumes at Lyons Road and Sample Road

INTERSECTION: Sample Road and Fisherman's Landing Driveway
COUNT DATE: November 13, 2008
TIME PERIOD: AM Period
PEAK HOUR FACTOR: 0.97

Based on volumes at Lyons Road and Sample Road

TRAFFIC VOLUMES

~~INTERSECTION:~~
~~COUNT DATE:~~
~~TIME PERIOD:~~
~~PEAK HOUR FACTOR:~~

"EXISTING TRAFFIC"																
LAND-USE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By Distribution	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,297	4,000	4,000	4,000	4,000	4,964
Net-New Distribution																
EXISTING CONDITIONS																
											4,297				4,964	
"BACKGROUND TRAFFIC"																
LAND-USE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Years-To-Buildout	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Yearly Growth Rate	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
BACKGROUND TRAFFIC GROWTH																
											247				329	
ADJUSTMENT FOR WILES ROAD EXTENSION (%)"																
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME)"																
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON-PROJECT TRAFFIC																
	0	0	0	0	0	0	0	0	0	0	1,544	0	0	0	2,290	0
"PROJECT DISTRIBUTION"																
LAND-USE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By Distribution										4.0%	-4.0%				-2.0%	2.0%
Net-New Distribution		4.0%		2.0%												
							4.0%			4.0%					43.0%	2.0%
		3.0%	4.0%	4.0%							20.0%				1.0%	
"PROJECT TRAFFIC"																
LAND-USE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Project Trips		4	4	4						2	-2				-2	2
		33	44	44			44			44	249				464	22
TOTAL PROJECT TRAFFIC	0	34	44	44	0	0	44	0	0	43	247	0	0	0	449	24
TOTAL TRAFFIC																
	0	34	44	44	0	0	44	0	0	43	4,734	0	0	0	2,439	24

Based on volumes at Lyons Road and Sample Road

INTERSECTION: Cullum Road and Lyons Road
COUNT DATE: November 13, 2008
TIME PERIOD: AM Period
PEAK HOUR FACTOR: 0.97

"EXISTING TRAFFIC"																
LAND USE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Raw Turning Movements	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,961	1,000
Peak Season Correction Factor	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,297	1,000	1,000	1,000	1,961	1,000
EXISTING CONDITIONS																
"BACKGROUND TRAFFIC"																
	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
TOTAL "VESTED" TRAFFIC											0				0	
Years To Buildout	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Yearly Growth Rate	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
BACKGROUND TRAFFIC GROWTH											217				329	
ADJUSTMENT FOR WILES ROAD EXTENSION (%)**																
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME)**		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON-PROJECT TRAFFIC																
	0	0	0	0	0	0	0	0	0	0	1,514	0	0	0	2,280	0
"PROJECT DISTRIBUTION"																
LAND USE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By Distribution										1.0%	-1.0%				-2.0%	2.0%
Net New Distribution		1.0%		2.0%												
		3.0%	1.0%	1.0%			1.0%			1.0%					13.0%	2.0%
											20.0%				1.0%	
"PROJECT TRAFFIC"																
LAND USE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Project Trips		1	1	1	1	1	1	1	1	2	-2				-2	2
Net New Trips		36	12	12	12		24			24	237				324	48
TOTAL PROJECT TRAFFIC	0	37	12	12	13	0	24	0	0	26	235	0	0	0	322	50
TOTAL TRAFFIC	0	37	12	12	13	0	24	0	0	26	1,749	0	0	0	2,612	50

Application for Development Approval

~~TRAFFIC VOLUMES~~

~~Jardin Driveway and Lyons Road~~
~~November 13, 2008~~
~~AM Period~~
~~0.97~~

Based on volumes at Lyons Road and Sample Road

Application for Development Approval

Jardin Driveway and Lyons Road
November 13, 2008
AM Period
0.97

21-N-15-A

Based on volumes at Lyons Road and Sample Road

TRAFFIC VOLUMES

~~INTERSECTION:~~
~~COUNT DATE:~~
~~TIME PERIOD:~~
~~PEAK HOUR FACTOR:~~

"EXISTING TRAFFIC"																
LAND-USE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By Distribution	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,064
Peak Season Correction Factor	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
EXISTING CONDITIONS																
											1,297				1,964	
"BACKGROUND TRAFFIC"																
LAND-USE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Years To Buildout	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Yearly Growth Rate	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
BACKGROUND TRAFFIC GROWTH																
											247				329	
ADJUSTMENT FOR WILES ROAD EXTENSION (%)"																
		0	0	0		0	0	0		0	0	0			0	0
ADJUSTMENT FOR WILES ROAD EXTENSION (VOLUME)"																
NON-PROJECT TRAFFIC																
	0	0	0	0	0	0	0	0	0	0	1,544	0	0	0	2,280	0
"PROJECT DISTRIBUTION"																
LAND-USE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By Distribution		7.0%		44.0%						7.0%	-7.0%				-44.0%	44.0%
Net New										7.0%	4.0%					44.0%
Distribution		42.0%		8.0%							4.0%				4.0%	
"PROJECT TRAFFIC"																
LAND-USE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Project Trips		4	4	6						6	-6				-9	9
Net-New		434		87						75	87				44	119
TOTAL PROJECT TRAFFIC	0	435	0	93	0	0	0	0	0	84	84	0	0	0	35	128
TOTAL TRAFFIC	0	435	0	93	0	0	0	0	0	84	1,595	0	0	0	2,325	128

Based on volumes at Lyons Road and Sample Road

INTERSECTION:	Uptown Driveway and Lyons Road
COUNT DATE:	November 13, 2008
TIME PERIOD:	AM Period
PEAK HOUR FACTOR:	0.97

Based on volumes at Lyons Road and Sample Road

INTERSECTION:	Wiles Road and Banks Road
COUNT DATE:	November 13, 2008
TIME PERIOD:	AM Period
PEAK HOUR FACTOR:	0.9

Based on volumes at SR 7 and Wiles Road

Application for Development Approval

21-N-17-A

Based on volumes at SR 7 and Wiles Road

HCM Signalized Intersection Capacity Analysis
1: Sample Road & NB SR 7 On Ramp

AM Peak Hour
Existing Traffic Conditions

											
Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBL	NBR2	SBL	SBR2	
Lane Configurations											
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	1.00	0.97	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	0.95	1.00	0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	1583	3433	1583	
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)	3433	5085	1583	3433	5085	1583	3433	1583	3433	1583	
Volume (vph)	204	2124	131	140	972	210	68	183	429	102	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Adj. Flow (vph)	210	2190	135	144	1002	216	70	189	442	105	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	210	2190	135	144	1002	216	70	189	442	105	
Turn Type	Prot		Free	Prot		Free	Prot	Free	Prot	Free	
Protected Phases	1	6		5	2		4		8		
Permitted Phases			Free			Free		Free		Free	
Actuated Green, G (s)	12.1	88.1	140.0	9.5	85.5	140.0	21.4	140.0	21.4	140.0	
Effective Green, g (s)	14.1	92.1	140.0	11.5	89.5	140.0	24.4	140.0	24.4	140.0	
Actuated g/C Ratio	0.10	0.66	1.00	0.08	0.64	1.00	0.17	1.00	0.17	1.00	
Clearance Time (s)	6.0	8.0		6.0	8.0		7.0		7.0		
Vehicle Extension (s)	1.5	1.0		1.5	1.0		1.5		1.5		
Lane Grp Cap (vph)	346	3345	1583	282	3251	1583	598	1583	598	1583	
v/s Ratio Prot	c0.06	c0.43		0.04	0.20		0.02		c0.13		
v/s Ratio Perm			0.09			c0.14		0.12		0.07	
v/c Ratio	0.61	0.65	0.09	0.51	0.31	0.14	0.12	0.12	0.74	0.07	
Uniform Delay, d1	60.3	14.4	0.0	61.6	11.3	0.0	48.7	0.0	54.8	0.0	
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	2.1	1.0	0.1	0.7	0.2	0.2	0.0	0.2	4.1	0.1	
Delay (s)	62.4	15.4	0.1	62.2	11.6	0.2	48.8	0.2	58.9	0.1	
Level of Service	E	B	A	E	B	A	D	A	E	A	
Approach Delay (s)		18.5			15.1						
Approach LOS		B			B						
Intersection Summary											
HCM Average Control Delay			20.6				HCM Level of Service		C		
HCM Volume to Capacity ratio			0.66								
Actuated Cycle Length (s)			140.0				Sum of lost time (s)		8.0		
Intersection Capacity Utilization			68.3%				ICU Level of Service		C		
Analysis Period (min)			15								
c Critical Lane Group											

Timings

1: Sample Road & NB SR 7 On Ramp

AM Peak Hour
Existing Traffic Conditions

										
Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	NBL	NBR2	SBL	SBR2
Lane Configurations										
Volume (vph)	204	2124	131	140	972	210	68	183	429	102
Turn Type	Prot		Free	Prot		Free	Prot	Free	Prot	Free
Protected Phases	1	6		5	2		4		8	
Permitted Phases			Free			Free		Free		Free
Detector Phases	1	6		5	2		4		8	
Minimum Initial (s)	6.0	7.0		6.0	7.0		6.0		6.0	
Minimum Split (s)	12.0	15.0		12.0	15.0		13.0		13.0	
Total Split (s)	29.0	77.0	0.0	29.0	77.0	0.0	34.0	0.0	34.0	0.0
Total Split (%)	20.7%	55.0%	0.0%	20.7%	55.0%	0.0%	24.3%	0.0%	24.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0		4.0	
All-Red Time (s)	2.0	4.0		2.0	4.0		3.0		3.0	
Lead/Lag	Lead	Lag		Lead	Lag					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes					
Recall Mode	None	C-Max		None	C-Max		None		None	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 116 (83%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 1: Sample Road & NB SR 7 On Ramp

 ø1	 ø2	 ø4
29 s	77 s	34 s
 ø5	 ø6	 ø8
29 s	77 s	34 s

HCM Signalized Intersection Capacity Analysis 2: Sample Road & NW 54th Avenue

AM Peak Hour
Existing Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	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)	1770	5085	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.20	1.00	1.00	0.05	1.00	1.00	0.73	1.00	1.00	0.72	1.00	1.00
Satd. Flow (perm)	375	5085	1583	86	5085	1583	1355	3539	1583	1333	3539	1583
Volume (vph)	66	2189	24	147	1212	126	38	56	167	72	40	36
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	70	2329	26	156	1289	134	40	60	178	77	43	38
RTOR Reduction (vph)	0	0	4	0	0	29	0	0	161	0	0	34
Lane Group Flow (vph)	70	2329	22	156	1289	105	40	60	17	77	43	4
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	121.5	116.5	116.5	134.9	123.9	123.9	13.1	13.1	13.1	13.1	13.1	13.1
Effective Green, g (s)	125.5	118.5	118.5	136.9	125.9	125.9	15.1	15.1	15.1	15.1	15.1	15.1
Actuated g/C Ratio	0.78	0.74	0.74	0.86	0.79	0.79	0.09	0.09	0.09	0.09	0.09	0.09
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	6.0
Vehicle Extension (s)	1.5	3.0	3.0	1.5	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	355	3766	1172	225	4001	1246	128	334	149	126	334	149
v/s Ratio Prot	0.01	0.46		c0.06	0.25			0.02			0.01	
v/s Ratio Perm	0.15		0.01	c0.53		0.07	0.03		0.01	c0.06		0.00
v/c Ratio	0.20	0.62	0.02	0.69	0.32	0.08	0.31	0.18	0.11	0.61	0.13	0.02
Uniform Delay, d1	3.9	9.9	5.5	40.5	4.9	3.9	67.6	66.7	66.3	69.6	66.4	65.8
Progression Factor	1.00	1.00	1.00	0.91	1.27	2.84	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.8	0.0	6.2	0.2	0.1	0.5	0.1	0.1	6.0	0.1	0.0
Delay (s)	4.0	10.7	5.5	43.2	6.3	11.2	68.1	66.8	66.4	75.7	66.5	65.8
Level of Service	A	B	A	D	A	B	E	E	E	E	E	E
Approach Delay (s)		10.5			10.4			66.8			70.8	
Approach LOS		B			B			E			E	
Intersection Summary												
HCM Average Control Delay			16.1				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			71.1%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Timings

2: Sample Road & NW 54th Avenue

AM Peak Hour
Existing Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	2189	24	147	1212	126	38	56	167	72	40	36
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phases	1	6	6	5	2	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0	12.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	30.0	30.0	10.0	30.0	30.0	32.0	32.0	32.0	32.0	32.0	32.0
Total Split (s)	29.0	91.0	91.0	29.0	91.0	91.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	18.1%	56.9%	56.9%	18.1%	56.9%	56.9%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 28 (18%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 2: Sample Road & NW 54th Avenue

 ø1	 ø2	 ø4
29 s	91 s	40 s
 ø5	 ø6	 ø8
29 s	91 s	40 s

HCM Signalized Intersection Capacity Analysis

3: Sample Road & Lyons Road

AM Peak Hour
Existing Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	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)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	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)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	243	2057	347	125	1183	315	290	739	174	581	1171	209
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	251	2121	358	129	1220	325	299	762	179	599	1207	215
RTOR Reduction (vph)	0	0	82	0	0	147	0	0	98	0	0	32
Lane Group Flow (vph)	251	2121	276	129	1220	178	299	762	81	599	1207	183
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	12.3	68.6	68.6	9.9	67.2	67.2	17.9	31.5	31.5	25.5	39.1	51.4
Effective Green, g (s)	13.8	70.6	70.6	12.4	69.2	69.2	20.4	33.0	33.0	28.0	40.6	54.4
Actuated g/C Ratio	0.09	0.44	0.44	0.08	0.43	0.43	0.13	0.21	0.21	0.18	0.25	0.34
Clearance Time (s)	5.5	6.0	6.0	6.5	6.0	6.0	6.5	5.5	5.5	6.5	5.5	5.5
Vehicle Extension (s)	1.5	1.0	1.0	2.0	1.0	1.0	2.0	2.5	2.5	2.0	2.5	1.5
Lane Grp Cap (vph)	296	2244	698	266	2199	685	438	1049	326	601	1290	578
v/s Ratio Prot	c0.07	c0.42		0.04	0.24		0.09	0.15		c0.17	c0.24	0.03
v/s Ratio Perm			0.17			0.11			0.05			0.09
v/c Ratio	0.85	0.95	0.40	0.48	0.55	0.26	0.68	0.73	0.25	1.00	0.94	0.32
Uniform Delay, d1	72.1	42.8	30.3	70.7	33.9	29.0	66.7	59.3	53.1	66.0	58.4	39.1
Progression Factor	1.13	0.84	0.83	1.33	1.02	1.57	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.0	8.4	1.4	0.5	0.9	0.8	3.5	2.4	0.3	35.6	12.6	0.1
Delay (s)	97.5	44.5	26.5	94.5	35.3	46.3	70.2	61.7	53.4	101.5	71.0	39.2
Level of Service	F	D	C	F	D	D	E	E	D	F	E	D
Approach Delay (s)		47.0			42.0			62.5			76.7	
Approach LOS		D			D			E			E	
Intersection Summary												
HCM Average Control Delay			56.3				HCM Level of Service			E		
HCM Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			88.1%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Timings

3: Sample Road & Lyons Road

AM Peak Hour
Existing Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	243	2057	347	125	1183	315	290	739	174	581	1171	209
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases			6			2			4			8
Detector Phases	1	6	6	5	2	2	7	4	4	3	8	1
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	5.0
Minimum Split (s)	11.5	39.0	39.0	11.5	39.0	39.0	11.5	34.5	34.5	11.5	34.5	11.5
Total Split (s)	18.0	73.0	73.0	18.0	73.0	73.0	32.0	37.0	37.0	32.0	37.0	18.0
Total Split (%)	11.3%	45.6%	45.6%	11.3%	45.6%	45.6%	20.0%	23.1%	23.1%	20.0%	23.1%	11.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	2.0	2.0	2.5	2.0	2.0	2.5	1.5	1.5	2.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 34 (21%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Splits and Phases: 3: Sample Road & Lyons Road

