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15.1 Cost Estimate: Alignment #1 - Railroad Street

Crabbs Branch Way to Railroad Street	L (ft)	W (ft)	Thk (ft)	QTY	Unit	Unit Cost	Total Cost	Remarks
MOB							$5,000.00	Assume
Tree Clearing	135	25		0.08	AC	$15,000.00	$1,162.19	Use medium trees
Clearing & Grubbing	1,425	25	na	0.82	AC	$5,025.00	$4,109.63	assume 24ft width- trail plus earthwork
Rough Grading	1,425	25	na	35,625	SF	$4,150.00	$4,150.00	
Aggregate Base	1,425	14		2,217	SY	$9.71	$21,521.62	use 6" thk 3/4" stone base course
Paving- binder course	1,425	10		1,583	SY	$14.90	$23,585.33	use 2.5" thk asphalt base course
Paving- wearing course	1,425	10		1,583	SY	$10.17	$16,109.63	use 1.5" thk asphalt wearing course
Elevated Boardwalk				1,000	SF	$125.00	$125,000.00	
10ft Wood Retaining Wall	130			130	LF	$300.00	$39,000.00	
Culvert	30		2	20.0	LF	$300.00	$12,000.00	assume 2ea x 30" dia x 40ft L
Endwall				4	EA	$5,000.00	$20,000.00	
Land Acquisition							$47,338.00	at Robert's Oxygen
TOTAL DIRECT							**$318,976.40**	
OVERHEAD				25%			$79,744.10	
PROFIT				8%			$25,518.11	
CONTINGENCY				5%			$21,211.93	
PROJECT COST							**$445,450.54**	
						Unit Price	**$312.60**	**per linear foot**

Trail Length =	1,425	LF
Trail Width =	10	FT
Shoulder =	2	FT ea side
LOD =	25	FT wide

15.1 Cost Estimate: Alignment #2 - Ridge Road

Crabbs Branch Way to Ridge Road and Brown Street	L (ft)	W (ft)	Thk (ft)	QTY	Unit	Unit Cost	Total Cost	Remarks
MOB							$5,000.00	Assume
Tree Clearing	350	25		0.20	AC	$15,000.00	$3,013.09	Use medium trees
Clearing & Grubbing	1,380	25	na	0.79	AC	$5,025.00	$3,979.86	assume 25ft width- ROW
Rough Grading	1,380	25	na	34,500	SF	$4,150.00	$4,150.00	
Aggregate Base	1,380	14		2,147	SY	$9.71	$20,841.99	use 6" thk 3/4" stone base course
Paving- binder course	1,380	10		1,533	SY	$14.90	$22,840.53	use 2.5" thk asphalt base course
Paving- wearing course	1,380	10		1,533	SY	$10.17	$15,600.90	use 1.5" thk asphalt wearing course
10ft Elevated Boardwalk				1,000	SF	$125.00	$125,000.00	
Wood Retaining Wall	130			130	LF	$300.00	$39,000.00	
Culvert	20		2	20	LF	$300.00	$12,000.00	assume 2ea x 30" dia20ft L
Endwall				4	EA	$5,000.00	$20,000.00	
Land Acquisition							$27,563.00	
TOTAL DIRECT							**$298,989.36**	
OVERHEAD				25%			$74,747.34	
PROFIT				8%			$23,919.15	
CONTINGENCY				5%			$19,882.79	
PROJECT COST							**$417,538.64**	
						Unit Price	**$302.56**	**per linear foot**

Trail Length =	1,380	LF
Trail Width =	10	FT
Shoulder =	2	FT ea side
LOD =	24	FT wide

15.1 Cost Estimate: Alignment #3 - Brown Street

Crabbs Branch Way to Brown Street	L (ft)	W (ft)	Thk (ft)		Unit	Unit Cost	Total Cost	Remarks
MOB							$5,000.00	Assume
Tree Clearing	135	25		0.08	AC	$7,175.00	$555.91	Use medium trees
Clearing & Grubbing	750	25	na	0.43	AC	$5,025.00	$2,162.96	assume 25ft width- ROW
Rough Grading	750	25	na	18,750	SF	$2,768.05	$2,768.05	
Aggregate Base	750	14		1,167	SY	$9.71	$11,327.17	use 6" thk 3/4" stone base course
Paving- binder course	750	10		833	SY	$14.90	$12,413.33	use 2.5" thk asphalt base course
Paving- wearing course	750	10		833	SY	$10.17	$8,478.75	use 1.5" thk asphalt wearing course
10ft Elevated Boardwalk				1,000	SF	$125.00	$125,000.00	
Wood Retaining Wall	130			130	LF	$300.00	$39,000.00	
Culvert	20		2	20	LF	$300.00	$12,000.00	assume 2ea x 30" dia20ft L
Endwall				4	EA	$5,000.00	$20,000.00	
Land Acquisition							$12,500.00	
TOTAL DIRECT							**$251,206.18**	
OVERHEAD				25%			$62,801.54	
PROFIT				8%			$20,096.49	
CONTINGENCY				5%			$16,705.21	
PROJECT COST							**$350,809.43**	
						Unit Price	**$467.75**	**per linear foot**

Trail Length =	750	LF
Trail Width =	10	FT
Shoulder =	2	FT ea side
LOD =	24	FT wide

15.1 Cost Estimate - Picea View Connector

Picea View Connector	L (ft)	W (ft)	Thk (ft)		Unit	Unit Cost	Total Cost	Remarks
MOB							$2,000.00	Assume
Tree Clearing	0	25		0.00	AC	$0.00	$0.00	none
Clearing & Grubbing	100	15	na	0.03	AC	$5,025.00	$173.04	assume 15ft width- ROW
Rough Grading	0	0	na	0	SF	$0.00	$0.00	
Aggregate Base	100	14		156	SY	$9.71	$1,510.29	use 6" thk 3/4" stone base course
Paving- binder course	100	10		111	SY	$14.90	$1,655.11	use 2.5" thk asphalt base course
Paving- wearing course	100	10		111	SY	$10.17	$1,130.50	use 1.5" thk asphalt wearing course
Demo curb	16			16	LF	$10.00	$160.00	
HC Ramp (1ea x 10ft L x 5ft W)	10			10	LF	$960.00	$9,600.00	use exist ramp on south side of Picea View
Handicap marking				1	LOT	$1,000.00	$500.00	
Land Acquisition							$2,567.00	
TOTAL DIRECT							**$19,295.94**	
OVERHEAD				25%			$4,823.98	
PROFIT				8%			$1,543.67	
CONTINGENCY				5%			$1,283.18	
PROJECT COST							**$26,946.78**	
						Unit Price	**$215.57**	**per linear foot**

Trail Length =	125	LF
Trail Width =	10	FT
Shoulder =	2	FT ea side
LOD =	24	FT wide

15.1 Cost Estimate: Crabbs Branch Way Extension

Crabbs Branch Way Extension with Trails	L (ft)	W (ft)	Thk (ft)	TOTAL	Unit	Unit Cost	Total Cost	Remarks
MOB							$20,000.00	Assume
Tree Clearing	350	75		0.60	AC	$15,000.00	$9,039.26	Use medium trees
Clearing & Grubbing	1,650	75	na	2.84	AC	$5,025.00	$14,275.57	assume 75ft wide LOD
Excavation Fill	1,650	75	4	10,000	CY	$40.00	$400,000.00	assume balanced cut-fill
Excavation Cut	1,650	75	4	10,000	CY	$20.00	$200,000.00	
Road:								
Aggregate Base	1,650	21		3,850	SY	$17.96	$69,126.75	use 12" thk 3/4" stone base course
Paving- binder course	1,650	21		3,850	SY	$23.28	$89,608.75	use 4" thk asphalt base course
Paving- wearing course	1,650	21		3,850	SY	$13.50	$51,973.08	use 2" thk asphalt wearing course
Trail:								
Aggregate Base	1,650	12		2,200	SY	$9.71	$21,359.80	use 6" thk 3/4" stone base course
Paving- binder course	1,650	12		2,200	SY	$14.90	$32,771.20	use 2.5" thk asphalt base course
Paving- wearing course	1,650	10		1,833	SY	$10.17	$18,653.25	use 1.5" thk asphalt wearing course
Sidewalk:								
6-inch thick concrete	1,650	6		1,100	SY	$9.11	$10,021.55	
4-inch gravel base	1,650	6		1,100	SY	$1.48	$1,623.93	
Ditch:								
Rough Grading							included	
Filter Fabric	1,650	18		3,300	SY	$5.32	$17,556.00	
Rip-Rap	1,650	18	1.5	135	TN	$133.00	$17,955.00	
Buffer:								
Topsoil	1,650	12	0.5	367	CY	$98.42	$36,087.33	
Hydroseeding	1,650	12		20	MSF	$66.50	$1,316.70	
6ft &10ft Elevated Boardwalk				1	LS	$123,690.00	$123,690.00	
Wood Retaining Wall	260			260	LF	$300.00	$78,000.00	
Culvert	75		6	75.0	LF	$300.00	$135,000.00	assume 3 x-ings x 2ea x 30" dia x 75ft L
Endwall				12	EA	$5,000.00	$60,000.00	
Guard Rail	1000			1,000	LF	$150.00	$150,000.00	assume 50% road length
Land Acquisition							$538,300.00	
TOTAL DIRECT							**$2,096,358.16**	
OVERHEAD				25%			$524,089.54	
PROFIT				8%			$167,708.65	
CONTINGENCY				5%			$139,407.82	
PROJECT COST							**$2,927,564.17**	
						Unit Price	**$1,774.28**	**per linear foot**
							$8,587,521.58	**per mile**

Road/Trail Length =	1,800	LF
Road Width (2ea x 10.5ft) =	21	FT
Buffer (2ea x 6ft) =	12	FT
Sidetrail =	10	FT
Sidewalk =	6	FT
Maint. Buffer (2ea x 3ft) =	6	FT
TOTAL =	55	FT

Appendix 15.2 Soil Types

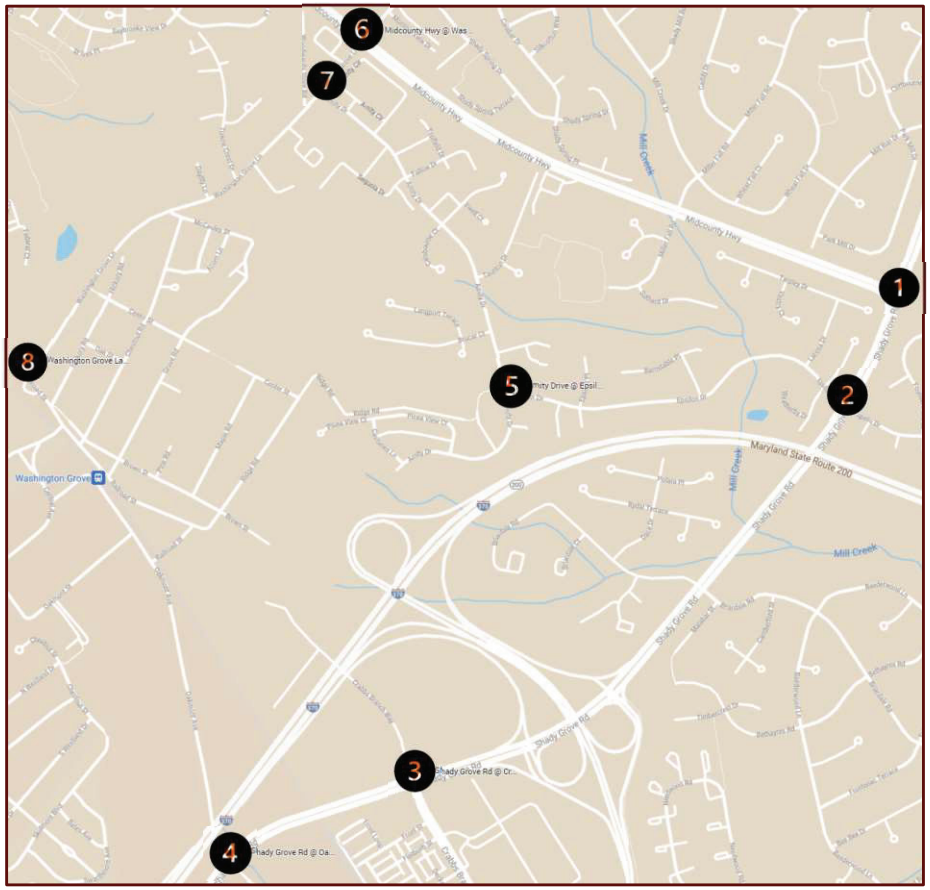
Soil Type	Percent Slope	Description
Gaila silt loam (1B)	3 to 8 percent slopes	Soils of the Gaila series are very deep and well drained. They formed in residuum that weathered from quartz muscovite schist of the northern portion of the Piedmont Plateau. Saturated hydraulic conductivity is moderately high. Slopes range from 0 to 55 percent.[i]
Gaila silt loam (1C)	8 to 15 percent slopes	
Glenelg silt loam (2B)	3 to 8 percent slopes	The Glenelg series consists of very deep, well drained soils formed in residuum weathered from micaceous schist on uplands of the Blue Ridge and the Northern Piedmont. Slopes range from 0 to 55 percent. Saturated hydraulic conductivity is moderately high in the subsoil and moderately high too high in the substratum.
Baile silt loam (6A)	0 to 3 percent slopes	The Baile series consists of very deep, poorly drained, moderately low to moderately high saturated hydraulic conductivity, soils on upland depressions and footslopes. They form in local alluvium over residuum from acid crystalline rocks, chiefly mica schist and granitized schist and gneiss. Slope ranges from 0 to 8 percent.
Neshaminy silt loam (27B)	3 to 8 percent slopes	The Neshaminy series consists of deep and very deep, well drained soils formed in materials weathered from diabase and other dark colored basic rocks. Saturated hydraulic conductivity is moderately high. Slopes range from 0 to 70 percent.
Chrome and Conowingo soils (35B)	3 to 8 percent slopes	The Chrome series consists of moderately deep, well drained soils. They formed in residuum weathered mostly from serpentine. They are on convex upland slopes of 0 to 45 percent. Saturated hydraulic conductivity is moderately high to high. The Conowingo series consists of deep, moderately well to somewhat poorly drained soils formed in materials weathered from basic rocks high in magnesium, usually serpentine. Saturated Hydraulic Conductivity: A and C horizons have moderately high and high and B horizon has moderately low and moderately high. These nearly level to sloping soils are in well dissected uplands of the northern Piedmont Plateau. Slopes range from 0 to 15 percent.

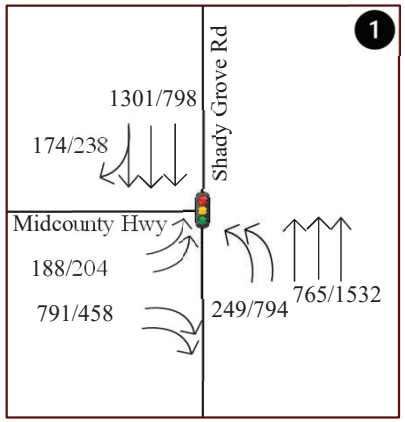
Travilah silt loam (37B)	3 to 8 percent slopes	The Travilah series consists of moderately deep, somewhat poorly drained soils with moderately slow permeability. They formed in residuum that weathered from serpentine in the Piedmont Plateau. Slopes range from 0 to 15 percent.
Wheaton-Urban land complex (66UB)	0 to 8 percent slopes	The Wheaton series consists of very deep, well drained soils with moderate permeability. They formed in residuum that has been graded from the original weathering of schist and gneiss in the Piedmont Plateau. Slopes range from 0 to 15 percent.
Urban land (400)	NA	Urban soils are found in watersheds that provide drinking water, food, waste utilization, and natural resources to communities. Urban soils also are located within cities in park areas, recreation areas, community gardens, green belts, lawns, septic absorption fields, sediment basins and other uses.

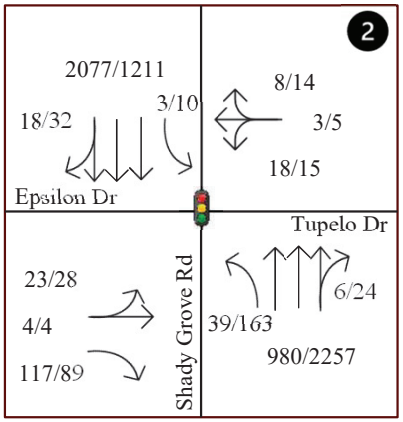
Appendix 15.3

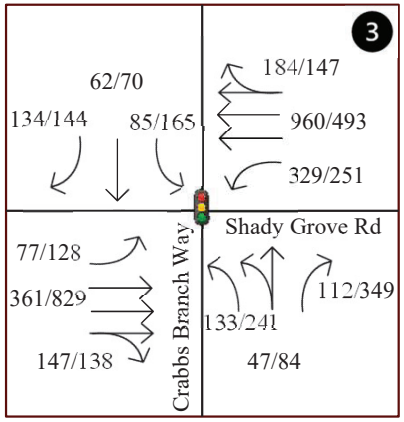
Exhibit 1: Site Plan

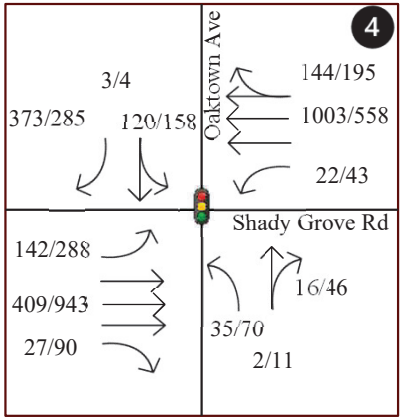
Exhibit 2: Weekday AM/PM Peak Hour Volumes & Lane Configuration - Existing Conditions

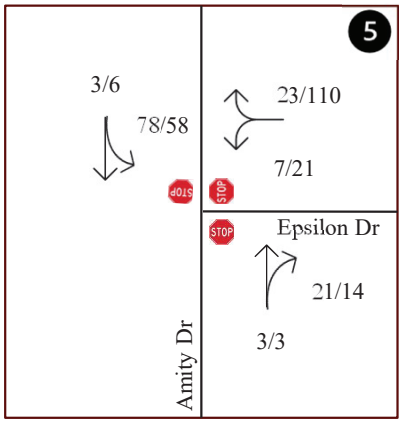


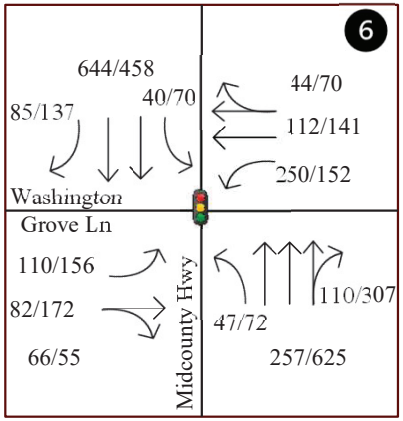


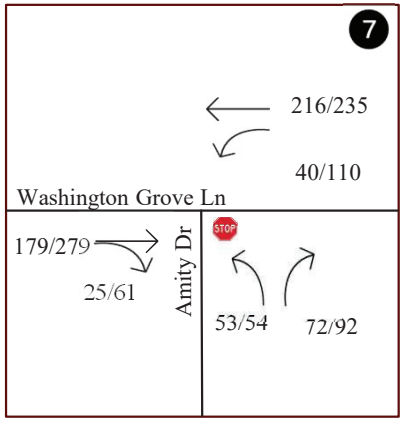












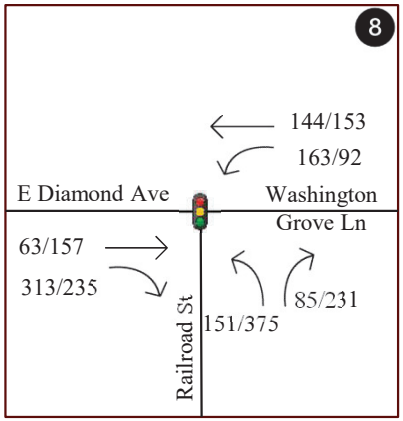


Exhibit 3: Intersection Level of Service Standards and Thresholds

Signazlized intersection Level of Service and Thresholds

LOS	Control Delay per Vehicle (s/veh)
A	≤ 10
B	> 10–20
C	> 20–35
D	> 35–55
E	> 55–80
F	> 80

Unsignazlized intersection Level of Service and Thresholds

Level of Service	Average Control Delay (s/veh)
A	0–10
B	> 10–15
C	> 15–25
D	> 25–35
E	> 35–50
F	> 50

Source: Highway Capacity Manual 2000

Appendix 15.6 *Exhibit 4: Weekday AM and PM Peak Hour Level of Service, Delay and Queue lengths - Existing Conditions*

EXISTING CONDITIONS								
Intersection Information			AM Peak			PM Peak		
Traffic Control	Approach	Movement	LOS	Delay (sec)	95th Queue (ft)	LOS	Delay (sec)	95th Queue (ft)
1. Midcounty Hwy & Shady Grove Rd								
Signalized	Eastbound (Midcounty Hwy)	EBL	D	41.8	113	E	55.5	137
		EBR	D	37.2	446	B	19.5	155
		EB Approach	**D**	**38.1**		**C**	**31.5**	
	Northbound (Shady Grove Rd)	NBL	F	84.9	#236	D	50.8	439
		NBT	B	11.8	151	A	7.7	250
		NB Approach	**C**	**30.7**		**C**	**23.1**	
	Southbound (Shady Grove Rd)	SBTR	C	29.8	498	D	37.9	434
		SB Approach	**C**	**29.8**		**D**	**37.9**	
Overall LOS (Delay)			**C (32.4)**			**C (28.4)**		
2. Shady Grove Rd & Tupelo Dr								
Signalized	Eastbound (Epsilon Dr)	EBLT	E	62.0	37	E	62.7	43
		EBR	F	91.1	189	E	74.2	146
		EB Approach	**F**	**85.1**		**E**	**71.0**	
	Westbound (Tupelo Dr)	WBLTR	E	62.4	17	E	62.4	27
		WB Approach	**E**	**62.4**		**E**	**62.4**	
	Northbound (Shady Grove Rd)	NBL	E	73.1	78	E	74.2	234
		NBTR	A	5.8	165	B	10.3	563
		NB Approach	**A**	**9.1**		**B**	**15.4**	
	Southbound (Shady Grove Rd)	SBL	F	90.3	11	E	77.5	32
		SBTR	B	12.9	600	B	15.9	360
		SB Approach	**B**	**13.2**		**B**	**16.4**	
Overall LOS (Delay)			**B (16.3)**			**B (18.5)**		
3. Shady Grove Rd & Crabbs Branch Way								
Signalized	Eastbound (Shady Grove Rd)	EBL	D	35.2	75	C	30.5	100
		EBTR	B	19.1	137	D	42.5	212
		EB Approach	**C**	**21.6**		**D**	**41.1**	
	Westbound (Shady Grove Rd)	WBL	B	15.2	250	D	53.2	#460
		WBTR	C	24.2	393	D	37.7	265
		WB Approach	**C**	**22.5**		**D**	**42.2**	
	Northbound (Crabbs Branch Way)	NBL	E	70.8	154	E	72.0	240
		NBLT	E	69.0	166	E	71.8	278
		NBR	D	45.3	72	D	38.3	234
		NB Approach	**E**	**59.0**		**E**	**55.5**	
	Southbound (Crabbs Branch Way)	SBL	E	70.7	142	E	71.4	240
		SBT	E	64.5	104	E	56.9	109
		SBR	E	57.9	176	D	40.0	91
		SB Approach	**E**	**63.6**		**E**	**57.1**	
Overall LOS (Delay)			**C (31.0)**			**D (46.7)**		
4. Shady Grove Rd & Oakmont Ave								
Signalized	Eastbound (Shady Grove Rd)	EBL	C	30.1	120	D	51.8	290
		EBT	C	21.2	114	C	22.7	264
		EBR	B	14.1	0	B	12.0	25
		EB Approach	**C**	**23.0**		**C**	**28.9**	
	Westbound (Shady Grove Rd)	WBL	B	14.1	m10	C	24.1	33
		WBTR	C	23.5	128	D	38.9	376
		WB Approach	**C**	**23.4**		**D**	**38.2**	
	Northbound (Oakmont Ave)	NBL	E	72.8	71	E	68.8	125
		NBTR	E	65.5	11	E	62.2	63
		NB Approach	**E**	**70.3**		**E**	**65.6**	
	Southbound (Oakmont Ave)	SBLT	D	51.3	172	E	68.1	146
		SBR	D	44.1	337	D	36.1	170
		SB Approach	**D**	**46.1**		**D**	**48.2**	
Overall LOS (Delay)			**C (29.4)**			**D (36.9)**		
5. Amity Drive & Epsilon Drive								
Unsignalized	Westbound (Epsilon Drive)	WBLR	A	7.1	3	A	7.5	15
		WB Approach	**A**	**7.1**		**A**	**7.5**	
	Northbound (Amity Drive)	NBTR	A	6.9	3	A	7.0	3
		NB Approach	**A**	**6.9**		**A**	**7.0**	
	Southbound (Amity Drive)	SBLT	A	7.8	10	A	8.0	10
		SB Approach	**A**	**7.8**		**A**	**8.0**	
Overall LOS (Delay)			**A (7.4)**			**A (7.6)**		
6. Midcounty Hwy & Washington Grove Ln								
Signalized	Eastbound (Midcounty Hwy)	EBL	B	19.6	44	C	20.6	74
		EBT	C	28.7	343	C	26.9	248
		EBR	C	23.4	20	C	24.2	30
		EB Approach	**C**	**27.4**		**C**	**25.5**	
	Westbound (Midcounty Hwy)	WBL	C	20.4	53	B	19.2	73
		WBTR	C	24.7	113	C	29.3	329
		WB Approach	**C**	**24.2**		**C**	**28.4**	
	Northbound (Washington Grove Ln)	NBL	D	47.6	111	D	41.5	149
		NBTR	E	75.1	177	E	73.0	316
		NB Approach	**E**	**65.3**		**E**	**60.3**	
	Southbound (Washington Grove Ln)	SBL	D	42.2	246	D	43.1	147
		SBTR	D	46.3	80	D	52.4	107
		SB Approach	**D**	**44.1**		**D**	**48.6**	
Overall LOS (Delay)			**D (36.5)**			**D (36.3)**		
7. Amity Drive & Washington Grove Lane								
Unsignalized	Eastbound (Washington Grove Lane)	EBTR		0.0			0.0	
		EB Approach		**0.0**			**0.0**	
	Westbound (Washington Grove Lane)	WBL	A	8.1	5	A	8.7	13
		WBT						
		WB Approach		**2.1**			**3.0**	
	Northbound (Amity Dr)	NBL	B	12.5	20	C	19.1	55
		NBR			10			15
		NB Approach	**B**	**12.5**		**C**	**19.1**	
Overall LOS (Delay)			**A (3.7)**			**A (4.5)**		
8. Washington Grove La & Railroad St								
Signalized	Eastbound (E Diamond Ave)	EBT	D	38.9	85	D	35.1	165
		EBR	A	0.4	0	A	0.3	0
		EB Approach	**A**	**7.2**		**B**	**14.3**	
	Westbound (Washington Grove Lane)	WBL	C	21.8	132	C	24.9	80
		WBT	C	20.2	118	C	21.9	124
		WB Approach	**C**	**21.0**		**C**	**23.0**	
	Northbound (Railroad St)	NBL	C	21.7	121	C	25.4	316
		NBR	A	0.1	0	A	0.2	0
		NB Approach	**B**	**14.9**		**B**	**15.7**	
Overall LOS (Delay)			**B (13.9)**			**B (16.8)**		

95th percentile volume exceeds capacity, queue may be longer
m Volume for the 95th percentile queue is metered by upstream signal

Appendix 15.7 *Exhibit 5: MDSHA Historic Traffic Data for Area Roadways*

SHADY GROVE RD-.20 MI S OF MIDCOUNTY HWY			
	YEAR	AADT	K-FACTOR
	2021	36980	8.17
	2020	41502	8.24
	2019	49701	8.24
	2018	49700	8.24
	2017	50982	8.52
	2016	49781	8.52
	2015	48850	8.52
	2014	48772	8.37
	2013	48921	8.37
	2012	48820	8.37

WASHINGTON GROVE LA - BETWEEN AMITY DR & MIDCOUNTY HWY			
	YEAR	AADT	K-FACTOR
	2021	8593	9.17
	2020	7512	9.17
	2019	8991	9.17
	2018	8990	9.17
	2017	9155	8.4
	2016	8934	8.4
	2015	8763	8.4
	2014	8542	8.4
	2013	8561	8.4
	2012	8540	8.4

CRABBS BRANCH WAY - .05 MILE NORTH OF SHADY			
	YEAR	AADT	K-FACTOR
	2021	7854	8.01
	2020	6863	8.01
	2019	8212	8.01
	2018	8211	8.01
	2017	8280	8.01

RAILROAD ST - BETWEEN E DIAMOND AVE & HICKORY RD			
	YEAR	AADT	K-FACTOR
	2021	12303	9.42
	2020	10752	9.42
	2019	12871	9.42
	2018	12870	9.42
	2017	13035	8.62
	2016	12724	8.62
	2015	12483	8.62
	2014	12162	8.62
	2013	12201	8.62
	2012	12180	8.62

CRABBS BRANCH WAY - .10 MI SOUTH OF SHADY GROVE RD			
	YEAR	AADT	K-FACTOR
	2021	16463	8.93
	2020	14392	8.93
	2019	17231	8.93
	2018	17230	8.93
	2017	17935	7.89
	2016	17514	7.89
	2015	17183	7.89
	2014	16742	7.89
	2013	16791	7.89
	2012	16760	7.89

E DIAMOND AVE - .10 MI WEST OF RAILROAD ST			
	YEAR	AADT	K-FACTOR
	2021	12383	9.1
	2020	10822	9.1
	2019	12961	9.1
	2018	12960	9.1
	2017	12675	8.5
	2016	12374	8.5
	2015	12143	8.5
	2014	11832	8.5
	2013	11861	8.5
	2012	11840	8.5

SHADY GROVE RD-.10 MI N OF MD355			
	YEAR	AADT	K-FACTOR
	2021	26440	7.61
	2020	23692	7.3
	2019	28371	7.3
	2018	28370	7.3
	2017	34382	7.99
	2016	33571	7.99
	2015	32940	7.99
	2014	35002	7.68
	2013	35101	7.68
	2012	35030	7.68

MIDCOUNTY HWY-.10 MI S OF WASHINGTON GROVE LA			
	YEAR	AADT	K-FACTOR
	2021	17460	8.95
	2020	21012	9.63
	2019	25161	9.63
	2018	25160	9.63
	2017	24952	8.89
	2016	24361	8.89
	2015	23910	8.89
	2014	23692	8.93
	2013	23761	8.93
	2012	23710	8.93

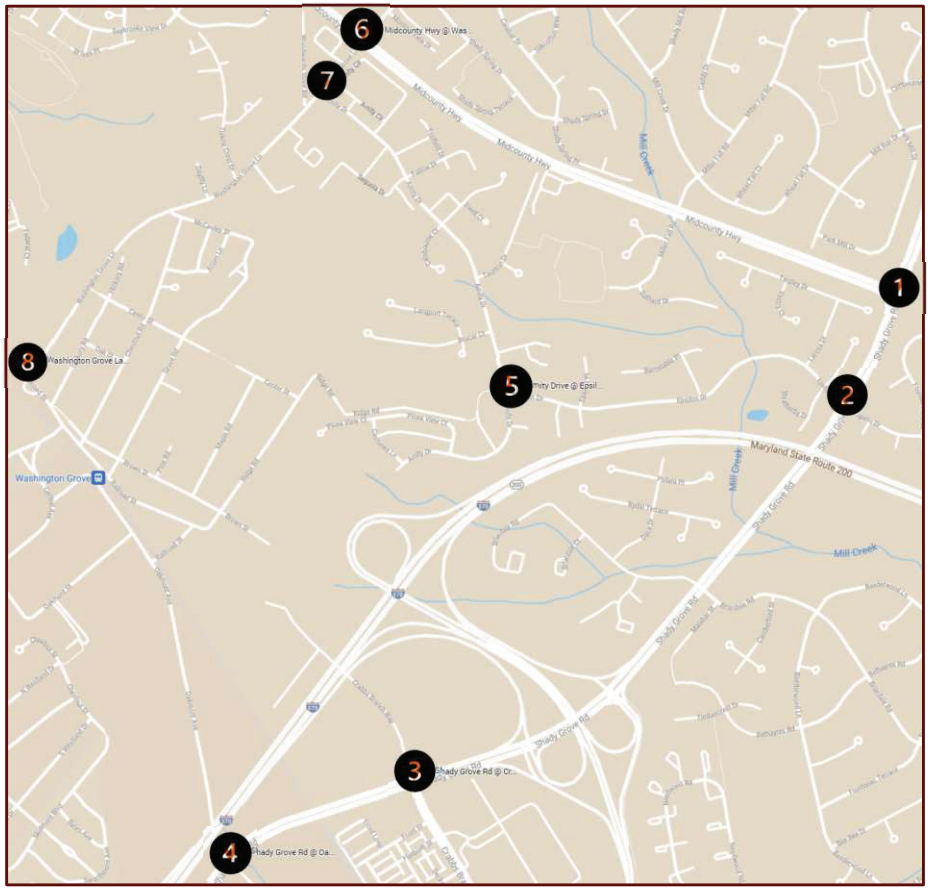
COUNT YEAR

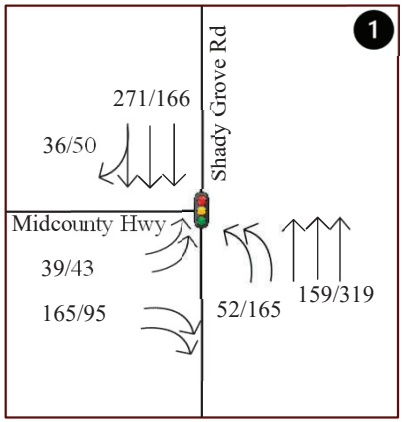
INTERSECTIONS		K-Factor			
		East Leg	West Leg	North Leg	South Leg
#1	Midcounty Hwy & Shady Grove Rd		0.10	0.10	0.09
#2	Shady Grove Rd & Tupelo Dr	0.10	0.10	0.09	0.12
#3	Shady Grove Rd & Crabbs Branch Way	0.08	0.08	0.11	0.08
#4	Shady Grove Rd & Oakmont Ave	0.08	0.09	0.09	0.09
#5	Amity Drive & Epsilon Drive	0.10		0.10	0.10
#6	Midcounty Hwy & Washington Grove Ln	0.09	0.10	0.09	0.08
#7	Amity Drive & Washington Grove Lane	0.10	0.09		0.10
#8	Washington Grove La & Railroad St	0.09	0.09		0.09

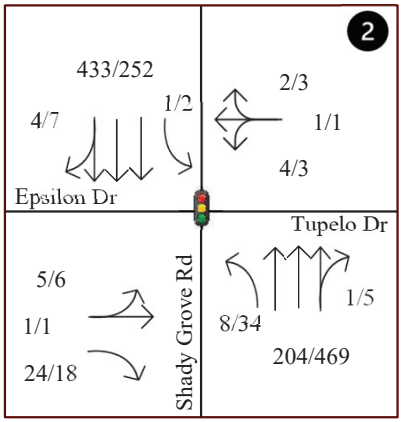
INTERSECTIONS		2021 ADT			
		East Leg	West Leg	North Leg	South Leg
#1	Midcounty Hwy & Shady Grove Rd		17,591	28,792	41,502
#2	Shady Grove Rd & Tupelo Dr	738	3,290	41,502	32,183
#3	Shady Grove Rd & Crabbs Branch Way	26,407	23,322	6,863	14,392
#4	Shady Grove Rd & Oakmont Ave	22,967	23,692	9,989	2,803
#5	Amity Drive & Epsilon Drive	2,081		1,814	451
#6	Midcounty Hwy & Washington Grove Ln	9,702	7,512	16,128	21,012
#7	Amity Drive & Washington Grove Lane	7,512	6,691		3,249
#8	Washington Grove La & Railroad St	7,161	10,822		10,752

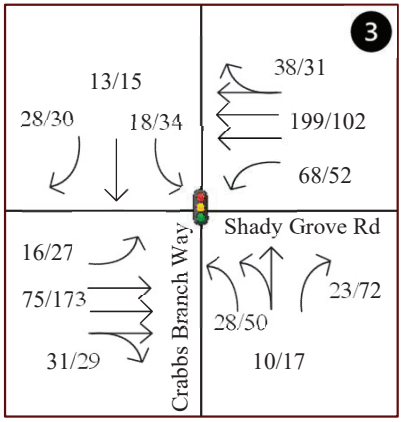
INTERSECTIONS		2040 ADT			
		East Leg	West Leg	North Leg	South Leg
#1	Midcounty Hwy & Shady Grove Rd		21,252	34,784	50,139
#2	Shady Grove Rd & Tupelo Dr	892	3,975	50,139	38,881
#3	Shady Grove Rd & Crabbs Branch Way	31,903	28,176	8,291	17,387
#4	Shady Grove Rd & Oakmont Ave	27,747	28,623	12,068	3,386
#5	Amity Drive & Epsilon Drive	2,514		2,192	545
#6	Midcounty Hwy & Washington Grove Ln	11,721	9,075	19,484	25,385
#7	Amity Drive & Washington Grove Lane	9,075	8,083		3,925
#8	Washington Grove La & Railroad St	8,651	13,074		12,990

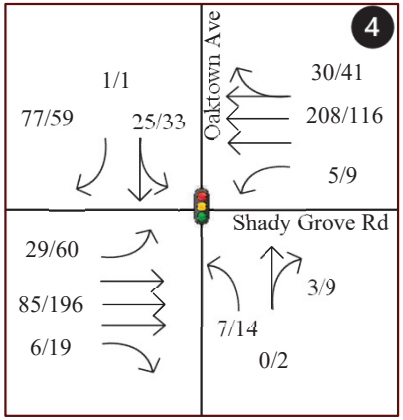
Exhibit 7: Weekday AM/PM Peak Hour Volumes & Lane Configuration – Traffic Growth

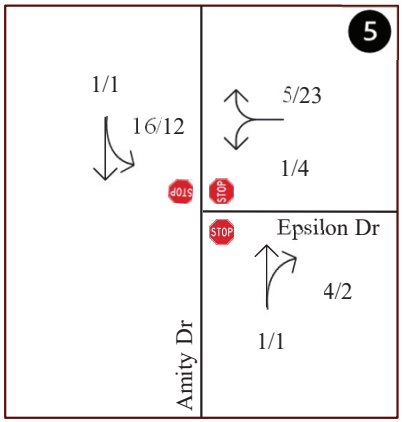


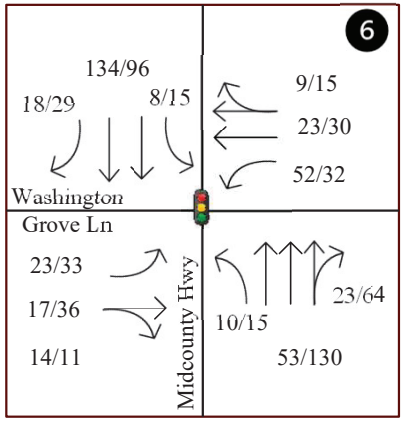


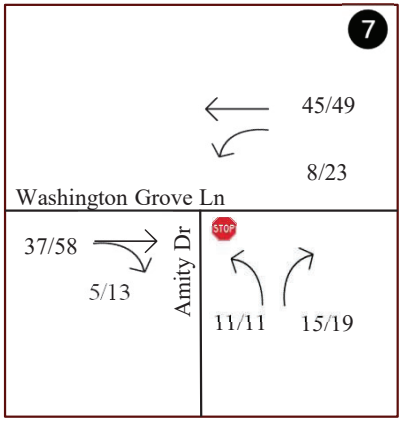


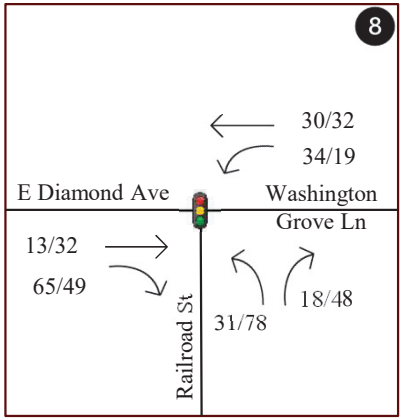




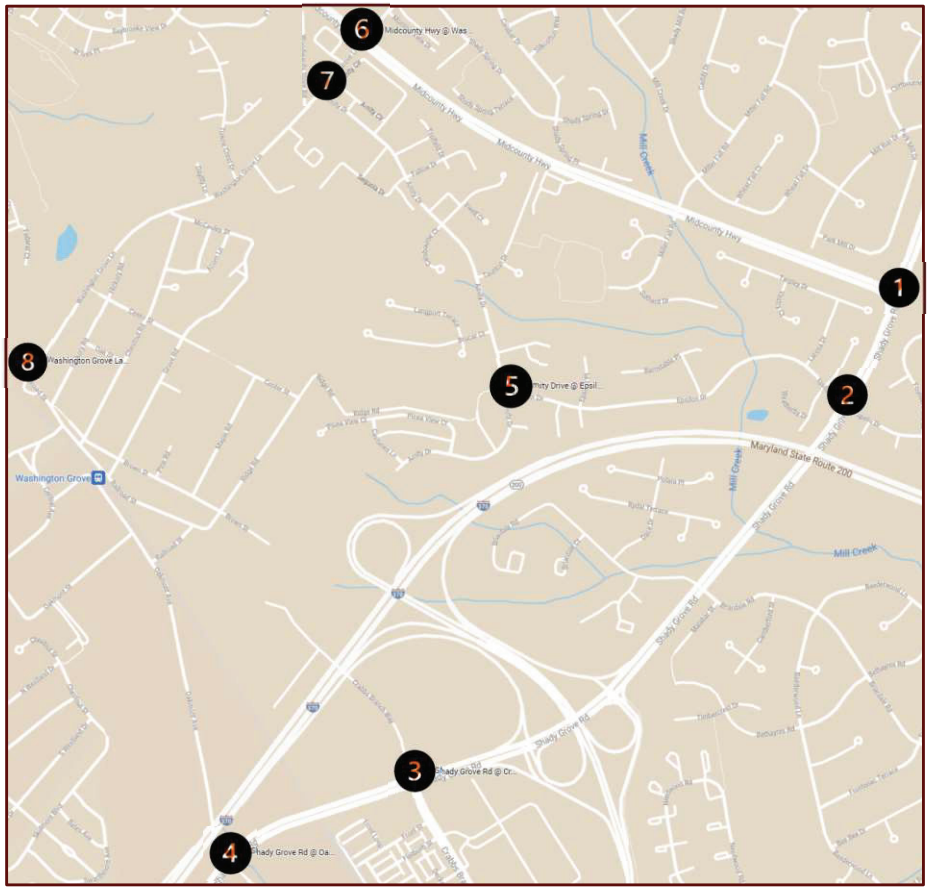


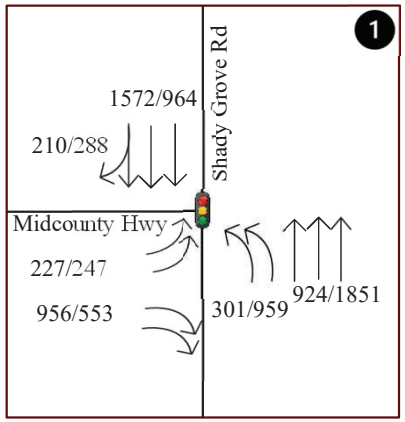


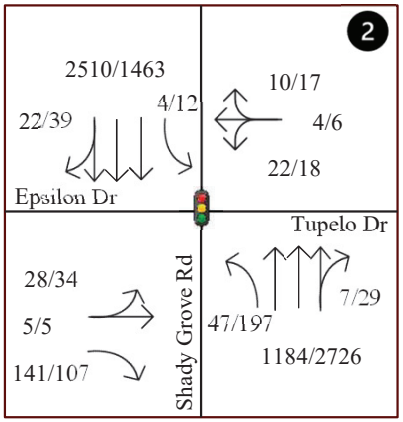


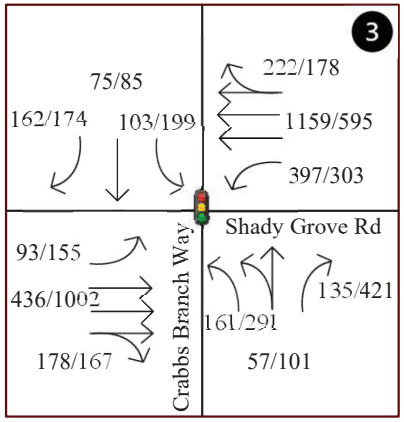


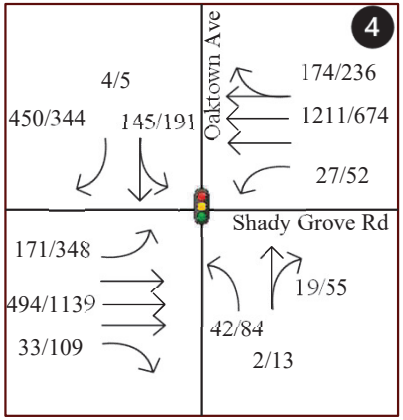
Appendix 15.10 *Exhibit 8: Weekday AM/PM Peak Hour Volumes & Lane Configuration - 2040 No-Build Conditions*

