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Phone: (317) 202-0864 Fax: (317) 202-0908

TRAFFIC IMPACT STUDY

SYCAMORE FLATS

ZIONSVILLE, INDIANA

PREPARED FOR

SYCAMORE FLATS, LLC.

SEPTEMBER 2018

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CERTIFICATION

I certify that this **TRAFFIC IMPACT STUDY** has been prepared by me and under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering.

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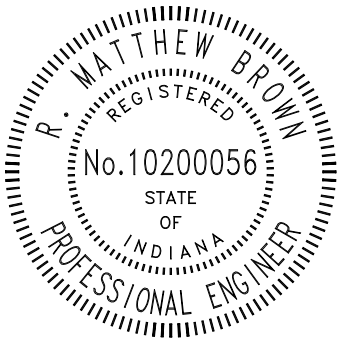

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Traffic Engineer

INTRODUCTION

This **TRAFFIC IMPACT STUDY**, prepared at the request of the Town of Zionsville, on behalf of Sycamore Flats, LLC., is for a proposed mixed-use development that is to be located along Sycamore Street west of Main Street in Zionsville, Indiana.

PURPOSE

The purpose of this analysis is to determine what impact the traffic generated by the proposed mixed-use development will have on the existing adjacent roadway system. This analysis will identify any roadway deficiencies that may occur when this site is developed.

Conclusions will be reached that will determine if the roadway system can accommodate the anticipated traffic volumes or will determine the modifications that will be required to the system if there will be deficiencies in the system resulting from the changes.

Recommendations will be made that will address the conclusions resulting from this analysis. These recommendations will address feasible roadway system improvements to provide safe ingress and egress, to and from the proposed development, with minimal interference to traffic on the public street system.

SCOPE OF WORK

The scope of work for this analysis is as follows:

First, extract peak hour traffic volume counts from previously conducted studies at the following intersections:

- Sycamore Street & Main Street
- Sycamore Street & 1st Street
- Sycamore Street & 2nd Street/Proposed Access Drive

Second, estimate the number of peak hour trips that will be generated by the proposed development.

Third, assign and distribute the generated traffic from the proposed development to the study intersections.

Fourth, prepare a capacity analysis and level of service analysis for each of the following scenarios:

Scenario 1: Existing Traffic Volumes – Based on existing roadway conditions and existing peak hour traffic volumes.

Scenario 2: Sum of Existing Traffic Volumes and Generated Traffic Volumes –Based on sum of the existing traffic volumes and generated traffic volumes.

Fifth, prepare recommendations for the roadway geometrics that will be needed to accommodate the total volumes for each of the scenarios previously identified.

Finally, prepare a **TRAFFIC IMPACT STUDY** report documenting all data, analyses, conclusions and recommendations to best provide for the safe and efficient movement of traffic through the study area.

DESCRIPTION OF THE PROJECT

The proposed development would be located along Sycamore Street west of Main Street and will include the following land uses:

- Approximately 4,350 square feet of Retail use.
- 184 Apartment units.

As proposed, the development will be served by a full access drive (Proposed Access Drive) that will be slightly offset from 2nd Street and a parking lot access located along Sycamore Street. **Figure 1** is an area map showing the location and general layout of the site.

STUDY AREA

The study area for this analysis has been defined to include the following intersections:

- Sycamore Street & Main Street
- Sycamore Street & 1st Street
- Sycamore Street & 2nd Street/Proposed Access Drive

Figure 2 shows the intersection geometrics of each of the existing intersections.

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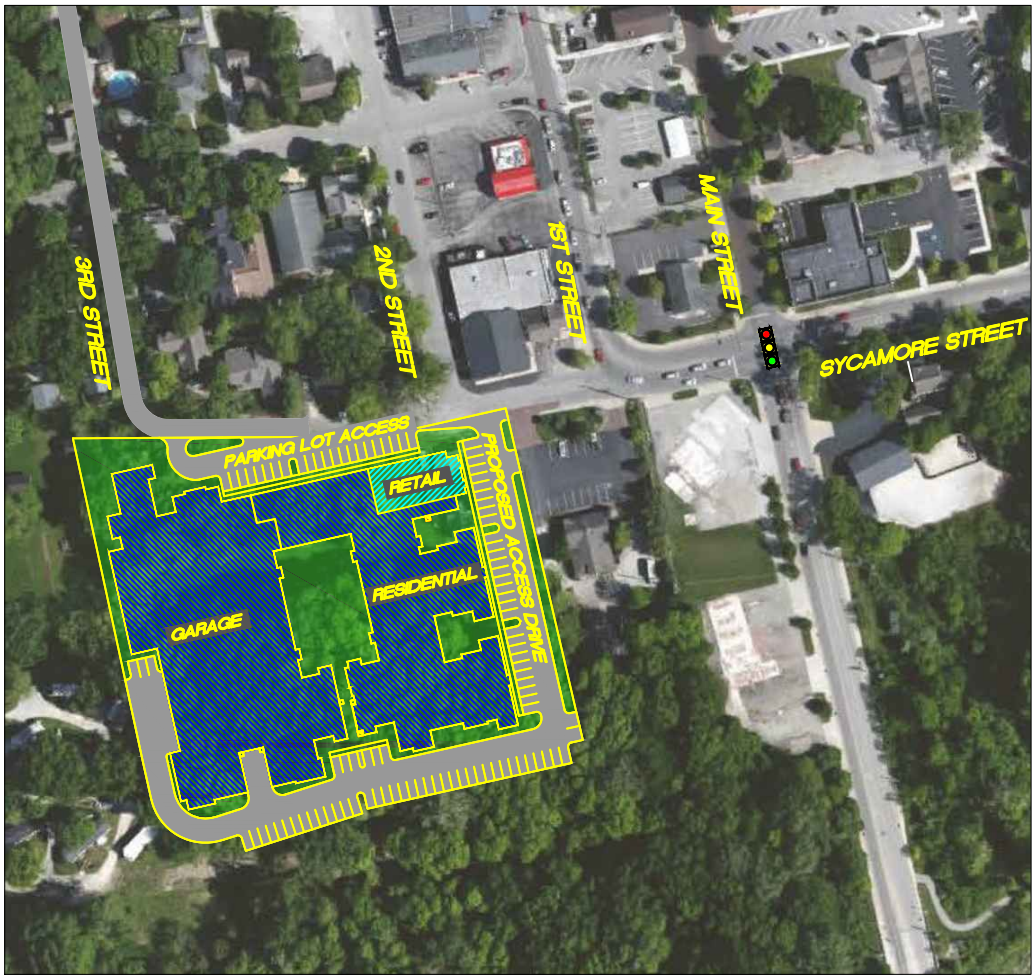

FIGURE 1

AREA MAP

SYCAMORE FLATS
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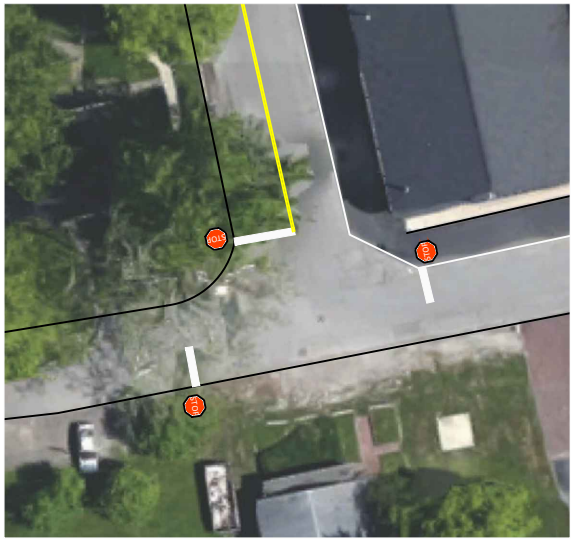
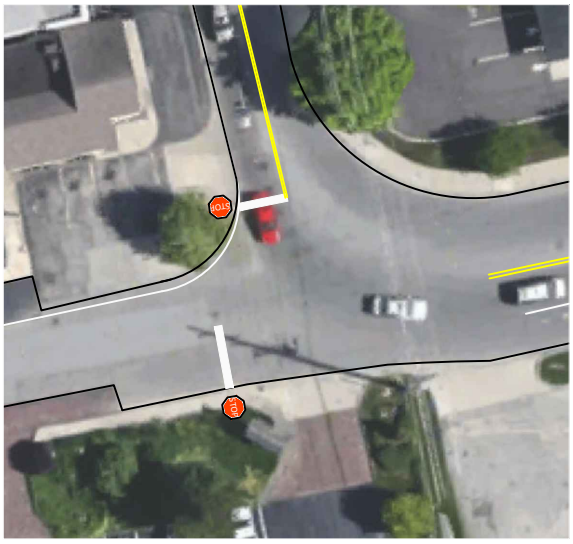
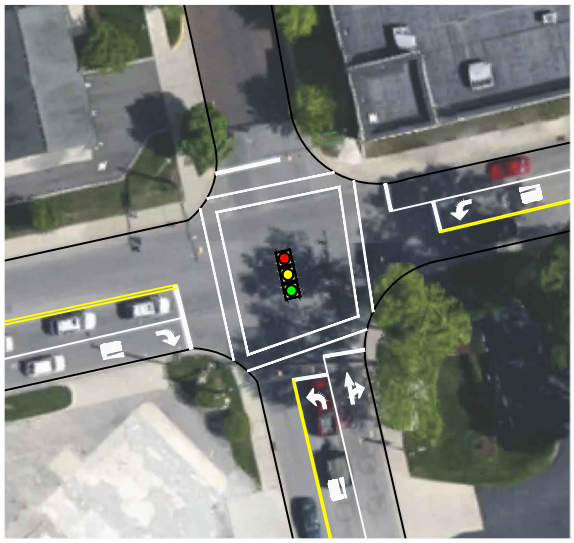


SYCAMORE ST & 2ND ST



SYCAMORE ST & 1ST ST



SYCAMORE ST & MAIN ST

FIGURE 2

EXISTING INTERSECTION GEOMETRICS

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DESCRIPTION OF ABUTTING STREET SYSTEM

SYCAMORE STREET – is an east/west, two lane undivided roadway to the north of the proposed site with a posted speed limit of 30/40 mph. According to the Zionsville Transportation Plan, Sycamore Street is classified as a Primary Arterial.

MAIN STREET – is a north/south, two lane undivided roadway to the east of the proposed site with a posted speed limit of 20 mph to the north of Sycamore Street and 30 mph to the south of Sycamore Street. According to the Zionsville Transportation Plan, Main Street is classified as a Local Road to the north of Sycamore street and as a Secondary Arterial to the south of Sycamore street.

1ST STREET – is a north/south, two lane undivided roadway to the east of the proposed site with a posted speed limit of 30 mph. According to the Zionsville Transportation Plan, 1st Street is classified as a Primary Arterial.

2ND STREET – is a north/south, two lane undivided roadway within the vicinity of the site with a posted speed limit of 30 mph. According to the Zionsville Transportation Plan, 2nd Street is classified as a Local Road.

EXISTING TRAFFIC VOLUMES & PEAK HOURS

Peak hour turning movement traffic volume counts were collected by A&F Engineering at the study intersections between the hours of 6:30 AM and 8:30 AM and 4:30 PM and 6:30 PM during a typical weekday in November 2017. The AM and PM peak hours vary slightly between each location. Therefore, the actual peak hour counts will be used to represent a maximum traffic scenario at each analyzed intersection. The existing peak hour traffic volumes are shown on **Figure 3**. The count output summary sheets for all traffic counts are included in the **Appendix**.

GENERATED TRAFFIC VOLUMES FOR PROPOSED DEVELOPMENT

The estimate of newly generated traffic is a function of the development size and of the character of the land use. The ITE *Trip Generation Manual*[1] was used to calculate the number of new trips that will be generated by the proposed development. This report is a compilation of trip data for various land uses as collected by transportation professionals throughout the United States in order to establish the average number of trips generated by those land uses. **Table 1** is a summary of the total trips that will be generated during the peak hours at the development site.

[1] *Trip Generation Manual*, Institute of Transportation Engineers, Tenth Edition, 2017.

TABLE 1 – TOTAL GENERATED TRIPS FOR PROPOSED DEVELOPMENT

DEVELOPMENT INFORMATION			GENERATED TRIPS			
LAND USE	ITE CODE	SIZE	AM PEAK		PM PEAK	
			ENTER	EXIT	ENTER	EXIT
Shopping Center	820	4,350 SF	2	2	25	28
Multifamily Housing (Low-Rise)	220	184 DU	20	65	64	38
Total Generated Trips			22	67	89	66

PASS-BY & INTERNAL TRIPS

Pass-by trips are trips that are already in the existing traffic stream along the adjacent public roadway system that enter a site, utilize the site, and then return back to the existing traffic stream. The proposed development will attract some pass-by trips. However, to analyze the worst case traffic scenario, pass-by trips were considered negligible in this study.

An internal trip results when a trip is made between two or more land uses without traversing the external public roadway system. Internal trips will occur between different land-uses within the proposed site. These trips were calculated based on the methods described within the ITE *Trip Generation Handbook*[2]. A summary of the internal trip reductions for the proposed development is shown in **Table 2**.

TABLE 2 – INTERNAL TRIP REDUCTIONS FOR PROPOSED DEVELOPMENT

DEVELOPMENT INFORMATION			GENERATED TRIPS			
LAND USE	ITE CODE	SIZE	AM PEAK		PM PEAK	
			ENTER	EXIT	ENTER	EXIT
Shopping Center	**820**	**4,350 SF**	2	2	25	28
Shopping Center Internal Trips			0	0	3	7
Shopping Center External Trips			2	2	22	21
Multifamily Housing	**220**	**184 DU**	20	65	64	38
Multifamily Housing Internal Trips			0	0	7	3
Multifamily Housing External Trips			20	65	57	35
TOTAL INTERNAL TRIPS			0	0	10	10
TOTAL EXTERNAL TRIPS			22	67	79	56

[2] *Trip Generation Handbook*, Institute of Transportation Engineers, 2017.

ASSIGNMENT AND DISTRIBUTION OF GENERATED TRIPS

The study methodology used to determine the traffic volumes from the proposed development that will be added to the street system is defined as follows:

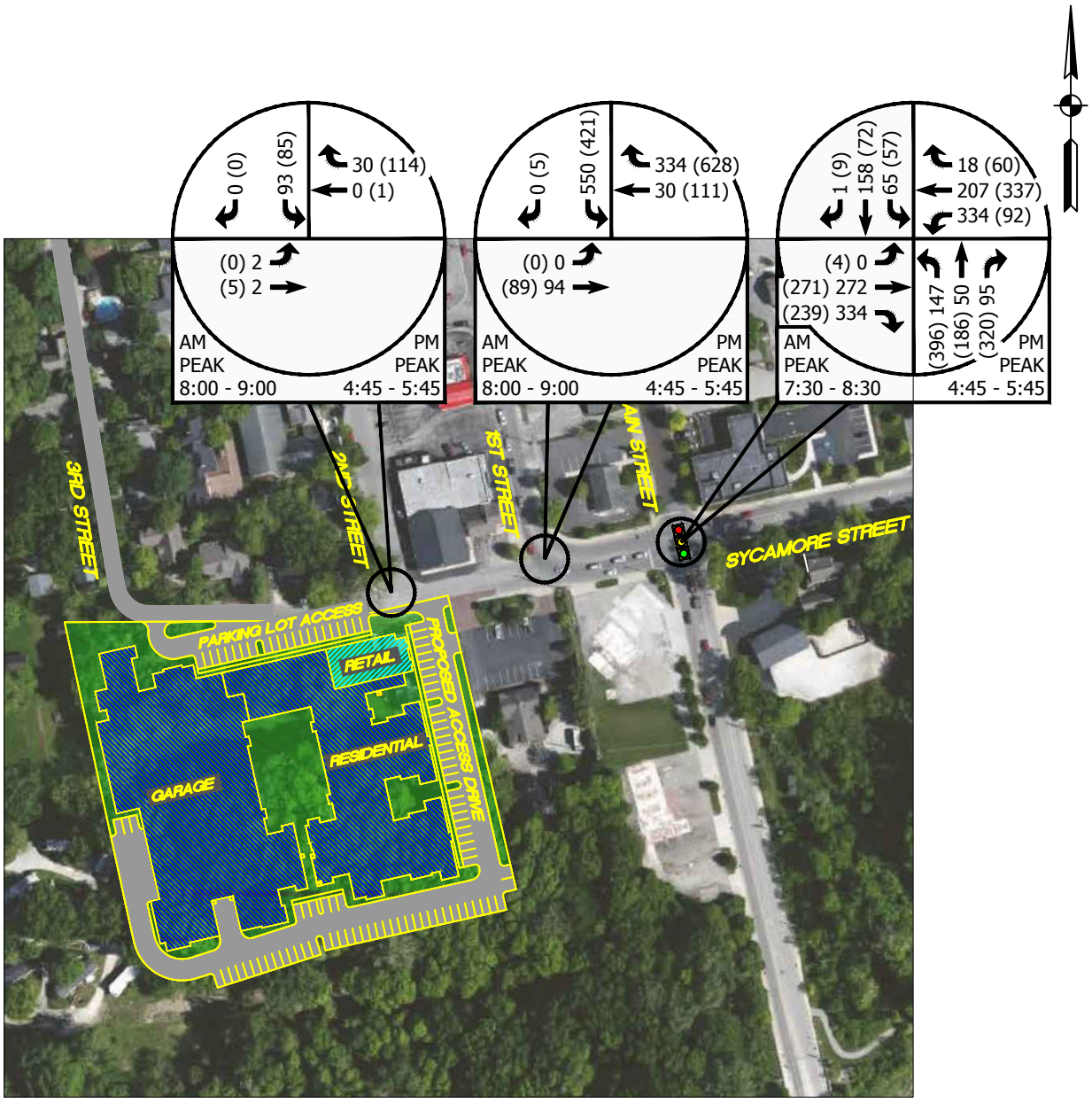
1. The volume of traffic that will enter and exit the project site must be assigned to the access points and to the public street system. Using the traffic volume data collected for this analysis, traffic to and from the proposed development has been assigned to the proposed driveways and to the public street system that will be serving the site.
2. To determine the volumes of traffic that will be added to the public roadway system, the generated traffic must be distributed by direction to the public roadways at their intersection with the driveways. For the proposed development, the trip distribution was based on the location of the development, the location of nearby population centers, the existing traffic patterns, and the assignment of generated traffic.