 ø1	 ø2	 ø3	 ø4
18 s	73 s	32 s	37 s
 ø5	 ø6	 ø7	 ø8
18 s	73 s	32 s	37 s

HCM Signalized Intersection Capacity Analysis

8: Wiles Road & SR 7

AM Peak Hour
Existing Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.95	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)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	5085	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)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	777	635	528	143	321	264	17	207	1305	149	27	200
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.90
Adj. Flow (vph)	863	706	587	159	357	293	19	230	1450	166	29	222
RTOR Reduction (vph)	0	0	17	0	0	50	0	0	0	48	0	0
Lane Group Flow (vph)	863	706	570	159	357	243	0	249	1450	118	0	251
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Prot	pm+ov		Prot	Prot
Protected Phases	7	4	5!	3	8		5!	5	2	3	1	1
Permitted Phases			4			8				2		
Actuated Green, G (s)	35.0	51.9	66.6	11.0	27.9	27.9		14.7	56.1	67.1		17.0
Effective Green, g (s)	37.0	53.9	70.6	13.0	29.9	29.9		16.7	58.1	71.1		19.0
Actuated g/C Ratio	0.23	0.34	0.44	0.08	0.19	0.19		0.10	0.36	0.44		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
Vehicle Extension (s)	1.5	2.0	1.5	1.5	2.0	2.0		1.5	1.0	1.5		1.5
Lane Grp Cap (vph)	794	1192	738	279	661	296		358	1846	743		408
v/s Ratio Prot	c0.25	0.20	c0.08	0.05	0.10			0.07	0.29	0.01		0.07
v/s Ratio Perm			0.28			0.15				0.06		
v/c Ratio	1.09	0.59	0.77	0.57	0.54	0.82		0.70	0.79	0.16		0.62
Uniform Delay, d1	61.5	43.9	37.9	70.8	58.8	62.5		69.2	45.4	26.6		67.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.19	0.79	0.67		1.00
Incremental Delay, d2	58.2	0.5	4.6	1.6	0.5	15.9		4.1	3.0	0.0		1.9
Delay (s)	119.7	44.5	42.5	72.4	59.3	78.4		86.7	38.7	17.9		69.0
Level of Service	F	D	D	E	E	E		F	D	B		E
Approach Delay (s)		74.0			68.8				43.2			
Approach LOS		E			E				D			

Intersection Summary

HCM Average Control Delay	57.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	4.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
8: Wiles Road & SR 7

AM Peak Hour
Existing Traffic Conditions

	↓	↙
Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	4.0
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1583
Volume (vph)	1598	461
Peak-hour factor, PHF	0.90	0.90
Adj. Flow (vph)	1776	512
RTOR Reduction (vph)	0	60
Lane Group Flow (vph)	1776	452
Turn Type	pm+ov	
Protected Phases	6	7
Permitted Phases		6
Actuated Green, G (s)	58.4	93.4
Effective Green, g (s)	60.4	97.4
Actuated g/C Ratio	0.38	0.61
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	1.0	1.5
Lane Grp Cap (vph)	1920	1003
v/s Ratio Prot	0.35	0.10
v/s Ratio Perm		0.18
v/c Ratio	0.93	0.45
Uniform Delay, d1	47.6	16.9
Progression Factor	1.00	1.00
Incremental Delay, d2	9.1	0.1
Delay (s)	56.7	17.0
Level of Service	E	B
Approach Delay (s)	49.9	
Approach LOS	D	
Intersection Summary		

Timings
8: Wiles Road & SR 7

AM Peak Hour
Existing Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	777	635	528	143	321	264	207	1305	149	200	1598	461
Turn Type	Prot	pm+ov		Prot	Perm		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5!	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phases	7	4	5	3	8	8	5	2	3	1	6	7
Minimum Initial (s)	5.0	6.0	5.0	5.0	6.0	6.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.0	43.0	11.0	11.0	40.0	40.0	11.0	42.0	11.0	11.0	42.0	11.0
Total Split (s)	41.0	66.0	22.0	20.0	45.0	45.0	22.0	60.0	20.0	14.0	52.0	41.0
Total Split (%)	25.6%	41.3%	13.8%	12.5%	28.1%	28.1%	13.8%	37.5%	12.5%	8.8%	32.5%	25.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 1 (1%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

! Phase conflict between lane groups.

Splits and Phases: 8: Wiles Road & SR 7

			
ø1	ø2	ø3	ø4
14 s	60 s	20 s	66 s
			
ø5	ø6	ø7	ø8
22 s	52 s	41 s	45 s

HCM Signalized Intersection Capacity Analysis

9: NW 31st Street & SR 7

AM Peak Hour
Existing Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.90		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3201		1770	5048		1770	5072	
Flt Permitted	0.71	1.00	1.00	0.61	1.00		0.95	1.00		0.18	1.00	
Satd. Flow (perm)	1326	3539	1583	1128	3201		1770	5048		340	5072	
Volume (vph)	39	25	386	100	23	40	175	1254	65	17	1812	33
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	26	406	105	24	42	184	1320	68	18	1907	35
RTOR Reduction (vph)	0	0	297	0	36	0	0	3	0	0	1	0
Lane Group Flow (vph)	41	26	109	105	30	0	184	1385	0	18	1941	0
Turn Type	pm+pt		Perm		pm+pt		Prot		pm+pt			
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	22.1	16.1	16.1	33.3	21.7		20.9	105.5		90.7	87.4	
Effective Green, g (s)	26.1	18.1	18.1	35.7	23.7		22.9	107.0		94.7	89.4	
Actuated g/C Ratio	0.16	0.11	0.11	0.22	0.15		0.14	0.67		0.59	0.56	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	5.5		6.0	6.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		2.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	239	400	179	306	474		253	3376		249	2834	
v/s Ratio Prot	0.01	0.01		c0.03	0.01		c0.10	0.27		0.00	c0.38	
v/s Ratio Perm	0.02		c0.07	0.05						0.04		
v/c Ratio	0.17	0.07	0.61	0.34	0.06		0.73	0.41		0.07	0.68	
Uniform Delay, d1	57.4	63.4	67.6	51.4	58.6		65.6	12.1		13.5	25.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.60	1.42	
Incremental Delay, d2	0.1	0.0	4.0	0.2	0.0		9.4	0.4		0.0	1.2	
Delay (s)	57.5	63.4	71.5	51.6	58.6		74.9	12.5		21.6	36.9	
Level of Service	E	E	E	D	E		E	B		C	D	
Approach Delay (s)		69.9			54.3			19.8			36.8	
Approach LOS		E			D			B			D	
Intersection Summary												
HCM Average Control Delay			34.9			HCM Level of Service				C		
HCM Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			75.2%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

Timings

9: NW 31st Street & SR 7

AM Peak Hour
Existing Traffic Conditions

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	39	25	386	100	23	175	1254	17	1812
Turn Type	pm+pt		Perm	pm+pt		Prot		pm+pt	
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8				6	
Detector Phases	7	4	4	3	8	5	2	1	6
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	4.0	15.0	4.0	15.0
Minimum Split (s)	10.0	29.0	29.0	10.0	29.0	10.0	30.5	10.0	31.0
Total Split (s)	21.0	35.0	35.0	21.0	35.0	34.0	90.0	14.0	70.0
Total Split (%)	13.1%	21.9%	21.9%	13.1%	21.9%	21.3%	56.3%	8.8%	43.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 32 (20%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 9: NW 31st Street & SR 7

 p1	 p2	 p3	 p4
14 s	90 s	21 s	35 s
 p5	 p6	 p7	 p8
34 s	70 s	21 s	35 s

HCM Signalized Intersection Capacity Analysis
7: Cullum Road/Turtle Creek Drive & SR 7

AM Peak Hour
Existing Traffic Conditions

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT								
Lane Configurations																				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900								
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0								
Lane Util. Factor	1.00	1.00		1.00	0.95	1.00	0.97	0.91	1.00		0.97	0.91								
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00								
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00								
Satd. Flow (prot)	1770	1749		1770	3539	1583	3433	5085	1583		3433	5085								
Flt Permitted	0.75	1.00		0.72	1.00	1.00	0.95	1.00	1.00		0.95	1.00								
Satd. Flow (perm)	1388	1749		1339	3539	1583	3433	5085	1583		3433	5085								
Volume (vph)	173	29	20	5	16	50	36	1521	11	14	119	2053								
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.90	0.90								
Adj. Flow (vph)	192	32	22	6	18	56	40	1690	12	15	132	2281								
RTOR Reduction (vph)	0	17	0	0	0	46	0	0	4	0	0	0								
Lane Group Flow (vph)	192	37	0	6	18	10	40	1690	8	0	147	2281								
Turn Type	Perm			Perm		Perm	Prot		Perm	Prot	Prot									
Protected Phases		4			8		5	2		1	1	6								
Permitted Phases	4			8		8			2											
Actuated Green, G (s)	25.2	25.2		25.2	25.2	25.2	4.9	106.1	106.1		10.7	111.9								
Effective Green, g (s)	27.2	27.2		27.2	27.2	27.2	6.9	108.1	108.1		12.7	113.9								
Actuated g/C Ratio	0.17	0.17		0.17	0.17	0.17	0.04	0.68	0.68		0.08	0.71								
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)	2.0	2.0		2.0	2.0	2.0	1.5	0.2	0.2		1.5	0.2								
Lane Grp Cap (vph)	236	297		228	602	269	148	3436	1070		272	3620								
v/s Ratio Prot		0.02			0.01		0.01	0.33			c0.04	c0.45								
v/s Ratio Perm	c0.14			0.00		0.01			0.01											
v/c Ratio	0.81	0.13		0.03	0.03	0.04	0.27	0.49	0.01		0.54	0.63								
Uniform Delay, d1	64.0	56.3		55.4	55.4	55.4	74.1	12.6	8.5		70.8	12.0								
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.87	1.46	2.42		1.13	0.46								
Incremental Delay, d2	18.0	0.1		0.0	0.0	0.0	0.4	0.5	0.0		0.6	0.4								
Delay (s)	82.0	56.4		55.4	55.4	55.5	64.9	18.9	20.5		80.3	6.0								
Level of Service	F	E		E	E	E	E	B	C		F	A								
Approach Delay (s)		76.4			55.4			19.9				10.0								
Approach LOS		E			E			B				B								
Intersection Summary																				
HCM Average Control Delay		18.1		HCM Level of Service					B											
HCM Volume to Capacity ratio		0.65																		
Actuated Cycle Length (s)		160.0		Sum of lost time (s)					8.0											
Intersection Capacity Utilization		70.1%		ICU Level of Service					C											
Analysis Period (min)		15																		
c Critical Lane Group																				

HCM Signalized Intersection Capacity Analysis
7: Cullum Road/Turtle Creek Drive & SR 7

AM Peak Hour
Existing Traffic Conditions

Movement	SBR
Left-Through Configurations	7
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Volume (vph)	108
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	120
RTOR Reduction (vph)	19
Lane Group Flow (vph)	101
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	111.9
Effective Green, g (s)	113.9
Actuated g/C Ratio	0.71
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	1127
v/s Ratio Prot	
v/s Ratio Perm	0.06
v/c Ratio	0.09
Uniform Delay, d1	7.1
Progression Factor	0.17
Incremental Delay, d2	0.1
Delay (s)	1.3
Level of Service	A
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Timings

7: Cullum Road/Turtle Creek Drive & SR 7

AM Peak Hour
Existing Traffic Conditions

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	173	29	5	16	50	36	1521	11	119	2053	108
Turn Type	Perm		Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phases	4	4	8	8	8	5	2	2	1	6	6
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	11.0	34.0	34.0	11.0	34.0	34.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	21.0	101.0	101.0	21.0	101.0	101.0
Total Split (%)	23.8%	23.8%	23.8%	23.8%	23.8%	13.1%	63.1%	63.1%	13.1%	63.1%	63.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 153 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Splits and Phases: 7: Cullum Road/Turtle Creek Drive & SR 7

		
21 s	101 s	38 s
		
21 s	101 s	38 s

HCM Signalized Intersection Capacity Analysis

1: Sample Road & NB SR 7 On Ramp

AM Peak Hour
Future Non-Project Traffic Conditions

										
Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBL	NBR2	SBL	SBR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	1.00	0.97	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	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	1583	3433	1583
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)	3433	5085	1583	3433	5085	1583	3433	1583	3433	1583
Volume (vph)	240	2460	153	163	1127	245	79	214	501	120
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	247	2536	158	168	1162	253	81	221	516	124
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	247	2536	158	168	1162	253	81	221	516	124
Turn Type	Prot		Free	Prot		Free	Prot	Free	Prot	Free
Protected Phases	1	6		5	2		4		8	
Permitted Phases			Free			Free		Free		Free
Actuated Green, G (s)	13.6	84.7	140.0	10.5	81.6	140.0	23.8	140.0	23.8	140.0
Effective Green, g (s)	15.6	88.7	140.0	12.5	85.6	140.0	26.8	140.0	26.8	140.0
Actuated g/C Ratio	0.11	0.63	1.00	0.09	0.61	1.00	0.19	1.00	0.19	1.00
Clearance Time (s)	6.0	8.0		6.0	8.0		7.0		7.0	
Vehicle Extension (s)	1.5	1.0		1.5	1.0		1.5		1.5	
Lane Grp Cap (vph)	383	3222	1583	307	3109	1583	657	1583	657	1583
v/s Ratio Prot	c0.07	c0.50		0.05	0.23		0.02		c0.15	
v/s Ratio Perm			0.10			c0.16		0.14		0.08
v/c Ratio	0.64	0.79	0.10	0.55	0.37	0.16	0.12	0.14	0.79	0.08
Uniform Delay, d1	59.5	18.7	0.0	61.0	13.7	0.0	46.9	0.0	53.9	0.0
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	2.8	2.0	0.1	1.1	0.3	0.2	0.0	0.2	5.7	0.1
Delay (s)	62.3	20.8	0.1	62.1	14.0	0.2	46.9	0.2	59.5	0.1
Level of Service	E	C	A	E	B	A	D	A	E	A
Approach Delay (s)		23.2			16.9					
Approach LOS		C			B					
Intersection Summary										
HCM Average Control Delay			23.7			HCM Level of Service			C	
HCM Volume to Capacity ratio			0.76							
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			8.0	
Intersection Capacity Utilization			76.8%			ICU Level of Service			D	
Analysis Period (min)			15							
c Critical Lane Group										

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Synchro 6 Report

Kimley Horn and Associates

Timings

1: Sample Road & NB SR 7 On Ramp

AM Peak Hour

Future Non-Project Traffic Conditions

										
Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	NBL	NBR2	SBL	SBR2
Lane Configurations										
Volume (vph)	240	2460	153	163	1127	245	79	214	501	120
Turn Type	Prot		Free	Prot		Free	Prot	Free	Prot	Free
Protected Phases	1	6		5	2		4		8	
Permitted Phases			Free			Free		Free		Free
Detector Phases	1	6		5	2		4		8	
Minimum Initial (s)	6.0	7.0		6.0	7.0		6.0		6.0	
Minimum Split (s)	12.0	15.0		12.0	15.0		13.0		13.0	
Total Split (s)	29.0	77.0	0.0	29.0	77.0	0.0	34.0	0.0	34.0	0.0
Total Split (%)	20.7%	55.0%	0.0%	20.7%	55.0%	0.0%	24.3%	0.0%	24.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0		4.0	
All-Red Time (s)	2.0	4.0		2.0	4.0		3.0		3.0	
Lead/Lag	Lead	Lag		Lead	Lag					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes					
Recall Mode	None	C-Max		None	C-Max		None		None	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 116 (83%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 1: Sample Road & NB SR 7 On Ramp

 ø1	 ø2	 ø4
29 s	77 s	34 s
 ø5	 ø6	 ø8
29 s	77 s	34 s

HCM Signalized Intersection Capacity Analysis

2: Sample Road & NW 54th Avenue

AM Peak Hour
Future Non-Project Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	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)	1770	5085	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.16	1.00	1.00	0.03	1.00	1.00	0.72	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	298	5085	1583	63	5085	1583	1346	3539	1583	1322	3539	1583
Volume (vph)	77	2535	28	172	1405	147	44	65	195	84	47	42
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	82	2697	30	183	1495	156	47	69	207	89	50	45
RTOR Reduction (vph)	0	0	5	0	0	35	0	0	186	0	0	40
Lane Group Flow (vph)	82	2697	25	183	1495	121	47	69	21	89	50	5
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	118.1	112.8	112.8	133.5	122.2	122.2	14.5	14.5	14.5	14.5	14.5	14.5
Effective Green, g (s)	122.1	114.8	114.8	135.5	124.2	124.2	16.5	16.5	16.5	16.5	16.5	16.5
Actuated g/C Ratio	0.76	0.72	0.72	0.85	0.78	0.78	0.10	0.10	0.10	0.10	0.10	0.10
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	6.0
Vehicle Extension (s)	1.5	3.0	3.0	1.5	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	295	3648	1136	232	3947	1229	139	365	163	136	365	163
v/s Ratio Prot	0.01	0.53		c0.08	0.29			0.02			0.01	
v/s Ratio Perm	0.20		0.02	c0.59		0.08	0.03		0.01	c0.07		0.00
v/c Ratio	0.28	0.74	0.02	0.79	0.38	0.10	0.34	0.19	0.13	0.65	0.14	0.03
Uniform Delay, d1	4.7	13.6	6.5	53.6	5.7	4.3	66.7	65.6	65.2	69.0	65.3	64.5
Progression Factor	1.00	1.00	1.00	0.84	1.32	3.51	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.4	0.0	12.0	0.2	0.1	0.5	0.1	0.1	8.3	0.1	0.0
Delay (s)	4.9	15.0	6.5	56.7	7.7	15.3	67.2	65.7	65.4	77.3	65.3	64.6
Level of Service	A	B	A	E	A	B	E	E	E	E	E	E
Approach Delay (s)		14.6			13.2			65.7			71.0	
Approach LOS		B			B			E			E	

