TRAFFIC STUDY

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KINGS RIDGE SUBDIVISION

STONECREST, GA

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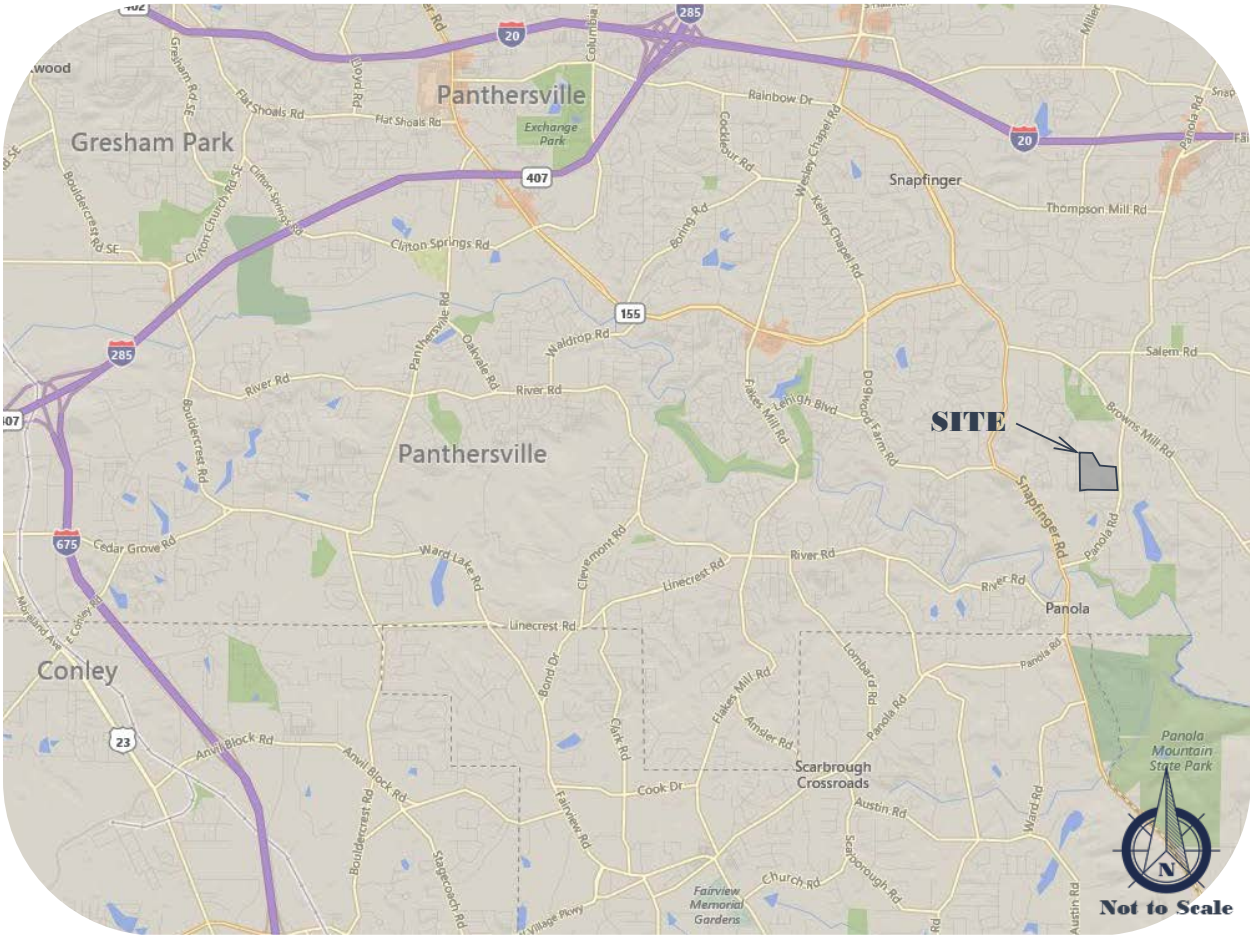
Chapter 1 - INTRODUCTION

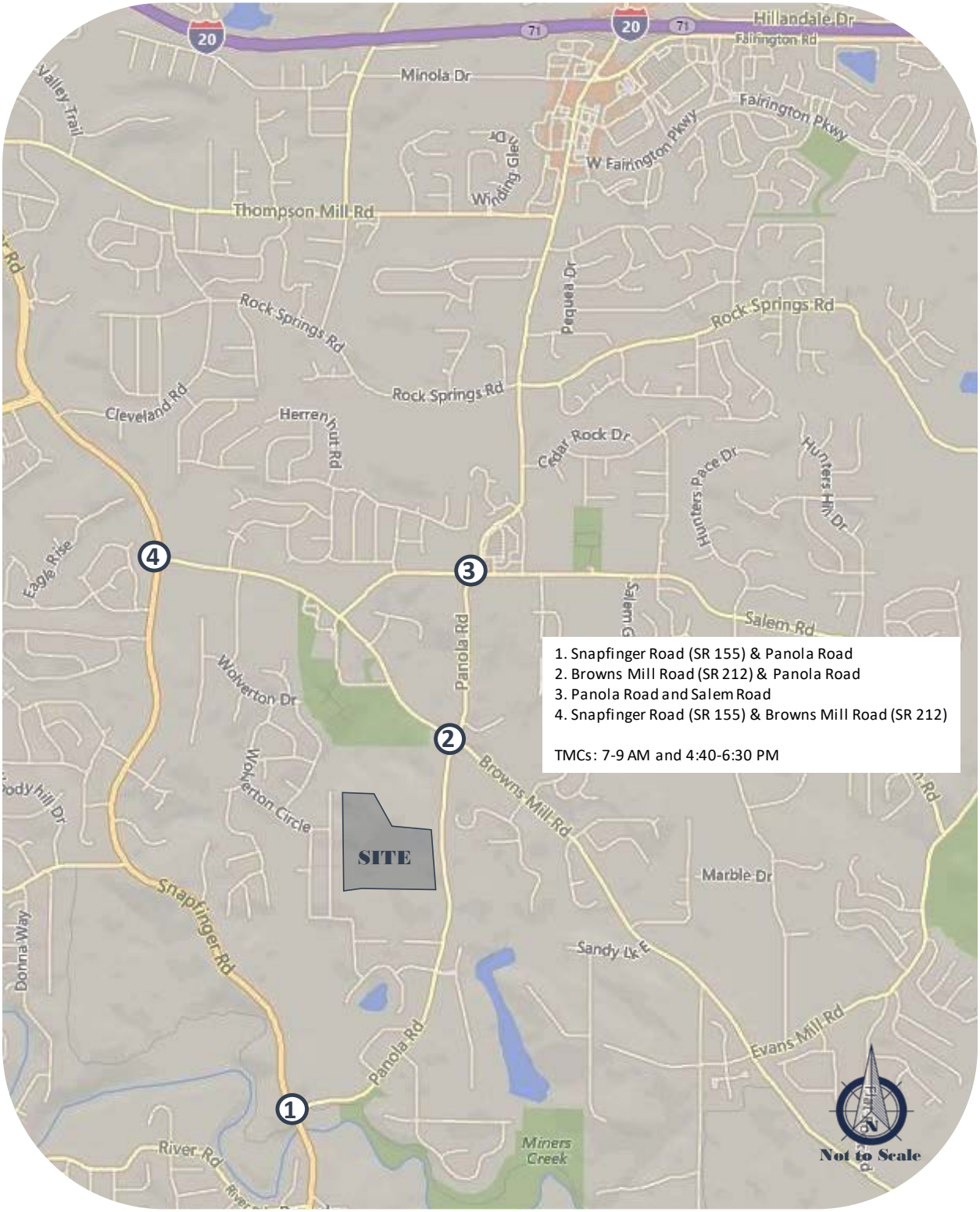
This report summarizes a traffic impact study to evaluate a proposed residential subdivision in Stonecrest, Georgia. The project location as shown below in Figure 1 is adjacent to Panola Road to the south of Browns Mill Road.

Figure 1: PROJECT LOCATION MAP



The study area, indicating the intersections evaluated, is shown below in Figure 2.

Figure 2: STUDY AREA MAP



Chapter 2 - METHODOLOGY

The process for evaluating the study intersections for potential improvements included multiple steps that are described in separate chapters of the report.

EXISTING CONDITIONS (Chapter 3)

An inventory was conducted of existing conditions, i.e. traffic control types, geometric conditions, speed limits, traffic volumes, etc.

TRIP GENERATION (Chapter 4)

Traffic to be generated by the development was estiamted using data contained in the *Trip Generation, 10th Edition* publication from the Institute of Transportation Engineers. The TripGen 10 software from TrafficWare was used to develop the estimation.

TRIP DISTRIBUTION (Chapter 5)

A distribution pattern was developed to determine which directions the generated traffic would come from to enter the site and then to exit when leaving.

TRAFFIC ASSIGNMENT (Chapter 6)

The generated traffic was assigned to the study road network using the distribution pattern. The assigned traffic was added to the existing traffic to result in projected traffic volumes expected after the development is complete and occupied.

TRAFFIC ANALYSIS (Chapter 7)

The existing and projected traffic conditions were evaluated in terms of safety and operation. The primary method used to evaluate operational characteristics is capacity analysis.

MITIGATION OF IMPACT (Chapter 8)

The existing and projected conditions were examined to determine the impacts of the proposed development. Improvement alternatives to address the impacts were identified and evaluated.

RECOMMENDATIONS (Chapter 9)

Recommendations are included for internal circulation and access including improvements to the adjacent transportation system if needed.

CAPACITY ANALYSIS

Capacity analysis for the study intersections was performed using *Synchro 10* software by Trafficware. The results of intersection capacity analyses are reported in terms of Level of Service, which is a function of average delay per vehicle, in seconds. The Level of Service Scale according to the *Highway Capacity Manual (HCM)* is shown in Table 1.

Table 1: HCM LEVEL OF SERVICE SCALE

LEVEL OF SERVICE	AVERAGE DELAY PER VEHICLE (SECONDS)	
	STOP CONTROL	SIGNAL CONTROL
A	≤10.0	≤10.0
B	10.1 to 15.0	10.1 to 20.0
C	15.1 to 25.0	20.1 to 35.0
D	25.1 to 35.0	35.1 to 55.0
E	35.1 to 50.0	55.1 to 80.0
F	>50.0	>80.0

STANDARDS

The evaluation was conducted using the following generally accepted standards:

- The ***2009 Manual on Uniform Traffic Control Devices with Revisions 1 and 2***, published by the Federal Highway Administration

- **A *Policy on Geometric Design of Highways and Streets (MUTCD), 7th Edition, 2018* (Green Book)**, published by the American Association of State Highway and Transportation Officials

- ***Regulation for Driveway and Encroachment Control, Revision 4.1***, published by the Georgia Department of Transportation

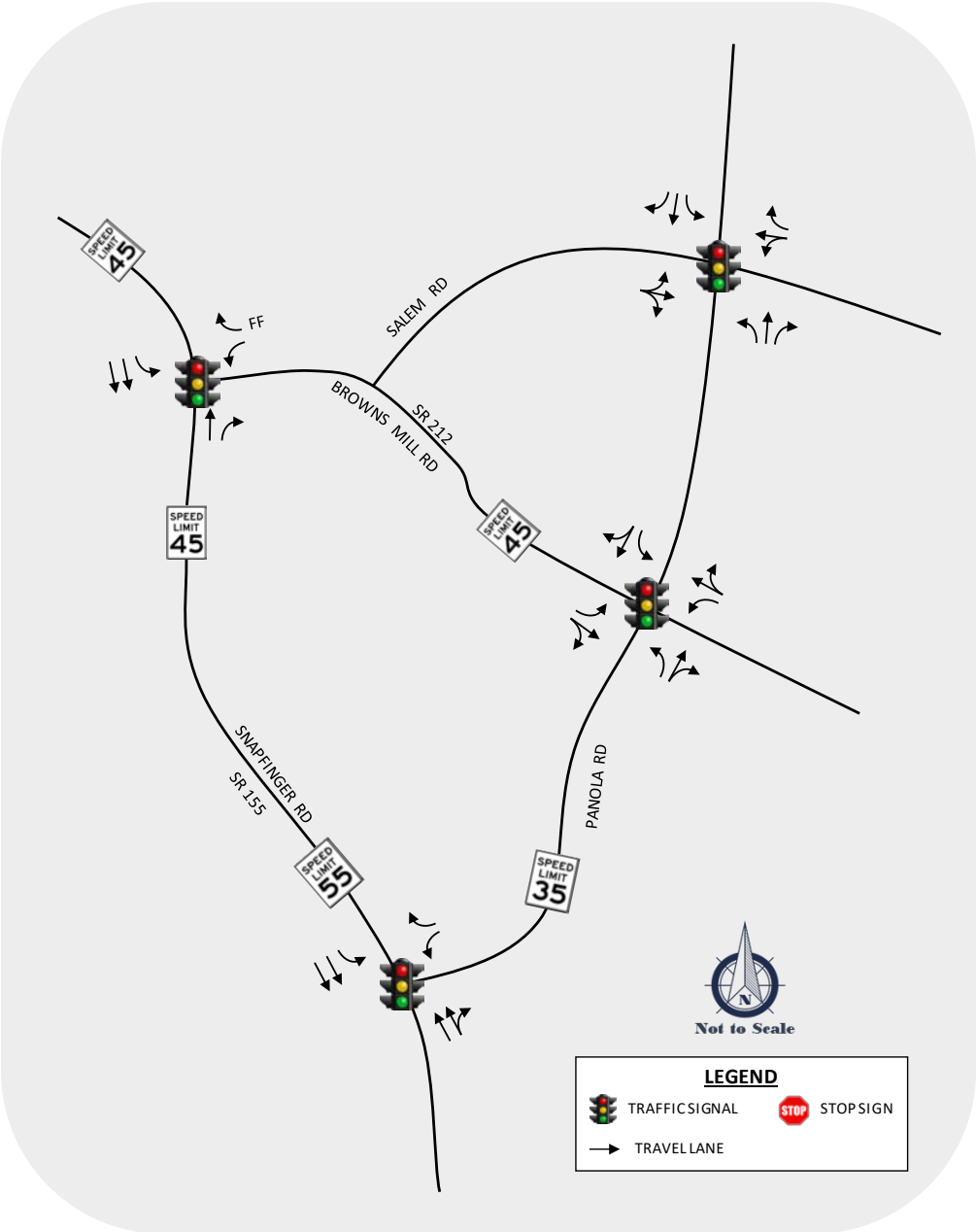
- ***Design Policy Manual, Revision 5.8***, published by the Georgia Department of Transportation

Chapter 3 - EXISTING CONDITIONS

TRAFFIC CONTROL, GEOMETRY, AND SPEED LIMITS

The traffic control forms, geometric conditions, and speed limits found at the study intersections are shown below in Figure 3.