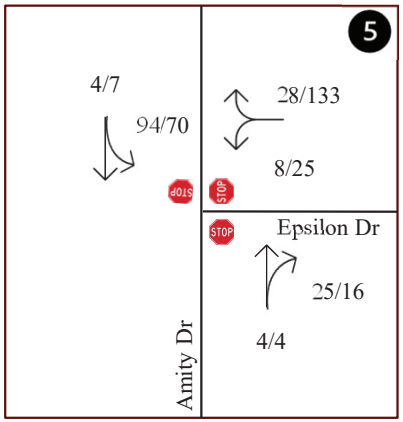


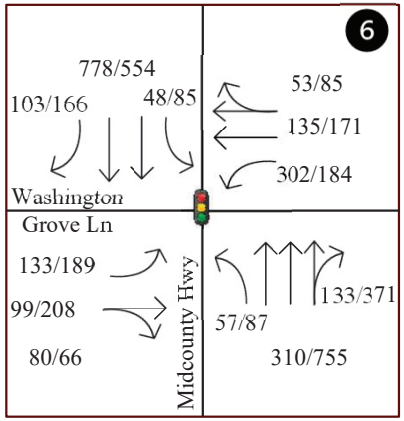


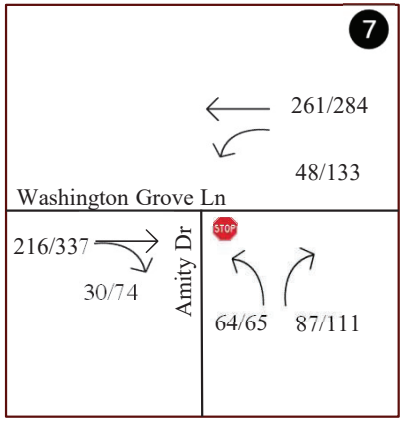












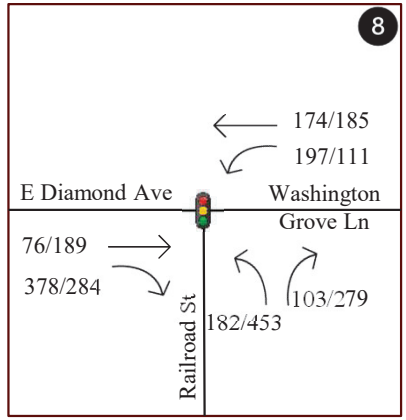


Exhibit 9: Weekday AM and PM Peak Hour Level of Service, Delay and Queue lengths – 2040 No-Build Conditions

2040 NO-BUILD CONDITIONS								
Intersection Information			AM Peak			PM Peak		
Traffic Control	Approach	Movement	LOS	Delay (sec)	95th Queue (ft)	LOS	Delay (sec)	95th Queue (ft)
1. Midcounty Hwy & Shady Grove Rd								
Signalized	Eastbound (Midcounty Hwy)	EBL	D	40.0	132	D	53.5	162
		EBR	D	43.7	606	B	15.6	168
		EB Approach	**D**	**43.0**		**C**	**27.3**	
	Northbound (Shady Grove Rd)	NBL	F	161.3	#296	D	47.7	507
		NBT	B	13.8	187	A	9.8	335
		NB Approach	**D**	**50.7**		**C**	**23.0**	
	Southbound (Shady Grove Rd)	SBTR	C	34.8	627	D	52.1	#645
		SB Approach	**C**	**34.8**		**D**	**52.1**	
Overall LOS (Delay)			**D (41.8)**			**C (31.3)**		
2. Shady Grove Rd & Tupelo Dr								
Signalized	Eastbound (Epsilon Dr)	EBLT	E	60.7	66	E	62.4	76
		EBR	F	90.2	220	E	74.2	174
		EB Approach	**F**	**84.7**		**E**	**71.0**	
	Westbound (Tupelo Dr)	WBLTR	E	60.7	60	E	61.5	63
		WB Approach	**E**	**60.7**		**E**	**61.5**	
	Northbound (Shady Grove Rd)	NBL	E	73.1	94	E	74.0	283
		NBTR	A	6.6	211	B	13.2	834
		NB Approach	**A**	**9.3**		**B**	**17.4**	
	Southbound (Shady Grove Rd)	SBL	F	81.8	17	E	78.1	37
		SBTR	B	17.6	906	B	17.4	454
		SB Approach	**B**	**17.7**		**B**	**17.9**	
Overall LOS (Delay)			**B (18.6)**			**B (19.7)**		
3. Shady Grove Rd & Crabbs Branch Way								
Signalized	Eastbound (Shady Grove Rd)	EBL	D	39.5	108	C	32.9	m127
		EBTR	C	26.8	160	E	59.8	#544
		EB Approach	**C**	**28.5**		**E**	**56.7**	
	Westbound (Shady Grove Rd)	WBL	C	20.3	330	F	85.2	#577
		WBTR	C	26.6	539	D	40.8	319
		WB Approach	**C**	**25.3**		**D**	**53.3**	
	Northbound (Crabbs Branch Way)	NBL	E	71.2	182	E	72.1	298
		NBLT	E	69.3	183	E	71.9	302
		NBR	C	34.8	66	D	44.8	#313
		NB Approach	**E**	**56.7**		**E**	**57.9**	
	Southbound (Crabbs Branch Way)	SBL	E	70.8	166	E	72.5	288
		SBT	E	62.8	126	E	55.7	131
		SBR	E	60.5	205	D	40.0	108
		SB Approach	**E**	**64.1**		**E**	**57.0**	
Overall LOS (Delay)			**C (33.7)**			**E (56.0)**		
4. Shady Grove Rd & Oakmont Ave								
Signalized	Eastbound (Shady Grove Rd)	EBL	E	55.3	#223	D	42.2	#380
		EBT	C	21.5	137	C	24.1	331
		EBR	B	14.2	2	B	11.9	40
		EB Approach	**C**	**29.4**		**C**	**27.3**	
	Westbound (Shady Grove Rd)	WBL	B	15.9	m13	C	21.1	m35
		WBTR	C	27.4	183	C	33.5	184
		WB Approach	**C**	**27.2**		**C**	**32.9**	
	Northbound (Oakmont Ave)	NBL	E	72.7	86	E	70.1	146
		NBTR	E	65.5	32	E	62.2	63
		NB Approach	**E**	**70.3**		**E**	**66.5**	
	Southbound (Oakmont Ave)	SBLT	D	51.7	225	E	70.4	#322
		SBR	D	52.1	479	D	38.7	266
		SB Approach	**D**	**52.0**		**D**	**50.2**	
Overall LOS (Delay)			**C (34.1)**			**C (34.6)**		
5. Amity Drive & Epsilon Drive								
Unsignalized	Westbound (Epsilon Drive)	WBLR	A	7.0	3	A	7.5	15
		WB Approach	**A**	**7.0**		**A**	**7.5**	
	Northbound (Amity Drive)	NBTR	A	6.8	3	A	6.9	3
		NB Approach	**A**	**6.8**		**A**	**6.9**	
	Southbound (Amity Drive)	SBLT	A	7.8	10	A	8.0	10
		SB Approach	**A**	**7.8**		**A**	**8.0**	
Overall LOS (Delay)			**A (7.5)**			**A (7.6)**		
6. Midcounty Hwy & Washington Grove Ln								
Signalized	Eastbound (Midcounty Hwy)	EBL	B	19.9	52	C	23.0	88
		EBT	C	30.7	418	C	29.0	306
		EBR	C	23.6	34	C	25.1	54
		EB Approach	**C**	**29.3**		**C**	**27.6**	
	Westbound (Midcounty Hwy)	WBL	C	21.2	61	C	20.5	91
		WBTR	C	24.9	131	C	32.1	417
		WB Approach	**C**	**24.5**		**C**	**31.3**	
	Northbound (Washington Grove Ln)	NBL	D	48.7	136	D	41.1	175
		NBTR	E	74.7	241	E	73.8	364
		NB Approach	**E**	**63.6**		**E**	**60.5**	
	Southbound (Washington Grove Ln)	SBL	D	48.5	311	D	42.5	172
		SBTR	D	47.4	104	D	51.3	133
		SB Approach	**D**	**48.1**		**D**	**47.6**	
Overall LOS (Delay)			**D (37.3)**			**D (37.4)**		
7. Amity Drive & Washington Grove Lane								
Unsignalized	Eastbound (Washington Grove Lane)	EBTR		0.0			0.0	
		EB Approach		**0.0**			**0.0**	
	Westbound (Washington Grove Lane)	WBL	A	8.0	3	A	8.7	10
		WBT						
		WB Approach		**1.3**			**2.8**	
	Northbound (Amity Dr)	NBL	B	12.3	18	C	17.4	43
		NBR			10			18
		NB Approach	**B**	**12.3**		**C**	**17.4**	
Overall LOS (Delay)			**A (3.2)**			**A (4.2)**		
8. Washington Grove La & Railroad St								
Signalized	Eastbound (E Diamond Ave)	EBT	D	39.4	99	D	35.6	197
		EBR	A	0.5	0	B	0.3	0
		EB Approach	**A**	**7.1**		**B**	**14.4**	
	Westbound (Washington Grove Lane)	WBL	C	22.9	159	C	25.7	97
		WBT	C	20.6	138	C	22.0	150
		WB Approach	**C**	**21.8**		**C**	**23.4**	
	Northbound (Railroad St)	NBL	C	21.5	149	C	28.5	404
		NBR	A	0.1	0	A	0.3	0
		NB Approach	**B**	**13.6**		**B**	**17.7**	
Overall LOS (Delay)			**B (13.7)**			**B (17.8)**		

95th percentile volume exceeds capacity, queue may be longer
m Volume for the 95th percentile queue is metered by upstream signal

Exhibit 10: Residential Trip Computation

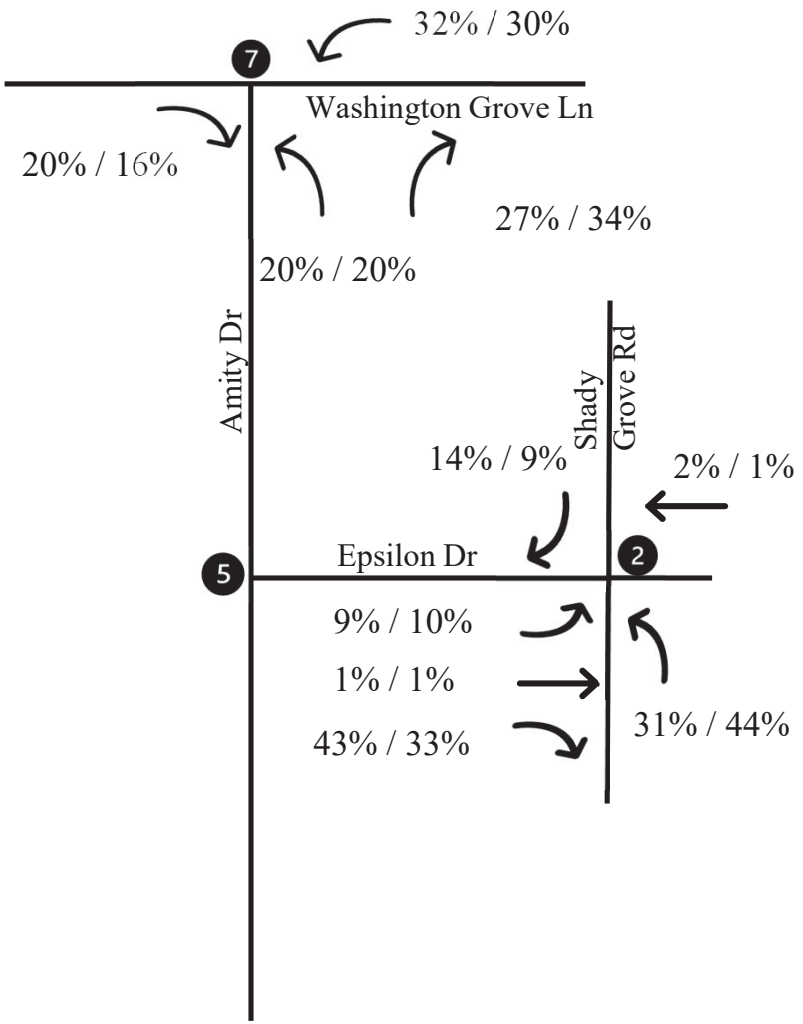
Existing Conditions			
Peak Hour Trips	**IN**	**OUT**	**TOTAL**
AM	126 (32%)	269 (68%)	395
PM	371 (58%)	267 (42%)	638
Total Residential Units		882	
Peak Hr Trips/Unit		AM	0.45
		PM	0.72

2040 Build Conditions			
Peak Hour Trips	**IN**	**OUT**	**TOTAL**
AM	151 (32%)	325 (68%)	476
PM	449 (58%)	322 (42%)	771
Total Residential Units		882	
Peak Hr Trips/Unit		AM	0.54
		PM	0.87

Exhibit 11: Weekday AM/PM Peak Hour Trip Distribution to/From Amity Dr & Epsilon Dr

Appendix 15.13

EXISTING CONDITIONS



2040 BUILD CONDITIONS

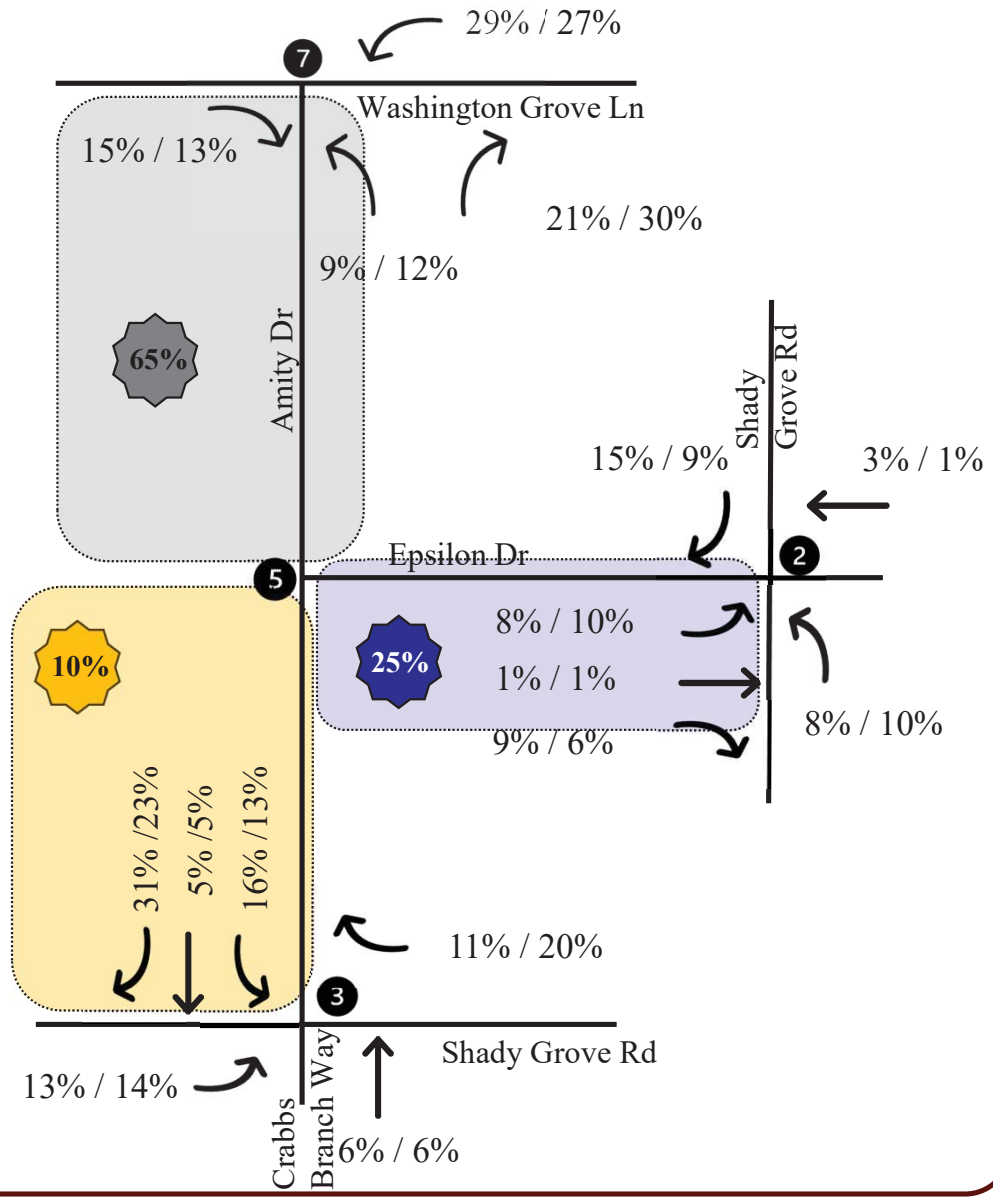
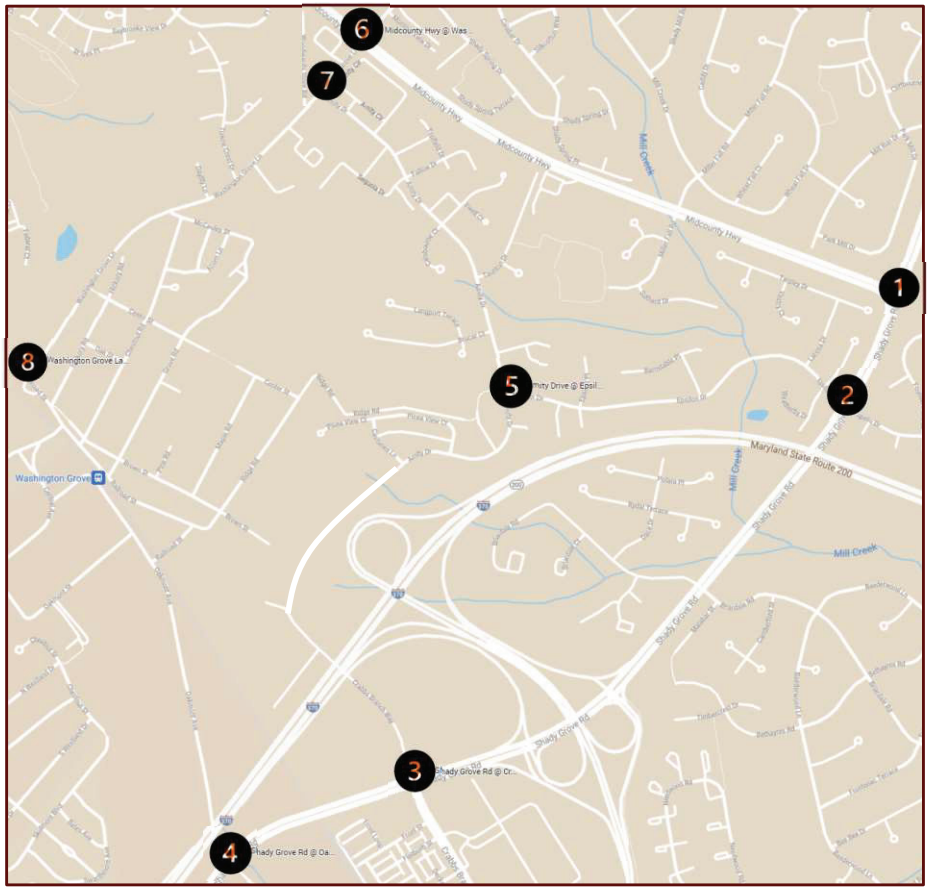
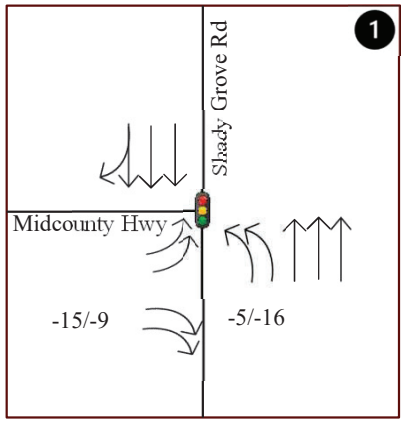
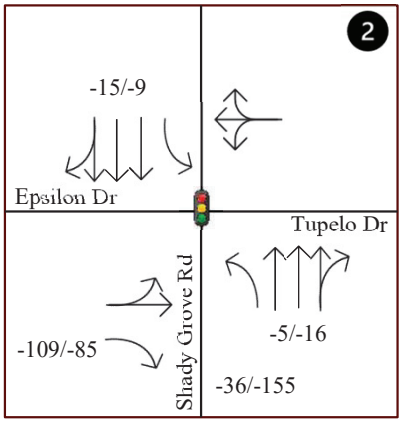
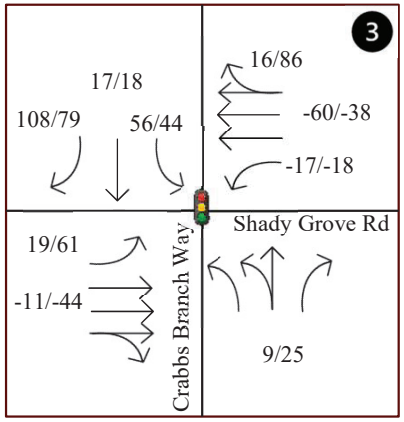


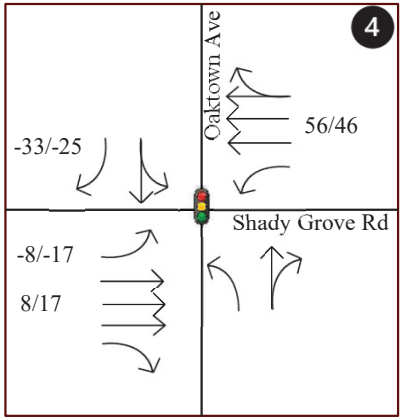
Exhibit 12: Weekday AM/PM Peak Hour Volumes & Lane Configuration – 2040 Build Conditions (Rerouted Trips)

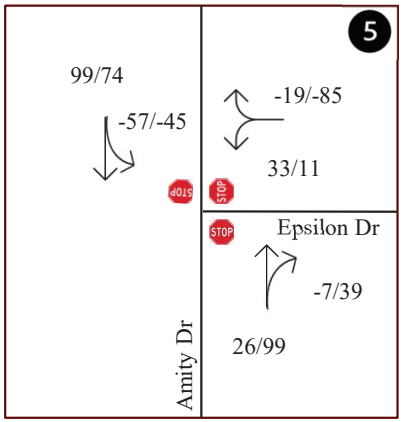


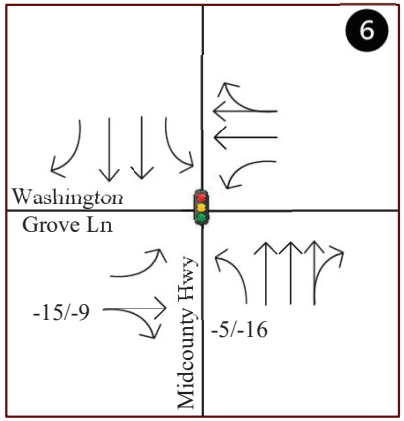


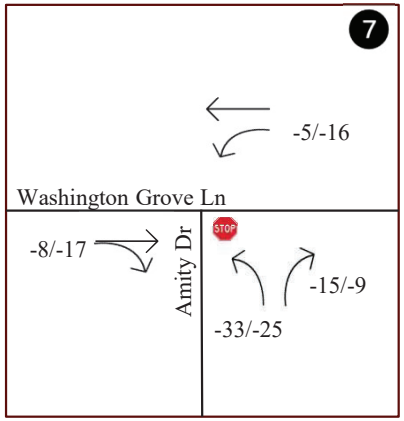












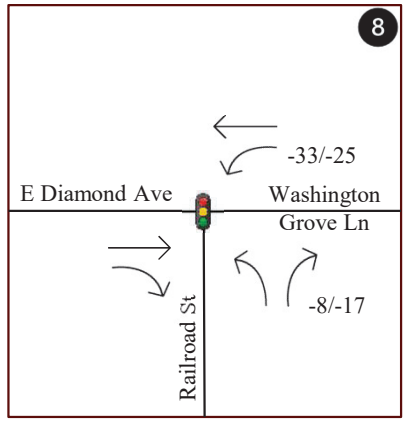
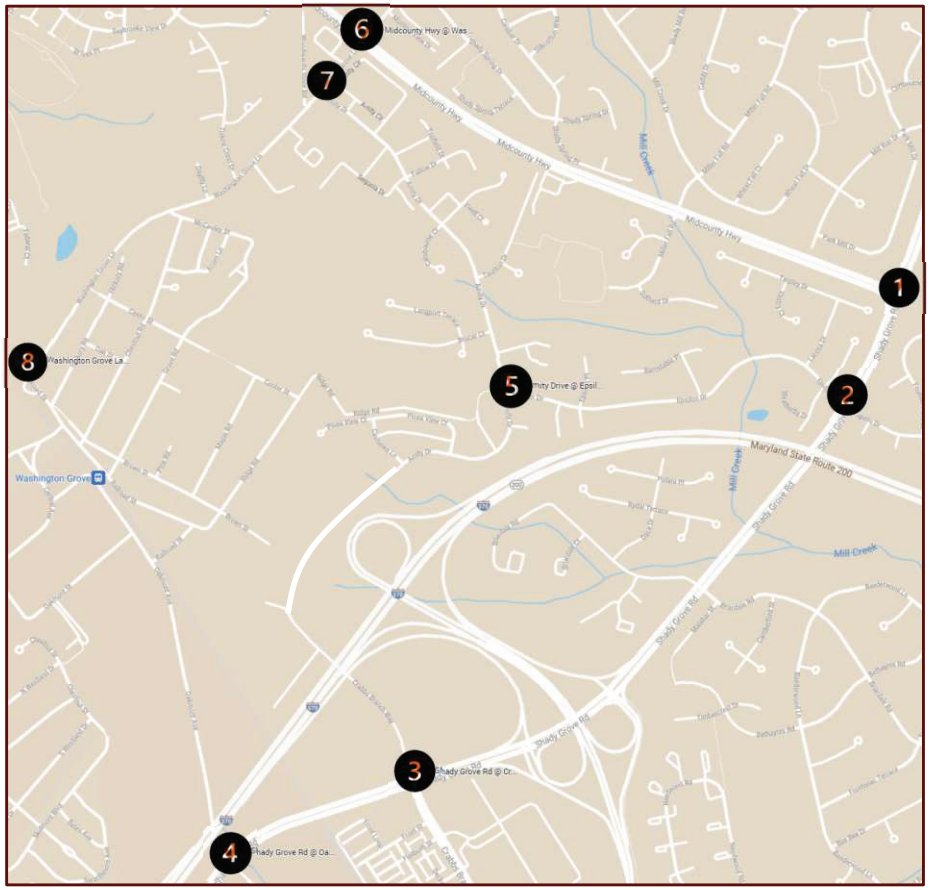
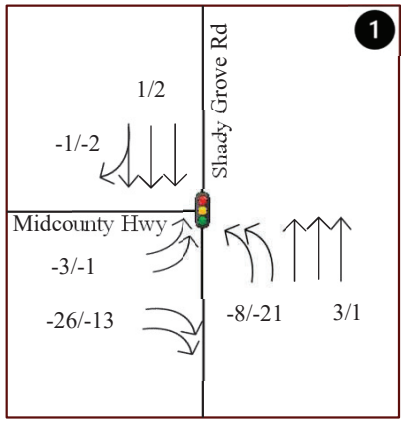
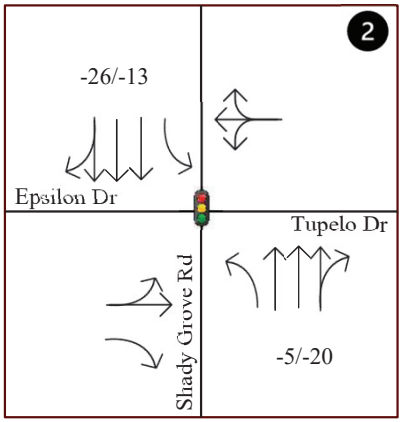
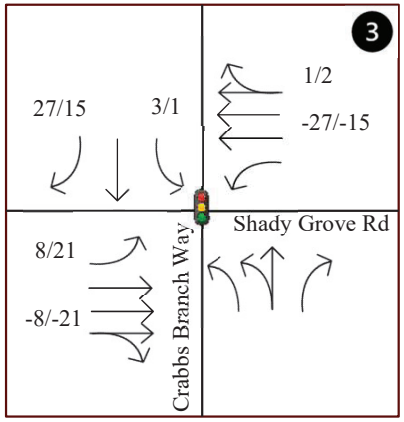


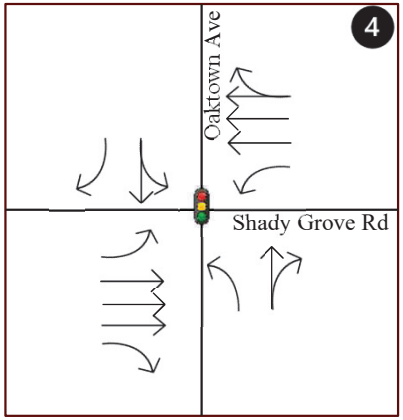
Exhibit 13: Weekday AM/PM Peak Hour Volumes & Lane Configuration – 2040 Build Conditions (Estimated Cut-Through Traffic Volumes on Amity Dr)

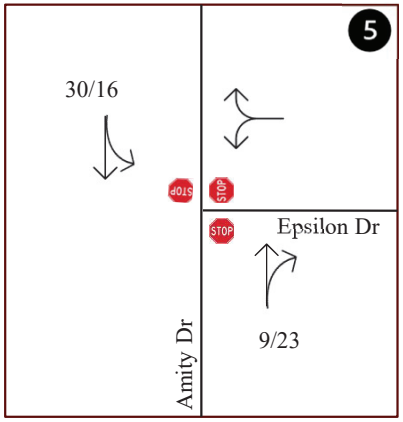


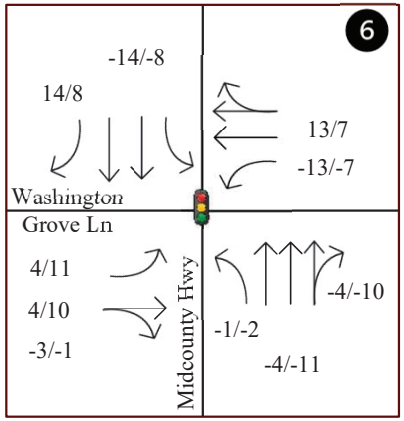


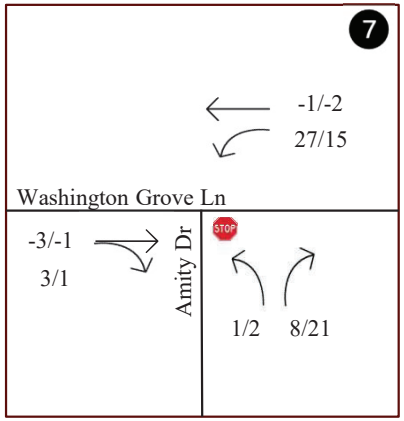












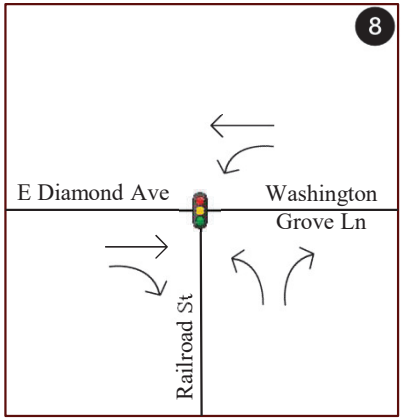
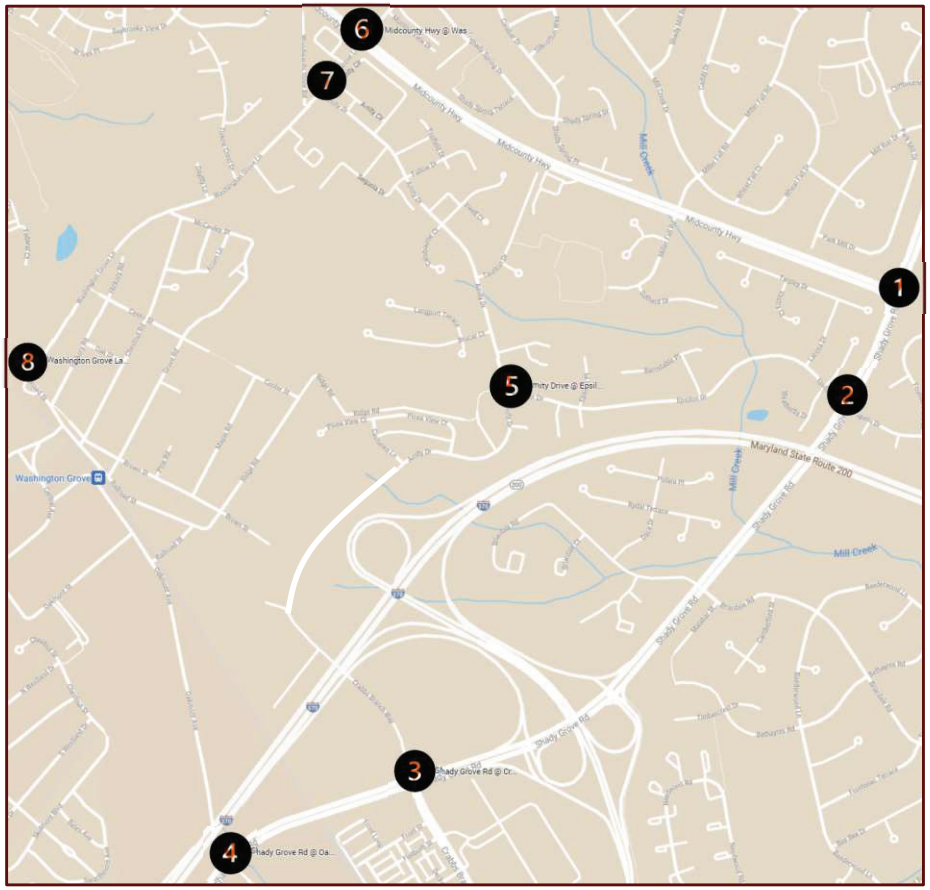
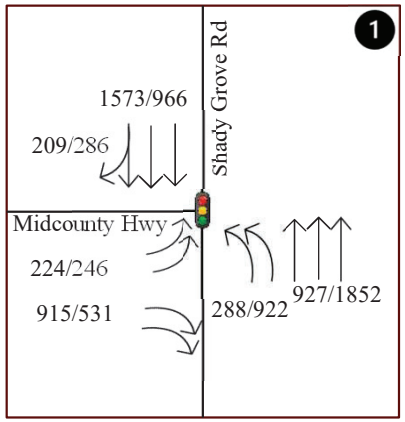
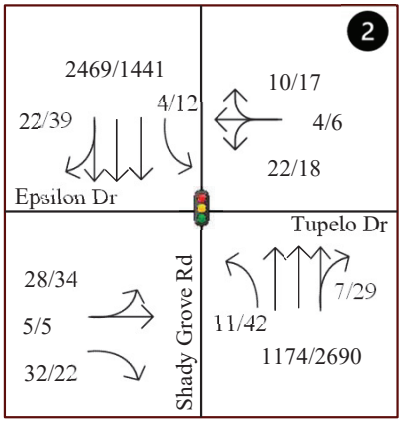
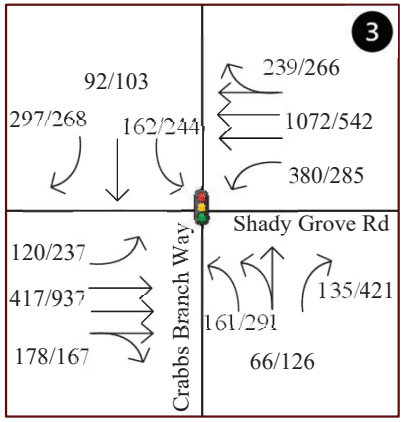


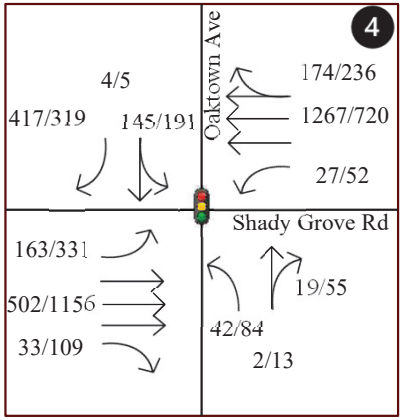
Exhibit 14: 2040 Future Weekday AM/PM Peak Hour Volumes & Lane Configuration – 2040 Build Conditions (Crabbs Branch Way Extension)

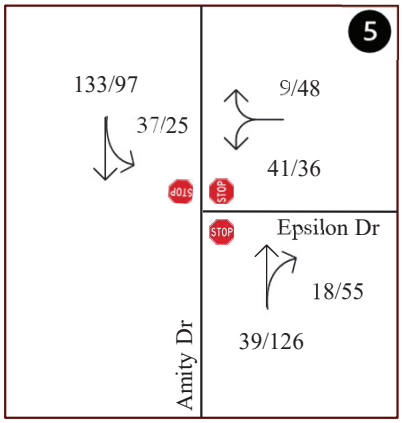


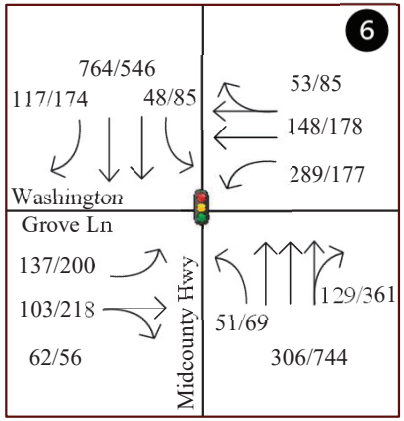


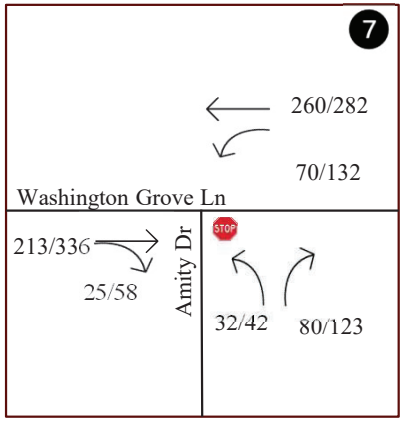


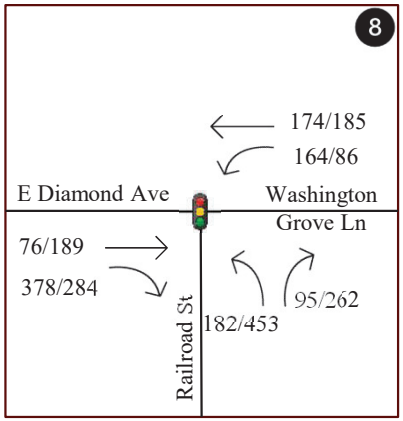












Appendix 15.17 ***Exhibit 15: Weekday AM and PM Peak Hour Level of Service, Delay and Queue lengths – 2040 Build Conditions (with Crabbs Branch Way***

2040 BUILD CONDITIONS WITH CRABBS BRANCH WAY EXTENSION									
Intersection Information			AM Peak			PM Peak			
Traffic Control	Approach	Movement	LOS	Delay (sec)	95th Queue (ft)	LOS	Delay (sec)	95th Queue (ft)
1. Midcounty Hwy & Shady Grove Rd								
Signalized	Eastbound (Midcounty Hwy)	EBL	D	40.4	130	D	53.9	161
		EBR	D	41.5	567	B	16.5	167
		EB Approach	**D**	**41.1**		**C**	**28.3**	
	Northbound (Shady Grove Rd)	NBL	F	130.5	#279	D	48.3	492
		NBT	B	13.6	188	A	9.5	335
		NB Approach	**D**	**41.7**		**C**	**22.7**	
	Southbound (Shady Grove Rd)	SBTR	C	34.8	627	D	49.6	#639
		SB Approach	**C**	**34.8**		**D**	**49.6**	
Overall LOS (Delay)			**D (38.6)**			**C (30.8)**		
2. Shady Grove Rd & Tupelo Dr								
Signalized	Eastbound (Epsilon Dr)	EBLT	E	71.0	72	E	72.1	81
		EBR	E	70.7	72	E	69.0	53
		EB Approach	**E**	**70.9**		**E**	**71.0**	
	Westbound (Tupelo Dr)	WBLTR	E	73.2	66	E	70.2	67
		WB Approach	**E**	**73.2**		**E**	**70.2**	
	Northbound (Shady Grove Rd)	NBL	E	77.5	35	E	72.6	87
		NBTR	A	3.7	151	A	8.5	656
		NB Approach	**A**	**9.3**		**A**	**9.6**	
	Southbound (Shady Grove Rd)	SBL	F	81.8	17	E	78.1	37
		SBTR	A	7.7	575	A	6.6	268
		SB Approach	**A**	**7.8**		**A**	**7.2**	
Overall LOS (Delay)			**A (8.5)**			**B (10.2)**		
3. Shady Grove Rd & Crabbs Branch Way								
Signalized	Eastbound (Shady Grove Rd)	EBL	D	44.3	127	D	48.3	#220
		EBTR	C	28.1	154	D	49.9	#494
		EB Approach	**C**	**30.9**		**D**	**49.7**	
	Westbound (Shady Grove Rd)	WBL	C	25.1	350	F	100.6	#534
		WBTR	C	33.0	#605	D	45.1	337
		WB Approach	**C**	**31.3**		**E**	**59.6**	
	Northbound (Crabbs Branch Way)	NBL	E	71.3	187	E	73.4	317
		NBLT	E	69.0	190	E	73.9	323
		NBR	D	37.5	71	D	49.5	#313
		NB Approach	**E**	**58.0**		**E**	**61.5**	
	Southbound (Crabbs Branch Way)	SBL	E	71.6	238	E	77.3	#374
		SBT	E	57.0	139	D	53.9	155
		SBR	E	78.0	347	D	41.8	170
		SB Approach	**E**	**72.6**		**E**	**57.9**	
Overall LOS (Delay)			**D (41.1)**			**E (56.3)**		
4. Shady Grove Rd & Oakmont Ave								
Signalized	Eastbound (Shady Grove Rd)	EBL	E	57.5	#218	D	42.6	#362
		EBT	C	21.5	139	C	24.3	337
		EBR	B	14.2	2	B	11.9	40
		EB Approach	**C**	**29.6**		**C**	**27.3**	
	Westbound (Shady Grove Rd)	WBL	B	18.2	m14	C	23.8	m35
		WBTR	C	28.8	282	D	37.5	256
		WB Approach	**C**	**28.6**		**D**	**36.8**	
	Northbound (Oakmont Ave)	NBL	E	72.7	86	E	70.1	146
		NBTR	E	65.5	32	E	62.2	63
		NB Approach	**E**	**70.3**		**E**	**66.5**	
	Southbound (Oakmont Ave)	SBLT	D	51.7	225	E	70.4	#322
		SBR	D	47.9	414	D	39.1	247
		SB Approach	**D**	**48.9**		**D**	**50.4**	
Overall LOS (Delay)			**C (33.9)**			**D (35.8)**		
5. Amity Drive & Epsilon Drive								
Unsignalized	Westbound (Epsilon Drive)	WBLR	A	8.5	5	A	7.9	10
		WB Approach	**A**	**8.5**		**A**	**7.9**	
	Northbound (Amity Drive)	NBTR	A	8.1	8	A	8.2	20
		NB Approach	**A**	**8.1**		**A**	**8.2**	
	Southbound (Amity Drive)	SBLT	B	12.3	58	A	8.2	15
		SB Approach	**B**	**12.3**		**A**	**8.2**	
Overall LOS (Delay)			**A (11.3)**			**A (8.1)**		
6. Midcounty Hwy & Washington Grove Ln								
Signalized	Eastbound (Midcounty Hwy)	EBL	B	18.9	51	C	22.2	88
		EBT	C	29.1	400	C	28.2	300
		EBR	C	22.7	46	C	24.6	55
		EB Approach	**C**	**27.7**		**C**	**26.7**	
	Westbound (Midcounty Hwy)	WBL	C	20.0	54	C	20.1	75
		WBTR	C	23.8	126	C	31.5	407
		WB Approach	**C**	**23.4**		**C**	**30.8**	
	Northbound (Washington Grove Ln)	NBL	D	49.5	141	D	40.9	186
		NBTR	E	74.7	228	E	72.5	363
		NB Approach	**E**	**63.3**		**E**	**59.2**	
	Southbound (Washington Grove Ln)	SBL	D	47.3	301	D	43.6	167
		SBTR	D	49.5	116	D	52.8	141
		SB Approach	**D**	**48.2**		**D**	**49.1**	
Overall LOS (Delay)			**D (36.3)**			**D (37.1)**		
7. Amity Drive & Washington Grove Lane								
Unsignalized	Eastbound (Washington Grove Lane)	EBTR		0.0			0.0	
		EB Approach		**0.0**			**0.0**	
	Westbound (Washington Grove Lane)	WBL	A	8.1	5	A	8.6	10
		WBT						
		WB Approach		**1.8**			**2.7**	
	Northbound (Amity Dr)	NBL	B	11.6	10	B	14.8	23
		NBR			10			20
		NB Approach	**B**	**11.6**		**B**	**14.8**	
Overall LOS (Delay)			**A (2.8)**			**A (3.7)**		
8. Washington Grove La & Railroad St								
Signalized	Eastbound (E Diamond Ave)	EBT	D	39.4	99	D	35.6	197
		EBR	A	0.5	0	B	0.3	0
		EB Approach	**A**	**7.1**		**B**	**14.4**	
	Westbound (Washington Grove Lane)	WBL	C	21.8	133	C	24.7	77
		WBT	C	20.6	138	C	22.0	150
		WB Approach	**C**	**21.2**		**C**	**22.9**	
	Northbound (Railroad St)	NBL	C	21.5	149	C	28.5	404
		NBR	A	0.1	0	A	0.3	0
		NB Approach	**B**	**14.0**		**B**	**18.1**	
Overall LOS (Delay)			**B (13.4)**			**B (17.8)**		

