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TRAFFIC IMPACT STUDY

PROPOSED FUEL CENTER

SALISBURY STREET

WEST LAFAYETTE, INDIANA

PREPARED FOR



JULY 2015

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TABLE OF CONTENTS

TABLE OF CONTENTS	II
LIST OF FIGURES	II
CERTIFICATION	III
INTRODUCTION.....	1
PURPOSE.....	1
SCOPE OF WORK.....	1
DESCRIPTION OF THE PROPOSED DEVELOPMENT.....	2
STUDY AREA.....	2
DESCRIPTION OF ABUTTING STREET SYSTEM.....	3
EXISTING TRAFFIC DATA AND PEAK HOUR.....	3
GENERATED TRAFFIC VOLUMES FOR PROPOSED DEVELOPMENT.....	7
PASS-BY & INTERNAL TRIPS	7
TABLE 1 – TOTAL GENERATED TRIPS FOR PROPOSED DEVELOPMENT.....	7
ASSIGNMENT AND DISTRIBUTION OF GENERATED TRIPS	8
GENERATED TRIPS ADDED TO THE STREET SYSTEM	8
CAPACITY ANALYSIS	12
CAPACITY ANALYSIS SCENARIOS.....	12
TABLE 2 – LEVEL OF SERVICE: U.S. 52/SAGAMORE PARKWAY & SALISBURY STREET	14
TABLE 3 – LEVEL OF SERVICE SUMMARY: SALISBURY STREET & CVS DRIVE	14
TABLE 4 – LEVEL OF SERVICE SUMMARY: SALISBURY STREET & WALGREENS DRIVE.....	14
TABLE 5 – LEVEL OF SERVICE SUMMARY: SALISBURY STREET & KENT AVENUE.....	15
TABLE 6 – LEVEL OF SERVICE SUMMARY: SALISBURY STREET & PROPOSED ACCESS DRIVE.....	15
QUEUE ANALYSIS.....	15
CONCLUSIONS	15
RECOMMENDATIONS.....	17

LIST OF FIGURES

FIGURE 1: AREA MAP.....	4
FIGURE 2: EXISTING INTERSECTION GEOMETRICS.....	5
FIGURE 3: EXISTING TRAFFIC VOLUMES	6
FIGURE 4A: ASSIGNMENT AND DISTRIBUTION OF GENERATED NON PASS-BY TRAFFIC VOLUMES.....	9
FIGURE 4B: ASSIGNMENT AND DISTRIBUTION OF GENERATED PASS-BY TRAFFIC VOLUMES	10
FIGURE 5: TOTAL GENERATED TRAFFIC VOLUMES.....	11
FIGURE 6: SUM OF EXISTING & GENERATED TRAFFIC VOLUMES FROM PROPOSED DEVELOPMENT	13

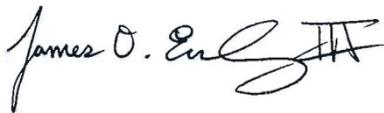
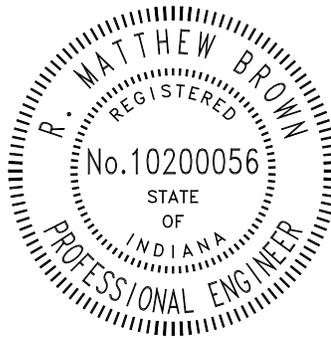
CERTIFICATION

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.

A&F ENGINEERING Co., LLC



R. Matt Brown, P.E.
Indiana Registration 10200056



James O. Ensley, E.I.
Traffic Engineer

INTRODUCTION

This **TRAFFIC IMPACT STUDY**, prepared for the City of West Lafayette, on behalf of The Kroger Co., is for a proposed fuel center near the existing Pay Less supermarket that is located north of U.S. 52/Sagamore Parkway and west of Salisbury Street in West Lafayette, Indiana. This study will investigate the existing and proposed conditions of the study area and how the abutting roadway system will be impacted by the proposed development.

PURPOSE

The purpose of this analysis is to determine what effect traffic generated by the proposed fuel center will have on the existing adjacent roadway system. This analysis will identify any roadway deficiencies that may exist today or that may occur when this site is developed.

Based on the traffic analysis, conclusions will be drawn to determine whether the abutting roadway system can efficiently accommodate the increased traffic volumes from the conclusions. Possible strategies to improve the system performance and/or to address any deficiencies caused by the new traffic patterns will be investigated.

SCOPE OF WORK

The scope of work for this analysis is as follows:

First, obtain peak hour turning movement traffic volume counts between the hours of 6:30 A.M. to 8:30 A.M. and 4:30 P.M. to 6:30 P.M. during a typical weekday, at the following intersections:

- U.S. 52/Sagamore Parkway & Salisbury Street
- Salisbury Street & CVS Drive
- Salisbury Street & Walgreens Drive
- Salisbury Street & Existing Site South Drive
- Salisbury Street & Existing Site North Drive
- Salisbury Street & Kent Avenue

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

Third, assign and distribute the generated peak hour traffic volumes from the proposed development to the study intersections and driveways that will serve to provide access to the subject site.

Fourth, conduct a capacity analysis and level of service analysis at the study intersections for each of the following scenarios:

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

Scenario 2: Existing Traffic Volumes + Proposed Development Generated Traffic Volumes – Traffic volumes generated by the proposed development added to the existing traffic volumes.

Fifth, conduct a trip generation comparison between the trips generated by the proposed development and the existing trips that are generated by the current uses located on the subject site.

Sixth, prepare recommendations for the roadway cross-sections 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, and conclusions to best provide for the safe and efficient movement of traffic through the study area.

DESCRIPTION OF THE PROPOSED DEVELOPMENT

The proposed development is a fuel center that will have 14 vehicle fueling positions. This fuel center will be located near the existing Pay Less supermarket located north of U.S. 52/Sagamore Parkway and west of Salisbury Street in West Lafayette, Indiana. The existing site driveways will be removed and access to the proposed site will be provided via a full access drive along Salisbury Street approximately halfway between the existing site drives. **Figure 1** is an area map showing the location and general layout of the site. The existing site currently houses an automobile rental facility and a laundromat.

STUDY AREA

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

- U.S. 52/Sagamore Parkway & Salisbury Street
- Salisbury Street & CVS Right-in/Right-out Drive
- Salisbury Street & Walgreens Drive
- Salisbury Street & Kent Avenue
- Salisbury Street & Proposed Access Drive

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

DESCRIPTION OF ABUTTING STREET SYSTEM

U.S. 52/SAGAMORE PARKWAY – is an east/west, four-lane divided roadway south of the proposed site with a posted speed limit of 45 mph. According to the Tippecanoe County Thoroughfare Plan, U.S. 52/Sagamore Parkway is classified as a Primary Arterial.

SALISBURY STREET – is a north/south, two-lane undivided roadway east of the proposed site with a posted speed limit of 30 mph. According to the Tippecanoe County Thoroughfare Plan, Salisbury Street is classified as a Secondary Arterial.

EXISTING TRAFFIC DATA AND PEAK HOUR

Peak hour turning movement traffic volume counts were obtained at the study intersections by A&F Engineering Co., LLC. The counts include all "through" traffic and all "turning" traffic at the intersection. The counts were made between the hours of 6:00 AM to 9:00 AM and 3:30 PM to 6:30 PM during a typical weekday in May 2015. The count output summary sheets for all the study intersections are included in the **Appendix**. Based on the existing traffic volumes, the AM and PM peak hours at the study intersections vary slightly between each location. Therefore, the actual peak hour counts will be used to represent a maximum traffic scenario at each analyzed intersection. A summary of the existing AM and PM peak hour intersection counts is shown on **Figure 3**.



FIGURE 1

AREA MAP

**TRAFFIC IMPACT STUDY
SALISBURY ST-WEST LAFAYETTE, IN**

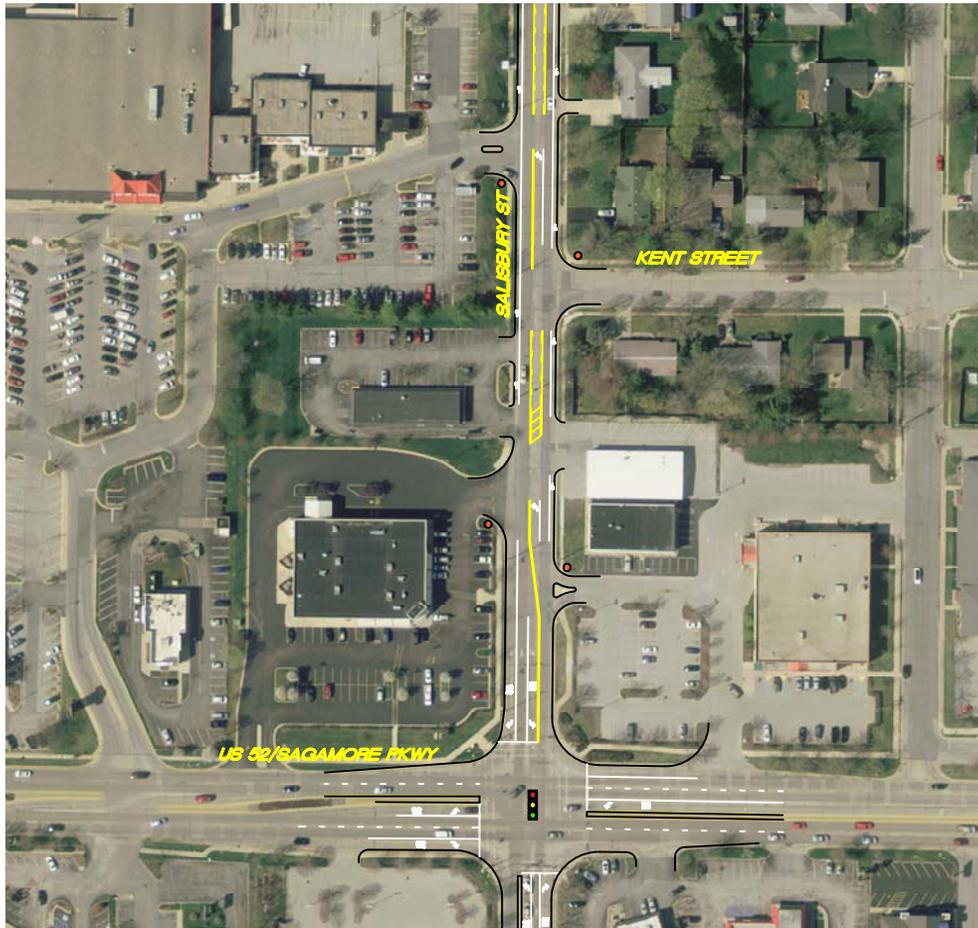
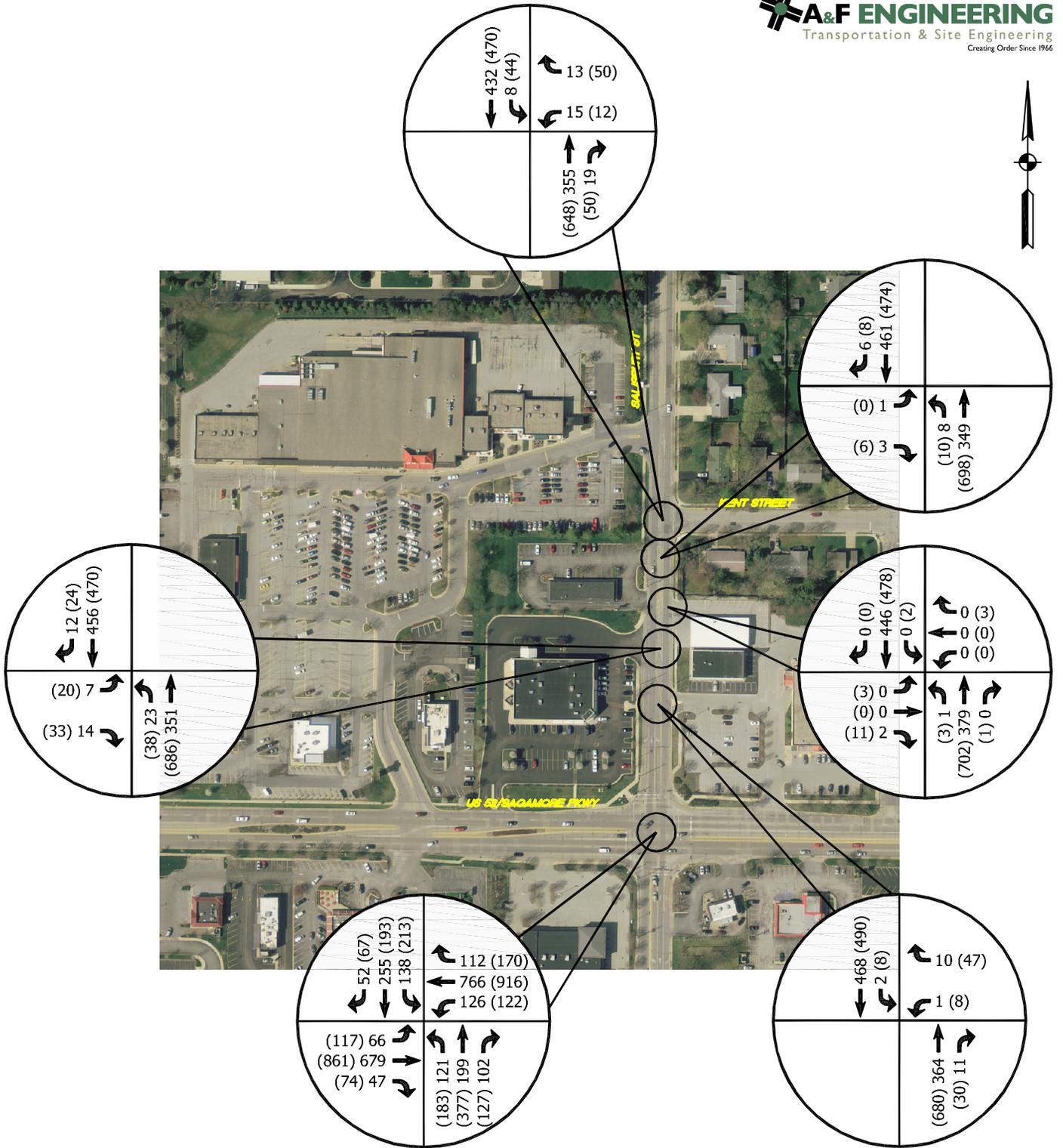


FIGURE 2

**EXISTING INTERSECTION
GEOMETRICS**

**TRAFFIC IMPACT STUDY
SALISBURY ST-WEST LAFAYETTE, IN**



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

FIGURE 3
EXISTING TRAFFIC VOLUMES

TRAFFIC IMPACT STUDY
SALISBURY ST-WEST LAFAYETTE, IN

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 fuel center. 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.