The figures showing the assignment & distribution for each land use are identified as follows:

- **Figure 4A** – Assignment & Distribution of Generated Traffic Volumes for Proposed Development (Residential)
- **Figure 4B** – Assignment & Distribution of Generated Traffic Volumes for Proposed Development (Retail)

GENERATED TRIPS ADDED TO THE STREET SYSTEM

The total generated traffic volumes that can be expected from the proposed development have been assigned to each of the study intersections. These volumes were determined based on the previously discussed trip generation data, assignment of generated traffic and distribution of generated traffic. The total peak hour generated traffic volumes from the proposed development are shown in **Figure 5**. Additional figures located in the **Appendix** show the separated generated traffic volumes from each land use.



LEGEND

XX = A.M. PEAK HOUR
(XX) = P.M. PEAK HOUR
* = NEGLIGIBLE

FIGURE 3

EXISTING TRAFFIC VOLUMES

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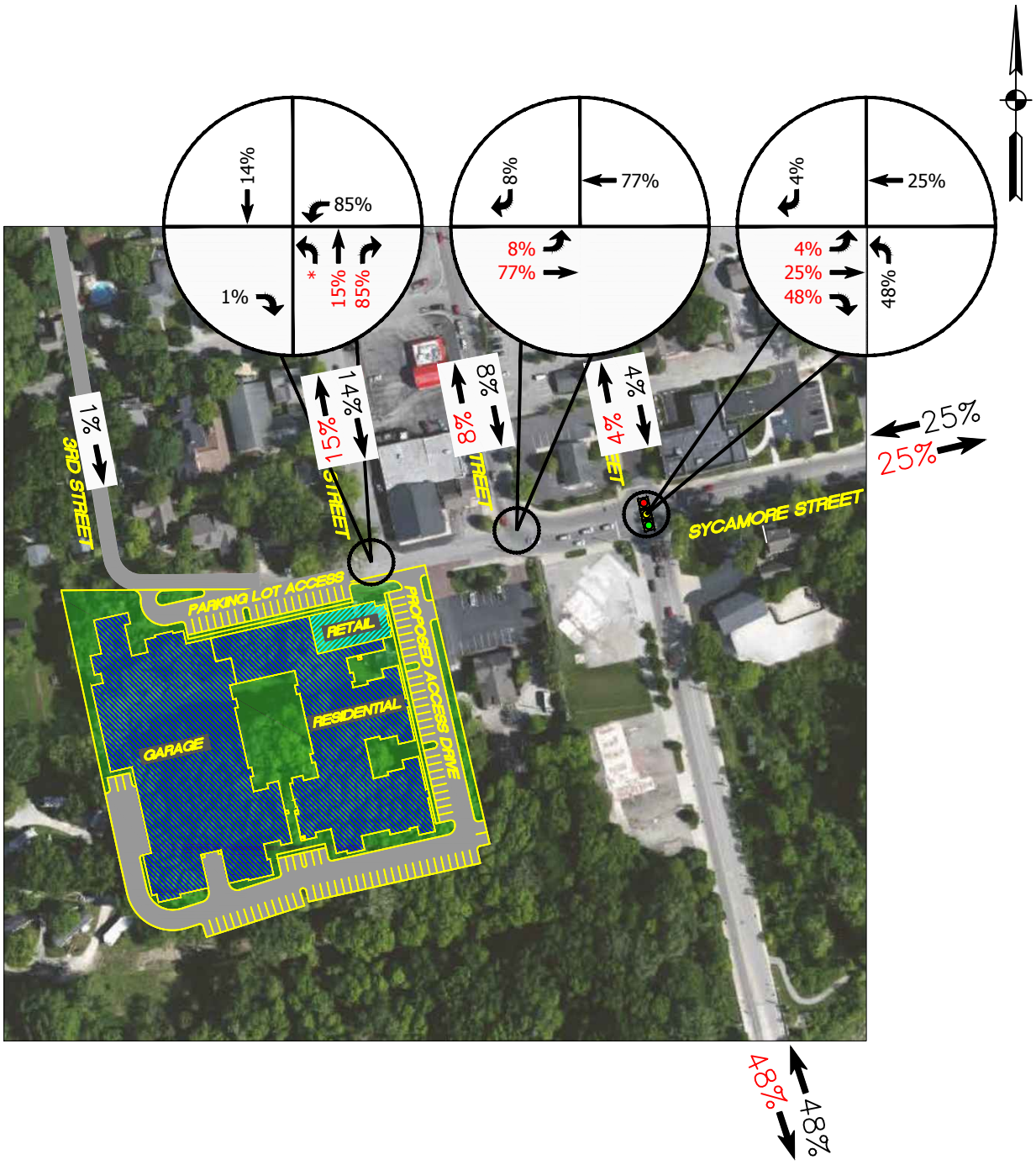

LEGEND
XX = INBOUND TRAFFIC
XX = OUTBOUND TRAFFIC
* = NEGLIGIBLE

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FIGURE 4A

ASSIGNMENT & DISTRIBUTION OF GENERATED TRAFFIC VOLUMES FOR PROPOSED DEVELOPMENT (RESIDENTIAL)

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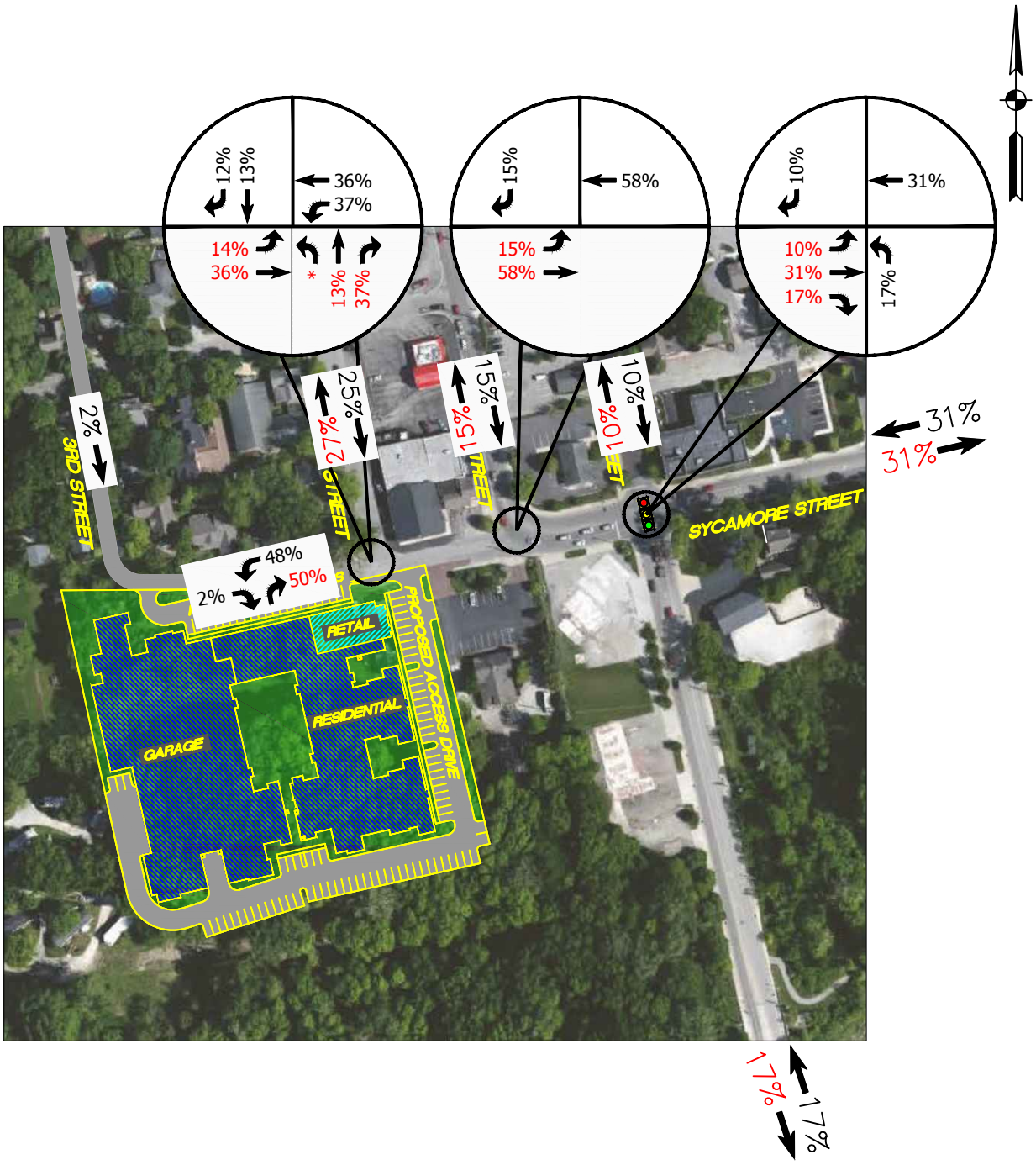

LEGEND

XX = INBOUND TRAFFIC

XX = OUTBOUND TRAFFIC

* = NEGLIGIBLE

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FIGURE 4B

ASSIGNMENT & DISTRIBUTION OF GENERATED TRAFFIC VOLUMES FOR PROPOSED DEVELOPMENT (RETAIL)

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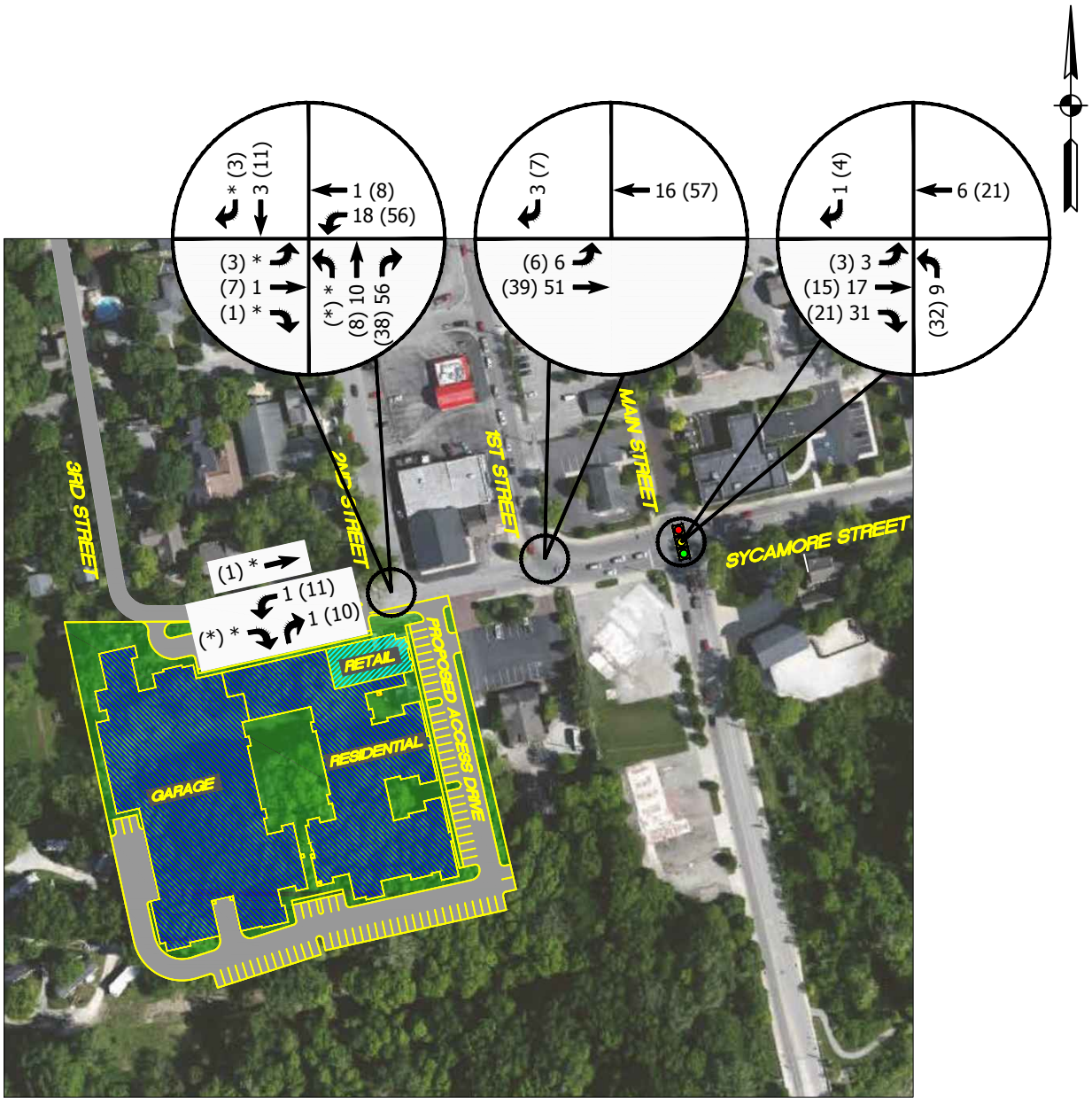

LEGEND
XX = A.M. PEAK HOUR
(XX) = P.M. PEAK HOUR
* = NEGLIGIBLE

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FIGURE 5

TOTAL GENERATED TRAFFIC VOLUMES FOR PROPOSED DEVELOPMENT

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CAPACITY ANALYSIS

The "efficiency" of an intersection is based on its ability to accommodate the traffic volumes that approach the intersection. It is defined by the Level-of-Service (LOS) of the intersection. The LOS is determined by a series of calculations commonly called a "capacity analysis". Input data into a capacity analysis include traffic volumes, intersection geometry, and number and use of lanes. To determine the LOS at each of the study intersections, a capacity analysis has been made using the recognized computer program *Synchro/SimTraffic*[3]. This program allows intersections to be analyzed and optimized using the capacity calculation methods outlined within the *Highway Capacity Manual (HCM)*[4]. The following list shows the delays related to the levels of service for signalized and unsignalized intersections:

Level of Service	Control Delay (seconds/vehicle)	
	UNSIGNALIZED	SIGNALIZED
A	Less than or equal to 10	Less than or equal to 10
B	Between 10.1 and 15	Between 10.1 and 20
C	Between 15.1 and 25	Between 20.1 and 35
D	Between 25.1 and 35	Between 35.1 and 55
E	Between 35.1 and 50	Between 55.1 and 80
F	greater than 50	greater than 80