95th percentile volume exceeds capacity, queue may be longer

m Volume for the 95th percentile queue is metered by upstream signal

Exhibit 16: Key Comparative Differences - 2040 No-Build and Build Conditions

Intersection	Delay/LOS/95th Percentile Queue		2040 No-Build Conditions	2040 Build Conditions - with Crabbs Branch Way Extension
Shady Grove Rd & Crabbs Branch Way	Delay	AM	33.7 seconds	41.1 seconds
		PM	56 seconds	56.3 seconds
	LOS	AM	C	D
		PM	E	E
	95th Percentile Queue - SB Right Turns	AM	205 feet	347 feet
		PM	108 feet	170 feet
Segment			**2040 No-Build Conditions**	**2040 Build Conditions - with Crabbs Branch Way Extension**
Crabbs Branch Way Extension	Peak Hour Volume*	AM	N/A	264 vehciles
		PM	N/A	351 vehicles
	ADT*		N/A	3,600 vpd
Amity Dr south of Epsilon Dr			540 vpd	3,200 vpd
Crabbs Branch Way north of Shady Grove Rd			8,300 vpd	11,500 vpd

* Estimates only

Appendix 15.19

APPENDIX A: TRAFFIC COUNT DATA

MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

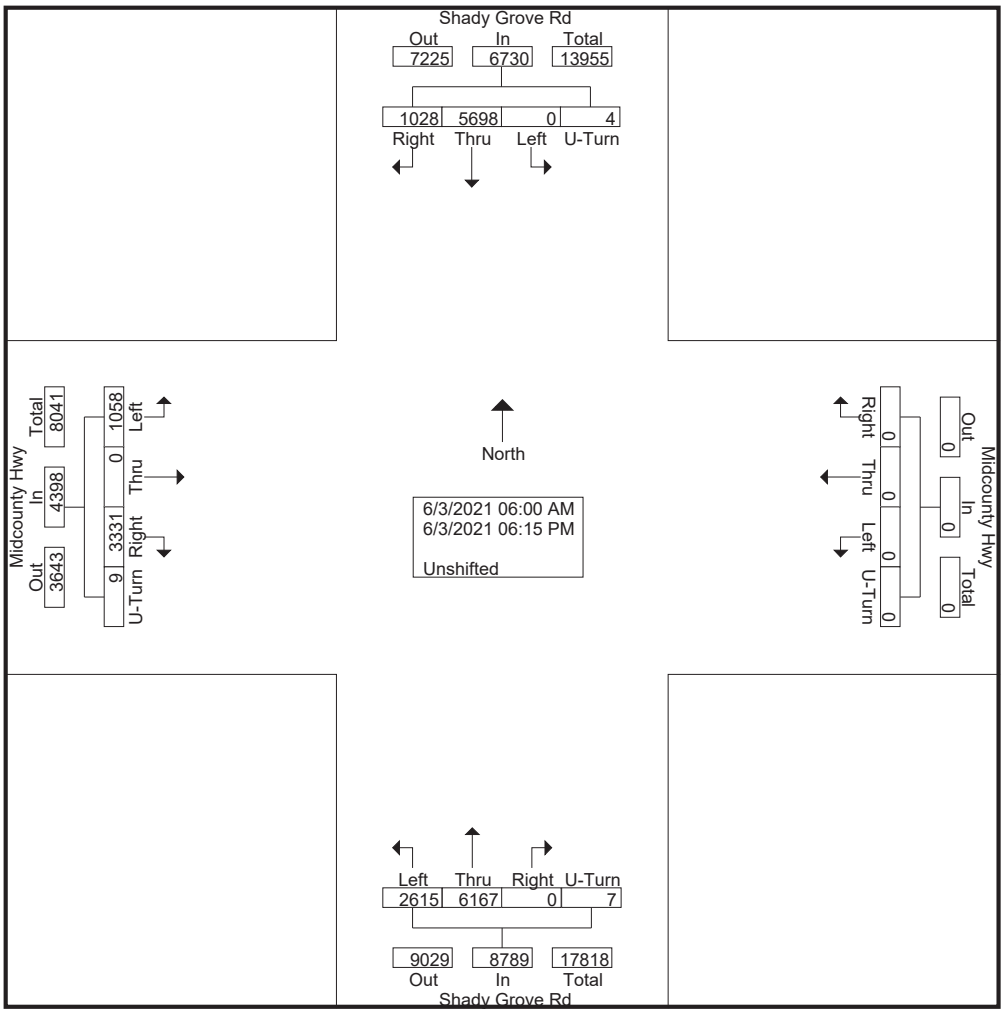
File Name : 1. Midcounty Hwy @ Shady Grove Rd
Site Code : J 998-1
Start Date : 6/3/2021
Page No : 1

Groups Printed- Unshifted

	Shady Grove Rd From North					Midcounty Hwy From East					Shady Grove Rd From South					Midcounty Hwy From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
06:00 AM	0	183	9	0	192	0	0	0	0	0	22	87	0	0	109	28	0	89	0	117	418
06:15 AM	0	231	11	0	242	0	0	0	0	0	21	115	0	0	136	35	0	146	0	181	559
06:30 AM	0	221	14	0	235	0	0	0	0	0	19	118	0	0	137	54	0	161	0	215	587
06:45 AM	0	248	14	0	262	0	0	0	0	0	47	163	0	0	210	34	0	157	0	191	663
Total	0	883	48	0	931	0	0	0	0	0	109	483	0	0	592	151	0	553	0	704	2227
07:00 AM	0	308	17	0	325	0	0	0	0	0	34	118	0	0	152	36	0	173	0	209	686
07:15 AM	0	326	39	0	365	0	0	0	0	0	42	136	0	0	178	39	0	169	0	208	751
07:30 AM	0	321	44	0	365	0	0	0	0	0	43	181	0	0	224	38	0	201	0	239	828
07:45 AM	0	332	62	0	394	0	0	0	0	0	59	202	0	0	261	44	0	209	0	253	908
Total	0	1287	162	0	1449	0	0	0	0	0	178	637	0	0	815	157	0	752	0	909	3173
08:00 AM	0	313	31	0	344	0	0	0	0	0	48	170	0	0	218	46	0	196	1	243	805
08:15 AM	0	346	36	0	382	0	0	0	0	0	71	203	0	1	275	52	0	197	0	249	906
08:30 AM	0	310	45	0	355	0	0	0	0	0	70	190	0	0	260	45	0	189	0	234	849
08:45 AM	0	286	58	1	345	0	0	0	0	0	64	186	0	0	250	40	0	195	2	237	832
Total	0	1255	170	1	1426	0	0	0	0	0	253	749	0	1	1003	183	0	777	3	963	3392
03:30 PM	0	210	52	0	262	0	0	0	0	0	126	332	0	0	458	44	0	131	0	175	895
03:45 PM	0	225	59	0	284	0	0	0	0	0	159	369	0	0	528	50	0	96	1	147	959
Total	0	435	111	0	546	0	0	0	0	0	285	701	0	0	986	94	0	227	1	322	1854
04:00 PM	0	203	52	0	255	0	0	0	0	0	157	343	0	0	500	52	0	127	0	179	934
04:15 PM	0	185	59	0	244	0	0	0	0	0	171	378	0	0	549	49	0	119	0	168	961
04:30 PM	0	208	49	0	257	0	0	0	0	0	170	375	0	0	545	56	0	102	2	160	962
04:45 PM	0	185	63	0	248	0	0	0	0	0	204	402	0	0	606	63	0	99	1	163	1017
Total	0	781	223	0	1004	0	0	0	0	0	702	1498	0	0	2200	220	0	447	3	670	3874
05:00 PM	0	201	48	0	249	0	0	0	0	0	165	393	0	2	560	51	0	120	0	171	980
05:15 PM	0	193	69	1	263	0	0	0	0	0	225	391	0	1	617	43	0	126	0	169	1049
05:30 PM	0	216	58	2	276	0	0	0	0	0	196	346	0	1	543	46	0	113	0	159	978
05:45 PM	0	146	49	0	195	0	0	0	0	0	162	313	0	1	476	53	0	83	1	137	808
Total	0	756	224	3	983	0	0	0	0	0	748	1443	0	5	2196	193	0	442	1	636	3815
06:00 PM	0	146	53	0	199	0	0	0	0	0	184	318	0	1	503	24	0	70	0	94	796
06:15 PM	0	155	37	0	192	0	0	0	0	0	156	338	0	0	494	36	0	63	1	100	786
Grand Total	0	5698	1028	4	6730	0	0	0	0	0	2615	6167	0	7	8789	1058	0	3331	9	4398	19917
Apprch %	0	84.7	15.3	0.1		0	0	0	0		29.8	70.2	0	0.1		24.1	0	75.7	0.2		
Total %	0	28.6	5.2	0	33.8	0	0	0	0	0	13.1	31	0	0	44.1	5.3	0	16.7	0	22.1	

MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

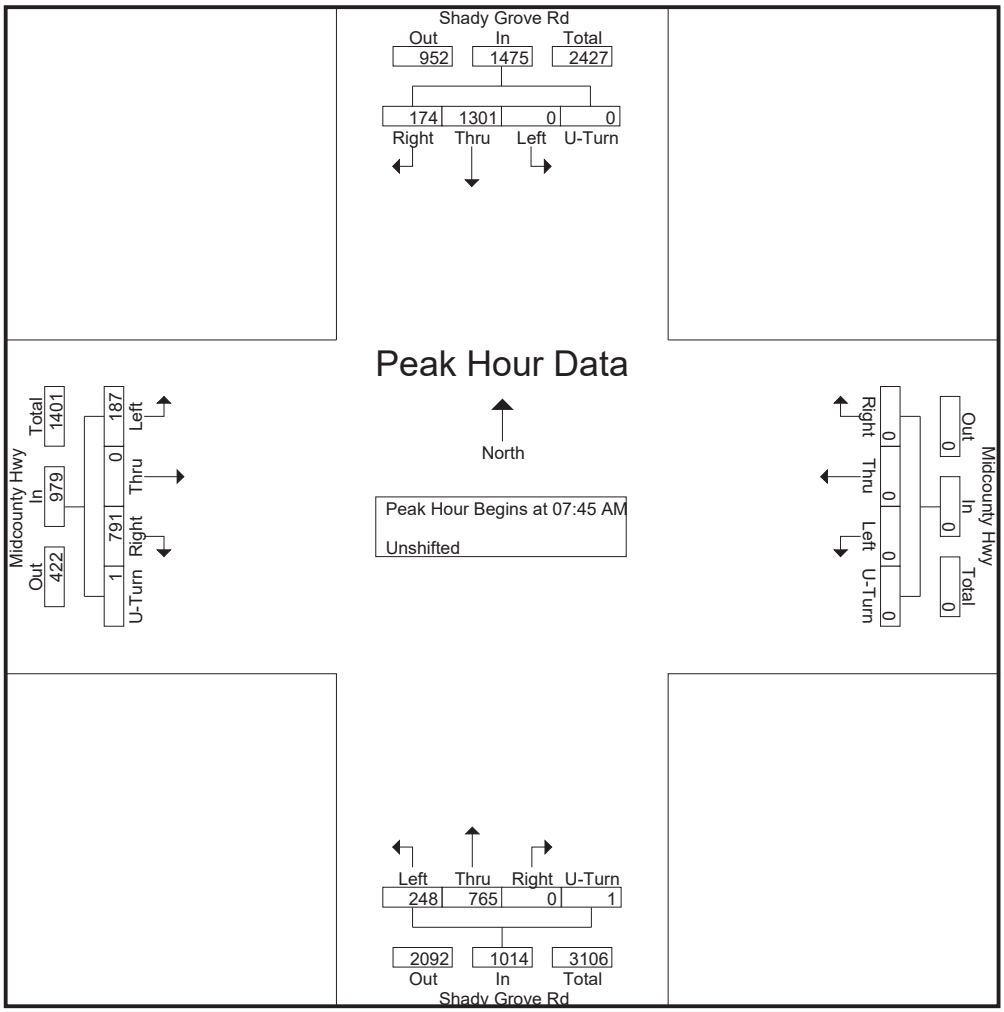
File Name : 1. Midcounty Hwy @ Shady Grove Rd
Site Code : J 998-1
Start Date : 6/3/2021
Page No : 2



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 1. Midcounty Hwy @ Shady Grove Rd
Site Code : J 998-1
Start Date : 6/3/2021
Page No : 3

	Shady Grove Rd From North					Midcounty Hwy From East					Shady Grove Rd From South					Midcounty Hwy From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	332	**62**	0	**394**	0	0	0	0	0	59	202	0	0	261	44	0	**209**	0	**253**	**908**
08:00 AM	0	313	31	0	344	0	0	0	0	0	48	170	0	0	218	46	0	196	**1**	243	805
08:15 AM	0	**346**	36	0	382	0	0	0	0	0	**71**	**203**	0	**1**	**275**	**52**	0	197	0	249	906
08:30 AM	0	310	45	0	355	0	0	0	0	0	70	190	0	0	260	45	0	189	0	234	849
Total Volume	0	1301	174	0	1475	0	0	0	0	0	248	765	0	1	1014	187	0	791	1	979	3468
% App. Total	0	88.2	11.8	0		0	0	0	0		24.5	75.4	0	0.1		19.1	0	80.8	0.1		
PHF	.000	.940	.702	.000	.936	.000	.000	.000	.000	.000	.873	.942	.000	.250	.922	.899	.000	.946	.250	.967	.955



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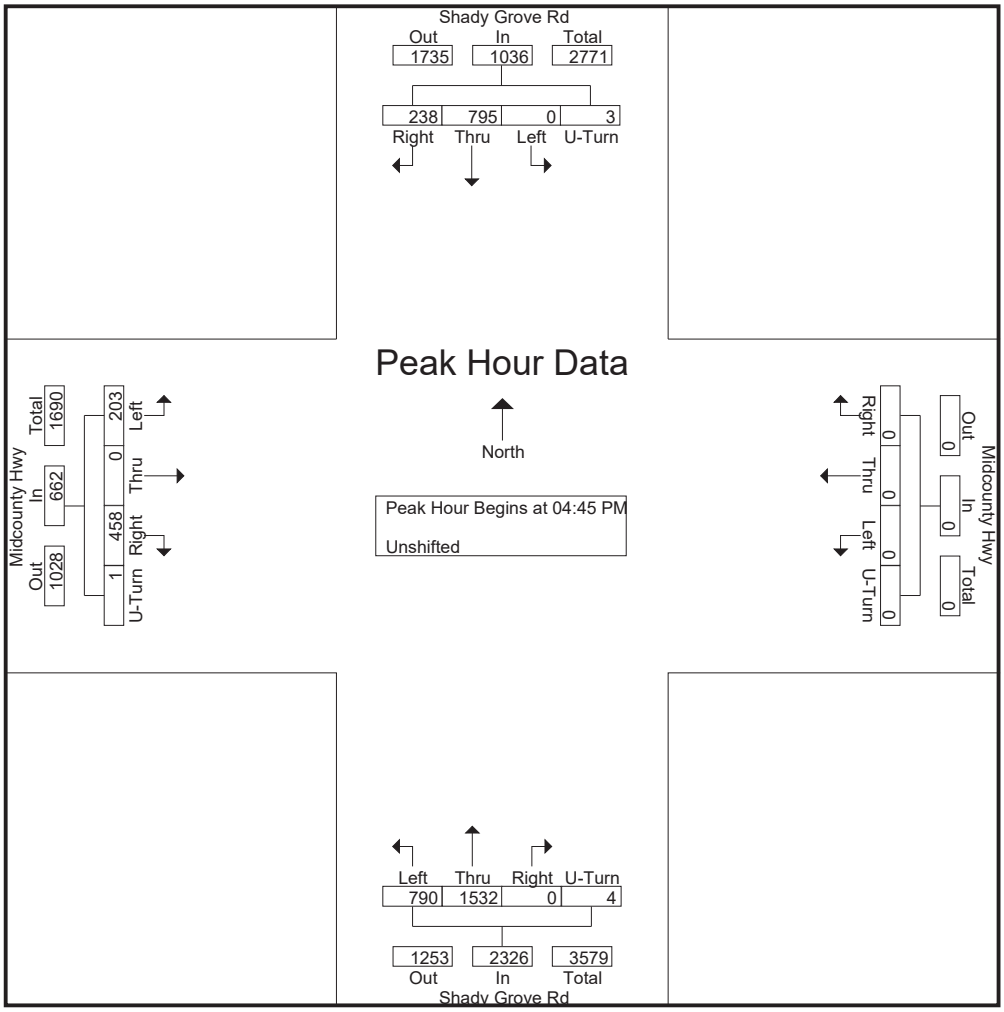
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 1. Midcounty Hwy @ Shady Grove Rd
Site Code : J 998-1
Start Date : 6/3/2021
Page No : 4

	Shady Grove Rd From North					Midcounty Hwy From East					Shady Grove Rd From South					Midcounty Hwy From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	185	63	0	248	0	0	0	0	0	204	**402**	0	0	606	**63**	0	99	**1**	163	1017
05:00 PM	0	201	48	0	249	0	0	0	0	0	165	393	0	**2**	560	51	0	120	0	**171**	980
05:15 PM	0	193	**69**	1	263	0	0	0	0	0	**225**	391	0	1	**617**	43	0	**126**	0	169	**1049**
05:30 PM	0	**216**	58	**2**	**276**	0	0	0	0	0	196	346	0	1	543	46	0	113	0	159	978
Total Volume	0	795	238	3	1036	0	0	0	0	0	790	1532	0	4	2326	203	0	458	1	662	4024
% App. Total	0	76.7	23	0.3		0	0	0	0		34	65.9	0	0.2		30.7	0	69.2	0.2		
PHF	.000	.920	.862	.375	.938	.000	.000	.000	.000	.000	.878	.953	.000	.500	.942	.806	.000	.909	.250	.968	.959



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

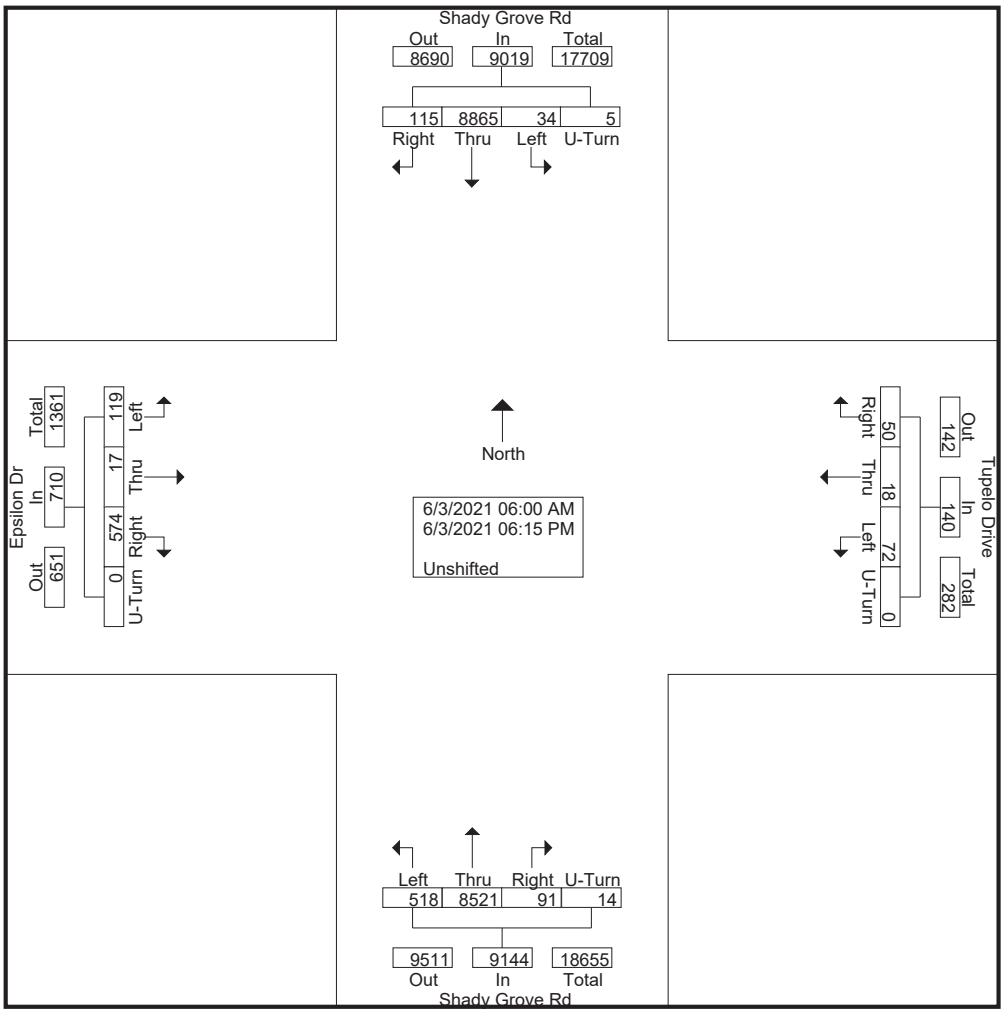
File Name : 2. Shady Grove Rd @ Tupelo Dr
Site Code : J 998-2
Start Date : 6/3/2021
Page No : 1

Groups Printed- Unshifted

	Shady Grove Rd From North					Tupelo Drive From East					Shady Grove Rd From South					Epsilon Dr From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
06:00 AM	0	273	0	0	273	2	1	0	0	3	3	106	0	0	109	5	0	17	0	22	407
06:15 AM	0	364	2	0	366	1	0	0	0	1	5	132	0	0	137	5	0	24	0	29	533
06:30 AM	0	380	1	0	381	2	0	0	0	2	3	143	0	0	146	5	3	29	0	37	566
06:45 AM	3	410	2	0	415	2	0	1	0	3	6	187	1	0	194	1	0	21	0	22	634
Total	3	1427	5	0	1435	7	1	1	0	9	17	568	1	0	586	16	3	91	0	110	2140
07:00 AM	3	474	3	0	480	4	0	0	0	4	4	141	1	1	147	5	0	24	0	29	660
07:15 AM	0	498	1	0	499	4	0	1	0	5	5	183	0	0	188	4	1	41	0	46	738
07:30 AM	0	510	1	0	511	0	0	1	0	1	3	209	3	0	215	2	0	47	0	49	776
07:45 AM	1	535	4	0	540	4	1	2	0	7	6	248	1	0	255	6	2	35	0	43	845
Total	4	2017	9	0	2030	12	1	4	0	17	18	781	5	1	805	17	3	147	0	167	3019
08:00 AM	1	485	6	1	493	5	0	0	0	5	9	235	0	1	245	7	1	29	0	37	780
08:15 AM	0	565	3	0	568	6	2	0	0	8	10	251	2	0	263	4	0	27	0	31	870
08:30 AM	0	492	5	0	497	3	0	6	0	9	13	246	3	0	262	6	1	26	0	33	801
08:45 AM	1	483	6	0	490	2	1	0	0	3	12	230	1	1	244	9	1	33	0	43	780
Total	2	2025	20	1	2048	16	3	6	0	25	44	962	6	2	1014	26	3	115	0	144	3231
03:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:30 PM	3	324	9	0	336	4	2	3	0	9	24	447	7	3	481	3	0	17	0	20	846
03:45 PM	3	303	3	0	309	2	0	3	0	5	38	516	7	0	561	8	0	21	0	29	904
Total	6	627	12	1	646	6	2	6	0	14	62	963	14	3	1042	11	0	38	0	49	1751
04:00 PM	0	334	7	0	341	2	0	3	0	5	29	483	7	0	519	4	2	16	0	22	887
04:15 PM	3	286	7	0	296	4	1	1	0	6	46	552	4	1	603	6	1	19	0	26	931
04:30 PM	1	306	6	1	314	1	0	4	0	5	35	527	6	1	569	4	0	24	0	28	916
04:45 PM	1	278	7	0	286	1	3	1	0	5	38	579	5	2	624	8	0	29	0	37	952
Total	5	1204	27	1	1237	8	4	9	0	21	148	2141	22	4	2315	22	3	88	0	113	3686
05:00 PM	2	299	10	1	312	5	1	3	0	9	40	558	6	0	604	8	2	19	0	29	954
05:15 PM	3	295	8	0	306	3	0	4	0	7	52	594	8	0	654	3	1	13	0	17	984
05:30 PM	3	339	7	0	349	6	1	6	0	13	31	526	5	0	562	9	1	28	0	38	962
05:45 PM	2	226	10	1	239	1	1	2	0	4	26	480	6	3	515	3	0	11	0	14	772
Total	10	1159	35	2	1206	15	3	15	0	33	149	2158	25	3	2335	23	4	71	0	98	3672
06:00 PM	2	196	5	0	203	5	4	6	0	15	38	461	11	1	511	4	1	10	0	15	744
06:15 PM	2	210	2	0	214	3	0	3	0	6	42	487	7	0	536	0	0	14	0	14	770
Grand Total	34	8865	115	5	9019	72	18	50	0	140	518	8521	91	14	9144	119	17	574	0	710	19013
Apprch %	0.4	98.3	1.3	0.1		51.4	12.9	35.7	0		5.7	93.2	1	0.2		16.8	2.4	80.8	0		
Total %	0.2	46.6	0.6	0	47.4	0.4	0.1	0.3	0	0.7	2.7	44.8	0.5	0.1	48.1	0.6	0.1	3	0	3.7	

MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 2. Shady Grove Rd @ Tupelo Dr
Site Code : J 998-2
Start Date : 6/3/2021
Page No : 2



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
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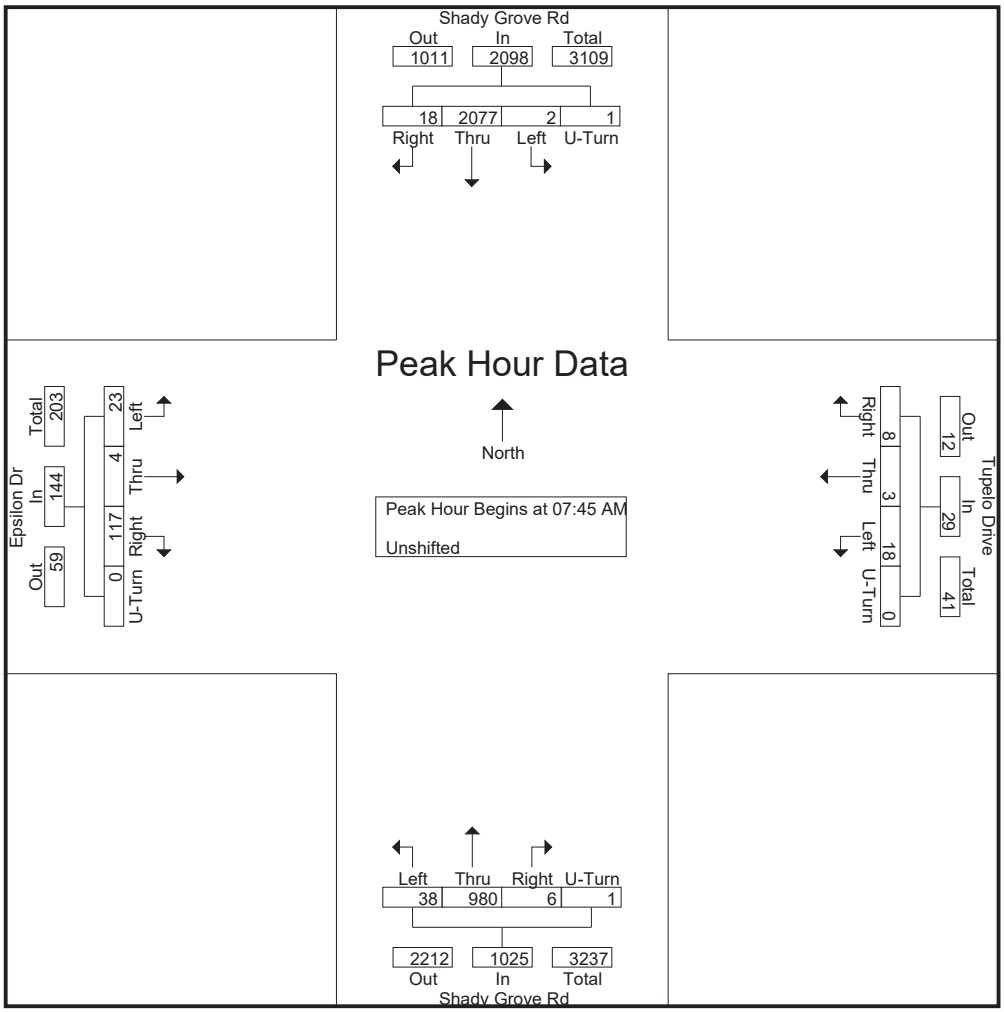
Phone: 703 914-4850

File Name : 2. Shady Grove Rd @ Tupelo Dr
Site Code : J 998-2
Start Date : 6/3/2021
Page No : 3

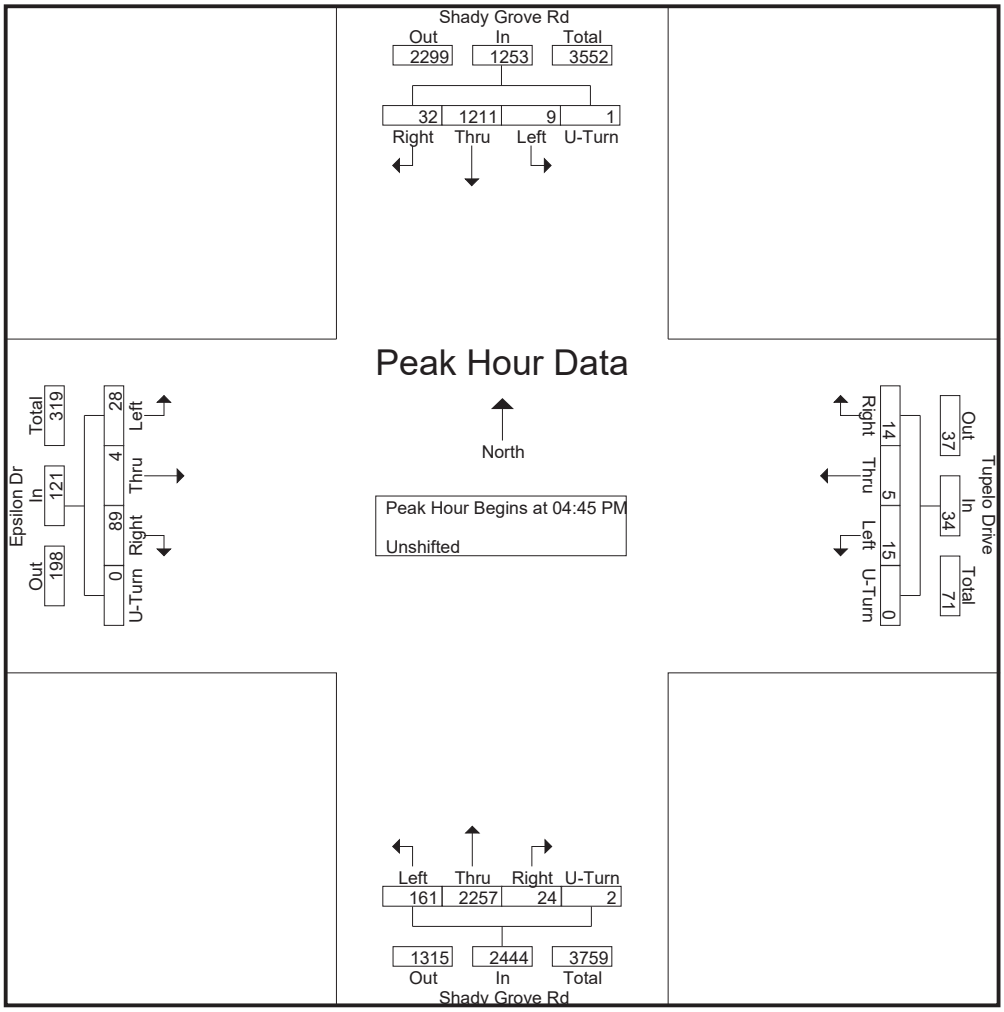
	Shady Grove Rd From North					Tupelo Drive From East					Shady Grove Rd From South					Epsilon Dr From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	**1**	535	4	0	540	4	1	2	0	7	6	248	1	0	255	6	**2**	**35**	0	**43**	845
08:00 AM	1	485	**6**	**1**	493	5	0	0	0	5	9	235	0	**1**	245	**7**	1	29	0	37	780
08:15 AM	0	**565**	3	0	**568**	**6**	**2**	0	0	8	10	**251**	2	0	**263**	4	0	27	0	31	**870**
08:30 AM	0	492	5	0	497	3	0	**6**	0	**9**	**13**	246	**3**	0	262	6	1	26	0	33	801
Total Volume	2	2077	18	1	2098	18	3	8	0	29	38	980	6	1	1025	23	4	117	0	144	3296
% App. Total	0.1	99	0.9	0		62.1	10.3	27.6	0		3.7	95.6	0.6	0.1		16	2.8	81.2	0		
PHF	.500	.919	.750	.250	.923	.750	.375	.333	.000	.806	.731	.976	.500	.250	.974	.821	.500	.836	.000	.837	.947



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 2. Shady Grove Rd @ Tupelo Dr
Site Code : J 998-2
Start Date : 6/3/2021
Page No : 4

	Shady Grove Rd From North					Tupelo Drive From East					Shady Grove Rd From South					Epsilon Dr From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	1	278	7	0	286	1	**3**	1	0	5	38	579	5	**2**	624	8	0	**29**	0	37	952
05:00 PM	2	299	**10**	**1**	312	5	1	3	0	9	40	558	6	0	604	8	**2**	19	0	29	954
05:15 PM	**3**	295	8	0	306	3	0	4	0	7	**52**	**594**	**8**	0	**654**	3	1	13	0	17	**984**
05:30 PM	3	**339**	7	0	**349**	**6**	1	**6**	0	**13**	31	526	5	0	562	**9**	1	28	0	**38**	962
Total Volume	9	1211	32	1	1253	15	5	14	0	34	161	2257	24	2	2444	28	4	89	0	121	3852
% App. Total	0.7	96.6	2.6	0.1		44.1	14.7	41.2	0		6.6	92.3	1	0.1		23.1	3.3	73.6	0		
PHF	.750	.893	.800	.250	.898	.625	.417	.583	.000	.654	.774	.950	.750	.250	.934	.778	.500	.767	.000	.796	.979



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 3. Shady Grove Rd @ Crabbs Branch Way
Site Code : J 998-3
Start Date : 6/3/2021
Page No : 1

Groups Printed- Unshifted

	Crabbs Branch Way From North					Shady Grove Rd From East					Crabbs Branch Way From South					Shady Grove Road From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
06:00 AM	9	4	16	0	29	59	98	44	1	202	7	6	18	0	31	11	37	26	0	74	336
06:15 AM	14	18	25	0	57	72	130	63	1	266	15	12	27	0	54	13	28	35	0	76	453
06:30 AM	10	14	14	0	38	110	134	36	0	280	16	10	49	0	75	18	42	31	0	91	484
06:45 AM	21	12	31	0	64	102	163	48	0	313	32	10	53	0	95	14	43	27	0	84	556
Total	54	48	86	0	188	343	525	191	2	1061	70	38	147	0	255	56	150	119	0	325	1829
07:00 AM	17	19	45	0	81	93	161	38	2	294	39	11	35	0	85	19	45	40	1	105	565
07:15 AM	11	8	44	0	63	88	204	46	0	338	32	10	27	0	69	16	64	29	0	109	579
07:30 AM	23	15	36	0	74	69	199	49	1	318	28	8	20	0	56	18	89	40	1	148	596
07:45 AM	16	11	41	0	68	74	238	46	0	358	36	10	31	0	77	18	75	24	0	117	620
Total	67	53	166	0	286	324	802	179	3	1308	135	39	113	0	287	71	273	133	2	479	2360
08:00 AM	26	15	34	0	75	80	306	53	0	439	33	13	22	0	68	15	96	34	0	145	727
08:15 AM	17	14	29	0	60	82	256	35	0	373	29	13	30	0	72	26	90	38	0	154	659
08:30 AM	25	22	36	0	83	83	196	45	1	325	39	9	18	0	66	18	85	28	0	131	605
08:45 AM	17	11	35	0	63	82	202	51	1	336	32	12	42	0	86	18	90	47	0	155	640
Total	85	62	134	0	281	327	960	184	2	1473	133	47	112	0	292	77	361	147	0	585	2631
03:30 PM	24	9	32	0	65	45	117	39	0	201	49	13	45	0	107	33	197	42	1	273	646
03:45 PM	34	16	41	0	91	68	133	38	0	239	50	13	61	0	124	40	190	38	1	269	723
Total	58	25	73	0	156	113	250	77	0	440	99	26	106	0	231	73	387	80	2	542	1369
04:00 PM	41	17	31	0	89	60	134	37	2	233	48	20	89	2	159	29	210	40	0	279	760
04:15 PM	50	13	42	0	105	71	116	29	1	217	77	20	95	1	193	39	189	28	0	256	771
04:30 PM	33	24	35	0	92	50	131	43	2	226	61	20	96	0	177	31	186	34	1	252	747
04:45 PM	41	16	36	0	93	64	112	38	1	215	52	24	69	0	145	28	244	36	0	308	761
Total	165	70	144	0	379	245	493	147	6	891	238	84	349	3	674	127	829	138	1	1095	3039
05:00 PM	37	16	40	0	93	39	114	47	0	200	43	22	72	2	139	35	216	36	0	287	719
05:15 PM	47	21	34	0	102	43	107	33	3	186	38	25	63	0	126	20	235	31	1	287	701
05:30 PM	48	24	32	0	104	37	133	27	5	202	50	21	60	0	131	23	194	30	0	247	684
05:45 PM	36	12	34	0	82	37	76	31	1	145	31	13	61	0	105	18	201	24	0	243	575
Total	168	73	140	0	381	156	430	138	9	733	162	81	256	2	501	96	846	121	1	1064	2679
06:00 PM	32	13	35	0	80	37	108	19	1	165	37	14	41	0	92	23	177	18	0	218	555
06:15 PM	21	11	30	0	62	37	106	23	1	167	34	10	35	0	79	23	198	21	0	242	550
Grand Total	650	355	808	0	1813	1582	3674	958	24	6238	908	339	1159	5	2411	546	3221	777	6	4550	15012
Apprch %	35.9	19.6	44.6	0		25.4	58.9	15.4	0.4		37.7	14.1	48.1	0.2		12	70.8	17.1	0.1		
Total %	4.3	2.4	5.4	0	12.1	10.5	24.5	6.4	0.2	41.6	6	2.3	7.7	0	16.1	3.6	21.5	5.2	0	30.3	

MCV Associates, Inc.
4605-C Pinecrest off Park Dr
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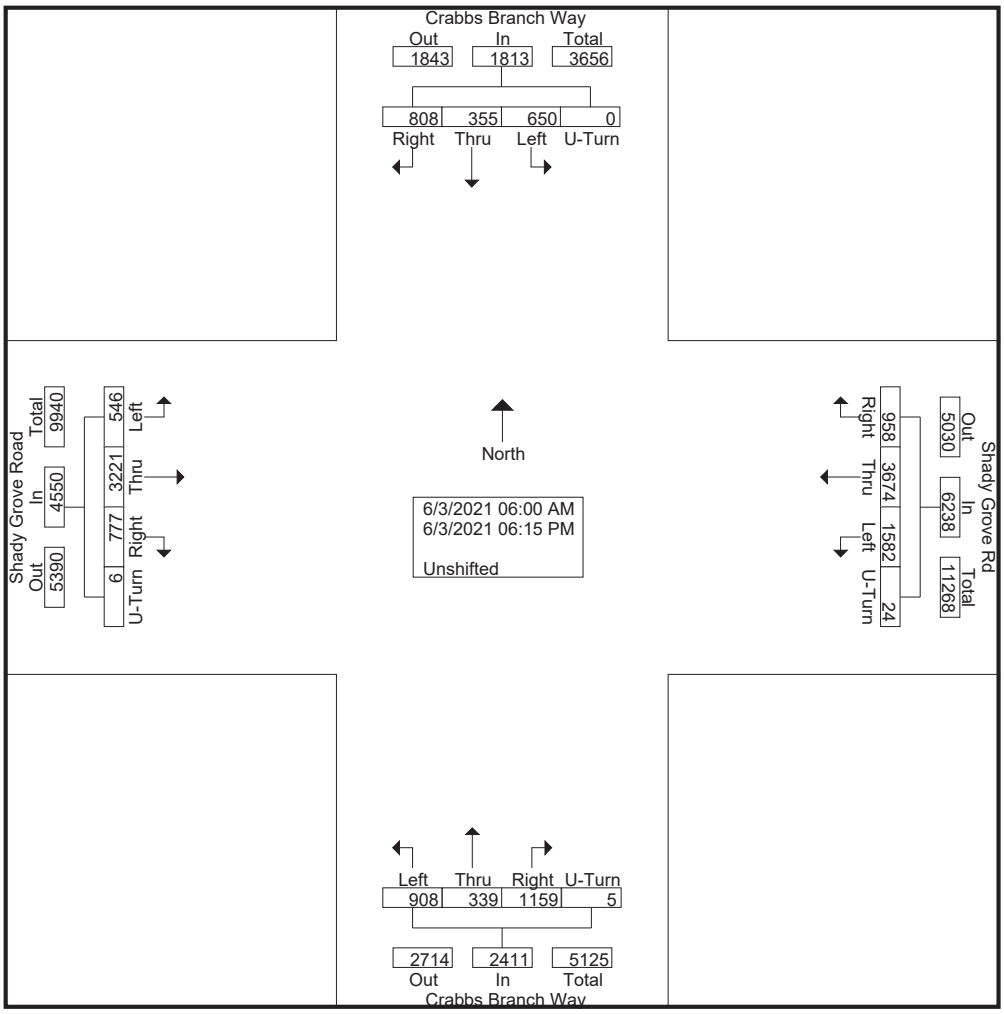
File Name : 3. Shady Grove Rd @ Crabbs Branch Way
Site Code : J 998-3
Start Date : 6/3/2021
Page No : 2