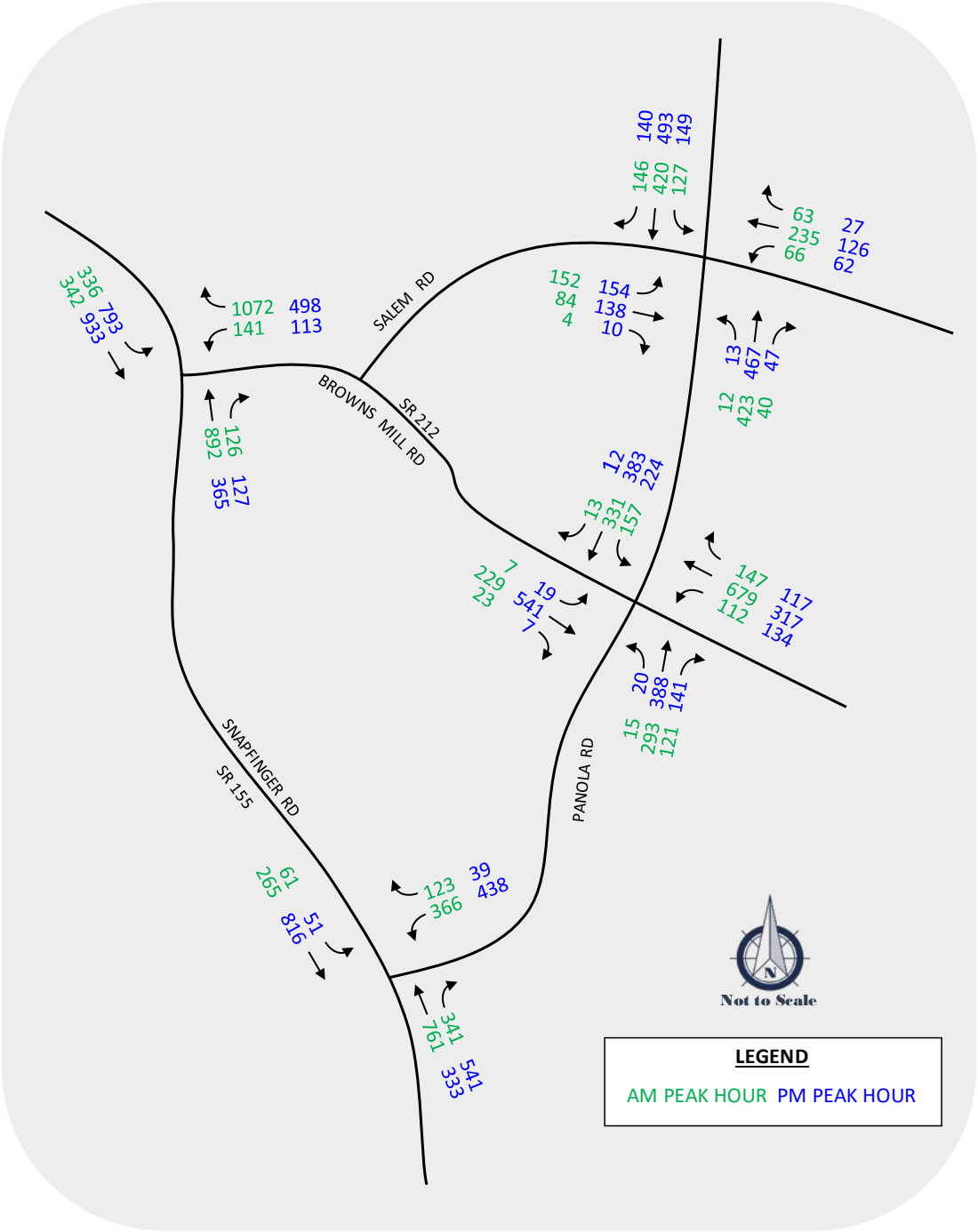
Figure 3: EXISTING GEOMETRICS AND TRAFFIC CONTROL



EXISTING TRAFFIC VOLUMES

Turning Movement Counts (TMCs) were conducted at the study intersections on Wednesday, February 13, 2019, from 7:00 to 9:00 AM and from 4:30 to 6:30 PM. The traffic data recorded during the TMCs are summarized graphically in Figure 4. Detailed traffic data is provided in Appendix A.

Figure 4: EXISTING PEAK HOUR TRAFFIC VOLUMES



Chapter 4 – TRIP GENERATION

The number of trips expected to be generated by the development was estimated based on the site plan which is shown in Figure 5. The proposed site plan shows one access driveway connecting to Panola Road.

Figure 5: SITE PLAN

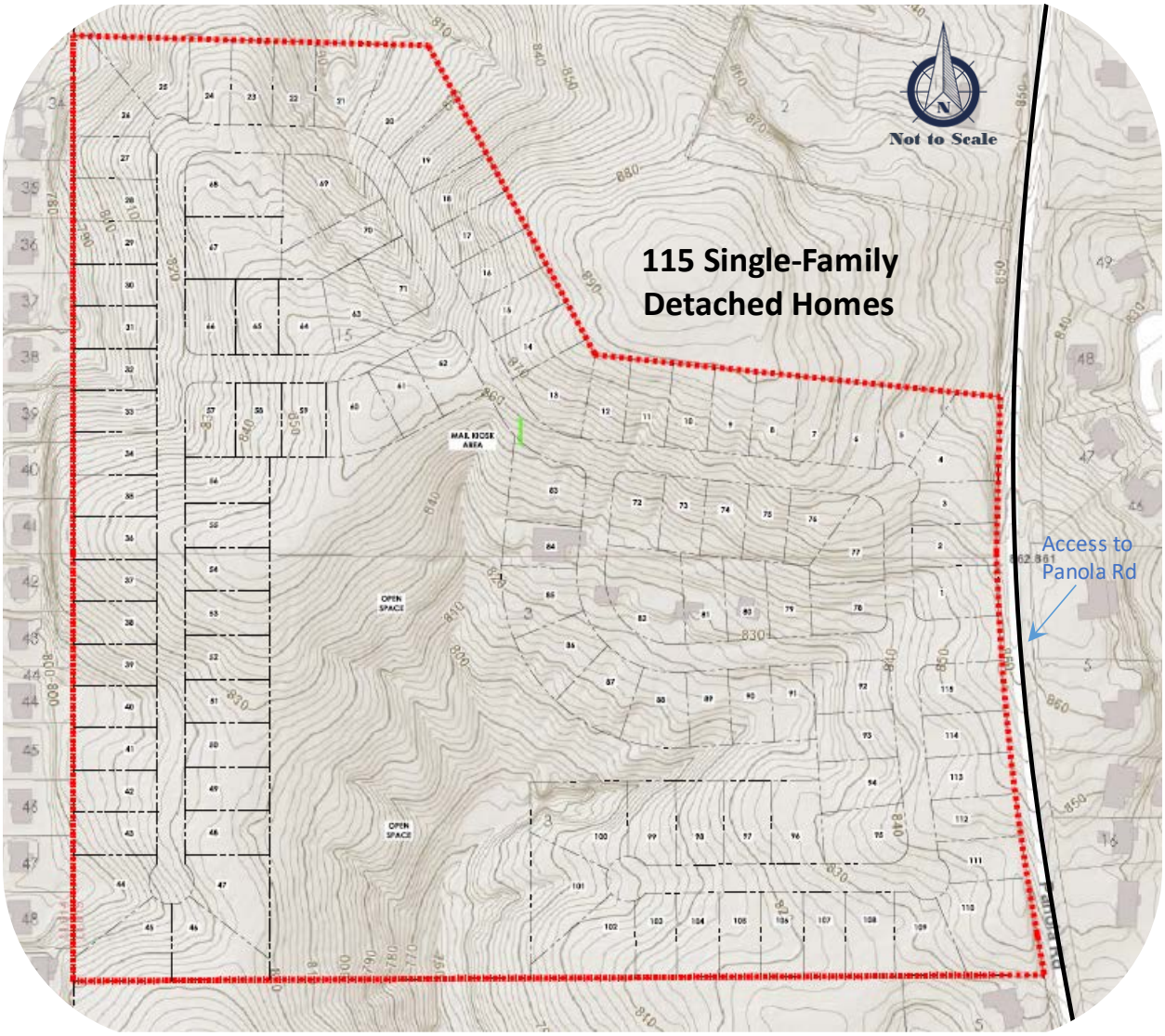


Table 2 summarizes the trip generation estimated for the 115-home subdivision.

Table 2: TRIP GENERATION

ITE LAND USE CATEGORY	AVERAGE DAILY			AM PEAK HOUR OF ADJ STREET TRAFFIC			PM PEAK HOUR OF ADJ STREET TRAFFIC		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
210	543	543	1086	21	64	85	72	42	114

Chapter 5 – TRIP DISTRIBUTION

The peak hour trips associated with this residential development are expected to be predominated by home-based work trips. The AM Peak Hour traffic patterns in the area were examined to develop a trip distribution pattern as most of the morning traffic is comprised of people going to work.

Figure 6 illustrates the amount of the existing traffic that emanates away from the study area and the percentage for each direction. This figure represents the expected distribution of generated trips entering and exiting the proposed development.

Figure 6: TRIP DISTRIBUTION PATTERN

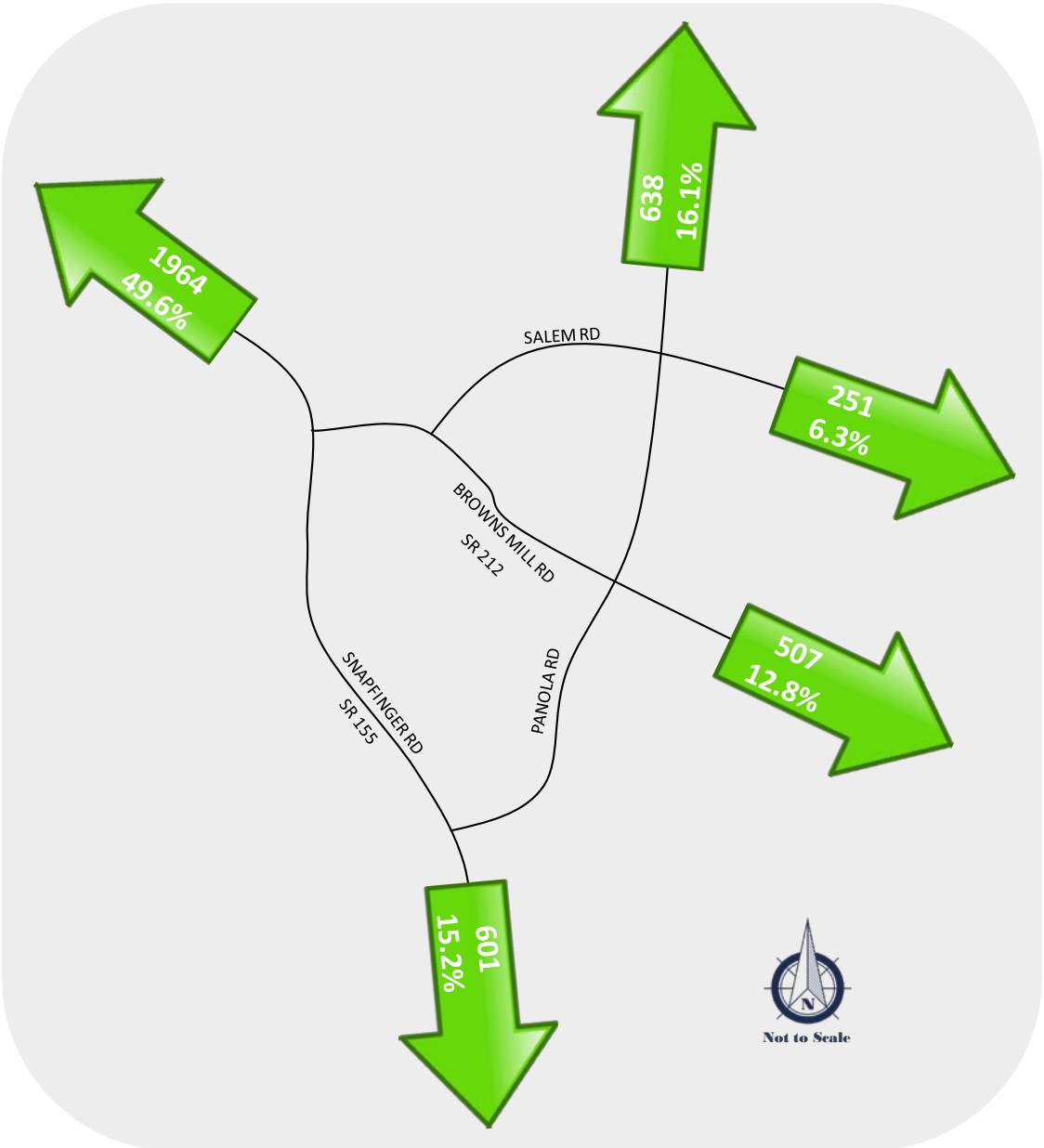


Table 3 shows the numbers of generated trips distributed to the various directions that traffic will enter from and exit to in accordance with the percentages shown in Figure 6.