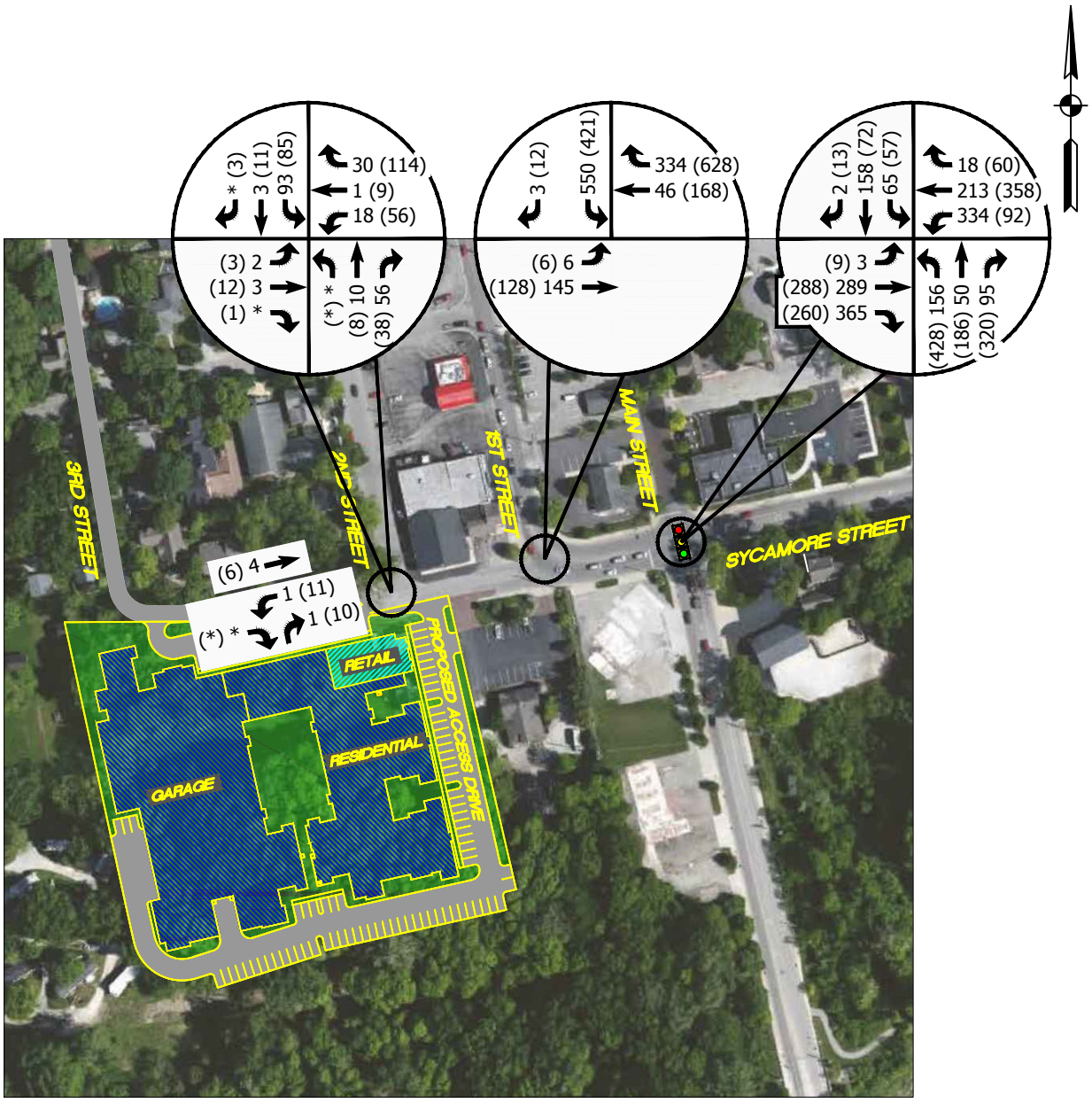
CAPACITY ANALYSIS SCENARIOS

To evaluate the proposed development's effect on the public street system, a series of traffic volume scenarios were analyzed to determine the adequacy of the existing roadway network. In addition, necessary recommendations can be made to improve the public street system so it will accommodate the increased traffic volumes. An analysis has been made for the AM peak hour and PM peak hour at the study intersections for the following scenarios:

Scenario 1: Existing Traffic Volumes – Based on existing roadway conditions and existing peak hour traffic volumes.

Scenario 2: Sum of Existing Traffic Volumes and Generated Traffic Volumes –Based on sum of the existing traffic volumes and generated traffic volumes. **Figure 6** is a summary of these traffic volumes at the study intersections for the AM and PM peak hours.

[3] *Synchro/SimTraffic 10.1*, Trafficware, 2017.
[4] *Highway Capacity Manual (HCM), 6th Edition* Transportation Research Board, National Research Council, Washington, DC, 2016.



LEGEND
XX = A.M. PEAK HOUR
(XX) = P.M. PEAK HOUR
* = NEGLIGIBLE

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FIGURE 6

SUM OF EXISTING TRAFFIC VOLUMES AND GENERATED TRAFFIC VOLUMES FROM PROPOSED DEVELOPMENT

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The following tables summarize the level of service results at each of the study intersections. The *Synchro* (*HCM* 2010) intersection reports illustrating the capacity analysis results are included in the **Appendix**.

TABLE 3 – LEVEL OF SERVICE/DELAY SUMMARY: SYCAMORE STREET & MAIN STREET

MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Northbound Approach	C	C	B	B
Southbound Approach	C	C	B	B
Eastbound Approach	B	B	B	B
Westbound Approach	B	B	B	B
Intersection LOS/Delay	**B/16.4s**	**B/16.9s**	**B/17.7s**	**B/18.2s**

Note: this intersection is analyzed with optimized splits.

DESCRIPTION OF SCENARIOS:

SCENARIO 1: Existing Traffic Volumes with Existing Intersection Geometrics and Control.

SCENARIO 2: Sum of Existing and Proposed Development Generated Traffic Volumes with Existing Intersection Geometrics and Control.

TABLE 4 – LEVEL OF SERVICE/DELAY SUMMARY: SYCAMORE STREET & 1ST STREET

MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Southbound Approach	E/46.3s	F/132.1s	E/36.2s	F/141.5s
Eastbound Approach	A/9.0s	B/12.0s	B/10.2s	C/14.3s
Westbound Approach	A/1.3s	A/1.3s	A/2.0s	A/2.2s

Note: HCM 6th Edition does not analyze intersections with the existing intersection geometrics and conditions as this intersection. Therefore, SimTraffic was used to calculate the delay and HCM 6th Edition unsignalized intersection thresholds were used to determine the LOS.

DESCRIPTION OF SCENARIOS:

SCENARIO 1: Existing Traffic Volumes with Existing Intersection Geometrics and Stop Control.

SCENARIO 2: Sum of Existing and Proposed Development Generated Traffic Volumes with Existing Intersection Geometrics and Stop Control.

TABLE 5 – LEVEL OF SERVICE/DELAY SUMMARY: SYCAMORE STREET & 2ND STREET/PROPOSED ACCESS DRIVE

MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
	Scenario 1	Scenario 2		Scenario 1	Scenario 2	
		2A	2B		2A	2B
Northbound Approach	-	A/7.0s	A/8.8s	-	A/7.2s	A/9.0s
Southbound Approach	A/7.9s	A/8.0s	B/10.2s	A/7.9s	A/8.3s	B/11.4s
Eastbound Approach	A/7.3s	A/7.5s	-	A/7.2s	A/7.6s	-
Westbound Approach	A6.7s	A/7.3s	-	A/7.0s	A/8.0s	-
Intersection LOS/Delay	**B/16.4s**	**A/7.5s**	**N/A**	**B/17.7s**	**A/8.0s**	**N/A**

DESCRIPTION OF SCENARIOS:

SCENARIO 1: Existing Traffic Volumes with Existing Intersection Geometrics and Stop Control.

SCENARIO 2A: Sum of Existing and Proposed Development Generated Traffic Volumes with Proposed Intersection Geometrics* and All-Way Stop Control.

SCENARIO 2A: Sum of Existing and Proposed Development Generated Traffic Volumes with Proposed Intersection Geometrics* and Two-Way Stop Control with northbound and southbound approaches stopping for Sycamore Street.

*The proposed intersection geometrics include the construction of the proposed access drive with one inbound lane and at least one outbound lane as the northbound approach.

CONCLUSIONS & RECOMMENDATIONS

The conclusions and recommendations that follow are based on existing traffic volume data, the assignment and distribution of generated traffic volumes, capacity analyses/level of service results and a field review conducted around the study area.

SYCAMORE STREET & MAIN STREET

Capacity analyses for the existing traffic volumes and sum of existing and generated traffic volumes have shown that this intersection operates and will continue to operate at acceptable levels of service during the AM and PM peak hour under both traffic volume scenarios with the existing intersection conditions. In addition, there is no significant difference in the level of service at this intersection between the two traffic volume scenarios. Therefore, no improvements are recommended at this intersection.

SYCAMORE STREET & 1ST STREET

Capacity analyses for all traffic volume scenarios have shown that the eastbound and westbound approaches to this intersection operate at acceptable levels of service during the peak hours. The Southbound approach, on the other hand, operates below acceptable levels of service during the AM and PM peak hour under the existing and for the sum of existing and generated traffic volume

scenarios. The city is currently exploring geometric and control alternatives to improve traffic flow at this intersection and other near-by intersections. This alternative analysis will include future traffic volumes from the subject site as well as traffic growth due to the other future developments. Therefore, the selected alternative will be designed to accommodate traffic from the subject site.

SYCAMORE STREET & 2ND STREET/PROPOSED ACCESS DRIVE

Capacity analyses for all traffic volume scenarios have shown that all approaches to this intersection currently operate and will continue to operate at acceptable levels of service during the peak hours with the proposed intersection conditions and the intersection controlled as Two-way Stop with northbound and southbound approaches stopping for Sycamore Street or as a Four-way Stop.

TRAFFIC IMPACT STUDY

APPENDIX

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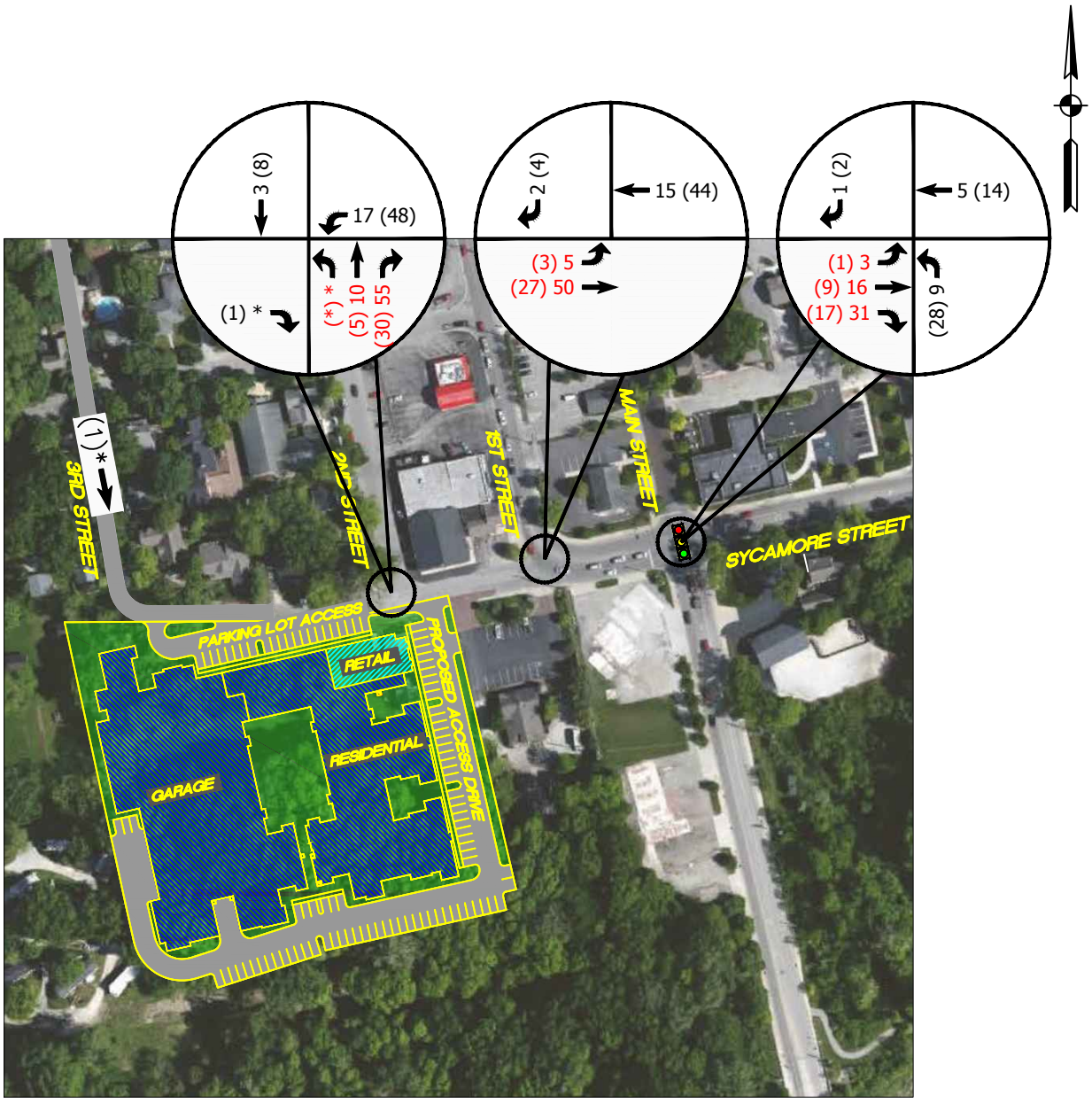
ADDITIONAL FIGURES



LEGEND

XX = A.M. INBOUND TRAFFIC
(XX) = P.M. INBOUND TRAFFIC
XX = A.M. OUTBOUND TRAFFIC
(XX) = P.M. OUTBOUND TRAFFIC
* = NEGLIGIBLE

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ZIONSVILLE, IN

FIGURE A

GENERATED TRAFFIC VOLUMES FROM PROPOSED DEVELOPMENT (RESIDENTIAL)

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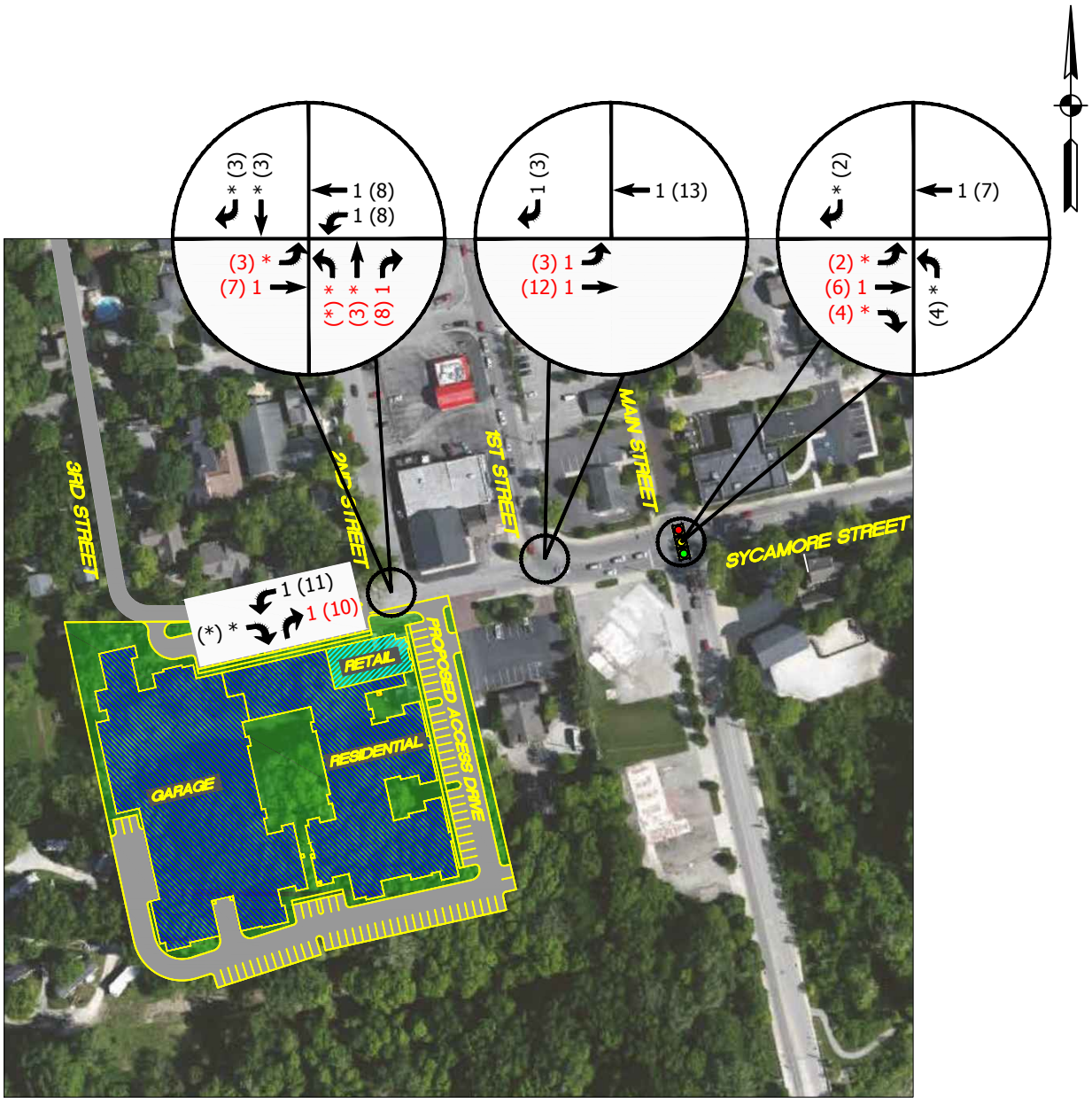