Intersection Summary

HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

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Synchro 6 Report

Kimley Horn and Associates

Timings
2: Sample Road & NW 54th Avenue

AM Peak Hour
Future Non-Project Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	2535	28	172	1405	147	44	65	195	84	47	42
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phases	1	6	6	5	2	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0	12.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	30.0	30.0	10.0	30.0	30.0	32.0	32.0	32.0	32.0	32.0	32.0
Total Split (s)	29.0	91.0	91.0	29.0	91.0	91.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	18.1%	56.9%	56.9%	18.1%	56.9%	56.9%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 28 (18%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 2: Sample Road & NW 54th Avenue

 ø1	 ø2	 ø4
29 s	91 s	40 s
 ø5	 ø6	 ø8
29 s	91 s	40 s

HCM Signalized Intersection Capacity Analysis

3: Sample Road & Lyons Road

AM Peak Hour

Future Non-Project Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	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)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	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)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	284	2382	405	146	1371	368	339	863	203	678	1367	244
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	293	2456	418	151	1413	379	349	890	209	699	1409	252
RTOR Reduction (vph)	0	0	83	0	0	148	0	0	97	0	0	20
Lane Group Flow (vph)	293	2456	335	151	1413	231	349	890	112	699	1409	232
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	12.5	68.0	68.0	10.5	67.0	67.0	20.2	31.5	31.5	25.5	36.8	49.3
Effective Green, g (s)	14.0	70.0	70.0	13.0	69.0	69.0	22.7	33.0	33.0	28.0	38.3	52.3
Actuated g/C Ratio	0.09	0.44	0.44	0.08	0.43	0.43	0.14	0.21	0.21	0.18	0.24	0.33
Clearance Time (s)	5.5	6.0	6.0	6.5	6.0	6.0	6.5	5.5	5.5	6.5	5.5	5.5
Vehicle Extension (s)	1.5	1.0	1.0	2.0	1.0	1.0	2.0	2.5	2.5	2.0	2.5	1.5
Lane Grp Cap (vph)	300	2225	693	279	2193	683	487	1049	326	601	1217	557
v/s Ratio Prot	c0.09	c0.48		0.04	0.28		0.10	0.18		c0.20	c0.28	0.04
v/s Ratio Perm			0.21			0.15			0.07			0.11
v/c Ratio	0.98	1.10	0.48	0.54	0.64	0.34	0.72	0.85	0.34	1.16	1.16	0.42
Uniform Delay, d1	72.8	45.0	32.1	70.6	35.8	30.3	65.6	61.1	54.3	66.0	60.9	42.0
Progression Factor	1.08	0.90	1.00	1.32	0.89	1.09	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	37.4	52.2	1.7	1.0	1.2	1.1	4.2	6.4	0.5	90.7	80.6	0.2
Delay (s)	115.8	92.6	33.8	93.9	33.3	34.0	69.7	67.5	54.7	156.7	141.4	42.1
Level of Service	F	F	C	F	C	C	E	E	D	F	F	D
Approach Delay (s)		87.0			38.1			66.2			135.3	
Approach LOS		F			D			E			F	
Intersection Summary												
HCM Average Control Delay			85.8				HCM Level of Service			F		
HCM Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			99.6%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

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Synchro 6 Report

Kimley Horn and Associates

Timings

3: Sample Road & Lyons Road

AM Peak Hour

Future Non-Project Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	284	2382	405	146	1371	368	339	863	203	678	1367	244
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases			6			2			4			8
Detector Phases	1	6	6	5	2	2	7	4	4	3	8	1
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	5.0
Minimum Split (s)	11.5	39.0	39.0	11.5	39.0	39.0	11.5	34.5	34.5	11.5	34.5	11.5
Total Split (s)	18.0	73.0	73.0	18.0	73.0	73.0	32.0	37.0	37.0	32.0	37.0	18.0
Total Split (%)	11.3%	45.6%	45.6%	11.3%	45.6%	45.6%	20.0%	23.1%	23.1%	20.0%	23.1%	11.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	2.0	2.0	2.5	2.0	2.0	2.5	1.5	1.5	2.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 34 (21%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Splits and Phases: 3: Sample Road & Lyons Road

			
ø1	ø2	ø3	ø4
18 s	73 s	32 s	37 s
			
ø5	ø6	ø7	ø8
18 s	73 s	32 s	37 s

HCM Signalized Intersection Capacity Analysis

8: Wiles Road & SR 7

AM Peak Hour
Future Non-Project Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	SBL
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.97	0.97
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.95
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	3539	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	0.95
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	5085	1583	3433	3539	1583
Volume (vph)	907	741	617	167	378	308	20	242	1524	174	32	234
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.90
Adj. Flow (vph)	1008	823	686	186	420	342	22	269	1693	193	35	260
RTOR Reduction (vph)	0	0	12	0	0	41	0	0	0	32	0	0
Lane Group Flow (vph)	1008	823	674	186	420	301	0	291	1693	161	0	295
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Prot	pm+ov		Prot	Prot
Protected Phases	7	4	5l	3	8		5l	5	2	3	1	1
Permitted Phases			4			8				2		
Actuated Green, G (s)	35.0	55.8	71.4	12.0	32.8	32.8		15.6	53.9	65.9		14.3
Effective Green, g (s)	37.0	57.8	75.4	14.0	34.8	34.8		17.6	55.9	69.9		16.3
Actuated g/C Ratio	0.23	0.36	0.47	0.09	0.22	0.22		0.11	0.35	0.44		0.10
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)	1.5	2.0	1.5	1.5	2.0	2.0		1.5	1.0	1.5		1.5
Lane Grp Cap (vph)	794	1278	786	300	770	344		378	1777	731		350
v/s Ratio Prot	c0.29	0.23	c0.09	0.05	0.12			0.08	0.33	0.02		0.09
v/s Ratio Perm			0.33			0.19				0.08		
v/c Ratio	1.27	0.64	0.86	0.62	0.55	0.88		0.77	0.95	0.22		0.84
Uniform Delay, d1	61.5	42.5	37.5	70.4	55.6	60.5		69.2	50.8	28.1		70.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.23	0.82	0.60		1.00
Incremental Delay, d2	131.2	0.8	8.9	2.7	0.4	20.7		6.6	10.7	0.0		16.0
Delay (s)	192.7	43.4	46.4	73.1	56.0	81.2		92.1	52.3	16.8		86.6
Level of Service	F	D	D	E	E	F		F	D	B		F
Approach Delay (s)		104.0			68.4				54.5			
Approach LOS		F			E				D			

Intersection Summary

HCM Average Control Delay	91.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	99.8%	ICU Level of Service	F
Analysis Period (min)	15		

l Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
8: Wiles Road & SR 7

AM Peak Hour
Future Non-Project Traffic Conditions

	↓	↙
Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	4.0
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1583
Volume (vph)	1866	538
Peak-hour factor, PHF	0.90	0.90
Adj. Flow (vph)	2073	598
RTOR Reduction (vph)	0	47
Lane Group Flow (vph)	2073	551
Turn Type	pm+ov	
Protected Phases	6	7
Permitted Phases		6
Actuated Green, G (s)	52.6	87.6
Effective Green, g (s)	54.6	91.6
Actuated g/C Ratio	0.34	0.57
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	1.0	1.5
Lane Grp Cap (vph)	1735	946
v/s Ratio Prot	0.41	0.13
v/s Ratio Perm		0.21
v/c Ratio	1.19	0.58
Uniform Delay, d1	52.7	21.9
Progression Factor	1.00	1.00
Incremental Delay, d2	93.6	0.6
Delay (s)	146.3	22.5
Level of Service	F	C
Approach Delay (s)	115.4	
Approach LOS	F	
Intersection Summary		

Timings
8: Wiles Road & SR 7

AM Peak Hour
Future Non-Project Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	907	741	617	167	378	308	242	1524	174	234	1866	538
Turn Type	Prot	pm+ov		Prot	Perm		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5!	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phases	7	4	5	3	8	8	5	2	3	1	6	7
Minimum Initial (s)	5.0	6.0	5.0	5.0	6.0	6.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.0	43.0	11.0	11.0	40.0	40.0	11.0	42.0	11.0	11.0	42.0	11.0
Total Split (s)	41.0	66.0	22.0	20.0	45.0	45.0	22.0	60.0	20.0	14.0	52.0	41.0
Total Split (%)	25.6%	41.3%	13.8%	12.5%	28.1%	28.1%	13.8%	37.5%	12.5%	8.8%	32.5%	25.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 1 (1%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

! Phase conflict between lane groups.

Splits and Phases: 8: Wiles Road & SR 7

 ø1	 ø2	 ø3	 ø4
14 s	60 s	20 s	66 s
 ø5	 ø6	 ø7	 ø8
22 s	52 s	41 s	45 s

HCM Signalized Intersection Capacity Analysis
9: NW 31st Street & SR 7

AM Peak Hour
Future Non-Project Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.91		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3204		1770	5048		1770	5072	
Flt Permitted	0.70	1.00	1.00	0.63	1.00		0.95	1.00		0.13	1.00	
Satd. Flow (perm)	1313	3539	1583	1176	3204		1770	5048		249	5072	
Volume (vph)	45	29	445	115	27	46	202	1455	75	20	2089	38
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	47	31	468	121	28	48	213	1532	79	21	2199	40
RTOR Reduction (vph)	0	0	278	0	39	0	0	3	0	0	1	0
Lane Group Flow (vph)	47	31	190	121	37	0	213	1608	0	21	2238	0
Turn Type	pm+pt		Perm		pm+pt		Prot		pm+pt			
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	28.3	22.1	22.1	40.1	28.0		22.9	98.8		82.4	78.9	
Effective Green, g (s)	32.3	24.1	24.1	42.2	30.0		24.9	100.3		86.4	80.9	
Actuated g/C Ratio	0.20	0.15	0.15	0.26	0.19		0.16	0.63		0.54	0.51	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	5.5		6.0	6.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		2.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	288	533	238	363	601		275	3164		187	2565	
v/s Ratio Prot	0.01	0.01		c0.03	0.01		c0.12	0.32		0.00	c0.44	
v/s Ratio Perm	0.02		c0.12	0.06						0.06		
v/c Ratio	0.16	0.06	0.80	0.33	0.06		0.77	0.51		0.11	0.87	
Uniform Delay, d1	52.4	58.2	65.6	46.6	53.4		64.9	16.3		17.2	35.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.42	1.40	
Incremental Delay, d2	0.1	0.0	15.9	0.2	0.0		12.3	0.6		0.1	3.4	
Delay (s)	52.4	58.2	81.5	46.8	53.4		77.1	16.9		24.5	52.5	
Level of Service	D	E	F	D	D		E	B		C	D	
Approach Delay (s)		77.7			49.4			24.0			52.3	
Approach LOS		E			D			C			D	

Intersection Summary

HCM Average Control Delay	44.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

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Synchro 6 Report

Kimley Horn and Associates

Timings

9: NW 31st Street & SR 7

AM Peak Hour

Future Non-Project Traffic Conditions

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	45	29	445	115	27	202	1455	20	2089
Turn Type	pm+pt		Perm	pm+pt		Prot		pm+pt	
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases	4		4	8				6	
Detector Phases	7	4	4	3	8	5	2	1	6
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	4.0	15.0	4.0	15.0
Minimum Split (s)	10.0	29.0	29.0	10.0	29.0	10.0	30.5	10.0	31.0
Total Split (s)	21.0	35.0	35.0	21.0	35.0	34.0	90.0	14.0	70.0
Total Split (%)	13.1%	21.9%	21.9%	13.1%	21.9%	21.3%	56.3%	8.8%	43.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 32 (20%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 9: NW 31st Street & SR 7

			
ø1	ø2	ø3	ø4
14 s	90 s	21 s	35 s
			
ø5	ø6	ø7	ø8
34 s	70 s	21 s	35 s

HCM Signalized Intersection Capacity Analysis
7: Cullum Road/Turtle Creek Drive & SR 7

AM Peak Hour
Future Non-Project Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	0.95	1.00	0.97	0.91	1.00		0.97	0.91
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1749		1770	3539	1583	3433	5085	1583		3433	5085
Flt Permitted	0.74	1.00		0.70	1.00	1.00	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1384	1749		1297	3539	1583	3433	5085	1583		3433	5085
Volume (vph)	202	34	23	6	19	58	42	1791	13	16	139	2414
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.90	0.90
Adj. Flow (vph)	224	38	26	7	21	64	47	1990	14	17	154	2682
RTOR Reduction (vph)	0	16	0	0	0	52	0	0	4	0	0	0
Lane Group Flow (vph)	224	48	0	7	21	12	47	1990	10	0	171	2682
Turn Type	Perm			Perm			Prot		Perm	Prot	Prot	
Protected Phases	4			8			5	2		1	1	6
Permitted Phases	4			8			8		2			
Actuated Green, G (s)	28.0	28.0		28.0	28.0	28.0	5.2	102.3	102.3		11.7	108.8
Effective Green, g (s)	30.0	30.0		30.0	30.0	30.0	7.2	104.3	104.3		13.7	110.8
Actuated g/C Ratio	0.19	0.19		0.19	0.19	0.19	0.05	0.65	0.65		0.09	0.69
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)	2.0	2.0		2.0	2.0	2.0	1.5	0.2	0.2		1.5	0.2
Lane Grp Cap (vph)	260	328		243	664	297	154	3315	1032		294	3521
v/s Ratio Prot		0.03			0.01		0.01	0.39			c0.05	c0.53
v/s Ratio Perm	c0.16			0.01		0.01			0.01			
v/c Ratio	0.86	0.15		0.03	0.03	0.04	0.31	0.60	0.01		0.58	0.76
Uniform Delay, d1	63.0	54.3		53.1	53.1	53.2	74.0	15.9	9.8		70.4	16.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.83	1.70	2.65		1.14	0.52
Incremental Delay, d2	23.4	0.1		0.0	0.0	0.0	0.4	0.8	0.0		0.2	0.1
Delay (s)	86.4	54.4		53.1	53.1	53.2	61.9	27.9	25.8		80.7	8.4
Level of Service	F	D		D	D	D	E	C	C		F	A
Approach Delay (s)		79.3			53.2			28.7				12.2
Approach LOS		E			D			C				B
Intersection Summary												
HCM Average Control Delay	22.7			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.78											
Actuated Cycle Length (s)	160.0			Sum of lost time (s)			12.0					
Intersection Capacity Utilization	78.7%			ICU Level of Service			D					
Analysis Period (min)	15											
c Critical Lane Group												

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Synchro 6 Report

Kimley Horn and Associates

HCM Signalized Intersection Capacity Analysis
7: Cullum Road/Turtle Creek Drive & SR 7

AM Peak Hour
Future Non-Project Traffic Conditions

Movement	SBR
Left Configurations	7
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Volume (vph)	126
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	140
RTOR Reduction (vph)	21
Lane Group Flow (vph)	119
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	108.8
Effective Green, g (s)	110.8
Actuated g/C Ratio	0.69
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	1096
v/s Ratio Prot	
v/s Ratio Perm	0.08
v/c Ratio	0.11
Uniform Delay, d1	8.2
Progression Factor	0.13
Incremental Delay, d2	0.0
Delay (s)	1.0
Level of Service	A
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Timings

7: Cullum Road/Turtle Creek Drive & SR 7

AM Peak Hour

Future Non-Project Traffic Conditions

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	202	34	6	19	58	42	1791	13	139	2414	126
Turn Type	Perm		Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phases	4	4	8	8	8	5	2	2	1	6	6
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	11.0	34.0	34.0	11.0	34.0	34.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	21.0	101.0	101.0	21.0	101.0	101.0
Total Split (%)	23.8%	23.8%	23.8%	23.8%	23.8%	13.1%	63.1%	63.1%	13.1%	63.1%	63.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 153 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 7: Cullum Road/Turtle Creek Drive & SR 7