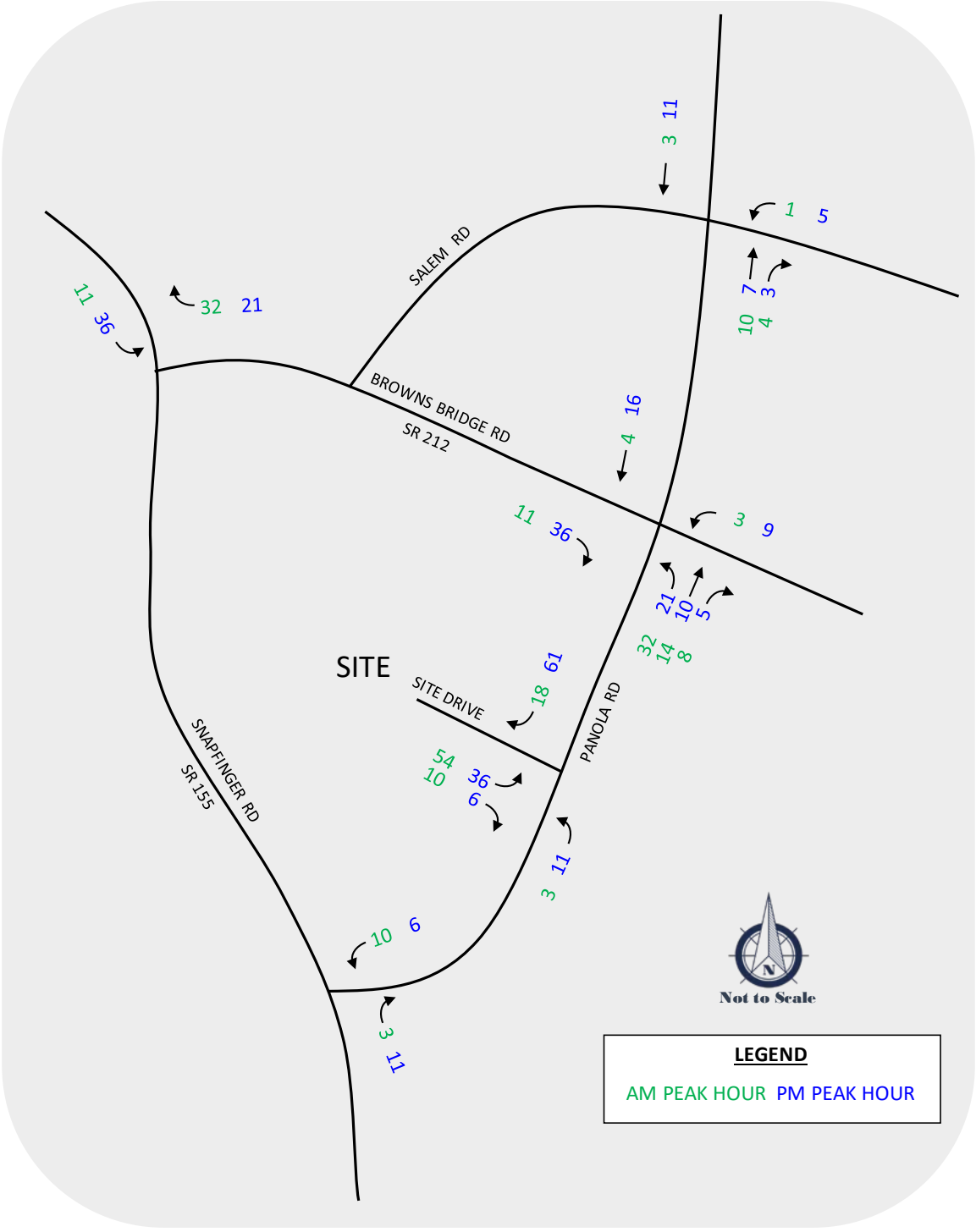
Table 3: TRIP DISTRIBUTION

DIRECTION	ROUTE	PERCENTAGE	AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Northwest	Snapfinger Rd	49.6	11	32	36	21
North	Panola Rd	16.1	3	10	11	7
East	Salem Rd	6.3	1	4	5	3
East	Browns Mill Rd	12.8	3	8	9	5
Southeast	Snapfinger Rd	15.2	3	10	11	6
	TOTAL	100	21	64	72	42

Chapter 6 – TRAFFIC ASSIGNMENT

The generated traffic was assigned to the individual movements at each intersection in accordance with the distribution shown in Table 3. Figure 7 illustrates the assigned new trips.

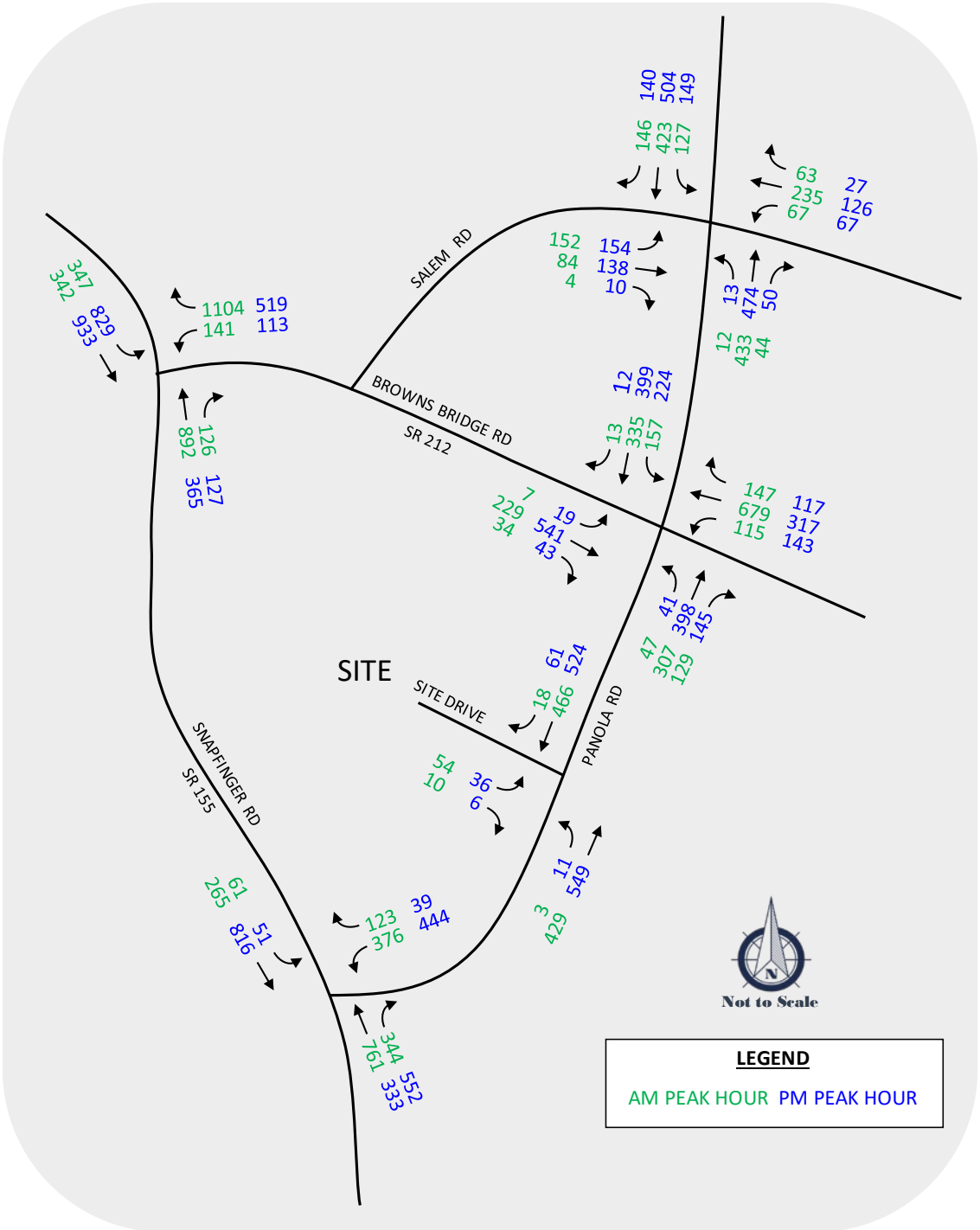
Figure 7: ASSIGNED GENERATED TRIPS



PROJECTED TRAFFIC VOLUMES

The Assigned Generated Traffic Volumes were superimposed with the Existing Traffic Volumes, with the result being the Projected Traffic Volumes. Figure 8 illustrates the traffic volumes expected after the development is complete and fully occupied.

Figure 8: PROJECTED PEAK HOUR TRAFFIC VOLUMES



Chapter 7 – TRAFFIC ANALYSIS

The study intersections were evaluated in terms of capacity analysis and in terms of geometrics, safety, and other considerations.

CAPACITY ANALYSIS

Reports of the capacity analysis for existing conditions are provided in Appendix B (AM Peak Hour) and Appendix C (PM Peak Hour). The capacity analysis reports for the projected conditions are provided in Appendix D (AM Peak Hour) and Appendix E (PM Peak Hour).

Existing Intersections

Results of the capacity analysis for existing study intersections are summarized below in Table 4. Results are shown in terms of level of service, followed parenthetically by average delay per vehicle, in seconds.

Table 4: CAPACITY ANALYSIS RESULTS – EXISTING INTERSECTIONS

INTERSECTION	AM PEAK HOUR		PM PEAK HOUR	
	Existing	Projected	Existing	Projected
1. Snapfinger Rd & Panola Rd	C(20.6)	C(21.0)	B(15.2)	C(15.3)
2. Browns Mill Rd & Panola Rd	D(41.8)	D(43.6)	D(54.9)	D(54.4)
3. Panola Rd & Salem Rd	C(32.5)	C(33.2)	C(24.9)	C(25.4)
4. Snapfinger Rd & Browns Mill Rd	C(30.8)	C(31.6)	C(23.3)	C(25.2)

Proposed Site Road Intersection at Panola Road

Table 5 provides the results of capacity analysis for the proposed roadway connection to Panola Road. The results shown in Table 5 reflect the recommended configuration shown on Page 15.

Table 5: CAPACITY ANALYSIS RESULTS – PROPOSED SITE ACCESS AT PANOLA ROAD

MOVEMENT	AM PEAK HOUR	PM PEAK HOUR
Northbound LT From Panola Rd	A(8.6)	A(7.2)
Eastbound LT From Site	C(21.8)	B(14.6)
Eastbound RT From Site	B(11.8)	B(3.7)

Chapter 8 – MITIGATIONS

Capacity analysis results indicate that levels of service are currently at LOS D or better for all existing intersections and will remain at the same LOS after the development with very little impact. There is no apparent need for improvement to any of the existing study intersections.

NEED FOR AUXILIARY LANES

The projected volumes for the intersection of the site access road and Panola Road were evaluated using the guidelines contained in the GDOT Driveway Manual. The speed limit on Panola Road is 35 MPH and the ADT is approximately 16,000. The threshold daily volumes requiring auxiliary turn lanes are shown in Table 6.

Table 6: GDOT GUIDELINES FOR AUXILIARY LEFT AND RIGHT TURN LANES

LEFT TURN LANE THRESHOLD

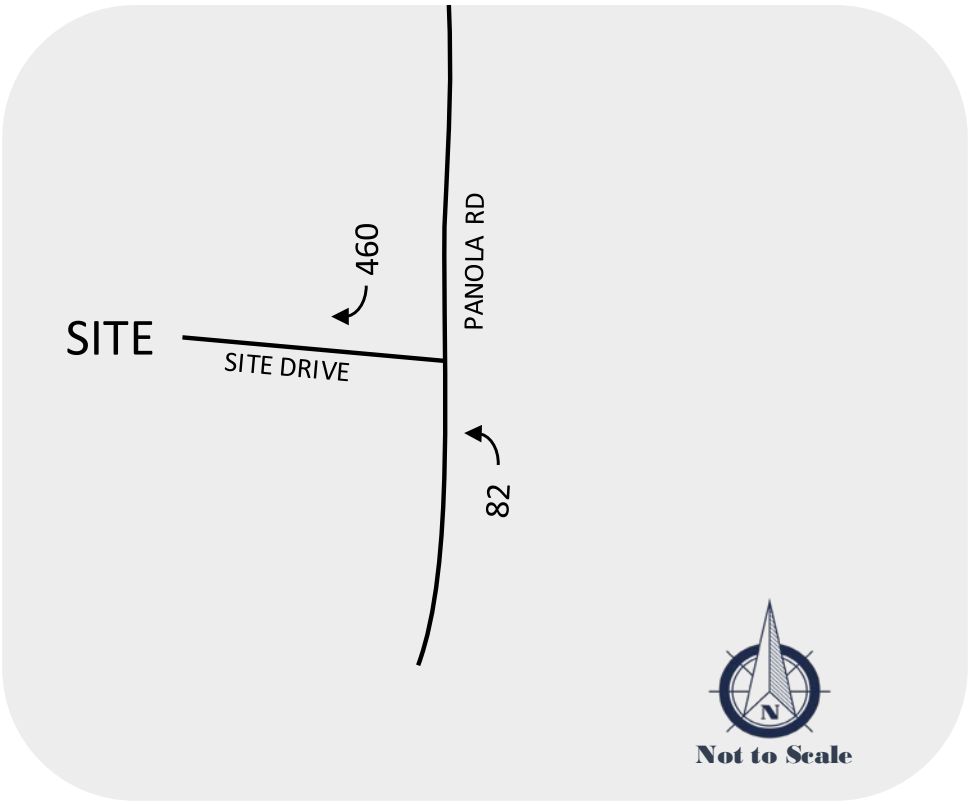
LEFT TURN REQUIREMENTS-FULL CONSTRUCTION				
Posted Speed	2 Lane Routes		More than 2 Lanes on Main Road	
	ADT		ADT	
	<6000	>=6000	<10000	>=10000
35 MPH or Less	300 LTV a day	200 LTV a day	400 LTV a day	300 LTV a day
40 to 50 MPH	250 LTV a day	175 LTV a day	325 LTV a day	250 LTV a day
>= 55 MPH	200 LTV a day	150 LTV a day	250 LTV a day	200 LTV a day

RIGHT TURN LANE THRESHOLD

Posted Speed	2 Lane Routes		More than 2 Lanes on Main Road	
	AADT		AADT	
	< 6000	>=6000	<10000	>=10000
35 MPH or Less	200 RTV a day	100 RTV a day	200 RTV a day	100 RTV a day
40 to 50 MPH	150 RTV a day	75 RTV a day	150 RTV a day	75 RTV a day
55 to 60 MPH	100 RTV a day	50 RTV a day	100 RTV a day	50 RTV a day
>= 65 MPH	Always	Always	Always	Always

The projected daily traffic volume for the left and right turn lanes are shown in Figure 9. These are based on the estimated 543 daily vehicles expected to enter the site, with 15.2 percent expected to enter from the south and 84.8 percent entering from the north.