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. A significant number of the generated trips from the proposed development will be pass-by trips. Therefore, the pass-by trip procedures outlined within the ITE *Trip Generation Handbook*² were used to estimate the pass-by trips.

An internal trip results when a trip is made between two or more land uses without traversing the external public roadway system. There is no internal connection to the existing Pay Less supermarket; therefore, internal trip reductions have not been taken for this analysis. **Table 1** summarizes the pass-by trip reductions for the proposed development.

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
Fuel Center	944	14 VFP	87	83	97	97
Fuel Center Pass-by Trips (58%/42%)			50	49	41	40
Fuel Center Non Pass-by Trips (42%/58%)			37	34	56	57

It should be noted that the traffic volumes generated by the existing land uses on the site have been removed from the proposed access drives and replaced with the generated traffic volumes from the proposed fuel center. However, the traffic volumes generated by the existing land uses were not removed from the nearby intersections in order to provide for a “worst-case” traffic scenario.

¹ *Trip Generation Manual*, Institute of Transportation Engineers, Ninth Edition, 2012.

² *Trip Generation Handbook*, Institute of Transportation Engineers, 2004.

ASSIGNMENT AND DISTRIBUTION OF GENERATED TRIPS

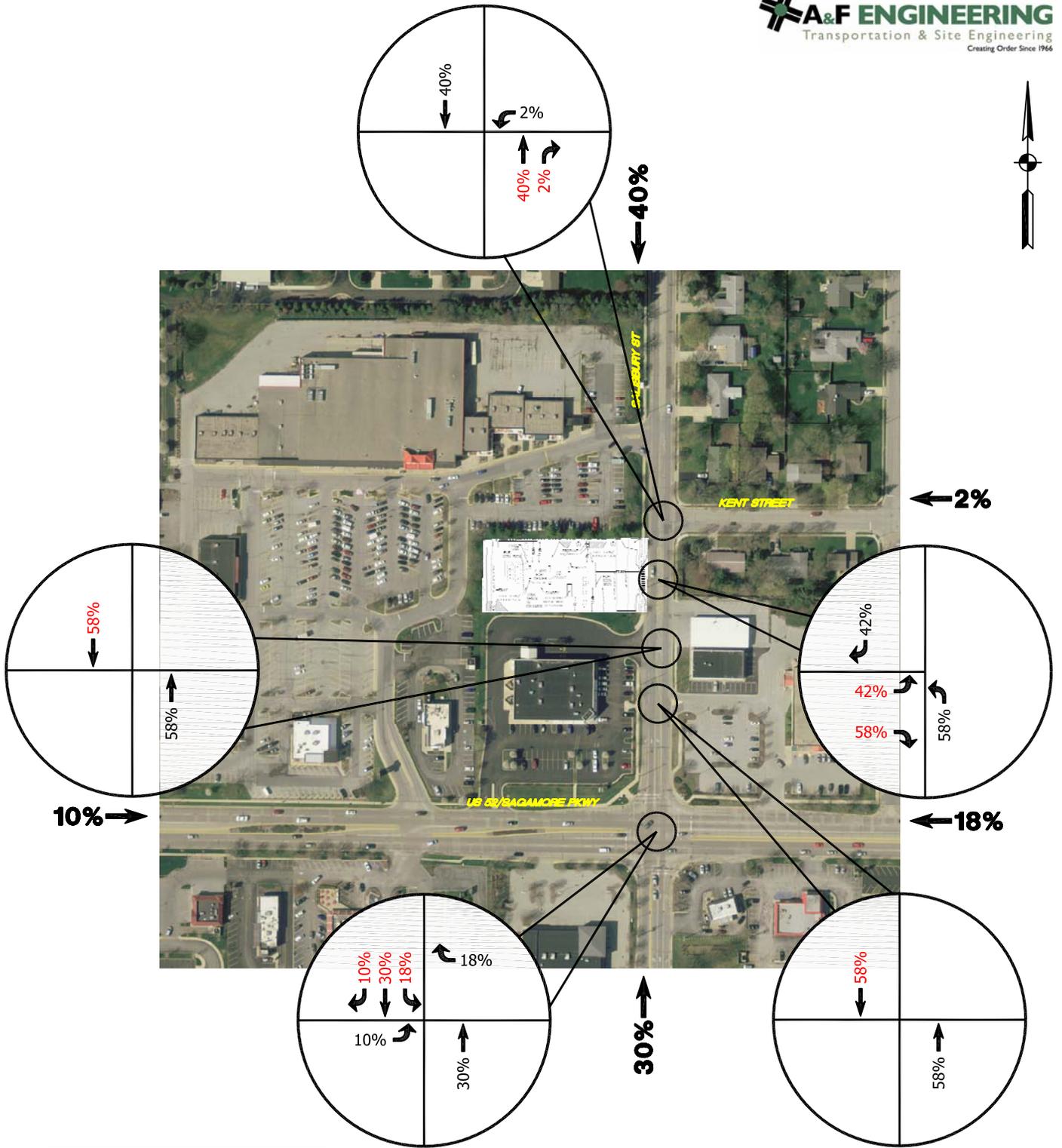
The study methodology used to determine the traffic volumes from the proposed development that will be added to the street system is defined as follows:

1. The volume of traffic that will enter and exit the proposed 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 assignment and distribution for the generated non-pass-by traffic volumes and the generated pass-by traffic volumes from the proposed development are shown in **Figure 4A** and **Figure 4B**, respectively.

GENERATED TRIPS ADDED TO THE STREET SYSTEM

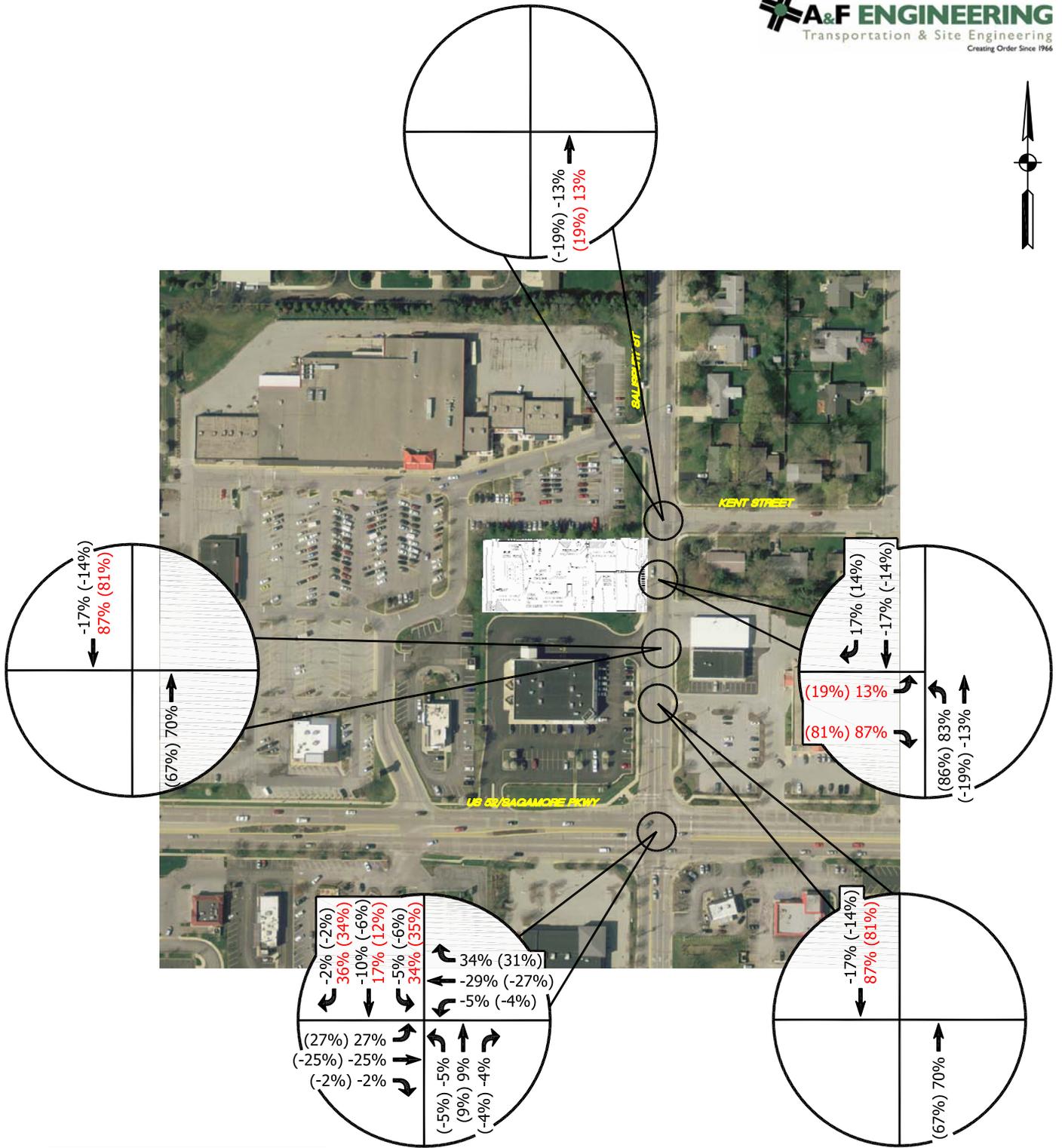
The total generated traffic volumes that can be expected from the proposed development have been assigned to each of the study intersections. These volumes were determined based on the previously discussed trip generation data, assignment of generated traffic and distribution of generated traffic. The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