		
21 s	101 s	38 s
		
21 s	101 s	38 s

~~HCM Signalized Intersection Capacity Analysis~~

~~AM Peak Hour~~

~~1: Sample Road & NB SR 7 On Ramp~~

~~Future Total Traffic Conditions~~

										
Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBL	NBR2	SBL	SBR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	1.00	0.97	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	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	1583	3433	1583
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)	3433	5085	1583	3433	5085	1583	3433	1583	3433	1583
Volume (vph)	283	2535	153	196	1214	267	79	225	512	153
Peak hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	292	2613	158	202	1252	275	81	232	528	158
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	292	2613	158	202	1252	275	81	232	528	158
Turn Type	Prot		Free	Prot		Free	Prot	Free	Prot	Free
Protected Phases	4	6		5	2		4		8	
Permitted Phases			Free			Free		Free		Free
Actuated Green, G (s)	15.4	83.2	140.0	11.8	79.6	140.0	24.0	140.0	24.0	140.0
Effective Green, g (s)	17.4	87.2	140.0	13.8	83.6	140.0	27.0	140.0	27.0	140.0
Actuated g/C Ratio	0.12	0.62	1.00	0.10	0.60	1.00	0.19	1.00	0.19	1.00
Clearance Time (s)	6.0	8.0		6.0	8.0		7.0		7.0	
Vehicle Extension (s)	1.5	1.0		1.5	1.0		1.5		1.5	
Lane Grp Cap (vph)	427	3167	1583	338	3036	1583	662	1583	662	1583
v/s Ratio Prot	c0.09	c0.51		0.06	0.25		0.02		c0.15	
v/s Ratio Perm			0.10			0.17		0.15		0.10
v/c Ratio	0.68	0.83	0.10	0.60	0.41	0.17	0.12	0.15	0.80	0.10
Uniform Delay, d1	58.7	20.5	0.0	60.4	15.1	0.0	46.7	0.0	53.9	0.0
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	3.6	2.6	0.1	1.9	0.4	0.2	0.0	0.2	6.2	0.1
Delay (s)	62.3	23.1	0.1	62.3	15.5	0.2	46.7	0.2	60.1	0.1
Level of Service	E	C	A	E	B	A	D	A	E	A
Approach Delay (s)		25.6			18.5					
Approach LOS		C			B					
Intersection Summary										
HCM Average Control Delay			25.2				HCM Level of Service		C	
HCM Volume to Capacity ratio			0.81							
Actuated Cycle Length (s)			140.0				Sum of lost time (s)		12.0	
Intersection Capacity Utilization			79.2%				ICU Level of Service		D	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

1: Sample Road & NB SR 7 On Ramp

AM Peak Hour

Future Total Traffic Conditions

										
Movement	EBL	EBT	EBR2	WBL	WBT	WBR2	NBL	NBR2	SBL	SBR2
Lane Configurations										
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	1.00	0.97	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	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	1583	3433	1583
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)	3433	5085	1583	3433	5085	1583	3433	1583	3433	1583
Volume (vph)	336	2628	153	199	1222	269	79	238	525	156
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	346	2709	158	205	1260	277	81	245	541	161
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	346	2709	158	205	1260	277	81	245	541	161
Turn Type	Prot		Free	Prot		Free	Prot	Free	Prot	Free
Protected Phases	1	6		5	2		4		8	
Permitted Phases			Free			Free		Free		Free
Actuated Green, G (s)	17.7	82.7	140.0	11.9	76.9	140.0	24.4	140.0	24.4	140.0
Effective Green, g (s)	19.7	86.7	140.0	13.9	80.9	140.0	27.4	140.0	27.4	140.0
Actuated g/C Ratio	0.14	0.62	1.00	0.10	0.58	1.00	0.20	1.00	0.20	1.00
Clearance Time (s)	6.0	8.0		6.0	8.0		7.0		7.0	
Vehicle Extension (s)	1.5	1.0		1.5	1.0		1.5		1.5	
Lane Grp Cap (vph)	483	3149	1583	341	2938	1583	672	1583	672	1583
v/s Ratio Prot	c0.10	c0.53		0.06	0.25		0.02		c0.16	
v/s Ratio Perm			0.10			0.17		0.15		0.10
v/c Ratio	0.72	0.86	0.10	0.60	0.43	0.17	0.12	0.15	0.81	0.10
Uniform Delay, d1	57.5	21.7	0.0	60.4	16.6	0.0	46.4	0.0	53.8	0.0
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	4.2	3.3	0.1	2.0	0.5	0.2	0.0	0.2	6.6	0.1
Delay (s)	61.7	25.1	0.1	62.4	17.0	0.2	46.4	0.2	60.3	0.1
Level of Service	E	C	A	E	B	A	D	A	E	A
Approach Delay (s)		27.8			19.7					
Approach LOS		C			B					
Intersection Summary										
HCM Average Control Delay			26.8			HCM Level of Service			C	
HCM Volume to Capacity ratio			0.82							
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			8.0	
Intersection Capacity Utilization			81.4%			ICU Level of Service			D	
Analysis Period (min)			15							
c Critical Lane Group										

Timings

AM Peak Hour

1: Sample Road & NB SR 7 On Ramp

Future Total Traffic Conditions

											
Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	NBL	NBR2	SBL	SBR2	
Lane Configurations											
Volume (vph)	283	2535	153	196	1214	267	79	225	512	153	
Turn Type	Prot		Free	Prot		Free	Prot	Free	Prot	Free	
Protected Phases	4	6		5	2		4		8		
Permitted Phases			Free			Free		Free		Free	
Detector Phases	4	6		5	2		4		8		
Minimum Initial (s)	6.0	7.0		6.0	7.0		6.0		6.0		
Minimum Split (s)	12.0	15.0		12.0	15.0		13.0		13.0		
Total Split (s)	29.0	77.0	0.0	29.0	77.0	0.0	34.0	0.0	34.0	0.0	
Total Split (%)	20.7%	55.0%	0.0%	20.7%	55.0%	0.0%	24.3%	0.0%	24.3%	0.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0		4.0		
All Red Time (s)	2.0	4.0		2.0	4.0		3.0		3.0		
Lead/Lag	Lead	Lag		Lead	Lag						
Lead-Lag Optimize?	Yes	Yes		Yes	Yes						
Recall Mode	None	C-Max		None	C-Max		None		None		

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 116 (83%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 75

Control Type: Actuated Coordinated

Splits and Phases: 1: Sample Road & NB SR 7 On Ramp

 ø1	 ø2	 ø4
29 s	77 s	34 s
 ø5	 ø6	 ø8
29 s	77 s	34 s

Timings

1: Sample Road & NB SR 7 On Ramp

AM Peak Hour
Future Total Traffic Conditions

										
Lane Group	EBL	EBT	EBR2	WBL	WBT	WBR2	NBL	NBR2	SBL	SBR2
Lane Configurations	 	  		 	  		 		 	
Volume (vph)	336	2628	153	199	1222	269	79	238	525	156
Turn Type	Prot		Free	Prot		Free	Prot	Free	Prot	Free
Protected Phases	1	6		5	2		4		8	
Permitted Phases			Free			Free		Free		Free
Detector Phases	1	6		5	2		4		8	
Minimum Initial (s)	6.0	7.0		6.0	7.0		6.0		6.0	
Minimum Split (s)	12.0	15.0		12.0	15.0		13.0		13.0	
Total Split (s)	29.0	77.0	0.0	29.0	77.0	0.0	34.0	0.0	34.0	0.0
Total Split (%)	20.7%	55.0%	0.0%	20.7%	55.0%	0.0%	24.3%	0.0%	24.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0		4.0	
All-Red Time (s)	2.0	4.0		2.0	4.0		3.0		3.0	
Lead/Lag	Lead	Lag		Lead	Lag					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes					
Recall Mode	None	C-Max		None	C-Max		None		None	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 116 (83%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 1: Sample Road & NB SR 7 On Ramp

 ø1	 ø2	 ø4
29 s	77 s	34 s
 ø5	 ø6	 ø8
29 s	77 s	34 s

~~HCM Signalized Intersection Capacity Analysis~~

~~2: Sample Road & NW 54th Avenue~~

~~AM Peak Hour~~

~~Future Total Traffic Conditions~~

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	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)	1770	5085	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.14	1.00	1.00	0.04	1.00	1.00	0.72	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	254	5085	1583	67	5085	1583	1346	3539	1583	1322	3539	1583
Volume (vph)	115	2594	28	172	1497	196	44	65	195	131	47	89
Peak hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	122	2760	30	183	1593	209	47	69	207	139	50	95
RTOR Reduction (vph)	0	0	5	0	0	57	0	0	178	0	0	82
Lane Group Flow (vph)	122	2760	25	183	1593	162	47	69	29	139	50	13
Turn Type	pm+pt		Perm		pm+pt		Perm		Perm		Perm	
Protected Phases	4		6		5		2		4		8	
Permitted Phases	6		6		2		2		4		8	
Actuated Green, G (s)	112.0	104.7	104.7	127.5	114.2	114.2	20.5	20.5	20.5	20.5	20.5	20.5
Effective Green, g (s)	116.0	106.7	106.7	129.5	116.2	116.2	22.5	22.5	22.5	22.5	22.5	22.5
Actuated g/C Ratio	0.72	0.67	0.67	0.81	0.73	0.73	0.14	0.14	0.14	0.14	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	6.0	6.0
Vehicle Extension (s)	1.5	3.0	3.0	1.5	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	272	3391	1056	254	3693	1150	189	498	223	186	498	223
v/s Ratio Prot	0.03	c0.54		c0.08	0.31			0.02			0.01	
v/s Ratio Perm	0.30		0.02	0.50		0.10	0.03		0.02	c0.11		0.01
v/c Ratio	0.45	0.81	0.02	0.72	0.43	0.13	0.25	0.14	0.13	0.75	0.10	0.06
Uniform Delay, d1	6.8	19.4	9.0	52.8	8.7	6.6	61.2	60.3	60.2	66.0	59.9	59.6
Progression Factor	1.00	1.00	1.00	1.19	0.98	2.17	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.3	0.0	6.7	0.3	0.2	0.3	0.0	0.1	13.3	0.0	0.0
Delay (s)	7.2	21.7	9.1	69.4	8.8	14.6	61.5	60.3	60.3	79.3	60.0	59.6
Level of Service	A	C	A	E	A	B	E	E	E	E	E	E
Approach Delay (s)		20.9			15.0			60.5			69.3	
Approach LOS		C			B			E			E	
Intersection Summary												
HCM Average Control Delay			23.6				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			83.6%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: Sample Road & NW 54th Avenue

AM Peak Hour
Future Total Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	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)	1770	5085	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.13	1.00	1.00	0.04	1.00	1.00	0.72	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	240	5085	1583	68	5085	1583	1346	3539	1583	1322	3539	1583
Volume (vph)	155	2673	28	172	1506	249	44	65	195	134	47	92
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	165	2844	30	183	1602	265	47	69	207	143	50	98
RTOR Reduction (vph)	0	0	5	0	0	78	0	0	177	0	0	84
Lane Group Flow (vph)	165	2844	25	183	1602	187	47	69	30	143	50	14
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Actuated Green, G (s)	114.1	103.9	103.9	127.0	110.8	110.8	21.0	21.0	21.0	21.0	21.0	21.0
Effective Green, g (s)	118.1	105.9	105.9	129.0	112.8	112.8	23.0	23.0	23.0	23.0	23.0	23.0
Actuated g/C Ratio	0.74	0.66	0.66	0.81	0.70	0.70	0.14	0.14	0.14	0.14	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	6.0	6.0
Vehicle Extension (s)	1.5	3.0	3.0	1.5	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	294	3366	1048	258	3585	1116	193	509	228	190	509	228
v/s Ratio Prot	0.04	c0.56		c0.08	0.32			0.02			0.01	
v/s Ratio Perm	0.37		0.02	0.49		0.12	0.03		0.02	c0.11		0.01
v/c Ratio	0.56	0.84	0.02	0.71	0.45	0.17	0.24	0.14	0.13	0.75	0.10	0.06
Uniform Delay, d1	7.2	20.8	9.3	53.2	10.2	7.9	60.8	59.8	59.8	65.8	59.5	59.2
Progression Factor	1.00	1.00	1.00	1.23	1.03	2.55	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	2.8	0.0	5.5	0.3	0.2	0.2	0.0	0.1	13.8	0.0	0.0
Delay (s)	8.6	23.6	9.3	71.1	10.8	20.4	61.0	59.9	59.9	79.6	59.5	59.2
Level of Service	A	C	A	E	B	C	E	E	E	E	E	E
Approach Delay (s)		22.6			17.4			60.0			69.3	
Approach LOS		C			B			E			E	

Intersection Summary

HCM Average Control Delay	25.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Timings

2: Sample Road & NW 54th Avenue

AM Peak Hour

Future Total Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	2594	28	172	1497	196	44	65	195	131	47	89
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases	4	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phases	4	6	6	5	2	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0	12.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	30.0	30.0	10.0	30.0	30.0	32.0	32.0	32.0	32.0	32.0	32.0
Total Split (s)	29.0	91.0	91.0	29.0	91.0	91.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	18.1%	56.9%	56.9%	18.1%	56.9%	56.9%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C Min	C Min	None	C Min	C Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 28 (18%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated Coordinated

Splits and Phases: 2: Sample Road & NW 54th Avenue

		
ø1	ø2	ø4
29 s	91 s	40 s
		
ø5	ø6	ø8
29 s	91 s	40 s

Timings

2: Sample Road & NW 54th Avenue

AM Peak Hour
Future Total Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	2673	28	172	1506	249	44	65	195	134	47	92
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6		6	2		2	4		4	8		8
Detector Phases	1	6	6	5	2	2	4	4	4	8	8	8
Minimum Initial (s)	4.0	12.0	12.0	4.0	12.0	12.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.0	30.0	30.0	10.0	30.0	30.0	32.0	32.0	32.0	32.0	32.0	32.0
Total Split (s)	29.0	91.0	91.0	29.0	91.0	91.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	18.1%	56.9%	56.9%	18.1%	56.9%	56.9%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 28 (18%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 2: Sample Road & NW 54th Avenue

		
ø1	ø2	ø4
29 s	91 s	40 s
		
ø5	ø6	ø8
29 s	91 s	40 s

~~HCM Signalized Intersection Capacity Analysis~~

~~3: Sample Road & Lyons Road~~

~~AM Peak Hour~~

~~Future Total Traffic Conditions~~

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	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)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	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)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	328	2491	449	146	1468	433	404	917	203	733	1444	244
Peak hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	338	2568	463	151	1513	446	416	945	209	756	1489	252
RTOR Reduction (vph)	0	0	88	0	0	163	0	0	96	0	0	13
Lane Group Flow (vph)	338	2568	375	151	1513	283	416	945	113	756	1489	239
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		pm+ov
Protected Phases	4	6		5	2		7	4		3	8	4
Permitted Phases			6			2			4			8
Actuated Green, G (s)	12.5	68.1	68.1	10.4	67.0	67.0	22.6	31.5	31.5	25.5	34.4	46.9
Effective Green, g (s)	14.0	70.1	70.1	12.9	69.0	69.0	25.1	33.0	33.0	28.0	35.9	49.9
Actuated g/C Ratio	0.09	0.44	0.44	0.08	0.43	0.43	0.16	0.21	0.21	0.18	0.22	0.31
Clearance Time (s)	5.5	6.0	6.0	6.5	6.0	6.0	6.5	5.5	5.5	6.5	5.5	5.5
Vehicle Extension (s)	1.5	1.0	1.0	2.0	1.0	1.0	2.0	2.5	2.5	2.0	2.5	1.5
Lane Grp Cap (vph)	300	2228	694	277	2193	683	539	1049	326	601	1141	533
v/s Ratio Prot	c0.10	c0.50		0.04	0.30		0.12	0.19		c0.22	c0.29	0.04
v/s Ratio Perm			0.24			0.18			0.07			0.11
v/c Ratio	1.13	1.15	0.54	0.55	0.69	0.41	0.77	0.90	0.35	1.26	1.30	0.45
Uniform Delay, d1	73.0	45.0	33.1	70.7	36.8	31.5	64.7	61.9	54.3	66.0	62.0	44.0
Progression Factor	1.00	1.14	1.38	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.30
Incremental Delay, d2	79.4	72.1	1.8	1.2	1.8	1.8	6.2	10.6	0.5	126.4	142.3	0.2
Delay (s)	152.6	123.3	47.5	71.9	38.6	33.4	70.9	72.5	54.8	192.1	224.7	57.4
Level of Service	F	F	D	E	D	G	E	E	D	F	F	E
Approach Delay (s)		115.8			39.9			69.7			197.9	
Approach LOS		F			D			E			F	
Intersection Summary												
HCM Average Control Delay			112.9				HCM Level of Service			F		
HCM Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			105.1%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3: Sample Road & Lyons Road