Figure 9: PROJECTED DAILY TRAFFIC VOLUMES AT ENTRANCE



The projected left turn volume of 82 per day is much less than the 200 threshold for requiring a left turn lane. Therefore, a left turn lane is not needed.

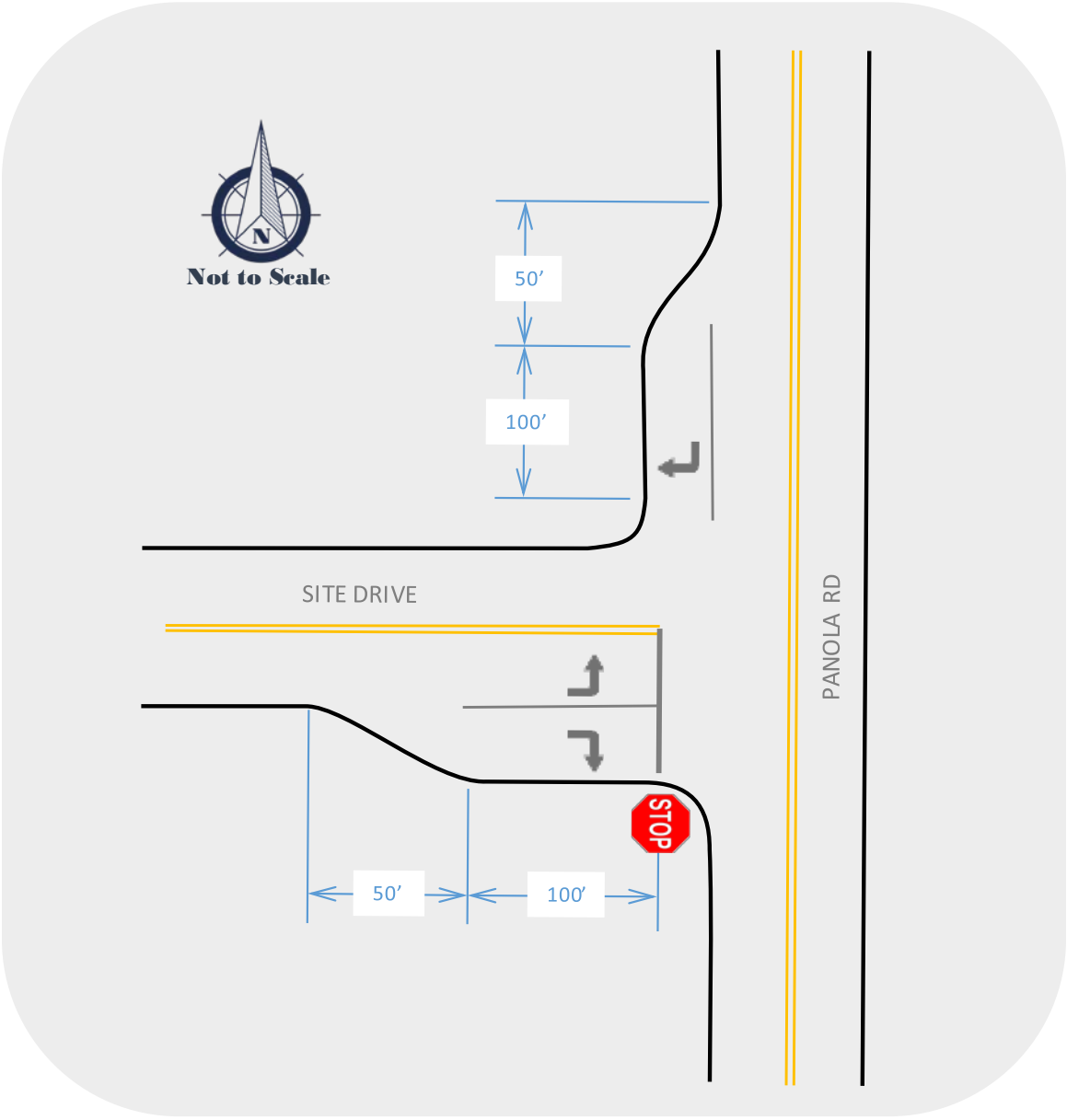
The projected right turn volume of 460 is much greater than the 100 threshold. A right turn lane should be constructed on Panola Road at the entrance to the subdivision.

Chapter 9 – RECOMMENDATIONS

The analysis does not indicate the need for any improvements to the existing study intersections.

Figure 10 illustrates the recommend configuration of the access intersection with Panola Road.

Figure 10: RECOMMENDED CONFIGURATION AT ENTRANCE ONTO PANOLA ROAD



APPENDICES

TURNING MOVEMENT COUNT DATA ..... A

CAPACITY ANALYSIS REPORTS - EXISTING CONDITIONS

AM PEAK HOUR ..... B
PM PEAK HOUR C

CAPACITY ANALYSIS REPORTS - PROJECTED CONDITIONS

AM PEAK HOUR ..... D
PM PEAK HOUR ..... E

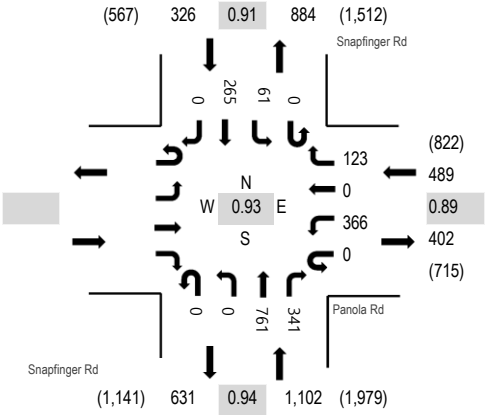
APPENDIX A

TRAFFIC DATA REPORTS

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

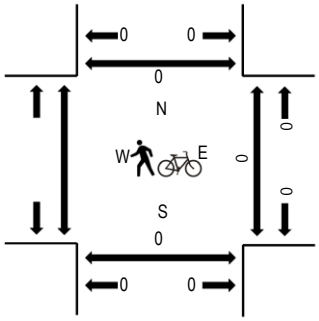
Location: #1 Snapfinger Rd & Panola Rd AM
Date and Start Time: Wednesday, February 13, 2019
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Eastbound				Panola Rd Westbound				Snapfinger Rd Northbound				Snapfinger Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM					0	74	0	6	0	0	196	71	0	6	45	0	398	1,839	0	0	0	0
7:15 AM					0	75	0	27	0	0	194	84	0	4	53	0	437	1,917	0	0	0	0
7:30 AM					0	106	0	31	0	0	210	85	0	11	73	0	516	1,870	0	0	0	0
7:45 AM					0	95	0	38	0	0	172	94	0	19	70	0	488	1,691	0	0	0	0
8:00 AM					0	90	0	27	0	0	185	78	0	27	69	0	476	1,529	0	0	0	0
8:15 AM					0	75	0	11	0	0	145	79	0	15	65	0	390		0	0	0	0
8:30 AM					0	85	0	12	0	0	120	64	0	5	51	0	337		0	0	0	0
8:45 AM					0	65	0	5	0	0	133	69	0	4	50	0	326		0	0	0	0

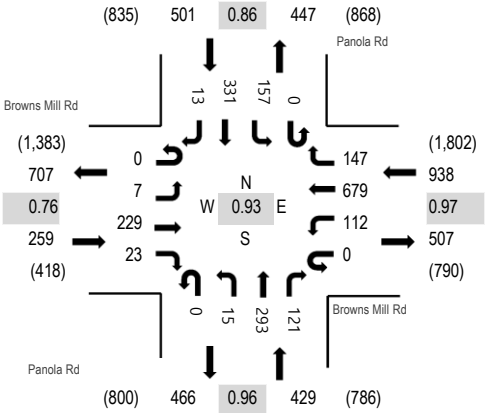
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks					0	0	0	0	0	0	1	0	0	0	2	0	3
Lights					0	358	0	109	0	0	747	330	0	50	247	0	1,841
Mediums					0	8	0	14	0	0	13	11	0	11	16	0	73
Total					0	366	0	123	0	0	761	341	0	61	265	0	1,917

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

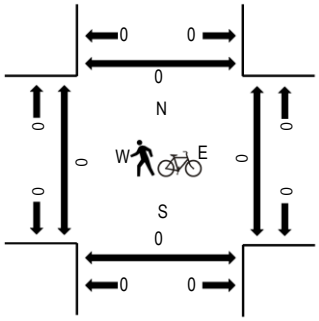
Location: #2 Panola Rd & Browns Mill Rd AM
Date and Start Time: Wednesday, February 13, 2019
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Browns Mill Rd Eastbound				Browns Mill Rd Westbound				Panola Rd Northbound				Panola Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	3	33	3	0	19	202	26	0	3	66	16	0	25	61	2	459	2,096	0	0	0	0
7:15 AM	0	1	37	11	0	12	197	32	0	7	68	23	0	32	79	4	503	2,127	0	0	0	0
7:30 AM	0	1	78	6	0	32	162	34	0	2	65	39	0	49	94	3	565	2,075	0	0	0	0
7:45 AM	0	1	75	2	0	41	150	52	0	3	82	27	0	42	90	4	569	1,922	0	0	0	0
8:00 AM	0	4	39	4	0	27	170	29	0	3	78	32	0	34	68	2	490	1,745	0	0	0	0
8:15 AM	0	0	39	3	0	28	162	30	0	4	83	16	0	15	67	4	451		0	0	0	0
8:30 AM	0	4	37	1	0	25	139	31	0	5	69	12	0	25	60	4	412		0	0	0	0
8:45 AM	0	2	32	2	0	16	143	43	0	5	64	14	0	19	49	3	392		0	0	0	0

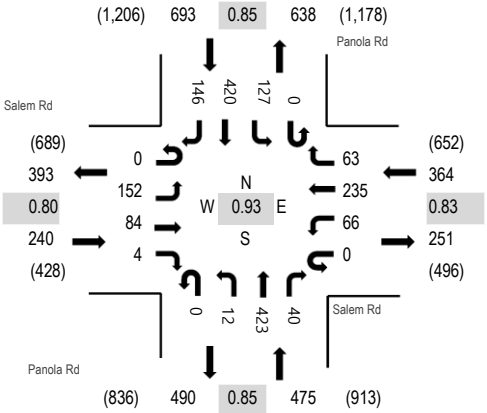
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Lights	0	6	222	22	0	100	668	143	0	15	286	110	0	156	324	13	2,065
Mediums	0	1	7	1	0	12	11	3	0	0	7	11	0	1	7	0	61
Total	0	7	229	23	0	112	679	147	0	15	293	121	0	157	331	13	2,127

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

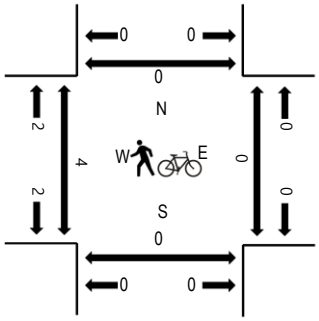
Location: #3 Panola Rd & Salem Rd AM
Date and Start Time: Wednesday, February 13, 2019
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Salem Rd Eastbound				Salem Rd Westbound				Panola Rd Northbound				Panola Rd Southbound				Total	Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	27	8	2	0	12	57	9	0	2	100	1	0	23	73	37	351	1,702	0	0	0	0
7:15 AM	0	45	11	1	0	16	56	26	0	1	98	3	0	19	104	43	423	1,772	4	0	0	0
7:30 AM	0	43	13	1	0	24	71	16	0	2	96	8	0	42	116	45	477	1,737	0	0	0	0
7:45 AM	0	24	26	1	0	12	60	10	0	4	126	16	0	26	115	31	451	1,635	0	0	0	0
8:00 AM	0	40	34	1	0	14	48	11	0	5	103	13	0	40	85	27	421	1,497	0	0	0	0
8:15 AM	0	30	26	2	0	13	72	6	0	1	93	17	0	38	71	19	388		0	0	0	0
8:30 AM	0	27	17	1	0	15	41	16	0	0	98	18	0	37	82	23	375		0	0	0	0
8:45 AM	0	21	25	2	0	9	26	12	0	0	101	7	0	28	64	18	313		0	0	0	0

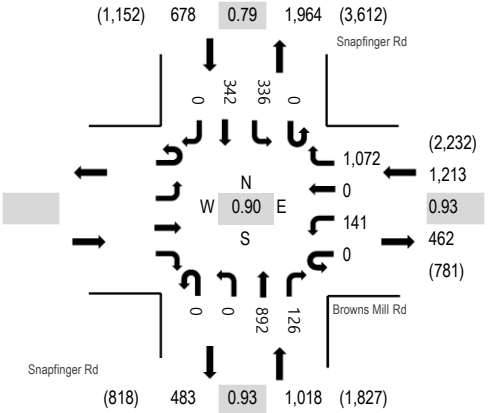
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4
Lights	0	147	74	4	0	63	218	60	0	12	413	37	0	111	412	133	1,684
Mediums	0	5	10	0	0	3	17	3	0	0	7	3	0	16	7	13	84
Total	0	152	84	4	0	66	235	63	0	12	423	40	0	127	420	146	1,772