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

FIGURE 4A
ASSIGNMENT & DISTRIBUTION
OF GENERATED NON PASS-BY
TRAFFIC VOLUMES
FOR PROPOSED DEVELOPMENT

TRAFFIC IMPACT STUDY
SALISBURY ST-WEST LAFAYETTE, IN

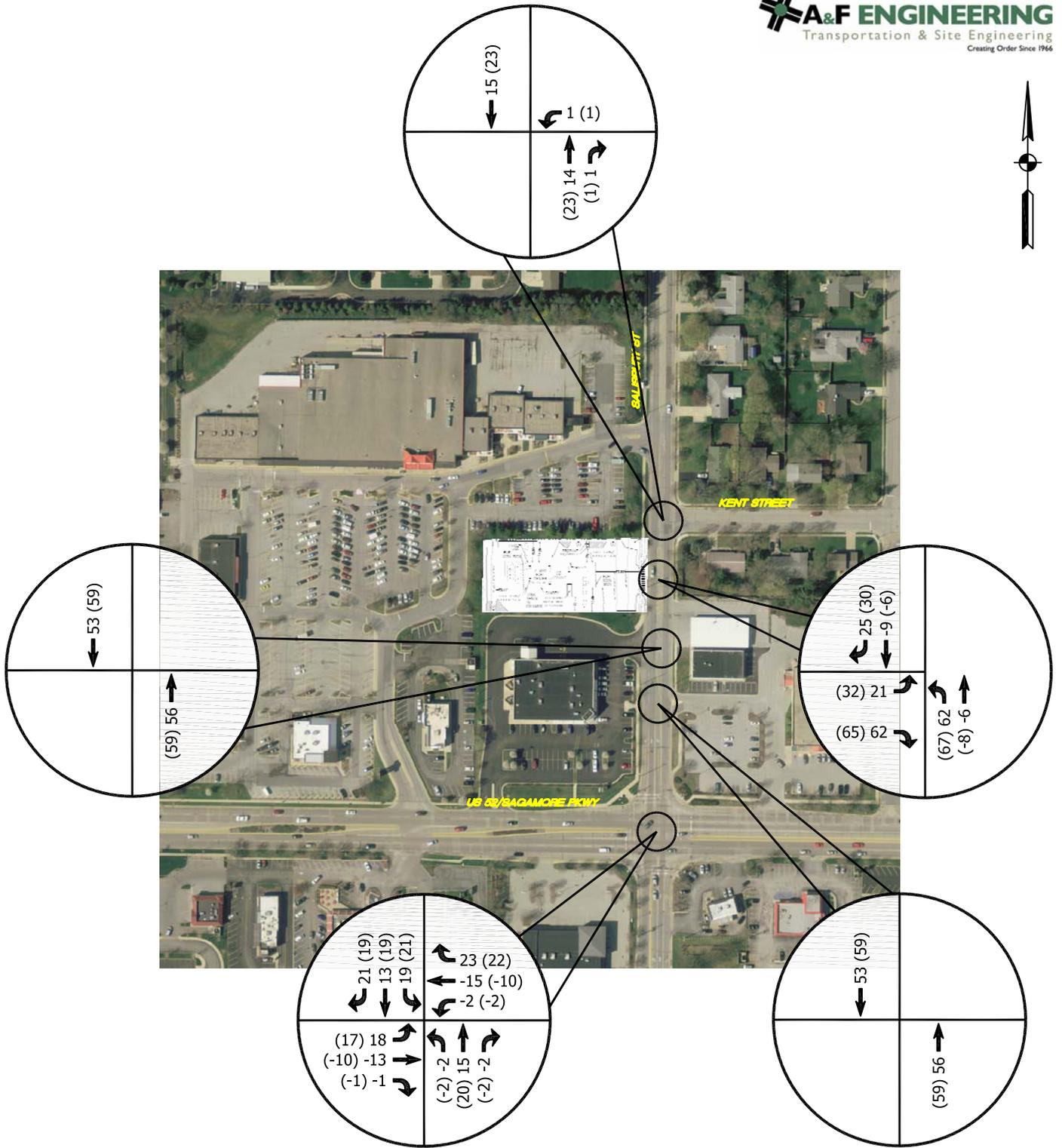


LEGEND
 XX = A.M. INBOUND TRAFFIC
 (XX) = P.M. INBOUND TRAFFIC
 XX = A.M. OUTBOUND TRAFFIC
 (XX) = P.M. OUTBOUND TRAFFIC
 * = NEGLIGIBLE

FIGURE 4B

**ASSIGNMENT & DISTRIBUTION
 OF GENERATED PASS-BY
 TRAFFIC VOLUMES
 FOR PROPOSED DEVELOPMENT**

**TRAFFIC IMPACT STUDY
 SALISBURY ST-WEST LAFAYETTE, IN**



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

FIGURE 5
TOTAL GENERATED TRAFFIC VOLUMES FOR PROPOSED DEVELOPMENT

TRAFFIC IMPACT STUDY
SALISBURY ST-WEST LAFAYETTE, IN

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". 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 multiple intersections to be optimized and analyzed 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 unsignalized and signalized intersections:

<u>Level of Service</u>	<u>Control Delay (seconds/vehicle)</u>	
	<u>UNSIGNALIZED</u>	<u>SIGNALIZED</u>
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

Note: LOS D is typically considered the lowest acceptable level of service at an intersection during the peak hours. However, level of service E or F can be common during peak hours in heavily traveled corridors.

CAPACITY ANALYSIS SCENARIOS

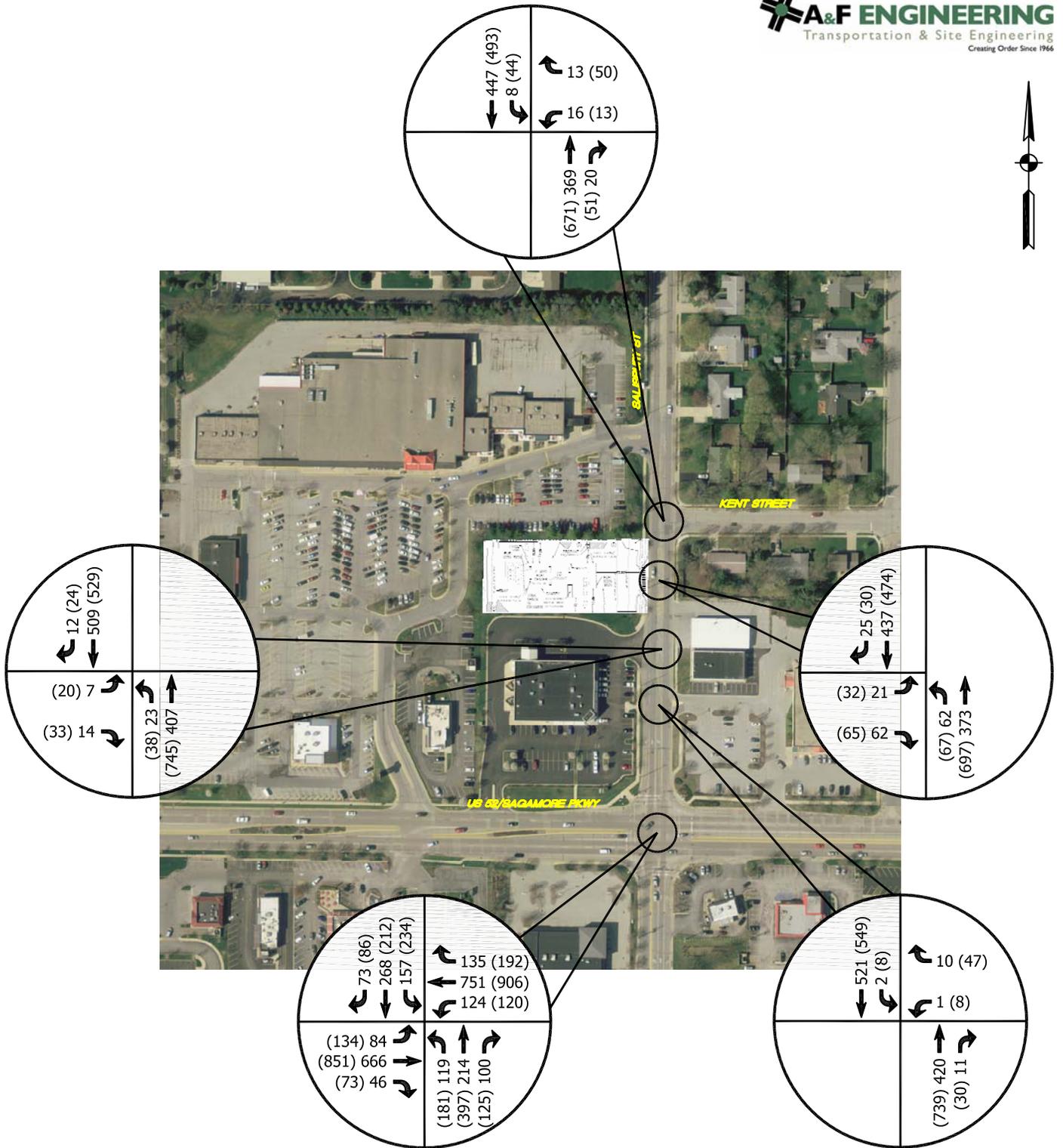
To evaluate the proposed development's effect on the public street system, the total generated traffic volumes from the development must be added to the existing traffic volumes to form a series of scenarios that can be analyzed to determine the adequacy of the existing roadway network. In addition, necessary conclusions will be made to regarding the public street system so it will accommodate the increased traffic volumes. An analysis has been made for the PM peak hour at the study intersections for the following scenarios.

SCENARIO 1: *Existing Traffic Volumes* – Based on existing roadway conditions and existing traffic volumes. **Figure 3** is a summary of the AM and PM peak hour traffic volumes for the study intersections.

SCENARIO 2: *Existing Traffic Volumes + Proposed Development Generated Traffic Volumes* – Generated traffic volumes from the proposed development added to the existing 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 8.0*, Trafficware, 2011.

⁴ *Highway Capacity Manual (HCM)* Transportation Research Board, National Research Council, Washington, DC, 2010.



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

FIGURE 6
SUM OF
EXISTING TRAFFIC VOLUMES &
GENERATED TRAFFIC VOLUMES
FROM PROPOSED DEVELOPMENT

TRAFFIC IMPACT STUDY
SALISBURY ST-WEST LAFAYETTE, IN

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 for each scenario are included in the **Appendix**.

TABLE 2 – LEVEL OF SERVICE: U.S. 52/SAGAMORE PARKWAY & SALISBURY STREET

MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Northbound Approach	C	C	C	C
Southbound Approach	C	C	C	C
Eastbound Approach	D	D	E	E
Westbound Approach	D	D	D	D
Intersection	D	D	D	D

NOTE: Existing Traffic Signal Timings (provided by INDOT) were used for each scenario.

DESCRIPTION OF SCENARIOS:

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

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

TABLE 3 – LEVEL OF SERVICE SUMMARY: SALISBURY STREET & CVS DRIVE

MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Southbound Left-Turn	A	A	A	A
Westbound Approach	B	B	C	C

Note: Intersection level-of-service is not calculated for two-way stop intersections

DESCRIPTION OF SCENARIOS:

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

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

TABLE 4 – LEVEL OF SERVICE SUMMARY: SALISBURY STREET & WALGREENS DRIVE

MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Northbound Left-Turn	A	A	A	A
Eastbound Approach	B	C	C	C

Note: Intersection level-of-service is not calculated for two-way stop intersections

DESCRIPTION OF SCENARIOS:

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

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

TABLE 5 – LEVEL OF SERVICE SUMMARY: SALISBURY STREET & KENT AVENUE

MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Southbound Left-Turn	A	A	A	A
Westbound Approach	C	C	C	C

Note: Intersection level-of-service is not calculated for two-way stop intersections

DESCRIPTION OF SCENARIOS:

- SCENARIO 1: Existing Traffic Volumes with Existing Intersection Geometrics and Stop Control.
 SCENARIO 2: Sum of Existing and Generated Traffic Volumes from Proposed Development with Existing Intersection Geometrics and Stop Control.

TABLE 6 – LEVEL OF SERVICE SUMMARY: SALISBURY STREET & PROPOSED ACCESS DRIVE

MOVEMENT	AM PEAK HOUR	PM PEAK HOUR
	Scenario 2	
Northbound Left-Turn	A	A
Eastbound Approach	B	C

Note: Intersection level-of-service is not calculated for two-way stop intersections

DESCRIPTION OF SCENARIOS:

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

*The proposed intersection geometrics include the removal of the existing site drives along Salisbury Street and the construction of the proposed eastbound access drive with one inbound lane and two outbound lanes stopping for Salisbury Street.

QUEUE ANALYSIS

Based on existing data, the southbound approach queue during the peak hour is approximately 220’-230’. It is estimated that this queue will increase by approximately five to ten percent once the proposed development is fully constructed due to the traffic volumes at the intersection of U.S. 52/Sagamore Parkway & Salisbury Street increasing by approximately three percent.

CONCLUSIONS

The conclusions that follow are based on existing traffic volume data, trip generation, assignment and distribution of generated traffic, capacity analyses/level of service results and a field review conducted at the site.

U.S. 52/SAGAMORE PARKWAY & SALISBURY STREET

Scenario 1 – Existing Traffic Volumes

A review of the capacity analysis for the existing traffic volumes has shown that this intersection operates at LOS D during both the AM and PM peak hours with existing intersection geometrics and traffic signal control.

Scenario 2 – Sum of Existing and Proposed Development Generated Traffic Volumes

A review of the capacity analysis for the sum of existing and generated traffic volumes from the proposed development has shown that this intersection will continue to operate at LOS D during both the AM and PM peak hours, with existing intersection geometrics and traffic signal control.

SALISBURY STREET & CVS DRIVE

Scenario 1 – Existing Traffic Volumes

A review of the capacity analysis for the existing traffic volumes has shown that all approaches to this intersection operate at acceptable levels of service during the AM and PM peak hours, with existing intersection geometrics and stop control.

Scenario 2 – Sum of Existing and Proposed Development Generated Traffic Volumes

A review of the capacity analysis for the sum of existing and generated traffic volumes from the proposed development has shown that all approaches to this intersection will continue to operate at acceptable levels of service during the AM and PM peak hours, with existing intersection geometrics and stop control.

SALISBURY STREET & WALGREENS DRIVE

Scenario 1 – Existing Traffic Volumes

A review of the capacity analysis for the existing traffic volumes has shown that all approaches to this intersection operate at acceptable levels of service during the AM and PM peak hours, with existing intersection geometrics and stop control.

Scenario 2 – Sum of Existing and Proposed Development Generated Traffic Volumes

A review of the capacity analysis for the sum of existing and generated traffic volumes from the proposed development has shown that all approaches to this intersection will continue to operate at acceptable levels of service during the AM and PM peak hours, with existing intersection geometrics and stop control.