AM Peak Hour
Future Total Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	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)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	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)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Volume (vph)	331	2501	452	146	1587	512	483	983	203	737	1450	244
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	341	2578	466	151	1636	528	498	1013	209	760	1495	252
RTOR Reduction (vph)	0	0	88	0	0	179	0	0	96	0	0	7
Lane Group Flow (vph)	341	2578	378	151	1636	349	498	1013	113	760	1495	245
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	12.5	68.1	68.1	10.4	67.0	67.0	24.6	31.5	31.5	25.5	32.4	44.9
Effective Green, g (s)	14.0	70.1	70.1	12.9	69.0	69.0	27.1	33.0	33.0	28.0	33.9	47.9
Actuated g/C Ratio	0.09	0.44	0.44	0.08	0.43	0.43	0.17	0.21	0.21	0.18	0.21	0.30
Clearance Time (s)	5.5	6.0	6.0	6.5	6.0	6.0	6.5	5.5	5.5	6.5	5.5	5.5
Vehicle Extension (s)	1.5	1.0	1.0	2.0	1.0	1.0	2.0	2.5	2.5	2.0	2.5	1.5
Lane Grp Cap (vph)	300	2228	694	277	2193	683	581	1049	326	601	1077	513
v/s Ratio Prot	c0.10	c0.51		0.04	0.32		0.15	0.20		c0.22	c0.29	0.04
v/s Ratio Perm			0.24			0.22			0.07			0.11
v/c Ratio	1.14	1.16	0.55	0.55	0.75	0.51	0.86	0.97	0.35	1.26	1.39	0.48
Uniform Delay, d1	73.0	45.0	33.2	70.7	38.2	33.2	64.6	62.9	54.3	66.0	63.0	45.8
Progression Factor	1.00	1.14	1.37	1.00	1.00	1.00	1.00	1.00	1.00	0.92	1.38	1.49
Incremental Delay, d2	83.0	74.0	1.8	1.2	2.4	2.7	11.5	19.8	0.5	128.7	178.9	0.2
Delay (s)	156.3	125.2	47.2	71.9	40.5	35.9	76.1	82.7	54.8	189.7	266.1	68.3
Level of Service	F	F	D	E	D	D	E	F	D	F	F	E
Approach Delay (s)		117.6			41.5			77.4			223.1	
Approach LOS		F			D			E			F	
Intersection Summary												
HCM Average Control Delay			119.5				HCM Level of Service			F		
HCM Volume to Capacity ratio			1.18									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			107.6%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Timings

3: Sample Road & Lyons Road

AM Peak Hour

Future Total Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	328	2491	449	146	1468	433	404	917	203	733	1444	244
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		pm+ov
Protected Phases	4	6		5	2		7	4		3	8	4
Permitted Phases			6			2			4			8
Detector Phases	4	6	6	5	2	2	7	4	4	3	8	4
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	5.0
Minimum Split (s)	11.5	39.0	39.0	11.5	39.0	39.0	11.5	34.5	34.5	11.5	34.5	11.5
Total Split (s)	18.0	73.0	73.0	18.0	73.0	73.0	32.0	37.0	37.0	32.0	37.0	18.0
Total Split (%)	11.3%	45.6%	45.6%	11.3%	45.6%	45.6%	20.0%	23.1%	23.1%	20.0%	23.1%	11.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	2.0	2.0	2.5	2.0	2.0	2.5	1.5	1.5	2.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C Max	C Max	None	C Max	C Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 34 (21%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 150

Control Type: Actuated Coordinated

Splits and Phases: 3: Sample Road & Lyons Road

											
ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8	ø9	ø10	ø11	ø12
18 s	73 s	32 s	37 s	18 s	73 s	32 s	37 s	18 s	73 s	32 s	37 s

Timings

3: Sample Road & Lyons Road

AM Peak Hour
Future Total Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	  		 	  	
Volume (vph)	331	2501	452	146	1587	512	483	983	203	737	1450	244
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		pm+ov
Protected Phases	1	6		5	2		7	4		3	8	1
Permitted Phases			6			2			4			8
Detector Phases	1	6	6	5	2	2	7	4	4	3	8	1
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	5.0
Minimum Split (s)	11.5	39.0	39.0	11.5	39.0	39.0	11.5	34.5	34.5	11.5	34.5	11.5
Total Split (s)	18.0	73.0	73.0	18.0	73.0	73.0	32.0	37.0	37.0	32.0	37.0	18.0
Total Split (%)	11.3%	45.6%	45.6%	11.3%	45.6%	45.6%	20.0%	23.1%	23.1%	20.0%	23.1%	11.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.5	2.0	2.0	2.5	2.0	2.0	2.5	1.5	1.5	2.5	1.5	1.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 34 (21%), Referenced to phase 2:WBT and 6:EBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Splits and Phases: 3: Sample Road & Lyons Road

			
ø1	ø2	ø3	ø4
18 s	73 s	32 s	37 s
			
ø5	ø6	ø7	ø8
18 s	73 s	32 s	37 s

~~HCM Signalized Intersection Capacity Analysis~~

~~AM Peak Hour~~

~~7: Cullum Road/Turtle Creek Drive & SR 7~~

~~Future Total Traffic Conditions~~

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	0.95	1.00	0.97	0.91	1.00		0.97	0.91
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1767		1770	3539	1583	3433	5085	1583		3433	5085
Flt Permitted	0.73	1.00		0.67	1.00	1.00	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1368	1767		1243	3539	1583	3433	5085	1583		3433	5085
Volume (vph)	202	45	23	53	30	107	42	1846	41	16	197	2468
Peak hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.90	0.90
Adj. Flow (vph)	224	50	26	59	33	119	47	2051	46	17	219	2742
RTOR Reduction (vph)	0	12	0	0	0	96	0	0	14	0	0	0
Lane Group Flow (vph)	224	64	0	59	33	23	47	2051	32	0	236	2742
Turn Type	Perm			Perm		Perm	Prot		Perm	Prot	Prot	
Protected Phases		4			8		5	2		4	4	6
Permitted Phases	4			8		8			2			
Actuated Green, G (s)	28.3	28.3		28.3	28.3	28.3	5.2	100.0	100.0		13.7	108.5
Effective Green, g (s)	30.3	30.3		30.3	30.3	30.3	7.2	102.0	102.0		15.7	110.5
Actuated g/C Ratio	0.19	0.19		0.19	0.19	0.19	0.05	0.64	0.64		0.10	0.69
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)	2.0	2.0		2.0	2.0	2.0	1.5	0.2	0.2		1.5	0.2
Lane Grp Cap (vph)	259	335		235	670	300	154	3242	1009		337	3512
v/s Ratio Prot		0.04			0.01		0.01	0.40			0.07	0.54
v/s Ratio Perm	0.16			0.05		0.01			0.02			
v/c Ratio	0.86	0.19		0.25	0.05	0.08	0.31	0.63	0.03		0.70	0.78
Uniform Delay, d1	62.9	54.5		55.2	53.1	53.3	74.0	17.6	10.7		69.9	16.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.83	1.65	3.02		1.15	0.59
Incremental Delay, d2	23.9	0.1		0.2	0.0	0.0	0.4	0.9	0.1		0.5	0.2
Delay (s)	86.8	54.6		55.4	53.1	53.4	61.8	29.9	32.5		80.6	9.9
Level of Service	F	D		E	D	D	E	C	C		F	A
Approach Delay (s)		78.6			53.9			30.7				14.9
Approach LOS		E			D			C				B
Intersection Summary												
HCM Average Control Delay			25.5				HCM Level of Service		C			
HCM Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			79.7%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: Cullum Road/Turtle Creek Drive & SR 7

AM Peak Hour
Future Total Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	0.95	1.00	0.97	0.91	1.00		0.97	0.91
Frt	1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1782		1770	3539	1583	3433	5085	1583		3433	5085
Flt Permitted	0.73	1.00		0.63	1.00	1.00	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1367	1782		1180	3539	1583	3433	5085	1583		3433	5085
Volume (vph)	202	58	23	56	31	110	42	1850	67	16	359	2438
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.90	0.90
Adj. Flow (vph)	224	64	26	62	34	122	47	2056	74	17	399	2709
RTOR Reduction (vph)	0	10	0	0	0	99	0	0	24	0	0	0
Lane Group Flow (vph)	224	80	0	62	34	23	47	2056	50	0	416	2709
Turn Type	Perm			Perm		Perm	Prot		Perm	Prot	Prot	
Protected Phases		4			8		5	2		1	1	6
Permitted Phases	4			8		8			2			
Actuated Green, G (s)	28.3	28.3		28.3	28.3	28.3	5.2	95.0	95.0		18.7	108.5
Effective Green, g (s)	30.3	30.3		30.3	30.3	30.3	7.2	97.0	97.0		20.7	110.5
Actuated g/C Ratio	0.19	0.19		0.19	0.19	0.19	0.05	0.61	0.61		0.13	0.69
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)	2.0	2.0		2.0	2.0	2.0	1.5	0.2	0.2		1.5	0.2
Lane Grp Cap (vph)	259	337		223	670	300	154	3083	960		444	3512
v/s Ratio Prot		0.05			0.01		0.01	0.40			c0.12	c0.53
v/s Ratio Perm	c0.16			0.05		0.01			0.03			
v/c Ratio	0.86	0.24		0.28	0.05	0.08	0.31	0.67	0.05		0.94	0.77
Uniform Delay, d1	62.9	55.1		55.5	53.1	53.3	74.0	20.8	12.8		69.0	16.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.83	1.56	3.19		1.19	0.57
Incremental Delay, d2	23.9	0.1		0.2	0.0	0.0	0.4	1.1	0.1		4.1	0.2
Delay (s)	86.8	55.2		55.7	53.1	53.4	61.8	33.6	41.0		86.3	9.5
Level of Service	F	E		E	D	D	E	C	D		F	A
Approach Delay (s)		77.7			54.0			34.5				18.9
Approach LOS		E			D			C				B
Intersection Summary												
HCM Average Control Delay			28.9				HCM Level of Service		C			
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)		8.0			
Intersection Capacity Utilization			79.1%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

~~HCM Signalized Intersection Capacity Analysis~~
~~7: Cullum Road/Turtle Creek Drive & SR 7~~

~~AM Peak Hour~~
~~Future Total Traffic Conditions~~

~~Movement~~ ~~SBR~~

~~Left Configurations~~

~~Ideal Flow (vphpl)~~ ~~1900~~

~~Total Lost time (s)~~ ~~4.0~~

~~Lane Util. Factor~~ ~~1.00~~

~~Frt~~ ~~0.85~~

~~Flt Protected~~ ~~1.00~~

~~Satd. Flow (prot)~~ ~~1583~~

~~Flt Permitted~~ ~~1.00~~

~~Satd. Flow (perm)~~ ~~1583~~

~~Volume (vph)~~ ~~126~~

~~Peak hour factor, PHF~~ ~~0.90~~

~~Adj. Flow (vph)~~ ~~140~~

~~RTOR Reduction (vph)~~ ~~20~~

~~Lane Group Flow (vph)~~ ~~120~~

~~Turn Type~~ ~~Perm~~

~~Protected Phases~~

~~Permitted Phases~~ ~~6~~

~~Actuated Green, G (s)~~ ~~108.5~~

~~Effective Green, g (s)~~ ~~110.5~~

~~Actuated g/C Ratio~~ ~~0.69~~

~~Clearance Time (s)~~ ~~6.0~~

~~Vehicle Extension (s)~~ ~~0.2~~

~~Lane Grp Cap (vph)~~ ~~1093~~

~~v/s Ratio Prot~~

~~v/s Ratio Perm~~ ~~0.08~~

~~v/c Ratio~~ ~~0.11~~

~~Uniform Delay, d1~~ ~~8.3~~

~~Progression Factor~~ ~~0.12~~

~~Incremental Delay, d2~~ ~~0.0~~

~~Delay (s)~~ ~~1.0~~

~~Level of Service~~ ~~A~~

~~Approach Delay (s)~~

~~Approach LOS~~

~~Intersection Summary~~

HCM Signalized Intersection Capacity Analysis

7: Cullum Road/Turtle Creek Drive & SR 7

AM Peak Hour
Future Total Traffic Conditions

Movement SBR

Left-Through Configurations

Ideal Flow (vphpl) 1900

Total Lost time (s) 4.0

Lane Util. Factor 1.00

Frt 0.85

Flt Protected 1.00

Satd. Flow (prot) 1583

Flt Permitted 1.00

Satd. Flow (perm) 1583

Volume (vph) 126

Peak-hour factor, PHF 0.90

Adj. Flow (vph) 140

RTOR Reduction (vph) 20

Lane Group Flow (vph) 120

Turn Type Perm

Protected Phases

Permitted Phases 6

Actuated Green, G (s) 108.5

Effective Green, g (s) 110.5

Actuated g/C Ratio 0.69

Clearance Time (s) 6.0

Vehicle Extension (s) 0.2

Lane Grp Cap (vph) 1093

v/s Ratio Prot

v/s Ratio Perm 0.08

v/c Ratio 0.11

Uniform Delay, d1 8.3

Progression Factor 0.10

Incremental Delay, d2 0.0

Delay (s) 0.8

Level of Service A

Approach Delay (s)

Approach LOS

Intersection Summary

Timings

7: Cullum Road/Turtle Creek Drive & SR 7

AM Peak Hour

Future Total Traffic Conditions

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	202	45	53	30	107	42	1846	41	197	2468	126
Turn Type	Perm		Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases		4		8		5	2		4	6	
Permitted Phases	4		8		8			2			6
Detector Phases	4	4	8	8	8	5	2	2	4	6	6
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	11.0	34.0	34.0	11.0	34.0	34.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	21.0	101.0	101.0	21.0	101.0	101.0
Total Split (%)	23.8%	23.8%	23.8%	23.8%	23.8%	13.1%	63.1%	63.1%	13.1%	63.1%	63.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C Max	C Max	None	C Max	C Max

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 153 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 115

Control Type: Actuated Coordinated

Splits and Phases: 7: Cullum Road/Turtle Creek Drive & SR 7

		
ø1	ø2	ø4
21 s	101 s	38 s
		
ø5	ø6	ø8
21 s	101 s	38 s

Timings

7: Cullum Road/Turtle Creek Drive & SR 7

AM Peak Hour
Future Total Traffic Conditions

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	202	58	56	31	110	42	1850	67	359	2438	126
Turn Type	Perm		Perm		Perm	Prot		Perm	Prot		Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phases	4	4	8	8	8	5	2	2	1	6	6
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	38.0	38.0	38.0	38.0	38.0	11.0	34.0	34.0	11.0	34.0	34.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	21.0	101.0	101.0	21.0	101.0	101.0
Total Split (%)	23.8%	23.8%	23.8%	23.8%	23.8%	13.1%	63.1%	63.1%	13.1%	63.1%	63.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 153 (96%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Splits and Phases: 7: Cullum Road/Turtle Creek Drive & SR 7

		
ø1	ø2	ø4
21 s	101 s	38 s
		
ø5	ø6	ø8
21 s	101 s	38 s

~~HCM Signalized Intersection Capacity Analysis~~

~~8: Wiles Road & SR 7~~

~~AM Peak Hour
Future Total Traffic Conditions~~

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations	 	 		 	 			 	  			 
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.97	0.91	1.00		0.97
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583		3433	5085	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583		3433	5085	1583		3433
Volume (vph)	907	773	639	167	400	363	20	275	1590	175	32	266
Peak hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1008	859	710	186	444	403	22	306	1767	194	36	296
RTOR Reduction (vph)	0	0	11	0	0	38	0	0	0	28	0	0
Lane Group Flow (vph)	1008	859	699	186	444	365	0	328	1767	166	0	332
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Prot	pm+ov		Prot	Prot
Protected Phases	7	4	5!	3	8		5!	5	2	3	4	4
Permitted Phases			4			8				2		
Actuated Green, G (s)	35.0	60.3	76.0	12.0	37.3	37.3		15.7	54.0	66.0		9.7
Effective Green, g (s)	37.0	62.3	80.0	14.0	39.3	39.3		17.7	56.0	70.0		11.7
Actuated g/C Ratio	0.23	0.39	0.50	0.09	0.25	0.25		0.11	0.35	0.44		0.07
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)	1.5	2.0	1.5	1.5	2.0	2.0		1.5	1.0	1.5		1.5
Lane Grp Cap (vph)	794	1378	831	300	869	389		380	1780	732		251
v/s Ratio Prot	c0.29	0.24	0.09	0.05	0.13			c0.10	0.35	0.02		c0.10
v/s Ratio Perm			0.35			c0.23				0.09		
v/c Ratio	1.27	0.62	0.84	0.62	0.51	0.94		0.86	0.99	0.23		1.32
Uniform Delay, d1	61.5	39.4	34.5	70.4	52.1	59.2		70.0	51.8	28.1		74.2
Progression Factor	1.00	1.00	1.00	0.90	0.98	0.98		1.26	0.86	0.66		1.00
Incremental Delay, d2	131.2	0.6	7.4	2.6	0.2	28.9		14.0	17.0	0.0		170.3
Delay (s)	192.7	40.0	41.9	66.1	51.0	86.9		101.9	61.8	18.6		244.4
Level of Service	F	D	D	E	D	F		F	E	B		F
Approach Delay (s)		100.3			67.7				63.9			
Approach LOS		F			E				E			
Intersection Summary												
HCM Average Control Delay			117.3				HCM Level of Service			F		
HCM Volume to Capacity ratio			1.19									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			103.8%				ICU Level of Service			G		
Analysis Period (min)			15									
! Phase conflict between lane groups.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: Wiles Road & SR 7