LEGEND

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SYCAMORE FLATS
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FIGURE B

GENERATED TRAFFIC VOLUMES FROM PROPOSED DEVELOPMENT (RETAIL)

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SYCAMORE STREET & MAIN STREET

TRAFFIC VOLUME COUNTS
CAPACITY ANALYSIS

Sycamore & Main St - TMC
Thu Nov 9, 2017
Full Length (6AM-9AM, 4PM-7PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 469390, Location: 39.948235, -86.260938

Provided by: A&F Engineering
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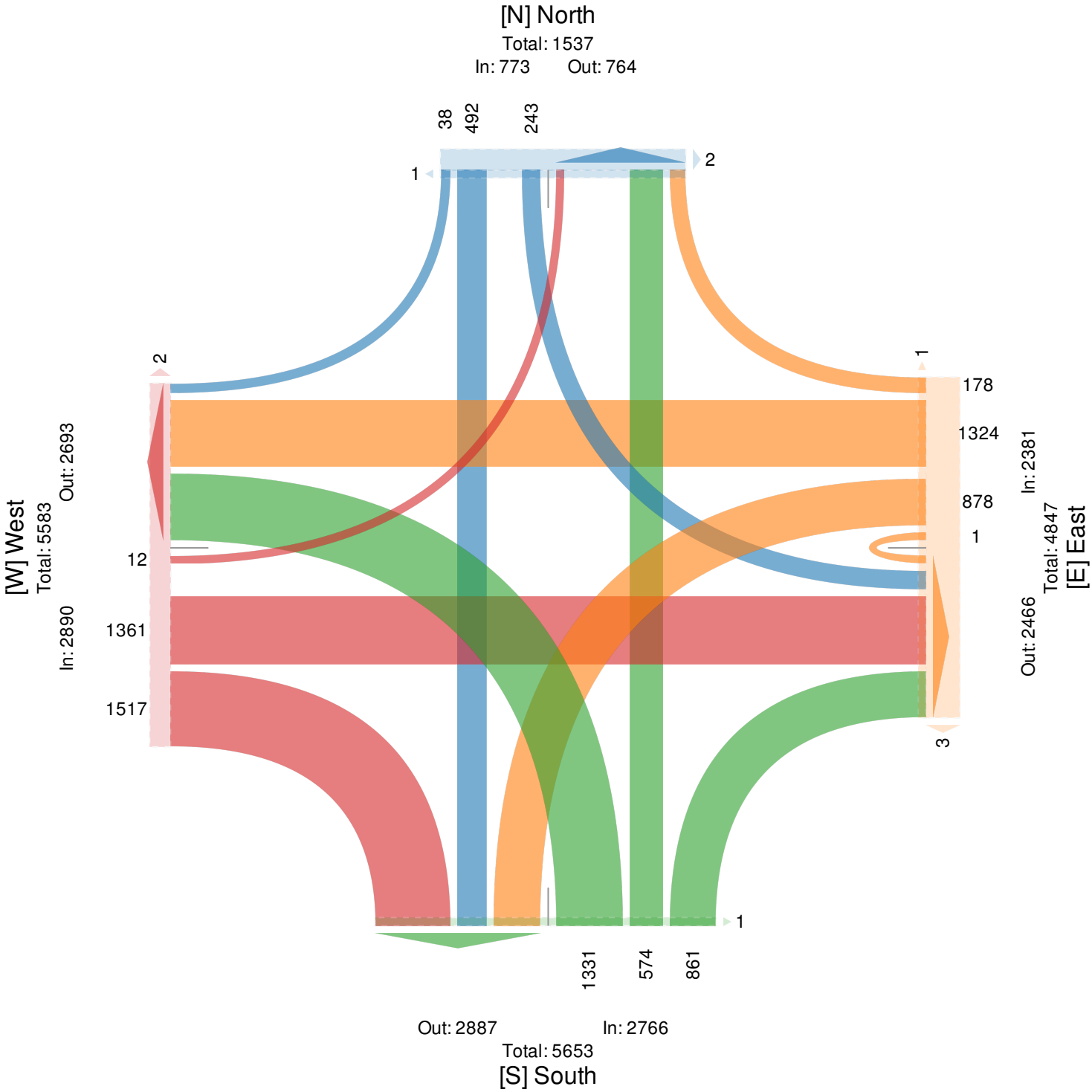
Leg	South						North						West						East						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2017-11-09 6:00AM	10	6	4	0	**20**	0	4	5	0	0	**9**	0	0	16	33	0	**49**	0	9	9	1	0	**19**	1	**97**
6:15AM	5	2	3	0	**10**	0	1	6	0	0	**7**	0	0	17	23	0	**40**	0	19	7	1	0	**27**	0	**84**
6:30AM	17	4	2	0	**23**	0	2	9	0	0	**11**	0	0	25	49	0	**74**	0	26	13	0	0	**39**	0	**147**
6:45AM	24	9	4	0	**37**	0	2	16	0	0	**18**	0	0	30	55	0	**85**	0	35	22	3	0	**60**	0	**200**
Hourly Total	56	21	13	0	**90**	0	9	36	0	0	**45**	0	0	88	160	0	**248**	0	89	51	5	0	**145**	1	**528**
7:00AM	25	7	13	0	**45**	0	6	20	0	0	**26**	0	0	40	74	0	**114**	0	42	26	4	0	**72**	0	**257**
7:15AM	31	10	10	0	**51**	0	5	34	0	0	**39**	0	0	62	74	0	**136**	0	82	35	7	0	**124**	0	**350**
7:30AM	31	15	17	0	**63**	0	15	35	0	0	**50**	0	0	79	63	0	**142**	0	68	41	4	0	**113**	0	**368**
7:45AM	37	13	27	0	**77**	0	16	46	0	0	**62**	0	0	64	79	0	**143**	0	98	49	4	0	**151**	0	**433**
Hourly Total	124	45	67	0	**236**	0	42	135	0	0	**177**	0	0	245	290	0	**535**	0	290	151	19	0	**460**	0	**1408**
8:00AM	36	7	31	0	**74**	0	17	46	1	0	**64**	0	0	57	80	0	**137**	0	88	58	6	0	**152**	0	**427**
8:15AM	43	15	20	0	**78**	0	17	31	0	0	**48**	0	0	72	112	0	**184**	0	80	59	4	0	**143**	0	**453**
8:30AM	45	11	28	0	**84**	0	9	26	0	0	**35**	0	0	71	89	0	**160**	0	47	28	1	0	**76**	0	**355**
8:45AM	38	18	16	0	**72**	0	5	20	2	0	**27**	0	1	78	84	0	**163**	0	58	60	6	0	**124**	1	**386**
Hourly Total	162	51	95	0	**308**	0	48	123	3	0	**174**	0	1	278	365	0	**644**	0	273	205	17	0	**495**	1	**1621**
4:00PM	78	34	50	0	**162**	0	18	18	5	0	**41**	1	0	72	71	0	**143**	0	22	60	8	0	**90**	0	**436**
4:15PM	74	28	60	0	**162**	0	15	24	4	0	**43**	0	1	68	61	0	**130**	2	15	97	9	0	**121**	0	**456**
4:30PM	87	37	58	0	**182**	0	10	17	4	0	**31**	0	1	66	61	0	**128**	0	17	79	14	0	**110**	0	**451**
4:45PM	86	32	67	0	**185**	0	17	15	4	0	**36**	0	0	76	79	0	**155**	0	32	79	14	0	**125**	0	**501**
Hourly Total	325	131	235	0	**691**	0	60	74	17	0	**151**	1	2	282	272	0	**556**	2	86	315	45	0	**446**	0	**1844**
5:00PM	114	51	87	0	**252**	0	16	18	2	0	**36**	0	1	58	53	0	**112**	0	14	81	12	0	**107**	0	**507**
5:15PM	100	58	94	0	**252**	0	12	15	1	0	**28**	2	3	65	49	0	**117**	0	27	82	21	0	**130**	0	**527**
5:30PM	96	45	72	0	**213**	0	12	24	2	0	**38**	0	0	72	58	0	**130**	0	19	95	13	0	**127**	0	**508**
5:45PM	72	40	62	0	**174**	1	10	10	0	0	**20**	0	0	59	50	0	**109**	0	24	95	14	1	**134**	0	**437**
Hourly Total	382	194	315	0	**891**	1	50	67	5	0	**122**	2	4	254	210	0	**468**	0	84	353	60	1	**498**	0	**1979**
6:00PM	77	33	51	0	**161**	0	11	19	4	0	**34**	0	1	68	51	0	**120**	0	17	75	7	0	**99**	0	**414**
6:15PM	66	30	40	0	**136**	0	6	11	3	0	**20**	0	0	44	58	0	**102**	0	16	79	15	0	**110**	0	**368**
6:30PM	64	33	27	0	**124**	0	11	18	3	0	**32**	0	1	58	62	0	**121**	0	13	50	9	0	**72**	0	**349**
6:45PM	75	36	18	0	**129**	0	6	9	3	0	**18**	0	3	44	49	0	**96**	0	10	45	1	0	**56**	2	**299**
Hourly Total	282	132	136	0	**550**	0	34	57	13	0	**104**	0	5	214	220	0	**439**	0	56	249	32	0	**337**	2	**1430**
Total	1331	574	861	0	**2766**	1	243	492	38	0	**773**	3	12	1361	1517	0	**2890**	2	878	1324	178	1	**2381**	4	**8810**
% Approach	48.1%	20.8%	31.1%	0%	**-**	-	31.4%	63.6%	4.9%	0%	**-**	-	0.4%	47.1%	52.5%	0%	**-**	-	36.9%	55.6%	7.5%	0%	**-**	-	-
% Total	15.1%	6.5%	9.8%	0%	**31.4%**	-	2.8%	5.6%	0.4%	0%	**8.8%**	-	0.1%	15.4%	17.2%	0%	**32.8%**	-	10.0%	15.0%	2.0%	0%	**27.0%**	-	-
Lights and Motorcycles	1302	573	849	0	**2724**	-	242	491	35	0	**768**	-	12	1325	1480	0	**2817**	-	862	1307	175	1	**2345**	-	8654
% Lights and Motorcycles	97.8%	99.8%	98.6%	0%	**98.5%**	-	99.6%	99.8%	92.1%	0%	**99.4%**	-	100%	97.4%	97.6%	0%	**97.5%**	-	98.2%	98.7%	98.3%	100%	**98.5%**	-	98.2%
Heavy	29	0	12	0	**41**	-	1	1	3	0	**5**	-	0	36	37	0	**73**	-	16	17	3	0	**36**	-	155
% Heavy	2.2%	0%	1.4%	0%	**1.5%**	-	0.4%	0.2%	7.9%	0%	**0.6%**	-	0%	2.6%	2.4%	0%	**2.5%**	-	1.8%	1.3%	1.7%	0%	**1.5%**	-	1.8%
Bicycles on Road	0	1	0	0	**1**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	1
% Bicycles on Road	0%	0.2%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	4	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Sycamore & Main St - TMC
Thu Nov 9, 2017
Full Length (6AM-9AM, 4PM-7PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 469390, Location: 39.948235, -86.260938

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201,
Indianapolis, IN, 46240, US



Sycamore & Main St - TMC
Thu Nov 9, 2017
AM Peak (7:30AM - 8:30AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 469390, Location: 39.948235, -86.260938

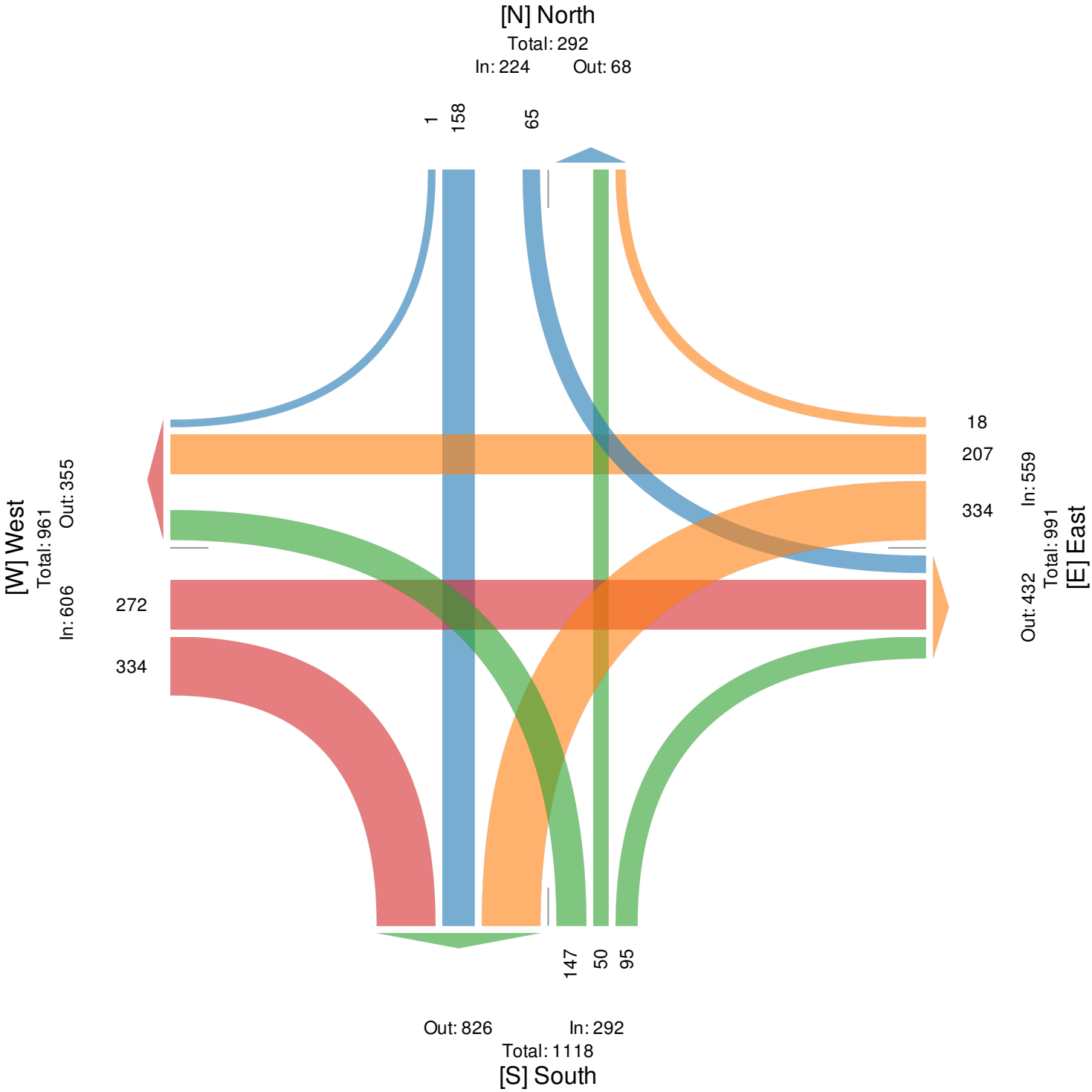
Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201, Indianapolis, IN, 46240, US

Leg	South						North						West						East						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2017-11-09 7:30AM	31	15	17	0	**63**	0	15	35	0	0	**50**	0	0	79	63	0	**142**	0	68	41	4	0	**113**	0	**368**
7:45AM	37	13	27	0	**77**	0	16	46	0	0	**62**	0	0	64	79	0	**143**	0	98	49	4	0	**151**	0	**433**
8:00AM	36	7	31	0	**74**	0	17	46	1	0	**64**	0	0	57	80	0	**137**	0	88	58	6	0	**152**	0	**427**
8:15AM	43	15	20	0	**78**	0	17	31	0	0	**48**	0	0	72	112	0	**184**	0	80	59	4	0	**143**	0	**453**
Total	147	50	95	0	**292**	0	65	158	1	0	**224**	0	0	272	334	0	**606**	0	334	207	18	0	**559**	0	**1681**
% Approach	50.3%	17.1%	32.5%	0%	**-**	-	29.0%	70.5%	0.4%	0%	**-**	-	0%	44.9%	55.1%	0%	**-**	-	59.7%	37.0%	3.2%	0%	**-**	-	**-**
% Total	8.7%	3.0%	5.7%	0%	**17.4%**	-	3.9%	9.4%	0.1%	0%	**13.3%**	-	0%	16.2%	19.9%	0%	**36.0%**	-	19.9%	12.3%	1.1%	0%	**33.3%**	-	**-**
PHF	0.855	0.833	0.766	-	**0.936**	-	0.956	0.859	0.250	-	**0.875**	-	-	0.861	0.746	-	**0.823**	-	0.852	0.877	0.750	-	**0.919**	-	0.928
Lights and Motorcycles	138	49	91	0	**278**	-	65	158	0	0	**223**	-	0	262	326	0	**588**	-	334	199	17	0	**550**	-	1639
% Lights and Motorcycles	93.9%	98.0%	95.8%	0%	**95.2%**	-	100%	100%	0%	0%	**99.6%**	-	0%	96.3%	97.6%	0%	**97.0%**	-	100%	96.1%	94.4%	0%	**98.4%**	-	97.5%
Heavy	9	0	4	0	**13**	-	0	0	1	0	**1**	-	0	10	8	0	**18**	-	0	8	1	0	**9**	-	41
% Heavy	6.1%	0%	4.2%	0%	**4.5%**	-	0%	0%	100%	0%	**0.4%**	-	0%	3.7%	2.4%	0%	**3.0%**	-	0%	3.9%	5.6%	0%	**1.6%**	-	2.4%
Bicycles on Road	0	1	0	0	**1**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	1
% Bicycles on Road	0%	2.0%	0%	0%	**0.3%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0.1%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Sycamore & Main St - TMC
Thu Nov 9, 2017
AM Peak (7:30AM - 8:30AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 469390, Location: 39.948235, -86.260938