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

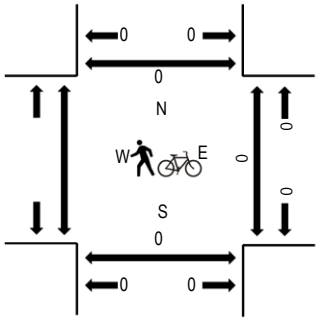
Location: #4 Snapfinger Rd & Browns Mill Rd AM
Date and Start Time: Wednesday, February 13, 2019
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Eastbound				Browns Mill Rd Westbound				Snapfinger Rd Northbound				Snapfinger Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM					0	13	0	282	0	0	233	22	0	58	48	0	656	2,903	0	0	0	0
7:15 AM					0	26	0	271	0	0	215	39	0	72	60	0	683	2,909	0	0	0	0
7:30 AM					0	52	0	284	0	0	210	24	0	102	80	0	752	2,823	0	0	0	0
7:45 AM					0	46	0	277	0	0	237	37	0	87	128	0	812	2,652	0	0	0	0
8:00 AM					0	17	0	240	0	0	230	26	0	75	74	0	662	2,308	0	0	0	0
8:15 AM					0	35	0	231	0	0	177	21	0	65	68	0	597		0	0	0	0
8:30 AM					0	35	0	234	0	0	174	22	0	56	60	0	581		0	0	0	0
8:45 AM					0	16	0	173	0	0	144	16	0	59	60	0	468		0	0	0	0

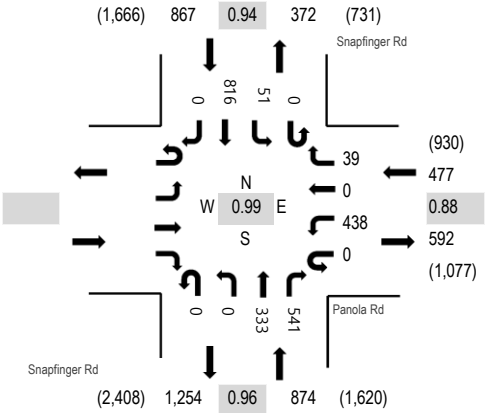
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks					0	0	0	0	0	0	1	0	0	1	2	0	4
Lights					0	119	0	1,050	0	0	874	113	0	328	324	0	2,808
Mediums					0	22	0	22	0	0	17	13	0	7	16	0	97
Total					0	141	0	1,072	0	0	892	126	0	336	342	0	2,909

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

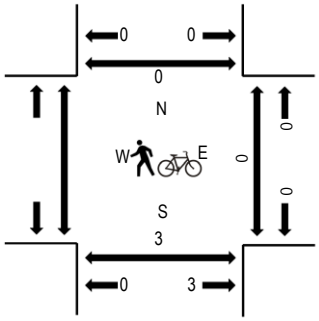
Location: #1 Snapfinger Rd & Panola Rd PM
Date and Start Time: Wednesday, February 13, 2019
Peak Hour: 05:15 PM - 06:15 PM
Peak 15-Minutes: 06:00 PM - 06:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Eastbound				Panola Rd Westbound				Snapfinger Rd Northbound				Snapfinger Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:30 PM					0	95	0	9	0	0	63	104	0	20	163	0	454	2,039		0	0	0
4:45 PM					0	106	0	6	0	0	84	105	0	14	201	0	516	2,137		0	1	0
5:00 PM					0	134	0	6	0	0	72	109	0	10	195	0	526	2,182		0	0	0
5:15 PM					0	110	0	5	0	0	90	126	0	10	202	0	543	2,218		0	2	0
5:30 PM					0	103	0	12	0	0	69	137	0	14	217	0	552	2,177		0	0	0
5:45 PM					0	113	0	11	0	0	81	146	0	15	195	0	561			0	1	0
6:00 PM					0	112	0	11	0	0	93	132	0	12	202	0	562			0	0	0
6:15 PM					0	85	0	12	0	0	107	102	0	21	175	0	502			0	0	0

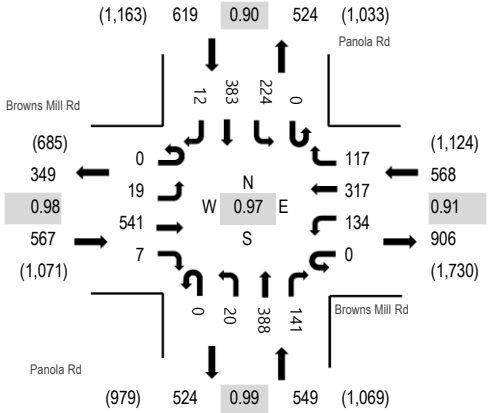
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks					0	1	0	0	0	0	1	3	0	0	2	0	7
Lights					0	426	0	38	0	0	327	535	0	51	811	0	2,188
Mediums					0	11	0	1	0	0	5	3	0	0	3	0	23
Total					0	438	0	39	0	0	333	541	0	51	816	0	2,218

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

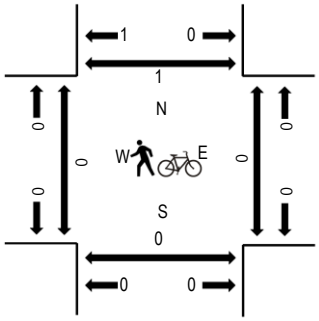
Location: #2 Panola Rd & Browns Mill Rd PM
Date and Start Time: Wednesday, February 13, 2019
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:45 PM - 06:00 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Browns Mill Rd Eastbound				Browns Mill Rd Westbound				Panola Rd Northbound				Panola Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:30 PM	0	8	111	5	0	29	74	31	0	0	85	28	0	44	86	3	504	2,181	0	0	0	0
4:45 PM	0	1	143	0	0	30	65	26	0	7	75	37	0	46	102	5	537	2,244	0	0	0	2
5:00 PM	0	2	138	0	0	35	67	35	0	3	80	35	0	67	99	5	566	2,303	0	0	0	0
5:15 PM	0	9	137	1	0	29	85	25	0	7	110	26	0	51	93	1	574	2,282	0	0	0	0
5:30 PM	0	6	137	4	0	30	76	23	0	6	97	39	0	50	96	3	567	2,246	0	0	0	0
5:45 PM	0	2	129	2	0	40	89	34	0	4	101	41	0	56	95	3	596		0	0	0	1
6:00 PM	0	6	113	1	0	31	89	32	0	6	96	43	0	58	66	4	545		0	0	0	1
6:15 PM	0	8	107	1	0	27	76	46	0	3	95	45	0	49	77	4	538		0	0	0	1

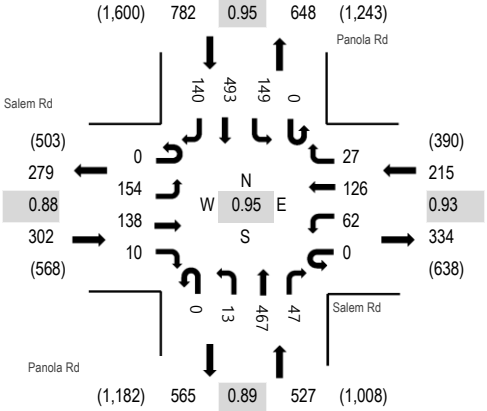
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	2	0	0	0	1	0	0	0	1	1	0	0	1	0	7
Lights	0	18	534	7	0	129	314	116	0	20	384	138	0	223	376	12	2,271
Mediums	0	0	5	0	0	5	2	1	0	0	3	2	0	1	6	0	25
Total	0	19	541	7	0	134	317	117	0	20	388	141	0	224	383	12	2,303

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

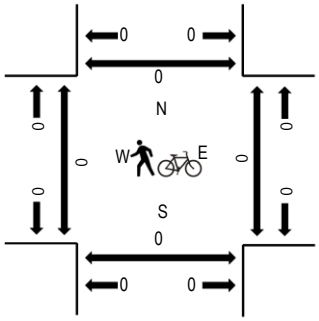
Location: #3 Panola Rd & Salem Rd PM
Date and Start Time: Wednesday, February 13, 2019
Peak Hour: 05:30 PM - 06:30 PM
Peak 15-Minutes: 06:15 PM - 06:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Salem Rd Eastbound				Salem Rd Westbound				Panola Rd Northbound				Panola Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:30 PM	0	32	28	3	0	11	23	5	0	1	112	9	0	40	135	21	420	1,740	0	0	0	0
4:45 PM	0	42	25	2	0	11	32	3	0	4	98	11	0	30	140	28	426	1,785	2	0	1	0
5:00 PM	0	38	25	2	0	13	29	9	0	3	99	13	0	35	158	23	447	1,806	2	3	0	0
5:15 PM	0	34	32	3	0	4	27	8	0	1	115	15	0	41	135	32	447	1,792	2	0	1	0
5:30 PM	0	41	31	4	0	21	29	7	0	4	112	13	0	33	133	37	465	1,826	0	0	0	0
5:45 PM	0	39	42	3	0	15	32	8	0	2	114	12	0	34	116	30	447		0	0	0	0
6:00 PM	0	25	29	2	0	10	42	6	0	6	107	9	0	40	122	35	433		0	0	0	0
6:15 PM	0	49	36	1	0	16	23	6	0	1	134	13	0	42	122	38	481		0	0	0	0

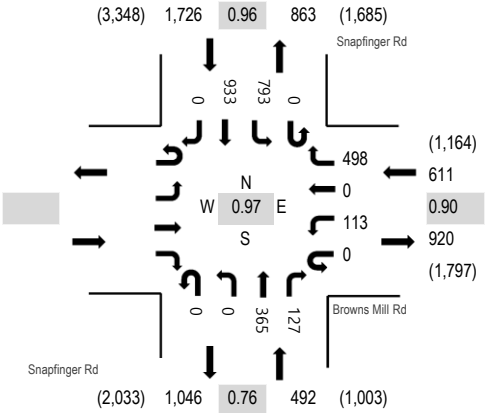
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
Lights	0	152	138	10	0	62	124	27	0	13	462	46	0	149	487	138	1,808
Mediums	0	2	0	0	0	0	2	0	0	0	4	0	0	0	6	2	16
Total	0	154	138	10	0	62	126	27	0	13	467	47	0	149	493	140	1,826

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

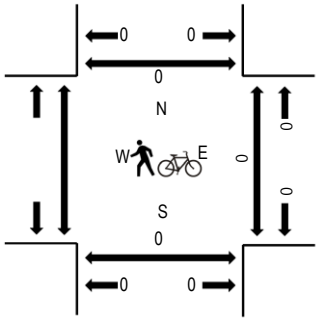
Location: #4 Snapfinger Rd & Browns Mill Rd PM
Date and Start Time: Wednesday, February 13, 2019
Peak Hour: 05:15 PM - 06:15 PM
Peak 15-Minutes: 05:45 PM - 06:00 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	Eastbound				Browns Mill Rd Westbound				Snapfinger Rd Northbound				Snapfinger Rd Southbound					Rolling Hour	Pedestrain Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:30 PM					0	48	0	98	0	0	81	16	0	189	203	0	635	2,688		0	0	0
4:45 PM					0	22	0	109	0	0	99	30	0	197	223	0	680	2,724		0	0	0
5:00 PM					0	26	0	106	0	0	86	22	0	204	212	0	656	2,774		0	0	0
5:15 PM					0	22	0	118	0	0	97	33	0	204	243	0	717	2,829		0	0	0
5:30 PM					0	33	0	126	0	0	69	29	0	193	221	0	671	2,827		0	0	0
5:45 PM					0	24	0	117	0	0	102	36	0	209	242	0	730			0	0	0
6:00 PM					0	34	0	137	0	0	97	29	0	187	227	0	711			0	0	0
6:15 PM					0	29	0	115	0	0	128	49	0	170	224	0	715			0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks					0	0	0	1	0	0	0	1	0	0	1	0	3
Lights					0	112	0	494	0	0	356	125	0	789	926	0	2,802
Mediums					0	1	0	3	0	0	9	1	0	4	6	0	24
Total					0	113	0	498	0	0	365	127	0	793	933	0	2,829

APPENDIX B

CAPACITY ANALYSIS REPORTS – EXISTING CONDITIONS

AM PEAK HOUR

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	141	1072	892	126	336	342
Future Volume (vph)	141	1072	892	126	336	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	175		350	250	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1556	1583	1863	1468	1770	3438
Flt Permitted	0.950				0.069	
Satd. Flow (perm)	1556	1583	1863	1468	129	3438
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		426		135		
Link Speed (mph)	35		45			45
Link Distance (ft)	2000		2551			441
Travel Time (s)	39.0		38.7			6.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	16%	2%	2%	10%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	1153	959	135	425	433
Turn Type	Prot	Free	NA	Perm	pm+pt	NA
Protected Phases	8		6		5	2
Permitted Phases		Free		6	2	
Detector Phase	8		6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	15.0		23.5	23.5	10.5	23.5
Total Split (s)	15.0		62.6	62.6	22.4	85.0
Total Split (%)	15.0%		62.6%	62.6%	22.4%	85.0%
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5		5.5	5.5	5.5	5.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	9.6	95.5	52.3	52.3	74.9	74.9
Actuated g/C Ratio	0.10	1.00	0.55	0.55	0.78	0.78
v/c Ratio	0.98	0.73	0.94	0.16	1.08	0.16
Control Delay	114.2	3.0	37.8	2.2	98.9	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.2	3.0	37.8	2.2	98.9	2.6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	F	A	D	A	F	A
Approach Delay	15.9		33.4			50.3
Approach LOS	B		C			D
Queue Length 50th (ft)	~104	0	507	0	~259	26
Queue Length 95th (ft)	#231	0	#810	25	#355	31
Internal Link Dist (ft)	1920		2471			361
Turn Bay Length (ft)		175		350	250	
Base Capacity (vph)	155	1583	1120	936	393	2878
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	0.98	0.73	0.86	0.14	1.08	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 95.5			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 30.8		Intersection LOS: C	
Intersection Capacity Utilization 87.1%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 3: Snapfinger Rd & Browns Mill Rd

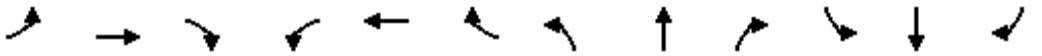
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	366	123	761	341	61	265
Future Volume (vph)	366	123	761	341	61	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	250		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	1455	3366	0	1530	3374
Flt Permitted	0.950				0.129	
Satd. Flow (perm)	1770	1455	3366	0	208	3374
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		138	125			
Link Speed (mph)	35		55			55
Link Distance (ft)	437		699			636
Travel Time (s)	8.5		8.7			7.9
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.94	0.94	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	11%	2%	3%	18%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	411	138	1173	0	67	291
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	15.0	15.0	35.0		11.0	35.0
Total Split (s)	24.0	24.0	35.0		11.0	46.0
Total Split (%)	34.3%	34.3%	50.0%		15.7%	65.7%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min		None	Min
Act Effct Green (s)	17.5	17.5	24.9		30.7	30.7
Actuated g/C Ratio	0.29	0.29	0.41		0.51	0.51
v/c Ratio	0.81	0.27	0.81		0.31	0.17
Control Delay	38.2	6.1	19.9		10.7	7.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	38.2	6.1	19.9		10.7	7.8