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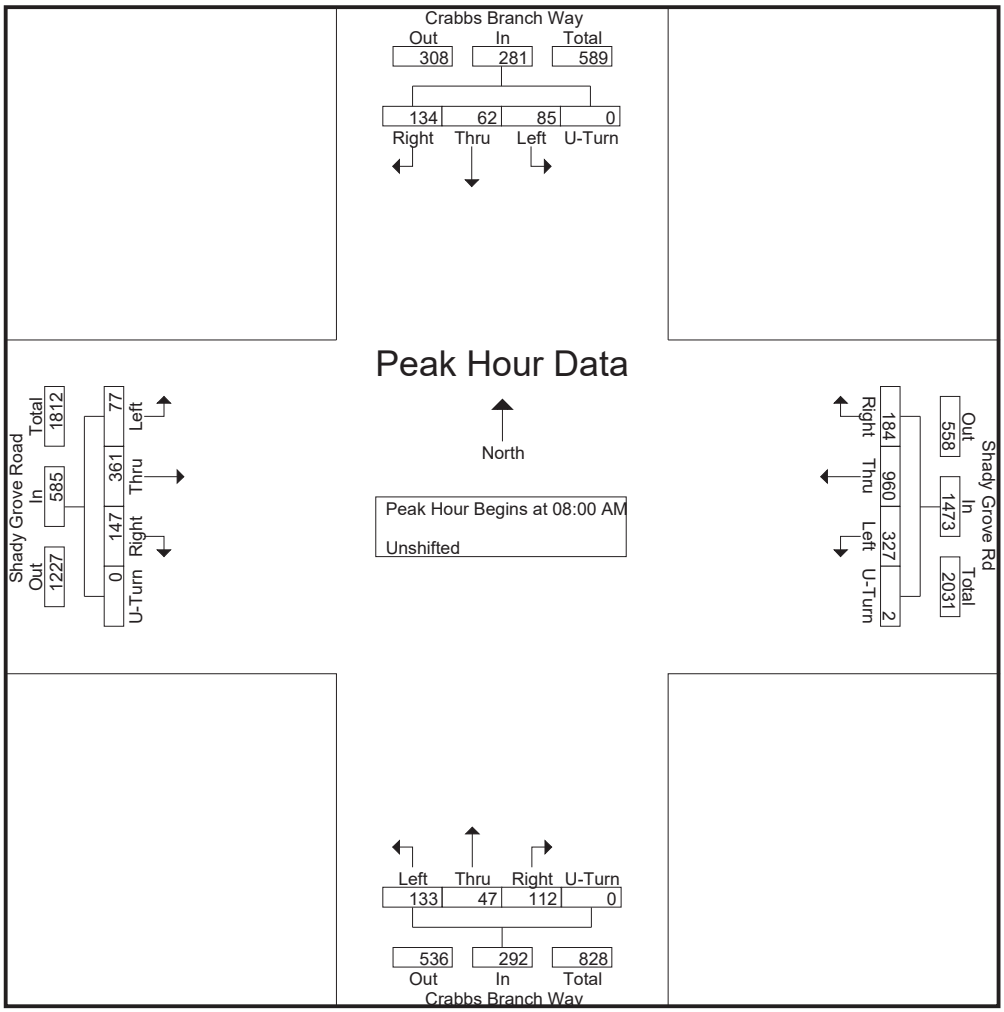
Phone: 703 914-4850

File Name : 3. Shady Grove Rd @ Crabbs Branch Way
Site Code : J 998-3
Start Date : 6/3/2021
Page No : 3

	Crabbs Branch Way From North					Shady Grove Rd From East					Crabbs Branch Way From South					Shady Grove Road From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	**26**	15	34	0	75	80	**306**	**53**	0	**439**	33	**13**	22	0	68	15	**96**	34	0	145	**727**
08:15 AM	17	14	29	0	60	82	256	35	0	373	29	13	30	0	72	**26**	90	38	0	154	659
08:30 AM	25	**22**	**36**	0	**83**	**83**	196	45	**1**	325	**39**	9	18	0	66	18	85	28	0	131	605
08:45 AM	17	11	35	0	63	82	202	51	1	336	32	12	**42**	0	**86**	18	90	**47**	0	**155**	640
Total Volume	85	62	134	0	281	327	960	184	2	1473	133	47	112	0	292	77	361	147	0	585	2631
% App. Total	30.2	22.1	47.7	0		22.2	65.2	12.5	0.1		45.5	16.1	38.4	0		13.2	61.7	25.1	0		
PHF	.817	.705	.931	.000	.846	.985	.784	.868	.500	.839	.853	.904	.667	.000	.849	.740	.940	.782	.000	.944	.905



MCV Associates, Inc.
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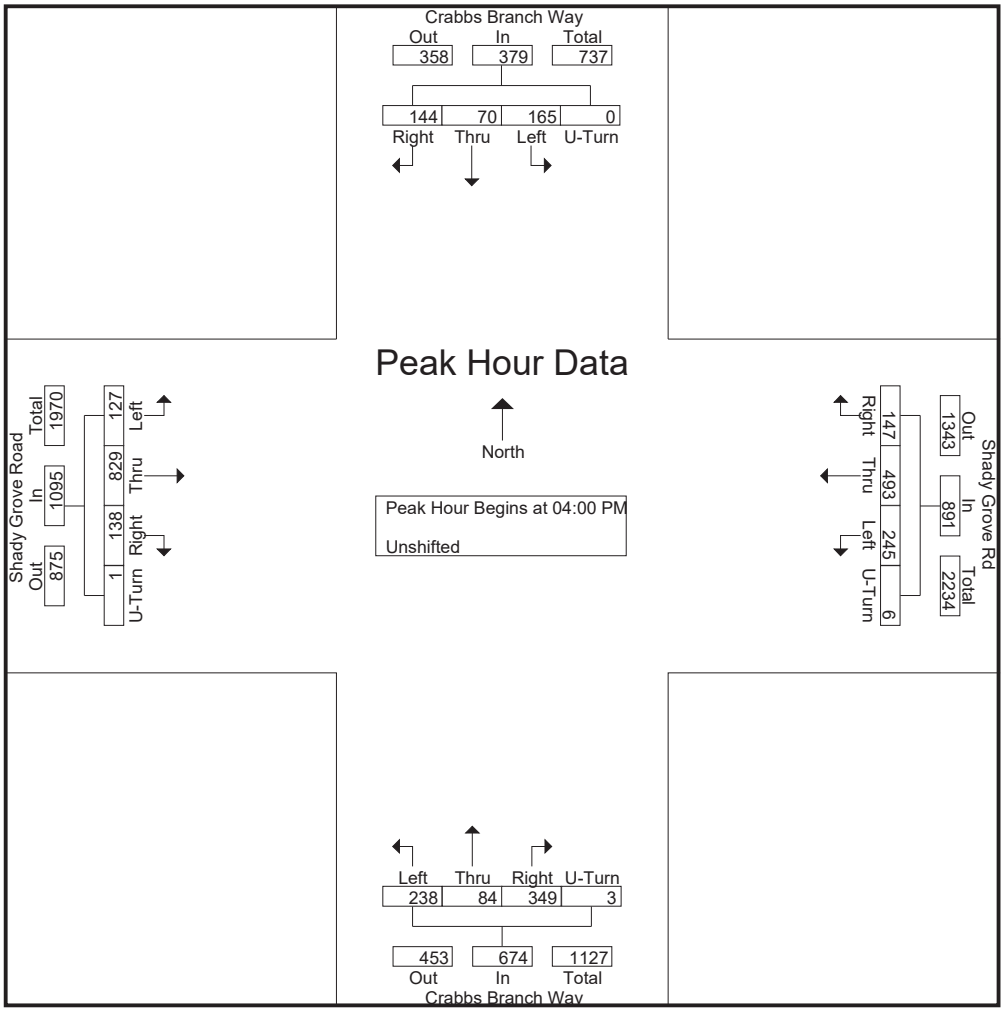
File Name : 3. Shady Grove Rd @ Crabbs Branch Way
Site Code : J 998-3
Start Date : 6/3/2021
Page No : 4

	Crabbs Branch Way From North					Shady Grove Rd From East					Crabbs Branch Way From South					Shady Grove Road From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	41	17	31	0	89	60	**134**	37	**2**	**233**	48	20	89	**2**	159	29	210	**40**	0	279	760
04:15 PM	**50**	13	**42**	0	**105**	**71**	116	29	1	217	**77**	20	95	1	**193**	**39**	189	28	0	256	**771**
04:30 PM	33	**24**	35	0	92	50	131	**43**	2	226	61	20	**96**	0	177	31	186	34	**1**	252	747
04:45 PM	41	16	36	0	93	64	112	38	1	215	52	**24**	69	0	145	28	**244**	36	0	**308**	761
Total Volume	165	70	144	0	379	245	493	147	6	891	238	84	349	3	674	127	829	138	1	1095	3039
% App. Total	43.5	18.5	38	0		27.5	55.3	16.5	0.7		35.3	12.5	51.8	0.4		11.6	75.7	12.6	0.1		
PHF	.825	.729	.857	.000	.902	.863	.920	.855	.750	.956	.773	.875	.909	.375	.873	.814	.849	.863	.250	.889	.985



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File Name : 4. Shady Grove Rd @ Oakmont Ave
Site Code : J 998-4
Start Date : 6/3/2021
Page No : 1

Groups Printed- Unshifted

	Oakmont Avenue From North					Shady Grove Rd From East					Oakmont Avenue From South					Shady Grove Rd From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
06:00 AM	18	0	32	0	50	7	89	14	0	110	3	0	2	0	5	22	48	6	3	79	244
06:15 AM	23	0	39	0	62	5	147	17	0	169	1	0	3	0	4	18	53	4	0	75	310
06:30 AM	16	0	58	0	74	9	155	14	1	179	8	0	2	0	10	25	60	6	0	91	354
06:45 AM	21	0	48	0	69	4	171	38	0	213	10	0	4	0	14	37	65	6	0	108	404
Total	78	0	177	0	255	25	562	83	1	671	22	0	11	0	33	102	226	22	3	353	1312
07:00 AM	36	0	62	0	98	5	192	34	1	232	6	2	7	0	15	33	61	6	0	100	445
07:15 AM	41	1	85	0	127	9	217	30	0	256	14	1	6	0	21	30	74	3	0	107	511
07:30 AM	37	1	88	0	126	5	246	32	0	283	11	1	5	0	17	31	89	5	0	125	551
07:45 AM	28	1	98	0	127	5	248	36	0	289	8	1	3	0	12	43	92	9	0	144	572
Total	142	3	333	0	478	24	903	132	1	1060	39	5	21	0	65	137	316	23	0	476	2079
08:00 AM	29	0	84	0	113	5	233	41	1	280	12	0	3	0	15	35	104	8	1	148	556
08:15 AM	26	1	103	0	130	5	276	35	1	317	4	0	5	0	9	32	124	5	0	161	617
08:30 AM	23	2	67	0	92	7	224	36	2	269	7	0	7	0	14	44	104	8	0	156	531
08:45 AM	31	2	65	0	98	7	232	31	0	270	6	2	2	0	10	43	115	9	0	167	545
Total	109	5	319	0	433	24	965	143	4	1136	29	2	17	0	48	154	447	30	1	632	2249
03:30 PM	31	2	80	0	113	6	130	50	0	186	15	1	18	0	34	52	204	20	0	276	609
03:45 PM	35	1	73	0	109	8	153	58	0	219	12	1	16	0	29	64	216	19	0	299	656
Total	66	3	153	0	222	14	283	108	0	405	27	2	34	0	63	116	420	39	0	575	1265
04:00 PM	43	3	72	0	118	8	162	40	1	211	10	0	18	0	28	58	219	16	0	293	650
04:15 PM	37	2	78	0	117	7	167	51	0	225	6	1	11	0	18	54	210	20	1	285	645
04:30 PM	37	1	74	0	112	13	159	55	1	228	21	3	10	0	34	59	212	22	1	294	668
04:45 PM	43	1	58	0	102	9	133	48	3	193	19	2	9	0	30	57	254	18	1	330	655
Total	160	7	282	0	449	37	621	194	5	857	56	6	48	0	110	228	895	76	3	1202	2618
05:00 PM	49	2	84	0	135	11	133	51	1	196	14	3	17	0	34	76	236	16	1	329	694
05:15 PM	29	0	69	0	98	5	133	41	0	179	16	3	10	0	29	91	241	34	2	368	674
05:30 PM	26	1	60	0	87	9	159	40	1	209	17	1	7	0	25	56	239	8	0	303	624
05:45 PM	21	0	45	0	66	7	105	33	1	146	8	0	9	0	17	69	193	14	1	277	506
Total	125	3	258	0	386	32	530	165	3	730	55	7	43	0	105	292	909	72	4	1277	2498
06:00 PM	17	0	39	0	56	8	125	38	0	171	10	2	9	0	21	69	193	15	2	279	527
06:15 PM	30	4	56	0	90	11	103	44	0	158	17	1	11	0	29	76	202	16	0	294	571
Grand Total	727	25	1617	0	2369	175	4092	907	14	5188	255	25	194	0	474	1174	3608	293	13	5088	13119
Apprch %	30.7	1.1	68.3	0		3.4	78.9	17.5	0.3		53.8	5.3	40.9	0		23.1	70.9	5.8	0.3		
Total %	5.5	0.2	12.3	0	18.1	1.3	31.2	6.9	0.1	39.5	1.9	0.2	1.5	0	3.6	8.9	27.5	2.2	0.1	38.8	

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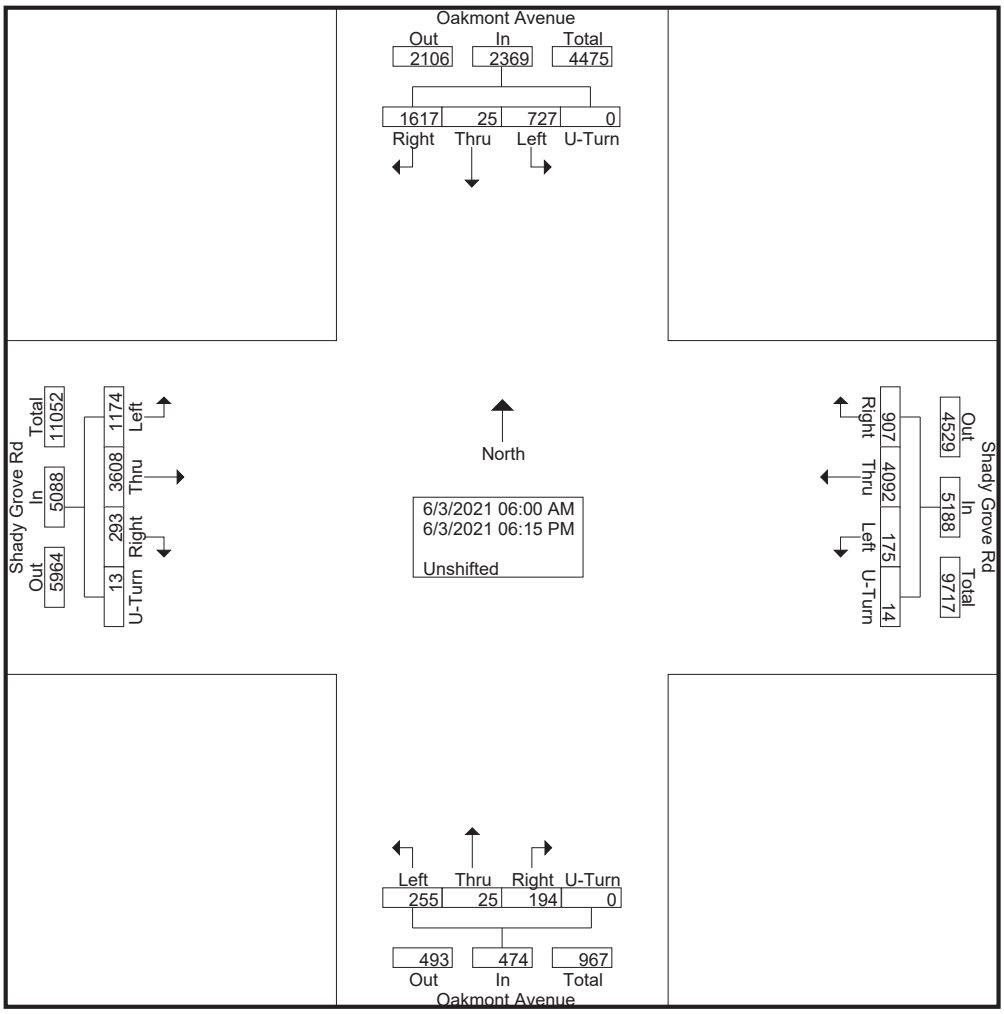
File Name : 4. Shady Grove Rd @ Oakmont Ave
Site Code : J 998-4
Start Date : 6/3/2021
Page No : 2



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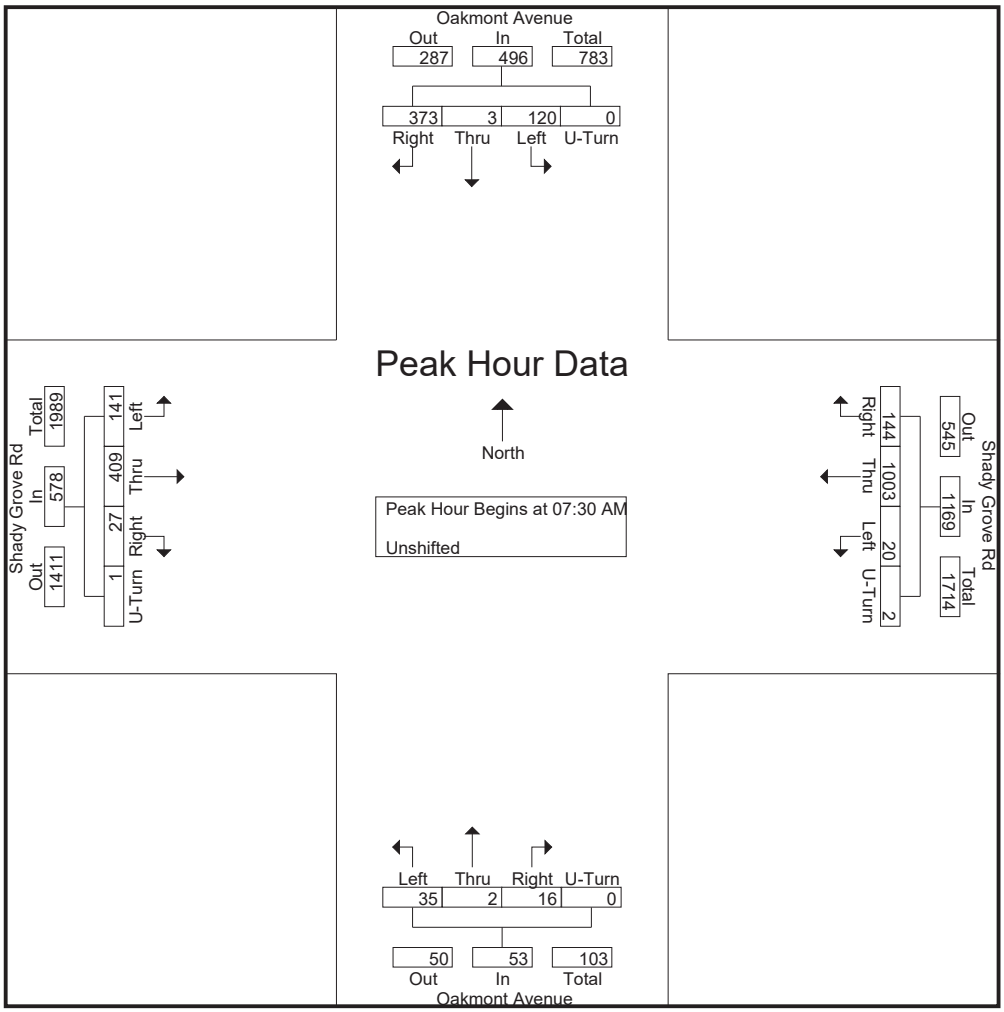
File Name : 4. Shady Grove Rd @ Oakmont Ave
Site Code : J 998-4
Start Date : 6/3/2021
Page No : 3

	Oakmont Avenue From North					Shady Grove Rd From East					Oakmont Avenue From South					Shady Grove Rd From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**37**	**1**	88	0	126	**5**	246	32	0	283	11	**1**	**5**	0	**17**	31	89	5	0	125	551
07:45 AM	28	1	98	0	127	5	248	36	0	289	8	1	3	0	12	**43**	92	**9**	0	144	572
08:00 AM	29	0	84	0	113	5	233	**41**	**1**	280	**12**	0	3	0	15	35	104	8	**1**	148	556
08:15 AM	26	1	**103**	0	**130**	5	**276**	35	1	**317**	4	0	5	0	9	32	**124**	5	0	**161**	**617**
Total Volume	120	3	373	0	496	20	1003	144	2	1169	35	2	16	0	53	141	409	27	1	578	2296
% App. Total	24.2	0.6	75.2	0		1.7	85.8	12.3	0.2		66	3.8	30.2	0		24.4	70.8	4.7	0.2		
PHF	.811	.750	.905	.000	.954	1.00	.909	.878	.500	.922	.729	.500	.800	.000	.779	.820	.825	.750	.250	.898	.930



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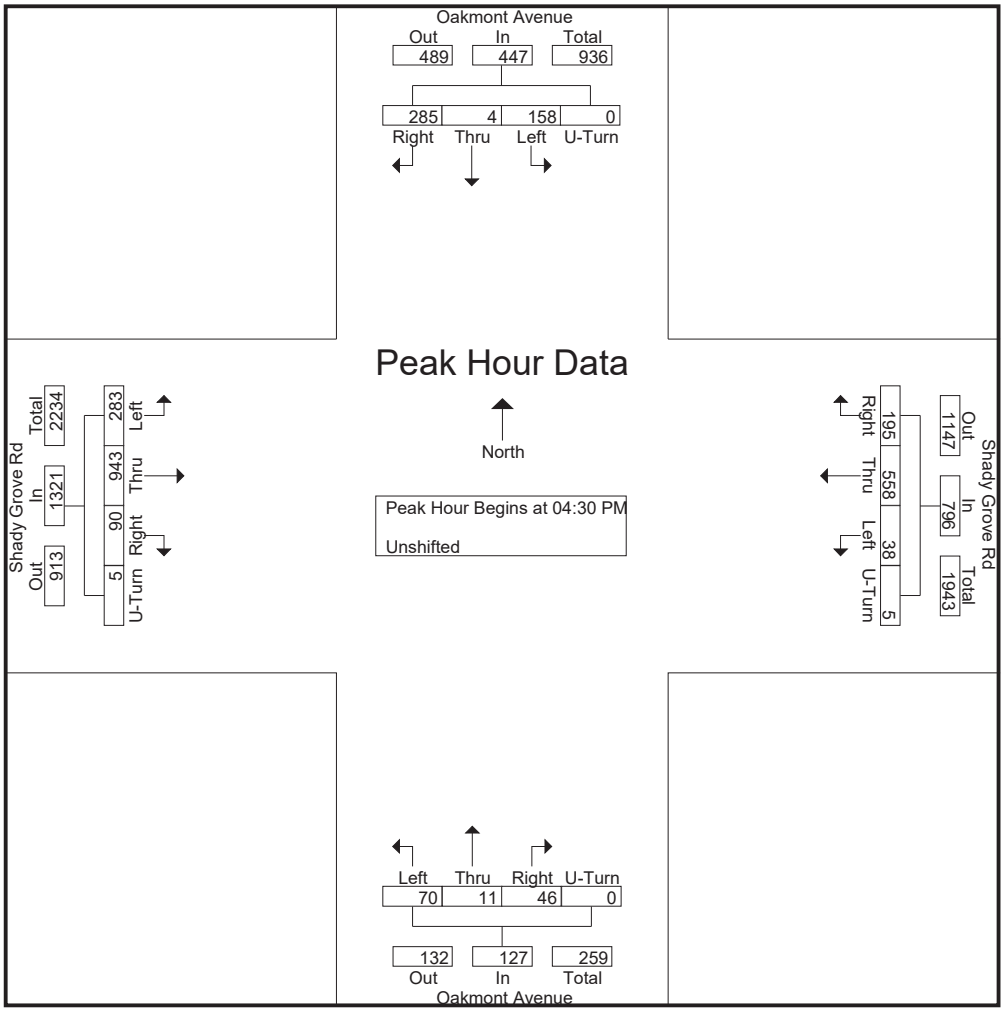
Phone: 703 914-4850

File Name : 4. Shady Grove Rd @ Oakmont Ave
Site Code : J 998-4
Start Date : 6/3/2021
Page No : 4

	Oakmont Avenue From North					Shady Grove Rd From East					Oakmont Avenue From South					Shady Grove Rd From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	37	1	74	0	112	**13**	**159**	**55**	1	**228**	**21**	**3**	10	0	**34**	59	212	22	1	294	668
04:45 PM	43	1	58	0	102	9	133	48	**3**	193	19	2	9	0	30	57	**254**	18	1	330	655
05:00 PM	**49**	**2**	**84**	0	**135**	11	133	51	1	196	14	3	**17**	0	34	76	236	16	1	329	**694**
05:15 PM	29	0	69	0	98	5	133	41	0	179	16	3	10	0	29	**91**	241	**34**	**2**	**368**	674
Total Volume	158	4	285	0	447	38	558	195	5	796	70	11	46	0	127	283	943	90	5	1321	2691
% App. Total	35.3	0.9	63.8	0		4.8	70.1	24.5	0.6		55.1	8.7	36.2	0		21.4	71.4	6.8	0.4		
PHF	.806	.500	.848	.000	.828	.731	.877	.886	.417	.873	.833	.917	.676	.000	.934	.777	.928	.662	.625	.897	.969



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 5. Amity Drive @ Epsion Drive
Site Code : J 998-5
Start Date : 6/3/2021
Page No : 1

Groups Printed- Unshifted

	Amity Drive From North					Epsilon Drive From East					Amity Drive From South					From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
06:00 AM	17	0	0	0	17	2	0	2	0	4	0	2	0	0	2	0	0	0	0	0	23
06:15 AM	20	0	0	0	20	0	0	2	0	2	0	1	3	0	4	0	0	0	0	0	26
06:30 AM	22	0	0	0	22	0	0	1	0	1	0	1	5	0	6	0	0	0	0	0	29
06:45 AM	13	2	0	0	15	0	0	8	0	8	0	2	3	0	5	0	0	0	0	0	28
Total	72	2	0	0	74	2	0	13	0	15	0	6	11	0	17	0	0	0	0	0	106
07:00 AM	13	1	0	0	14	0	0	6	0	6	0	1	4	0	5	0	0	0	0	0	25
07:15 AM	17	1	0	0	18	1	0	4	0	5	0	1	5	0	6	0	0	0	0	0	29
07:30 AM	22	2	0	0	24	0	0	5	0	5	0	2	8	0	10	0	0	0	0	0	39
07:45 AM	21	0	0	0	21	3	0	6	0	9	0	0	7	0	7	0	0	0	0	0	37
Total	73	4	0	0	77	4	0	21	0	25	0	4	24	0	28	0	0	0	0	0	130
08:00 AM	18	0	0	0	18	2	0	8	1	11	0	0	1	0	1	0	0	0	0	0	30
08:15 AM	20	0	0	0	20	0	0	4	0	4	0	2	3	0	5	0	0	0	0	0	29
08:30 AM	17	1	0	0	18	3	0	8	0	11	0	3	2	0	5	0	0	0	0	0	34
08:45 AM	22	1	0	0	23	3	0	2	0	5	0	2	8	0	10	0	0	0	0	0	38
Total	77	2	0	0	79	8	0	22	1	31	0	7	14	0	21	0	0	0	0	0	131
03:30 PM	9	2	0	0	11	7	0	15	0	22	0	4	7	0	11	0	0	0	0	0	44
03:45 PM	16	1	0	0	17	4	0	24	0	28	0	2	3	0	5	0	0	0	0	0	50
Total	25	3	0	0	28	11	0	39	0	50	0	6	10	0	16	0	0	0	0	0	94
04:00 PM	15	3	0	0	18	7	0	18	1	26	0	0	1	0	1	0	0	0	0	0	45
04:15 PM	13	2	0	0	15	7	0	24	0	31	0	0	2	0	2	0	0	0	0	0	48
04:30 PM	15	2	0	0	17	0	0	27	0	27	0	1	4	0	5	0	0	0	0	0	49
04:45 PM	18	0	0	0	18	3	0	29	1	33	0	0	5	0	5	0	0	0	0	0	56
Total	61	7	0	0	68	17	0	98	2	117	0	1	12	0	13	0	0	0	0	0	198
05:00 PM	11	4	0	0	15	6	0	27	1	34	0	2	4	0	6	0	0	0	0	0	55
05:15 PM	14	0	0	0	14	10	0	27	0	37	0	0	1	0	1	0	0	0	0	0	52
05:30 PM	14	1	0	0	15	5	0	23	0	28	0	0	6	0	6	0	0	0	0	0	49
05:45 PM	8	4	0	0	12	5	0	25	0	30	0	2	0	0	2	0	0	0	0	0	44
Total	47	9	0	0	56	26	0	102	1	129	0	4	11	0	15	0	0	0	0	0	200
06:00 PM	9	0	0	0	9	2	0	24	0	26	0	0	2	0	2	0	0	0	0	0	37
06:15 PM	10	1	0	0	11	8	0	27	0	35	0	0	1	0	1	0	0	0	0	0	47
Grand Total	374	28	0	0	402	78	0	346	4	428	0	28	85	0	113	0	0	0	0	0	943
Apprch %	93	7	0	0		18.2	0	80.8	0.9		0	24.8	75.2	0		0	0	0	0		
Total %	39.7	3	0	0	42.6	8.3	0	36.7	0.4	45.4	0	3	9	0	12	0	0	0	0	0	

MCV Associates, Inc.
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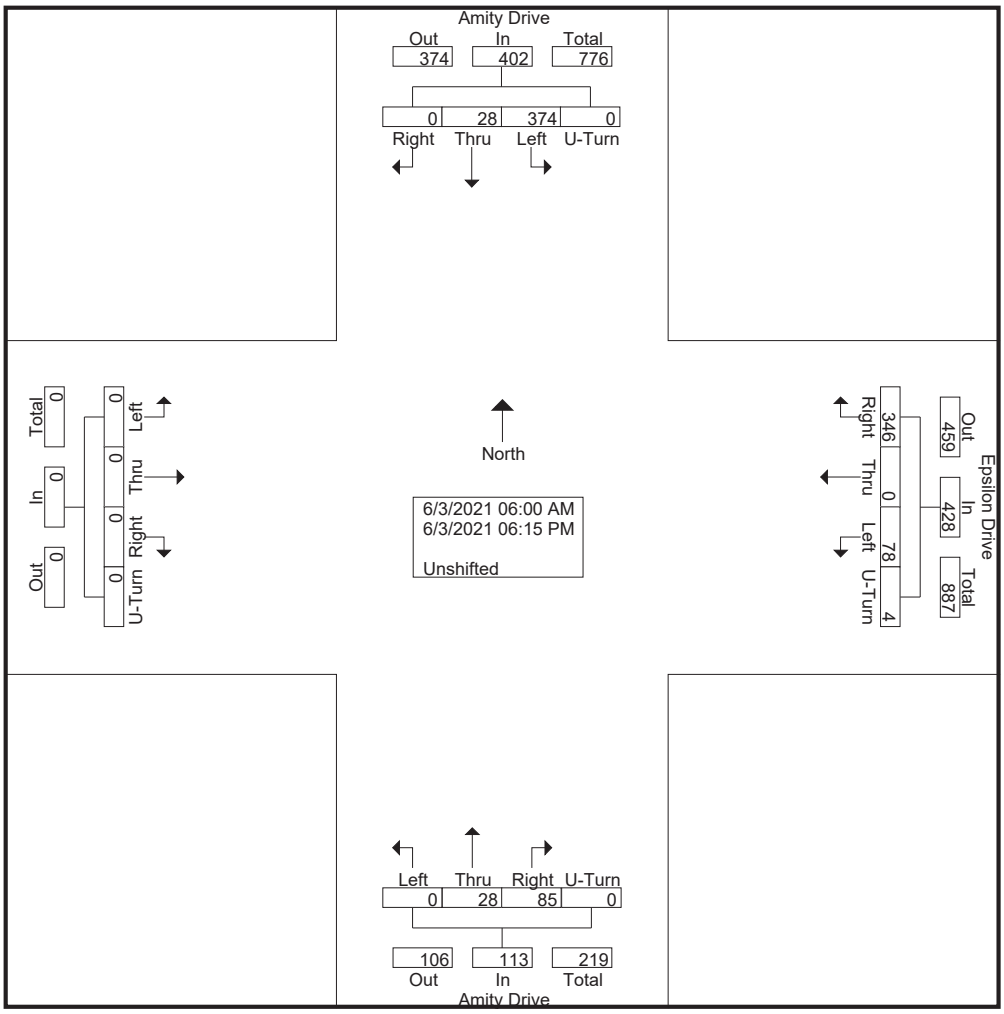
File Name : 5. Amity Drive @ Epsion Drive
Site Code : J 998-5
Start Date : 6/3/2021
Page No : 2



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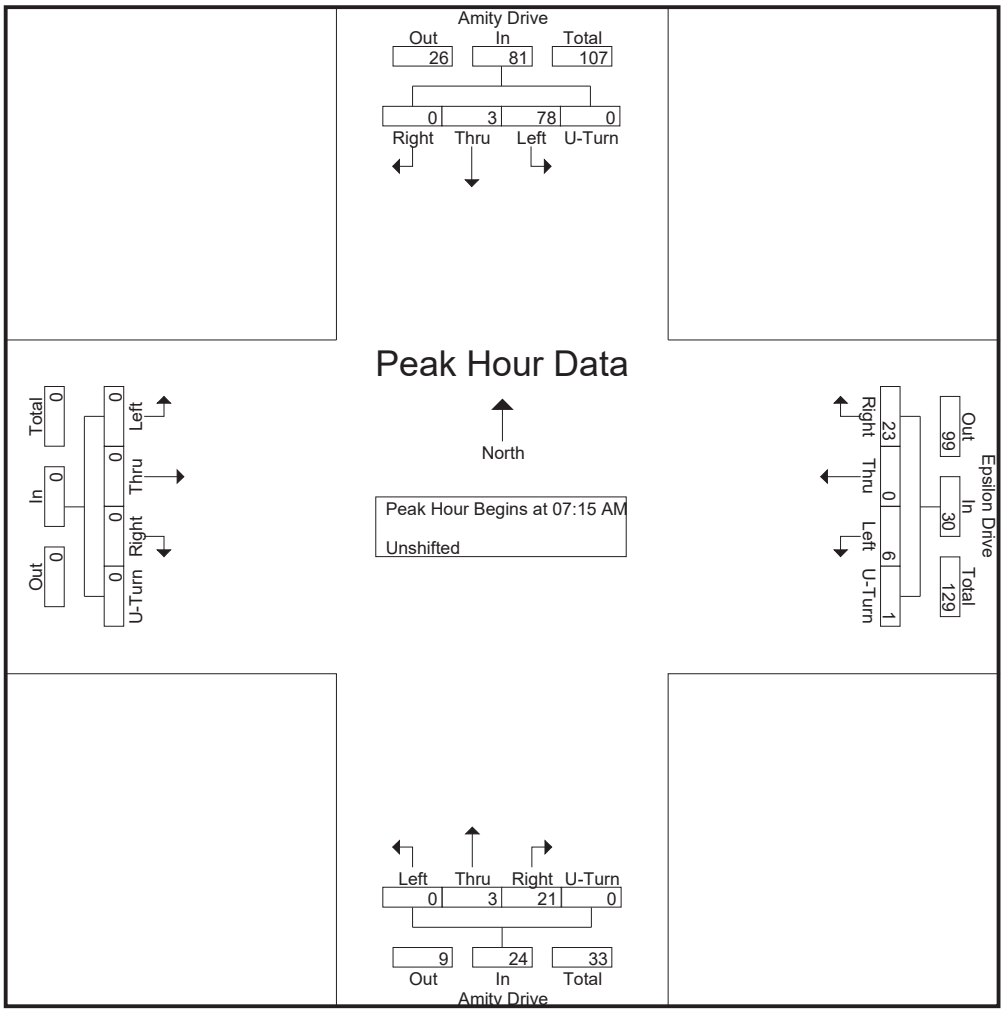
Phone: 703 914-4850

File Name : 5. Amity Drive @ Epsion Drive
Site Code : J 998-5
Start Date : 6/3/2021
Page No : 3

	Amity Drive From North					Epsilon Drive From East					Amity Drive From South					From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	17	1	0	0	18	1	0	4	0	5	0	1	5	0	6	0	0	0	0	0	29
07:30 AM	**22**	**2**	0	0	**24**	0	0	5	0	5	0	**2**	**8**	0	**10**	0	0	0	0	0	**39**
07:45 AM	21	0	0	0	21	**3**	0	6	0	9	0	0	7	0	7	0	0	0	0	0	37
08:00 AM	18	0	0	0	18	2	0	**8**	**1**	**11**	0	0	1	0	1	0	0	0	0	0	30
Total Volume	78	3	0	0	81	6	0	23	1	30	0	3	21	0	24	0	0	0	0	0	135
% App. Total	96.3	3.7	0	0		20	0	76.7	3.3		0	12.5	87.5	0		0	0	0	0		
PHF	.886	.375	.000	.000	.844	.500	.000	.719	.250	.682	.000	.375	.656	.000	.600	.000	.000	.000	.000	.000	.865



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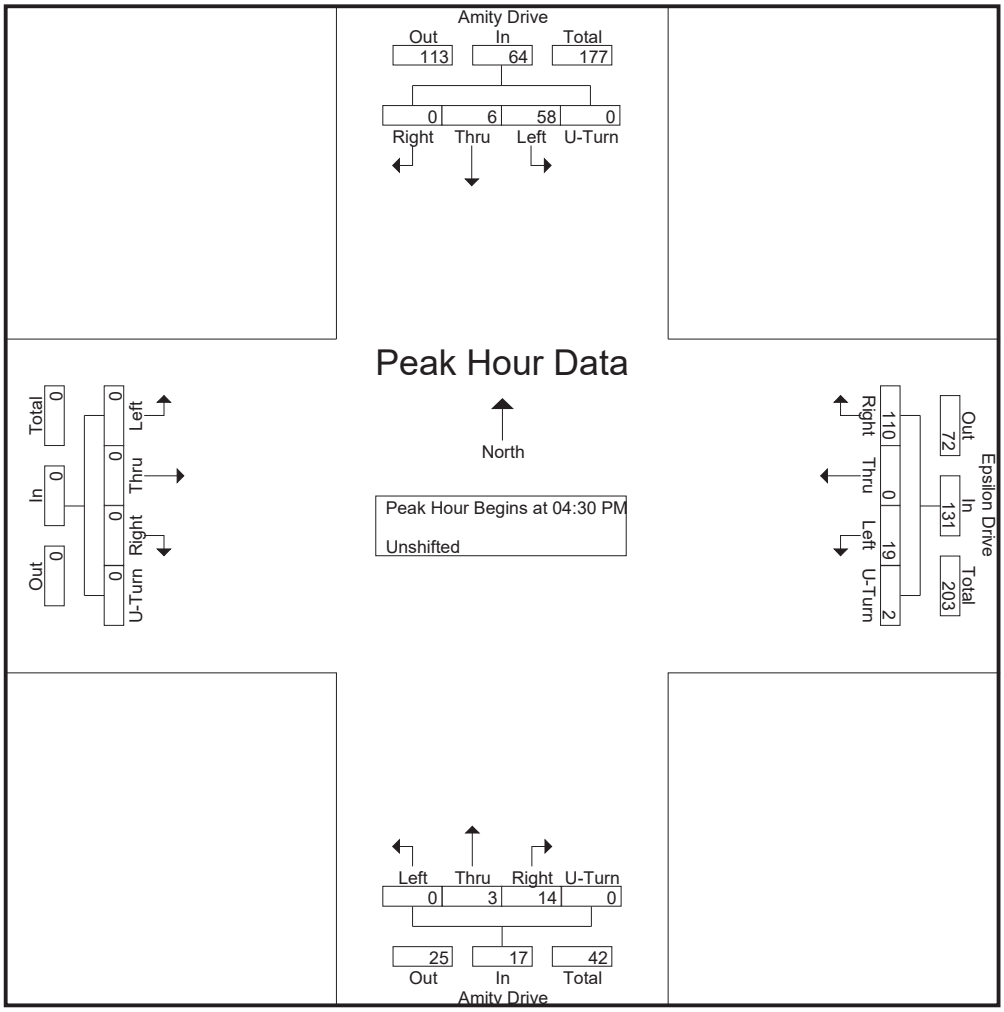
File Name : 5. Amity Drive @ Epsion Drive
Site Code : J 998-5
Start Date : 6/3/2021
Page No : 4

	Amity Drive From North					Epsilon Drive From East					Amity Drive From South					From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	15	2	0	0	17	0	0	27	0	27	0	1	4	0	5	0	0	0	0	0	49
04:45 PM	**18**	0	0	0	**18**	3	0	**29**	**1**	33	0	0	**5**	0	5	0	0	0	0	0	**56**
05:00 PM	11	**4**	0	0	15	6	0	27	1	34	0	**2**	4	0	**6**	0	0	0	0	0	55
05:15 PM	14	0	0	0	14	**10**	0	27	0	**37**	0	0	1	0	1	0	0	0	0	0	52
Total Volume	58	6	0	0	64	19	0	110	2	131	0	3	14	0	17	0	0	0	0	0	212
% App. Total	90.6	9.4	0	0		14.5	0	84	1.5		0	17.6	82.4	0		0	0	0	0		
PHF	.806	.375	.000	.000	.889	.475	.000	.948	.500	.885	.000	.375	.700	.000	.708	.000	.000	.000	.000	.000	.946



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 6. Midcounty Hwy @ Washington Grove Ln
Site Code : J 998-6
Start Date : 6/3/2021
Page No : 1

Groups Printed- Unshifted

	Washington Grove Lane From North					Midcounty Hwy From East					Washington Grove Lane From South					Midcounty Hwy From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
06:00 AM	34	10	8	0	52	0	19	9	0	28	13	8	11	0	32	1	79	9	0	89	201
06:15 AM	53	7	5	0	65	5	23	6	0	34	11	21	10	0	42	3	120	12	0	135	276
06:30 AM	61	14	6	0	81	3	21	8	0	32	17	11	11	0	39	11	126	13	0	150	302
06:45 AM	43	28	6	0	77	13	40	14	0	67	20	15	22	0	57	4	131	21	1	157	358
Total	191	59	25	0	275	21	103	37	0	161	61	55	54	0	170	19	456	55	1	531	1137
07:00 AM	47	17	11	0	75	6	40	9	0	55	16	5	20	0	41	9	136	17	0	162	333
07:15 AM	48	22	11	0	81	8	57	15	0	80	20	11	16	0	47	10	138	26	0	174	382
07:30 AM	66	19	10	0	95	18	48	16	0	82	28	13	18	0	59	6	167	22	0	195	431
07:45 AM	68	22	11	0	101	14	72	26	0	112	29	14	12	0	55	9	163	23	0	195	463
Total	229	80	43	0	352	46	217	66	0	329	93	43	66	0	202	34	604	88	0	726	1609
08:00 AM	64	40	10	0	114	9	60	25	0	94	23	25	15	0	63	7	168	25	0	200	471
08:15 AM	68	22	7	0	97	12	58	27	0	97	28	12	16	0	56	15	153	17	0	185	435
08:30 AM	50	28	16	0	94	12	67	32	0	111	30	31	23	0	84	9	160	20	0	189	478
08:45 AM	66	31	8	0	105	9	83	36	2	130	17	11	13	0	41	16	136	19	0	171	447
Total	248	121	41	0	410	42	268	120	2	432	98	79	67	0	244	47	617	81	0	745	1831
03:30 PM	29	26	19	0	74	14	117	52	0	183	33	32	23	0	88	15	109	39	0	163	508
03:45 PM	48	35	26	0	109	14	130	66	0	210	36	34	16	0	86	11	100	26	1	138	543
Total	77	61	45	0	183	28	247	118	0	393	69	66	39	0	174	26	209	65	1	301	1051
04:00 PM	40	23	15	0	78	19	127	70	0	216	47	31	16	0	94	12	114	31	0	157	545
04:15 PM	33	44	17	0	94	18	148	69	0	235	33	29	10	0	72	8	115	40	0	163	564
04:30 PM	32	38	18	0	88	14	133	72	2	221	47	42	13	0	102	19	116	29	0	164	575
04:45 PM	31	32	16	0	79	16	159	74	0	249	49	52	10	0	111	17	116	31	0	164	603
Total	136	137	66	0	339	67	567	285	2	921	176	154	49	0	379	56	461	131	0	648	2287
05:00 PM	42	26	19	0	87	12	135	75	0	222	40	40	21	0	101	22	111	27	0	160	570
05:15 PM	45	36	19	0	100	24	179	84	0	287	31	42	6	0	79	19	108	35	1	163	629
05:30 PM	34	47	16	0	97	19	152	74	1	246	36	38	18	0	92	10	123	44	1	178	613
05:45 PM	23	28	14	0	65	13	130	56	0	199	29	33	8	0	70	15	99	25	0	139	473
Total	144	137	68	0	349	68	596	289	1	954	136	153	53	0	342	66	441	131	2	640	2285
06:00 PM	22	35	13	0	70	14	141	68	0	223	33	31	6	0	70	18	66	27	0	111	474
06:15 PM	21	29	17	0	67	9	147	72	0	228	36	36	13	0	85	12	62	26	0	100	480
Grand Total	1068	659	318	0	2045	295	2286	1055	5	3641	702	617	347	0	1666	278	2916	604	4	3802	11154
Apprch %	52.2	32.2	15.6	0		8.1	62.8	29	0.1		42.1	37	20.8	0		7.3	76.7	15.9	0.1		
Total %	9.6	5.9	2.9	0	18.3	2.6	20.5	9.5	0	32.6	6.3	5.5	3.1	0	14.9	2.5	26.1	5.4	0	34.1	