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201,
Indianapolis, IN, 46240, US



Sycamore & Main St - TMC

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201, Indianapolis, IN, 46240, US

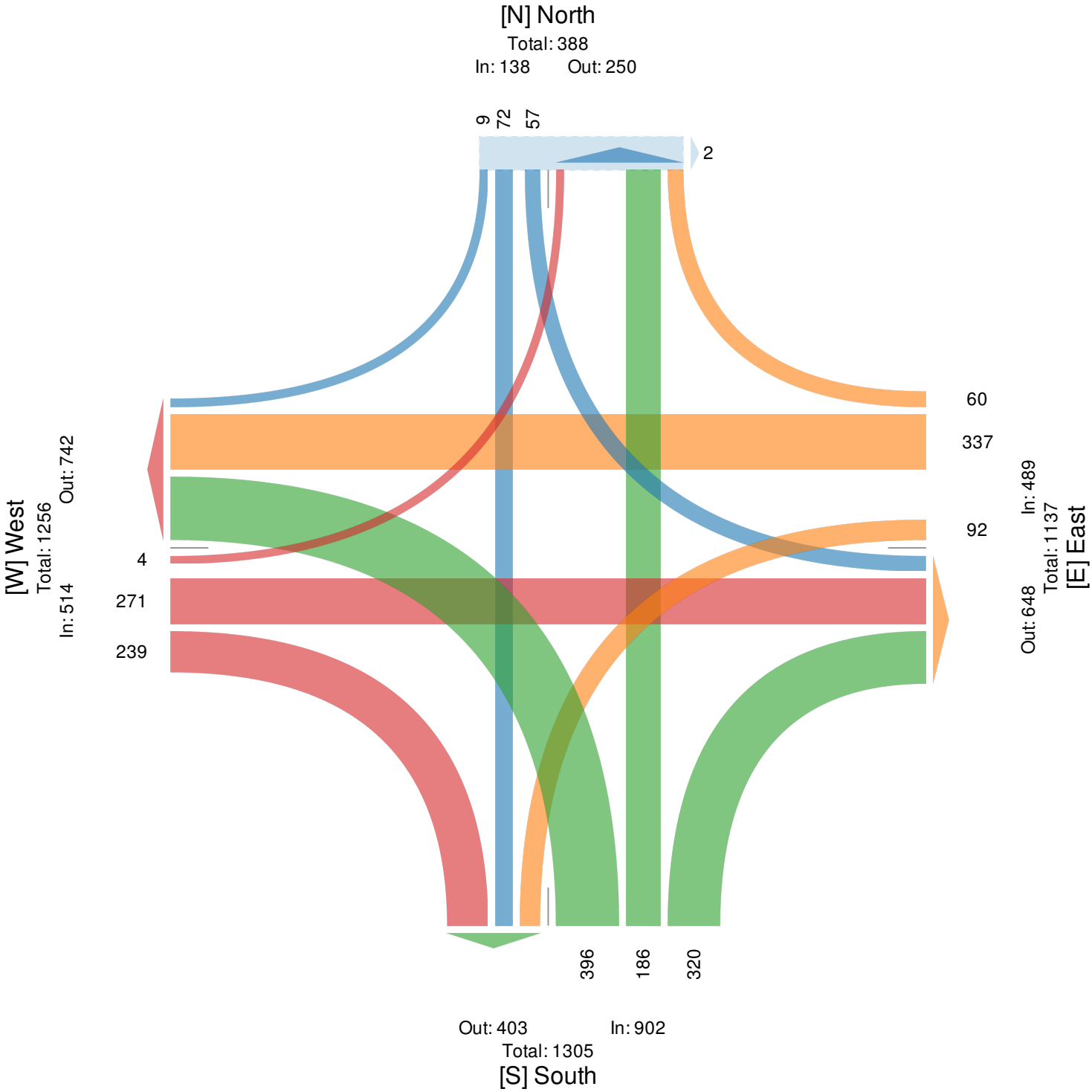
Thu Nov 9, 2017
PM Peak (4:45PM - 5:45PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 469390, Location: 39.948235, -86.260938

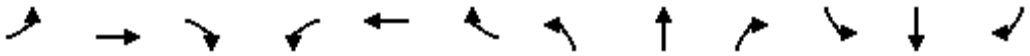
Leg	South						North						West						East						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2017-11-09 4:45PM	86	32	67	0	**185**	0	17	15	4	0	**36**	0	0	76	79	0	**155**	0	32	79	14	0	**125**	0	**501**
5:00PM	114	51	87	0	**252**	0	16	18	2	0	**36**	0	1	58	53	0	**112**	0	14	81	12	0	**107**	0	**507**
5:15PM	100	58	94	0	**252**	0	12	15	1	0	**28**	2	3	65	49	0	**117**	0	27	82	21	0	**130**	0	**527**
5:30PM	96	45	72	0	**213**	0	12	24	2	0	**38**	0	0	72	58	0	**130**	0	19	95	13	0	**127**	0	**508**
Total	396	186	320	0	**902**	0	57	72	9	0	**138**	2	4	271	239	0	**514**	0	92	337	60	0	**489**	0	**2043**
% Approach	43.9%	20.6%	35.5%	0%	**-**	-	41.3%	52.2%	6.5%	0%	**-**	-	0.8%	52.7%	46.5%	0%	**-**	-	18.8%	68.9%	12.3%	0%	**-**	-	-
% Total	19.4%	9.1%	15.7%	0%	**44.2%**	-	2.8%	3.5%	0.4%	0%	**6.8%**	-	0.2%	13.3%	11.7%	0%	**25.2%**	-	4.5%	16.5%	2.9%	0%	**23.9%**	-	-
PHF	0.868	0.802	0.851	-	**0.895**	-	0.838	0.750	0.563	-	**0.908**	-	0.333	0.891	0.756	-	**0.829**	-	0.719	0.887	0.714	-	**0.940**	-	0.969
Lights and Motorcycles	391	186	320	0	**897**	-	57	72	9	0	**138**	-	4	266	231	0	**501**	-	85	337	60	0	**482**	-	2018
% Lights and Motorcycles	98.7%	100%	100%	0%	**99.4%**	-	100%	100%	100%	0%	**100%**	-	100%	98.2%	96.7%	0%	**97.5%**	-	92.4%	100%	100%	0%	**98.6%**	-	98.8%
Heavy	5	0	0	0	**5**	-	0	0	0	0	**0**	-	0	5	8	0	**13**	-	7	0	0	0	**7**	-	25
% Heavy	1.3%	0%	0%	0%	**0.6%**	-	0%	0%	0%	0%	**0%**	-	0%	1.8%	3.3%	0%	**2.5%**	-	7.6%	0%	0%	0%	**1.4%**	-	1.2%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Sycamore & Main St - TMC
Thu Nov 9, 2017
PM Peak (4:45PM - 5:45PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 469390, Location: 39.948235, -86.260938

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201,
Indianapolis, IN, 46240, US

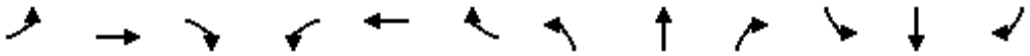




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	272	334	334	207	18	147	50	95	65	158	1
Future Volume (veh/h)	0	272	334	334	207	18	147	50	95	65	158	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1870	1900	1841	1841	1811	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	0	292	359	359	223	19	158	54	102	70	170	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	4	4	2	0	4	4	6	0	0	0	0	0
Cap, veh/h	0	472	570	546	849	72	367	105	198	358	253	1
Arrive On Green	0.00	0.26	0.26	0.18	0.51	0.51	0.10	0.18	0.18	0.06	0.13	0.13
Sat Flow, veh/h	0	1841	1585	1810	1673	143	1725	588	1111	1810	1887	11
Grp Volume(v), veh/h	0	292	359	359	0	242	158	0	156	70	0	171
Grp Sat Flow(s),veh/h/ln	0	1841	1585	1810	0	1815	1725	0	1700	1810	0	1898
Q Serve(g_s), s	0.0	7.7	10.3	7.2	0.0	4.2	4.2	0.0	4.6	1.8	0.0	4.7
Cycle Q Clear(g_c), s	0.0	7.7	10.3	7.2	0.0	4.2	4.2	0.0	4.6	1.8	0.0	4.7
Prop In Lane	0.00		1.00	1.00		0.08	1.00		0.65	1.00		0.01
Lane Grp Cap(c), veh/h	0	472	570	546	0	921	367	0	303	358	0	255
V/C Ratio(X)	0.00	0.62	0.63	0.66	0.00	0.26	0.43	0.00	0.52	0.20	0.00	0.67
Avail Cap(c_a), veh/h	0	636	712	750	0	1288	439	0	618	480	0	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.1	14.6	11.1	0.0	7.7	17.5	0.0	20.4	18.6	0.0	22.6
Incr Delay (d2), s/veh	0.0	1.3	1.2	1.4	0.0	0.2	0.8	0.0	1.4	0.3	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	3.4	2.5	0.0	1.3	1.6	0.0	1.8	0.7	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.4	15.7	12.5	0.0	7.8	18.3	0.0	21.8	18.9	0.0	25.7
LnGrp LOS	A	B	B	B	A	A	B	A	C	B	A	C
Approach Vol, veh/h		651			601			314			241	
Approach Delay, s/veh		17.4			10.6			20.0			23.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	14.8	13.8	19.1	9.7	12.4		32.9				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0	16.0	19.0	8.0	19.0		39.0				
Max Q Clear Time (g_c+I1), s	3.8	6.6	9.2	12.3	6.2	6.7		6.2				
Green Ext Time (p_c), s	0.0	0.7	0.7	1.8	0.1	0.7		1.5				

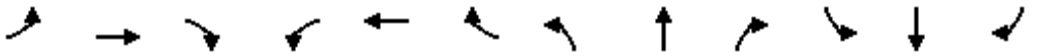
Intersection Summary												
HCM 6th Ctrl Delay			16.4									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	271	239	92	337	60	396	186	320	57	72	9
Future Volume (veh/h)	4	271	239	92	337	60	396	186	320	57	72	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1781	1900	1900	1885	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	4	279	246	95	347	62	408	192	330	59	74	9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	3	8	0	0	1	0	0	0	0	0
Cap, veh/h	65	379	639	291	535	96	724	228	392	295	356	43
Arrive On Green	0.20	0.20	0.20	0.07	0.34	0.34	0.20	0.36	0.36	0.05	0.21	0.21
Sat Flow, veh/h	7	1856	1572	1697	1569	280	1795	627	1078	1810	1662	202
Grp Volume(v), veh/h	283	0	246	95	0	409	408	0	522	59	0	83
Grp Sat Flow(s),veh/h/ln	1864	0	1572	1697	0	1850	1795	0	1706	1810	0	1864
Q Serve(g_s), s	0.0	0.0	6.4	2.4	0.0	10.8	9.3	0.0	16.2	1.4	0.0	2.1
Cycle Q Clear(g_c), s	8.2	0.0	6.4	2.4	0.0	10.8	9.3	0.0	16.2	1.4	0.0	2.1
Prop In Lane	0.01		1.00	1.00		0.15	1.00		0.63	1.00		0.11
Lane Grp Cap(c), veh/h	444	0	639	291	0	631	724	0	621	295	0	400
V/C Ratio(X)	0.64	0.00	0.38	0.33	0.00	0.65	0.56	0.00	0.84	0.20	0.00	0.21
Avail Cap(c_a), veh/h	641	0	808	382	0	927	795	0	885	418	0	741
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	12.1	15.7	0.0	16.1	11.5	0.0	16.9	16.6	0.0	18.7
Incr Delay (d2), s/veh	1.5	0.0	0.4	0.6	0.0	1.1	0.8	0.0	5.1	0.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	2.0	0.9	0.0	4.2	3.3	0.0	6.4	0.6	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	0.0	12.4	16.4	0.0	17.2	12.2	0.0	22.0	16.9	0.0	18.9
LnGrp LOS	C	A	B	B	A	B	B	A	C	B	A	B
Approach Vol, veh/h		529			504			930			142	
Approach Delay, s/veh		18.1			17.1			17.7			18.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	26.0	7.9	16.8	15.7	17.4		24.7				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	30.0	7.0	18.0	14.0	23.0		29.0				
Max Q Clear Time (g_c+I1), s	3.4	18.2	4.4	10.2	11.3	4.1		12.8				
Green Ext Time (p_c), s	0.0	2.8	0.0	1.6	0.4	0.3		2.3				

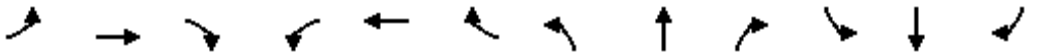
Intersection Summary												
HCM 6th Ctrl Delay			17.7									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	289	365	334	213	18	156	50	95	65	158	2
Future Volume (veh/h)	3	289	365	334	213	18	156	50	95	65	158	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1870	1900	1841	1841	1811	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	3	311	392	359	229	19	168	54	102	70	170	2
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	4	4	2	0	4	4	6	0	0	0	0	0
Cap, veh/h	65	493	598	531	861	71	368	108	203	358	250	3
Arrive On Green	0.27	0.27	0.27	0.17	0.51	0.51	0.11	0.18	0.18	0.06	0.13	0.13
Sat Flow, veh/h	4	1834	1585	1810	1677	139	1725	588	1111	1810	1874	22
Grp Volume(v), veh/h	314	0	392	359	0	248	168	0	156	70	0	172
Grp Sat Flow(s),veh/h/ln	1838	0	1585	1810	0	1816	1725	0	1700	1810	0	1896
Q Serve(g_s), s	0.0	0.0	11.7	7.4	0.0	4.4	4.6	0.0	4.7	1.9	0.0	4.9
Cycle Q Clear(g_c), s	8.6	0.0	11.7	7.4	0.0	4.4	4.6	0.0	4.7	1.9	0.0	4.9
Prop In Lane	0.01		1.00	1.00		0.08	1.00		0.65	1.00		0.01
Lane Grp Cap(c), veh/h	558	0	598	531	0	932	368	0	311	358	0	253
V/C Ratio(X)	0.56	0.00	0.66	0.68	0.00	0.27	0.46	0.00	0.50	0.20	0.00	0.68
Avail Cap(c_a), veh/h	675	0	699	723	0	1240	423	0	595	473	0	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.4	0.0	14.7	11.5	0.0	7.8	17.8	0.0	21.0	19.4	0.0	23.6
Incr Delay (d2), s/veh	0.9	0.0	1.8	1.5	0.0	0.2	0.9	0.0	1.3	0.3	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	3.7	2.4	0.0	1.3	1.7	0.0	1.8	0.8	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	0.0	16.5	13.0	0.0	8.0	18.7	0.0	22.2	19.7	0.0	26.8
LnGrp LOS	B	A	B	B	A	A	B	A	C	B	A	C
Approach Vol, veh/h		706			607			324			242	
Approach Delay, s/veh		17.7			10.9			20.4			24.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	15.4	14.0	20.3	10.2	12.6		34.3				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	20.0	16.0	19.0	8.0	19.0		39.0				
Max Q Clear Time (g_c+I1), s	3.9	6.7	9.4	13.7	6.6	6.9		6.4				
Green Ext Time (p_c), s	0.0	0.7	0.6	1.7	0.1	0.7		1.4				