AM Peak Hour
Future Total Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0		4.0
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.97	0.91	1.00		0.97
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583		3433	5085	1583		3433
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00	1.00		0.95
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583		3433	5085	1583		3433
Volume (vph)	907	813	665	167	402	367	20	278	1595	175	32	306
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1008	903	739	186	447	408	22	309	1772	194	36	340
RTOR Reduction (vph)	0	0	11	0	0	38	0	0	0	24	0	0
Lane Group Flow (vph)	1008	903	728	186	447	370	0	331	1772	170	0	376
Turn Type	Prot	pm+ov		Prot	Perm		Prot	Prot	pm+ov		Prot	Prot
Protected Phases	7	4	5!	3	8		5!	5	2	3	1	1
Permitted Phases			4			8				2		
Actuated Green, G (s)	35.0	60.5	76.3	12.0	37.5	37.5		15.8	54.0	66.0		9.5
Effective Green, g (s)	37.0	62.5	80.3	14.0	39.5	39.5		17.8	56.0	70.0		11.5
Actuated g/C Ratio	0.23	0.39	0.50	0.09	0.25	0.25		0.11	0.35	0.44		0.07
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)	1.5	2.0	1.5	1.5	2.0	2.0		1.5	1.0	1.5		1.5
Lane Grp Cap (vph)	794	1382	834	300	874	391		382	1780	732		247
v/s Ratio Prot	c0.29	0.26	c0.10	0.05	0.13			0.10	0.35	0.02		c0.11
v/s Ratio Perm			0.36			0.23				0.09		
v/c Ratio	1.27	0.65	0.87	0.62	0.51	0.95		0.87	1.00	0.23		1.52
Uniform Delay, d1	61.5	39.9	35.3	70.4	51.9	59.2		69.9	51.9	28.2		74.2
Progression Factor	1.00	1.00	1.00	0.90	0.98	0.99		1.24	0.84	0.67		1.00
Incremental Delay, d2	131.2	0.9	9.7	2.6	0.2	30.7		13.7	17.3	0.0		254.6
Delay (s)	192.7	40.7	45.0	66.1	51.3	89.1		100.2	60.7	19.0		328.9
Level of Service	F	D	D	E	D	F		F	E	B		F
Approach Delay (s)		99.7			68.7				62.8			
Approach LOS		F			E				E			

Intersection Summary

HCM Average Control Delay	131.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	107.5%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

~~HCM Signalized Intersection Capacity Analysis~~

~~8: Wiles Road & SR 7~~

~~AM Peak Hour~~

~~Future Total Traffic Conditions~~

		
Movement	SBT	SBR
Lane Configurations	↑↑↑	↑
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	4.0
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1583
Volume (vph)	1952	538
Peak hour factor, PHF	0.90	0.90
Adj. Flow (vph)	2169	598
RTOR Reduction (vph)	0	42
Lane Group Flow (vph)	2169	556
Turn Type	pm+ov	
Protected Phases	6	7
Permitted Phases	6	
Actuated Green, G (s)	48.0	83.0
Effective Green, g (s)	50.0	87.0
Actuated g/C Ratio	0.31	0.54
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	1.0	1.5
Lane Grp Cap (vph)	1589	900
v/s Ratio Prot	0.43	0.14
v/s Ratio Perm	0.21	
v/c Ratio	1.37	0.62
Uniform Delay, d1	55.0	25.1
Progression Factor	1.00	1.00
Incremental Delay, d2	168.4	0.9
Delay (s)	223.4	26.0
Level of Service	F	G
Approach Delay (s)	187.5	
Approach LOS	F	
Intersection Summary		

HCM Signalized Intersection Capacity Analysis 8: Wiles Road & SR 7

AM Peak Hour
Future Total Traffic Conditions

	↓	↙
Movement	SBT	SBR
Lane Configurations	↑↑↑↑	↑
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.0	4.0
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1583
Volume (vph)	2058	538
Peak-hour factor, PHF	0.90	0.90
Adj. Flow (vph)	2287	598
RTOR Reduction (vph)	0	42
Lane Group Flow (vph)	2287	556
Turn Type	pm+ov	
Protected Phases	6	7
Permitted Phases		6
Actuated Green, G (s)	47.7	82.7
Effective Green, g (s)	49.7	86.7
Actuated g/C Ratio	0.31	0.54
Clearance Time (s)	6.0	6.0
Vehicle Extension (s)	1.0	1.5
Lane Grp Cap (vph)	1580	897
v/s Ratio Prot	0.45	0.14
v/s Ratio Perm		0.21
v/c Ratio	1.45	0.62
Uniform Delay, d1	55.1	25.3
Progression Factor	1.00	1.00
Incremental Delay, d2	205.0	0.9
Delay (s)	260.1	26.2
Level of Service	F	C
Approach Delay (s)	225.2	
Approach LOS	F	
Intersection Summary		

Timings

8: Wiles Road & SR 7

AM Peak Hour

Future Total Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	907	773	639	167	400	363	275	1590	175	266	1952	538
Turn Type	Prot	pm+ov		Prot	Perm		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5!	3	8		5	2	3	4	6	7
Permitted Phases			4			8			2			6
Detector Phases	7	4	5	3	8	8	5	2	3	4	6	7
Minimum Initial (s)	5.0	6.0	5.0	5.0	6.0	6.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.0	43.0	11.0	11.0	40.0	40.0	11.0	42.0	11.0	11.0	42.0	11.0
Total Split (s)	41.0	66.0	22.0	20.0	45.0	45.0	22.0	60.0	20.0	14.0	52.0	41.0
Total Split (%)	25.6%	41.3%	13.8%	12.5%	28.1%	28.1%	13.8%	37.5%	12.5%	8.8%	32.5%	25.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C Max	None	None	C Max	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 1 (1%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated Coordinated

! Phase conflict between lane groups.

Splits and Phases: 8: Wiles Road & SR 7

			
14 s	60 s	20 s	66 s
			
22 s	52 s	41 s	45 s

Timings

8: Wiles Road & SR 7

AM Peak Hour
Future Total Traffic Conditions

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 		 	 		 	  		 	  	
Volume (vph)	907	813	665	167	402	367	278	1595	175	306	2058	538
Turn Type	Prot	pm+ov		Prot	Perm		Prot	pm+ov		Prot	pm+ov	
Protected Phases	7	4	5!	3	8		5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phases	7	4	5	3	8	8	5	2	3	1	6	7
Minimum Initial (s)	5.0	6.0	5.0	5.0	6.0	6.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	11.0	43.0	11.0	11.0	40.0	40.0	11.0	42.0	11.0	11.0	42.0	11.0
Total Split (s)	41.0	66.0	22.0	20.0	45.0	45.0	22.0	60.0	20.0	14.0	52.0	41.0
Total Split (%)	25.6%	41.3%	13.8%	12.5%	28.1%	28.1%	13.8%	37.5%	12.5%	8.8%	32.5%	25.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 1 (1%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

! Phase conflict between lane groups.

Splits and Phases: 8: Wiles Road & SR 7

			
14 s	60 s	20 s	66 s
			
22 s	52 s	41 s	45 s

~~HCM Signalized Intersection Capacity Analysis~~

~~9: NW 31st Street & SR 7~~

~~AM Peak Hour~~

~~Future Total Traffic Conditions~~

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.91		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3204		1770	5049		1770	5072	
Flt Permitted	0.70	1.00	1.00	0.63	1.00		0.95	1.00		0.13	1.00	
Satd. Flow (perm)	1313	3539	1583	1176	3204		1770	5049		237	5072	
Volume (vph)	45	29	445	115	27	46	202	1488	75	20	2133	38
Peak hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	47	31	468	121	28	48	213	1566	79	21	2245	40
RTOR Reduction (vph)	0	0	277	0	39	0	0	3	0	0	1	0
Lane Group Flow (vph)	47	31	191	121	37	0	213	1642	0	21	2284	0
Turn Type	pm+pt		Perm		pm+pt		Prot		pm+pt			
Protected Phases	7	4		3	8		5	2		4	6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	28.4	22.2	22.2	40.2	28.1		22.9	98.7		82.3	78.8	
Effective Green, g (s)	32.4	24.2	24.2	42.3	30.1		24.9	100.2		86.3	80.8	
Actuated g/C Ratio	0.20	0.15	0.15	0.26	0.19		0.16	0.63		0.54	0.50	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	5.5		6.0	6.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		2.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	289	535	239	363	603		275	3162		181	2561	
v/s Ratio Prot	0.01	0.01		0.03	0.01		0.12	0.33		0.00	0.45	
v/s Ratio Perm	0.02		0.12	0.06						0.06		
v/c Ratio	0.16	0.06	0.80	0.33	0.06		0.77	0.52		0.12	0.89	
Uniform Delay, d1	52.3	58.1	65.6	46.5	53.3		64.9	16.6		17.3	35.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.40	1.47	
Incremental Delay, d2	0.1	0.0	16.4	0.2	0.0		12.3	0.6		0.1	4.0	
Delay (s)	52.4	58.2	81.9	46.7	53.4		77.1	17.2		24.4	56.3	
Level of Service	D	E	F	D	D		E	B		C	E	
Approach Delay (s)		78.0			49.3			24.0			56.0	
Approach LOS		E			D			C			E	
Intersection Summary												
HCM Average Control Delay			46.1			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			86.0%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: NW 31st Street & SR 7

AM Peak Hour
Future Total Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.91		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3204		1770	5050		1770	5072	
Flt Permitted	0.70	1.00	1.00	0.63	1.00		0.95	1.00		0.12	1.00	
Satd. Flow (perm)	1313	3539	1583	1176	3204		1770	5050		219	5072	
Volume (vph)	45	29	445	115	27	46	202	1541	75	20	2136	38
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	47	31	468	121	28	48	213	1622	79	21	2248	40
RTOR Reduction (vph)	0	0	277	0	39	0	0	3	0	0	1	0
Lane Group Flow (vph)	47	31	191	121	37	0	213	1698	0	21	2287	0
Turn Type	pm+pt		Perm	pm+pt			Prot			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	28.4	22.2	22.2	40.2	28.1		22.9	98.7		82.3	78.8	
Effective Green, g (s)	32.4	24.2	24.2	42.3	30.1		24.9	100.2		86.3	80.8	
Actuated g/C Ratio	0.20	0.15	0.15	0.26	0.19		0.16	0.63		0.54	0.50	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	5.5		6.0	6.0	
Vehicle Extension (s)	1.5	2.0	2.0	1.5	2.0		2.5	3.0		1.5	3.0	
Lane Grp Cap (vph)	289	535	239	363	603		275	3163		171	2561	
v/s Ratio Prot	0.01	0.01		c0.03	0.01		c0.12	0.34		0.00	c0.45	
v/s Ratio Perm	0.02		c0.12	0.06						0.06		
v/c Ratio	0.16	0.06	0.80	0.33	0.06		0.77	0.54		0.12	0.89	
Uniform Delay, d1	52.3	58.1	65.6	46.5	53.3		64.9	16.8		17.4	35.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.41	1.48	
Incremental Delay, d2	0.1	0.0	16.4	0.2	0.0		12.3	0.7		0.1	4.1	
Delay (s)	52.4	58.2	81.9	46.7	53.4		77.1	17.5		24.7	56.9	
Level of Service	D	E	F	D	D		E	B		C	E	
Approach Delay (s)		78.0			49.3			24.1			56.7	
Approach LOS		E			D			C			E	
Intersection Summary												
HCM Average Control Delay			46.2			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			160.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			86.0%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

9: NW 31st Street & SR 7

~~AM Peak Hour~~

Future Total Traffic Conditions

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		 			 		  		  
Volume (vph)	45	29	445	115	27	202	1488	20	2133
Turn Type	pm+pt		Perm	pm+pt		Prot		pm+pt	
Protected Phases	7	4		3	8	5	2	4	6
Permitted Phases	4		4	8				6	
Detector Phases	7	4	4	3	8	5	2	4	6
Minimum Initial (s)	4.0	6.0	6.0	4.0	6.0	4.0	15.0	4.0	15.0
Minimum Split (s)	10.0	29.0	29.0	10.0	29.0	10.0	30.5	10.0	31.0
Total Split (s)	21.0	35.0	35.0	21.0	35.0	34.0	90.0	14.0	70.0
Total Split (%)	13.1%	21.9%	21.9%	13.1%	21.9%	21.3%	56.3%	8.8%	43.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C Min	None	C Min

~~Intersection Summary~~

~~Cycle Length: 160~~

~~Actuated Cycle Length: 160~~

~~Offset: 32 (20%), Referenced to phase 2:NBT and 6:SBTL, Start of Green~~

~~Natural Cycle: 110~~

~~Control Type: Actuated Coordinated~~

~~Splits and Phases: 0: NW 31st Street & SR 7~~

 ø1	 ø2	 ø3	 ø4
14 s	90 s	21 s	35 s
 ø5	 ø6	 ø7	 ø8
34 s	70 s	21 s	35 s

9: NW 31st Street & SR 7

Future Total Traffic Conditions

Intersection Summary

Actuated Cycle Length: 160

Offset: 32 (20%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

ø1	ø2	ø3	ø4
14 s	90 s	21 s	35 s
ø5	ø6	ø7	ø8
34 s	70 s	21 s	35 s

~~HCM Signalized Intersection Capacity Analysis~~

22: Sample Road & Banks Road

~~AM Peak Hour~~

~~Future Total Traffic Conditions~~

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91			0.91	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085			5085	1583		1863		1770	1863	1583
Flt Permitted	0.06	1.00			1.00	1.00		1.00		0.62	1.00	1.00
Satd. Flow (perm)	105	5085			5085	1583		1863		1154	1863	1583
Volume (vph)	49	3082	0	0	1983	85	0	32	0	94	33	137
Peak hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	51	3177	0	0	2044	88	0	33	0	94	34	141
RTOR Reduction (vph)	0	0	0	0	0	23	0	0	0	0	0	70
Lane Group Flow (vph)	51	3177	0	0	2044	65	0	33	0	94	34	71
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		4	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	110.6	110.6			101.4	101.4		19.3		37.4	37.4	37.4
Effective Green, g (s)	112.6	112.6			103.4	103.4		21.3		39.4	39.4	39.4
Actuated g/C Ratio	0.70	0.70			0.65	0.65		0.13		0.25	0.25	0.25
Clearance Time (s)	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
Lane Grp Cap (vph)	128	3579			3286	1023		248		338	459	390
v/s Ratio Prot	0.01	0.62			0.40			0.02		0.02	0.02	
v/s Ratio Perm	0.27					0.04				0.04		0.04
v/c Ratio	0.40	0.89			0.62	0.06		0.13		0.28	0.07	0.18
Uniform Delay, d1	14.5	18.7			16.7	10.4		61.2		48.1	46.3	47.6
Progression Factor	1.53	0.66			0.41	0.17		1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	1.9			0.3	0.0		1.1		0.5	0.3	1.0
Delay (s)	23.5	14.3			7.1	1.8		62.3		48.5	46.6	48.6
Level of Service	C	B			A	A		E		D	D	D
Approach Delay (s)		14.5			6.9			62.3			48.3	
Approach LOS		B			A			E			D	
Intersection Summary												
HCM Average Control Delay			13.5				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			77.9%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: Sample Road & Banks Road