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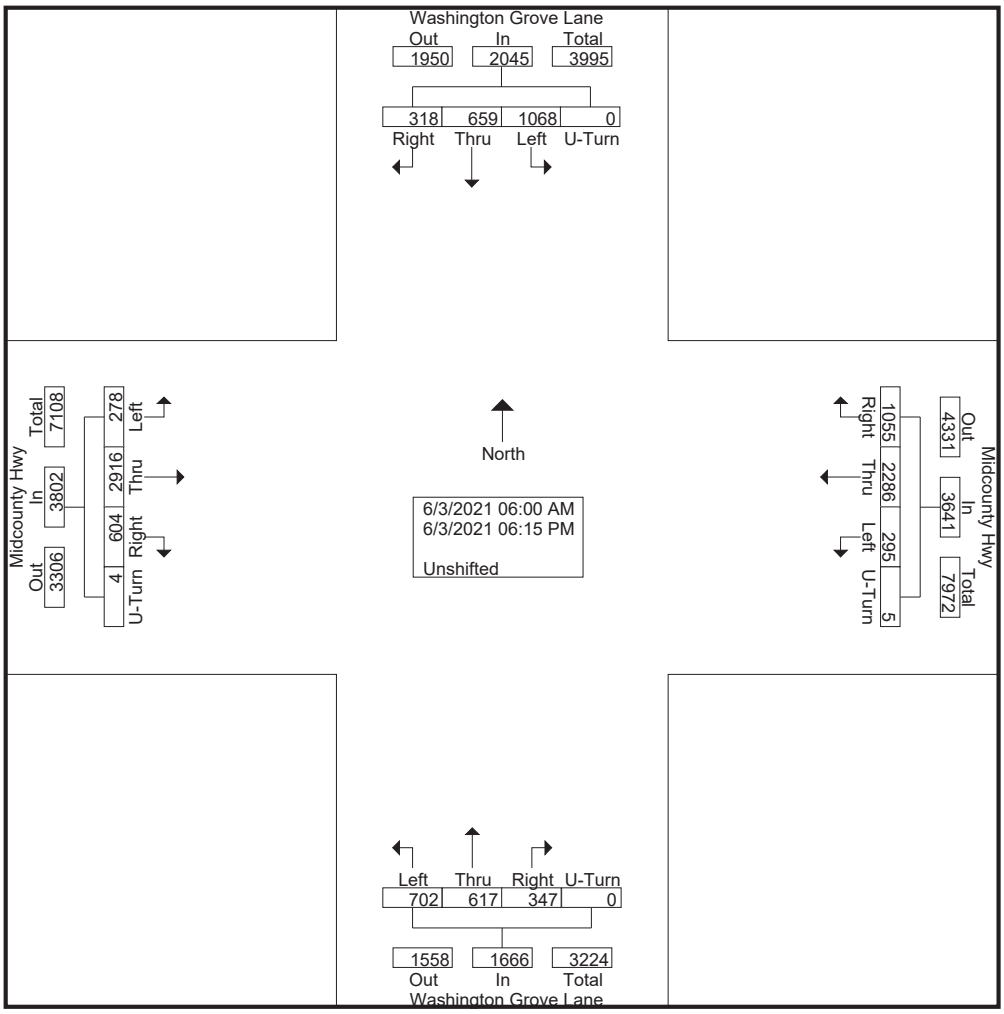
File Name : 6. Midcounty Hwy @ Washington Grove Ln
Site Code : J 998-6
Start Date : 6/3/2021
Page No : 2



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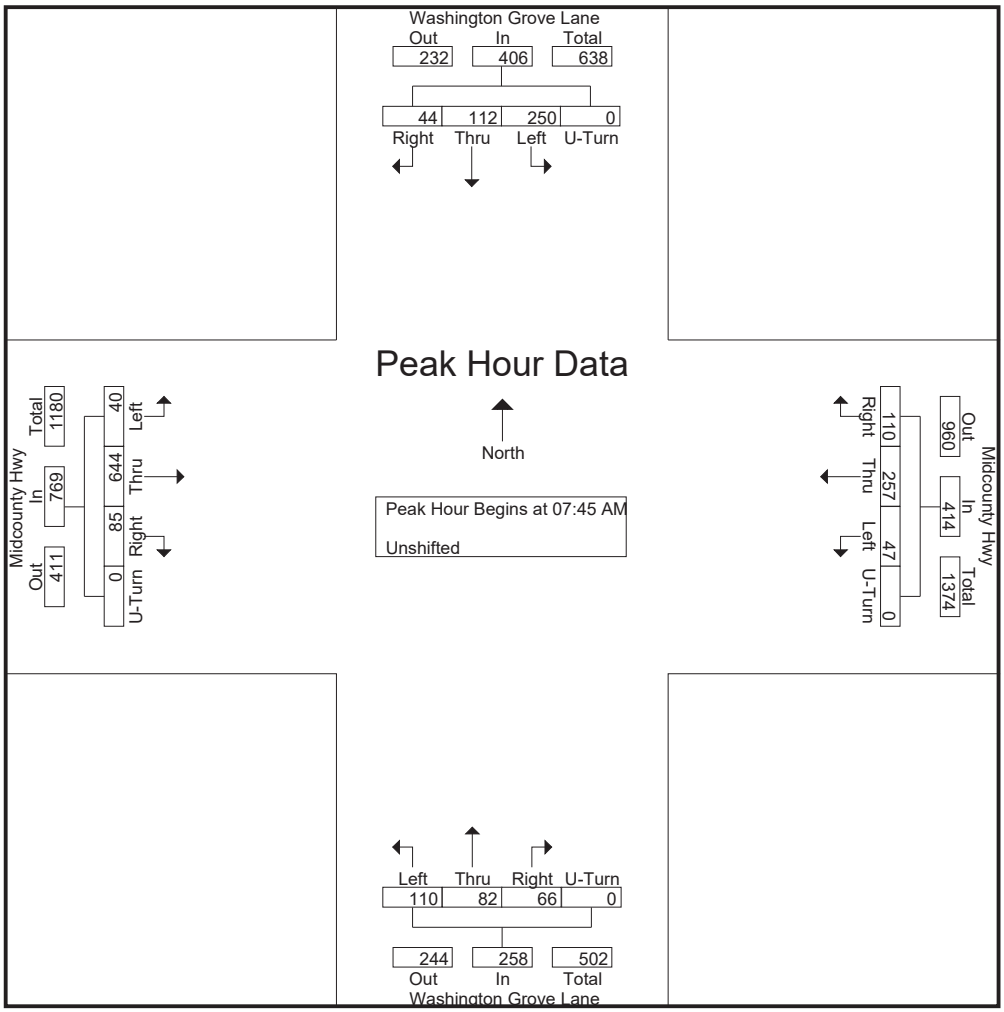
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 6. Midcounty Hwy @ Washington Grove Ln
Site Code : J 998-6
Start Date : 6/3/2021
Page No : 3

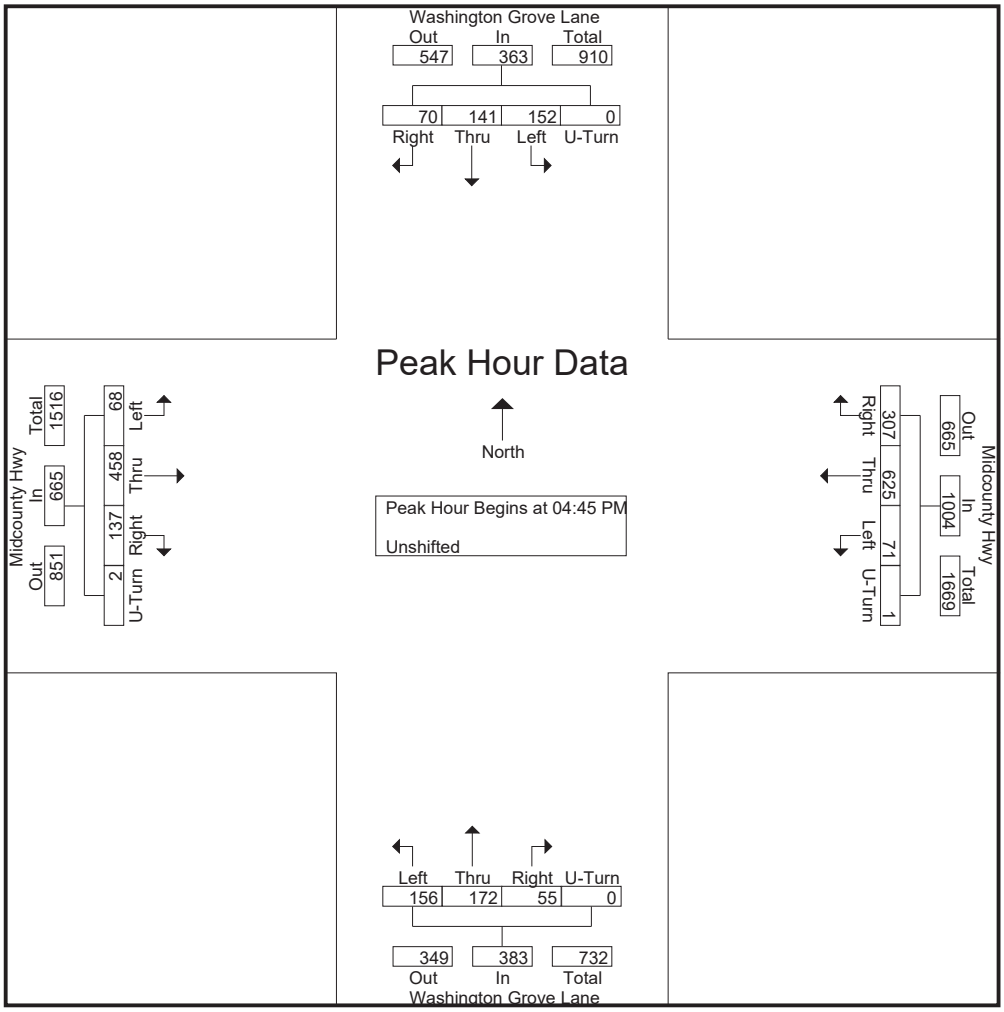
	Washington Grove Lane From North					Midcounty Hwy From East					Washington Grove Lane From South					Midcounty Hwy From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	**68**	22	11	0	101	**14**	**72**	26	0	**112**	29	14	12	0	55	9	163	23	0	195	463
08:00 AM	64	**40**	10	0	**114**	9	60	25	0	94	23	25	15	0	63	7	**168**	**25**	0	**200**	471
08:15 AM	68	22	7	0	97	12	58	27	0	97	28	12	16	0	56	**15**	153	17	0	185	435
08:30 AM	50	28	**16**	0	94	12	67	**32**	0	111	**30**	**31**	**23**	0	**84**	9	160	20	0	189	**478**
Total Volume	250	112	44	0	406	47	257	110	0	414	110	82	66	0	258	40	644	85	0	769	1847
% App. Total	61.6	27.6	10.8	0		11.4	62.1	26.6	0		42.6	31.8	25.6	0		5.2	83.7	11.1	0		
PHF	.919	.700	.688	.000	.890	.839	.892	.859	.000	.924	.917	.661	.717	.000	.768	.667	.958	.850	.000	.961	.966



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 6. Midcounty Hwy @ Washington Grove Ln
Site Code : J 998-6
Start Date : 6/3/2021
Page No : 4

	Washington Grove Lane From North					Midcounty Hwy From East					Washington Grove Lane From South					Midcounty Hwy From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	31	32	16	0	79	16	159	74	0	249	**49**	**52**	10	0	**111**	17	116	31	0	164	603
05:00 PM	42	26	**19**	0	87	12	135	75	0	222	40	40	**21**	0	101	**22**	111	27	0	160	570
05:15 PM	**45**	36	19	0	**100**	**24**	**179**	**84**	0	**287**	31	42	6	0	79	19	108	35	**1**	163	**629**
05:30 PM	34	**47**	16	0	97	19	152	74	**1**	246	36	38	18	0	92	10	**123**	**44**	1	**178**	613
Total Volume	152	141	70	0	363	71	625	307	1	1004	156	172	55	0	383	68	458	137	2	665	2415
% App. Total	41.9	38.8	19.3	0		7.1	62.3	30.6	0.1		40.7	44.9	14.4	0		10.2	68.9	20.6	0.3		
PHF	.844	.750	.921	.000	.908	.740	.873	.914	.250	.875	.796	.827	.655	.000	.863	.773	.931	.778	.500	.934	.960



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 7. Amity Drive @ Washington Grove Lane
Site Code : J 998-7
Start Date : 6/3/2021
Page No : 1

Groups Printed- Unshifted

	Washington Grove Lane From North					Amity Drive From East					Washington Grove Lane From South					From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
06:00 AM	2	16	0	0	18	9	0	11	1	21	0	20	2	0	22	0	0	0	0	0	61
06:15 AM	6	18	0	0	24	4	0	18	0	22	0	23	1	0	24	0	0	0	0	0	70
06:30 AM	8	21	0	0	29	6	0	9	0	15	0	32	2	0	34	0	0	0	0	0	78
06:45 AM	9	57	0	0	66	10	0	16	0	26	0	40	6	0	46	0	0	0	0	0	138
Total	25	112	0	0	137	29	0	54	1	84	0	115	11	0	126	0	0	0	0	0	347
07:00 AM	7	32	0	0	39	14	0	16	0	30	0	24	3	0	27	0	0	0	0	0	96
07:15 AM	10	50	0	0	60	9	0	15	0	24	0	33	4	0	37	0	0	0	0	0	121
07:30 AM	6	54	0	0	60	13	0	19	0	32	0	34	7	0	41	0	0	0	0	0	133
07:45 AM	4	57	0	0	61	10	0	16	0	26	0	41	4	0	45	0	0	0	0	0	132
Total	27	193	0	0	220	46	0	66	0	112	0	132	18	0	150	0	0	0	0	0	482
08:00 AM	20	56	0	0	76	18	0	17	0	35	0	44	7	0	51	0	0	0	0	0	162
08:15 AM	6	51	0	0	57	10	0	17	0	27	0	39	5	0	44	0	0	0	0	0	128
08:30 AM	10	52	0	0	62	15	0	22	0	37	0	55	9	0	64	0	0	0	0	0	163
08:45 AM	12	50	0	0	62	10	0	11	0	21	0	35	6	0	41	0	0	0	0	0	124
Total	48	209	0	0	257	53	0	67	0	120	0	173	27	0	200	0	0	0	0	0	577
03:30 PM	21	66	0	0	87	10	0	24	0	34	0	59	13	0	72	0	0	0	0	0	193
03:45 PM	18	60	0	0	78	18	0	15	1	34	0	64	14	0	78	0	0	0	0	0	190
Total	39	126	0	0	165	28	0	39	1	68	0	123	27	0	150	0	0	0	0	0	383
04:00 PM	30	45	0	0	75	6	0	24	0	30	0	73	17	0	90	0	0	0	0	0	195
04:15 PM	27	73	0	0	100	6	0	12	0	18	0	59	8	0	67	0	0	0	0	0	185
04:30 PM	28	56	0	0	84	8	0	23	0	31	0	85	23	0	108	0	0	0	0	0	223
04:45 PM	18	54	0	0	72	20	0	17	0	37	0	90	16	0	106	0	0	0	0	0	215
Total	103	228	0	0	331	40	0	76	0	116	0	307	64	0	371	0	0	0	0	0	818
05:00 PM	23	46	0	0	69	13	0	26	0	39	0	65	16	0	81	0	0	0	0	0	189
05:15 PM	29	59	0	0	88	11	0	24	0	35	0	56	18	0	74	0	0	0	0	0	197
05:30 PM	40	76	0	0	116	10	0	25	0	35	0	68	11	0	79	0	0	0	0	0	230
05:45 PM	23	47	0	0	70	6	0	23	0	29	0	43	19	0	62	0	0	0	0	0	161
Total	115	228	0	0	343	40	0	98	0	138	0	232	64	0	296	0	0	0	0	0	777
06:00 PM	24	46	0	0	70	10	0	15	0	25	0	55	16	0	71	0	0	0	0	0	166
06:15 PM	16	50	0	0	66	13	0	14	0	27	0	72	19	0	91	0	0	0	0	0	184
Grand Total	397	1192	0	0	1589	259	0	429	2	690	0	1209	246	0	1455	0	0	0	0	0	3734
Apprch %	25	75	0	0		37.5	0	62.2	0.3		0	83.1	16.9	0		0	0	0	0		
Total %	10.6	31.9	0	0	42.6	6.9	0	11.5	0.1	18.5	0	32.4	6.6	0	39	0	0	0	0	0	

MCV Associates, Inc.
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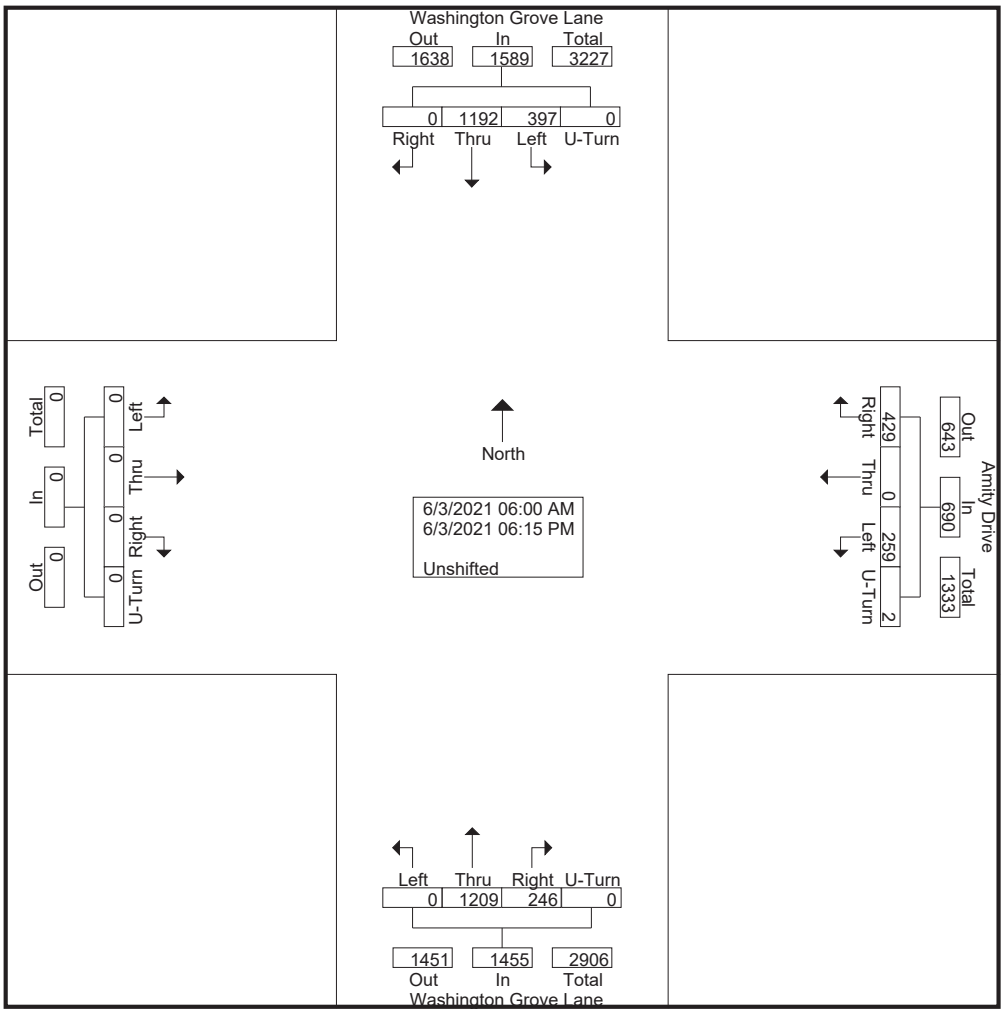
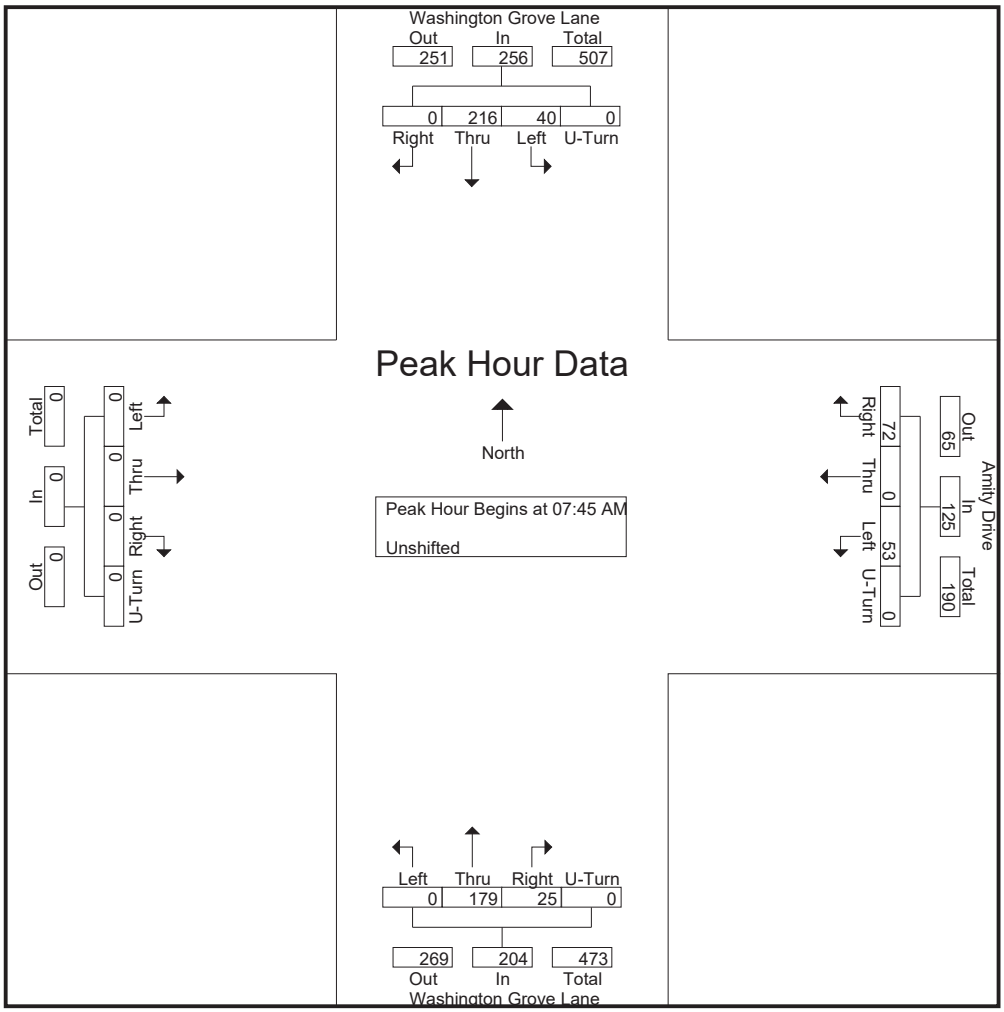
File Name : 7. Amity Drive @ Washington Grove Lane
Site Code : J 998-7
Start Date : 6/3/2021
Page No : 2



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 7. Amity Drive @ Washington Grove Lane
Site Code : J 998-7
Start Date : 6/3/2021
Page No : 3

	Washington Grove Lane From North					Amity Drive From East					Washington Grove Lane From South					From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	4	**57**	0	0	61	10	0	16	0	26	0	41	4	0	45	0	0	0	0	0	132
08:00 AM	**20**	56	0	0	**76**	**18**	0	17	0	35	0	44	7	0	51	0	0	0	0	0	162
08:15 AM	6	51	0	0	57	10	0	17	0	27	0	39	5	0	44	0	0	0	0	0	128
08:30 AM	10	52	0	0	62	15	0	**22**	0	**37**	0	**55**	**9**	0	**64**	0	0	0	0	0	**163**
Total Volume	40	216	0	0	256	53	0	72	0	125	0	179	25	0	204	0	0	0	0	0	585
% App. Total	15.6	84.4	0	0		42.4	0	57.6	0		0	87.7	12.3	0		0	0	0	0		
PHF	.500	.947	.000	.000	.842	.736	.000	.818	.000	.845	.000	.814	.694	.000	.797	.000	.000	.000	.000	.000	.897



MCV Associates, Inc.
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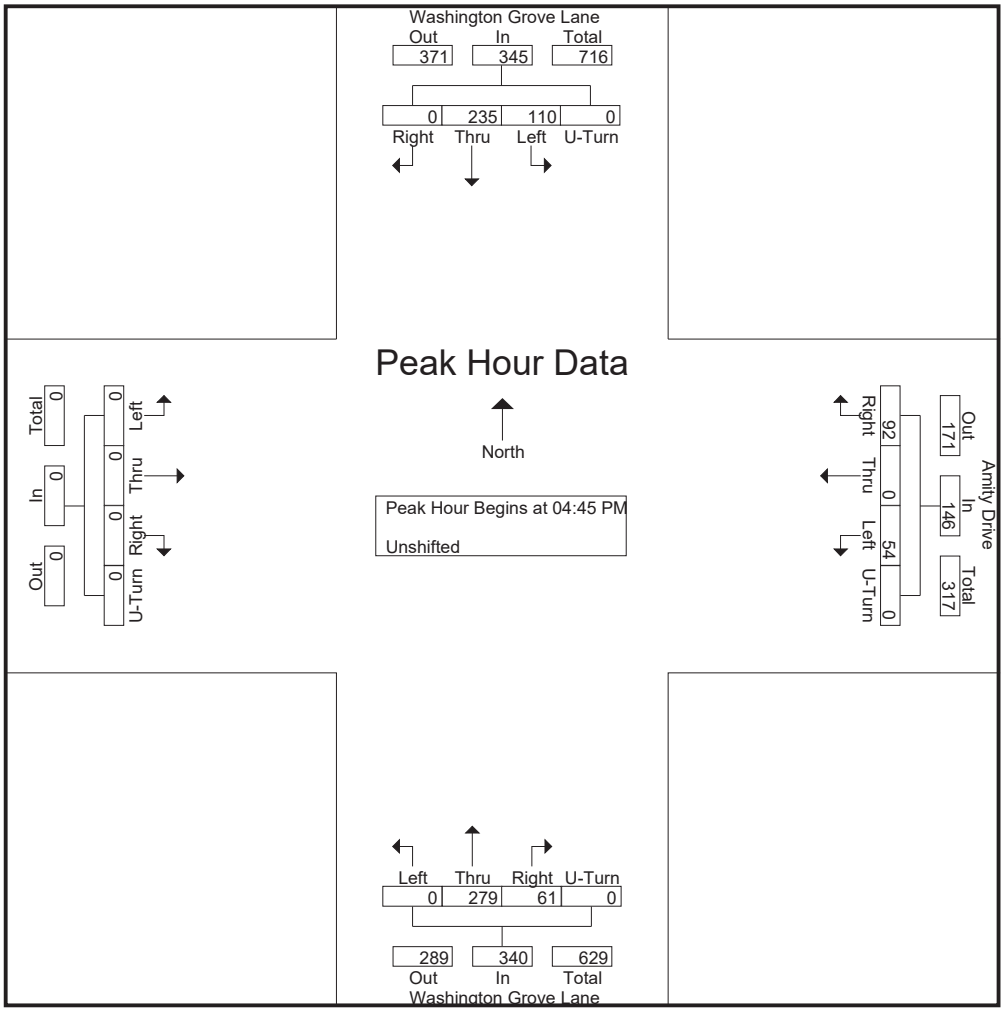
Phone: 703 914-4850

File Name : 7. Amity Drive @ Washington Grove Lane
Site Code : J 998-7
Start Date : 6/3/2021
Page No : 4

	Washington Grove Lane From North					Amity Drive From East					Washington Grove Lane From South					From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	18	54	0	0	72	**20**	0	17	0	37	0	**90**	16	0	**106**	0	0	0	0	0	215
05:00 PM	23	46	0	0	69	13	0	**26**	0	**39**	0	65	16	0	81	0	0	0	0	0	189
05:15 PM	29	59	0	0	88	11	0	24	0	35	0	56	**18**	0	74	0	0	0	0	0	197
05:30 PM	**40**	**76**	0	0	**116**	10	0	25	0	35	0	68	11	0	79	0	0	0	0	0	**230**
Total Volume	110	235	0	0	345	54	0	92	0	146	0	279	61	0	340	0	0	0	0	0	831
% App. Total	31.9	68.1	0	0		37	0	63	0		0	82.1	17.9	0		0	0	0	0		
PHF	.688	.773	.000	.000	.744	.675	.000	.885	.000	.936	.000	.775	.847	.000	.802	.000	.000	.000	.000	.000	.903



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

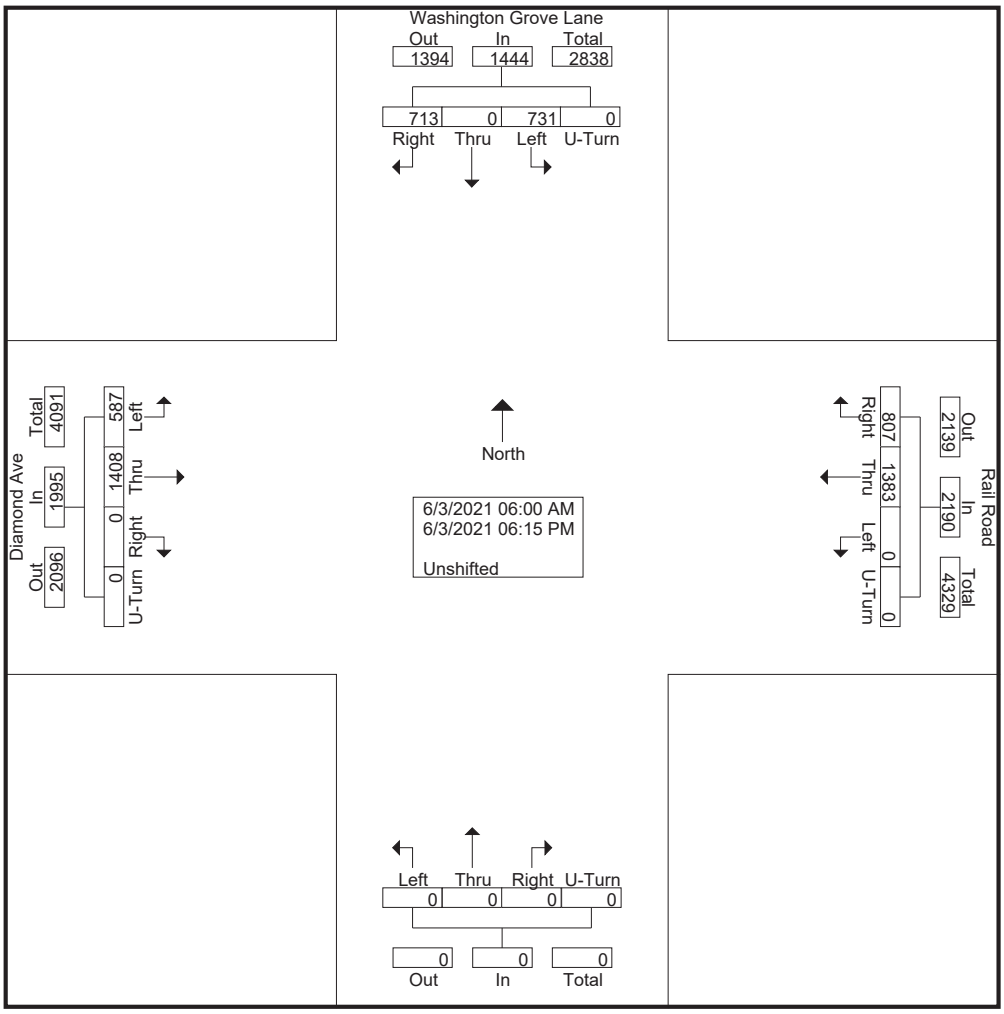
File Name : 8. Washington Grove La @ Rail Road
Site Code : J 998-8
Start Date : 6/3/2021
Page No : 1

Groups Printed- Unshifted

	Washington Grove Lane From North					Rail Road From East					From South					Diamond Ave From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
06:00 AM	10	0	16	0	26	0	14	14	0	28	0	0	0	0	0	8	47	0	0	55	109
06:15 AM	24	0	8	0	32	0	11	10	0	21	0	0	0	0	0	6	44	0	0	50	103
06:30 AM	26	0	13	0	39	0	13	18	0	31	0	0	0	0	0	12	55	0	0	67	137
06:45 AM	44	0	20	0	64	0	20	22	0	42	0	0	0	0	0	10	67	0	0	77	183
Total	104	0	57	0	161	0	58	64	0	122	0	0	0	0	0	36	213	0	0	249	532
07:00 AM	35	0	24	0	59	0	19	8	0	27	0	0	0	0	0	8	62	0	0	70	156
07:15 AM	41	0	23	0	64	0	23	15	0	38	0	0	0	0	0	14	92	0	0	106	208
07:30 AM	44	0	33	0	77	0	32	19	0	51	0	0	0	0	0	18	75	0	0	93	221
07:45 AM	38	0	40	0	78	0	52	20	0	72	0	0	0	0	0	14	83	0	0	97	247
Total	158	0	120	0	278	0	126	62	0	188	0	0	0	0	0	54	312	0	0	366	832
08:00 AM	41	0	37	0	78	0	28	24	0	52	0	0	0	0	0	15	81	0	0	96	226
08:15 AM	40	0	34	0	74	0	39	22	0	61	0	0	0	0	0	16	74	0	0	90	225
08:30 AM	43	0	24	0	67	0	38	28	0	66	0	0	0	0	0	19	63	0	0	82	215
08:45 AM	32	0	28	0	60	0	45	17	0	62	0	0	0	0	0	18	64	0	0	82	204
Total	156	0	123	0	279	0	150	91	0	241	0	0	0	0	0	68	282	0	0	350	870
03:30 PM	29	0	33	0	62	0	71	35	0	106	0	0	0	0	0	37	62	0	0	99	267
03:45 PM	38	0	38	0	76	0	87	50	0	137	0	0	0	0	0	22	52	0	0	74	287
Total	67	0	71	0	138	0	158	85	0	243	0	0	0	0	0	59	114	0	0	173	554
04:00 PM	22	0	32	0	54	0	78	60	0	138	0	0	0	0	0	36	60	0	0	96	288
04:15 PM	43	0	35	0	78	0	81	36	0	117	0	0	0	0	0	35	49	0	0	84	279
04:30 PM	20	0	29	0	49	0	89	64	0	153	0	0	0	0	0	40	71	0	0	111	313
04:45 PM	22	0	49	0	71	0	91	58	0	149	0	0	0	0	0	48	64	0	0	112	332
Total	107	0	145	0	252	0	339	218	0	557	0	0	0	0	0	159	244	0	0	403	1212
05:00 PM	21	0	34	0	55	0	102	56	0	158	0	0	0	0	0	32	49	0	0	81	294
05:15 PM	29	0	41	0	70	0	93	53	0	146	0	0	0	0	0	37	51	0	0	88	304
05:30 PM	34	0	32	0	66	0	104	44	0	148	0	0	0	0	0	34	40	0	0	74	288
05:45 PM	22	0	28	0	50	0	72	36	0	108	0	0	0	0	0	39	36	0	0	75	233
Total	106	0	135	0	241	0	371	189	0	560	0	0	0	0	0	142	176	0	0	318	1119
06:00 PM	16	0	23	0	39	0	97	48	0	145	0	0	0	0	0	26	29	0	0	55	239
06:15 PM	17	0	39	0	56	0	84	50	0	134	0	0	0	0	0	43	38	0	0	81	271
Grand Total	731	0	713	0	1444	0	1383	807	0	2190	0	0	0	0	0	587	1408	0	0	1995	5629
Apprch %	50.6	0	49.4	0		0	63.2	36.8	0		0	0	0	0		29.4	70.6	0	0		
Total %	13	0	12.7	0	25.7	0	24.6	14.3	0	38.9	0	0	0	0	0	10.4	25	0	0	35.4	

MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

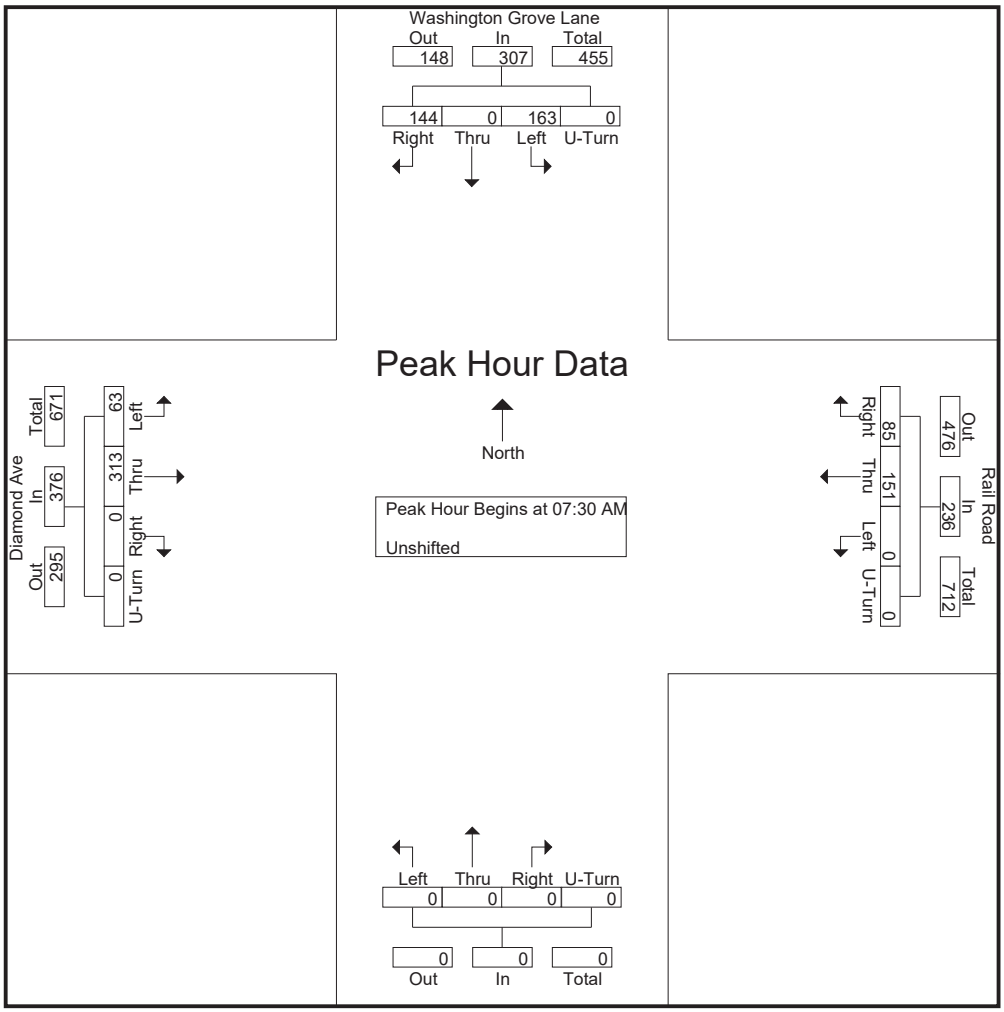
File Name : 8. Washington Grove La @ Rail Road
Site Code : J 998-8
Start Date : 6/3/2021
Page No : 2



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 8. Washington Grove La @ Rail Road
Site Code : J 998-8
Start Date : 6/3/2021
Page No : 3

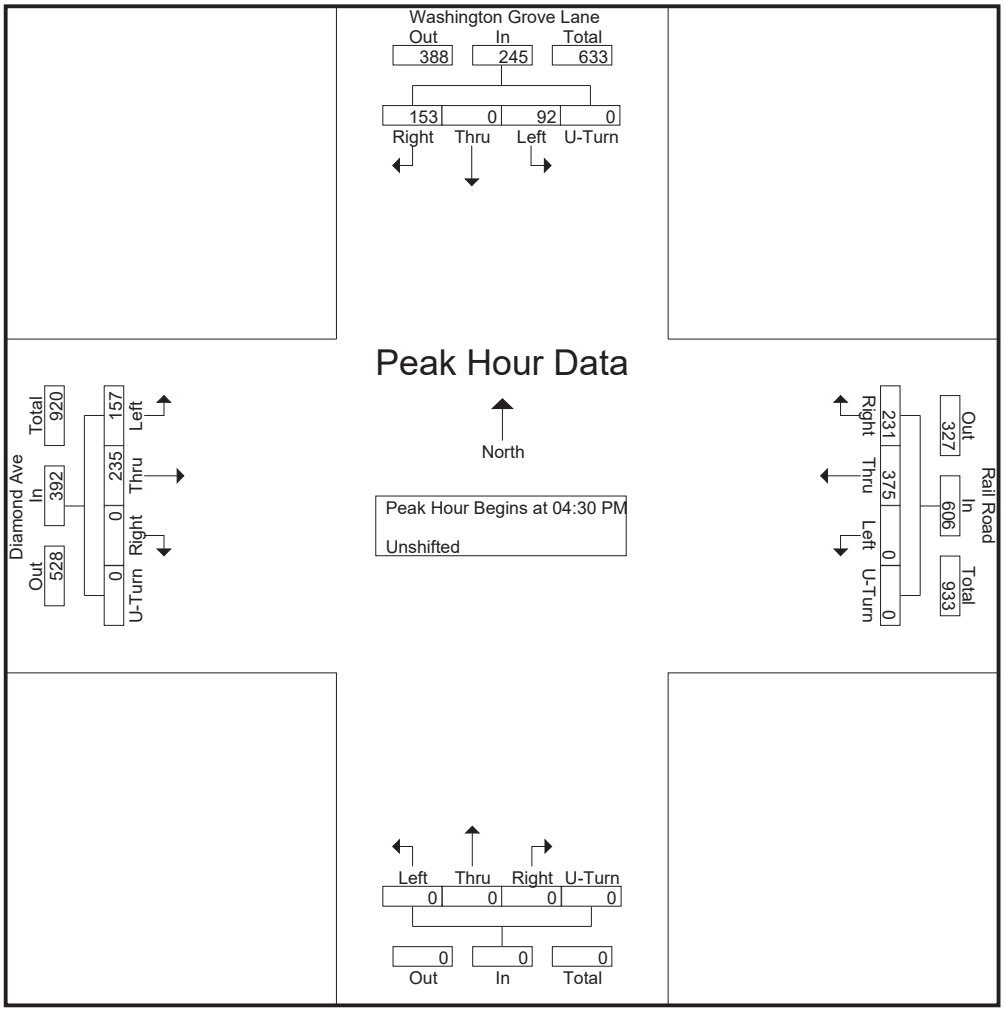
	Washington Grove Lane From North					Rail Road From East					From South					Diamond Ave From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**44**	0	33	0	77	0	32	19	0	51	0	0	0	0	0	**18**	75	0	0	93	221
07:45 AM	38	0	**40**	0	**78**	0	**52**	20	0	**72**	0	0	0	0	0	14	**83**	0	0	**97**	**247**
08:00 AM	41	0	37	0	78	0	28	**24**	0	52	0	0	0	0	0	15	81	0	0	96	226
08:15 AM	40	0	34	0	74	0	39	22	0	61	0	0	0	0	0	16	74	0	0	90	225
Total Volume	163	0	144	0	307	0	151	85	0	236	0	0	0	0	0	63	313	0	0	376	919
% App. Total	53.1	0	46.9	0		0	64	36	0		0	0	0	0		16.8	83.2	0	0		
PHF	.926	.000	.900	.000	.984	.000	.726	.885	.000	.819	.000	.000	.000	.000	.000	.875	.943	.000	.000	.969	.930