Intersection Summary												
HCM 6th Ctrl Delay			16.9									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	286	260	92	358	60	428	186	320	57	72	13
Future Volume (veh/h)	7	286	260	92	358	60	428	186	320	57	72	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1781	1900	1900	1885	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	7	295	268	95	369	62	441	192	330	59	74	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	3	8	0	0	1	0	0	0	0	0
Cap, veh/h	65	397	692	287	555	93	721	226	389	287	296	52
Arrive On Green	0.22	0.22	0.22	0.07	0.35	0.35	0.22	0.36	0.36	0.05	0.19	0.19
Sat Flow, veh/h	14	1843	1572	1697	1586	266	1795	627	1078	1810	1574	276
Grp Volume(v), veh/h	302	0	268	95	0	431	441	0	522	59	0	87
Grp Sat Flow(s),veh/h/ln	1857	0	1572	1697	0	1852	1795	0	1706	1810	0	1850
Q Serve(g_s), s	0.4	0.0	6.8	2.4	0.0	11.6	10.6	0.0	16.7	1.5	0.0	2.4
Cycle Q Clear(g_c), s	8.9	0.0	6.8	2.4	0.0	11.6	10.6	0.0	16.7	1.5	0.0	2.4
Prop In Lane	0.02		1.00	1.00		0.14	1.00		0.63	1.00		0.15
Lane Grp Cap(c), veh/h	463	0	692	287	0	648	721	0	615	287	0	348
V/C Ratio(X)	0.65	0.00	0.39	0.33	0.00	0.66	0.61	0.00	0.85	0.21	0.00	0.25
Avail Cap(c_a), veh/h	657	0	859	375	0	941	834	0	838	406	0	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.7	0.0	11.2	15.8	0.0	16.3	12.2	0.0	17.4	18.0	0.0	20.4
Incr Delay (d2), s/veh	1.6	0.0	0.4	0.7	0.0	1.2	1.0	0.0	6.2	0.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	2.0	0.8	0.0	4.3	3.8	0.0	6.8	0.6	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.2	0.0	11.5	16.4	0.0	17.4	13.2	0.0	23.6	18.3	0.0	20.8
LnGrp LOS	C	A	B	B	A	B	B	A	C	B	A	C
Approach Vol, veh/h		570			526			963			146	
Approach Delay, s/veh		17.7			17.3			18.9			19.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	26.3	7.9	17.7	17.3	16.1		25.7				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	4.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	29.0	7.0	19.0	17.0	19.0		30.0				
Max Q Clear Time (g_c+I1), s	3.5	18.7	4.4	10.9	12.6	4.4		13.6				
Green Ext Time (p_c), s	0.0	2.6	0.0	1.8	0.6	0.3		2.3				

Intersection Summary												
HCM 6th Ctrl Delay			18.2									
HCM 6th LOS			B									

SYCAMORE STREET & 1ST STREET

TRAFFIC VOLUME COUNTS
CAPACITY ANALYSIS

SYCAMORE & 1ST ST - TMC
Thu Nov 9, 2017
Full Length (6AM-9AM, 4PM-7PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 470059, Location: 39.948141, -86.261567

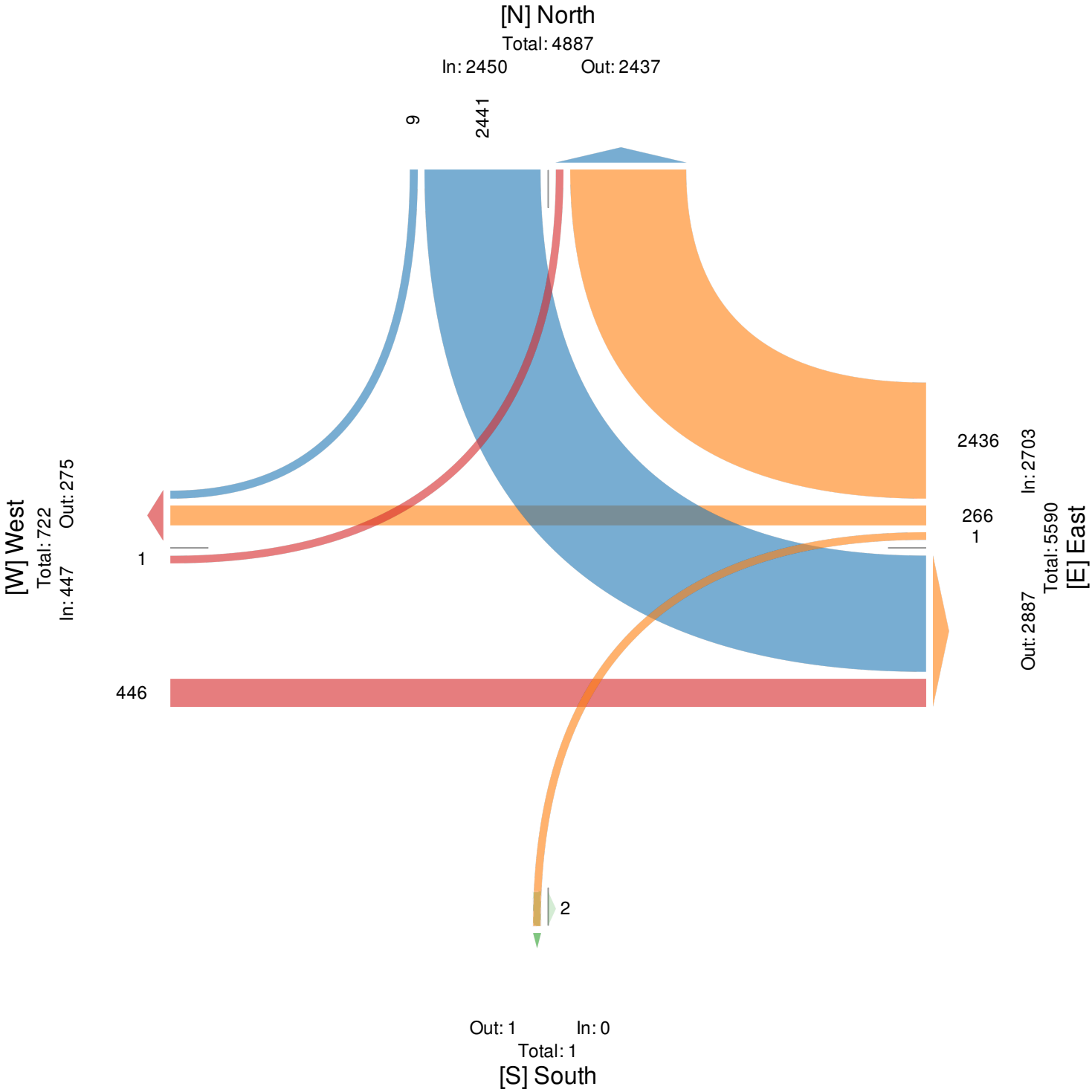
Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201,
Indianapolis, IN, 46240, US

Leg	South						North						West						East						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2017-11-09 6:00AM	0	0	0	0	**0**	0	43	0	0	0	**43**	0	0	8	0	0	**8**	0	0	2	18	0	**20**	0	**71**
6:15AM	0	0	0	0	**0**	0	34	0	0	0	**34**	0	0	6	0	0	**6**	0	0	0	11	0	**11**	0	**51**
6:30AM	0	0	0	0	**0**	0	69	0	0	0	**69**	0	0	10	0	0	**10**	0	0	1	31	0	**32**	0	**111**
6:45AM	0	0	0	0	**0**	0	76	0	0	0	**76**	0	0	8	0	0	**8**	0	0	0	45	0	**45**	0	**129**
Hourly Total	0	0	0	0	**0**	0	222	0	0	0	**222**	0	0	32	0	0	**32**	0	0	3	105	0	**108**	0	**362**
7:00AM	0	0	0	0	**0**	0	88	0	0	0	**88**	0	0	23	0	0	**23**	0	0	4	48	0	**52**	0	**163**
7:15AM	0	0	0	0	**0**	0	118	0	0	0	**118**	0	0	17	0	0	**17**	0	0	3	63	0	**66**	0	**201**
7:30AM	0	0	0	0	**0**	0	125	0	0	0	**125**	0	0	27	0	0	**27**	0	0	4	68	0	**72**	0	**224**
7:45AM	0	0	0	0	**0**	0	117	0	0	0	**117**	0	0	19	0	0	**19**	0	0	2	84	0	**86**	0	**222**
Hourly Total	0	0	0	0	**0**	0	448	0	0	0	**448**	0	0	86	0	0	**86**	0	0	13	263	0	**276**	0	**810**
8:00AM	0	0	0	0	**0**	0	124	0	0	0	**124**	0	0	19	0	0	**19**	0	0	6	89	0	**95**	0	**238**
8:15AM	0	0	0	0	**0**	0	150	0	0	0	**150**	0	0	27	0	0	**27**	0	0	11	92	0	**103**	0	**280**
8:30AM	0	0	0	0	**0**	1	141	0	0	0	**141**	0	0	22	0	0	**22**	0	0	5	64	0	**69**	0	**232**
8:45AM	0	0	0	0	**0**	0	135	0	0	0	**135**	0	0	26	0	0	**26**	0	0	8	99	0	**107**	0	**268**
Hourly Total	0	0	0	0	**0**	1	550	0	0	0	**550**	0	0	94	0	0	**94**	0	0	30	344	0	**374**	0	**1018**
4:00PM	0	0	0	0	**0**	0	121	0	1	0	**122**	0	0	21	0	0	**21**	0	0	20	126	0	**146**	0	**289**
4:15PM	0	0	0	0	**0**	0	102	0	0	0	**102**	0	0	21	0	0	**21**	0	1	16	153	0	**170**	0	**293**
4:30PM	0	0	0	0	**0**	0	106	0	0	0	**106**	0	0	29	0	0	**29**	0	0	23	154	0	**177**	0	**312**
4:45PM	0	0	0	0	**0**	0	120	0	1	0	**121**	0	0	32	0	0	**32**	0	0	17	152	0	**169**	0	**322**
Hourly Total	0	0	0	0	**0**	0	449	0	2	0	**451**	0	0	103	0	0	**103**	0	1	76	585	0	**662**	0	**1216**
5:00PM	0	0	0	0	**0**	0	98	0	3	0	**101**	0	0	20	0	0	**20**	0	0	24	169	0	**193**	0	**314**
5:15PM	0	0	0	0	**0**	0	100	0	1	0	**101**	0	0	17	0	0	**17**	0	0	37	146	0	**183**	0	**301**
5:30PM	0	0	0	0	**0**	0	103	0	0	0	**103**	0	0	20	0	0	**20**	0	0	33	161	0	**194**	0	**317**
5:45PM	0	0	0	0	**0**	0	86	0	0	0	**86**	0	0	19	0	0	**19**	0	0	12	153	0	**165**	0	**270**
Hourly Total	0	0	0	0	**0**	0	387	0	4	0	**391**	0	0	76	0	0	**76**	0	0	106	629	0	**735**	0	**1202**
6:00PM	0	0	0	0	**0**	1	97	0	0	0	**97**	0	0	18	0	0	**18**	0	0	12	151	0	**163**	0	**278**
6:15PM	0	0	0	0	**0**	0	97	0	2	0	**99**	0	0	14	0	0	**14**	0	0	8	133	0	**141**	0	**254**
6:30PM	0	0	0	0	**0**	0	106	0	0	0	**106**	0	0	11	0	0	**11**	0	0	14	108	0	**122**	0	**239**
6:45PM	0	0	0	0	**0**	0	85	0	1	0	**86**	0	1	12	0	0	**13**	0	0	4	118	0	**122**	0	**221**
Hourly Total	0	0	0	0	**0**	1	385	0	3	0	**388**	0	1	55	0	0	**56**	0	0	38	510	0	**548**	0	**992**
Total	0	0	0	0	**0**	2	2441	0	9	0	**2450**	0	1	446	0	0	**447**	0	1	266	2436	0	**2703**	0	**5600**
% Approach	0%	0%	0%	0%	**-**	-	99.6%	0%	0.4%	0%	**-**	-	0.2%	99.8%	0%	0%	**-**	-	0%	9.8%	90.1%	0%	**-**	-	-
% Total	0%	0%	0%	0%	**0%**	-	43.6%	0%	0.2%	0%	**43.8%**	-	0%	8.0%	0%	0%	**8.0%**	-	0%	4.8%	43.5%	0%	**48.3%**	-	-
Lights and Motorcycles	0	0	0	0	**0**	-	2371	0	9	0	**2380**	-	1	443	0	0	**444**	-	1	261	2377	0	**2639**	-	5463
% Lights and Motorcycles	0%	0%	0%	0%	**-**	-	97.1%	0%	100%	0%	**97.1%**	-	100%	99.3%	0%	0%	**99.3%**	-	100%	98.1%	97.6%	0%	**97.6%**	-	97.6%
Heavy	0	0	0	0	**0**	-	70	0	0	0	**70**	-	0	3	0	0	**3**	-	0	4	59	0	**63**	-	136
% Heavy	0%	0%	0%	0%	**-**	-	2.9%	0%	0%	0%	**2.9%**	-	0%	0.7%	0%	0%	**0.7%**	-	0%	1.5%	2.4%	0%	**2.3%**	-	2.4%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	1	0	0	**1**	-	1
% Bicycles on Road	0%	0%	0%	0%	**-**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0.4%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

SYCAMORE & 1ST ST - TMC
Thu Nov 9, 2017
Full Length (6AM-9AM, 4PM-7PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 470059, Location: 39.948141, -86.261567

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201,
Indianapolis, IN, 46240, US



SYCAMORE & 1ST ST - TMC
Thu Nov 9, 2017
AM Peak (8AM - 9AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 470059, Location: 39.948141, -86.261567

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201,
Indianapolis, IN, 46240, US

Leg / Direction	South Northbound						North Southbound						West Eastbound						East Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2017-11-09 8:00AM	0	0	0	0	**0**	0	124	0	0	0	**124**	0	0	19	0	0	**19**	0	0	6	89	0	**95**	0	**238**
8:15AM	0	0	0	0	**0**	0	150	0	0	0	**150**	0	0	27	0	0	**27**	0	0	11	92	0	**103**	0	**280**
8:30AM	0	0	0	0	**0**	1	141	0	0	0	**141**	0	0	22	0	0	**22**	0	0	5	64	0	**69**	0	**232**
8:45AM	0	0	0	0	**0**	0	135	0	0	0	**135**	0	0	26	0	0	**26**	0	0	8	99	0	**107**	0	**268**
Total	0	0	0	0	**0**	1	550	0	0	0	**550**	0	0	94	0	0	**94**	0	0	30	344	0	**374**	0	**1018**
% Approach	0%	0%	0%	0%	**-**	-	100%	0%	0%	0%	**-**	-	0%	100%	0%	0%	**-**	-	0%	8.0%	92.0%	0%	**-**	-	-
% Total	0%	0%	0%	0%	**0%**	-	54.0%	0%	0%	0%	**54.0%**	-	0%	9.2%	0%	0%	**9.2%**	-	0%	2.9%	33.8%	0%	**36.7%**	-	-
PHF	-	-	-	-	**-**	-	0.917	-	-	-	**0.917**	-	-	0.870	-	-	**0.870**	-	-	0.682	0.869	-	**0.874**	-	0.909
Lights and Motorcycles	0	0	0	0	**0**	-	538	0	0	0	**538**	-	0	93	0	0	**93**	-	0	29	321	0	**350**	-	981
% Lights and Motorcycles	0%	0%	0%	0%	**-**	-	97.8%	0%	0%	0%	**97.8%**	-	0%	98.9%	0%	0%	**98.9%**	-	0%	96.7%	93.3%	0%	**93.6%**	-	96.4%
Heavy	0	0	0	0	**0**	-	12	0	0	0	**12**	-	0	1	0	0	**1**	-	0	1	23	0	**24**	-	37
% Heavy	0%	0%	0%	0%	**-**	-	2.2%	0%	0%	0%	**2.2%**	-	0%	1.1%	0%	0%	**1.1%**	-	0%	3.3%	6.7%	0%	**6.4%**	-	3.6%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**-**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

SYCAMORE & 1ST ST - TMC
Thu Nov 9, 2017
AM Peak (8AM - 9AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 470059, Location: 39.948141, -86.261567

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201,
Indianapolis, IN, 46240, US

SYCAMORE & 1ST ST - TMC

Thu Nov 9, 2017

PM Peak (4:45PM - 5:45PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)

All Movements

ID: 470059, Location: 39.948141, -86.261567

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201,
Indianapolis, IN, 46240, US