SALISBURY STREET & KENT AVENUE

Scenario 1 – Existing Traffic Volumes

A review of the capacity analysis for the existing traffic volumes has shown that all approaches to this intersection operate at acceptable levels of service during the AM and PM peak hours, with existing intersection geometrics and stop control.

Scenario 2 – Sum of Existing and Proposed Development Generated Traffic Volumes

A review of the capacity analysis for the sum of existing and generated traffic volumes from the proposed development has shown that all approaches to this intersection will continue to operate at acceptable levels of service during the AM and PM peak hours, with existing intersection geometrics and stop control.

SALISBURY STREET & PROPOSED ACCESS DRIVE

Scenario 2 – Sum of Existing and Proposed Development Generated Traffic Volumes

A review of the capacity analysis for the sum of existing and generated traffic volumes from the proposed development has shown that all approaches to this intersection will operate at acceptable levels of service during the AM and PM peak hours, with the construction of the proposed access drive with one inbound lane and two outbound lanes stopping for Salisbury Street.

RECOMMENDATIONS

The proposed development does not have a significant traffic impact on the surrounding roadway system and study intersections. There is an increase of approximately three percent in traffic volumes at the intersection of U.S. 52/Sagamore Street & Salisbury Street and the study intersections remain at acceptable levels of service. Therefore, no improvements are recommended to the roadway system as a result of adding a fuel center at this proposed location.

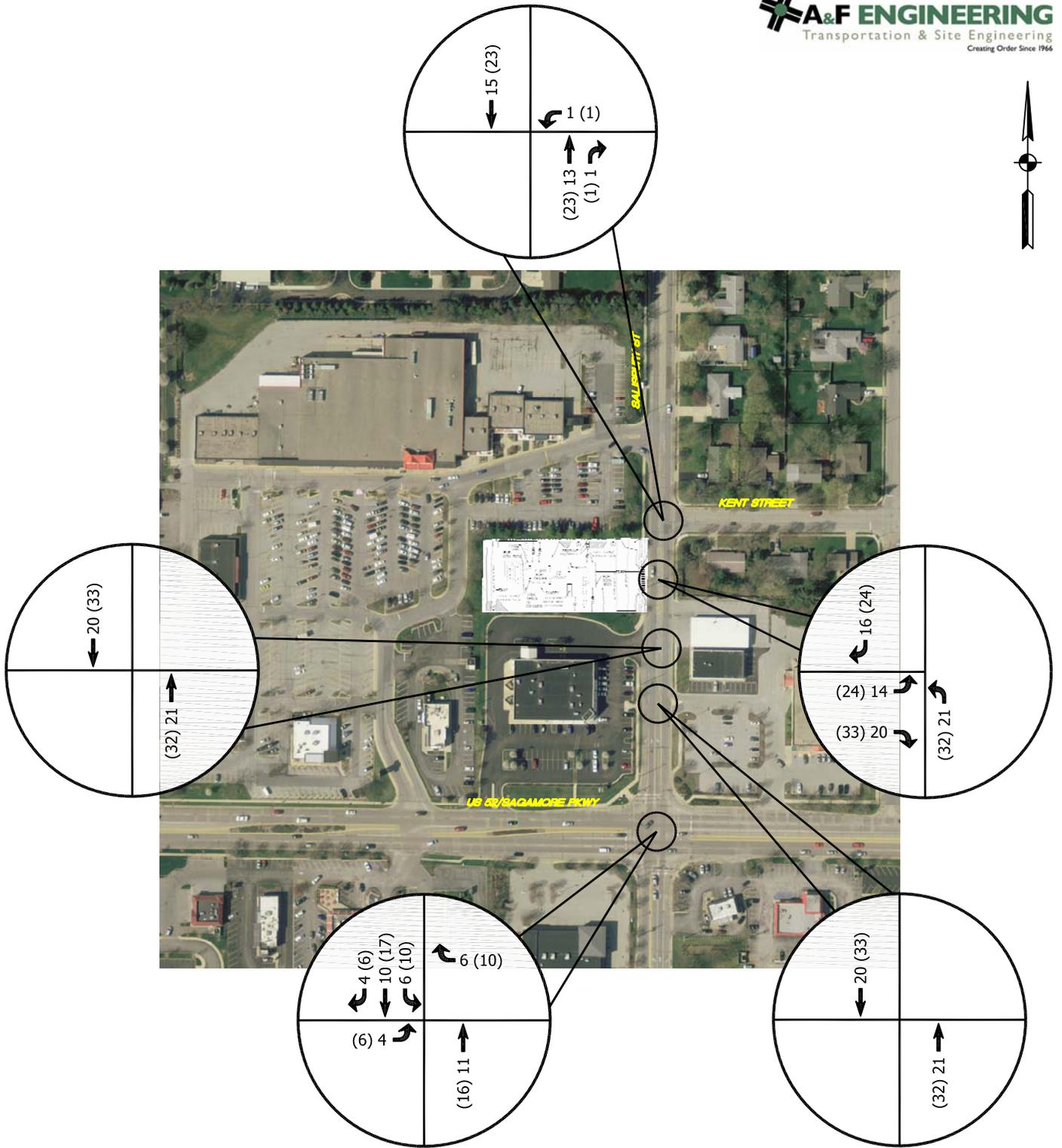
TRAFFIC IMPACT STUDY

APPENDIX



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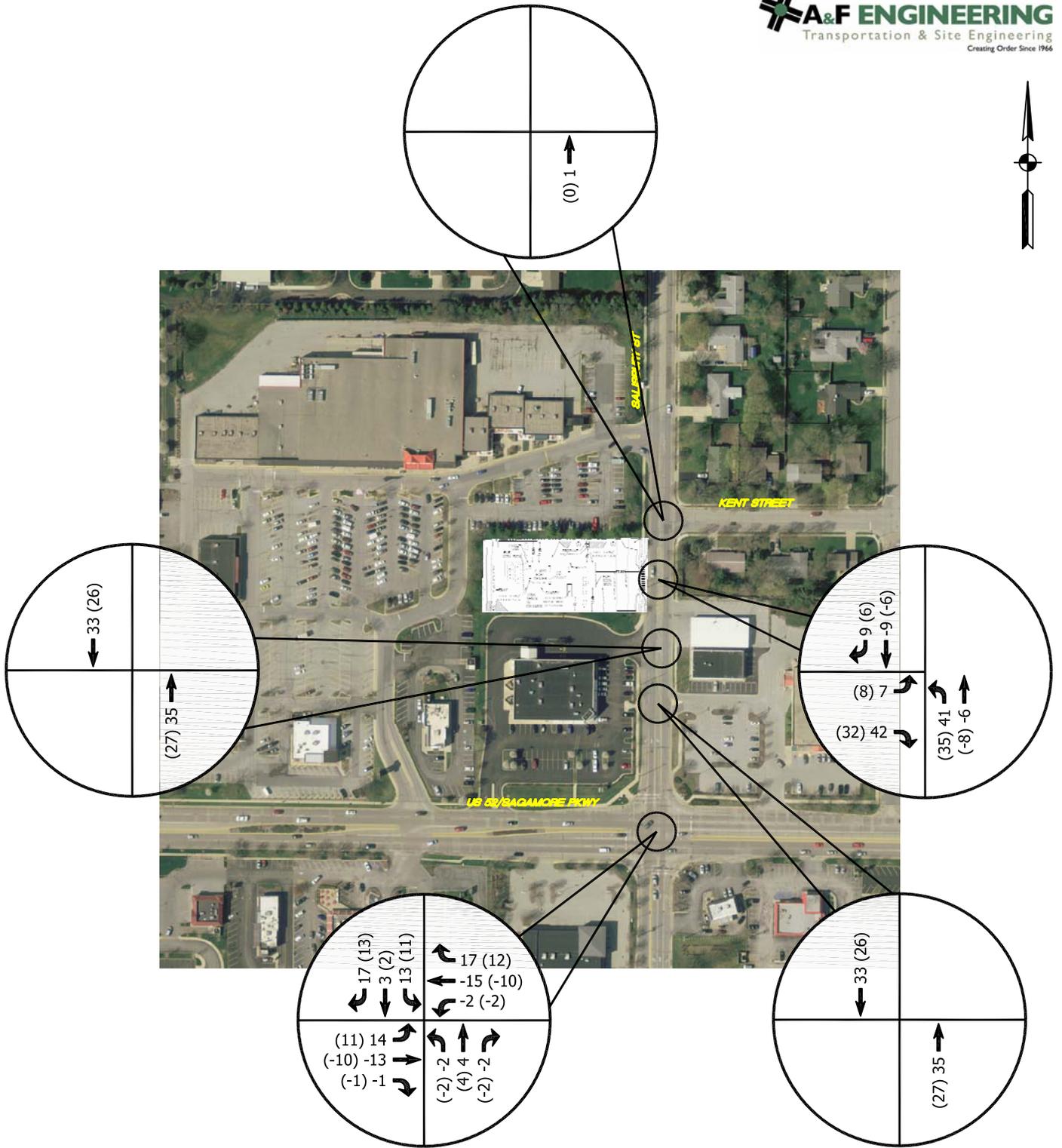
ADDITIONAL FIGURES



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

FIGURE A
**GENERATED NON PASS-BY
 TRAFFIC VOLUMES
 FOR PROPOSED DEVELOPMENT**

**TRAFFIC IMPACT STUDY
 SALISBURY ST-WEST LAFAYETTE, IN**



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

FIGURE B
GENERATED PASS-BY TRAFFIC VOLUMES FOR PROPOSED DEVELOPMENT

TRAFFIC IMPACT STUDY
SALISBURY ST-WEST LAFAYETTE, IN

***U.S. 52/SAGAMORE PARKWAY & SALISBURY
STREET***

INTERSECTION DATA

TRAFFIC VOLUME COUNTS

CAPACITY ANALYSIS

A & F ENGINEERING CO., LLC
TRAFFIC VOLUME SUMMARY

CLIENT :
INTERSECTION :
DATE :
COUNTED BY :

Kroger
Salisbury Street & US 52
5/14/2015
MioVision

TOTAL VEHICLES (PASSENGER CARS + TRUCKS)												
	AM PEAK HOUR VOLUMES BEGINS 7:30 AM				OFF PEAK HOUR VOLUMES BEGINS				PM PEAK HOUR VOLUMES BEGINS 4:30 PM			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND	121	199	102	422					183	377	127
SOUTHBOUND	138	255	52	445					213	193	67	473
EASTBOUND	66	679	47	792					117	861	74	1052
WESTBOUND	126	766	112	1004					122	916	170	1208

PEAK HOUR FACTOR							
	AM PEAK HOUR FACTOR			OFF PEAK HOUR FACTOR		PM PEAK HOUR FACTOR	
	APPROACH	INTERSECTION		APPROACH	INTERSECTION	APPROACH	INTERSECTION
	NORTHBOUND	0.76					0.83
SOUTHBOUND	0.74	0.85				0.95	0.95
EASTBOUND	0.89					0.96	
WESTBOUND	0.81					0.90	

TRUCK PERCENTAGE												
	AM PEAK HOUR PERCENTAGE				OFF PEAK HOUR PERCENTAGE				PM PEAK HOUR PERCENTAGE			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND	4.1%	2.5%	4.9%	3.6%					0.0%	0.5%	1.6%
SOUTHBOUND	2.2%	2.4%	1.9%	2.2%					1.4%	2.1%	3.0%	1.9%
EASTBOUND	0.0%	1.8%	0.0%	1.5%					0.0%	1.4%	0.0%	1.1%
WESTBOUND	4.0%	3.5%	7.1%	4.0%					0.8%	1.4%	0.6%	1.2%

HOURLY SUMMARY									
HOUR			NB	SB	NB+SB	EB	WB	EB+WB	TOTAL
6:00 AM	TO	7:00 AM	138	183	321	446	416	862	1183
7:00 AM	TO	8:00 AM	380	450	830	760	849	1609	2439
8:00 AM	TO	9:00 AM	394	424	818	760	993	1753	2571
3:00 PM	TO	4:00 PM	335	263	598	463	539	1002	1600
4:00 PM	TO	5:00 PM	653	486	1139	1019	1090	2109	3248
5:00 PM	TO	6:00 PM	709	498	1207	1006	1196	2202	3409
6:00 PM	TO	7:00 PM	286	247	533	396	480	876	1409
TOTAL VOLUME			2895	2551	5446	4850		10413	15859
PERCENTAGE			18.3%	16.1%	34.3%	30.6%		65.7%	100.0%

A & F ENGINEERING CO., LLC
TRAFFIC VOLUME SUMMARY

CLIENT :
INTERSECTION :
DATE :