MCV Associates, Inc.
4605-C Pinecrest off Park Dr
Alexandria, VA - 22312
Phone: 703 914-4850

File Name : 8. Washington Grove La @ Rail Road
Site Code : J 998-8
Start Date : 6/3/2021
Page No : 4

	Washington Grove Lane From North					Rail Road From East					From South					Diamond Ave From West					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	20	0	29	0	49	0	89	**64**	0	153	0	0	0	0	0	40	**71**	0	0	111	313
04:45 PM	22	0	**49**	0	**71**	0	91	58	0	149	0	0	0	0	0	**48**	64	0	0	**112**	**332**
05:00 PM	21	0	34	0	55	0	**102**	56	0	**158**	0	0	0	0	0	32	49	0	0	81	294
05:15 PM	**29**	0	41	0	70	0	93	53	0	146	0	0	0	0	0	37	51	0	0	88	304
Total Volume	92	0	153	0	245	0	375	231	0	606	0	0	0	0	0	157	235	0	0	392	1243
% App. Total	37.6	0	62.4	0		0	61.9	38.1	0		0	0	0	0		40.1	59.9	0	0		
PHF	.793	.000	.781	.000	.863	.000	.919	.902	.000	.959	.000	.000	.000	.000	.000	.818	.827	.000	.000	.875	.936



Appendix 15.20

APPENDIX B: EXISTING CONDITIONS (SYNCHRO OUTPUT SHEETS)

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	188	791	249	765	1301	174
Future Volume (vph)	188	791	249	765	1301	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-2%			1%	-1%	
Total Lost time (s)	6.0	6.0	4.5	6.0	6.0	
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3368	2760	3167	4779	4656	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3368	2760	3167	4779	4656	
Peak-hour factor, PHF	0.90	0.95	0.88	0.94	0.94	0.70
Adj. Flow (vph)	209	833	283	814	1384	249
RTOR Reduction (vph)	0	26	0	0	0	0
Lane Group Flow (vph)	209	807	283	814	1633	0
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	5%	4%	10%	8%	10%	6%
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	4	4 1	1	6	2	
Permitted Phases						
Actuated Green, G (s)	41.8	63.5	15.7	96.2	76.0	
Effective Green, g (s)	41.8	63.5	15.7	96.2	76.0	
Actuated g/C Ratio	0.28	0.42	0.10	0.64	0.51	
Clearance Time (s)	6.0		4.5	6.0	6.0	
Vehicle Extension (s)	4.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	938	1168	331	3064	2359	
v/s Ratio Prot	0.06	c0.29	c0.09	0.17	c0.35	
v/s Ratio Perm						
v/c Ratio	0.22	0.69	0.85	0.27	0.69	
Uniform Delay, d1	41.6	35.3	66.0	11.6	28.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	1.9	18.9	0.2	1.7	
Delay (s)	41.8	37.2	84.9	11.8	29.8	
Level of Service	D	D	F	B	C	
Approach Delay (s)	38.1			30.7	29.8	
Approach LOS	D			C	C	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	209	833	283	814	1633
v/c Ratio	0.22	0.71	0.85	0.27	0.69
Control Delay	41.6	38.4	88.4	12.2	30.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	38.4	88.4	12.2	30.3
Queue Length 50th (ft)	78	359	145	127	441
Queue Length 95th (ft)	113	446	#236	151	498
Internal Link Dist (ft)	1412			518	770
Turn Bay Length (ft)	230		460		
Base Capacity (vph)	1010	1165	332	3065	2359
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.72	0.85	0.27	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	4	117	18	3	8	39	980	6	3	2077	18
Future Volume (vph)	23	4	117	18	3	8	39	980	6	3	2077	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			-1%			1%			-1%	
Total Lost time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.94		1.00	1.00		1.00	1.00	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1750	1615		1668		1796	4713		1814	4815	
Flt Permitted		0.77	1.00		0.85		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1404	1615		1442		1796	4713		1814	4815	
Peak-hour factor, PHF	0.82	0.50	0.84	0.75	0.38	0.33	0.73	0.98	0.50	0.38	0.92	0.75
Adj. Flow (vph)	28	8	139	24	8	24	53	1000	12	8	2258	24
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	36	139	0	35	0	53	1012	0	8	2281	0
Confl. Peds. (#/hr)									3			
Heavy Vehicles (%)	0%	25%	1%	0%	0%	13%	0%	9%	33%	0%	8%	17%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8								
Actuated Green, G (s)		15.7	15.7		15.7		8.6	113.8		1.5	106.7	
Effective Green, g (s)		15.7	15.7		15.7		8.6	113.8		1.5	106.7	
Actuated g/C Ratio		0.10	0.10		0.10		0.06	0.76		0.01	0.71	
Clearance Time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Vehicle Extension (s)		0.2	0.2		3.0		3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)		146	169		150		102	3575		18	3425	
v/s Ratio Prot							c0.03	0.21		0.00	c0.47	
v/s Ratio Perm		0.03	c0.09		0.02							
v/c Ratio		0.25	0.82		0.23		0.52	0.28		0.44	0.67	
Uniform Delay, d1		61.7	65.8		61.6		68.7	5.6		73.8	11.9	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3	25.3		0.8		4.4	0.2		16.5	1.0	
Delay (s)		62.0	91.1		62.4		73.1	5.8		90.3	12.9	
Level of Service		E	F		E		E	A		F	B	
Approach Delay (s)		85.1			62.4			9.1			13.2	
Approach LOS		F			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	139	56	53	1012	8	2282
v/c Ratio	0.25	0.82	0.33	0.45	0.27	0.11	0.66
Control Delay	63.4	99.5	42.0	78.9	5.3	71.7	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.4	99.5	42.0	78.9	5.3	71.7	14.2
Queue Length 50th (ft)	33	135	29	51	75	8	424
Queue Length 95th (ft)	37	189	17	78	165	11	600
Internal Link Dist (ft)	175		190		251		385
Turn Bay Length (ft)				220		200	
Base Capacity (vph)	332	382	359	185	3711	187	3458
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.36	0.16	0.29	0.27	0.04	0.66

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	361	147	329	960	184	133	47	112	85	62	134
Future Volume (vph)	77	361	147	329	960	184	133	47	112	85	62	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-2%			4%			1%	
Total Lost time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Lane Util. Factor	1.00	0.91		1.00	0.91		0.95	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1589	4350		1596	4835		1474	1568	1280	1484	1750	1448
Flt Permitted	0.15	1.00		0.37	1.00		0.95	0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	257	4350		618	4835		1474	1568	1280	1484	1750	1448
Peak-hour factor, PHF	0.74	0.94	0.78	0.98	0.78	0.87	0.85	0.90	0.67	0.82	0.70	0.93
Adj. Flow (vph)	104	384	188	336	1231	211	156	52	167	104	89	144
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	104	572	0	336	1442	0	103	105	167	104	89	144
Confl. Peds. (#/hr)	1		1	5		5	1		1	1		1
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	13%	8%	20%	14%	5%	8%	14%	6%	23%	21%	8%	10%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6					3			4
Actuated Green, G (s)	74.6	64.9		95.1	79.9		17.7	17.7	42.4	17.7	17.7	27.4
Effective Green, g (s)	74.6	64.9		95.1	79.9		17.7	17.7	42.4	17.7	17.7	27.4
Actuated g/C Ratio	0.50	0.43		0.63	0.53		0.12	0.12	0.28	0.12	0.12	0.18
Clearance Time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2		5.0	5.0	3.0	5.0	5.0	3.0
Lane Grp Cap (vph)	213	1882		552	2575		173	185	361	175	206	264
v/s Ratio Prot	0.03	0.13		c0.10	0.30		c0.07	0.07	0.08	c0.07	0.05	0.04
v/s Ratio Perm	0.21			c0.29					0.05			0.06
v/c Ratio	0.49	0.30		0.61	0.56		0.60	0.57	0.46	0.59	0.43	0.55
Uniform Delay, d1	20.5	27.8		13.3	23.3		62.8	62.5	44.4	62.7	61.5	55.6
Progression Factor	1.63	0.67		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	0.4		1.9	0.9		8.1	6.4	0.9	7.9	3.0	2.3
Delay (s)	35.2	19.1		15.2	24.2		70.8	69.0	45.3	70.7	64.5	57.9
Level of Service	D	B		B	C		E	E	D	E	E	E
Approach Delay (s)		21.6			22.5			59.0			63.6	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	104	572	336	1442	103	105	167	104	89	144
v/c Ratio	0.48	0.30	0.60	0.56	0.60	0.57	0.45	0.59	0.43	0.54
Control Delay	33.7	21.2	18.4	26.2	76.0	73.9	28.5	75.9	66.8	56.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.7	21.2	18.4	26.2	76.0	73.9	28.5	75.9	66.8	56.4
Queue Length 50th (ft)	43	98	140	332	102	104	95	98	82	123
Queue Length 95th (ft)	75	137	250	393	154	166	72	142	104	176
Internal Link Dist (ft)		1185		1058		325			341	
Turn Bay Length (ft)	330		300		270			185		
Base Capacity (vph)	310	1883	623	2575	299	318	454	306	361	355
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.30	0.54	0.56	0.34	0.33	0.37	0.34	0.25	0.41

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	409	27	22	1003	144	35	2	16	120	3	373
Future Volume (vph)	142	409	27	22	1003	144	35	2	16	120	3	373
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			2%	
Total Lost time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.88			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1703	4673	1509	1726	4768		1567	1568			1649	1494
Flt Permitted	0.11	1.00	1.00	0.46	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	202	4673	1509	834	4768		1567	1568			1649	1494
Peak-hour factor, PHF	0.82	0.82	0.75	0.88	0.91	0.88	0.73	0.50	0.80	0.81	0.75	0.91
Adj. Flow (vph)	173	499	36	25	1102	164	48	4	20	148	4	410
RTOR Reduction (vph)	0	0	15	0	14	0	0	19	0	0	0	106
Lane Group Flow (vph)	173	499	21	25	1252	0	48	5	0	0	152	304
Confl. Peds. (#/hr)				1		1						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	6%	11%	7%	5%	7%	6%	14%	0%	6%	9%	0%	7%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	pm+ov
Protected Phases	1	6	3	5	2		3	3		4	4	1
Permitted Phases	6		6	2								4
Actuated Green, G (s)	85.7	75.0	85.5	65.9	61.7		10.5	10.5			35.3	52.8
Effective Green, g (s)	85.7	75.0	85.5	65.9	61.7		10.5	10.5			35.3	52.8
Actuated g/C Ratio	0.57	0.50	0.57	0.44	0.41		0.07	0.07			0.24	0.35
Clearance Time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Vehicle Extension (s)	3.0	3.0	5.0	3.0	3.0		5.0	5.0			3.0	3.0
Lane Grp Cap (vph)	290	2336	860	391	1961		109	109			388	525
v/s Ratio Prot	c0.07	0.11	0.00	0.00	c0.26		c0.03	0.00			0.09	c0.07
v/s Ratio Perm	0.27		0.01	0.03								0.14
v/c Ratio	0.60	0.21	0.02	0.06	0.64		0.44	0.05			0.39	0.58
Uniform Delay, d1	21.4	21.0	14.1	23.9	35.3		66.9	65.1			48.3	39.5
Progression Factor	1.00	1.00	1.00	0.59	0.63		1.00	1.00			1.00	1.00
Incremental Delay, d2	8.8	0.2	0.0	0.1	1.4		5.8	0.4			3.0	4.6
Delay (s)	30.1	21.2	14.1	14.1	23.5		72.8	65.5			51.3	44.1
Level of Service	C	C	B	B	C		E	E			D	D
Approach Delay (s)		23.0			23.4			70.3			46.1	
Approach LOS		C			C			E			D	

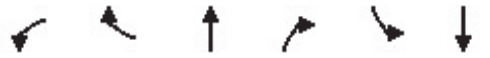
Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	65.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	173	499	36	25	1266	48	24	152	410
v/c Ratio	0.59	0.20	0.04	0.06	0.63	0.38	0.17	0.39	0.60
Control Delay	27.0	19.9	0.3	8.9	22.5	72.9	29.5	54.4	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	19.9	0.3	8.9	22.5	72.9	29.5	54.4	26.5
Queue Length 50th (ft)	77	99	0	6	117	45	4	130	198
Queue Length 95th (ft)	120	114	0	m10	128	71	11	172	337
Internal Link Dist (ft)		591			224		51	121	
Turn Bay Length (ft)	500		75	225					
Base Capacity (vph)	292	2458	1052	479	2016	182	200	388	685
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.20	0.03	0.05	0.63	0.26	0.12	0.39	0.60

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	7	23	3	21	78	3
Future Volume (vph)	7	23	3	21	78	3
Peak Hour Factor	0.58	0.72	0.38	0.66	0.89	0.38
Hourly flow rate (vph)	12	32	8	32	88	8

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	44	40	96
Volume Left (vph)	12	0	88
Volume Right (vph)	32	32	0
Hadj (s)	-0.33	-0.37	0.25
Departure Headway (s)	3.9	3.7	4.3
Degree Utilization, x	0.05	0.04	0.11
Capacity (veh/h)	897	940	829
Control Delay (s)	7.1	6.9	7.8
Approach Delay (s)	7.1	6.9	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay		7.4	
Level of Service		A	
Intersection Capacity Utilization		24.4%	ICU Level of Service A
Analysis Period (min)		15	

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	23	3	21	78	3
Future Vol, veh/h	7	23	3	21	78	3
Peak Hour Factor	0.58	0.72	0.38	0.66	0.89	0.38
Heavy Vehicles, %	0	4	33	0	1	33
Mvmt Flow	12	32	8	32	88	8
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7	7.3	7.8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	23%	96%
Vol Thru, %	12%	0%	4%
Vol Right, %	88%	77%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	24	30	81
LT Vol	0	7	78
Through Vol	3	0	3
RT Vol	21	23	0
Lane Flow Rate	40	44	96
Geometry Grp	1	1	1
Degree of Util (X)	0.045	0.045	0.112
Departure Headway (Hd)	4.085	3.718	4.216
Convergence, Y/N	Yes	Yes	Yes
Cap	874	951	851
Service Time	2.12	1.789	2.237
HCM Lane V/C Ratio	0.046	0.046	0.113
HCM Control Delay	7.3	7	7.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	40	644	85	47	257	110	110	82	66	250	112	44
Future Volume (vph)	40	644	85	47	257	110	110	82	66	250	112	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			2%			0%			1%	
Total Lost time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1744	3487	1530	1553	4510		1719	1642		1694	3188	
Flt Permitted	0.49	1.00	1.00	0.32	1.00		0.61	1.00		0.29	1.00	
Satd. Flow (perm)	902	3487	1530	518	4510		1107	1642		518	3188	
Peak-hour factor, PHF	0.67	0.96	0.85	0.84	0.89	0.86	0.92	0.66	0.72	0.92	0.70	0.69
Adj. Flow (vph)	60	671	100	56	289	128	120	124	92	272	160	64
RTOR Reduction (vph)	0	0	55	0	44	0	0	19	0	0	28	0
Lane Group Flow (vph)	60	671	45	56	373	0	120	197	0	272	196	0
Confl. Peds. (#/hr)				4								
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	3%	3%	5%	15%	7%	10%	5%	9%	6%	6%	9%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	74.8	67.8	67.8	75.0	67.9		35.7	23.1		55.1	36.0	
Effective Green, g (s)	74.8	67.8	67.8	75.0	67.9		35.7	23.1		55.1	36.0	
Actuated g/C Ratio	0.50	0.45	0.45	0.50	0.45		0.24	0.15		0.37	0.24	
Clearance Time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Vehicle Extension (s)	3.0	8.0	8.0	3.0	8.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	489	1576	691	307	2041		314	252		390	765	
v/s Ratio Prot	0.01	c0.19		c0.01	0.08		0.03	c0.12		c0.12	0.06	
v/s Ratio Perm	0.06		0.03	0.08			0.06			0.14		
v/c Ratio	0.12	0.43	0.07	0.18	0.18		0.38	0.78		0.70	0.26	
Uniform Delay, d1	19.5	27.9	23.2	20.1	24.5		46.8	61.0		36.9	46.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.8	0.2	0.3	0.2		0.8	14.1		5.4	0.2	
Delay (s)	19.6	28.7	23.4	20.4	24.7		47.6	75.1		42.2	46.3	
Level of Service	B	C	C	C	C		D	E		D	D	
Approach Delay (s)		27.4			24.2			65.3			44.1	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	60	671	100	56	417	120	216	272	224
v/c Ratio	0.12	0.42	0.13	0.17	0.20	0.37	0.79	0.69	0.28
Control Delay	19.8	31.0	3.0	20.6	21.8	34.0	74.4	42.7	38.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	31.0	3.0	20.6	21.8	34.0	74.4	42.7	38.1
Queue Length 50th (ft)	28	241	0	26	73	76	185	192	77
Queue Length 95th (ft)	44	343	20	53	113	111	177	246	80
Internal Link Dist (ft)		667			846		233		376
Turn Bay Length (ft)	200		200	245		300		180	
Base Capacity (vph)	530	1599	769	344	2117	504	389	419	839
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.42	0.13	0.16	0.20	0.24	0.56	0.65	0.27

Intersection Summary

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	53	72	179	25	40	216
Future Volume (Veh/h)	53	72	179	25	40	216
Sign Control	Stop		Free			Free
Grade	5%		0%			0%
Peak Hour Factor	0.74	0.82	0.81	0.69	0.50	0.95
Hourly flow rate (vph)	72	88	221	36	80	227
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						601
pX, platoon unblocked						
vC, conflicting volume	626	239			257	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	626	239			257	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	83	89			94	
cM capacity (veh/h)	419	785			1246	

Direction, Lane #	NW 1	NE 1	SW 1	SW 2
Volume Total	160	257	80	227
Volume Left	72	0	80	0
Volume Right	88	36	0	0
cSH	930	1700	1246	1700
Volume to Capacity	0.17	0.15	0.06	0.13
Queue Length 95th (ft)	15	0	5	0
Control Delay (s)	12.5	0.0	8.1	0.0
Lane LOS	B		A	
Approach Delay (s)	12.5	0.0	2.1	
Approach LOS	B			

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.9

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	53	72	179	25	40	216
Future Vol, veh/h	53	72	179	25	40	216
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	55	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	0	-	-	0
Peak Hour Factor	74	82	81	69	50	95
Heavy Vehicles, %	2	8	6	0	13	8
Mvmt Flow	72	88	221	36	80	227

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	626	239	0	0	257	0
Stage 1	239	-	-	-	-	-
Stage 2	387	-	-	-	-	-
Critical Hdwy	7.42	6.78	-	-	4.23	-
Critical Hdwy Stg 1	6.42	-	-	-	-	-
Critical Hdwy Stg 2	6.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.372	-	-	2.317	-
Pot Cap-1 Maneuver	376	760	-	-	1246	-
Stage 1	749	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	352	760	-	-	1246	-
Mov Cap-2 Maneuver	352	-	-	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	577	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	13.7	0	2.1
HCM LOS	B		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	352	760	1246	-
HCM Lane V/C Ratio	-	-	0.203	0.116	0.064	-
HCM Control Delay (s)	-	-	17.8	10.4	8.1	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.4	0.2	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	63	313	163	144	151	85
Future Volume (vph)	63	313	163	144	151	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	12	12
Grade (%)	0%			1%	-2%	
Total Lost time (s)	5.5	4.0	6.5	5.5	6.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1473	1694	1800	1642	1510
Flt Permitted	1.00	1.00	0.71	1.00	0.95	1.00
Satd. Flow (perm)	1801	1473	1267	1800	1642	1510
Peak-hour factor, PHF	0.88	0.94	0.93	0.90	0.73	0.89
Adj. Flow (vph)	72	333	175	160	207	96
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	72	333	175	160	207	96
Heavy Vehicles (%)	2%	6%	6%	5%	11%	8%
Turn Type	NA	Free	pm+pt	NA	Prot	Free
Protected Phases	1		2	6	4	
Permitted Phases		Free	6			Free
Actuated Green, G (s)	26.5	120.0	54.5	54.5	54.0	120.0
Effective Green, g (s)	26.5	120.0	54.5	54.5	54.0	120.0
Actuated g/C Ratio	0.22	1.00	0.45	0.45	0.45	1.00
Clearance Time (s)	5.5		6.5	5.5	6.0	
Lane Grp Cap (vph)	397	1473	651	817	738	1510
v/s Ratio Prot	0.04		c0.05	0.09	c0.13	
v/s Ratio Perm		0.23	c0.07			0.06
v/c Ratio	0.18	0.23	0.27	0.20	0.28	0.06
Uniform Delay, d1	37.9	0.0	20.7	19.6	20.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.4	1.0	0.5	0.9	0.1
Delay (s)	38.9	0.4	21.8	20.2	21.7	0.1
Level of Service	D	A	C	C	C	A
Approach Delay (s)	7.2			21.0	14.9	
Approach LOS	A			C	B	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	72	333	175	160	207	96
v/c Ratio	0.18	0.23	0.27	0.20	0.28	0.06
Control Delay	39.4	0.4	22.9	20.5	22.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	0.4	22.9	20.5	22.1	0.1
Queue Length 50th (ft)	46	0	82	73	99	0
Queue Length 95th (ft)	85	0	132	118	121	0
Internal Link Dist (ft)	299			336	373	
Turn Bay Length (ft)			150			260
Base Capacity (vph)	397	1473	641	817	738	1510
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.23	0.27	0.20	0.28	0.06

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	204	458	794	1532	798	238
Future Volume (vph)	204	458	794	1532	798	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-2%			1%	-1%	
Total Lost time (s)	6.0	6.0	4.5	6.0	6.0	
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3502	2787	3450	4963	4864	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3502	2787	3450	4963	4864	
Peak-hour factor, PHF	0.81	0.91	0.88	0.95	0.92	0.86
Adj. Flow (vph)	252	503	902	1613	867	277
RTOR Reduction (vph)	0	6	0	0	0	0
Lane Group Flow (vph)	252	497	902	1613	1144	0
Heavy Vehicles (%)	1%	3%	1%	4%	4%	1%
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	4	4 1	1	6	2	
Permitted Phases						
Actuated Green, G (s)	26.4	81.0	48.6	111.6	58.5	
Effective Green, g (s)	26.4	81.0	48.6	111.6	58.5	
Actuated g/C Ratio	0.18	0.54	0.32	0.74	0.39	
Clearance Time (s)	6.0		4.5	6.0	6.0	
Vehicle Extension (s)	4.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	616	1504	1117	3692	1896	
v/s Ratio Prot	c0.07	0.18	c0.26	0.33	c0.24	
v/s Ratio Perm						
v/c Ratio	0.41	0.33	0.81	0.44	0.60	
Uniform Delay, d1	54.9	19.3	46.4	7.3	36.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.2	4.4	0.4	1.4	
Delay (s)	55.5	19.5	50.8	7.7	37.9	
Level of Service	E	B	D	A	D	
Approach Delay (s)	31.5			23.1	37.9	
Approach LOS	C			C	D	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	252	503	902	1613	1144
v/c Ratio	0.41	0.34	0.81	0.44	0.60
Control Delay	56.4	19.5	52.2	7.9	39.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	19.5	52.2	7.9	39.8
Queue Length 50th (ft)	113	151	416	197	326
Queue Length 95th (ft)	137	155	439	250	434
Internal Link Dist (ft)	1412			518	770
Turn Bay Length (ft)	230		460		
Base Capacity (vph)	723	1774	1529	3693	1899
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.28	0.59	0.44	0.60

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	4	89	15	5	14	163	2257	24	10	1211	32
Future Volume (vph)	28	4	89	15	5	14	163	2257	24	10	1211	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			-1%			1%			-1%	
Total Lost time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.95		1.00	1.00		1.00	1.00	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1844	1615		1709		1796	5003		1814	4993	
Flt Permitted		0.75	1.00		0.85		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1442	1615		1487		1796	5003		1814	4993	
Peak-hour factor, PHF	0.78	0.50	0.77	0.62	0.42	0.58	0.78	0.95	0.75	0.83	0.89	0.80
Adj. Flow (vph)	36	8	116	24	12	24	209	2376	32	12	1361	40
RTOR Reduction (vph)	0	0	0	0	18	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	44	116	0	42	0	209	2407	0	12	1399	0
Confl. Peds. (#/hr)				2		2				1		1
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	1%	7%	0%	0%	0%	3%	0%	0%	4%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8								
Actuated Green, G (s)		16.1	16.1		16.1		22.6	111.8		3.1	92.3	
Effective Green, g (s)		16.1	16.1		16.1		22.6	111.8		3.1	92.3	
Actuated g/C Ratio		0.11	0.11		0.11		0.15	0.75		0.02	0.62	
Clearance Time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)		154	173		159		270	3728		37	3072	
v/s Ratio Prot							c0.12	c0.48		0.01	0.28	
v/s Ratio Perm		0.03	c0.07		0.03							
v/c Ratio		0.29	0.67		0.27		0.77	0.65		0.32	0.46	
Uniform Delay, d1		61.7	64.4		61.5		61.2	9.4		72.4	15.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.0	9.8		0.9		12.9	0.9		5.1	0.5	
Delay (s)		62.7	74.2		62.4		74.2	10.3		77.5	15.9	
Level of Service		E	E		E		E	B		E	B	
Approach Delay (s)		71.0			62.4			15.4			16.4	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	44	116	60	209	2408	12	1401
v/c Ratio	0.29	0.67	0.34	0.77	0.63	0.15	0.46
Control Delay	64.5	82.4	46.6	79.8	10.2	72.6	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.5	82.4	46.6	79.8	10.2	72.6	17.1
Queue Length 50th (ft)	40	111	37	199	278	12	255
Queue Length 95th (ft)	43	146	27	234	563	32	360
Internal Link Dist (ft)	175		190		251		385
Turn Bay Length (ft)				220		200	
Base Capacity (vph)	293	328	318	335	3840	332	3076
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.35	0.19	0.62	0.63	0.04	0.46

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	829	138	251	493	147	241	84	349	165	70	144
Future Volume (vph)	128	829	138	251	493	147	241	84	349	165	70	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-2%			4%			1%	
Total Lost time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Lane Util. Factor	1.00	0.91		1.00	0.91		0.95	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1617	4664		1381	4686		1648	1666	1567	1663	1719	1516
Flt Permitted	0.37	1.00		0.22	1.00		0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	631	4664		314	4686		1648	1666	1567	1663	1719	1516
Peak-hour factor, PHF	0.82	0.85	0.86	0.87	0.92	0.85	0.78	0.88	0.91	0.82	0.73	0.86
Adj. Flow (vph)	156	975	160	289	536	173	309	95	384	201	96	167
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	156	1135	0	289	709	0	201	203	384	201	96	167
Confl. Peds. (#/hr)	1		1	6		6						
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	11%	6%	20%	32%	5%	12%	2%	5%	1%	8%	10%	6%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6					3			4
Actuated Green, G (s)	42.5	41.0		53.1	53.1		24.7	24.7	59.3	24.7	24.7	47.2
Effective Green, g (s)	42.5	41.0		53.1	53.1		24.7	24.7	59.3	24.7	24.7	47.2
Actuated g/C Ratio	0.28	0.27		0.35	0.35		0.16	0.16	0.40	0.16	0.16	0.31
Clearance Time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2		5.0	5.0	3.0	5.0	5.0	3.0
Lane Grp Cap (vph)	326	1274		357	1658		271	274	619	273	283	477
v/s Ratio Prot	0.07	c0.24		c0.19	0.15		c0.12	0.12	0.14	c0.12	0.06	0.05
v/s Ratio Perm	0.06			0.10					0.10			0.06
v/c Ratio	0.48	0.89		0.81	0.43		0.74	0.74	0.62	0.74	0.34	0.35
Uniform Delay, d1	46.5	52.4		40.5	36.9		59.6	59.6	36.3	59.6	55.4	39.6
Progression Factor	0.63	0.64		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	9.0		12.7	0.8		12.4	12.2	1.9	11.9	1.5	0.4
Delay (s)	30.5	42.5		53.2	37.7		72.0	71.8	38.3	71.4	56.9	40.0
Level of Service	C	D		D	D		E	E	D	E	E	D
Approach Delay (s)		41.1			42.2			55.5			57.1	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	46.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	156	1135	289	709	201	203	384	201	96	167
v/c Ratio	0.48	0.89	0.81	0.43	0.74	0.74	0.61	0.74	0.34	0.35
Control Delay	36.4	42.8	58.7	39.6	75.6	75.5	23.7	75.0	57.4	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	42.8	58.7	39.6	75.6	75.5	23.7	75.0	57.4	22.6
Queue Length 50th (ft)	73	199	229	195	198	201	168	189	84	77
Queue Length 95th (ft)	100	212	#460	265	240	278	234	240	109	91
Internal Link Dist (ft)		1185		1058		325			341	
Turn Bay Length (ft)	330		300		270			185		
Base Capacity (vph)	326	1275	359	1656	335	338	629	343	355	482
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.89	0.81	0.43	0.60	0.60	0.61	0.59	0.27	0.35

Intersection Summary

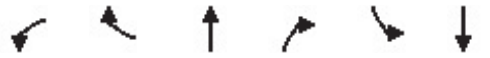
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	943	90	43	558	195	70	11	46	158	4	285
Future Volume (vph)	288	943	90	43	558	195	70	11	46	158	4	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			2%	
Total Lost time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	0.87			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1752	4940	1583	1778	4648		1686	1593			1745	1567
Flt Permitted	0.13	1.00	1.00	0.27	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	245	4940	1583	506	4648		1686	1593			1745	1567
Peak-hour factor, PHF	0.77	0.93	0.66	0.76	0.88	0.42	0.83	0.92	0.68	0.81	0.50	0.85
Adj. Flow (vph)	374	1014	136	57	634	464	84	12	68	195	8	335
RTOR Reduction (vph)	0	0	30	0	88	0	0	61	0	0	0	115
Lane Group Flow (vph)	374	1014	106	57	1010	0	84	19	0	0	203	220
Confl. Peds. (#/hr)				2		2						
Heavy Vehicles (%)	3%	5%	2%	2%	3%	5%	6%	9%	2%	3%	0%	2%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	pm+ov
Protected Phases	1	6	3	5	2		3	3		4	4	1
Permitted Phases	6		6	2								4
Actuated Green, G (s)	90.0	77.2	92.2	60.3	54.0		15.0	15.0			26.5	56.0
Effective Green, g (s)	90.0	77.2	92.2	60.3	54.0		15.0	15.0			26.5	56.0
Actuated g/C Ratio	0.60	0.51	0.61	0.40	0.36		0.10	0.10			0.18	0.37
Clearance Time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Vehicle Extension (s)	3.0	3.0	5.0	3.0	3.0		5.0	5.0			3.0	3.0
Lane Grp Cap (vph)	443	2542	973	256	1673		168	159			308	585
v/s Ratio Prot	c0.17	0.21	0.01	0.01	0.22		c0.05	0.01			c0.12	0.07
v/s Ratio Perm	c0.34		0.06	0.08								0.07
v/c Ratio	0.84	0.40	0.11	0.22	0.60		0.50	0.12			0.66	0.38
Uniform Delay, d1	34.2	22.2	11.9	27.7	39.2		63.9	61.5			57.5	34.3
Progression Factor	1.00	1.00	1.00	0.85	0.95		1.00	1.00			1.00	1.00
Incremental Delay, d2	17.6	0.5	0.1	0.4	1.5		4.8	0.7			10.6	1.8
Delay (s)	51.8	22.7	12.0	24.1	38.9		68.8	62.2			68.1	36.1
Level of Service	D	C	B	C	D		E	E			E	D
Approach Delay (s)		28.9			38.2			65.6			48.2	
Approach LOS		C			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	374	1014	136	57	1098	84	80	203	335
v/c Ratio	0.85	0.39	0.13	0.21	0.62	0.50	0.36	0.66	0.44
Control Delay	48.9	22.6	4.5	15.1	34.3	73.7	22.1	69.5	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	22.6	4.5	15.1	34.3	73.7	22.1	69.5	15.9
Queue Length 50th (ft)	248	220	19	22	210	78	11	190	102
Queue Length 95th (ft)	290	264	25	33	376	125	63	146	170
Internal Link Dist (ft)		591			224		51	121	
Turn Bay Length (ft)	500		75	225					
Base Capacity (vph)	442	2583	1101	458	1762	196	245	308	755
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.39	0.12	0.12	0.62	0.43	0.33	0.66	0.44

Intersection Summary



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	21	110	3	14	58	6
Future Volume (vph)	21	110	3	14	58	6
Peak Hour Factor	0.53	0.95	0.38	0.70	0.81	0.38
Hourly flow rate (vph)	40	116	8	20	72	16

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	156	28	88
Volume Left (vph)	40	0	72
Volume Right (vph)	116	20	0
Hadj (s)	-0.39	-0.43	0.19
Departure Headway (s)	3.8	3.9	4.4
Degree Utilization, x	0.16	0.03	0.11
Capacity (veh/h)	927	879	782
Control Delay (s)	7.5	7.0	8.0
Approach Delay (s)	7.5	7.0	8.0
Approach LOS	A	A	A

Intersection Summary			
Delay	7.6		
Level of Service	A		
Intersection Capacity Utilization	27.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	110	3	14	58	6
Future Vol, veh/h	21	110	3	14	58	6
Peak Hour Factor	0.53	0.95	0.38	0.70	0.81	0.38
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	40	116	8	20	72	16
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.4	6.9	8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	16%	91%
Vol Thru, %	18%	0%	9%
Vol Right, %	82%	84%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	17	131	64
LT Vol	0	21	58
Through Vol	3	0	6
RT Vol	14	110	0
Lane Flow Rate	28	155	87
Geometry Grp	1	1	1
Degree of Util (X)	0.029	0.157	0.107
Departure Headway (Hd)	3.746	3.627	4.41
Convergence, Y/N	Yes	Yes	Yes
Cap	945	978	810
Service Time	1.81	1.691	2.452
HCM Lane V/C Ratio	0.03	0.158	0.107
HCM Control Delay	6.9	7.4	8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.6	0.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	70	458	137	72	625	307	156	172	55	152	141	70
Future Volume (vph)	70	458	137	72	625	307	156	172	55	152	141	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			2%			0%			1%	
Total Lost time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3522	1570	1785	4820		1805	1795		1744	3352	
Flt Permitted	0.20	1.00	1.00	0.42	1.00		0.57	1.00		0.26	1.00	
Satd. Flow (perm)	371	3522	1570	788	4820		1076	1795		477	3352	
Peak-hour factor, PHF	0.80	0.93	0.78	0.75	0.87	0.91	0.80	0.83	0.66	0.84	0.75	0.92
Adj. Flow (vph)	88	492	176	96	718	337	195	207	83	181	188	76
RTOR Reduction (vph)	0	0	97	0	47	0	0	10	0	0	30	0
Lane Group Flow (vph)	88	492	79	96	1008	0	195	280	0	181	234	0
Confl. Peds. (#/hr)				3		3						
Confl. Bikes (#/hr)			2			2						1
Heavy Vehicles (%)	1%	2%	1%	0%	0%	1%	0%	1%	2%	3%	3%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	76.6	67.5	67.5	77.0	67.7		45.7	28.5		47.7	29.5	
Effective Green, g (s)	76.6	67.5	67.5	77.0	67.7		45.7	28.5		47.7	29.5	
Actuated g/C Ratio	0.51	0.45	0.45	0.51	0.45		0.30	0.19		0.32	0.20	
Clearance Time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Vehicle Extension (s)	3.0	8.0	8.0	3.0	8.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	274	1584	706	466	2175		411	341		305	659	
v/s Ratio Prot	c0.02	0.14		0.01	c0.21		0.05	c0.16		c0.07	0.07	
v/s Ratio Perm	0.14		0.05	0.09			0.09			0.12		
v/c Ratio	0.32	0.31	0.11	0.21	0.46		0.47	0.82		0.59	0.36	
Uniform Delay, d1	19.9	26.4	23.9	19.0	28.6		40.7	58.3		40.0	52.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.5	0.3	0.2	0.7		0.9	14.7		3.1	0.3	
Delay (s)	20.6	26.9	24.2	19.2	29.3		41.5	73.0		43.1	52.4	
Level of Service	C	C	C	B	C		D	E		D	D	
Approach Delay (s)		25.5			28.4			60.3			48.6	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	88	492	176	96	1055	195	290	181	264
v/c Ratio	0.32	0.31	0.22	0.20	0.47	0.46	0.83	0.59	0.38
Control Delay	21.5	29.3	5.0	19.4	28.8	36.2	75.0	40.2	45.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	29.3	5.0	19.4	28.8	36.2	75.0	40.2	45.1
Queue Length 50th (ft)	39	160	0	43	238	136	265	125	102
Queue Length 95th (ft)	74	248	30	73	329	149	316	147	107
Internal Link Dist (ft)		667			846		233		376
Turn Bay Length (ft)	200		200	245		300		180	
Base Capacity (vph)	297	1586	804	490	2224	527	423	414	814
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.31	0.22	0.20	0.47	0.37	0.69	0.44	0.32

Intersection Summary

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	54	92	279	61	110	235
Future Volume (Veh/h)	54	92	279	61	110	235
Sign Control	Stop		Free			Free
Grade	5%		0%			0%
Peak Hour Factor	0.68	0.89	0.78	0.85	0.69	0.77
Hourly flow rate (vph)	79	103	358	72	159	305
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						601
pX, platoon unblocked						
vC, conflicting volume	1017	394			430	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1017	394			430	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	65	84			86	
cM capacity (veh/h)	228	659			1135	

Direction, Lane #	NW 1	NE 1	SW 1	SW 2
Volume Total	182	430	159	305
Volume Left	79	0	159	0
Volume Right	103	72	0	0
cSH	525	1700	1135	1700
Volume to Capacity	0.35	0.25	0.14	0.18
Queue Length 95th (ft)	38	0	12	0
Control Delay (s)	19.1	0.0	8.7	0.0
Lane LOS	C		A	
Approach Delay (s)	19.1	0.0	3.0	
Approach LOS	C			

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	5.6

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	54	92	279	61	110	235
Future Vol, veh/h	54	92	279	61	110	235
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	55	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	0	-	-	0
Peak Hour Factor	68	89	78	85	69	77
Heavy Vehicles, %	0	0	1	0	1	2
Mvmt Flow	79	103	358	72	159	305

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1017	394	0	0	430	0
Stage 1	394	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Critical Hdwy	7.4	6.7	-	-	4.11	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	200	624	-	-	1135	-
Stage 1	615	-	-	-	-	-
Stage 2	453	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	172	624	-	-	1135	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	390	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	25.3	0	3
HCM LOS	D		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	172	624	1135	-
HCM Lane V/C Ratio	-	-	0.462	0.166	0.14	-
HCM Control Delay (s)	-	-	42.7	11.9	8.7	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	2.2	0.6	0.5	-

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	157	235	92	153	375	231
Future Volume (vph)	157	235	92	153	375	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	12	12
Grade (%)	0%			1%	-2%	
Total Lost time (s)	5.5	4.0	6.5	5.5	6.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1818	1516	1796	1872	1642	1510
Flt Permitted	1.00	1.00	0.57	1.00	0.95	1.00
Satd. Flow (perm)	1818	1516	1075	1872	1642	1510
Peak-hour factor, PHF	0.82	0.83	0.79	0.78	0.92	0.90
Adj. Flow (vph)	191	283	116	196	408	257
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	191	283	116	196	408	257
Heavy Vehicles (%)	1%	3%	0%	1%	11%	8%
Turn Type	NA	Free	pm+pt	NA	Prot	Free
Protected Phases	1		2	6	4	
Permitted Phases		Free	6			Free
Actuated Green, G (s)	35.5	120.0	52.5	52.5	56.0	120.0
Effective Green, g (s)	35.5	120.0	52.5	52.5	56.0	120.0
Actuated g/C Ratio	0.30	1.00	0.44	0.44	0.47	1.00
Clearance Time (s)	5.5		6.5	5.5	6.0	
Lane Grp Cap (vph)	537	1516	533	819	766	1510
v/s Ratio Prot	c0.11		0.02	c0.10	c0.25	
v/s Ratio Perm		0.19	0.08			0.17
v/c Ratio	0.36	0.19	0.22	0.24	0.53	0.17
Uniform Delay, d1	33.2	0.0	23.9	21.2	22.7	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.3	0.9	0.7	2.6	0.2
Delay (s)	35.1	0.3	24.9	21.9	25.4	0.2
Level of Service	D	A	C	C	C	A
Approach Delay (s)	14.3			23.0	15.7	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

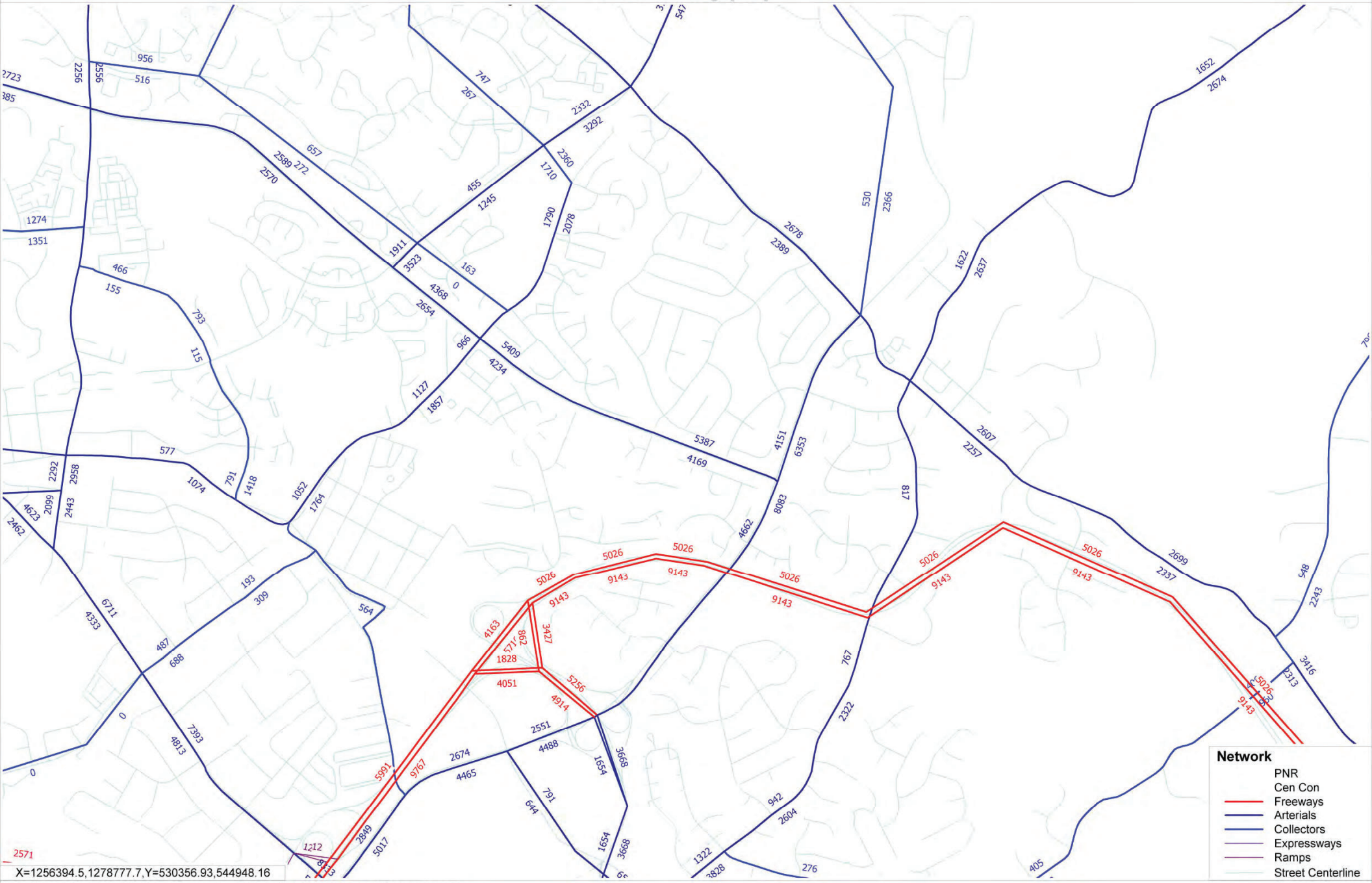
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	191	283	116	196	408	257
v/c Ratio	0.36	0.19	0.22	0.24	0.53	0.17
Control Delay	35.6	0.3	23.5	22.2	25.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	0.3	23.5	22.2	25.9	0.2
Queue Length 50th (ft)	116	0	54	93	219	0
Queue Length 95th (ft)	165	0	80	124	316	0
Internal Link Dist (ft)	299			336	373	
Turn Bay Length (ft)			150			260
Base Capacity (vph)	537	1516	524	819	766	1510
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.19	0.22	0.24	0.53	0.17