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D	A	B		B	A
Approach Delay	30.1		19.9			8.3
Approach LOS	C		B			A
Queue Length 50th (ft)	171	0	201		12	27
Queue Length 95th (ft)	#322	38	281		27	44
Internal Link Dist (ft)	357		619			556
Turn Bay Length (ft)		250			100	
Base Capacity (vph)	548	545	1742		219	2322
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	0.75	0.25	0.67		0.31	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 60.7			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 20.6		Intersection LOS: C	
Intersection Capacity Utilization 71.4%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 12: Snapfinger Rd & Panola Rd



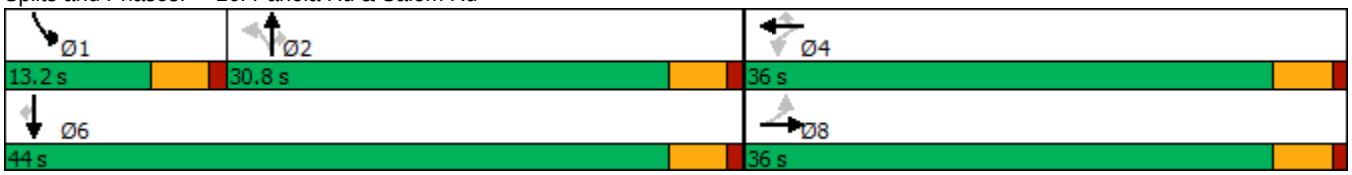
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	84	4	66	235	63	12	423	40	127	420	146
Future Volume (vph)	152	84	4	66	235	63	12	423	40	127	420	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		5%			6%			2%			2%	
Storage Length (ft)	0		0	0		250	130		130	75		75
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1688	0	0	1711	1492	1787	1844	1480	1581	1844	1467
Flt Permitted		0.468			0.873		0.483			0.950		
Satd. Flow (perm)	0	815	0	0	1510	1492	909	1844	1480	1581	1844	1467
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				82			82			124
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		947			1993			1884			992	
Travel Time (s)		18.4			38.8			36.7			19.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.83	0.83	0.83	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	12%	0%	5%	7%	5%	0%	2%	8%	13%	2%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	300	0	0	363	76	14	498	47	149	494	172
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4		4	2		2			6
Detector Phase	8	8		4	4	4	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	36.0	36.0		36.0	36.0	36.0	30.8	30.8	30.8	13.2	44.0	44.0
Total Split (%)	45.0%	45.0%		45.0%	45.0%	45.0%	38.5%	38.5%	38.5%	16.5%	55.0%	55.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	Min
Act Effct Green (s)		30.3			30.3	30.3	23.6	23.6	23.6	8.8	36.9	36.9
Actuated g/C Ratio		0.40			0.40	0.40	0.31	0.31	0.31	0.12	0.48	0.48
v/c Ratio		0.93			0.61	0.12	0.05	0.87	0.09	0.82	0.55	0.22
Control Delay		60.5			24.0	4.2	19.1	42.9	2.1	71.1	16.9	4.7
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		60.5			24.0	4.2	19.1	42.9	2.1	71.1	16.9	4.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		E			C	A	B	D	A	E	B	A
Approach Delay		60.5			20.6			38.9			24.3	
Approach LOS		E			C			D			C	
Queue Length 50th (ft)		140			141	0	5	226	0	75	162	12
Queue Length 95th (ft)		#247			205	19	16	#347	8	#164	228	39
Internal Link Dist (ft)		867			1913			1804			912	
Turn Bay Length (ft)						250	130		130	75		75
Base Capacity (vph)		339			627	668	315	639	567	181	960	823
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		0.88			0.58	0.11	0.04	0.78	0.08	0.82	0.51	0.21

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 76.3
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 32.5 Intersection LOS: C
Intersection Capacity Utilization 73.4% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Panola Rd & Salem Rd



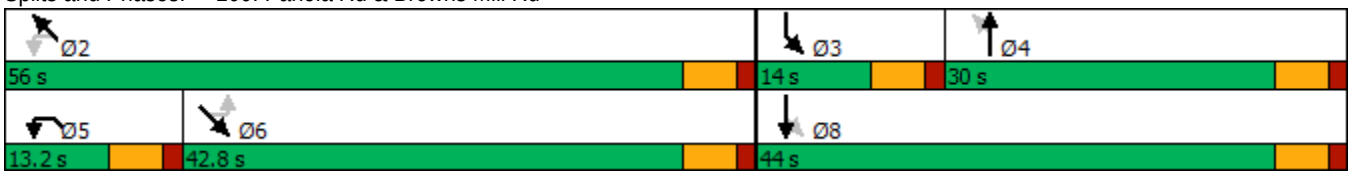
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	15	293	121	157	331	13	7	229	23	112	679	147
Future Volume (vph)	15	293	121	157	331	13	7	229	23	112	679	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	200		0	200		0	180		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	1746	0	1787	1853	0	1583	1817	0	1626	1809	0
Flt Permitted	0.526			0.133			0.115			0.365		
Satd. Flow (perm)	999	1746	0	250	1853	0	192	1817	0	625	1809	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			2			6			16	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1200			976			1163			1312	
Travel Time (s)		23.4			19.0			22.7			25.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.86	0.86	0.86	0.76	0.76	0.76	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	9%	1%	2%	0%	14%	3%	4%	11%	2%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	431	0	183	400	0	9	331	0	115	852	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			6		5	2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		3	8		6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	12.0		10.5	12.0		23.5	23.5		10.5	23.5	
Total Split (s)	30.0	30.0		14.0	44.0		42.8	42.8		13.2	56.0	
Total Split (%)	30.0%	30.0%		14.0%	44.0%		42.8%	42.8%		13.2%	56.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)	24.6	24.6		38.6	38.6		34.9	34.9		47.9	47.9	
Actuated g/C Ratio	0.25	0.25		0.40	0.40		0.36	0.36		0.49	0.49	
v/c Ratio	0.06	0.95		0.79	0.54		0.13	0.51		0.30	0.95	
Control Delay	30.0	67.6		46.4	26.7		26.4	27.1		15.5	44.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.0	67.6		46.4	26.7		26.4	27.1		15.5	44.5	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
LOS	C	E		D	C		C	C		B	D	
Approach Delay		66.2			32.9			27.1			41.1	
Approach LOS		E			C			C			D	
Queue Length 50th (ft)	8	262		79	196		4	156		37	477	
Queue Length 95th (ft)	25	#461		#162	272		14	191		69	#751	
Internal Link Dist (ft)		1120			896			1083			1232	
Turn Bay Length (ft)	200			200			200			180		
Base Capacity (vph)	251	454		233	734		73	700		385	947	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.95		0.79	0.54		0.12	0.47		0.30	0.90	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 97.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 41.8		Intersection LOS: D	
Intersection Capacity Utilization 98.7%		ICU Level of Service F	
Analysis Period (min) 15			

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

Splits and Phases: 100: Panola Rd & Browns Mill Rd



APPENDIX C

CAPACITY ANALYSIS REPORTS – EXISTING CONDITIONS

PM PEAK HOUR

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	498	365	127	793	933
Future Volume (vph)	113	498	365	127	793	933
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	175		350	250	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1787	1599	1863	1583	1787	3574
Flt Permitted	0.950				0.148	
Satd. Flow (perm)	1787	1599	1863	1583	278	3574
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		553		167		
Link Speed (mph)	35		45			45
Link Distance (ft)	2000		2551			441
Travel Time (s)	39.0		38.7			6.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.76	0.76	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	126	553	480	167	826	972
Turn Type	Prot	Free	NA	Perm	pm+pt	NA
Protected Phases	8		6		5	2
Permitted Phases		Free		6	2	
Detector Phase	8		6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	15.0		23.5	23.5	10.5	23.5
Total Split (s)	15.0		28.0	28.0	37.0	65.0
Total Split (%)	18.8%		35.0%	35.0%	46.3%	81.3%
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5		5.5	5.5	5.5	5.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	8.8	75.9	21.5	21.5	59.0	60.4
Actuated g/C Ratio	0.12	1.00	0.28	0.28	0.78	0.80
v/c Ratio	0.61	0.35	0.91	0.29	0.97	0.34
Control Delay	46.9	0.6	51.8	5.6	45.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.9	0.6	51.8	5.6	45.1	3.5

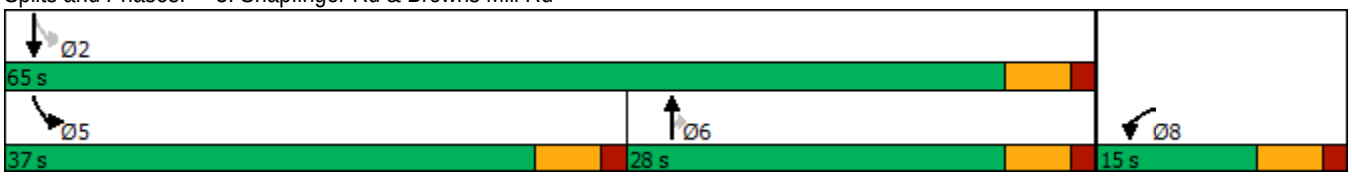
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D	A	D	A	D	A
Approach Delay	9.2		39.9			22.6
Approach LOS	A		D			C
Queue Length 50th (ft)	61	0	231	0	~396	71
Queue Length 95th (ft)	#126	0	#303	26	#616	94
Internal Link Dist (ft)	1920		2471			361
Turn Bay Length (ft)		175		350	250	
Base Capacity (vph)	226	1599	559	592	850	2839
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	0.56	0.35	0.86	0.28	0.97	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.9			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 23.3		Intersection LOS: C	
Intersection Capacity Utilization 83.2%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 3: Snapfinger Rd & Browns Mill Rd



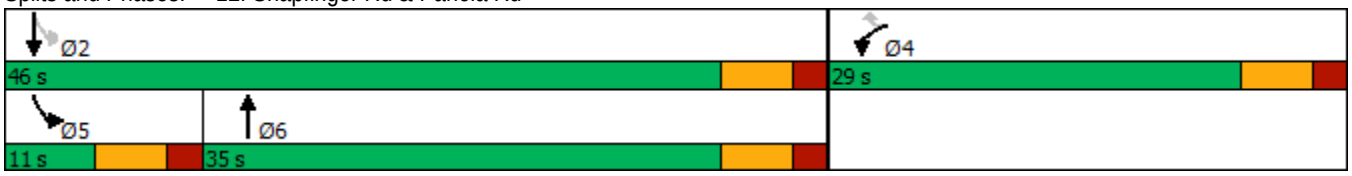
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	438	39	333	541	51	816
Future Volume (vph)	438	39	333	541	51	816
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	250		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1752	1568	3230	0	1805	3574
Flt Permitted	0.950				0.169	
Satd. Flow (perm)	1752	1568	3230	0	321	3574
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		44	564			
Link Speed (mph)	35		55			55
Link Distance (ft)	437		699			636
Travel Time (s)	8.5		8.7			7.9
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.96	0.96	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	2%	1%	0%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	498	44	911	0	54	868
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	15.0	15.0	35.0		11.0	35.0
Total Split (s)	29.0	29.0	35.0		11.0	46.0
Total Split (%)	38.7%	38.7%	46.7%		14.7%	61.3%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min		None	Min
Act Effct Green (s)	21.0	21.0	17.6		23.4	23.4
Actuated g/C Ratio	0.37	0.37	0.31		0.41	0.41
v/c Ratio	0.77	0.07	0.66		0.20	0.59
Control Delay	28.3	6.1	9.4		11.5	14.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	28.3	6.1	9.4		11.5	14.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	C	A	A		B	B
Approach Delay	26.5		9.4			14.3
Approach LOS	C		A			B
Queue Length 50th (ft)	153	0	56		11	121
Queue Length 95th (ft)	#351	19	111		28	167
Internal Link Dist (ft)	357		619			556
Turn Bay Length (ft)		250			100	
Base Capacity (vph)	735	683	1974		267	2608
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	0.68	0.06	0.46		0.20	0.33

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 56.9			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 15.2		Intersection LOS: B	
Intersection Capacity Utilization 70.1%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 12: Snapfinger Rd & Panola Rd