Kroger
Salisbury Street & US 52
5/14/2015

DIRECTION OF TRAVEL : NORTHBOUND

HOUR	LEFT			THROUGH			RIGHT			TOTAL		
	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
AM TIME PERIOD												
6:00 AM - 7:00 AM	35	0	35	68	0	68	33	2	35	136	2	138
7:00 AM - 8:00 AM	102	4	106	193	3	196	78	0	78	373	7	380
8:00 AM - 9:00 AM	123	2	125	161	6	167	94	8	102	378	16	394
PM TIME PERIOD												
3:00 PM - 4:00 PM	75	1	76	188	5	193	63	3	66	326	9	335
4:00 PM - 5:00 PM	184	0	184	320	4	324	141	4	145	645	8	653
5:00 PM - 6:00 PM	179	0	179	401	2	403	125	2	127	705	4	709
6:00 PM - 7:00 PM	79	0	79	159	2	161	45	1	46	283	3	286
PASSENGER	777 99.1%			1490 98.5%			579 96.7%			2846 98.3%		
TRUCK	7 0.9%			22 1.5%			20 3.3%			49 1.7%		
BOTH	784 27.1%			1512 52.2%			599 20.7%			2895 100.0%		

DIRECTION OF TRAVEL : SOUTHBOUND

HOUR	LEFT			THROUGH			RIGHT			TOTAL		
	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
AM TIME PERIOD												
6:00 AM - 7:00 AM	49	1	50	108	2	110	22	1	23	179	4	183
7:00 AM - 8:00 AM	140	2	142	253	6	259	48	1	49	441	9	450
8:00 AM - 9:00 AM	147	6	153	199	3	202	68	1	69	414	10	424
PM TIME PERIOD												
3:00 PM - 4:00 PM	98	4	102	125	4	129	31	1	32	254	9	263
4:00 PM - 5:00 PM	229	3	232	186	4	190	62	2	64	477	9	486
5:00 PM - 6:00 PM	195	4	199	223	3	226	72	1	73	490	8	498
6:00 PM - 7:00 PM	96	0	96	107	1	108	43	0	43	246	1	247
PASSENGER	954 97.9%			1201 98.1%			346 98.0%			2501 98.0%		
TRUCK	20 2.1%			23 1.9%			7 2.0%			50 2.0%		
BOTH	974 38.2%			1224 48.0%			353 13.8%			2551 100.0%		

DIRECTION OF TRAVEL : EASTBOUND

HOUR	LEFT			THROUGH			RIGHT			TOTAL		
	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
AM TIME PERIOD												
6:00 AM - 7:00 AM	28	2	30	387	8	395	21	0	21	436	10	446
7:00 AM - 8:00 AM	64	1	65	641	14	655	38	2	40	743	17	760
8:00 AM - 9:00 AM	78	0	78	619	12	631	51	0	51	748	12	760
PM TIME PERIOD												
3:00 PM - 4:00 PM	31	1	32	381	13	394	36	1	37	448	15	463
4:00 PM - 5:00 PM	107	1	108	808	26	834	76	1	77	991	28	1019
5:00 PM - 6:00 PM	110	0	110	808	10	818	78	0	78	996	10	1006
6:00 PM - 7:00 PM	48	0	48	313	4	317	31	0	31	392	4	396
PASSENGER	466 98.9%			3957 97.8%			331 98.8%			4754 98.0%		
TRUCK	5 1.1%			87 2.2%			4 1.2%			96 2.0%		
BOTH	471 9.7%			4044 83.4%			335 6.9%			4850 100.0%		

DIRECTION OF TRAVEL : WESTBOUND

HOUR	LEFT			THROUGH			RIGHT			TOTAL		
	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
AM TIME PERIOD												
6:00 AM - 7:00 AM	52	0	52	280	9	289	71	4	75	403	13	416
7:00 AM - 8:00 AM	100	6	106	587	27	614	121	8	129	808	41	849
8:00 AM - 9:00 AM	113	4	117	736	29	765	103	8	111	952	41	993
PM TIME PERIOD												
3:00 PM - 4:00 PM	65	0	65	393	7	400	72	2	74	530	9	539
4:00 PM - 5:00 PM	135	0	135	795	17	812	140	3	143	1070	20	1090
5:00 PM - 6:00 PM	128	1	129	859	11	870	196	1	197	1183	13	1196
6:00 PM - 7:00 PM	62	0	62	341	0	341	77	0	77	480	0	480
PASSENGER	655 98.3%			3991 97.6%			780 96.8%			5426 97.5%		
TRUCK	11 1.7%			100 2.4%			26 3.2%			137 2.5%		
BOTH	666 12.0%			4091 73.5%			806 14.5%			5563 100.0%		

HCM 2010 Signalized Intersection Summary
 3: Salisbury Street & Sagamore Parkway/US 52

AM Peak Existing
 5/28/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	66	679	47	126	766	112	121	199	102	138	255	52
Number	1	6	16	5	2	12	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1827	1827	1776	1827	1845	1810	1863	1863	1863
Adj Flow Rate, veh/h	78	799	55	148	901	132	142	234	120	162	300	61
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	2	0	4	4	7	4	3	5	2	2	2
Cap, veh/h	165	921	420	201	946	411	437	656	547	477	664	564
Arrive On Green	0.05	0.26	0.26	0.06	0.27	0.27	0.08	0.36	0.36	0.08	0.36	0.36
Sat Flow, veh/h	1810	3539	1615	1740	3471	1509	1740	1845	1538	1774	1863	1583
Grp Volume(v), veh/h	78	799	55	148	901	132	142	234	120	162	300	61
Grp Sat Flow(s),veh/h/ln	1810	1770	1615	1740	1736	1509	1740	1845	1538	1774	1863	1583
Q Serve(g_s), s	3.1	21.3	2.6	5.7	25.2	6.9	5.0	9.3	5.4	5.6	12.2	2.6
Cycle Q Clear(g_c), s	3.1	21.3	2.6	5.7	25.2	6.9	5.0	9.3	5.4	5.6	12.2	2.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	165	921	420	201	946	411	437	656	547	477	664	564
V/C Ratio(X)	0.47	0.87	0.13	0.74	0.95	0.32	0.32	0.36	0.22	0.34	0.45	0.11
Avail Cap(c_a), veh/h	187	955	436	201	946	411	440	656	547	479	664	564
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	35.0	28.0	29.7	35.4	28.7	18.3	23.5	22.3	18.1	24.4	21.3
Incr Delay (d2), s/veh	2.1	8.3	0.1	13.1	18.8	0.4	0.2	1.5	0.9	0.2	2.2	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	1.6	11.5	1.2	2.0	14.6	2.9	2.4	5.0	2.4	2.7	6.7	1.2
LnGrp Delay(d),s/veh	30.3	43.3	28.2	42.8	54.2	29.2	18.4	25.0	23.2	18.2	26.7	21.7
LnGrp LOS	C	D	C	D	D	C	B	C	C	B	C	C
Approach Vol, veh/h		932			1181			496			523	
Approach Delay, s/veh		41.3			50.0			22.7			23.5	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	33.3	13.9	41.0	12.0	32.1	13.8	41.1				
Change Period (Y+Rc), s	* 6.3	* 6.3	* 6.3	* 5.8	* 6.3	* 6.3	* 6.3	* 5.8				
Max Green Setting (Gmax), s	* 5.7	* 27	* 7.7	* 35	* 5.7	* 27	* 7.7	* 35				
Max Q Clear Time (g_c+I1), s	5.1	27.2	7.6	11.3	7.7	23.3	7.0	14.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	3.9	0.0	2.4	0.0	3.8				
Intersection Summary												
HCM 2010 Ctrl Delay			38.7									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
 3: Salisbury Street & Sagamore Parkway/US 52

PM Peak Existing
 5/28/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	117	861	74	122	916	170	183	377	127	213	193	67
Number	1	6	16	5	2	12	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1900	1881	1900	1881	1881	1881	1900	1881	1863	1881	1863	1845
Adj Flow Rate, veh/h	123	906	78	128	964	179	193	397	134	224	203	71
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	1	1	1	0	1	2	1	2	3
Cap, veh/h	174	1002	453	184	1057	473	537	676	569	390	690	580
Arrive On Green	0.06	0.28	0.28	0.07	0.30	0.30	0.08	0.36	0.36	0.09	0.37	0.37
Sat Flow, veh/h	1810	3574	1615	1792	3574	1599	1810	1881	1583	1792	1863	1568
Grp Volume(v), veh/h	123	906	78	128	964	179	193	397	134	224	203	71
Grp Sat Flow(s),veh/h/ln	1810	1787	1615	1792	1787	1599	1810	1881	1583	1792	1863	1568
Q Serve(g_s), s	3.9	31.8	4.7	7.4	33.8	8.5	8.6	22.3	7.7	10.1	10.0	2.9
Cycle Q Clear(g_c), s	3.9	31.8	4.7	7.4	33.8	8.5	8.6	22.3	7.7	10.1	10.0	2.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	1002	453	184	1057	473	537	676	569	390	690	580
V/C Ratio(X)	0.71	0.90	0.17	0.70	0.91	0.38	0.36	0.59	0.24	0.57	0.29	0.12
Avail Cap(c_a), veh/h	187	1002	453	230	1111	497	638	676	569	434	690	580
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.1	45.1	35.4	40.4	44.1	19.5	22.9	33.8	29.1	24.7	28.9	15.2
Incr Delay (d2), s/veh	8.7	11.4	0.2	4.0	10.9	0.5	0.4	3.7	1.0	1.5	1.1	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	4.7	17.3	2.1	3.8	18.3	3.8	4.3	12.3	3.5	5.1	5.3	1.3
LnGrp Delay(d),s/veh	66.8	56.5	35.6	44.4	55.1	20.0	23.3	37.5	30.1	26.2	30.0	15.7
LnGrp LOS	E	E	D	D	E	B	C	D	C	C	C	B
Approach Vol, veh/h		1107			1271			724			498	
Approach Delay, s/veh		56.2			49.0			32.3			26.2	
Approach LOS		E			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	44.2	18.6	53.0	15.6	42.7	17.2	54.4				
Change Period (Y+Rc), s	* 6.3	* 5.8	* 6.3	* 6.3	* 6.3	* 6.3	* 6.3	* 6.3				
Max Green Setting (Gmax), s	* 8.7	* 40	* 16	* 47	* 13	* 36	* 18	* 44				
Max Q Clear Time (g_c+I1), s	5.9	35.8	12.1	24.3	9.4	33.8	10.6	12.0				
Green Ext Time (p_c), s	1.5	2.6	0.2	4.5	0.0	1.5	0.3	4.8				

Intersection Summary												
HCM 2010 Ctrl Delay			44.7									
HCM 2010 LOS			D									

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
 3: Salisbury Street & Sagamore Parkway/US 52

AM Peak Proposed
 5/29/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	84	666	46	124	751	135	119	214	100	157	268	73
Number	1	6	16	5	2	12	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1900	1863	1900	1827	1827	1776	1827	1845	1810	1863	1863	1863
Adj Flow Rate, veh/h	99	784	54	146	884	159	140	252	118	185	315	86
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	2	0	4	4	7	4	3	5	2	2	2
Cap, veh/h	182	941	429	208	928	404	418	650	542	461	660	561
Arrive On Green	0.06	0.27	0.27	0.06	0.27	0.27	0.08	0.35	0.35	0.08	0.35	0.35
Sat Flow, veh/h	1810	3539	1615	1740	3471	1509	1740	1845	1538	1774	1863	1583
Grp Volume(v), veh/h	99	784	54	146	884	159	140	252	118	185	315	86
Grp Sat Flow(s),veh/h/ln	1810	1770	1615	1740	1736	1509	1740	1845	1538	1774	1863	1583
Q Serve(g_s), s	3.9	20.9	2.5	5.7	25.0	8.6	5.0	10.2	5.4	6.6	13.1	3.7
Cycle Q Clear(g_c), s	3.9	20.9	2.5	5.7	25.0	8.6	5.0	10.2	5.4	6.6	13.1	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	182	941	429	208	928	404	418	650	542	461	660	561
V/C Ratio(X)	0.54	0.83	0.13	0.70	0.95	0.39	0.34	0.39	0.22	0.40	0.48	0.15
Avail Cap(c_a), veh/h	185	946	432	208	928	404	420	650	542	461	660	561
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	34.6	27.8	29.2	35.9	29.9	18.7	24.2	22.7	18.8	25.1	22.0
Incr Delay (d2), s/veh	3.2	6.4	0.1	10.1	19.0	0.6	0.2	1.7	0.9	0.2	2.5	0.6
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	2.1	11.0	1.1	1.9	14.4	3.7	2.4	5.5	2.4	3.2	7.2	1.7
LnGrp Delay(d),s/veh	30.9	41.0	28.0	39.3	54.9	30.6	18.9	26.0	23.6	19.0	27.5	22.6
LnGrp LOS	C	D	C	D	D	C	B	C	C	B	C	C
Approach Vol, veh/h		937			1189			510			586	
Approach Delay, s/veh		39.2			49.8			23.5			24.1	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	33.0	14.0	41.0	12.0	32.8	13.8	41.2				
Change Period (Y+Rc), s	* 6.3	* 6.3	* 6.3	* 5.8	* 6.3	* 6.3	* 6.3	* 5.8				
Max Green Setting (Gmax), s	* 5.7	* 27	* 7.7	* 35	* 5.7	* 27	* 7.7	* 35				
Max Q Clear Time (g_c+I1), s	5.9	27.0	8.6	12.2	7.7	22.9	7.0	15.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	4.2	0.0	3.1	0.0	4.1				
Intersection Summary												
HCM 2010 Ctrl Delay			37.9									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
 3: Salisbury Street & Sagamore Parkway/US 52