Leg Direction	South Northbound						North Southbound						West Eastbound						East Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2017-11-09 4:45PM	0	0	0	0	**0**	0	120	0	1	0	**121**	0	0	32	0	0	**32**	0	0	17	152	0	**169**	0	**322**
5:00PM	0	0	0	0	**0**	0	98	0	3	0	**101**	0	0	20	0	0	**20**	0	0	24	169	0	**193**	0	**314**
5:15PM	0	0	0	0	**0**	0	100	0	1	0	**101**	0	0	17	0	0	**17**	0	0	37	146	0	**183**	0	**301**
5:30PM	0	0	0	0	**0**	0	103	0	0	0	**103**	0	0	20	0	0	**20**	0	0	33	161	0	**194**	0	**317**
Total	0	0	0	0	**0**	0	421	0	5	0	**426**	0	0	89	0	0	**89**	0	0	111	628	0	**739**	0	**1254**
% Approach	0%	0%	0%	0%	**-**	-	98.8%	0%	1.2%	0%	**-**	-	0%	100%	0%	0%	**-**	-	0%	15.0%	85.0%	0%	**-**	-	-
% Total	0%	0%	0%	0%	**0%**	-	33.6%	0%	0.4%	0%	**34.0%**	-	0%	7.1%	0%	0%	**7.1%**	-	0%	8.9%	50.1%	0%	**58.9%**	-	-
PHF	-	-	-	-	**-**	-	0.877	-	0.417	-	**0.880**	-	-	0.695	-	-	**0.695**	-	-	0.750	0.929	-	**0.952**	-	0.974
Lights and Motorcycles	0	0	0	0	**0**	-	407	0	5	0	**412**	-	0	88	0	0	**88**	-	0	109	619	0	**728**	-	1228
% Lights and Motorcycles	0%	0%	0%	0%	**-**	-	96.7%	0%	100%	0%	**96.7%**	-	0%	98.9%	0%	0%	**98.9%**	-	0%	98.2%	98.6%	0%	**98.5%**	-	97.9%
Heavy	0	0	0	0	**0**	-	14	0	0	0	**14**	-	0	1	0	0	**1**	-	0	2	9	0	**11**	-	26
% Heavy	0%	0%	0%	0%	**-**	-	3.3%	0%	0%	0%	**3.3%**	-	0%	1.1%	0%	0%	**1.1%**	-	0%	1.8%	1.4%	0%	**1.5%**	-	2.1%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**-**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

2: Sycamore St & 1st Street Performance by approach

Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	0.5	0.3
Total Delay (hr)	0.2	0.1	7.1	7.4
Total Del/Veh (s)	9.0	1.3	46.3	26.2
Stop Delay (hr)	0.2	0.0	6.9	7.1
Stop Del/Veh (s)	6.6	0.2	45.5	25.2

2: Sycamore St & 1st Street Performance by approach

Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.4	0.2
Total Delay (hr)	0.2	0.4	4.4	5.0
Total Del/Veh (s)	10.2	2.0	36.2	14.2
Stop Delay (hr)	0.2	0.0	4.1	4.3
Stop Del/Veh (s)	7.8	0.1	34.3	12.2

2: Sycamore St & 1st Street Performance by approach

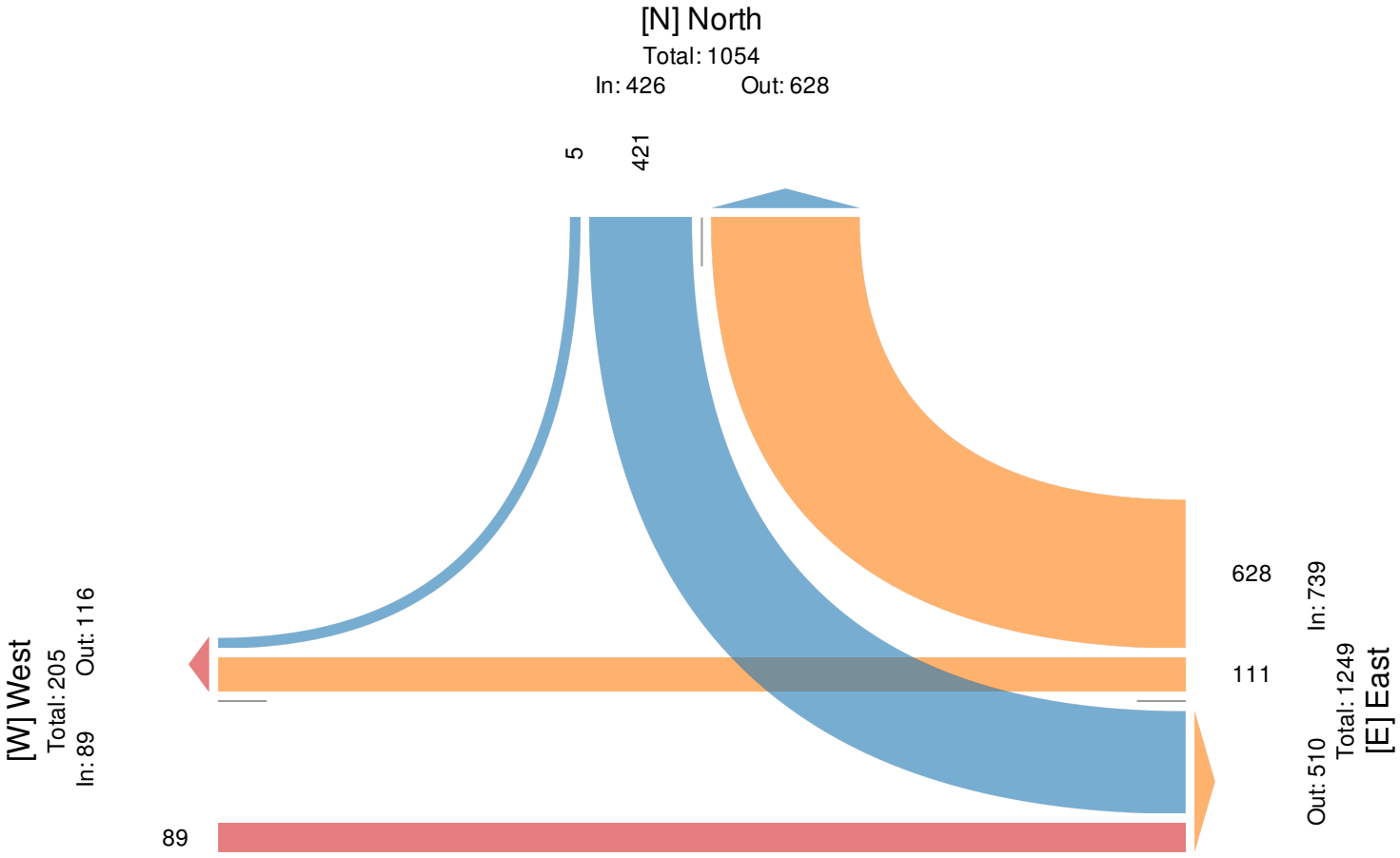
Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	2.0	2.0
Denied Del/Veh (s)	0.0	0.0	12.9	6.7
Total Delay (hr)	0.5	0.1	20.9	21.5
Total Del/Veh (s)	12.0	1.3	132.1	70.9
Stop Delay (hr)	0.4	0.0	22.1	22.5
Stop Del/Veh (s)	10.0	0.2	139.8	74.2

2: Sycamore St & 1st Street Performance by approach

Approach	EB	WB	SB	All
Denied Delay (hr)	0.0	0.0	0.2	0.2
Denied Del/Veh (s)	0.0	0.0	1.5	0.5
Total Delay (hr)	0.5	0.5	17.6	18.7
Total Del/Veh (s)	14.3	2.2	141.5	48.6
Stop Delay (hr)	0.4	0.0	18.3	18.8
Stop Del/Veh (s)	12.2	0.1	146.8	48.9

SYCAMORE & 1ST ST - TMC
Thu Nov 9, 2017
PM Peak (4:45PM - 5:45PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road)
All Movements
ID: 470059, Location: 39.948141, -86.261567

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201,
Indianapolis, IN, 46240, US



SYCAMORE STREET & 2ND STREET/PROPOSED ACCESS DRIVE

TRAFFIC VOLUME COUNTS
CAPACITY ANALYSIS

SYCAMORE AND 2ND - TMC
Thu Nov 9, 2017
Full Length (6AM-9AM, 4PM-7PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 469394, Location: 39.948053, -86.262115

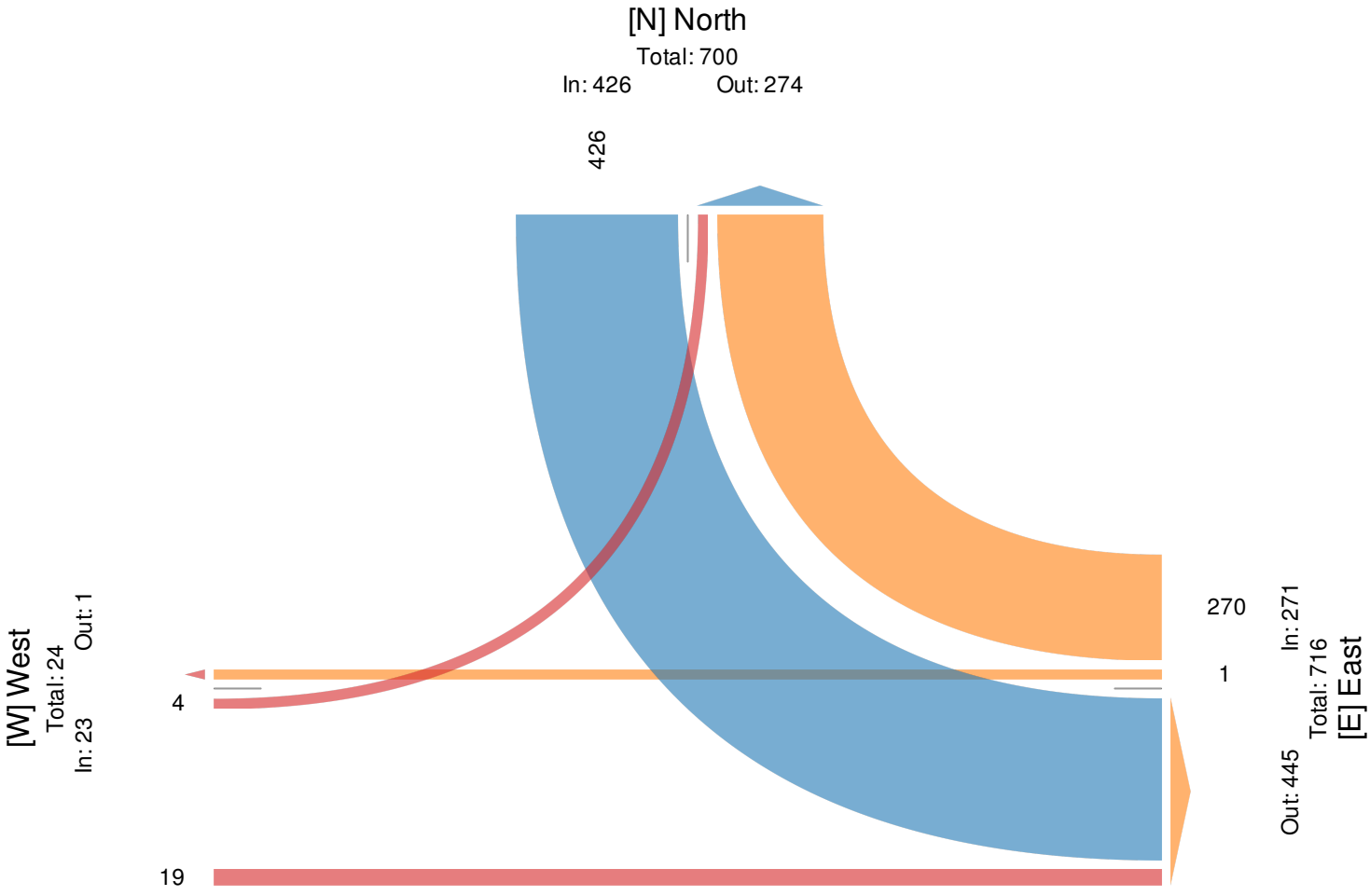
Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201, Indianapolis, IN, 46240, US

Leg / Direction	North Southbound				West Eastbound				East Westbound				
Time	L	R	U	**App**	L	T	U	**App**	T	R	U	**App**	**Int**
2017-11-09 6:00AM	8	0	0	**8**	0	0	0	**0**	0	2	0	**2**	**10**
6:15AM	6	0	0	**6**	0	0	0	**0**	0	0	0	**0**	**6**
6:30AM	10	0	0	**10**	0	0	0	**0**	0	1	0	**1**	**11**
6:45AM	9	0	0	**9**	0	0	0	**0**	0	0	0	**0**	**9**
Hourly Total	33	0	0	**33**	0	0	0	**0**	0	3	0	**3**	**36**
7:00AM	22	0	0	**22**	0	1	0	**1**	0	4	0	**4**	**27**
7:15AM	21	0	0	**21**	0	0	0	**0**	0	3	0	**3**	**24**
7:30AM	19	0	0	**19**	1	3	0	**4**	0	3	0	**3**	**26**
7:45AM	20	0	0	**20**	0	0	0	**0**	0	3	0	**3**	**23**
Hourly Total	82	0	0	**82**	1	4	0	**5**	0	13	0	**13**	**100**
8:00AM	19	0	0	**19**	1	0	0	**1**	0	6	0	**6**	**26**
8:15AM	28	0	0	**28**	0	1	0	**1**	0	11	0	**11**	**40**
8:30AM	22	0	0	**22**	1	0	0	**1**	0	5	0	**5**	**28**
8:45AM	24	0	0	**24**	0	1	0	**1**	0	8	0	**8**	**33**
Hourly Total	93	0	0	**93**	2	2	0	**4**	0	30	0	**30**	**127**
4:00PM	19	0	0	**19**	0	3	0	**3**	0	20	0	**20**	**42**
4:15PM	21	0	0	**21**	0	0	0	**0**	0	16	0	**16**	**37**
4:30PM	26	0	0	**26**	0	0	0	**0**	0	24	0	**24**	**50**
4:45PM	30	0	0	**30**	0	0	0	**0**	0	18	0	**18**	**48**
Hourly Total	96	0	0	**96**	0	3	0	**3**	0	78	0	**78**	**177**
5:00PM	19	0	0	**19**	0	1	0	**1**	0	26	0	**26**	**46**
5:15PM	17	0	0	**17**	0	1	0	**1**	1	37	0	**38**	**56**
5:30PM	19	0	0	**19**	0	3	0	**3**	0	33	0	**33**	**55**
5:45PM	18	0	0	**18**	1	1	0	**2**	0	12	0	**12**	**32**
Hourly Total	73	0	0	**73**	1	6	0	**7**	1	108	0	**109**	**189**
6:00PM	15	0	0	**15**	0	1	0	**1**	0	12	0	**12**	**28**
6:15PM	14	0	0	**14**	0	0	0	**0**	0	7	0	**7**	**21**
6:30PM	10	0	0	**10**	0	0	0	**0**	0	14	0	**14**	**24**
6:45PM	10	0	0	**10**	0	3	0	**3**	0	5	0	**5**	**18**
Hourly Total	49	0	0	**49**	0	4	0	**4**	0	38	0	**38**	**91**
Total	426	0	0	**426**	4	19	0	**23**	1	270	0	**271**	**720**
% Approach	100%	0%	0%	-	17.4%	82.6%	0%	-	0.4%	99.6%	0%	-	-
% Total	59.2%	0%	0%	**59.2%**	0.6%	2.6%	0%	**3.2%**	0.1%	37.5%	0%	**37.6%**	-
Lights and Motorcycles	424	0	0	**424**	4	19	0	**23**	1	266	0	**267**	714
% Lights and Motorcycles	99.5%	0%	0%	**99.5%**	100%	100%	0%	**100%**	100%	98.5%	0%	**98.5%**	99.2%
Heavy	2	0	0	**2**	0	0	0	**0**	0	4	0	**4**	6
% Heavy	0.5%	0%	0%	**0.5%**	0%	0%	0%	**0%**	0%	1.5%	0%	**1.5%**	0.8%

*L: Left, R: Right, T: Thru, U: U-Turn

SYCAMORE AND 2ND - TMC
Thu Nov 9, 2017
Full Length (6AM-9AM, 4PM-7PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 469394, Location: 39.948053, -86.262115

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201, Indianapolis, IN, 46240, US



SYCAMORE AND 2ND - TMC
Thu Nov 9, 2017
AM Peak (8AM - 9AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 469394, Location: 39.948053, -86.262115