AM Peak Hour
Future Total Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.91			0.91	1.00		1.00		1.00	1.00	1.00
Frt	1.00	1.00			1.00	0.85		1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	5085			5085	1583		1863		1770	1863	1583
Flt Permitted	0.05	1.00			1.00	1.00		1.00		0.55	1.00	1.00
Satd. Flow (perm)	87	5085			5085	1583		1863		1021	1863	1583
Volume (vph)	102	3155	0	0	2083	178	0	72	0	87	36	65
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	105	3253	0	0	2147	184	0	74	0	90	37	67
RTOR Reduction (vph)	0	0	0	0	0	47	0	0	0	0	0	50
Lane Group Flow (vph)	105	3253	0	0	2147	137	0	74	0	90	37	17
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		2	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	110.0	110.0			100.0	100.0		20.1		38.0	38.0	38.0
Effective Green, g (s)	112.0	112.0			102.0	102.0		22.1		40.0	40.0	40.0
Actuated g/C Ratio	0.70	0.70			0.64	0.64		0.14		0.25	0.25	0.25
Clearance Time (s)	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
Lane Grp Cap (vph)	124	3560			3242	1009		257		320	466	396
v/s Ratio Prot	0.03	c0.64			0.42			0.04		c0.02	0.02	
v/s Ratio Perm	0.56					0.09				c0.05		0.01
v/c Ratio	0.85	0.91			0.66	0.14		0.29		0.28	0.08	0.04
Uniform Delay, d1	32.1	20.0			18.2	11.5		61.9		47.5	45.9	45.5
Progression Factor	1.80	0.66			0.37	0.16		1.00		1.00	1.00	1.00
Incremental Delay, d2	26.1	2.6			0.4	0.0		2.8		0.5	0.3	0.2
Delay (s)	83.8	15.7			7.1	1.9		64.7		48.0	46.2	45.7
Level of Service	F	B			A	A		E		D	D	D
Approach Delay (s)		17.9			6.7			64.7			46.9	
Approach LOS		B			A			E			D	
Intersection Summary												
HCM Average Control Delay			15.0				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			160.0				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			85.8%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Timings

AM Peak Hour

22: Sample Road & Banks Road

Future Total Traffic Conditions

										
Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBT	SBR	ø3	ø5
Lane Configurations										
Volume (vph)	49	3082	1983	85	32	94	33	137		
Turn Type	pm+pt			Perm		pm+pt		Perm		
Protected Phases	7	4	8		2	4	6		3	5
Permitted Phases	4			8		6		6		
Detector Phases	7	4	8	8	2	4	6	6		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	22.0	22.0	10.0	22.0	22.0	10.0	10.0
Total Split (s)	10.0	106.0	106.0	106.0	22.0	22.0	34.0	34.0	10.0	10.0
Total Split (%)	6.3%	66.3%	66.3%	66.3%	13.8%	13.8%	21.3%	21.3%	6%	6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C Max	None	C Max	C Max	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 0 (6%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated Coordinated

Splits and Phases: 22: Sample Road & Banks Road

			
ø1	ø2	ø3	ø4
22 s	22 s	10 s	106 s
			
ø5	ø6	ø7	ø8
10 s	34 s	10 s	106 s

Timings

22: Sample Road & Banks Road

AM Peak Hour
Future Total Traffic Conditions

										
Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBT	SBR	ø3	ø5
Lane Configurations		  	  							
Volume (vph)	102	3155	2083	178	72	87	36	65		
Turn Type	pm+pt			Perm		pm+pt		Perm		
Protected Phases	7	4	8		2	1	6		3	5
Permitted Phases	4			8		6		6		
Detector Phases	7	4	8	8	2	1	6	6		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	22.0	22.0	10.0	22.0	22.0	10.0	10.0
Total Split (s)	10.0	106.0	106.0	106.0	22.0	22.0	34.0	34.0	10.0	10.0
Total Split (%)	6.3%	66.3%	66.3%	66.3%	13.8%	13.8%	21.3%	21.3%	6%	6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead	Lag	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	C-Max	None	C-Max	C-Max	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 9 (6%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 22: Sample Road & Banks Road

			
ø1	ø2	ø3	ø4
22 s	22 s	10 s	106 s
			
ø5	ø6	ø7	ø8
10 s	34 s	10 s	106 s

~~HCM Signalized Intersection Capacity Analysis~~
~~25: Sample Road & Fisherman's Landing Driveway~~

~~AM Peak Hour~~
~~Future Total Traffic Conditions~~

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	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	5085	5085	1583	1770	1583
Flt Permitted	0.06	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	112	5085	5085	1583	1770	1583
Volume (vph)	28	3180	2063	49	80	47
Peak hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	29	3278	2127	51	82	48
RTOR Reduction (vph)	0	0	0	12	0	41
Lane Group Flow (vph)	29	3278	2127	39	82	7
Turn Type	pm+pt			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	126.0	126.0	115.3	115.3	22.0	22.0
Effective Green, g (s)	128.0	128.0	117.3	117.3	24.0	24.0
Actuated g/C Ratio	0.80	0.80	0.73	0.73	0.15	0.15
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)	159	4068	3728	1161	266	237
v/s Ratio Prot	0.01	0.64	0.42		0.05	
v/s Ratio Perm	0.14			0.02		0.00
v/c Ratio	0.18	0.81	0.57	0.03	0.31	0.03
Uniform Delay, d1	7.3	9.0	9.8	5.8	60.6	58.1
Progression Factor	0.80	0.30	0.55	0.57	1.00	1.00
Incremental Delay, d2	0.3	0.8	0.5	0.0	3.0	0.2
Delay (s)	6.2	3.6	5.9	3.4	63.6	58.3
Level of Service	A	A	A	A	E	E
Approach Delay (s)		3.6	5.8		61.6	
Approach LOS		A	A		E	
Intersection Summary						
HCM Average Control Delay			5.8		HCM Level of Service	A
HCM Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			160.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			72.5%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

25: Sample Road & Fisherman's Landing Driveway

AM Peak Hour
Future Total Traffic Conditions

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	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	5085	5085	1583	1770	1583
Flt Permitted	0.05	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	89	5085	5085	1583	1770	1583
Volume (vph)	54	3191	2208	102	86	50
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	56	3290	2276	105	89	52
RTOR Reduction (vph)	0	0	0	23	0	44
Lane Group Flow (vph)	56	3290	2276	82	89	8
Turn Type	pm+pt			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	126.0	126.0	114.1	114.1	22.0	22.0
Effective Green, g (s)	128.0	128.0	116.1	116.1	24.0	24.0
Actuated g/C Ratio	0.80	0.80	0.73	0.73	0.15	0.15
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)	154	4068	3690	1149	266	237
v/s Ratio Prot	0.02	c0.65	0.45		c0.05	
v/s Ratio Perm	0.27			0.05		0.00
v/c Ratio	0.36	0.81	0.62	0.07	0.33	0.03
Uniform Delay, d1	11.2	9.1	10.9	6.4	60.9	58.1
Progression Factor	2.27	0.34	0.61	0.68	1.00	1.00
Incremental Delay, d2	0.6	0.8	0.5	0.1	3.4	0.3
Delay (s)	25.9	3.9	7.1	4.4	64.2	58.3
Level of Service	C	A	A	A	E	E
Approach Delay (s)		4.2	7.0		62.1	
Approach LOS		A	A		E	
Intersection Summary						
HCM Average Control Delay			6.7		HCM Level of Service	A
HCM Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			160.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			73.1%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Timings

AM Peak Hour

25: Sample Road & Fisherman's Landing Driveway

Future Total Traffic Conditions

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Volume (vph)	28	3180	2063	49	80	47
Turn Type	pm+pt			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phases	7	4	8	8	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	16.0	132.0	116.0	116.0	28.0	28.0
Total Split (%)	10.0%	82.5%	72.5%	72.5%	17.5%	17.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C Max	C Max	C Max	Max	Max

Intersection Summary

Cycle Length: 160

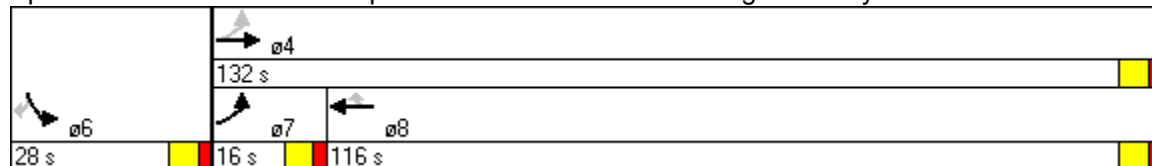
Actuated Cycle Length: 160

Offset: 20 (18%), Referenced to phase 4:EBTL and 8:WBT, Start of Green

Natural Cycle: 80

Control Type: Actuated Coordinated

Splits and Phases: 25: Sample Road & Fisherman's Landing Driveway



Timings
25: Sample Road & Fisherman's Landing Driveway

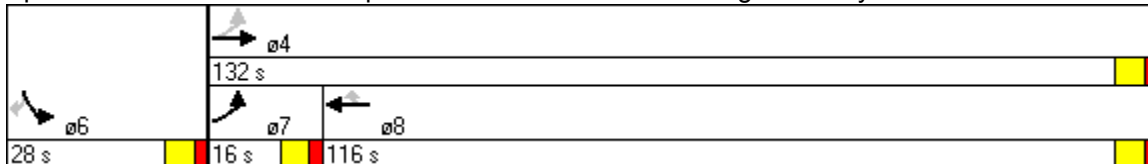
AM Peak Hour
Future Total Traffic Conditions

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	54	3191	2208	102	86	50
Turn Type	pm+pt			Perm		Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phases	7	4	8	8	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	16.0	132.0	116.0	116.0	28.0	28.0
Total Split (%)	10.0%	82.5%	72.5%	72.5%	17.5%	17.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Max	C-Max	C-Max	Max	Max

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 160
 Offset: 29 (18%), Referenced to phase 4:EBTL and 8:WBT, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated

Splits and Phases: 25: Sample Road & Fisherman's Landing Driveway



~~HCM Signalized Intersection Capacity Analysis~~

~~33: Cullum Road & Lyons Road~~

~~AM Peak Hour~~

~~Future Total Traffic Conditions~~

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00		1.00	0.91			0.91	1.00
Frt	1.00	0.92			1.00		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1770	1717			1863		1770	5085			5085	1583
Flt Permitted	0.95	1.00			1.00		0.04	1.00			1.00	1.00
Satd. Flow (perm)	1770	1717			1863		77	5085			5085	1583
Volume (vph)	34	11	12	0	11	0	13	1731	0	0	2439	24
Peak hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	35	11	12	0	11	0	13	1785	0	0	2514	25
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	0	2
Lane Group Flow (vph)	35	12	0	0	11	0	13	1785	0	0	2514	23
Turn Type	Split			Perm			pm+pt		Perm	Perm		Perm
Protected Phases	4	4			8		5	2			6	
Permitted Phases				8			2		2	6		6
Actuated Green, G (s)	7.7	7.7			3.1		153.2	153.2			144.8	144.8
Effective Green, g (s)	9.7	9.7			4.1		155.2	155.2			146.8	146.8
Actuated g/C Ratio	0.05	0.05			0.02		0.86	0.86			0.81	0.81
Clearance Time (s)	6.0	6.0			5.0		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)	95	92			42		107	4360			4124	1284
v/s Ratio Prot	0.02	0.01			0.01		0.00	0.35			0.49	
v/s Ratio Perm							0.10					0.01
v/c Ratio	0.37	0.13			0.26		0.12	0.41			0.61	0.02
Uniform Delay, d1	82.7	81.6			87.0		5.9	2.8			6.4	3.3
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	2.4	0.6			3.3		0.5	0.3			0.7	0.0
Delay (s)	85.1	82.2			90.3		6.4	3.1			7.1	3.3
Level of Service	F	F			F		A	A			A	A
Approach Delay (s)		84.0			90.3			3.1			7.0	
Approach LOS		F			F			A			A	
Intersection Summary												
HCM Average Control Delay			6.7				HCM Level of Service		A			
HCM Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			181.0				Sum of lost time (s)		16.0			
Intersection Capacity Utilization			62.3%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

33: Cullum Road & Lyons Road

AM Peak Hour
Future Total Traffic Conditions

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  			  	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			1.00		1.00	0.91			0.91	1.00
Frt	1.00	0.92			1.00		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1770	1717			1863		1770	5085			5085	1583
Flt Permitted	0.95	1.00			1.00		0.03	1.00			1.00	1.00
Satd. Flow (perm)	1770	1717			1863		55	5085			5085	1583
Volume (vph)	37	12	13	0	24	0	26	1749	0	0	2612	50
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	38	12	13	0	25	0	27	1803	0	0	2693	52
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	0	5
Lane Group Flow (vph)	38	13	0	0	25	0	27	1803	0	0	2693	47
Turn Type	Split			Perm			pm+pt		Perm	Perm		Perm
Protected Phases	4	4			8		5	2			6	
Permitted Phases				8			2		2	6		6
Actuated Green, G (s)	7.9	7.9			5.4		150.7	150.7			139.8	139.8
Effective Green, g (s)	9.9	9.9			6.4		152.7	152.7			141.8	141.8
Actuated g/C Ratio	0.05	0.05			0.04		0.84	0.84			0.78	0.78
Clearance Time (s)	6.0	6.0			5.0		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)	97	94			66		112	4290			3984	1240
v/s Ratio Prot	c0.02	0.01			c0.01		0.01	c0.35			c0.53	
v/s Ratio Perm							0.19					0.03
v/c Ratio	0.39	0.14			0.38		0.24	0.42			0.68	0.04
Uniform Delay, d1	82.6	81.5			85.4		11.5	3.4			9.0	4.4
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	2.6	0.7			3.6		1.1	0.3			0.9	0.1
Delay (s)	85.2	82.1			89.0		12.7	3.7			10.0	4.4
Level of Service	F	F			F		B	A			A	A
Approach Delay (s)		84.0			89.0			3.9			9.9	
Approach LOS		F			F			A			A	
Intersection Summary												
HCM Average Control Delay			8.9				HCM Level of Service		A			
HCM Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			181.0				Sum of lost time (s)		16.0			
Intersection Capacity Utilization			65.9%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

Timings

33: Cullum Road & Lyons Road

AM Peak Hour

Future Total Traffic Conditions

							
Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	34	11	11	13	1731	2439	24
Turn Type	Split			pm+pt			Perm
Protected Phases	4	4	8	5	2	6	
Permitted Phases				2			6
Detector Phases	4	4	8	5	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	21.0	10.0	22.0	22.0	22.0
Total Split (s)	33.0	33.0	21.0	21.0	127.0	106.0	106.0
Total Split (%)	18.2%	18.2%	11.6%	11.6%	70.2%	58.6%	58.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 181

Actuated Cycle Length: 181

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated Coordinated

Splits and Phases: 33: Cullum Road & Lyons Road

 ø2	 ø4	 ø8
127 s	33 s	21 s
 ø5	 ø6	
21 s	106 s	

Timings

33: Cullum Road & Lyons Road

AM Peak Hour
Future Total Traffic Conditions

							
Lane Group	EBL	EBT	WBT	NBL	NBT	SBT	SBR
Lane Configurations							
Volume (vph)	37	12	24	26	1749	2612	50
Turn Type	Split			pm+pt			Perm
Protected Phases	4	4	8	5	2	6	
Permitted Phases				2			6
Detector Phases	4	4	8	5	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	21.0	10.0	22.0	22.0	22.0
Total Split (s)	33.0	33.0	21.0	21.0	127.0	106.0	106.0
Total Split (%)	18.2%	18.2%	11.6%	11.6%	70.2%	58.6%	58.6%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0	2.0
Lead/Lag				Lead		Lag	Lag
Lead-Lag Optimize?				Yes		Yes	Yes
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 181

Actuated Cycle Length: 181

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 33: Cullum Road & Lyons Road

					
ø2			ø4		ø8
127 s			33 s		21 s
					
ø5	ø6				
21 s	106 s				

~~HCM Signalized Intersection Capacity Analysis~~

~~31: Jardin Driveway & Lyons Road~~

~~AM Peak Hour~~

~~Future Total Traffic Conditions~~

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	5085	5085	1583
Flt Permitted	0.95	1.00	0.04	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	79	5085	5085	1583
Volume (vph)	45	23	34	1698	2429	24
Peak hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	46	24	35	1751	2504	25
RTOR Reduction (vph)	0	22	0	0	0	3
Lane Group Flow (vph)	46	2	35	1751	2504	22
Turn Type	Perm pm+pt					Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	8.2	8.2	139.8	139.8	128.7	128.7
Effective Green, g (s)	10.2	10.2	141.8	141.8	130.7	130.7
Actuated g/C Ratio	0.06	0.06	0.89	0.89	0.82	0.82
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)	113	101	145	4507	4154	1293
v/s Ratio Prot	c0.03		0.01	c0.34	c0.49	
v/s Ratio Perm		0.00	0.20			0.01
v/c Ratio	0.41	0.02	0.24	0.39	0.60	0.02
Uniform Delay, d1	72.0	70.2	5.5	1.6	5.3	2.7
Progression Factor	1.00	1.00	12.79	0.25	1.00	1.00
Incremental Delay, d2	2.4	0.1	0.8	0.2	0.7	0.0
Delay (s)	74.4	70.3	70.8	0.6	5.9	2.7
Level of Service	E	E	E	A	A	A
Approach Delay (s)	73.0			2.0	5.9	
Approach LOS	E			A	A	
Intersection Summary						
HCM Average Control Delay			5.4		HCM Level of Service	A
HCM Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			160.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			56.9%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