PM Peak Proposed
 5/29/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	134	851	73	120	906	192	181	397	125	234	212	86
Number	1	6	16	5	2	12	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1900	1881	1900	1881	1881	1881	1900	1881	1863	1881	1863	1845
Adj Flow Rate, veh/h	141	896	77	126	954	202	191	418	132	246	223	91
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	1	1	1	0	1	2	1	2	3
Cap, veh/h	173	994	449	182	1048	469	521	670	564	388	699	589
Arrive On Green	0.06	0.28	0.28	0.07	0.29	0.29	0.08	0.36	0.36	0.10	0.38	0.38
Sat Flow, veh/h	1810	3574	1615	1792	3574	1599	1810	1881	1583	1792	1863	1568
Grp Volume(v), veh/h	141	896	77	126	954	202	191	418	132	246	223	91
Grp Sat Flow(s),veh/h/ln	1810	1787	1615	1792	1787	1599	1810	1881	1583	1792	1863	1568
Q Serve(g_s), s	5.3	31.7	4.7	7.3	33.7	9.7	8.7	24.1	7.7	11.3	11.1	3.8
Cycle Q Clear(g_c), s	5.3	31.7	4.7	7.3	33.7	9.7	8.7	24.1	7.7	11.3	11.1	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	994	449	182	1048	469	521	670	564	388	699	589
V/C Ratio(X)	0.82	0.90	0.17	0.69	0.91	0.43	0.37	0.62	0.23	0.63	0.32	0.15
Avail Cap(c_a), veh/h	185	994	449	229	1102	493	621	670	564	416	699	589
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.1	45.6	35.9	40.9	44.7	19.7	23.3	34.9	29.6	25.3	29.0	15.3
Incr Delay (d2), s/veh	20.8	11.2	0.2	3.8	10.9	0.6	0.4	4.3	1.0	2.9	1.2	0.6
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	6.0	17.2	2.1	3.8	18.3	5.2	4.4	13.3	3.5	5.8	5.9	2.1
LnGrp Delay(d),s/veh	79.9	56.8	36.0	44.7	55.5	20.3	23.8	39.2	30.6	28.2	30.2	15.9
LnGrp LOS	E	E	D	D	E	C	C	D	C	C	C	B
Approach Vol, veh/h		1114			1282			741			560	
Approach Delay, s/veh		58.3			48.9			33.7			27.0	
Approach LOS		E			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.1	44.2	19.7	53.0	15.6	42.7	17.2	55.5				
Change Period (Y+Rc), s	* 6.3	* 5.8	* 6.3	* 6.3	* 6.3	* 6.3	* 6.3	* 6.3				
Max Green Setting (Gmax), s	* 8.7	* 40	* 16	* 47	* 13	* 36	* 18	* 44				
Max Q Clear Time (g_c+I1), s	7.3	35.7	13.3	26.1	9.3	33.7	10.7	13.1				
Green Ext Time (p_c), s	0.5	2.7	0.2	4.8	0.0	1.6	0.3	5.2				
Intersection Summary												
HCM 2010 Ctrl Delay			45.4									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

SALISBURY STREET & CVS DRIVE

INTERSECTION DATA

TRAFFIC VOLUME COUNTS

CAPACITY ANALYSIS

A & F ENGINEERING CO., LLC
 TRAFFIC VOLUME SUMMARY

CLIENT :
 INTERSECTION :
 DATE :
 COUNTED BY :

Kroger
 Salisbury Street & CVS RIRO Drive (Adjusted)
 5/19/2015
 MW

TOTAL VEHICLES (PASSENGER CARS + TRUCKS)												
	AM PEAK HOUR VOLUMES BEGINS 7:15 AM				OFF PEAK HOUR VOLUMES BEGINS				PM PEAK HOUR VOLUMES BEGINS 5:00 PM			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND		364	11	375					8	680	30
SOUTHBOUND	2	468		470					8	490		498
WESTBOUND	1		10	11					8		47	55

PEAK HOUR FACTOR							
	AM PEAK HOUR FACTOR			OFF PEAK HOUR FACTOR		PM PEAK HOUR FACTOR	
	APPROACH	INTERSECTION		APPROACH	INTERSECTION	APPROACH	INTERSECTION
	NORTHBOUND	0.76					0.91
SOUTHBOUND	0.77	0.88				0.90	0.97
WESTBOUND	0.55					0.86	

TRUCK PERCENTAGE												
	AM PEAK HOUR PERCENTAGE				OFF PEAK HOUR PERCENTAGE				PM PEAK HOUR PERCENTAGE			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND		3.3%	0.0%	3.2%						0.4%	0.0%
SOUTHBOUND	0.0%	1.9%		1.9%					0.0%	1.6%		1.6%
WESTBOUND	0.0%		0.0%	0.0%					0.0%		0.0%	0.0%

HOURLY SUMMARY									
HOUR			NB	SB	NB+SB	EB	WB	EB+WB	TOTAL
6:00 AM	TO	7:00 AM	173	183	356		6	6	362
7:00 AM	TO	8:00 AM	390	451	841		6	6	847
8:00 AM	TO	9:00 AM	356	422	778		13	13	791
3:00 PM	TO	4:00 PM	299	267	566		31	31	597
4:00 PM	TO	5:00 PM	575	479	1054		50	50	1104
5:00 PM	TO	6:00 PM	710	498	1208		55	55	1263
6:00 PM	TO	7:00 PM	286	248	534		23	23	557
TOTAL VOLUME			2789	2548	5337		184	184	5521
PERCENTAGE			50.5%	46.2%	96.7%		3.3%	3.3%	100.0%

A & F ENGINEERING CO., LLC
TRAFFIC VOLUME SUMMARY

CLIENT :
INTERSECTION :
DATE :

Kroger
Salisbury Street & CVS RIRO Drive (Adjusted)
5/19/2015

DIRECTION OF TRAVEL : NORTHBOUND

HOURLY	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM				164	6	170	3	0	3	167	6	173
7:00 AM - 8:00 AM				370	12	382	8	0	8	378	12	390
8:00 AM - 9:00 AM				331	14	345	11	0	11	342	14	356
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM				265	8	273	26	0	26	291	8	299
4:00 PM - 5:00 PM				537	8	545	30	0	30	567	8	575
5:00 PM - 6:00 PM				677	3	680	30	0	30	707	3	710
6:00 PM - 7:00 PM				273	2	275	11	0	11	284	2	286
PASSENGER				2617			119			2736		
				98.0%			100.0%			98.1%		
TRUCK				53			0			53		
				2.0%			0.0%			1.9%		
BOTH				2670			119			2789		
				95.7%			4.3%			100.0%		

DIRECTION OF TRAVEL : SOUTHBOUND

HOURLY	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM	2	0	2	177	4	181				179	4	183
7:00 AM - 8:00 AM	1	0	1	441	9	450				442	9	451
8:00 AM - 9:00 AM	2	0	2	410	10	420				412	10	422
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM	9	0	9	249	9	258				258	9	267
4:00 PM - 5:00 PM	6	0	6	464	9	473				470	9	479
5:00 PM - 6:00 PM	8	0	8	482	8	490				490	8	498
6:00 PM - 7:00 PM	9	0	9	238	1	239				247	1	248
PASSENGER	37			2461						2498		
	100.0%			98.0%						98.0%		
TRUCK	0			50						50		
	0.0%			2.0%						2.0%		
BOTH	37			2511						2548		
	1.5%			98.5%						100.0%		

DIRECTION OF TRAVEL : WESTBOUND

HOURLY	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM	2	0	2				4	0	4	6	0	6
7:00 AM - 8:00 AM	0	0	0				6	0	6	6	0	6
8:00 AM - 9:00 AM	4	0	4				9	0	9	13	0	13
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM	5	0	5				26	0	26	31	0	31
4:00 PM - 5:00 PM	13	0	13				37	0	37	50	0	50
5:00 PM - 6:00 PM	8	0	8				47	0	47	55	0	55
6:00 PM - 7:00 PM	8	0	8				15	0	15	23	0	23
PASSENGER	40						144			184		
	100.0%						100.0%			100.0%		
TRUCK	0						0			0		
	0.0%						0.0%			0.0%		
BOTH	40						144			184		
	21.7%						78.3%			100.0%		

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	1	10	364	11	2	468
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	3	0	0	2
Mvmt Flow	1	11	414	12	2	532

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	690	420	0 0 426 0
Stage 1	420	-	- - - -
Stage 2	270	-	- - - -
Critical Hdwy	6.6	6.2	- - 4.1 -
Critical Hdwy Stg 1	5.4	-	- - - -
Critical Hdwy Stg 2	5.8	-	- - - -
Follow-up Hdwy	3.5	3.3	- - 2.2 -
Pot Cap-1 Maneuver	398	638	- - 1144 -
Stage 1	667	-	- - - -
Stage 2	757	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	397	638	- - 1144 -
Mov Cap-2 Maneuver	397	-	- - - -
Stage 1	667	-	- - - -
Stage 2	755	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 605	1144	-
HCM Lane V/C Ratio	-	- 0.021	0.002	-
HCM Control Delay (s)	-	- 11.1	8.2	0
HCM Lane LOS	-	- B	A	A
HCM 95th %tile Q(veh)	-	- 0.1	0	-

Intersection

Int Delay, s/veh 0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	8	47	680	30	8	490
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	2
Mvmt Flow	8	48	701	31	8	505

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	985	716	0 0 732 0
Stage 1	716	-	- - - -
Stage 2	269	-	- - - -
Critical Hdwy	6.6	6.2	- - 4.1 -
Critical Hdwy Stg 1	5.4	-	- - - -
Critical Hdwy Stg 2	5.8	-	- - - -
Follow-up Hdwy	3.5	3.3	- - 2.2 -
Pot Cap-1 Maneuver	263	434	- - 882 -
Stage 1	488	-	- - - -
Stage 2	758	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	260	434	- - 882 -
Mov Cap-2 Maneuver	260	-	- - - -
Stage 1	488	-	- - - -
Stage 2	748	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	396	882	-
HCM Lane V/C Ratio	-	-	0.143	0.009	-
HCM Control Delay (s)	-	-	15.6	9.1	0.1
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	1	10	420	11	2	521
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	3	0	0	2
Mvmt Flow	1	11	477	12	2	592

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	785	484	0
Stage 1	484	-	-
Stage 2	301	-	-
Critical Hdwy	6.6	6.2	4.1
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.8	-	-
Follow-up Hdwy	3.5	3.3	2.2
Pot Cap-1 Maneuver	349	587	1084
Stage 1	624	-	-
Stage 2	731	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	348	587	1084
Mov Cap-2 Maneuver	348	-	-
Stage 1	624	-	-
Stage 2	729	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	553	1084	-
HCM Lane V/C Ratio	-	-	0.023	0.002	-
HCM Control Delay (s)	-	-	11.7	8.3	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection

Int Delay, s/veh 0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	8	47	739	30	8	549
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	2
Mvmt Flow	8	48	762	31	8	566

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1076	777	0 0 793 0
Stage 1	777	-	- - - -
Stage 2	299	-	- - - -
Critical Hdwy	6.6	6.2	- - 4.1 -
Critical Hdwy Stg 1	5.4	-	- - - -
Critical Hdwy Stg 2	5.8	-	- - - -
Follow-up Hdwy	3.5	3.3	- - 2.2 -
Pot Cap-1 Maneuver	231	400	- - 837 -
Stage 1	457	-	- - - -
Stage 2	732	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	228	400	- - 837 -
Mov Cap-2 Maneuver	228	-	- - - -
Stage 1	457	-	- - - -
Stage 2	722	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	16.9	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 360	837	-
HCM Lane V/C Ratio	-	- 0.158	0.01	-
HCM Control Delay (s)	-	- 16.9	9.3	0.1
HCM Lane LOS	-	- C	A	A
HCM 95th %tile Q(veh)	-	- 0.6	0	-

SALISBURY STREET & WALGREENS DRIVE

INTERSECTION DATA

TRAFFIC VOLUME COUNTS

CAPACITY ANALYSIS

A & F ENGINEERING CO., LLC
TRAFFIC VOLUME SUMMARY

CLIENT :
INTERSECTION :
DATE :
COUNTED BY :

Kroger
Salisbury Street & Walgreens Drive (Adjusted)
5/19/2015
MW

TOTAL VEHICLES (PASSENGER CARS + TRUCKS)												
	AM PEAK HOUR VOLUMES BEGINS 7:15 AM				OFF PEAK HOUR VOLUMES BEGINS				PM PEAK HOUR VOLUMES BEGINS 5:15 PM			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND	23	351		374					38	686	
SOUTHBOUND		456	12	468						470	24	494
EASTBOUND	7		14	21					20		33	53