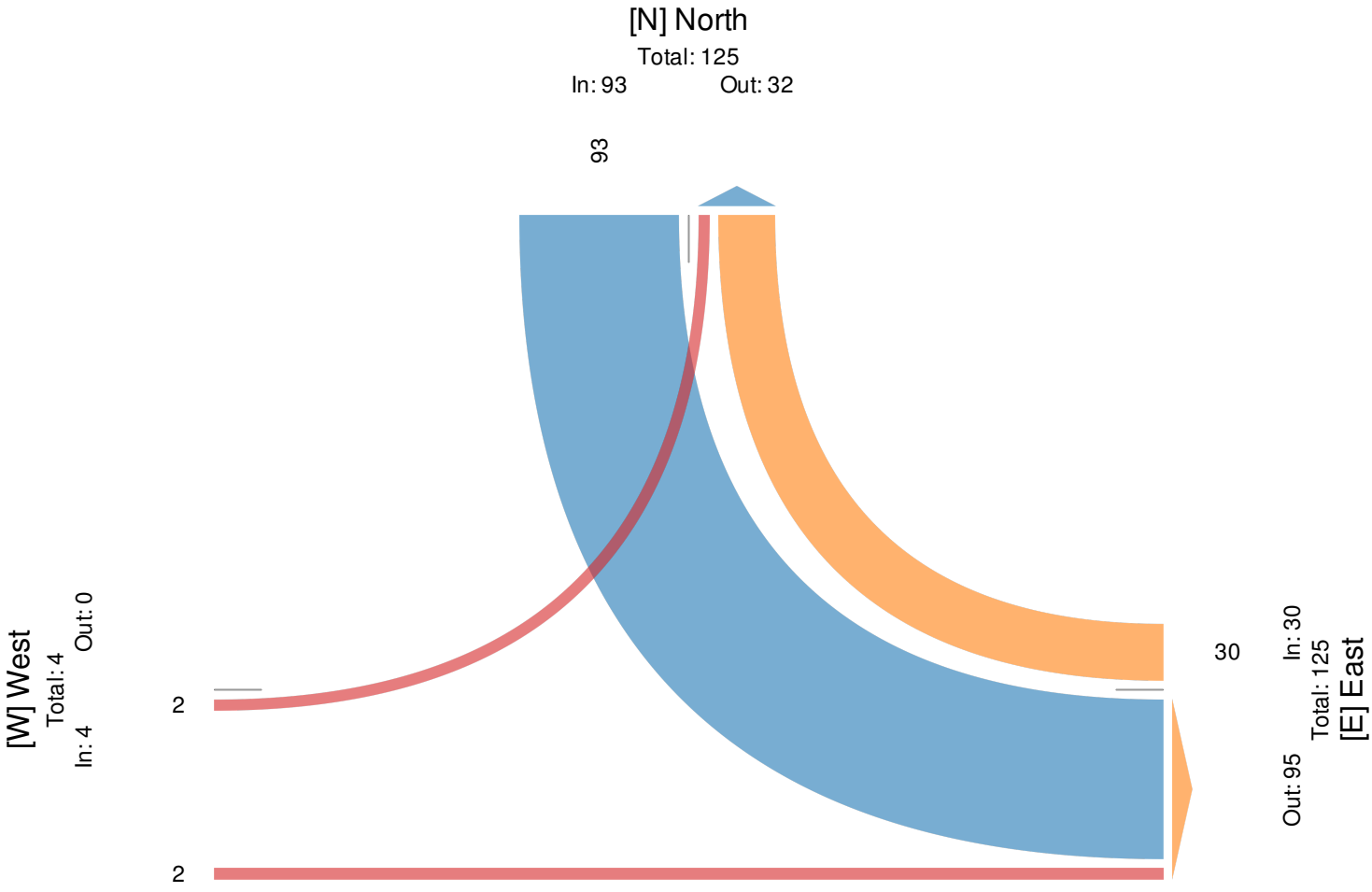
Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201, Indianapolis, IN, 46240, US

Leg Direction	North Southbound				West Eastbound				East Westbound				
Time	L	R	U	**App**	L	T	U	**App**	T	R	U	**App**	**Int**
2017-11-09 8:00AM	19	0	0	**19**	1	0	0	**1**	0	6	0	**6**	**26**
8:15AM	28	0	0	**28**	0	1	0	**1**	0	11	0	**11**	**40**
8:30AM	22	0	0	**22**	1	0	0	**1**	0	5	0	**5**	**28**
8:45AM	24	0	0	**24**	0	1	0	**1**	0	8	0	**8**	**33**
Total	93	0	0	**93**	2	2	0	**4**	0	30	0	**30**	**127**
% Approach	100%	0%	0%	-	50.0%	50.0%	0%	-	0%	100%	0%	-	-
% Total	73.2%	0%	0%	**73.2%**	1.6%	1.6%	0%	**3.1%**	0%	23.6%	0%	**23.6%**	-
PHF	0.830	-	-	**0.830**	0.500	0.500	-	**1.000**	-	0.682	-	**0.682**	0.794
Lights and Motorcycles	92	0	0	**92**	2	2	0	**4**	0	29	0	**29**	125
% Lights and Motorcycles	98.9%	0%	0%	**98.9%**	100%	100%	0%	**100%**	0%	96.7%	0%	**96.7%**	98.4%
Heavy	1	0	0	**1**	0	0	0	**0**	0	1	0	**1**	2
% Heavy	1.1%	0%	0%	**1.1%**	0%	0%	0%	**0%**	0%	3.3%	0%	**3.3%**	1.6%

*L: Left, R: Right, T: Thru, U: U-Turn

SYCAMORE AND 2ND - TMC
Thu Nov 9, 2017
AM Peak (8AM - 9AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 469394, Location: 39.948053, -86.262115

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201, Indianapolis, IN, 46240, US



SYCAMORE AND 2ND - TMC

Thu Nov 9, 2017

PM Peak (4:45PM - 5:45PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 469394, Location: 39.948053, -86.262115

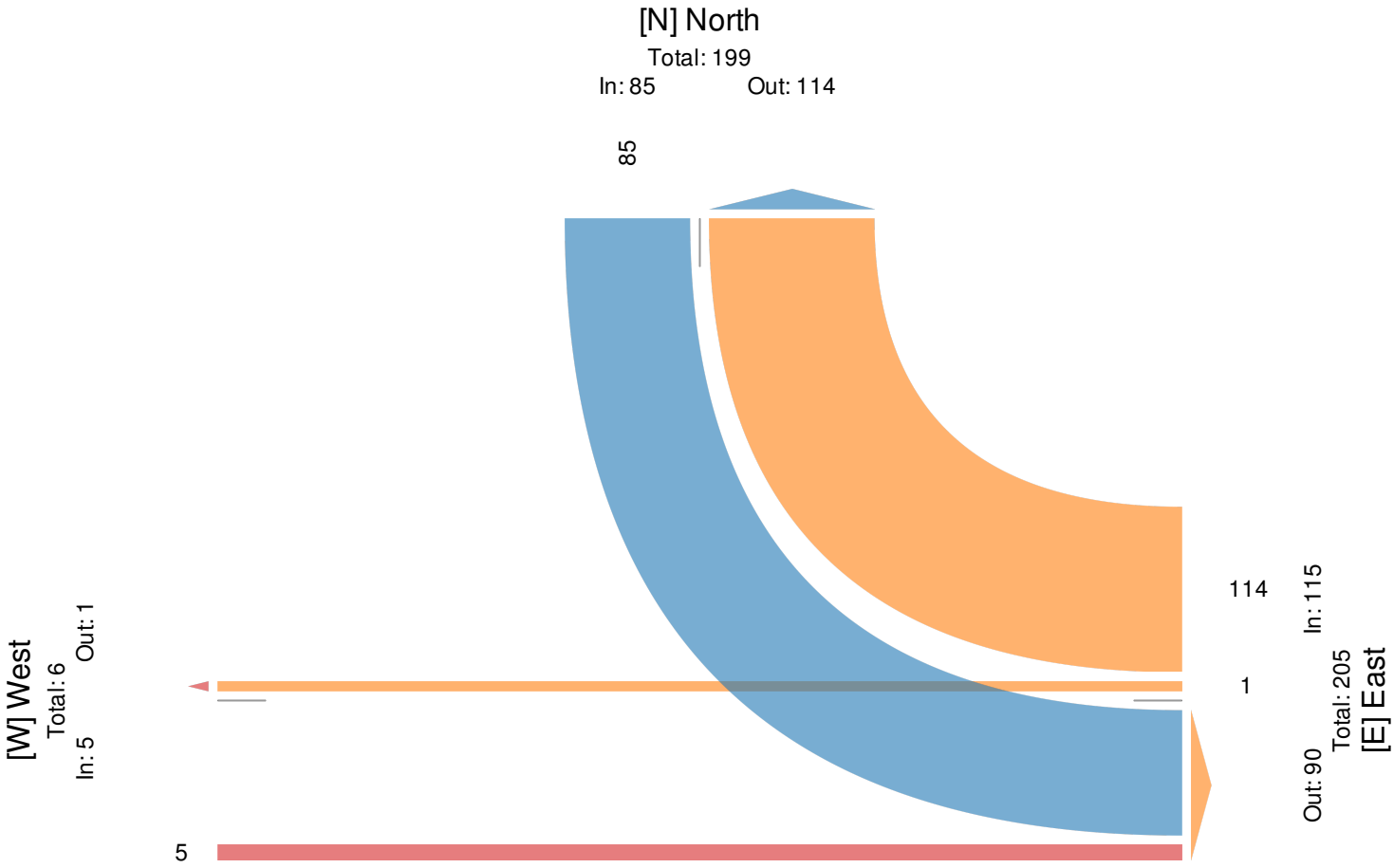
Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201, Indianapolis, IN, 46240, US

Leg Direction	North Southbound				West Eastbound				East Westbound				
Time	L	R	U	**App**	L	T	U	**App**	T	R	U	**App**	**Int**
2017-11-09 4:45PM	30	0	0	**30**	0	0	0	**0**	0	18	0	**18**	**48**
5:00PM	19	0	0	**19**	0	1	0	**1**	0	26	0	**26**	**46**
5:15PM	17	0	0	**17**	0	1	0	**1**	1	37	0	**38**	**56**
5:30PM	19	0	0	**19**	0	3	0	**3**	0	33	0	**33**	**55**
Total	85	0	0	**85**	0	5	0	**5**	1	114	0	**115**	**205**
% Approach	100%	0%	0%	-	0%	100%	0%	-	0.9%	99.1%	0%	-	-
% Total	41.5%	0%	0%	**41.5%**	0%	2.4%	0%	**2.4%**	0.5%	55.6%	0%	**56.1%**	-
PHF	0.708	-	-	**0.708**	-	0.417	-	**0.417**	0.250	0.770	-	**0.757**	0.915
Lights and Motorcycles	85	0	0	**85**	0	5	0	**5**	1	112	0	**113**	203
% Lights and Motorcycles	100%	0%	0%	**100%**	0%	100%	0%	**100%**	100%	98.2%	0%	**98.3%**	99.0%
Heavy	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	2
% Heavy	0%	0%	0%	**0%**	0%	0%	0%	**0%**	0%	1.8%	0%	**1.7%**	1.0%

*L: Left, R: Right, T: Thru, U: U-Turn

SYCAMORE AND 2ND - TMC
Thu Nov 9, 2017
PM Peak (4:45PM - 5:45PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 469394, Location: 39.948053, -86.262115

Provided by: A&F Engineering
8365 Keystone Crossing, Suite 201, Indianapolis, IN, 46240, US



Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	2	0	30	93	0
Future Vol, veh/h	2	2	0	30	93	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	0	0	0	3	1	0
Mvmt Flow	3	3	0	38	118	0
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.3	6.7	7.9
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	0%	100%
Vol Thru, %	50%	0%	0%
Vol Right, %	0%	100%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	4	30	93
LT Vol	2	0	93
Through Vol	2	0	0
RT Vol	0	30	0
Lane Flow Rate	5	38	118
Geometry Grp	1	1	1
Degree of Util (X)	0.006	0.037	0.137
Departure Headway (Hd)	4.237	3.51	4.193
Convergence, Y/N	Yes	Yes	Yes
Cap	837	1008	858
Service Time	2.303	1.574	2.201
HCM Lane V/C Ratio	0.006	0.038	0.138
HCM Control Delay	7.3	6.7	7.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0	0.1	0.5

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	1	114	85	0
Future Vol, veh/h	0	5	1	114	85	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	2	0	0
Mvmt Flow	0	5	1	124	92	0
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.2	7	7.9
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	100%
Vol Thru, %	100%	1%	0%
Vol Right, %	0%	99%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	5	115	85
LT Vol	0	0	85
Through Vol	5	1	0
RT Vol	0	114	0
Lane Flow Rate	5	125	92
Geometry Grp	1	1	1
Degree of Util (X)	0.006	0.12	0.111
Departure Headway (Hd)	4.158	3.47	4.327
Convergence, Y/N	Yes	Yes	Yes
Cap	852	1022	830
Service Time	2.224	1.528	2.346
HCM Lane V/C Ratio	0.006	0.122	0.111
HCM Control Delay	7.2	7	7.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0	0.4	0.4

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	3	0	18	1	30	0	10	56	93	3	0
Future Vol, veh/h	2	3	0	18	1	30	0	10	56	93	3	0
Peak Hour Factor	0.79	0.79	0.92	0.92	0.79	0.79	0.92	0.92	0.92	0.79	0.92	0.79
Heavy Vehicles, %	0	0	2	2	0	3	2	2	2	1	2	0
Mvmt Flow	3	4	0	20	1	38	0	11	61	118	3	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.3	7	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	40%	37%	97%
Vol Thru, %	15%	60%	2%	3%
Vol Right, %	85%	0%	61%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	66	5	49	96
LT Vol	0	2	18	93
Through Vol	10	3	1	3
RT Vol	56	0	30	0
Lane Flow Rate	72	6	59	121
Geometry Grp	1	1	1	1
Degree of Util (X)	0.072	0.008	0.065	0.144
Departure Headway (Hd)	3.63	4.36	3.977	4.279
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	976	808	887	836
Service Time	1.691	2.457	2.063	2.316
HCM Lane V/C Ratio	0.074	0.007	0.067	0.145
HCM Control Delay	7	7.5	7.3	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0	0.2	0.5

Intersection	
Int Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	3	0	18	1	30	0	10	56	93	3	0
Future Vol, veh/h	2	3	0	18	1	30	0	10	56	93	3	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	92	92	79	79	92	92	92	79	92	79
Heavy Vehicles, %	0	0	2	2	0	3	2	2	2	1	2	0
Mvmt Flow	3	4	0	20	1	38	0	11	61	118	3	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	39	0	0	4	0	0	72	89	4	106	70	20
Stage 1	-	-	-	-	-	-	10	10	-	60	60	-
Stage 2	-	-	-	-	-	-	62	79	-	46	10	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.11	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.11	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.509	4.018	3.3
Pot Cap-1 Maneuver	1584	-	-	1618	-	-	919	801	1080	876	821	1064
Stage 1	-	-	-	-	-	-	1011	887	-	954	845	-
Stage 2	-	-	-	-	-	-	949	829	-	970	887	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1584	-	-	1618	-	-	906	789	1080	809	809	1064
Mov Cap-2 Maneuver	-	-	-	-	-	-	906	789	-	809	809	-
Stage 1	-	-	-	-	-	-	1009	885	-	952	834	-
Stage 2	-	-	-	-	-	-	933	818	-	902	885	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	2.4	8.8	10.2
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1023	1584	-	-	1618	-	-	809
HCM Lane V/C Ratio	0.07	0.002	-	-	0.012	-	-	0.15
HCM Control Delay (s)	8.8	7.3	0	-	7.3	0	-	10.2
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.5

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	12	1	56	9	114	0	8	38	85	11	3
Future Vol, veh/h	3	12	1	56	9	114	0	8	38	85	11	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	2	0	0	0	0	0	0
Mvmt Flow	3	13	1	61	10	124	0	9	41	92	12	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	8	7.2	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	19%	31%	86%
Vol Thru, %	17%	75%	5%	11%
Vol Right, %	83%	6%	64%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	46	16	179	99
LT Vol	0	3	56	85
Through Vol	8	12	9	11
RT Vol	38	1	114	3
Lane Flow Rate	50	17	195	108
Geometry Grp	1	1	1	1
Degree of Util (X)	0.055	0.022	0.209	0.133
Departure Headway (Hd)	3.974	4.454	3.865	4.461
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	906	808	911	792
Service Time	1.976	2.456	1.963	2.555
HCM Lane V/C Ratio	0.055	0.021	0.214	0.136
HCM Control Delay	7.2	7.6	8	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.8	0.5

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	12	1	56	9	114	0	8	38	85	11	3
Future Vol, veh/h	3	12	1	56	9	114	0	8	38	85	11	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	2	0	0	0	0	0	0
Mvmt Flow	3	13	1	61	10	124	0	9	41	92	12	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	134	0	0	14	0	0	222	276	14	239	214	72
Stage 1	-	-	-	-	-	-	20	20	-	194	194	-
Stage 2	-	-	-	-	-	-	202	256	-	45	20	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1463	-	-	1617	-	-	738	635	1072	719	687	996
Stage 1	-	-	-	-	-	-	1004	883	-	812	744	-
Stage 2	-	-	-	-	-	-	805	699	-	974	883	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1463	-	-	1617	-	-	702	608	1072	661	657	996
Mov Cap-2 Maneuver	-	-	-	-	-	-	702	608	-	661	657	-
Stage 1	-	-	-	-	-	-	1002	881	-	810	713	-
Stage 2	-	-	-	-	-	-	757	670	-	925	881	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	2.3	9	11.4
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	946	1463	-	-	1617	-	-	667
HCM Lane V/C Ratio	0.053	0.002	-	-	0.038	-	-	0.161
HCM Control Delay (s)	9	7.5	0	-	7.3	0	-	11.4
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.6