Intersection Summary

Appendix 15.21

APPENDIX C: M-NCPPC MODEL OUTPUT SHEETS

Travel/4MP Shady Grove Loaded Network
2016Existing (PM)



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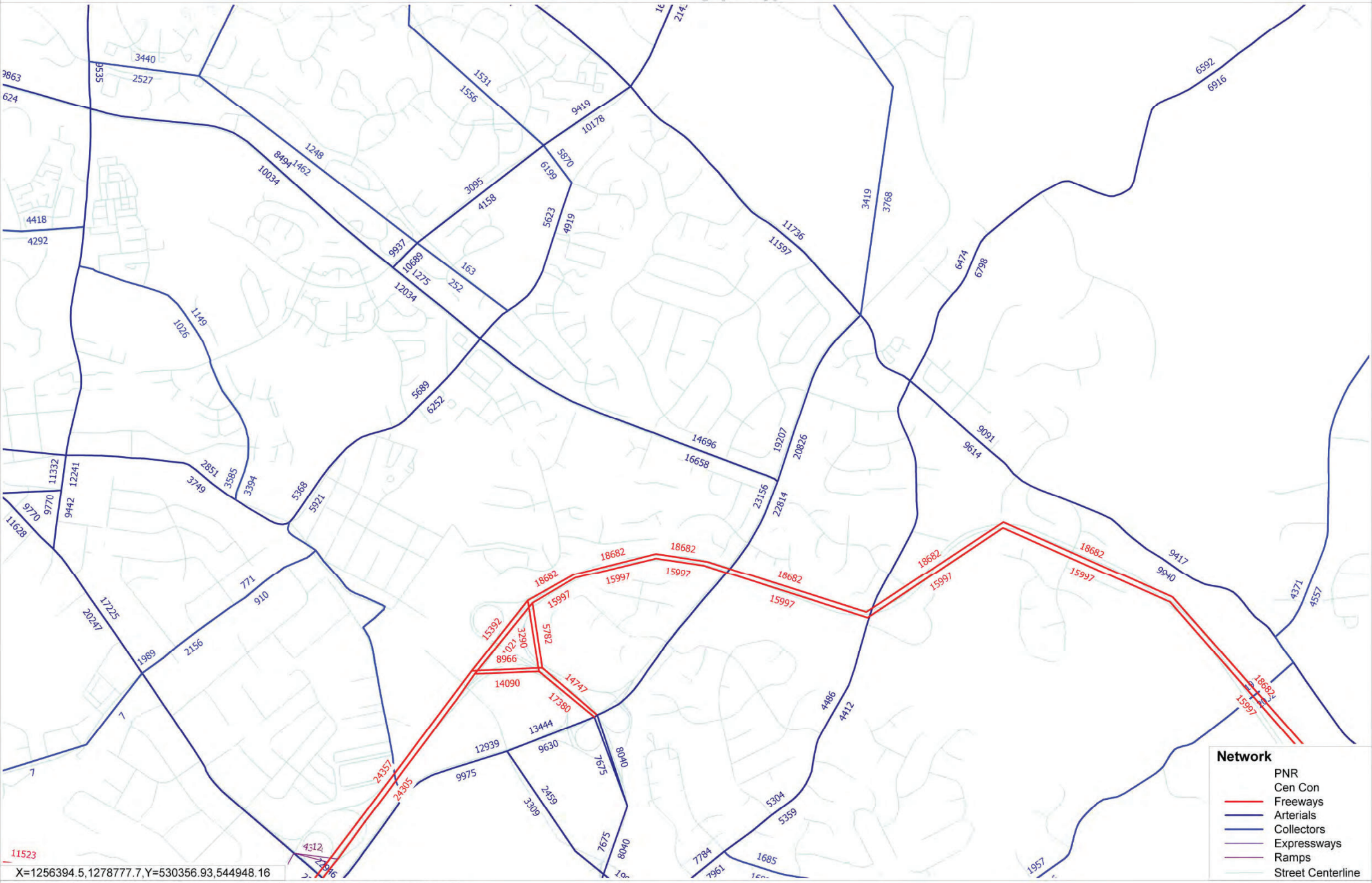
F:__Travel4MP\TEMP\ShadyGrove Data to MCDOT\i4_Assign_Output_2016Exist(02.2019).net

cube

Travel/4MP Shady Grove Loaded Network
2016Existing (Daily)



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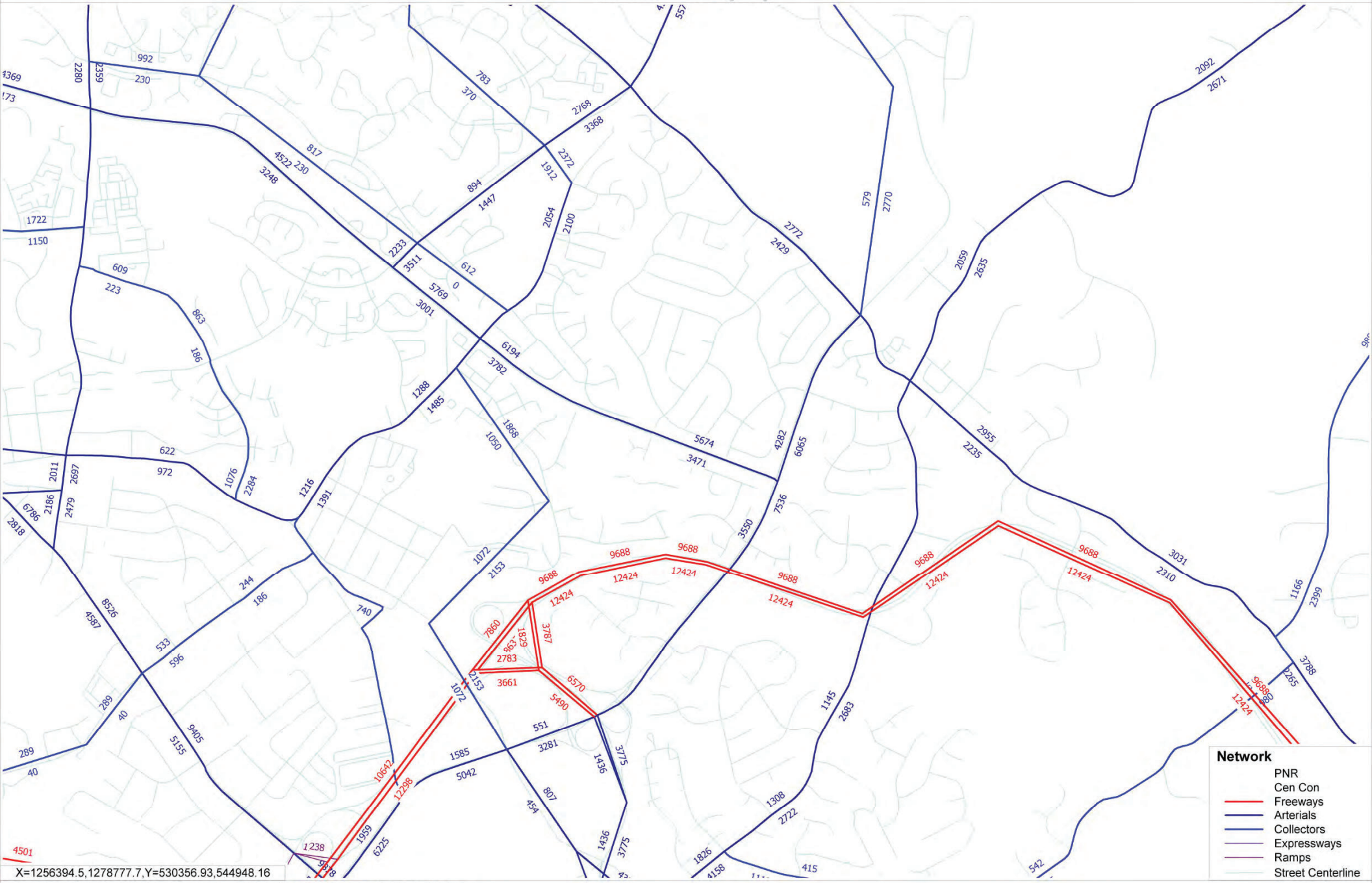
cube

Travel/4MP Shady Grove Loaded Network
2040NoBuild (PM)



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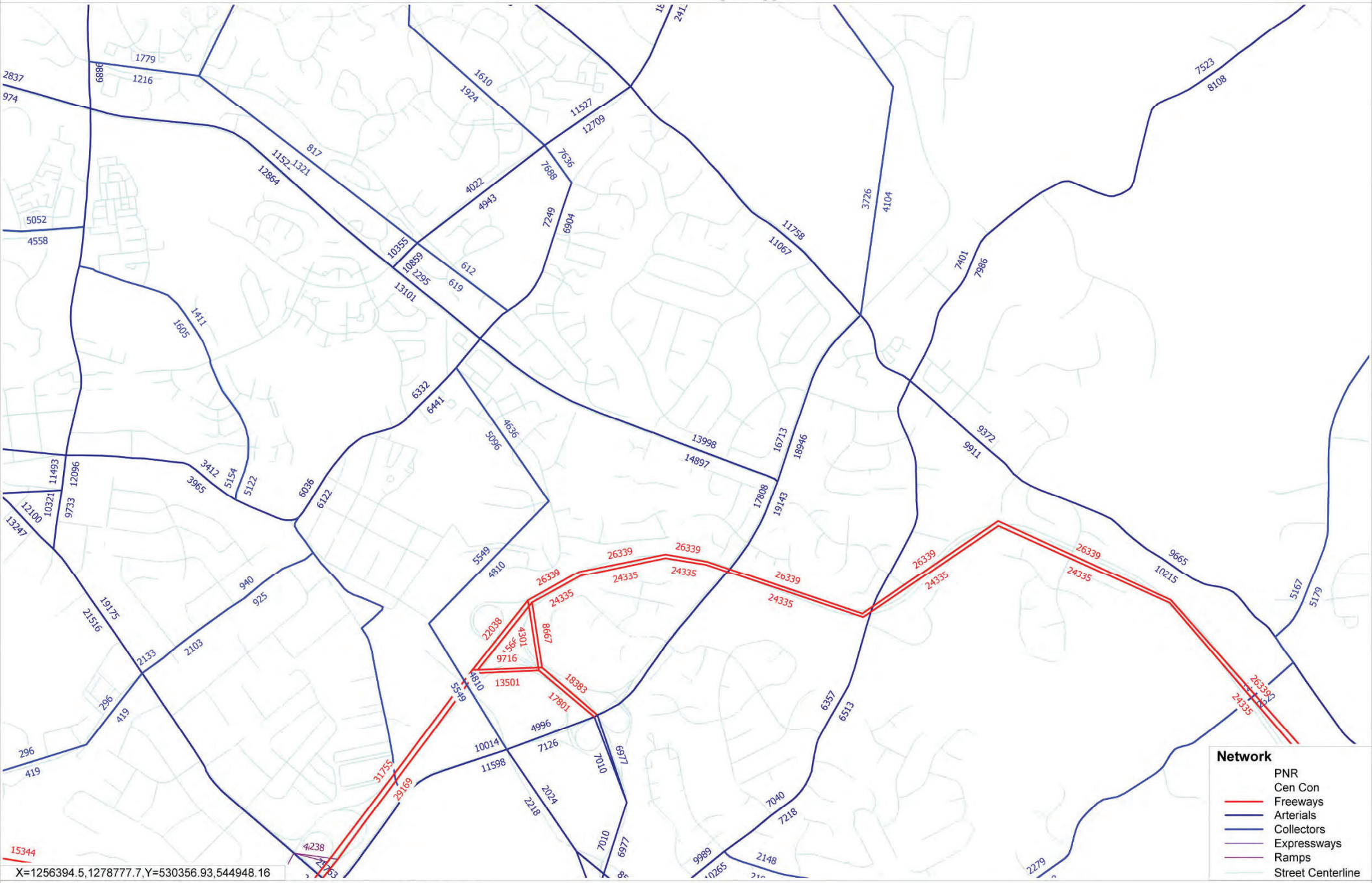
cube

Travel/4MP Shady Grove Loaded Network
2040NoBuild (Daily)



Appendix 15.22

APPENDIX D: 2040 NO-BUILD CONDITIONS (SYNCHRO OUTPUT SHEETS)

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	227	956	301	924	1572	210
Future Volume (vph)	227	956	301	924	1572	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-2%			1%	-1%	
Total Lost time (s)	6.0	6.0	4.5	6.0	6.0	
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3368	2760	3167	4779	4674	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3368	2760	3167	4779	4674	
Peak-hour factor, PHF	0.92	0.95	0.92	0.94	0.94	0.92
Adj. Flow (vph)	247	1006	327	983	1672	228
RTOR Reduction (vph)	0	11	0	0	0	0
Lane Group Flow (vph)	247	995	327	983	1900	0
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	5%	4%	10%	8%	10%	6%
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	4	4 1	1	6	2	
Permitted Phases						
Actuated Green, G (s)	44.8	64.5	13.7	93.2	75.0	
Effective Green, g (s)	44.8	64.5	13.7	93.2	75.0	
Actuated g/C Ratio	0.30	0.43	0.09	0.62	0.50	
Clearance Time (s)	6.0		4.5	6.0	6.0	
Vehicle Extension (s)	4.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1005	1186	289	2969	2337	
v/s Ratio Prot	0.07	c0.36	c0.10	0.21	c0.41	
v/s Ratio Perm						
v/c Ratio	0.25	0.84	1.13	0.33	0.81	
Uniform Delay, d1	39.8	38.1	68.2	13.5	31.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	5.6	93.2	0.3	3.2	
Delay (s)	40.0	43.7	161.3	13.8	34.8	
Level of Service	D	D	F	B	C	
Approach Delay (s)	43.0			50.7	34.8	
Approach LOS	D			D	C	

Intersection Summary			
HCM 2000 Control Delay	41.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	5	141	22	4	10	47	1184	7	4	2510	22
Future Volume (vph)	28	5	141	22	4	10	47	1184	7	4	2510	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			-1%			1%			-1%	
Total Lost time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.96		1.00	1.00		1.00	1.00	
Flt Protected		0.96	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1777	1615		1719		1796	4722		1814	4817	
Flt Permitted		0.73	1.00		0.80		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1351	1615		1419		1796	4722		1814	4817	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	5	153	24	4	11	51	1208	8	4	2728	24
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	35	153	0	29	0	51	1216	0	4	2752	0
Confl. Peds. (#/hr)									3			
Heavy Vehicles (%)	0%	25%	1%	0%	0%	13%	0%	9%	33%	0%	8%	17%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8								
Actuated Green, G (s)		17.1	17.1		17.1		8.4	112.5		1.4	105.5	
Effective Green, g (s)		17.1	17.1		17.1		8.4	112.5		1.4	105.5	
Actuated g/C Ratio		0.11	0.11		0.11		0.06	0.75		0.01	0.70	
Clearance Time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Vehicle Extension (s)		0.2	0.2		3.0		3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)		154	184		161		100	3541		16	3387	
v/s Ratio Prot							c0.03	0.26		0.00	c0.57	
v/s Ratio Perm		0.03	c0.09		0.02							
v/c Ratio		0.23	0.83		0.18		0.51	0.34		0.25	0.81	
Uniform Delay, d1		60.4	65.0		60.1		68.8	6.3		73.8	15.4	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3	25.2		0.5		4.3	0.3		8.1	2.2	
Delay (s)		60.7	90.2		60.7		73.1	6.6		81.8	17.6	
Level of Service		E	F		E		E	A		F	B	
Approach Delay (s)		84.7			60.7			9.3			17.7	
Approach LOS		F			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	436	178	397	1159	222	161	57	135	103	75	162
Future Volume (vph)	93	436	178	397	1159	222	161	57	135	103	75	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-2%			4%			1%	
Total Lost time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Lane Util. Factor	1.00	0.91		1.00	0.91		0.95	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1589	4394		1597	4820		1474	1572	1281	1484	1750	1448
Flt Permitted	0.16	1.00		0.30	1.00		0.95	0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	271	4394		502	4820		1474	1572	1281	1484	1750	1448
Peak-hour factor, PHF	0.92	0.94	0.92	0.98	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93
Adj. Flow (vph)	101	464	193	405	1260	241	175	62	147	112	82	174
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	101	657	0	405	1501	0	117	120	147	112	82	174
Confl. Peds. (#/hr)	1		1	5		5	1		1	1		1
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	13%	8%	20%	14%	5%	8%	14%	6%	23%	21%	8%	10%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6					3			4
Actuated Green, G (s)	62.2	52.1		93.0	77.4		19.0	19.0	54.4	18.5	18.5	28.6
Effective Green, g (s)	62.2	52.1		93.0	77.4		19.0	19.0	54.4	18.5	18.5	28.6
Actuated g/C Ratio	0.41	0.35		0.62	0.52		0.13	0.13	0.36	0.12	0.12	0.19
Clearance Time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2		5.0	5.0	3.0	5.0	5.0	3.0
Lane Grp Cap (vph)	201	1526		569	2487		186	199	464	183	215	276
v/s Ratio Prot	0.03	0.15		c0.17	0.31		c0.08	0.08	0.07	0.08	0.05	c0.04
v/s Ratio Perm	0.17			c0.27					0.04			0.08
v/c Ratio	0.50	0.43		0.71	0.60		0.63	0.60	0.32	0.61	0.38	0.63
Uniform Delay, d1	27.4	37.6		16.1	25.5		62.2	61.9	34.4	62.3	60.5	55.8
Progression Factor	1.37	0.69		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.9		4.2	1.1		9.1	7.4	0.4	8.5	2.4	4.6
Delay (s)	39.5	26.8		20.3	26.6		71.2	69.3	34.8	70.8	62.8	60.5
Level of Service	D	C		C	C		E	E	C	E	E	E
Approach Delay (s)		28.5			25.3			56.7			64.1	
Approach LOS		C			C			E			E	

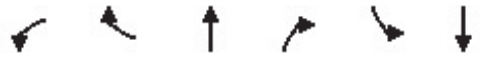
Intersection Summary			
HCM 2000 Control Delay	33.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	171	494	33	27	1211	174	42	2	19	145	4	450
Future Volume (vph)	171	494	33	27	1211	174	42	2	19	145	4	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			2%	
Total Lost time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.86			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1703	4673	1509	1726	4771		1567	1539			1649	1494
Flt Permitted	0.07	1.00	1.00	0.44	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	122	4673	1509	803	4771		1567	1539			1649	1494
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.91
Adj. Flow (vph)	186	537	36	29	1316	189	46	2	21	158	4	495
RTOR Reduction (vph)	0	0	16	0	13	0	0	20	0	0	0	100
Lane Group Flow (vph)	186	537	20	29	1492	0	46	3	0	0	162	395
Confl. Peds. (#/hr)				1		1						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	6%	11%	7%	5%	7%	6%	14%	0%	6%	9%	0%	7%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	pm+ov
Protected Phases	1	6	3	5	2		3	3		4	4	1
Permitted Phases	6		6	2								4
Actuated Green, G (s)	85.7	74.9	85.2	66.0	61.7		10.3	10.3			35.5	53.0
Effective Green, g (s)	85.7	74.9	85.2	66.0	61.7		10.3	10.3			35.5	53.0
Actuated g/C Ratio	0.57	0.50	0.57	0.44	0.41		0.07	0.07			0.24	0.35
Clearance Time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Vehicle Extension (s)	3.0	3.0	5.0	3.0	3.0		5.0	5.0			3.0	3.0
Lane Grp Cap (vph)	254	2333	857	379	1962		107	105			390	527
v/s Ratio Prot	c0.09	0.11	0.00	0.00	0.31		c0.03	0.00			0.10	c0.09
v/s Ratio Perm	c0.33		0.01	0.03								0.18
v/c Ratio	0.73	0.23	0.02	0.08	0.76		0.43	0.03			0.42	0.75
Uniform Delay, d1	38.3	21.2	14.2	23.9	37.8		67.0	65.2			48.5	42.7
Progression Factor	1.00	1.00	1.00	0.66	0.66		1.00	1.00			1.00	1.00
Incremental Delay, d2	17.0	0.2	0.0	0.1	2.4		5.7	0.3			3.2	9.4
Delay (s)	55.3	21.5	14.2	15.9	27.4		72.7	65.5			51.7	52.1
Level of Service	E	C	B	B	C		E	E			D	D
Approach Delay (s)		29.4			27.2			70.3			52.0	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	8	28	4	25	94	4
Future Volume (vph)	8	28	4	25	94	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	30	4	27	102	4

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	39	31	106
Volume Left (vph)	9	0	102
Volume Right (vph)	30	27	0
Hadj (s)	-0.36	-0.45	0.23
Departure Headway (s)	3.8	3.6	4.2
Degree Utilization, x	0.04	0.03	0.12
Capacity (veh/h)	903	962	837
Control Delay (s)	7.0	6.8	7.8
Approach Delay (s)	7.0	6.8	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay		7.5	
Level of Service		A	
Intersection Capacity Utilization		25.4%	ICU Level of Service A
Analysis Period (min)		15	

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	48	778	103	57	310	133	133	99	80	302	135	53
Future Volume (vph)	48	778	103	57	310	133	133	99	80	302	135	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			2%			0%			1%	
Total Lost time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.93		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1744	3487	1530	1554	4516		1719	1637		1694	3189	
Flt Permitted	0.46	1.00	1.00	0.25	1.00		0.62	1.00		0.31	1.00	
Satd. Flow (perm)	836	3487	1530	402	4516		1128	1637		554	3189	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	810	112	62	337	145	145	108	87	328	147	58
RTOR Reduction (vph)	0	0	62	0	42	0	0	21	0	0	28	0
Lane Group Flow (vph)	52	810	50	62	440	0	145	174	0	328	177	0
Confl. Peds. (#/hr)				4								
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	3%	3%	5%	15%	7%	10%	5%	9%	6%	6%	9%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	74.2	67.6	67.6	75.6	68.3		35.5	21.2		55.1	34.3	
Effective Green, g (s)	74.2	67.6	67.6	75.6	68.3		35.5	21.2		55.1	34.3	
Actuated g/C Ratio	0.49	0.45	0.45	0.50	0.46		0.24	0.14		0.37	0.23	
Clearance Time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Vehicle Extension (s)	3.0	8.0	8.0	3.0	8.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	453	1571	689	258	2056		323	231		411	729	
v/s Ratio Prot	0.01	c0.23		c0.01	0.10		0.04	0.11		c0.15	0.06	
v/s Ratio Perm	0.05		0.03	0.11			0.06			c0.15		
v/c Ratio	0.11	0.52	0.07	0.24	0.21		0.45	0.75		0.80	0.24	
Uniform Delay, d1	19.8	29.5	23.4	20.7	24.6		47.7	61.9		38.2	47.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.2	0.2	0.5	0.2		1.0	12.9		10.3	0.2	
Delay (s)	19.9	30.7	23.6	21.2	24.9		48.7	74.7		48.5	47.4	
Level of Service	B	C	C	C	C		D	E		D	D	
Approach Delay (s)		29.3			24.5			63.6			48.1	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	64	87	216	30	48	261
Future Volume (Veh/h)	64	87	216	30	48	261
Sign Control	Stop		Free			Free
Grade	5%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.95
Hourly flow rate (vph)	70	95	235	33	52	275
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						601
pX, platoon unblocked						
vC, conflicting volume	630	252			268	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	630	252			268	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	84	88			96	
cM capacity (veh/h)	426	772			1235	

Direction, Lane #	NW 1	NE 1	SW 1	SW 2
Volume Total	165	268	52	275
Volume Left	70	0	52	0
Volume Right	95	33	0	0
cSH	1004	1700	1235	1700
Volume to Capacity	0.16	0.16	0.04	0.16
Queue Length 95th (ft)	15	0	3	0
Control Delay (s)	12.3	0.0	8.0	0.0
Lane LOS	B		A	
Approach Delay (s)	12.3	0.0	1.3	
Approach LOS	B			

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	76	378	197	174	182	103
Future Volume (vph)	76	378	197	174	182	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	12	12
Grade (%)	0%			1%	-2%	
Total Lost time (s)	5.5	4.0	6.5	5.5	6.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1473	1694	1800	1642	1510
Flt Permitted	1.00	1.00	0.70	1.00	0.95	1.00
Satd. Flow (perm)	1801	1473	1254	1800	1642	1510
Peak-hour factor, PHF	0.92	0.94	0.93	0.92	0.92	0.89
Adj. Flow (vph)	83	402	212	189	198	116
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	83	402	212	189	198	116
Heavy Vehicles (%)	2%	6%	6%	5%	11%	8%
Turn Type	NA	Free	pm+pt	NA	Prot	Free
Protected Phases	1		2	6	4	
Permitted Phases		Free	6			Free
Actuated Green, G (s)	26.5	120.0	54.5	54.5	54.0	120.0
Effective Green, g (s)	26.5	120.0	54.5	54.5	54.0	120.0
Actuated g/C Ratio	0.22	1.00	0.45	0.45	0.45	1.00
Clearance Time (s)	5.5		6.5	5.5	6.0	
Lane Grp Cap (vph)	397	1473	648	817	738	1510
v/s Ratio Prot	0.05		c0.06	0.10	0.12	
v/s Ratio Perm		c0.27	c0.09			0.08
v/c Ratio	0.21	0.27	0.33	0.23	0.27	0.08
Uniform Delay, d1	38.2	0.0	21.5	20.0	20.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.5	1.3	0.7	0.9	0.1
Delay (s)	39.4	0.5	22.9	20.6	21.5	0.1
Level of Service	D	A	C	C	C	A
Approach Delay (s)	7.1			21.8	13.6	
Approach LOS	A			C	B	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	247	1006	327	983	1900
v/c Ratio	0.25	0.86	1.14	0.33	0.81
Control Delay	40.5	47.5	152.9	13.9	35.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	47.5	152.9	13.9	35.2
Queue Length 50th (ft)	94	496	~192	160	561
Queue Length 95th (ft)	132	606	#296	187	627
Internal Link Dist (ft)	1412			518	770
Turn Bay Length (ft)	230		460		
Base Capacity (vph)	1010	1151	288	2967	2337
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.87	1.14	0.33	0.81

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	35	153	39	51	1216	4	2752
v/c Ratio	0.23	0.84	0.23	0.44	0.33	0.06	0.80
Control Delay	61.5	98.3	47.6	78.9	6.0	70.5	19.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	98.3	47.6	78.9	6.0	70.5	19.3
Queue Length 50th (ft)	32	149	25	49	102	4	648
Queue Length 95th (ft)	66	220	60	94	211	17	906
Internal Link Dist (ft)	175		190		251		385
Turn Bay Length (ft)				220		200	
Base Capacity (vph)	319	382	344	185	3682	187	3424
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.40	0.11	0.28	0.33	0.02	0.80

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	101	657	405	1501	117	120	147	112	82	174
v/c Ratio	0.50	0.43	0.71	0.60	0.63	0.60	0.31	0.62	0.38	0.62
Control Delay	38.5	29.3	23.3	29.0	76.1	73.9	19.5	76.0	64.3	59.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	29.3	23.3	29.0	76.1	73.9	19.5	76.0	64.3	59.1
Queue Length 50th (ft)	39	128	187	364	115	118	67	106	75	151
Queue Length 95th (ft)	108	160	330	539	182	183	66	166	126	205
Internal Link Dist (ft)		1185		1058		325			341	
Turn Bay Length (ft)	330		300		270			185		
Base Capacity (vph)	292	1527	592	2486	299	319	494	306	361	362
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.43	0.68	0.60	0.39	0.38	0.30	0.37	0.23	0.48

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	186	537	36	29	1505	46	23	162	495
v/c Ratio	0.73	0.22	0.04	0.07	0.75	0.37	0.16	0.42	0.73
Control Delay	50.7	20.2	0.3	10.1	26.2	72.9	26.6	54.8	34.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	20.2	0.3	10.1	26.2	72.9	26.6	54.8	34.5
Queue Length 50th (ft)	118	108	0	8	197	44	2	139	300
Queue Length 95th (ft)	#223	137	2	m13	183	86	32	225	479
Internal Link Dist (ft)		591			224		51	121	
Turn Bay Length (ft)	500		75	225					
Base Capacity (vph)	254	2454	1051	466	2016	182	198	390	681
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.22	0.03	0.06	0.75	0.25	0.12	0.42	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	28	4	25	94	4
Future Vol, veh/h	8	28	4	25	94	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	4	33	0	1	33
Mvmt Flow	9	30	4	27	102	4
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	6.9	7.3	7.8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	22%	96%
Vol Thru, %	14%	0%	4%
Vol Right, %	86%	78%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	29	36	98
LT Vol	0	8	94
Through Vol	4	0	4
RT Vol	25	28	0
Lane Flow Rate	32	39	107
Geometry Grp	1	1	1
Degree of Util (X)	0.036	0.04	0.124
Departure Headway (Hd)	4.093	3.715	4.202
Convergence, Y/N	Yes	Yes	Yes
Cap	873	952	855
Service Time	2.128	1.786	2.219
HCM Lane V/C Ratio	0.037	0.041	0.125
HCM Control Delay	7.3	6.9	7.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.1	0.4

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	52	810	112	62	482	145	195	328	205
v/c Ratio	0.11	0.51	0.15	0.23	0.23	0.44	0.78	0.79	0.27
Control Delay	19.1	32.4	4.2	20.6	22.2	36.0	73.7	49.2	39.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	32.4	4.2	20.6	22.2	36.0	73.7	49.2	39.0
Queue Length 50th (ft)	24	302	0	29	87	95	164	244	71
Queue Length 95th (ft)	52	418	34	61	131	136	241	311	104
Internal Link Dist (ft)		667			846		233		376
Turn Bay Length (ft)	200		200	245		300		180	
Base Capacity (vph)	499	1597	768	294	2133	496	390	425	792
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.51	0.15	0.21	0.23	0.29	0.50	0.77	0.26

Intersection Summary

Intersection	
Int Delay, s/veh	3.5

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	64	87	216	30	48	261
Future Vol, veh/h	64	87	216	30	48	261
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	55	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	95
Heavy Vehicles, %	2	8	6	0	13	8
Mvmt Flow	70	95	235	33	52	275

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	631	252	0	0	268	0
Stage 1	252	-	-	-	-	-
Stage 2	379	-	-	-	-	-
Critical Hdwy	7.42	6.78	-	-	4.23	-
Critical Hdwy Stg 1	6.42	-	-	-	-	-
Critical Hdwy Stg 2	6.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.372	-	-	2.317	-
Pot Cap-1 Maneuver	373	746	-	-	1235	-
Stage 1	737	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	357	746	-	-	1235	-
Mov Cap-2 Maneuver	357	-	-	-	-	-
Stage 1	737	-	-	-	-	-
Stage 2	597	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	13.5	0	1.3
HCM LOS	B		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	357	746	1235	-
HCM Lane V/C Ratio	-	-	0.195	0.127	0.042	-
HCM Control Delay (s)	-	-	17.5	10.5	8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.4	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	83	402	212	189	198	116
v/c Ratio	0.21	0.27	0.33	0.23	0.27	0.08
Control Delay	39.9	0.5	24.2	20.9	21.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	0.5	24.2	20.9	21.9	0.1
Queue Length 50th (ft)	53	0	102	87	94	0
Queue Length 95th (ft)	99	0	159	138	149	0
Internal Link Dist (ft)	299			336	373	
Turn Bay Length (ft)			150			260
Base Capacity (vph)	397	1473	637	817	738	1510
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.27	0.33	0.23	0.27	0.08

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	247	553	959	1851	964	288
Future Volume (vph)	247	553	959	1851	964	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-2%			1%	-1%	
Total Lost time (s)	6.0	6.0	4.5	6.0	6.0	
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3502	2787	3450	4963	4872	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3502	2787	3450	4963	4872	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.92	0.92
Adj. Flow (vph)	268	601	1042	1948	1048	313
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	268	599	1042	1948	1361	0
Heavy Vehicles (%)	1%	3%	1%	4%	4%	1%
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	4	4 1	1	6	2	
Permitted Phases						
Actuated Green, G (s)	28.9	89.8	54.9	109.1	49.7	
Effective Green, g (s)	28.9	89.8	54.9	109.1	49.7	
Actuated g/C Ratio	0.19	0.60	0.37	0.73	0.33	
Clearance Time (s)	6.0		4.5	6.0	6.0	
Vehicle Extension (s)	4.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	674	1668	1262	3609	1614	
v/s Ratio Prot	0.08	c0.22	c0.30	0.39	c0.28	
v/s Ratio Perm						
v/c Ratio	0.40	0.36	0.83	0.54	0.84	
Uniform Delay, d1	52.9	15.4	43.2	9.2	46.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.2	4.5	0.6	5.6	
Delay (s)	53.5	15.6	47.7	9.8	52.1	
Level of Service	D	B	D	A	D	
Approach Delay (s)	27.3			23.0	52.1	
Approach LOS	C			C	D	

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	5	107	18	6	17	197	2726	29	12	1463	39
Future Volume (vph)	34	5	107	18	6	17	197	2726	29	12	1463	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			-1%			1%			-1%	
Total Lost time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.95		1.00	1.00		1.00	1.00	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1838	1615		1700		1796	5004		1814	4995	
Flt Permitted		0.78	1.00		0.85		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1491	1615		1472		1796	5004		1814	4995	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	5	116	20	7	18	214	2869	32	13	1590	42
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	42	116	0	29	0	214	2901	0	13	1630	0
Confl. Peds. (#/hr)				2		2				1		1
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	1%	7%	0%	0%	0%	3%	0%	0%	4%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8								
Actuated Green, G (s)		16.1	16.1		16.1		23.0	111.8		3.1	91.9	
Effective Green, g (s)		16.1	16.1		16.1		23.0	111.8		3.1	91.9	
Actuated g/C Ratio		0.11	0.11		0.11		0.15	0.75		0.02	0.61	
Clearance Time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)		160	173		157		275	3729		37	3060	
v/s Ratio Prot							c0.12	c0.58		0.01	0.33	
v/s Ratio Perm		0.03	c0.07		0.02							
v/c Ratio		0.26	0.67		0.18		0.78	0.78		0.35	0.53	
Uniform Delay, d1		61.5	64.4		61.0		61.0	11.6		72.5	16.7	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.9	9.8		0.6		13.0	1.7		5.7	0.7	
Delay (s)		62.4	74.2		61.5		74.0	13.2		78.1	17.4	
Level of Service		E	E		E		E	B		E	B	
Approach Delay (s)		71.0			61.5			17.4			17.9	
Approach LOS		E			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

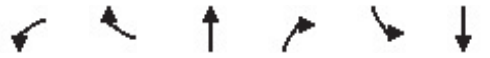
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	1002	167	303	595	178	291	101	421	199	85	174
Future Volume (vph)	155	1002	167	303	595	178	291	101	421	199	85	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-2%			4%			1%	
Total Lost time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Lane Util. Factor	1.00	0.91		1.00	0.91		0.95	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1618	4661		1381	4703		1648	1668	1567	1663	1719	1516
Flt Permitted	0.32	1.00		0.22	1.00		0.95	0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	551	4661		314	4703		1648	1668	1567	1663	1719	1516
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	1089	182	329	647	193	316	110	458	216	92	189
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	168	1271	0	329	840	0	212	214	458	216	92	189
Confl. Peds. (#/hr)	1		1	6		6						
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	11%	6%	20%	32%	5%	12%	2%	5%	1%	8%	10%	6%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6					3			4
Actuated Green, G (s)	42.5	41.0		51.2	51.2		25.6	25.6	58.3	25.7	25.7	48.2
Effective Green, g (s)	42.5	41.0		51.2	51.2		25.6	25.6	58.3	25.7	25.7	48.2
Actuated g/C Ratio	0.28	0.27		0.34	0.34		0.17	0.17	0.39	0.17	0.17	0.32
Clearance Time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2		5.0	5.0	3.0	5.0	5.0	3.0
Lane Grp Cap (vph)	316	1274		339	1605		281	284	609	284	294	487
v/s Ratio Prot	0.08	c0.27		c0.21	0.18		c0.13	0.13	0.16	c0.13	0.05	0.06
v/s Ratio Perm	0.07			0.12					0.13			0.07
v/c Ratio	0.53	1.00		0.97	0.52		0.75	0.75	0.75	0.76	0.31	0.39
Uniform Delay, d1	47.2	54.5		44.3	39.6		59.2	59.2	39.6	59.2	54.4	39.5
Progression Factor	0.67	0.67		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	23.1		40.8	1.2		12.9	12.7	5.2	13.3	1.3	0.5
Delay (s)	32.9	59.8		85.2	40.8		72.1	71.9	44.8	72.5	55.7	40.0
Level of Service	C	E		F	D		E	E	D	E	E	D
Approach Delay (s)		56.7			53.3			57.9			57.0	
Approach LOS		E			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	56.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	348	1139	109	52	674	236	84	13	55	191	5	344
Future Volume (vph)	348	1139	109	52	674	236	84	13	55	191	5	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			2%	
Total Lost time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.88			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1752	4940	1583	1778	4806		1686	1599			1742	1567
Flt Permitted	0.16	1.00	1.00	0.22	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	302	4940	1583	406	4806		1686	1599			1742	1567
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	378	1225	118	57	733	257	91	14	60	208	5	374
RTOR Reduction (vph)	0	0	27	0	42	0	0	54	0	0	0	95
Lane Group Flow (vph)	378	1225	91	57	948	0	91	20	0	0	213	279
Confl. Peds. (#/hr)				2		2						
Heavy Vehicles (%)	3%	5%	2%	2%	3%	5%	6%	9%	2%	3%	0%	2%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	pm+ov
Protected Phases	1	6	3	5	2		3	3		4	4	1
Permitted Phases	6		6	2								4
Actuated Green, G (s)	90.0	77.2	92.3	60.3	54.0		15.1	15.1			26.4	55.9
Effective Green, g (s)	90.0	77.2	92.3	60.3	54.0		15.1	15.1			26.4	55.9
Actuated g/C Ratio	0.60	0.51	0.62	0.40	0.36		0.10	0.10			0.18	0.37
Clearance Time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Vehicle Extension (s)	3.0	3.0	5.0	3.0	3.0		5.0	5.0			3.0	3.0
Lane Grp Cap (vph)	466	2542	974	220	1730		169	160			306	583
v/s Ratio Prot	c0.16	0.25	0.01	0.01	0.20		c0.05	0.01			c0.12	0.09
v/s Ratio Perm	c0.33		0.05	0.09								0.08
v/c Ratio	0.81	0.48	0.09	0.26	0.55		0.54	0.13			0.70	0.48
Uniform Delay, d1	28.0	23.5	11.8	27.7	38.3		64.1	61.4			58.0	35.9
Progression Factor	1.00	1.00	1.00	0.74	0.85		1.00	1.00			1.00	1.00
Incremental Delay, d2	14.2	0.7	0.1	0.5	1.1		5.9	0.7			12.4	2.8
Delay (s)	42.2	24.1	11.9	21.1	33.5		70.1	62.2			70.4	38.7
Level of Service	D	C	B	C	C		E	E			E	D
Approach Delay (s)		27.3			32.9			66.5			50.2	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	25	133	4	16	70	7
Future Volume (vph)	25	133	4	16	70	7
Peak Hour Factor	0.92	0.95	0.92	0.92	0.92	0.38
Hourly flow rate (vph)	27	140	4	17	76	18

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	167	21	94
Volume Left (vph)	27	0	76
Volume Right (vph)	140	17	0
Hadj (s)	-0.47	-0.49	0.19
Departure Headway (s)	3.7	3.8	4.4
Degree Utilization, x	0.17	0.02	0.12
Capacity (veh/h)	946	881	780
Control Delay (s)	7.5	6.9	8.0
Approach Delay (s)	7.5	6.9	8.0
Approach LOS	A	A	A

Intersection Summary			
Delay	7.6		
Level of Service	A		
Intersection Capacity Utilization	29.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	85	554	166	87	755	371	189	208	66	184	171	85
Future Volume (vph)	85	554	166	87	755	371	189	208	66	184	171	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			2%			0%			1%	
Total Lost time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3522	1570	1786	4810		1805	1809		1744	3332	
Flt Permitted	0.15	1.00	1.00	0.35	1.00		0.57	1.00		0.24	1.00	
Satd. Flow (perm)	276	3522	1570	665	4810		1079	1809		443	3332	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	596	180	95	821	403	205	226	72	200	186	92
RTOR Reduction (vph)	0	0	101	0	50	0	0	8	0	0	42	0
Lane Group Flow (vph)	92	596	79	95	1174	0	205	290	0	200	236	0
Confl. Peds. (#/hr)				3		3						
Confl. Bikes (#/hr)			2			2						1
Heavy Vehicles (%)	1%	2%	1%	0%	0%	1%	0%	1%	2%	3%	3%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	74.9	66.0	66.0	75.1	66.1		46.6	28.9		50.4	30.8	
Effective Green, g (s)	74.9	66.0	66.0	75.1	66.1		46.6	28.9		50.4	30.8	
Actuated g/C Ratio	0.50	0.44	0.44	0.50	0.44		0.31	0.19		0.34	0.21	
Clearance Time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Vehicle Extension (s)	3.0	8.0	8.0	3.0	8.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	226	1549	690	400	2119		420	348		318	684	
v/s Ratio Prot	c0.02	0.17		0.01	c0.24		0.06	c0.16		c0.08	0.07	
v/s Ratio Perm	0.18		0.05	0.10			0.09			0.13		
v/c Ratio	0.41	0.38	0.11	0.24	0.55		0.49	0.83		0.63	0.34	
Uniform Delay, d1	21.8	28.3	24.8	20.2	31.0		40.2	58.2		38.7	51.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.7	0.3	0.3	1.1		0.9	15.6		3.9	0.3	
Delay (s)	23.0	29.0	25.1	20.5	32.1		41.1	73.8		42.5	51.3	
Level of Service	C	C	C	C	C		D	E		D	D	
Approach Delay (s)		27.6			31.3			60.5			47.6	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	65	111	337	74	133	284
Future Volume (Veh/h)	65	111	337	74	133	284
Sign Control	Stop		Free			Free
Grade	5%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	121	366	80	145	309
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						601
pX, platoon unblocked						
vC, conflicting volume	1005	406			446	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1005	406			446	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	70	81			87	
cM capacity (veh/h)	234	649			1120	

Direction, Lane #	NW 1	NE 1	SW 1	SW 2
Volume Total	192	446	145	309
Volume Left	71	0	145	0
Volume Right	121	80	0	0
cSH	634	1700	1120	1700
Volume to Capacity	0.30	0.26	0.13	0.18
Queue Length 95th (ft)	32	0	11	0
Control Delay (s)	17.4	0.0	8.7	0.0
Lane LOS	C		A	
Approach Delay (s)	17.4	0.0	2.8	
Approach LOS	C			

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	189	284	111	185	453	279
Future Volume (vph)	189	284	111	185	453	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	12	12
Grade (%)	0%			1%	-2%	
Total Lost time (s)	5.5	4.0	6.5	5.5	6.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1818	1516	1796	1872	1642	1510
Flt Permitted	1.00	1.00	0.55	1.00	0.95	1.00
Satd. Flow (perm)	1818	1516	1038	1872	1642	1510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	309	121	201	492	303
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	205	309	121	201	492	303
Heavy Vehicles (%)	1%	3%	0%	1%	11%	8%
Turn Type	NA	Free	pm+pt	NA	Prot	Free
Protected Phases	1		2	6	4	
Permitted Phases		Free	6			Free
Actuated Green, G (s)	35.5	120.0	52.5	52.5	56.0	120.0
Effective Green, g (s)	35.5	120.0	52.5	52.5	56.0	120.0
Actuated g/C Ratio	0.30	1.00	0.44	0.44	0.47	1.00
Clearance Time (s)	5.5		6.5	5.5	6.0	
Lane Grp Cap (vph)	537	1516	520	819	766	1510
v/s Ratio Prot	c0.11		0.02	0.11	c0.30	
v/s Ratio Perm		c0.20	0.08			0.20
v/c Ratio	0.38	0.20	0.23	0.25	0.64	0.20
Uniform Delay, d1	33.5	0.0	24.6	21.3	24.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.3	1.0	0.7	4.1	0.3
Delay (s)	35.6	0.3	25.7	22.0	28.5	0.3
Level of Service	D	A	C	C	C	A
Approach Delay (s)	14.4			23.4	17.7	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	268	601	1042	1948	1361
v/c Ratio	0.40	0.37	0.83	0.54	0.84
Control Delay	54.5	16.2	48.9	10.0	52.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	16.2	48.9	10.0	52.7
Queue Length 50th (ft)	119	164	474	290	457
Queue Length 95th (ft)	162	168	507	335	#645
Internal Link Dist (ft)	1412			518	770
Turn Bay Length (ft)	230		460		
Base Capacity (vph)	723	1807	1529	3611	1615
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.33	0.68	0.54	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	42	116	45	214	2901	13	1632
v/c Ratio	0.26	0.67	0.26	0.78	0.76	0.16	0.53
Control Delay	63.7	82.4	42.8	79.6	13.3	72.8	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.7	82.4	42.8	79.6	13.3	72.8	18.7
Queue Length 50th (ft)	38	111	24	204	415	13	320
Queue Length 95th (ft)	76	174	63	283	834	37	454
Internal Link Dist (ft)	175		190		251		385
Turn Bay Length (ft)				220		200	
Base Capacity (vph)	303	328	313	336	3838	332	3061
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.35	0.14	0.64	0.76	0.04	0.53