PEAK HOUR FACTOR						
	AM PEAK HOUR FACTOR		OFF PEAK HOUR FACTOR		PM PEAK HOUR FACTOR	
	APPROACH	INTERSECTION	APPROACH	INTERSECTION	APPROACH	INTERSECTION
	NORTHBOUND	0.79				0.92
SOUTHBOUND	0.77	0.90			0.91	0.97
EASTBOUND	0.75				0.74	

TRUCK PERCENTAGE												
	AM PEAK HOUR PERCENTAGE				OFF PEAK HOUR PERCENTAGE				PM PEAK HOUR PERCENTAGE			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND	8.7%	2.8%		3.2%					0.0%	0.6%	
SOUTHBOUND		2.0%	0.0%	1.9%						1.3%	0.0%	1.2%
EASTBOUND	14.3%		0.0%	4.8%					0.0%		0.0%	0.0%

HOURLY SUMMARY									
HOUR			NB	SB	NB+SB	EB	WB	EB+WB	TOTAL
6:00 AM	TO	7:00 AM	174	184	358	4		4	362
7:00 AM	TO	8:00 AM	388	448	836	18		18	854
8:00 AM	TO	9:00 AM	354	424	778	18		18	796
3:00 PM	TO	4:00 PM	299	261	560	26		26	586
4:00 PM	TO	5:00 PM	582	469	1051	43		43	1094
5:00 PM	TO	6:00 PM	727	489	1216	50		50	1266
6:00 PM	TO	7:00 PM	290	240	530	26		26	556
TOTAL VOLUME			2814	2515	5329	185		185	5514
PERCENTAGE			51.0%	45.6%	96.6%	3.4%		3.4%	100.0%

A & F ENGINEERING CO., LLC
TRAFFIC VOLUME SUMMARY

CLIENT :
INTERSECTION :
DATE :

Kroger
Salisbury Street & Walgreens Drive (Adjusted)
5/19/2015

DIRECTION OF TRAVEL : NORTHBOUND

HOURLY PERIOD	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM	6	0	6	162	6	168				168	6	174
7:00 AM - 8:00 AM	12	1	13	364	11	375				376	12	388
8:00 AM - 9:00 AM	24	1	25	316	13	329				340	14	354
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM	15	0	15	276	8	284				291	8	299
4:00 PM - 5:00 PM	46	0	46	528	8	536				574	8	582
5:00 PM - 6:00 PM	41	0	41	683	3	686				724	3	727
6:00 PM - 7:00 PM	18	0	18	270	2	272				288	2	290
PASSENGER	162 98.8%			2599 98.1%						2761 98.1%		
TRUCK	2 1.2%			51 1.9%						53 1.9%		
BOTH	164 5.8%			2650 94.2%						2814 100.0%		

DIRECTION OF TRAVEL : SOUTHBOUND

HOURLY PERIOD	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM				177	4	181	3	0	3	180	4	184
7:00 AM - 8:00 AM				429	9	438	10	0	10	439	9	448
8:00 AM - 9:00 AM				401	9	410	14	0	14	415	9	424
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM				242	9	251	10	0	10	252	9	261
4:00 PM - 5:00 PM				448	9	457	12	0	12	460	9	469
5:00 PM - 6:00 PM				460	8	468	21	0	21	481	8	489
6:00 PM - 7:00 PM				229	1	230	10	0	10	239	1	240
PASSENGER				2386 98.0%			80 100.0%			2466 98.1%		
TRUCK				49 2.0%			0 0.0%			49 1.9%		
BOTH				2435 96.8%			80 3.2%			2515 100.0%		

DIRECTION OF TRAVEL : EASTBOUND

HOURLY PERIOD	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM	2	0	2				2	0	2	4	0	4
7:00 AM - 8:00 AM	4	1	5				13	0	13	17	1	18
8:00 AM - 9:00 AM	6	0	6				11	1	12	17	1	18
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM	10	0	10				16	0	16	26	0	26
4:00 PM - 5:00 PM	21	0	21				22	0	22	43	0	43
5:00 PM - 6:00 PM	20	0	20				30	0	30	50	0	50
6:00 PM - 7:00 PM	8	0	8				18	0	18	26	0	26
PASSENGER	71 98.6%						112 99.1%			183 98.9%		
TRUCK	1 1.4%						1 0.9%			2 1.1%		
BOTH	72 38.9%						113 61.1%			185 100.0%		

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	7	14	23	351	456	12
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	0	40	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	14	0	9	3	2	0
Mvmt Flow	8	16	26	390	507	13

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	954	513	520 0
Stage 1	513	-	- -
Stage 2	441	-	- -
Critical Hdwy	6.54	6.2	4.19 -
Critical Hdwy Stg 1	5.54	-	- -
Critical Hdwy Stg 2	5.54	-	- -
Follow-up Hdwy	3.626	3.3	2.281 -
Pot Cap-1 Maneuver	273	565	1011 -
Stage 1	577	-	- -
Stage 2	624	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	266	565	1011 -
Mov Cap-2 Maneuver	266	-	- -
Stage 1	577	-	- -
Stage 2	608	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	14	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1011	-	266	565	-	-
HCM Lane V/C Ratio	0.025	-	0.029	0.028	-	-
HCM Control Delay (s)	8.7	-	18.9	11.6	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0.1	-	-

Intersection

Int Delay, s/veh 1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	20	33	38	686	470	24
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	0	40	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	21	34	39	707	485	25

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1283	497	509 0
Stage 1	497	-	- -
Stage 2	786	-	- -
Critical Hdwy	6.4	6.2	4.1 -
Critical Hdwy Stg 1	5.4	-	- -
Critical Hdwy Stg 2	5.4	-	- -
Follow-up Hdwy	3.5	3.3	2.2 -
Pot Cap-1 Maneuver	184	577	1066 -
Stage 1	615	-	- -
Stage 2	453	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	177	577	1066 -
Mov Cap-2 Maneuver	177	-	- -
Stage 1	615	-	- -
Stage 2	436	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	17.8	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1066	-	177	577	-	-
HCM Lane V/C Ratio	0.037	-	0.116	0.059	-	-
HCM Control Delay (s)	8.5	-	28	11.6	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	0.2	-	-

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	7	14	23	407	509	12
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	0	40	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	14	0	9	3	2	0
Mvmt Flow	8	16	26	452	566	13

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1075	572	579 0
Stage 1	572	-	- -
Stage 2	503	-	- -
Critical Hdwy	6.54	6.2	4.19 -
Critical Hdwy Stg 1	5.54	-	- -
Critical Hdwy Stg 2	5.54	-	- -
Follow-up Hdwy	3.626	3.3	2.281 -
Pot Cap-1 Maneuver	231	523	961 -
Stage 1	542	-	- -
Stage 2	584	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	225	523	961 -
Mov Cap-2 Maneuver	225	-	- -
Stage 1	542	-	- -
Stage 2	568	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	15.3	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	961	-	225	523	-	-
HCM Lane V/C Ratio	0.027	-	0.035	0.03	-	-
HCM Control Delay (s)	8.8	-	21.6	12.1	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0.1	-	-

Intersection

Int Delay, s/veh 1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	20	33	38	745	529	24
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	0	40	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	21	34	39	768	545	25

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1404	558	570 0
Stage 1	558	-	- -
Stage 2	846	-	- -
Critical Hdwy	6.4	6.2	4.1 -
Critical Hdwy Stg 1	5.4	-	- -
Critical Hdwy Stg 2	5.4	-	- -
Follow-up Hdwy	3.5	3.3	2.2 -
Pot Cap-1 Maneuver	155	533	1013 -
Stage 1	577	-	- -
Stage 2	424	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	149	533	1013 -
Mov Cap-2 Maneuver	149	-	- -
Stage 1	577	-	- -
Stage 2	408	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	20	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1013	-	149	533	-	-
HCM Lane V/C Ratio	0.039	-	0.138	0.064	-	-
HCM Control Delay (s)	8.7	-	33	12.2	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	0.2	-	-

SALISBURY STREET & KENT AVENUE

INTERSECTION DATA

TRAFFIC VOLUME COUNTS

CAPACITY ANALYSIS

A & F ENGINEERING CO., LLC
 TRAFFIC VOLUME SUMMARY

CLIENT :
 INTERSECTION :
 DATE :
 COUNTED BY :

Kroger
 Salisbury Street & Kent Avenue (Adjusted)
 5/14/2015
 Justin

TOTAL VEHICLES (PASSENGER CARS + TRUCKS)												
	AM PEAK HOUR VOLUMES BEGINS 7:00 AM				OFF PEAK HOUR VOLUMES BEGINS				PM PEAK HOUR VOLUMES BEGINS 5:00 PM			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND		355	19	374					44	648	50
SOUTHBOUND	8	432		440						470		514
WESTBOUND	15		13	28					12		50	62

PEAK HOUR FACTOR							
	AM PEAK HOUR FACTOR			OFF PEAK HOUR FACTOR		PM PEAK HOUR FACTOR	
	APPROACH	INTERSECTION		APPROACH	INTERSECTION	APPROACH	INTERSECTION
	NORTHBOUND	0.81					0.94
SOUTHBOUND	0.75	0.87				0.90	0.98
WESTBOUND	0.44					0.86	

TRUCK PERCENTAGE												
	AM PEAK HOUR PERCENTAGE				OFF PEAK HOUR PERCENTAGE				PM PEAK HOUR PERCENTAGE			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND		3.4%	0.0%	3.2%						0.5%	0.0%
SOUTHBOUND	0.0%	2.1%		2.0%					2.3%	1.7%		1.8%
WESTBOUND	0.0%		0.0%	42.9%					0.0%		0.0%	3.2%

HOURLY SUMMARY									
HOUR			NB	SB	NB+SB	EB	WB	EB+WB	TOTAL
6:00 AM	TO	7:00 AM	110	129	239		9	9	248
7:00 AM	TO	8:00 AM	374	440	814		28	28	842
8:00 AM	TO	9:00 AM	328	420	748		30	30	778
3:00 PM	TO	4:00 PM	288	276	564		20	20	584
4:00 PM	TO	5:00 PM	547	493	1040		49	49	1089
5:00 PM	TO	6:00 PM	698	514	1212		62	62	1274
6:00 PM	TO	7:00 PM	548	477	1025		27	27	1052
TOTAL VOLUME			2898	2749	5647			225	5872
PERCENTAGE			49.4%	46.8%	96.2%			3.8%	100.0%

A & F ENGINEERING CO., LLC
TRAFFIC VOLUME SUMMARY

CLIENT :
INTERSECTION :
DATE :

Kroger
Salisbury Street & Kent Avenue (Adjusted)
5/14/2015

DIRECTION OF TRAVEL : NORTHBOUND

HOURLY PERIOD	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM				108	1	109	1	0	1	109	1	110
7:00 AM - 8:00 AM				343	12	355	19	0	19	362	12	374
8:00 AM - 9:00 AM				293	13	306	22	0	22	315	13	328
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM				280	8	288	0	0	0	280	8	288
4:00 PM - 5:00 PM				504	8	512	35	0	35	539	8	547
5:00 PM - 6:00 PM				645	3	648	50	0	50	695	3	698
6:00 PM - 7:00 PM				525	4	529	19	0	19	544	4	548
PASSENGER				2698			146			2844		
				98.0%			100.0%			98.1%		
TRUCK				54			0			54		
				2.0%			0.0%			1.9%		
BOTH				2752			146			2898		
				95.0%			5.0%			100.0%		

DIRECTION OF TRAVEL : SOUTHBOUND

HOURLY PERIOD	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM	1	0	1	126	2	128				127	2	129
7:00 AM - 8:00 AM	8	0	8	423	9	432				431	9	440
8:00 AM - 9:00 AM	14	0	14	397	9	406				411	9	420
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM	17	0	17	250	9	259				267	9	276
4:00 PM - 5:00 PM	44	1	45	440	8	448				484	9	493
5:00 PM - 6:00 PM	43	1	44	462	8	470				505	9	514
6:00 PM - 7:00 PM	16	0	16	460	1	461				476	1	477
PASSENGER	143			2558						2701		
	98.6%			98.2%						98.3%		
TRUCK	2			46						48		
	1.4%			1.8%						1.7%		
BOTH	145			2604						2749		
	5.3%			94.7%						100.0%		

DIRECTION OF TRAVEL : WESTBOUND

HOURLY PERIOD	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM	6	0	6				3	0	3	9	0	9
7:00 AM - 8:00 AM	15	0	15				13	0	13	28	0	28
8:00 AM - 9:00 AM	15	0	15				15	0	15	30	0	30
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM	0	0	0				20	0	20	20	0	20
4:00 PM - 5:00 PM	11	1	12				35	2	37	46	3	49
5:00 PM - 6:00 PM	12	0	12				50	0	50	62	0	62
6:00 PM - 7:00 PM	8	0	8				19	0	19	27	0	27
PASSENGER	67						155			222		
	98.5%						98.7%			98.7%		
TRUCK	1						2			3		
	1.5%						1.3%			1.3%		
BOTH	68						157			225		
	30.2%						69.8%			100.0%		

Intersection

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	15	13	355	19	8	432
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	3	0	0	2
Mvmt Flow	17	15	408	22	9	497