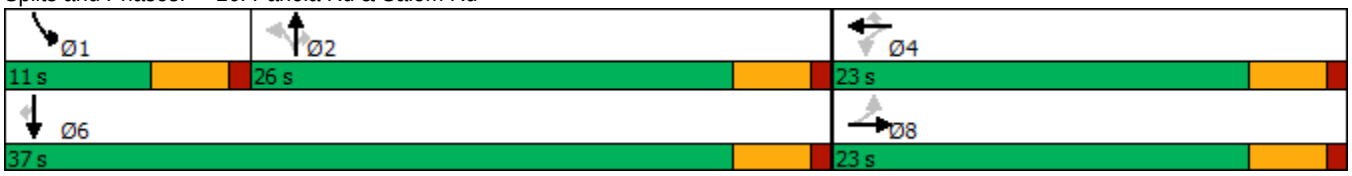
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	138	10	62	126	27	13	467	47	149	493	140
Future Volume (vph)	154	138	10	62	126	27	13	467	47	149	493	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		5%			6%			2%			2%	
Storage Length (ft)	0		0	0		250	130		130	75		75
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1790	0	0	1790	1567	1787	1862	1567	1787	1862	1583
Flt Permitted		0.717			0.814		0.472			0.950		
Satd. Flow (perm)	0	1316	0	0	1480	1567	888	1862	1567	1787	1862	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				109			109			147
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		947			1993			1884			992	
Travel Time (s)		18.4			38.8			36.7			19.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	0%	0%	2%	0%	0%	1%	2%	0%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	343	0	0	202	29	15	525	53	157	519	147
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4		4	2		2			6
Detector Phase	8	8		4	4	4	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	23.0	23.0		23.0	23.0	23.0	26.0	26.0	26.0	11.0	37.0	37.0
Total Split (%)	38.3%	38.3%		38.3%	38.3%	38.3%	43.3%	43.3%	43.3%	18.3%	61.7%	61.7%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	Min
Act Effct Green (s)		17.3			17.3	17.3	19.1	19.1	19.1	6.6	30.3	30.3
Actuated g/C Ratio		0.31			0.31	0.31	0.34	0.34	0.34	0.12	0.53	0.53
v/c Ratio		0.85			0.45	0.05	0.05	0.84	0.09	0.76	0.52	0.16
Control Delay		41.6			20.2	0.2	13.2	31.5	1.0	53.3	11.1	2.0
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		41.6			20.2	0.2	13.2	31.5	1.0	53.3	11.1	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D			C	A	B	C	A	D	B	A
Approach Delay		41.6			17.7			28.3			17.5	
Approach LOS		D			B			C			B	
Queue Length 50th (ft)		113			58	0	3	165	0	57	108	0
Queue Length 95th (ft)		#240			111	0	14	#306	5	#147	179	20
Internal Link Dist (ft)		867			1913			1804			912	
Turn Bay Length (ft)						250	130		130	75		75
Base Capacity (vph)		435			488	590	340	714	668	207	1079	979
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			0.41	0.05	0.04	0.74	0.08	0.76	0.48	0.15

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 56.7
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 24.9 Intersection LOS: C
Intersection Capacity Utilization 74.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Panola Rd & Salem Rd



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	20	388	141	224	383	12	19	541	7	134	317	117
Future Volume (vph)	20	388	141	224	383	12	19	541	7	134	317	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	200		0	200		0	180		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	1801	0	1805	1856	0	1719	1878	0	1736	1804	0
Flt Permitted	0.508			0.132			0.490			0.110		
Satd. Flow (perm)	965	1801	0	251	1856	0	887	1878	0	201	1804	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			2			1			27	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1200			976			1163			1312	
Travel Time (s)		23.4			19.0			22.7			25.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.99	0.99	0.99	0.90	0.90	0.90	0.98	0.98	0.98	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	2%	0%	2%	0%	5%	1%	0%	4%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	534	0	249	439	0	19	559	0	147	477	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			6		5	2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		3	8		6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	12.0		10.5	12.0		23.5	23.5		10.5	23.5	
Total Split (s)	30.0	30.0		14.0	44.0		42.8	42.8		13.2	56.0	
Total Split (%)	30.0%	30.0%		14.0%	44.0%		42.8%	42.8%		13.2%	56.0%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)	24.6	24.6		38.7	38.7		31.9	31.9		45.1	45.1	
Actuated g/C Ratio	0.26	0.26		0.41	0.41		0.34	0.34		0.48	0.48	
v/c Ratio	0.08	1.11		1.03	0.58		0.06	0.89		0.67	0.55	
Control Delay	29.9	110.0		92.5	26.6		21.1	46.7		31.0	19.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.9	110.0		92.5	26.6		21.1	46.7		31.0	19.0	

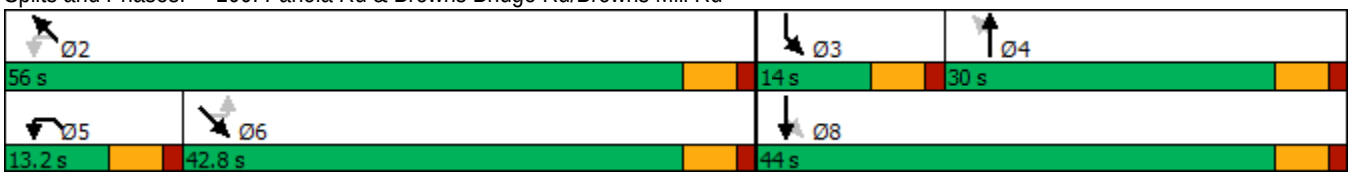
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
LOS	C	F		F	C		C	D		C	B	
Approach Delay		107.1			50.4			45.8			21.8	
Approach LOS		F			D			D			C	
Queue Length 50th (ft)	10	~385		~119	211		8	313		49	183	
Queue Length 95th (ft)	30	#610		#286	325		24	#466		#114	274	
Internal Link Dist (ft)		1120			896			1083			1232	
Turn Bay Length (ft)	200			200			200			180		
Base Capacity (vph)	250	480		242	757		350	742		220	977	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.08	1.11		1.03	0.58		0.05	0.75		0.67	0.49	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 94.8			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 54.9		Intersection LOS: D	
Intersection Capacity Utilization 96.1%		ICU Level of Service F	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 100: Panola Rd & Browns Bridge Rd/Browns Mill Rd



APPENDIX D

CAPACITY ANALYSIS REPORTS – PROJECTED CONDITIONS

AM PEAK HOUR

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	141	1104	892	126	347	342
Future Volume (vph)	141	1104	892	126	347	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	175		350	250	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1556	1583	1863	1468	1770	3438
Flt Permitted	0.950				0.077	
Satd. Flow (perm)	1556	1583	1863	1468	143	3438
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		460		135		
Link Speed (mph)	35		45			45
Link Distance (ft)	2000		2551			441
Travel Time (s)	39.0		38.7			6.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.94	0.93	0.93	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	16%	2%	2%	10%	2%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	1174	959	135	439	433
Turn Type	Prot	Free	NA	Perm	pm+pt	NA
Protected Phases	8		6		5	2
Permitted Phases		Free		6	2	
Detector Phase	8		6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	15.0		23.5	23.5	10.5	23.5
Total Split (s)	15.0		51.9	51.9	23.1	75.0
Total Split (%)	16.7%		57.7%	57.7%	25.7%	83.3%
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5		5.5	5.5	5.5	5.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	9.5	90.0	46.4	46.4	69.5	69.5
Actuated g/C Ratio	0.11	1.00	0.52	0.52	0.77	0.77
v/c Ratio	0.93	0.74	1.00	0.16	1.03	0.16
Control Delay	95.9	3.2	52.3	2.6	77.8	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.9	3.2	52.3	2.6	77.8	2.8

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	F	A	D	A	E	A
Approach Delay	13.8		46.1			40.6
Approach LOS	B		D			D
Queue Length 50th (ft)	87	0	517	0	~217	26
Queue Length 95th (ft)	#203	0	#804	27	#315	32
Internal Link Dist (ft)	1920		2471			361
Turn Bay Length (ft)		175		350	250	
Base Capacity (vph)	164	1583	960	822	428	2654
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	0.93	0.74	1.00	0.16	1.03	0.16

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.03			
Intersection Signal Delay: 31.6		Intersection LOS: C	
Intersection Capacity Utilization 87.7%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 3: Snapfinger Rd & Browns Mill Rd

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	376	123	761	344	61	265
Future Volume (vph)	376	123	761	344	61	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	250		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1770	1455	3363	0	1530	3374
Flt Permitted	0.950				0.129	
Satd. Flow (perm)	1770	1455	3363	0	208	3374
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		138	127			
Link Speed (mph)	35		55			55
Link Distance (ft)	437		699			636
Travel Time (s)	8.5		8.7			7.9
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.89	0.89	0.94	0.94	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	11%	2%	3%	18%	7%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	422	138	1176	0	67	291
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	15.0	15.0	35.0		11.0	35.0
Total Split (s)	24.0	24.0	35.0		11.0	46.0
Total Split (%)	34.3%	34.3%	50.0%		15.7%	65.7%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min		None	Min
Act Effct Green (s)	17.7	17.7	25.0		30.8	30.8
Actuated g/C Ratio	0.29	0.29	0.41		0.50	0.50
v/c Ratio	0.82	0.26	0.81		0.31	0.17
Control Delay	39.4	6.1	20.0		10.8	7.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	39.4	6.1	20.0		10.8	7.8

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D	A	C		B	A
Approach Delay	31.2		20.0			8.4
Approach LOS	C		C			A
Queue Length 50th (ft)	177	0	202		12	27
Queue Length 95th (ft)	#333	38	283		27	44
Internal Link Dist (ft)	357		619			556
Turn Bay Length (ft)		250			100	
Base Capacity (vph)	543	542	1727		217	2301
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	0.78	0.25	0.68		0.31	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 61			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 21.0		Intersection LOS: C	
Intersection Capacity Utilization 72.0%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 12: Snapfinger Rd & Panola Rd

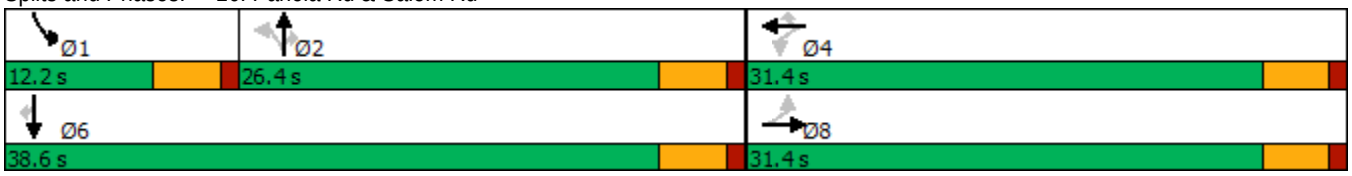
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	84	4	67	235	63	12	433	44	127	423	146
Future Volume (vph)	152	84	4	67	235	63	12	433	44	127	423	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		5%			6%			2%			2%	
Storage Length (ft)	0		0	0		250	130		130	75		75
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1688	0	0	1711	1492	1787	1844	1480	1581	1844	1467
Flt Permitted		0.469			0.874		0.481			0.950		
Satd. Flow (perm)	0	817	0	0	1512	1492	905	1844	1480	1581	1844	1467
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				94			94			139
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		947			1993			1884			992	
Travel Time (s)		18.4			38.8			36.7			19.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.80	0.80	0.80	0.83	0.83	0.83	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	12%	0%	5%	7%	5%	0%	2%	8%	13%	2%	9%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	300	0	0	364	76	14	509	52	149	498	172
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4		4	2		2			6
Detector Phase	8	8		4	4	4	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	31.4	31.4		31.4	31.4	31.4	26.4	26.4	26.4	12.2	38.6	38.6
Total Split (%)	44.9%	44.9%		44.9%	44.9%	44.9%	37.7%	37.7%	37.7%	17.4%	55.1%	55.1%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	Min
Act Effct Green (s)		26.8			26.8	26.8	21.0	21.0	21.0	7.7	33.2	33.2
Actuated g/C Ratio		0.39			0.39	0.39	0.30	0.30	0.30	0.11	0.48	0.48
v/c Ratio		0.95			0.62	0.12	0.05	0.91	0.10	0.85	0.56	0.22
Control Delay		63.9			23.0	3.1	17.6	46.0	1.9	72.0	15.7	3.8
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		63.9			23.0	3.1	17.6	46.0	1.9	72.0	15.7	3.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		E			C	A	B	D	A	E	B	A
Approach Delay		63.9			19.5			41.3			23.5	
Approach LOS		E			B			D			C	
Queue Length 50th (ft)		122			124	0	4	206	0	64	142	7
Queue Length 95th (ft)		#228			187	15	15	#340	7	#149	207	32
Internal Link Dist (ft)		867			1913			1804			912	
Turn Bay Length (ft)						250	130		130	75		75
Base Capacity (vph)		319			589	639	287	585	533	176	911	795
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		0.94			0.62	0.12	0.05	0.87	0.10	0.85	0.55	0.22

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 69
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 33.2 Intersection LOS: C
Intersection Capacity Utilization 74.0% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Panola Rd & Salem Rd



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	47	307	129	157	335	13	7	229	34	115	679	147
Future Volume (vph)	47	307	129	157	335	13	7	229	34	115	679	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	200		0	200		0	180		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	1745	0	1787	1853	0	1583	1805	0	1626	1809	0
Flt Permitted	0.524			0.143			0.123			0.353		
Satd. Flow (perm)	996	1745	0	269	1853	0	205	1805	0	604	1809	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			3			9			17	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1200			976			1163			1312	
Travel Time (s)		23.4			19.0			22.7			25.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.96	0.96	0.86	0.86	0.86	0.76	0.76	0.76	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	2%	9%	1%	2%	0%	14%	3%	4%	11%	2%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	454	0	183	405	0	9	346	0	119	852	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			6		5	2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		3	8		6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	12.0		10.5	12.0		23.5	23.5		10.5	23.5	
Total Split (s)	28.0	28.0		12.8	40.8		36.1	36.1		13.1	49.2	
Total Split (%)	31.1%	31.1%		14.2%	45.3%		40.1%	40.1%		14.6%	54.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)	22.5	22.5		35.3	35.3		32.5	32.5		42.9	42.9	
Actuated g/C Ratio	0.25	0.25		0.40	0.40		0.36	0.36		0.48	0.48	
v/c Ratio	0.19	1.00		0.80	0.55		0.12	0.52		0.32	0.97	
Control Delay	29.1	75.0		45.8	24.4		25.7	26.2		15.4	47.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.1	75.0		45.8	24.4		25.7	26.2		15.4	47.7	

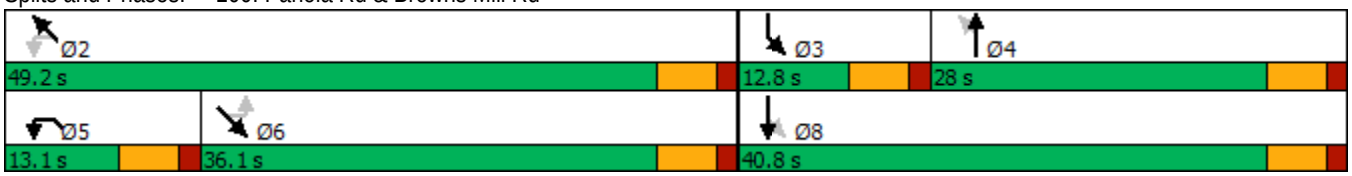
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
LOS	C	E		D	C		C	C		B	D	
Approach Delay		70.6			31.0			26.2			43.7	
Approach LOS		E			C			C			D	
Queue Length 50th (ft)	22	~249		69	174		4	154		36	441	
Queue Length 95th (ft)	52	#450		#146	248		13	192		67	#712	
Internal Link Dist (ft)		1120			896			1083			1232	
Turn Bay Length (ft)	200			200			200			180		
Base Capacity (vph)	251	456		230	735		74	662		377	895	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	1.00		0.80	0.55		0.12	0.52		0.32	0.95	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 89.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 43.6		Intersection LOS: D	
Intersection Capacity Utilization 99.9%		ICU Level of Service F	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 100: Panola Rd & Browns Mill Rd



Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	49	10	3	429	466	18
Future Vol, veh/h	49	10	3	429	466	18
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	150	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	96	86	85
Heavy Vehicles, %	1	1	1	2	2	1
Mvmt Flow	58	12	4	447	542	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	997	542	563	0	-	0
Stage 1	542	-	-	-	-	-
Stage 2	455	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	272	542	1013	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	271	542	1013	-	-	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	641	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.1	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1013	-	271	542	-	-
HCM Lane V/C Ratio	0.003	-	0.213	0.022	-	-
HCM Control Delay (s)	8.6	0	21.8	11.8	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0.8	0.1	-	-

APPENDIX E

CAPACITY ANALYSIS REPORTS – PROJECTED CONDITIONS

PM PEAK HOUR

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	519	365	127	829	933
Future Volume (vph)	113	519	365	127	829	933
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	175		350	250	
Storage Lanes	1	1		1	1	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1787	1599	1863	1583	1787	3574
Flt Permitted	0.950				0.149	
Satd. Flow (perm)	1787	1599	1863	1583	280	3574
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		564		167		
Link Speed (mph)	35		45			45
Link Distance (ft)	2000		2551			441
Travel Time (s)	39.0		38.7			6.7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.92	0.76	0.76	0.97	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	126	564	480	167	855	972
Turn Type	Prot	Free	NA	Perm	pm+pt	NA
Protected Phases	8		6		5	2
Permitted Phases		Free		6	2	
Detector Phase	8		6	6	5	2
Switch Phase						
Minimum Initial (s)	5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	15.0		23.5	23.5	10.5	23.5
Total Split (s)	15.0		27.2	27.2	37.8	65.0
Total Split (%)	18.8%		34.0%	34.0%	47.3%	81.3%
Yellow Time (s)	4.0		4.0	4.0	4.0	4.0
All-Red Time (s)	1.5		1.5	1.5	1.5	1.5
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5		5.5	5.5	5.5	5.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None		Min	Min	None	Min
Act Effct Green (s)	8.8	76.4	21.2	21.2	59.4	60.8
Actuated g/C Ratio	0.12	1.00	0.28	0.28	0.78	0.80
v/c Ratio	0.61	0.35	0.93	0.30	0.99	0.34
Control Delay	47.1	0.6	55.5	5.7	49.6	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	0.6	55.5	5.7	49.6	3.5

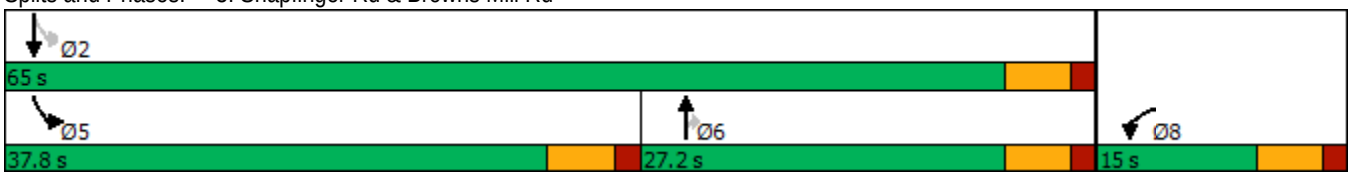
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	D	A	E	A	D	A
Approach Delay	9.1		42.6			25.1
Approach LOS	A		D			C
Queue Length 50th (ft)	61	0	235	0	~420	71
Queue Length 95th (ft)	#126	0	#313	26	#642	94
Internal Link Dist (ft)	1920		2471			361
Turn Bay Length (ft)		175		350	250	
Base Capacity (vph)	224	1599	534	573	861	2812
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	0.56	0.35	0.90	0.29	0.99	0.35

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.4			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 25.2		Intersection LOS: C	
Intersection Capacity Utilization 85.1%		ICU Level of Service E	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 3: Snapfinger Rd & Browns Mill Rd



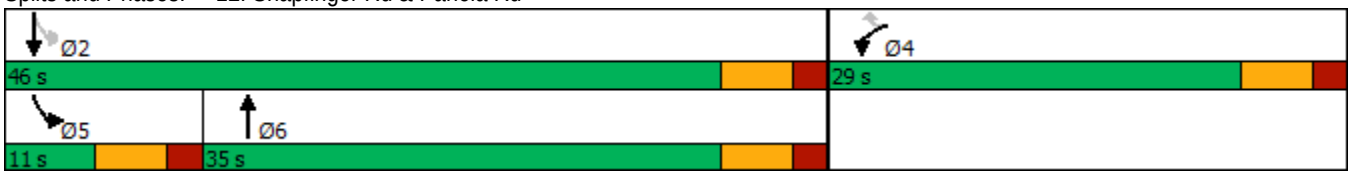
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	444	39	333	552	51	816
Future Volume (vph)	444	39	333	552	51	816
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	0%		0%			0%
Storage Length (ft)	0	250		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1752	1568	3226	0	1805	3574
Flt Permitted	0.950				0.169	
Satd. Flow (perm)	1752	1568	3226	0	321	3574
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		44	575			
Link Speed (mph)	35		55			55
Link Distance (ft)	437		699			636
Travel Time (s)	8.5		8.7			7.9
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.96	0.96	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	2%	1%	0%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%		0%			0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	505	44	922	0	54	868
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	15.0	15.0	35.0		11.0	35.0
Total Split (s)	29.0	29.0	35.0		11.0	46.0
Total Split (%)	38.7%	38.7%	46.7%		14.7%	61.3%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Min		None	Min
Act Effct Green (s)	21.4	21.4	17.7		23.5	23.5
Actuated g/C Ratio	0.37	0.37	0.31		0.41	0.41
v/c Ratio	0.77	0.07	0.66		0.20	0.59
Control Delay	28.5	6.1	9.4		11.6	14.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	28.5	6.1	9.4		11.6	14.7

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
LOS	C	A	A		B	B
Approach Delay	26.7		9.4			14.5
Approach LOS	C		A			B
Queue Length 50th (ft)	157	0	56		11	121
Queue Length 95th (ft)	#360	19	111		28	167
Internal Link Dist (ft)	357		619			556
Turn Bay Length (ft)		250			100	
Base Capacity (vph)	726	676	1961		265	2578
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	0.70	0.07	0.47		0.20	0.34

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 57.4			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 15.3		Intersection LOS: B	
Intersection Capacity Utilization 70.8%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 12: Snapfinger Rd & Panola Rd



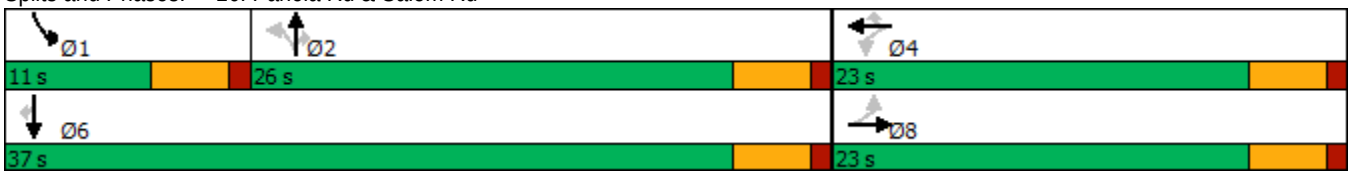
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	138	10	67	126	27	13	474	50	149	504	140
Future Volume (vph)	154	138	10	67	126	27	13	474	50	149	504	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		5%			6%			2%			2%	
Storage Length (ft)	0		0	0		250	130		130	75		75
Storage Lanes	0		0	0		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1790	0	0	1788	1567	1787	1862	1567	1787	1862	1583
Flt Permitted		0.708			0.802		0.467			0.950		
Satd. Flow (perm)	0	1300	0	0	1459	1567	878	1862	1567	1787	1862	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				109			109			145
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		947			1993			1884			992	
Travel Time (s)		18.4			38.8			36.7			19.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.88	0.88	0.88	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	0%	0%	0%	2%	0%	0%	1%	2%	0%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	343	0	0	207	29	15	533	56	157	531	147
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4		4	2		2			6
Detector Phase	8	8		4	4	4	2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	23.0	23.0		23.0	23.0	23.0	26.0	26.0	26.0	11.0	37.0	37.0
Total Split (%)	38.3%	38.3%		38.3%	38.3%	38.3%	43.3%	43.3%	43.3%	18.3%	61.7%	61.7%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None	None	Min	Min	Min	None	Min	Min
Act Effct Green (s)		17.4			17.4	17.4	19.3	19.3	19.3	6.6	30.4	30.4
Actuated g/C Ratio		0.31			0.31	0.31	0.34	0.34	0.34	0.12	0.53	0.53
v/c Ratio		0.86			0.46	0.05	0.05	0.84	0.09	0.76	0.53	0.16
Control Delay		43.1			20.6	0.2	13.2	32.3	1.2	53.7	11.2	2.0
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		43.1			20.6	0.2	13.2	32.3	1.2	53.7	11.2	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D			C	A	B	C	A	D	B	A
Approach Delay		43.1			18.1			28.9			17.6	
Approach LOS		D			B			C			B	
Queue Length 50th (ft)		114			59	0	3	169	0	57	111	0
Queue Length 95th (ft)		#242			114	0	14	#313	6	#147	185	20
Internal Link Dist (ft)		867			1913			1804			912	
Turn Bay Length (ft)						250	130		130	75		75
Base Capacity (vph)		428			478	587	334	710	665	206	1073	974
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		0.80			0.43	0.05	0.04	0.75	0.08	0.76	0.49	0.15

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 56.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 25.4 Intersection LOS: C
Intersection Capacity Utilization 74.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Panola Rd & Salem Rd



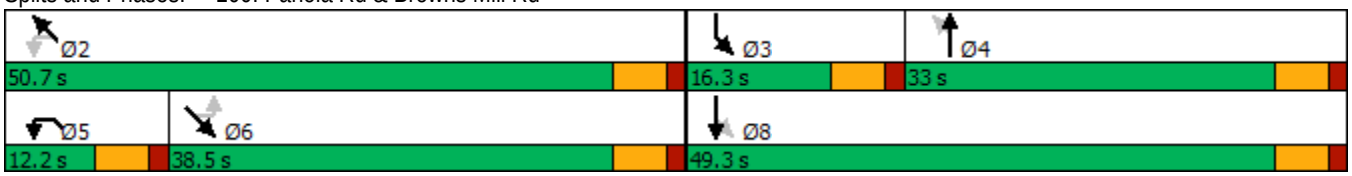
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	41	398	145	224	399	12	19	541	43	143	317	117
Future Volume (vph)	41	398	145	224	399	12	19	541	43	143	317	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	200		0	200		0	200		0	180		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1805	1801	0	1805	1856	0	1719	1862	0	1736	1804	0
Flt Permitted	0.500			0.121			0.460			0.104		
Satd. Flow (perm)	950	1801	0	230	1856	0	832	1862	0	190	1804	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			2			4			24	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1200			976			1163			1312	
Travel Time (s)		23.4			19.0			22.7			25.6	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.99	0.99	0.99	0.90	0.90	0.90	0.98	0.98	0.98	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	1%	2%	0%	2%	0%	5%	1%	0%	4%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	548	0	249	456	0	19	596	0	157	477	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			6		5	2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		3	8		6	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	12.0	12.0		10.5	12.0		23.5	23.5		10.5	23.5	
Total Split (s)	33.0	33.0		16.3	49.3		38.5	38.5		12.2	50.7	
Total Split (%)	33.0%	33.0%		16.3%	49.3%		38.5%	38.5%		12.2%	50.7%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lag	Lag		Lead			Lag	Lag		Lead		
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)	27.5	27.5		43.8	43.8		32.8	32.8		45.0	45.0	
Actuated g/C Ratio	0.28	0.28		0.44	0.44		0.33	0.33		0.45	0.45	
v/c Ratio	0.16	1.08		0.92	0.56		0.07	0.97		0.83	0.58	
Control Delay	29.5	97.0		62.1	24.1		24.1	63.8		53.2	22.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	29.5	97.0		62.1	24.1		24.1	63.8		53.2	22.6	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
LOS	C	F		E	C		C	E		D	C	
Approach Delay		92.3			37.5			62.6			30.2	
Approach LOS		F			D			E			C	
Queue Length 50th (ft)	20	~384		106	210		8	369		59	208	
Queue Length 95th (ft)	48	#592		#256	308		25	#595		#162	310	
Internal Link Dist (ft)		1120			896			1083			1232	
Turn Bay Length (ft)	200			200			200			180		
Base Capacity (vph)	262	509		271	816		275	618		189	830	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.16	1.08		0.92	0.56		0.07	0.96		0.83	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 99.8
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 54.4 Intersection LOS: D
Intersection Capacity Utilization 99.5% ICU Level of Service F
Analysis Period (min) 15
~ 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.

Splits and Phases: 100: Panola Rd & Browns Mill Rd



Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	61	524	11	549	0	0
Future Vol, veh/h	61	524	11	549	0	0
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	150	-	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	92	92	92	92
Heavy Vehicles, %	1	1	1	2	2	1
Mvmt Flow	72	616	12	597	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	622	1	1	0	-	0
Stage 1	1	-	-	-	-	-
Stage 2	621	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	452	1087	1628	-	-	-
Stage 1	1025	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	447	1087	1628	-	-	-
Mov Cap-2 Maneuver	447	-	-	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	538	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1628	-	447	1087	-	-
HCM Lane V/C Ratio	0.007	-	0.161	0.567	-	-
HCM Control Delay (s)	7.2	-	14.6	12.6	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	3.7	-	-