31: Jardin Driveway & Lyons Road

AM Peak Hour
Future Total Traffic Conditions

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	5085	5085	1583
Flt Permitted	0.95	1.00	0.03	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	61	5085	5085	1583
Volume (vph)	48	25	74	1726	2576	50
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	49	26	76	1779	2656	52
RTOR Reduction (vph)	0	24	0	0	0	6
Lane Group Flow (vph)	49	2	76	1779	2656	46
Turn Type	Perm pm+pt					Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	8.4	8.4	139.6	139.6	125.2	125.2
Effective Green, g (s)	10.4	10.4	141.6	141.6	127.2	127.2
Actuated g/C Ratio	0.07	0.07	0.88	0.88	0.80	0.80
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)	115	103	165	4500	4043	1258
v/s Ratio Prot	c0.03		c0.03	0.35	c0.52	
v/s Ratio Perm		0.00	0.38			0.03
v/c Ratio	0.43	0.02	0.46	0.40	0.66	0.04
Uniform Delay, d1	71.9	70.0	27.9	1.6	7.0	3.5
Progression Factor	1.00	1.00	2.01	0.31	1.00	1.00
Incremental Delay, d2	2.5	0.1	1.9	0.2	0.8	0.1
Delay (s)	74.5	70.1	57.9	0.7	7.9	3.5
Level of Service	E	E	E	A	A	A
Approach Delay (s)	72.9			3.1	7.8	
Approach LOS	E			A	A	
Intersection Summary						
HCM Average Control Delay			7.0		HCM Level of Service	A
HCM Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			160.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			67.2%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Timings

31: Jardin Driveway & Lyons Road

AM Peak Hour

Future Total Traffic Conditions

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	45	23	34	1698	2429	24
Turn Type	Perm pm+pt					Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phases	4	4	5	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0	22.0
Total Split (s)	33.0	33.0	21.0	127.0	106.0	106.0
Total Split (%)	20.6%	20.6%	13.1%	79.4%	66.3%	66.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C Max	C Max	C Max

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 75

Control Type: Actuated Coordinated

Splits and Phases: 31: Jardin Driveway & Lyons Road

 ø2		 ø4
127 s		33 s
 ø5	 ø6	
21 s	106 s	

Timings

31: Jardin Driveway & Lyons Road

AM Peak Hour
Future Total Traffic Conditions

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	48	25	74	1726	2576	50
Turn Type	Perm			pm+pt		Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phases	4	4	5	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0	22.0
Total Split (s)	33.0	33.0	21.0	127.0	106.0	106.0
Total Split (%)	20.6%	20.6%	13.1%	79.4%	66.3%	66.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 31: Jardin Driveway & Lyons Road

 ø2		 ø4
127 s		33 s
 ø5	 ø6	
21 s	106 s	

~~HCM Signalized Intersection Capacity Analysis~~

~~35: Wiles Road & Banks Road~~

~~AM Peak Hour~~

~~Future Total Traffic Conditions~~

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95	1.00	1.00
Frt		0.99		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		3509		1770	3539	1770	1583
Flt Permitted		1.00		0.13	1.00	0.95	1.00
Satd. Flow (perm)		3509		242	3539	1770	1583
Volume (vph)	0	1154	69	144	852	89	69
Peak hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1282	77	160	947	89	77
RTOR Reduction (vph)	0	2	0	0	0	0	62
Lane Group Flow (vph)	0	1357	0	160	947	89	15
Turn Type	Perm			pm+pt			Perm
Protected Phases		4		3	8	2	
Permitted Phases	4			8			2
Actuated Green, G (s)		101.1		118.0	118.0	30.0	30.0
Effective Green, g (s)		103.1		120.0	120.0	32.0	32.0
Actuated g/C Ratio		0.64		0.75	0.75	0.20	0.20
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		2261		305	2654	354	317
v/s Ratio Prot		0.39		0.04	0.27	0.05	
v/s Ratio Perm				0.35			0.01
v/c Ratio		0.60		0.52	0.36	0.25	0.05
Uniform Delay, d1		16.5		13.2	6.8	53.9	51.7
Progression Factor		2.29		1.00	1.00	1.00	1.00
Incremental Delay, d2		0.8		1.6	0.4	1.7	0.3
Delay (s)		38.7		14.8	7.2	55.6	52.0
Level of Service		D		B	A	E	D
Approach Delay (s)		38.7			8.3	53.9	
Approach LOS		D			A	D	
Intersection Summary							
HCM Average Control Delay		26.9		HCM Level of Service		C	
HCM Volume to Capacity ratio		0.52					
Actuated Cycle Length (s)		160.0		Sum of lost time (s)		12.0	
Intersection Capacity Utilization		56.5%		ICU Level of Service		B	
Analysis Period (min)		15					
c Critical Lane Group							

HCM Signalized Intersection Capacity Analysis

28: Uptown Driveway & Lyons Road

AM Peak Hour
Future Total Traffic Conditions

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  	  	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	5085	5085	1583
Flt Permitted	0.95	1.00	0.04	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	66	5085	5085	1583
Volume (vph)	146	101	174	1651	2328	273
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	151	104	179	1702	2400	281
RTOR Reduction (vph)	0	91	0	0	0	52
Lane Group Flow (vph)	151	13	179	1702	2400	229
Turn Type	Perm pm+pt					Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	18.5	18.5	129.5	129.5	106.8	106.8
Effective Green, g (s)	20.5	20.5	131.5	131.5	108.8	108.8
Actuated g/C Ratio	0.13	0.13	0.82	0.82	0.68	0.68
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)	227	203	253	4179	3458	1076
v/s Ratio Prot	c0.09		c0.08	0.33	0.47	
v/s Ratio Perm		0.01	c0.50			0.14
v/c Ratio	0.67	0.07	0.71	0.41	0.69	0.21
Uniform Delay, d1	66.5	61.3	50.2	3.8	15.5	9.6
Progression Factor	1.00	1.00	1.78	0.23	0.56	0.19
Incremental Delay, d2	7.2	0.1	3.8	0.1	0.9	0.3
Delay (s)	73.6	61.5	92.8	1.0	9.5	2.2
Level of Service	E	E	F	A	A	A
Approach Delay (s)	68.7			9.8	8.8	
Approach LOS	E			A	A	
Intersection Summary						
HCM Average Control Delay			12.3		HCM Level of Service	B
HCM Volume to Capacity ratio			0.69			
Actuated Cycle Length (s)			160.0		Sum of lost time (s)	8.0
Intersection Capacity Utilization			72.7%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Timings

35: Wiles Road & Banks Road

AM Peak Hour

Future Total Traffic Conditions

					
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Volume (vph)	1154	144	852	80	69
Turn Type	pm+pt			Perm	
Protected Phases	4	3	8	2	
Permitted Phases		8			2
Detector Phases	4	3	8	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	22.0	22.0	22.0
Total Split (s)	88.0	36.0	124.0	36.0	36.0
Total Split (%)	55.0%	22.5%	77.5%	22.5%	22.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 26 (16%), Referenced to phase 4:EBTU and 8:WBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated Coordinated

Splits and Phases: 35: Wiles Road & Banks Road

 ø2	 ø3	 ø4
36 s	36 s	88 s
	 ø8	
	124 s	

Timings
28: Uptown Driveway & Lyons Road

AM Peak Hour
Future Total Traffic Conditions

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	146	101	174	1651	2328	273
Turn Type	Perm			pm+pt		Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phases	4	4	5	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0	22.0
Total Split (s)	34.0	34.0	25.0	126.0	101.0	101.0
Total Split (%)	21.3%	21.3%	15.6%	78.8%	63.1%	63.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 28: Uptown Driveway & Lyons Road

 ø2		 ø4
126 s		34 s
 ø5	 ø6	
25 s	101 s	

HCM Signalized Intersection Capacity Analysis

28: Uptown Driveway & Lyons Road

AM Peak Hour
Future Total Traffic Conditions

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	5085	5085	1583
Flt Permitted	0.95	1.00	0.04	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	76	5085	5085	1583
Volume (vph)	135	93	84	1595	2325	128
Peak hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	139	96	84	1644	2397	132
RTOR Reduction (vph)	0	84	0	0	0	21
Lane Group Flow (vph)	139	12	84	1644	2397	111
Turn Type	Perm pm+pt				Perm	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	17.5	17.5	130.5	130.5	115.3	115.3
Effective Green, g (s)	19.5	19.5	132.5	132.5	117.3	117.3
Actuated g/C Ratio	0.12	0.12	0.83	0.83	0.73	0.73
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)	216	193	182	4211	3728	1161
v/s Ratio Prot	0.08		0.03	0.32	0.47	
v/s Ratio Perm		0.01	0.35			0.07
v/c Ratio	0.64	0.06	0.46	0.39	0.64	0.10
Uniform Delay, d1	66.9	62.1	22.9	3.5	10.8	6.1
Progression Factor	1.00	1.00	2.59	0.24	0.54	0.30
Incremental Delay, d2	6.4	0.1	0.9	0.1	0.7	0.1
Delay (s)	73.4	62.3	60.3	1.0	6.5	2.0
Level of Service	E	E	E	A	A	A
Approach Delay (s)	68.8			3.9	6.3	
Approach LOS	E			A	A	
Intersection Summary						
HCM Average Control Delay			8.6		HCM Level of Service	A
HCM Volume to Capacity ratio			0.63			
Actuated Cycle Length (s)			160.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			66.9%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

35: Wiles Road & Banks Road

AM Peak Hour
Future Total Traffic Conditions

							
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	0.95	1.00	1.00
Frt		0.98		1.00	1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)		3479		1770	3539	1770	1583
Flt Permitted		1.00		0.07	1.00	0.95	1.00
Satd. Flow (perm)		3479		140	3539	1770	1583
Volume (vph)	0	1154	148	316	852	86	74
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	1282	164	351	947	96	82
RTOR Reduction (vph)	0	6	0	0	0	0	66
Lane Group Flow (vph)	0	1440	0	351	947	96	16
Turn Type	Perm			pm+pt			Perm
Protected Phases		4		3	8	2	
Permitted Phases	4			8			2
Actuated Green, G (s)		84.8		118.0	118.0	30.0	30.0
Effective Green, g (s)		86.8		120.0	120.0	32.0	32.0
Actuated g/C Ratio		0.54		0.75	0.75	0.20	0.20
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0
Vehicle Extension (s)		3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		1887		402	2654	354	317
v/s Ratio Prot		0.41		c0.16	0.27	c0.05	
v/s Ratio Perm				c0.50			0.01
v/c Ratio		0.76		0.87	0.36	0.27	0.05
Uniform Delay, d1		28.6		47.2	6.8	54.1	51.7
Progression Factor		1.86		1.00	1.00	1.00	1.00
Incremental Delay, d2		1.7		18.4	0.4	1.9	0.3
Delay (s)		55.0		65.6	7.2	56.0	52.0
Level of Service		D		E	A	E	D
Approach Delay (s)		55.0			23.0	54.2	
Approach LOS		D			C	D	
Intersection Summary							
HCM Average Control Delay			40.7		HCM Level of Service		D
HCM Volume to Capacity ratio			0.74				
Actuated Cycle Length (s)			160.0		Sum of lost time (s)		8.0
Intersection Capacity Utilization			68.9%		ICU Level of Service		C
Analysis Period (min)			15				
c Critical Lane Group							

Timings

28: Uptown Driveway & Lyons Road

AM Peak Hour

Future Total Traffic Conditions

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	135	93	84	1595	2325	128
Turn Type	Perm pm+pt					Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phases	4	4	5	2	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	10.0	22.0	22.0	22.0
Total Split (s)	34.0	34.0	25.0	126.0	101.0	101.0
Total Split (%)	21.3%	21.3%	15.6%	78.8%	63.1%	63.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C Max	C Max	C Max

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated Coordinated

Splits and Phases: 28: Uptown Driveway & Lyons Road

 ø2		 ø4
126 s		34 s
 ø5	 ø6	
25 s	101 s	

Timings

35: Wiles Road & Banks Road

AM Peak Hour
Future Total Traffic Conditions

					
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Volume (vph)	1154	316	852	86	74
Turn Type	pm+pt				Perm
Protected Phases	4	3	8	2	
Permitted Phases		8			2
Detector Phases	4	3	8	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	10.0	22.0	22.0	22.0
Total Split (s)	88.0	36.0	124.0	36.0	36.0
Total Split (%)	55.0%	22.5%	77.5%	22.5%	22.5%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	C-Max	None	C-Max	Max	Max

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 26 (16%), Referenced to phase 4:EBTU and 8:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 35: Wiles Road & Banks Road

 ø2	 ø3	 ø4
36 s	36 s	88 s
	 ø8	
	124 s	

~~Arterial Level of Service~~~~AM Peak Hour
Future Total Traffic Conditions~~~~Arterial Level of Service: EB Sample Road~~

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SB SR 7 On-Ramp	II	45	15.2	24.4	39.6	0.14	12.6	F
NW 54th Avenue	II	45	29.5	23.9	53.4	0.30	20.1	D
Banks Road	II	45	15.0	15.9	30.9	0.14	16.0	E
Fisherman's Landing	II	45	21.1	3.7	24.8	0.19	28.0	B
Lyons Road	II	45	29.4	117.7	147.1	0.30	7.3	F
Total	II		110.2	185.6	295.8	1.06	13.0	F

~~Arterial Level of Service: WB Sample Road~~

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lyons Road	II	45	21.5	38.9	60.4	0.20	11.7	F
Fisherman's Landing	II	45	29.4	5.8	35.2	0.30	30.4	B
Banks Road	II	45	21.1	7.7	28.8	0.19	24.1	C
NW 54th Avenue	II	45	15.0	9.7	24.7	0.14	20.0	D
NB SR 7 On-Ramp	II	45	29.5	16.3	45.8	0.30	23.4	C
Total	II		116.5	78.4	194.9	1.12	20.7	D

~~Arterial Level of Service: NB SR 7~~

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Cullum Road/Turtle C	I	47	76.4	31.3	107.7	0.99	33.0	C
Wiles Road	I	50	26.2	61.7	87.9	0.26	10.7	F
Total	I		102.6	93.0	195.6	1.25	23.0	D

~~Arterial Level of Service: SB SR 7~~

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Wiles Road	I	50	61.6	209.7	271.3	0.86	11.4	F
Cullum Road/Turtle C	I	50	26.2	10.4	36.6	0.26	25.8	D
NW 31st Street	I	47	76.4	54.7	131.1	0.99	27.1	C
Total	I		164.2	274.8	439.0	2.11	17.3	E

Arterial Level of Service: EB Sample Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SB SR 7 On Ramp	II	45	15.2	24.4	39.6	0.14	12.6	F
NW 54th Avenue	II	45	29.5	23.9	53.4	0.30	20.1	D
Banks Road	II	45	15.0	15.9	30.9	0.14	16.0	E
Fisherman's Landing	II	45	21.1	3.7	24.8	0.19	28.0	B
Lyons Road	II	45	29.4	117.7	147.1	0.30	7.3	F
Total	II		110.2	185.6	295.8	1.06	13.0	F

Arterial Level of Service: WB Sample Road

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lyons Road	II	45	21.5	38.9	60.4	0.20	11.7	F
Fisherman's Landing	II	45	29.4	5.8	35.2	0.30	30.4	B
Banks Road	II	45	21.1	7.7	28.8	0.19	24.1	C
NW 54th Avenue	II	45	15.0	9.7	24.7	0.14	20.0	D
NB SR 7 On Ramp	II	45	29.5	16.3	45.8	0.30	23.4	C
Total	II		116.5	78.4	194.9	1.12	20.7	D

Arterial Level of Service: NB SR 7

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Cullum Road/Turtle C	I	47	76.4	31.3	107.7	0.99	33.0	C
Wiles Road	I	50	26.2	61.7	87.9	0.26	10.7	F
Total	I		102.6	93.0	195.6	1.25	23.0	D

Arterial Level of Service: SB SR 7

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Wiles Road	I	50	61.6	209.7	271.3	0.86	11.4	F
Cullum Road/Turtle C	I	50	26.2	10.4	36.6	0.26	25.8	D
NW 31st Street	I	47	76.4	54.7	131.1	0.99	27.1	C
Total	I		164.2	274.8	439.0	2.11	17.3	E