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	168	1271	329	840	212	214	458	216	92	189
v/c Ratio	0.53	1.00	0.96	0.52	0.75	0.75	0.74	0.76	0.31	0.38
Control Delay	40.2	60.4	84.0	42.7	75.8	75.4	29.3	75.9	56.0	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.2	60.4	84.0	42.7	75.8	75.4	29.3	75.9	56.0	22.7
Queue Length 50th (ft)	76	215	281	244	209	211	214	203	79	85
Queue Length 95th (ft)	m127	#544	#577	319	298	302	#313	288	131	108
Internal Link Dist (ft)		1185		1058		325			341	
Turn Bay Length (ft)	330		300		270			185		
Base Capacity (vph)	316	1274	342	1605	335	338	619	343	355	492
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	1.00	0.96	0.52	0.63	0.63	0.74	0.63	0.26	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	378	1225	118	57	990	91	74	213	374
v/c Ratio	0.81	0.47	0.11	0.24	0.56	0.54	0.35	0.70	0.51
Control Delay	40.1	24.1	4.4	14.0	31.5	75.5	23.7	71.6	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	24.1	4.4	14.0	31.5	75.5	23.7	71.6	21.9
Queue Length 50th (ft)	223	282	16	19	132	85	12	202	163
Queue Length 95th (ft)	#380	331	40	m35	184	146	63	#322	266
Internal Link Dist (ft)		591			224		51	121	
Turn Bay Length (ft)	500		75	225					
Base Capacity (vph)	465	2583	1098	423	1772	196	239	306	735
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.47	0.11	0.13	0.56	0.46	0.31	0.70	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	133	4	16	70	7
Future Vol, veh/h	25	133	4	16	70	7
Peak Hour Factor	0.92	0.95	0.92	0.92	0.92	0.38
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	27	140	4	17	76	18
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.4	6.9	8.1
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	16%	91%
Vol Thru, %	20%	0%	9%
Vol Right, %	80%	84%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	20	158	77
LT Vol	0	25	70
Through Vol	4	0	7
RT Vol	16	133	0
Lane Flow Rate	22	167	95
Geometry Grp	1	1	1
Degree of Util (X)	0.023	0.168	0.116
Departure Headway (Hd)	3.787	3.626	4.427
Convergence, Y/N	Yes	Yes	Yes
Cap	934	976	807
Service Time	1.854	1.695	2.469
HCM Lane V/C Ratio	0.024	0.171	0.118
HCM Control Delay	6.9	7.4	8.1
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.6	0.4

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	92	596	180	95	1224	205	298	200	278
v/c Ratio	0.40	0.39	0.23	0.24	0.56	0.48	0.84	0.62	0.38
Control Delay	24.7	31.4	5.1	20.7	31.9	35.3	75.8	40.0	41.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.7	31.4	5.1	20.7	31.9	35.3	75.8	40.0	41.5
Queue Length 50th (ft)	42	206	0	44	302	140	274	137	100
Queue Length 95th (ft)	88	306	54	91	417	175	364	172	133
Internal Link Dist (ft)		667			846		233		376
Turn Bay Length (ft)	200		200	245		300		180	
Base Capacity (vph)	247	1548	790	422	2167	538	424	414	831
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.39	0.23	0.23	0.56	0.38	0.70	0.48	0.33

Intersection Summary

Intersection	
Int Delay, s/veh	5

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	65	111	337	74	133	284
Future Vol, veh/h	65	111	337	74	133	284
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	55	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	0	1	2
Mvmt Flow	71	121	366	80	145	309

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1005	406	0	0	446	0
Stage 1	406	-	-	-	-	-
Stage 2	599	-	-	-	-	-
Critical Hdwy	7.4	6.7	-	-	4.11	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	204	614	-	-	1120	-
Stage 1	605	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	178	614	-	-	1120	-
Mov Cap-2 Maneuver	178	-	-	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	408	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	21.8	0	2.8
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	178	614	1120	-
HCM Lane V/C Ratio	-	-	0.397	0.197	0.129	-
HCM Control Delay (s)	-	-	37.9	12.3	8.7	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	1.7	0.7	0.4	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	205	309	121	201	492	303
v/c Ratio	0.38	0.20	0.24	0.25	0.64	0.20
Control Delay	36.1	0.3	23.8	22.3	29.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	0.3	23.8	22.3	29.2	0.3
Queue Length 50th (ft)	126	0	56	96	283	0
Queue Length 95th (ft)	197	0	97	150	404	0
Internal Link Dist (ft)	299			336	373	
Turn Bay Length (ft)			150			260
Base Capacity (vph)	537	1516	511	819	766	1510
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.20	0.24	0.25	0.64	0.20

Intersection Summary

Appendix 15.23

APPENDIX E: 2040 BUILD CONDITIONS - CRABBS BRANCH WAY EXTENSION (SYNCHRO OUTPUT SHEETS)

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	224	915	288	927	1573	209
Future Volume (vph)	224	915	288	927	1573	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-2%			1%	-1%	
Total Lost time (s)	6.0	6.0	4.5	6.0	6.0	
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3368	2760	3167	4779	4674	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3368	2760	3167	4779	4674	
Peak-hour factor, PHF	0.92	0.95	0.92	0.94	0.94	0.92
Adj. Flow (vph)	243	963	313	986	1673	227
RTOR Reduction (vph)	0	11	0	0	0	0
Lane Group Flow (vph)	243	952	313	986	1900	0
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	5%	4%	10%	8%	10%	6%
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	4	4 1	1	6	2	
Permitted Phases						
Actuated Green, G (s)	44.2	64.5	14.3	93.8	75.0	
Effective Green, g (s)	44.2	64.5	14.3	93.8	75.0	
Actuated g/C Ratio	0.29	0.43	0.10	0.63	0.50	
Clearance Time (s)	6.0		4.5	6.0	6.0	
Vehicle Extension (s)	4.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	992	1186	301	2988	2337	
v/s Ratio Prot	0.07	c0.34	c0.10	0.21	c0.41	
v/s Ratio Perm						
v/c Ratio	0.24	0.80	1.04	0.33	0.81	
Uniform Delay, d1	40.2	37.2	67.8	13.3	31.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	4.2	62.6	0.3	3.2	
Delay (s)	40.4	41.5	130.5	13.6	34.8	
Level of Service	D	D	F	B	C	
Approach Delay (s)	41.2			41.7	34.8	
Approach LOS	D			D	C	

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	5	32	22	4	10	11	1174	7	4	2469	22
Future Volume (vph)	28	5	32	22	4	10	11	1174	7	4	2469	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			-1%			1%			-1%	
Total Lost time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.96		1.00	1.00		1.00	1.00	
Flt Protected		0.96	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1777	1615		1719		1796	4722		1814	4817	
Flt Permitted		0.82	1.00		0.79		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1521	1615		1403		1796	4722		1814	4817	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	5	35	24	4	11	12	1198	8	4	2684	24
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	35	35	0	29	0	12	1206	0	4	2708	0
Confl. Peds. (#/hr)									3			
Heavy Vehicles (%)	0%	25%	1%	0%	0%	13%	0%	9%	33%	0%	8%	17%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8								
Actuated Green, G (s)		7.4	7.4		7.4		3.1	122.2		1.4	120.5	
Effective Green, g (s)		7.4	7.4		7.4		3.1	122.2		1.4	120.5	
Actuated g/C Ratio		0.05	0.05		0.05		0.02	0.81		0.01	0.80	
Clearance Time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Vehicle Extension (s)		0.2	0.2		3.0		3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)		75	79		69		37	3846		16	3869	
v/s Ratio Prot							c0.01	0.26		0.00	c0.56	
v/s Ratio Perm		c0.02	0.02		0.02							
v/c Ratio		0.47	0.44		0.41		0.32	0.31		0.25	0.70	
Uniform Delay, d1		69.4	69.3		69.2		72.4	3.5		73.8	6.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.7	1.4		4.0		5.1	0.2		8.1	1.1	
Delay (s)		71.0	70.7		73.2		77.5	3.7		81.8	7.7	
Level of Service		E	E		E		E	A		F	A	
Approach Delay (s)		70.9			73.2			4.4			7.8	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	417	178	380	1072	239	161	66	135	162	92	297
Future Volume (vph)	120	417	178	380	1072	239	161	66	135	162	92	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-2%			4%			1%	
Total Lost time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Lane Util. Factor	1.00	0.91		1.00	0.91		0.95	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1589	4383		1597	4797		1474	1583	1280	1484	1750	1448
Flt Permitted	0.15	1.00		0.30	1.00		0.95	0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	250	4383		507	4797		1474	1583	1280	1484	1750	1448
Peak-hour factor, PHF	0.92	0.94	0.92	0.98	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93
Adj. Flow (vph)	130	444	193	388	1165	260	175	72	147	176	100	319
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	130	637	0	388	1425	0	122	125	147	176	100	319
Confl. Peds. (#/hr)	1		1	5		5	1		1	1		1
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	13%	8%	20%	14%	5%	8%	14%	6%	23%	21%	8%	10%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6					3			4
Actuated Green, G (s)	61.8	49.5		86.3	68.5		19.5	19.5	50.8	24.7	24.7	37.0
Effective Green, g (s)	61.8	49.5		86.3	68.5		19.5	19.5	50.8	24.7	24.7	37.0
Actuated g/C Ratio	0.41	0.33		0.58	0.46		0.13	0.13	0.34	0.16	0.16	0.25
Clearance Time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2		5.0	5.0	3.0	5.0	5.0	3.0
Lane Grp Cap (vph)	212	1446		519	2190		191	205	433	244	288	357
v/s Ratio Prot	0.05	0.15		c0.16	0.30		c0.08	0.08	0.07	0.12	0.06	c0.07
v/s Ratio Perm	0.20			c0.27					0.04			0.15
v/c Ratio	0.61	0.44		0.75	0.65		0.64	0.61	0.34	0.72	0.35	0.89
Uniform Delay, d1	28.6	39.4		19.3	31.5		61.9	61.7	37.1	59.4	55.5	54.6
Progression Factor	1.37	0.69		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	1.0		5.8	1.5		9.4	7.4	0.5	12.2	1.5	23.4
Delay (s)	44.3	28.1		25.1	33.0		71.3	69.0	37.5	71.6	57.0	78.0
Level of Service	D	C		C	C		E	E	D	E	E	E
Approach Delay (s)		30.9			31.3			58.0			72.6	
Approach LOS		C			C			E			E	

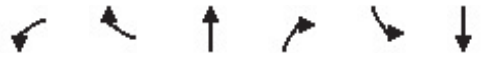
Intersection Summary			
HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	163	502	33	27	1267	174	42	2	19	145	4	417
Future Volume (vph)	163	502	33	27	1267	174	42	2	19	145	4	417
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			2%	
Total Lost time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.86			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1703	4673	1509	1726	4775		1567	1539			1649	1494
Flt Permitted	0.06	1.00	1.00	0.44	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	105	4673	1509	796	4775		1567	1539			1649	1494
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	177	546	36	29	1377	189	46	2	21	158	4	453
RTOR Reduction (vph)	0	0	16	0	12	0	0	20	0	0	0	98
Lane Group Flow (vph)	177	546	20	29	1554	0	46	3	0	0	162	355
Confl. Peds. (#/hr)				1		1						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	6%	11%	7%	5%	7%	6%	14%	0%	6%	9%	0%	7%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	pm+ov
Protected Phases	1	6	3	5	2		3	3		4	4	1
Permitted Phases	6		6	2								4
Actuated Green, G (s)	85.7	74.9	85.2	66.0	61.7		10.3	10.3			35.5	53.0
Effective Green, g (s)	85.7	74.9	85.2	66.0	61.7		10.3	10.3			35.5	53.0
Actuated g/C Ratio	0.57	0.50	0.57	0.44	0.41		0.07	0.07			0.24	0.35
Clearance Time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Vehicle Extension (s)	3.0	3.0	5.0	3.0	3.0		5.0	5.0			3.0	3.0
Lane Grp Cap (vph)	246	2333	857	376	1964		107	105			390	527
v/s Ratio Prot	c0.08	0.12	0.00	0.00	c0.33		c0.03	0.00			0.10	c0.08
v/s Ratio Perm	0.33		0.01	0.03								0.16
v/c Ratio	0.72	0.23	0.02	0.08	0.79		0.43	0.03			0.42	0.67
Uniform Delay, d1	40.9	21.3	14.2	23.9	38.5		67.0	65.2			48.5	41.1
Progression Factor	1.00	1.00	1.00	0.76	0.68		1.00	1.00			1.00	1.00
Incremental Delay, d2	16.6	0.2	0.0	0.1	2.6		5.7	0.3			3.2	6.7
Delay (s)	57.5	21.5	14.2	18.2	28.8		72.7	65.5			51.7	47.9
Level of Service	E	C	B	B	C		E	E			D	D
Approach Delay (s)		29.6			28.6			70.3			48.9	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	41	9	39	18	37	133
Future Volume (vph)	41	9	39	18	37	133
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.38
Hourly flow rate (vph)	45	10	42	20	40	350

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	55	62	390
Volume Left (vph)	45	0	40
Volume Right (vph)	10	20	0
Hadj (s)	0.07	0.19	0.53
Departure Headway (s)	5.1	4.7	4.6
Degree Utilization, x	0.08	0.08	0.50
Capacity (veh/h)	650	741	759
Control Delay (s)	8.5	8.1	12.3
Approach Delay (s)	8.5	8.1	12.3
Approach LOS	A	A	B

Intersection Summary			
Delay		11.3	
Level of Service		B	
Intersection Capacity Utilization		29.0%	ICU Level of Service A
Analysis Period (min)		15	

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	48	764	117	51	306	129	137	103	62	289	148	53
Future Volume (vph)	48	764	117	51	306	129	137	103	62	289	148	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			2%			0%			1%	
Total Lost time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1744	3487	1530	1554	4520		1719	1654		1694	3196	
Flt Permitted	0.46	1.00	1.00	0.26	1.00		0.61	1.00		0.33	1.00	
Satd. Flow (perm)	846	3487	1530	423	4520		1113	1654		592	3196	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	796	127	55	333	140	149	112	67	314	161	58
RTOR Reduction (vph)	0	0	67	0	41	0	0	16	0	0	25	0
Lane Group Flow (vph)	52	796	60	55	432	0	149	163	0	314	194	0
Confl. Peds. (#/hr)				4								
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	3%	3%	5%	15%	7%	10%	5%	9%	6%	6%	9%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	76.0	69.5	69.5	77.0	70.0		34.8	20.0		53.5	32.2	
Effective Green, g (s)	76.0	69.5	69.5	77.0	70.0		34.8	20.0		53.5	32.2	
Actuated g/C Ratio	0.51	0.46	0.46	0.51	0.47		0.23	0.13		0.36	0.21	
Clearance Time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Vehicle Extension (s)	3.0	8.0	8.0	3.0	8.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	467	1615	708	269	2109		318	220		409	686	
v/s Ratio Prot	0.00	c0.23		c0.01	0.10		0.05	0.10		c0.14	0.06	
v/s Ratio Perm	0.05		0.04	0.10			0.06			c0.14		
v/c Ratio	0.11	0.49	0.09	0.20	0.20		0.47	0.74		0.77	0.28	
Uniform Delay, d1	18.8	28.0	22.5	19.7	23.6		48.4	62.5		38.9	49.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.1	0.2	0.4	0.2		1.1	12.2		8.4	0.2	
Delay (s)	18.9	29.1	22.7	20.0	23.8		49.5	74.7		47.3	49.5	
Level of Service	B	C	C	C	C		D	E		D	D	
Approach Delay (s)		27.7			23.4			63.3			48.2	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	36.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	32	80	213	25	70	260
Future Volume (Veh/h)	32	80	213	25	70	260
Sign Control	Stop		Free			Free
Grade	5%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.95
Hourly flow rate (vph)	35	87	232	27	76	274
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						601
pX, platoon unblocked						
vC, conflicting volume	672	246			259	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	672	246			259	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	91	89			94	
cM capacity (veh/h)	395	778			1244	

Direction, Lane #	NW 1	NE 1	SW 1	SW 2
Volume Total	122	259	76	274
Volume Left	35	0	76	0
Volume Right	87	27	0	0
cSH	1092	1700	1244	1700
Volume to Capacity	0.11	0.15	0.06	0.16
Queue Length 95th (ft)	9	0	5	0
Control Delay (s)	11.6	0.0	8.1	0.0
Lane LOS	B		A	
Approach Delay (s)	11.6	0.0	1.8	
Approach LOS	B			

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	29.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	76	378	164	174	182	95
Future Volume (vph)	76	378	164	174	182	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	12	12
Grade (%)	0%			1%	-2%	
Total Lost time (s)	5.5	4.0	6.5	5.5	6.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1473	1694	1800	1642	1510
Flt Permitted	1.00	1.00	0.70	1.00	0.95	1.00
Satd. Flow (perm)	1801	1473	1254	1800	1642	1510
Peak-hour factor, PHF	0.92	0.94	0.93	0.92	0.92	0.89
Adj. Flow (vph)	83	402	176	189	198	107
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	83	402	176	189	198	107
Heavy Vehicles (%)	2%	6%	6%	5%	11%	8%
Turn Type	NA	Free	pm+pt	NA	Prot	Free
Protected Phases	1		2	6	4	
Permitted Phases		Free	6			Free
Actuated Green, G (s)	26.5	120.0	54.5	54.5	54.0	120.0
Effective Green, g (s)	26.5	120.0	54.5	54.5	54.0	120.0
Actuated g/C Ratio	0.22	1.00	0.45	0.45	0.45	1.00
Clearance Time (s)	5.5		6.5	5.5	6.0	
Lane Grp Cap (vph)	397	1473	648	817	738	1510
v/s Ratio Prot	0.05		0.05	0.10	0.12	
v/s Ratio Perm		c0.27	0.07			0.07
v/c Ratio	0.21	0.27	0.27	0.23	0.27	0.07
Uniform Delay, d1	38.2	0.0	20.8	20.0	20.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.5	1.0	0.7	0.9	0.1
Delay (s)	39.4	0.5	21.8	20.6	21.5	0.1
Level of Service	D	A	C	C	C	A
Approach Delay (s)	7.1			21.2	14.0	
Approach LOS	A			C	B	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	243	963	313	986	1900
v/c Ratio	0.24	0.82	1.04	0.33	0.81
Control Delay	40.8	44.9	126.2	13.8	35.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	44.9	126.2	13.8	35.2
Queue Length 50th (ft)	92	463	~178	161	561
Queue Length 95th (ft)	130	567	#279	188	627
Internal Link Dist (ft)	1412			518	770
Turn Bay Length (ft)	230		460		
Base Capacity (vph)	1010	1162	301	2986	2337
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.83	1.04	0.33	0.81

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	35	35	39	12	1206	4	2708
v/c Ratio	0.42	0.39	0.44	0.15	0.30	0.06	0.67
Control Delay	82.0	79.8	67.0	72.7	3.1	70.5	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.0	79.8	67.0	72.7	3.1	70.5	7.5
Queue Length 50th (ft)	34	34	27	12	64	4	247
Queue Length 95th (ft)	72	72	66	35	151	17	575
Internal Link Dist (ft)	175		190		251		385
Turn Bay Length (ft)				220		200	
Base Capacity (vph)	359	382	340	185	4073	187	4065
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.09	0.11	0.06	0.30	0.02	0.67

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	130	637	388	1425	122	125	147	176	100	319
v/c Ratio	0.60	0.44	0.74	0.65	0.64	0.61	0.33	0.72	0.35	0.88
Control Delay	46.5	30.7	28.7	35.6	76.1	73.3	20.5	75.3	57.3	74.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	30.7	28.7	35.6	76.1	73.3	20.5	75.3	57.3	74.0
Queue Length 50th (ft)	65	126	200	383	121	123	63	165	88	290
Queue Length 95th (ft)	127	154	350	#605	187	190	71	238	139	347
Internal Link Dist (ft)		1185		1058		325			341	
Turn Bay Length (ft)	330		300		270			185		
Base Capacity (vph)	283	1446	554	2190	299	321	477	309	365	424
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.44	0.70	0.65	0.41	0.39	0.31	0.57	0.27	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	177	546	36	29	1566	46	23	162	453
v/c Ratio	0.72	0.22	0.04	0.07	0.78	0.37	0.16	0.42	0.67
Control Delay	52.3	20.2	0.3	11.4	27.6	72.9	26.6	54.8	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	20.2	0.3	11.4	27.6	72.9	26.6	54.8	31.2
Queue Length 50th (ft)	117	110	0	7	191	44	2	139	254
Queue Length 95th (ft)	#218	139	2	m14	282	86	32	225	414
Internal Link Dist (ft)		591			224		51	121	
Turn Bay Length (ft)	500		75	225					
Base Capacity (vph)	247	2454	1051	463	2017	182	198	390	679
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.22	0.03	0.06	0.78	0.25	0.12	0.42	0.67

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	9	39	18	37	133
Future Vol, veh/h	41	9	39	18	37	133
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.38
Heavy Vehicles, %	0	4	33	0	1	33
Mvmt Flow	45	10	42	20	40	350
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.4	8.2	10.5
HCM LOS	A	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	82%	22%
Vol Thru, %	68%	0%	78%
Vol Right, %	32%	18%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	57	50	170
LT Vol	0	41	37
Through Vol	39	0	133
RT Vol	18	9	0
Lane Flow Rate	62	54	390
Geometry Grp	1	1	1
Degree of Util (X)	0.083	0.075	0.445
Departure Headway (Hd)	4.797	4.958	4.102
Convergence, Y/N	Yes	Yes	Yes
Cap	750	726	866
Service Time	2.806	2.962	2.18
HCM Lane V/C Ratio	0.083	0.074	0.45
HCM Control Delay	8.2	8.4	10.5
HCM Lane LOS	A	A	B
HCM 95th-tile Q	0.3	0.2	2.3

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	52	796	127	55	473	149	179	314	219
v/c Ratio	0.11	0.48	0.16	0.19	0.22	0.45	0.76	0.76	0.31
Control Delay	18.3	30.7	5.4	19.5	21.3	37.4	75.0	48.3	42.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	30.7	5.4	19.5	21.3	37.4	75.0	48.3	42.3
Queue Length 50th (ft)	23	290	2	25	84	99	154	234	80
Queue Length 95th (ft)	51	400	46	54	126	141	228	301	116
Internal Link Dist (ft)		667			846		233		376
Turn Bay Length (ft)	200		200	245		300		180	
Base Capacity (vph)	514	1643	786	306	2183	486	389	426	768
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.48	0.16	0.18	0.22	0.31	0.46	0.74	0.29

Intersection Summary

Intersection	
Int Delay, s/veh	2.9

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	32	80	213	25	70	260
Future Vol, veh/h	32	80	213	25	70	260
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	55	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	95
Heavy Vehicles, %	2	8	6	0	13	8
Mvmt Flow	35	87	232	27	76	274

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	672	246	0	0	259	0
Stage 1	246	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Critical Hdwy	7.42	6.78	-	-	4.23	-
Critical Hdwy Stg 1	6.42	-	-	-	-	-
Critical Hdwy Stg 2	6.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.372	-	-	2.317	-
Pot Cap-1 Maneuver	349	752	-	-	1244	-
Stage 1	742	-	-	-	-	-
Stage 2	585	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	328	752	-	-	1244	-
Mov Cap-2 Maneuver	328	-	-	-	-	-
Stage 1	742	-	-	-	-	-
Stage 2	549	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	12.4	0	1.8
HCM LOS	B		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	328	752	1244	-
HCM Lane V/C Ratio	-	-	0.106	0.116	0.061	-
HCM Control Delay (s)	-	-	17.3	10.4	8.1	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.4	0.2	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	83	402	176	189	198	107
v/c Ratio	0.21	0.27	0.28	0.23	0.27	0.07
Control Delay	39.9	0.5	23.0	20.9	21.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	0.5	23.0	20.9	21.9	0.1
Queue Length 50th (ft)	53	0	83	87	94	0
Queue Length 95th (ft)	99	0	133	138	149	0
Internal Link Dist (ft)	299			336	373	
Turn Bay Length (ft)			150			260
Base Capacity (vph)	397	1473	637	817	738	1510
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.27	0.28	0.23	0.27	0.07

Intersection Summary

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	246	531	922	1852	966	286
Future Volume (vph)	246	531	922	1852	966	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-2%			1%	-1%	
Total Lost time (s)	6.0	6.0	4.5	6.0	6.0	
Lane Util. Factor	0.97	0.88	0.97	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	3502	2787	3450	4963	4865	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	3502	2787	3450	4963	4865	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.92	0.86
Adj. Flow (vph)	267	577	1002	1949	1050	333
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	267	575	1002	1949	1383	0
Heavy Vehicles (%)	1%	3%	1%	4%	4%	1%
Turn Type	Prot	pt+ov	Prot	NA	NA	
Protected Phases	4	4 1	1	6	2	
Permitted Phases						
Actuated Green, G (s)	28.4	87.7	53.3	109.6	51.8	
Effective Green, g (s)	28.4	87.7	53.3	109.6	51.8	
Actuated g/C Ratio	0.19	0.58	0.36	0.73	0.35	
Clearance Time (s)	6.0		4.5	6.0	6.0	
Vehicle Extension (s)	4.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	663	1629	1225	3626	1680	
v/s Ratio Prot	c0.08	0.21	c0.29	0.39	c0.28	
v/s Ratio Perm						
v/c Ratio	0.40	0.35	0.82	0.54	0.82	
Uniform Delay, d1	53.4	16.3	43.9	9.0	44.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.2	4.4	0.6	4.7	
Delay (s)	53.9	16.5	48.3	9.5	49.6	
Level of Service	D	B	D	A	D	
Approach Delay (s)	28.3			22.7	49.6	
Approach LOS	C			C	D	

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	5	22	18	6	17	42	2690	29	12	1441	39
Future Volume (vph)	34	5	22	18	6	17	42	2690	29	12	1441	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-2%			-1%			1%			-1%	
Total Lost time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.91		1.00	0.91	
Frpb, ped/bikes		1.00	1.00		0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Frt		1.00	0.85		0.95		1.00	1.00		1.00	1.00	
Flt Protected		0.96	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1838	1615		1699		1796	5004		1814	4995	
Flt Permitted		0.82	1.00		0.84		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1576	1615		1453		1796	5004		1814	4995	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	5	24	20	7	18	46	2832	32	13	1566	42
RTOR Reduction (vph)	0	0	0	0	17	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	42	24	0	28	0	46	2864	0	13	1607	0
Confl. Peds. (#/hr)				2		2				1		1
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	1%	7%	0%	0%	0%	3%	0%	0%	4%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8								
Actuated Green, G (s)		8.7	8.7		8.7		8.1	119.2		3.1	114.2	
Effective Green, g (s)		8.7	8.7		8.7		8.1	119.2		3.1	114.2	
Actuated g/C Ratio		0.06	0.06		0.06		0.05	0.79		0.02	0.76	
Clearance Time (s)		6.5	6.5		6.5		5.5	7.0		5.5	7.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	0.2		3.0	0.2	
Lane Grp Cap (vph)		91	93		84		96	3976		37	3802	
v/s Ratio Prot							c0.03	c0.57		0.01	0.32	
v/s Ratio Perm		c0.03	0.01		0.02							
v/c Ratio		0.46	0.26		0.33		0.48	0.72		0.35	0.42	
Uniform Delay, d1		68.4	67.6		67.9		68.9	7.4		72.5	6.3	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.7	1.5		2.3		3.7	1.2		5.7	0.3	
Delay (s)		72.1	69.0		70.2		72.6	8.5		78.1	6.6	
Level of Service		E	E		E		E	A		E	A	
Approach Delay (s)		71.0			70.2			9.6			7.2	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

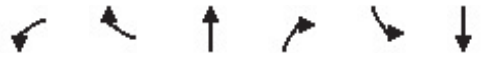
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	937	167	285	542	266	291	126	421	244	103	268
Future Volume (vph)	237	937	167	285	542	266	291	126	421	244	103	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			-2%			4%			1%	
Total Lost time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Lane Util. Factor	1.00	0.91		1.00	0.91		0.95	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1618	4649		1381	4582		1648	1671	1567	1663	1719	1516
Flt Permitted	0.31	1.00		0.22	1.00		0.95	0.98	1.00	0.95	1.00	1.00
Satd. Flow (perm)	530	4649		314	4582		1648	1671	1567	1663	1719	1516
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	258	1018	182	310	589	289	316	137	458	265	112	291
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	258	1200	0	310	878	0	224	229	458	265	112	291
Confl. Peds. (#/hr)	1		1	6		6						
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	11%	6%	20%	32%	5%	12%	2%	5%	1%	8%	10%	6%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6					3			4
Actuated Green, G (s)	42.5	41.0		47.6	47.6		26.3	26.3	55.4	28.6	28.6	51.1
Effective Green, g (s)	42.5	41.0		47.6	47.6		26.3	26.3	55.4	28.6	28.6	51.1
Actuated g/C Ratio	0.28	0.27		0.32	0.32		0.18	0.18	0.37	0.19	0.19	0.34
Clearance Time (s)	5.5	7.0		5.5	7.0		6.5	6.5	5.5	6.0	6.0	5.5
Vehicle Extension (s)	3.0	0.2		3.0	0.2		5.0	5.0	3.0	5.0	5.0	3.0
Lane Grp Cap (vph)	313	1270		306	1454		288	292	578	317	327	516
v/s Ratio Prot	0.12	c0.26		c0.20	0.19		0.14	0.14	c0.15	c0.16	0.07	0.08
v/s Ratio Perm	0.11			0.12					0.14			0.11
v/c Ratio	0.82	0.94		1.01	0.60		0.78	0.78	0.79	0.84	0.34	0.56
Uniform Delay, d1	50.5	53.4		45.8	43.2		59.1	59.1	42.2	58.4	52.6	40.4
Progression Factor	0.68	0.68		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.3	13.7		54.8	1.9		14.3	14.8	7.3	18.8	1.3	1.4
Delay (s)	48.3	49.9		100.6	45.1		73.4	73.9	49.5	77.3	53.9	41.8
Level of Service	D	D		F	D		E	E	D	E	D	D
Approach Delay (s)		49.7			59.6			61.5			57.9	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	56.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	331	1156	109	52	720	236	84	13	55	191	5	319
Future Volume (vph)	331	1156	109	52	720	236	84	13	55	191	5	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-1%			2%			2%	
Total Lost time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.96		1.00	0.88			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.95	1.00
Satd. Flow (prot)	1752	4940	1583	1778	4818		1686	1599			1742	1567
Flt Permitted	0.15	1.00	1.00	0.21	1.00		0.95	1.00			0.95	1.00
Satd. Flow (perm)	275	4940	1583	398	4818		1686	1599			1742	1567
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.85
Adj. Flow (vph)	360	1243	118	57	783	257	91	14	60	208	5	375
RTOR Reduction (vph)	0	0	27	0	40	0	0	54	0	0	0	88
Lane Group Flow (vph)	360	1243	91	57	1000	0	91	20	0	0	213	287
Confl. Peds. (#/hr)				2		2						
Heavy Vehicles (%)	3%	5%	2%	2%	3%	5%	6%	9%	2%	3%	0%	2%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Split	NA		Split	NA	pm+ov
Protected Phases	1	6	3	5	2		3	3		4	4	1
Permitted Phases	6		6	2								4
Actuated Green, G (s)	90.0	77.2	92.3	60.3	54.0		15.1	15.1			26.4	55.9
Effective Green, g (s)	90.0	77.2	92.3	60.3	54.0		15.1	15.1			26.4	55.9
Actuated g/C Ratio	0.60	0.51	0.62	0.40	0.36		0.10	0.10			0.18	0.37
Clearance Time (s)	6.5	6.0	6.5	6.5	6.0		6.5	6.5			6.0	6.5
Vehicle Extension (s)	3.0	3.0	5.0	3.0	3.0		5.0	5.0			3.0	3.0
Lane Grp Cap (vph)	455	2542	974	217	1734		169	160			306	583
v/s Ratio Prot	c0.16	0.25	0.01	0.01	0.21		c0.05	0.01			c0.12	0.10
v/s Ratio Perm	c0.32		0.05	0.09								0.09
v/c Ratio	0.79	0.49	0.09	0.26	0.58		0.54	0.13			0.70	0.49
Uniform Delay, d1	29.4	23.6	11.8	27.7	38.8		64.1	61.4			58.0	36.1
Progression Factor	1.00	1.00	1.00	0.84	0.94		1.00	1.00			1.00	1.00
Incremental Delay, d2	13.2	0.7	0.1	0.5	1.1		5.9	0.7			12.4	2.9
Delay (s)	42.6	24.3	11.9	23.8	37.5		70.1	62.2			70.4	39.1
Level of Service	D	C	B	C	D		E	E			E	D
Approach Delay (s)		27.3			36.8			66.5			50.4	
Approach LOS		C			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	35.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	36	48	126	55	25	97
Future Volume (vph)	36	48	126	55	25	97
Peak Hour Factor	0.92	0.95	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	51	137	60	27	105

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	90	197	132
Volume Left (vph)	39	0	27
Volume Right (vph)	51	60	0
Hadj (s)	-0.25	-0.18	0.05
Departure Headway (s)	4.4	4.1	4.4
Degree Utilization, x	0.11	0.22	0.16
Capacity (veh/h)	762	857	793
Control Delay (s)	7.9	8.2	8.2
Approach Delay (s)	7.9	8.2	8.2
Approach LOS	A	A	A

Intersection Summary			
Delay	8.1		
Level of Service	A		
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	85	546	174	69	744	361	200	218	56	177	178	85
Future Volume (vph)	85	546	174	69	744	361	200	218	56	177	178	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		1%			2%			0%			1%	
Total Lost time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	1.00		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.97		1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1778	3522	1570	1785	4813		1805	1820		1744	3336	
Flt Permitted	0.15	1.00	1.00	0.36	1.00		0.52	1.00		0.26	1.00	
Satd. Flow (perm)	286	3522	1570	686	4813		992	1820		475	3336	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	587	189	75	809	392	217	237	61	192	193	92
RTOR Reduction (vph)	0	0	104	0	49	0	0	6	0	0	39	0
Lane Group Flow (vph)	92	587	85	75	1152	0	217	292	0	192	246	0
Confl. Peds. (#/hr)				3		3						
Confl. Bikes (#/hr)			2			2						1
Heavy Vehicles (%)	1%	2%	1%	0%	0%	1%	0%	1%	2%	3%	3%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases	6		6	2			8			4		
Actuated Green, G (s)	76.1	67.1	67.1	75.1	66.6		47.7	29.1		48.1	29.3	
Effective Green, g (s)	76.1	67.1	67.1	75.1	66.6		47.7	29.1		48.1	29.3	
Actuated g/C Ratio	0.51	0.45	0.45	0.50	0.44		0.32	0.19		0.32	0.20	
Clearance Time (s)	5.5	6.5	6.5	5.5	6.5		6.5	8.0		6.5	8.0	
Vehicle Extension (s)	3.0	8.0	8.0	3.0	8.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	234	1575	702	405	2136		416	353		311	651	
v/s Ratio Prot	c0.02	0.17		0.01	c0.24		0.06	c0.16		c0.08	0.07	
v/s Ratio Perm	0.18		0.05	0.08			0.10			0.12		
v/c Ratio	0.39	0.37	0.12	0.19	0.54		0.52	0.83		0.62	0.38	
Uniform Delay, d1	21.1	27.5	24.2	19.9	30.5		39.7	58.0		40.0	52.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.7	0.4	0.2	1.0		1.2	14.5		3.6	0.4	
Delay (s)	22.2	28.2	24.6	20.1	31.5		40.9	72.5		43.6	52.8	
Level of Service	C	C	C	C	C		D	E		D	D	
Approach Delay (s)		26.7			30.8			59.2			49.1	
Approach LOS		C			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	26.5
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (veh/h)	42	123	336	58	132	282
Future Volume (Veh/h)	42	123	336	58	132	282
Sign Control	Stop		Free			Free
Grade	5%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	134	365	63	143	307
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						601
pX, platoon unblocked						
vC, conflicting volume	990	396			428	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	990	396			428	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	81	80			87	
cM capacity (veh/h)	240	657			1137	

Direction, Lane #	NW 1	NE 1	SW 1	SW 2
Volume Total	180	428	143	307
Volume Left	46	0	143	0
Volume Right	134	63	0	0
cSH	882	1700	1137	1700
Volume to Capacity	0.20	0.25	0.13	0.18
Queue Length 95th (ft)	19	0	11	0
Control Delay (s)	14.8	0.0	8.6	0.0
Lane LOS	B		A	
Approach Delay (s)	14.8	0.0	2.7	
Approach LOS	B			

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	189	284	86	185	453	262
Future Volume (vph)	189	284	86	185	453	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	12	12
Grade (%)	0%			1%	-2%	
Total Lost time (s)	5.5	4.0	6.5	5.5	6.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1818	1516	1796	1872	1642	1510
Flt Permitted	1.00	1.00	0.55	1.00	0.95	1.00
Satd. Flow (perm)	1818	1516	1038	1872	1642	1510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	309	93	201	492	285
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	205	309	93	201	492	285
Heavy Vehicles (%)	1%	3%	0%	1%	11%	8%
Turn Type	NA	Free	pm+pt	NA	Prot	Free
Protected Phases	1		2	6	4	
Permitted Phases		Free	6			Free
Actuated Green, G (s)	35.5	120.0	52.5	52.5	56.0	120.0
Effective Green, g (s)	35.5	120.0	52.5	52.5	56.0	120.0
Actuated g/C Ratio	0.30	1.00	0.44	0.44	0.47	1.00
Clearance Time (s)	5.5		6.5	5.5	6.0	
Lane Grp Cap (vph)	537	1516	520	819	766	1510
v/s Ratio Prot	c0.11		0.02	0.11	c0.30	
v/s Ratio Perm		c0.20	0.06			0.19
v/c Ratio	0.38	0.20	0.18	0.25	0.64	0.19
Uniform Delay, d1	33.5	0.0	24.0	21.3	24.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	0.3	0.8	0.7	4.1	0.3
Delay (s)	35.6	0.3	24.7	22.0	28.5	0.3
Level of Service	D	A	C	C	C	A
Approach Delay (s)	14.4			22.9	18.1	
Approach LOS	B			C	B	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	267	577	1002	1949	1383
v/c Ratio	0.40	0.36	0.82	0.54	0.82
Control Delay	55.0	17.1	49.6	9.8	50.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	55.0	17.1	49.6	9.8	50.5
Queue Length 50th (ft)	118	161	457	287	458
Queue Length 95th (ft)	161	167	492	335	#639
Internal Link Dist (ft)	1412			518	770
Turn Bay Length (ft)	230		460		
Base Capacity (vph)	723	1806	1529	3626	1681
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.32	0.66	0.54	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	42	24	45	46	2864	13	1608
v/c Ratio	0.41	0.23	0.41	0.42	0.69	0.16	0.41
Control Delay	78.1	70.1	54.4	78.3	8.4	72.8	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.1	70.1	54.4	78.3	8.4	72.8	7.2
Queue Length 50th (ft)	40	23	26	44	295	13	193
Queue Length 95th (ft)	81	53	67	87	656	37	268
Internal Link Dist (ft)	175		190		251		385
Turn Bay Length (ft)				220		200	
Base Capacity (vph)	320	328	310	329	4176	332	3931
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.07	0.15	0.14	0.69	0.04	0.41

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	258	1200	310	878	224	229	458	265	112	291
v/c Ratio	0.82	0.94	1.00	0.60	0.78	0.78	0.78	0.84	0.34	0.56
Control Delay	57.9	50.4	97.8	46.6	76.8	77.3	32.2	80.7	55.0	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	50.4	97.8	46.6	76.8	77.3	32.2	80.7	55.0	25.2
Queue Length 50th (ft)	116	202	~305	276	221	226	214	247	94	126
Queue Length 95th (ft)	#220	#494	#534	337	317	323	#313	#374	155	170
Internal Link Dist (ft)		1185		1058		325			341	
Turn Bay Length (ft)	330		300		270			185		
Base Capacity (vph)	313	1270	309	1453	335	339	589	343	355	521
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.94	1.00	0.60	0.67	0.68	0.78	0.77	0.32	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	360	1243	118	57	1040	91	74	213	375
v/c Ratio	0.79	0.48	0.11	0.25	0.59	0.54	0.35	0.70	0.51
Control Delay	40.2	24.2	4.4	15.4	35.4	75.5	23.7	71.6	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.2	24.2	4.4	15.4	35.4	75.5	23.7	71.6	23.0
Queue Length 50th (ft)	216	287	16	21	203	85	12	202	172
Queue Length 95th (ft)	#362	337	40	m35	256	146	63	#322	247
Internal Link Dist (ft)		591			224		51	121	
Turn Bay Length (ft)	500		75	225					
Base Capacity (vph)	454	2583	1098	420	1774	196	239	306	729
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.48	0.11	0.14	0.59	0.46	0.31	0.70	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	48	126	55	25	97
Future Vol, veh/h	36	48	126	55	25	97
Peak Hour Factor	0.92	0.95	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	39	51	137	60	27	105
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	7.9	8.2	8.2
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	43%	20%
Vol Thru, %	70%	0%	80%
Vol Right, %	30%	57%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	181	84	122
LT Vol	0	36	25
Through Vol	126	0	97
RT Vol	55	48	0
Lane Flow Rate	197	90	133
Geometry Grp	1	1	1
Degree of Util (X)	0.217	0.108	0.158
Departure Headway (Hd)	3.977	4.35	4.285
Convergence, Y/N	Yes	Yes	Yes
Cap	887	829	824
Service Time	2.069	2.35	2.379
HCM Lane V/C Ratio	0.222	0.109	0.161
HCM Control Delay	8.2	7.9	8.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.8	0.4	0.6

Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	92	587	189	75	1201	217	298	192	285
v/c Ratio	0.39	0.37	0.23	0.18	0.55	0.51	0.83	0.61	0.41
Control Delay	23.8	30.5	4.9	20.0	31.2	36.6	75.4	40.2	44.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.8	30.5	4.9	20.0	31.2	36.6	75.4	40.2	44.0
Queue Length 50th (ft)	42	197	0	34	291	151	276	132	107
Queue Length 95th (ft)	88	300	55	75	407	186	363	167	141
Internal Link Dist (ft)		667			846		233		376
Turn Bay Length (ft)	200		200	245		300		180	
Base Capacity (vph)	255	1576	807	434	2185	520	426	417	818
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.37	0.23	0.17	0.55	0.42	0.70	0.46	0.35

Intersection Summary

Intersection	
Int Delay, s/veh	4.1

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	42	123	336	58	132	282
Future Vol, veh/h	42	123	336	58	132	282
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	55	-	-	95	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	5	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	1	0	1	2
Mvmt Flow	46	134	365	63	143	307

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	990	397	0	0	428	0
Stage 1	397	-	-	-	-	-
Stage 2	593	-	-	-	-	-
Critical Hdwy	7.4	6.7	-	-	4.11	-
Critical Hdwy Stg 1	6.4	-	-	-	-	-
Critical Hdwy Stg 2	6.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.209	-
Pot Cap-1 Maneuver	209	622	-	-	1137	-
Stage 1	612	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	183	622	-	-	1137	-
Mov Cap-2 Maneuver	183	-	-	-	-	-
Stage 1	612	-	-	-	-	-
Stage 2	413	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	17.2	0	2.7
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	183	622	1137	-
HCM Lane V/C Ratio	-	-	0.249	0.215	0.126	-
HCM Control Delay (s)	-	-	31.1	12.4	8.6	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.8	0.4	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	205	309	93	201	492	285
v/c Ratio	0.38	0.20	0.18	0.25	0.64	0.19
Control Delay	36.1	0.3	22.8	22.3	29.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	0.3	22.8	22.3	29.2	0.3
Queue Length 50th (ft)	126	0	43	96	283	0
Queue Length 95th (ft)	197	0	77	150	404	0
Internal Link Dist (ft)	299			336	373	
Turn Bay Length (ft)			150			260
Base Capacity (vph)	537	1516	511	819	766	1510
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.20	0.18	0.25	0.64	0.19

Intersection Summary