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	934	419	0 0 430 0
Stage 1	419	-	- - - -
Stage 2	515	-	- - - -
Critical Hdwy	6.4	6.2	- - 4.1 -
Critical Hdwy Stg 1	5.4	-	- - - -
Critical Hdwy Stg 2	5.4	-	- - - -
Follow-up Hdwy	3.5	3.3	- - 2.2 -
Pot Cap-1 Maneuver	297	638	- - 1140 -
Stage 1	668	-	- - - -
Stage 2	604	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	294	638	- - 1140 -
Mov Cap-2 Maneuver	294	-	- - - -
Stage 1	668	-	- - - -
Stage 2	597	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	15	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 392	1140	-
HCM Lane V/C Ratio	-	- 0.082	0.008	-
HCM Control Delay (s)	-	- 15	8.2	0
HCM Lane LOS	-	- C	A	A
HCM 95th %tile Q(veh)	-	- 0.3	0	-

Intersection

Int Delay, s/veh 1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	12	50	648	50	44	470
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	1	0	2	2
Mvmt Flow	12	51	661	51	45	480

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1256	687	0
Stage 1	687	-	-
Stage 2	569	-	-
Critical Hdwy	6.4	6.2	4.12
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.218
Pot Cap-1 Maneuver	191	450	888
Stage 1	503	-	-
Stage 2	570	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	178	450	888
Mov Cap-2 Maneuver	178	-	-
Stage 1	503	-	-
Stage 2	531	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.7	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	347	888
HCM Lane V/C Ratio	-	-	0.182	0.051
HCM Control Delay (s)	-	-	17.7	9.3
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.7	0.2

Intersection

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	16	13	369	20	8	447
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	3	0	0	2
Mvmt Flow	18	15	424	23	9	514

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	968	436	0
Stage 1	436	-	-
Stage 2	532	-	-
Critical Hdwy	6.4	6.2	4.1
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.2
Pot Cap-1 Maneuver	284	625	1124
Stage 1	656	-	-
Stage 2	593	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	281	625	1124
Mov Cap-2 Maneuver	281	-	-
Stage 1	656	-	-
Stage 2	586	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	373	1124
HCM Lane V/C Ratio	-	-	0.089	0.008
HCM Control Delay (s)	-	-	15.6	8.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.3	0

Intersection

Int Delay, s/veh 1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	13	50	671	51	44	493
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	1	0	2	2
Mvmt Flow	13	51	685	52	45	503

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1304	711	0 0 737 0
Stage 1	711	-	- - - -
Stage 2	593	-	- - - -
Critical Hdwy	6.4	6.2	- - 4.12 -
Critical Hdwy Stg 1	5.4	-	- - - -
Critical Hdwy Stg 2	5.4	-	- - - -
Follow-up Hdwy	3.5	3.3	- - 2.218 -
Pot Cap-1 Maneuver	179	436	- - 869 -
Stage 1	490	-	- - - -
Stage 2	556	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	166	436	- - 869 -
Mov Cap-2 Maneuver	166	-	- - - -
Stage 1	490	-	- - - -
Stage 2	516	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	18.7	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	326	869	-
HCM Lane V/C Ratio	-	-	0.197	0.052	-
HCM Control Delay (s)	-	-	18.7	9.4	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0.2	-

***SALISBURY STREET & EXISTING/PROPOSED SITE
DRIVES***

INTERSECTION DATA

TRAFFIC VOLUME COUNTS

CAPACITY ANALYSIS

A & F ENGINEERING CO., LLC
 TRAFFIC VOLUME SUMMARY

CLIENT :
 INTERSECTION :
 DATE :
 COUNTED BY :

Kroger
 Salisbury Street & Proposed North Site Drive (Adjusted)
 5/19/2015
 MW

TOTAL VEHICLES (PASSENGER CARS + TRUCKS)												
	AM PEAK HOUR VOLUMES BEGINS 7:15 AM				OFF PEAK HOUR VOLUMES BEGINS				PM PEAK HOUR VOLUMES BEGINS 5:00 PM			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND	8	349	6	357					10	698	8
SOUTHBOUND		461	3	467						474	6	482
EASTBOUND	1		3	4					0		6	6

PEAK HOUR FACTOR						
	AM PEAK HOUR FACTOR		OFF PEAK HOUR FACTOR		PM PEAK HOUR FACTOR	
	APPROACH	INTERSECTION	APPROACH	INTERSECTION	APPROACH	INTERSECTION
	NORTHBOUND	0.78	0.90			0.96
SOUTHBOUND	0.77				0.91	
EASTBOUND	0.33				0.50	

TRUCK PERCENTAGE												
	AM PEAK HOUR PERCENTAGE				OFF PEAK HOUR PERCENTAGE				PM PEAK HOUR PERCENTAGE			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND	0.0%	3.2%		3.1%					0.0%	0.4%	
SOUTHBOUND		2.0%	0.0%	1.9%						1.7%	0.0%	1.7%
EASTBOUND	0.0%		0.0%	0.0%					0.0%		0.0%	0.0%

HOURLY SUMMARY									
HOUR			NB	SB	NB+SB	EB	WB	EB+WB	TOTAL
6:00 AM	TO	7:00 AM	170	184	354	0		0	354
7:00 AM	TO	8:00 AM	379	447	826	1		1	827
8:00 AM	TO	9:00 AM	333	421	754	7		7	761
3:00 PM	TO	4:00 PM	291	259	550	4		4	554
4:00 PM	TO	5:00 PM	556	460	1016	11		11	1027
5:00 PM	TO	6:00 PM	708	482	1190	6		6	1196
6:00 PM	TO	7:00 PM	278	235	513	5		5	518
TOTAL VOLUME			2715	2488	5203	34		34	5237
PERCENTAGE			51.8%	47.5%	99.4%	0.6%		0.6%	100.0%

A & F ENGINEERING CO., LLC
TRAFFIC VOLUME SUMMARY

CLIENT :
INTERSECTION :
DATE :

Kroger
Salisbury Street & Proposed North Site Drive (Adjusted)
5/19/2015

DIRECTION OF TRAVEL : NORTHBOUND

HOURLY PERIOD	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM	0	0	0	164	6	170				164	6	170
7:00 AM - 8:00 AM	5	0	5	362	12	374				367	12	379
8:00 AM - 9:00 AM	6	0	6	314	13	327				320	13	333
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM	4	0	4	279	8	287				283	8	291
4:00 PM - 5:00 PM	11	0	11	537	8	545				548	8	556
5:00 PM - 6:00 PM	10	0	10	695	3	698				705	3	708
6:00 PM - 7:00 PM	4	0	4	272	2	274				276	2	278
PASSENGER	40 100.0%			2623 98.1%						2663 98.1%		
TRUCK	0 0.0%			52 1.9%						52 1.9%		
BOTH	40 1.5%			2675 98.5%						2715 100.0%		

DIRECTION OF TRAVEL : SOUTHBOUND

HOURLY PERIOD	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM				180	4	184	0	0	0	180	4	184
7:00 AM - 8:00 AM				436	9	445	2	0	2	438	9	447
8:00 AM - 9:00 AM				404	9	413	8	0	8	412	9	421
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM				247	9	256	3	0	3	250	9	259
4:00 PM - 5:00 PM				448	9	457	3	0	3	451	9	460
5:00 PM - 6:00 PM				466	8	474	8	0	8	474	8	482
6:00 PM - 7:00 PM				234	1	235	0	0	0	234	1	235
PASSENGER				2415 98.0%			24 100.0%			2439 98.0%		
TRUCK				49 2.0%			0 0.0%			49 2.0%		
BOTH				2464 99.0%			24 1.0%			2488 100.0%		

DIRECTION OF TRAVEL : EASTBOUND

HOURLY PERIOD	LEFT			THROUGH			RIGHT			TOTAL		
AM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
6:00 AM - 7:00 AM	0	0	0				0	0	0	0	0	0
7:00 AM - 8:00 AM	0	0	0				1	0	1	1	0	1
8:00 AM - 9:00 AM	1	0	1				6	0	6	7	0	7
PM TIME PERIOD	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
3:00 PM - 4:00 PM	1	0	1				3	0	3	4	0	4
4:00 PM - 5:00 PM	2	0	2				9	0	9	11	0	11
5:00 PM - 6:00 PM	0	0	0				6	0	6	6	0	6
6:00 PM - 7:00 PM	0	0	0				5	0	5	5	0	5
PASSENGER	4 100.0%						30 100.0%			34 100.0%		
TRUCK	0 0.0%						0 0.0%			0 0.0%		
BOTH	4 11.8%						30 88.2%			34 100.0%		

A & F ENGINEERING CO., LLC
TRAFFIC VOLUME SUMMARY

CLIENT :
INTERSECTION :
DATE :
COUNTED BY :

Kroger
Salisbury Street & Proposed South Site Drive (Adjusted)
5/19/2015
MW

TOTAL VEHICLES (PASSENGER CARS + TRUCKS)												
	AM PEAK HOUR VOLUMES BEGINS 7:00 AM				OFF PEAK HOUR VOLUMES BEGINS				PM PEAK HOUR VOLUMES BEGINS 5:00 PM			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND	1	379	0	380					3	702	1
SOUTHBOUND	0	446	0	446					2	478	0	480
EASTBOUND	0	0	2	2					3	0	11	14
WESTBOUND	0	0	0	0					0	0	3	3

PEAK HOUR FACTOR							
	AM PEAK HOUR FACTOR			OFF PEAK HOUR FACTOR		PM PEAK HOUR FACTOR	
	APPROACH	INTERSECTION		APPROACH	INTERSECTION	APPROACH	INTERSECTION
	NORTHBOUND	0.83					0.96
SOUTHBOUND	0.75	0.90				0.92	0.97
EASTBOUND	0.25					0.58	
WESTBOUND	#DIV/0!					0.25	

TRUCK PERCENTAGE												
	AM PEAK HOUR PERCENTAGE				OFF PEAK HOUR PERCENTAGE				PM PEAK HOUR PERCENTAGE			
	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL
	NORTHBOUND	0.0%	3.2%	0.0%	3.2%					0.0%	0.4%	0.0%
SOUTHBOUND	0.0%	2.0%	0.0%	2.0%					0.0%	1.7%	0.0%	1.7%
EASTBOUND	0.0%	0.0%	0.0%	0.0%					0.0%	0.0%	0.0%	0.0%
WESTBOUND	0.0%	0.0%	0.0%	0.0%					0.0%	0.0%	0.0%	0.0%

HOURLY SUMMARY									
HOUR			NB	SB	NB+SB	EB	WB	EB+WB	TOTAL
6:00 AM	TO	7:00 AM	170	184	354	0	0	0	354
7:00 AM	TO	8:00 AM	380	446	826	2	0	2	828
8:00 AM	TO	9:00 AM	335	419	754	8	0	8	762
3:00 PM	TO	4:00 PM	294	259	553	3	0	3	556
4:00 PM	TO	5:00 PM	557	466	1023	7	3	10	1033
5:00 PM	TO	6:00 PM	706	480	1186	14	3	17	1203
6:00 PM	TO	7:00 PM	280	240	520	1	0	1	521
TOTAL VOLUME			2722	2494	5216	35		41	5257
PERCENTAGE			51.8%	47.4%	99.2%	0.7%		0.8%	100.0%

A & F ENGINEERING CO., LLC
TRAFFIC VOLUME SUMMARY

CLIENT :
INTERSECTION :
DATE :

Kroger
Salisbury Street & Proposed South Site Drive (Adjusted)
5/19/2015

DIRECTION OF TRAVEL : NORTHBOUND

HOUR	LEFT			THROUGH			RIGHT			TOTAL		
	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
AM TIME PERIOD												
6:00 AM - 7:00 AM	0	0	0	164	6	170	0	0	0	164	6	170
7:00 AM - 8:00 AM	1	0	1	367	12	379	0	0	0	368	12	380
8:00 AM - 9:00 AM	0	0	0	317	13	330	5	0	5	322	13	335
PM TIME PERIOD												
3:00 PM - 4:00 PM	2	0	2	282	8	290	2	0	2	286	8	294
4:00 PM - 5:00 PM	2	0	2	545	8	553	2	0	2	549	8	557
5:00 PM - 6:00 PM	3	0	3	699	3	702	1	0	1	703	3	706
6:00 PM - 7:00 PM	1	0	1	276	2	278	1	0	1	278	2	280
PASSENGER	9 100.0%			2650 98.1%			11 100.0%			2670 98.1%		
TRUCK	0 0.0%			52 1.9%			0 0.0%			52 1.9%		
BOTH	9 0.3%			2702 99.3%			11 0.4%			2722 100.0%		

DIRECTION OF TRAVEL : SOUTHBOUND

HOUR	LEFT			THROUGH			RIGHT			TOTAL		
	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
AM TIME PERIOD												
6:00 AM - 7:00 AM	0	0	0	180	4	184	0	0	0	180	4	184
7:00 AM - 8:00 AM	0	0	0	437	9	446	0	0	0	437	9	446
8:00 AM - 9:00 AM	0	0	0	410	9	419	0	0	0	410	9	419
PM TIME PERIOD												
3:00 PM - 4:00 PM	0	0	0	250	9	259	0	0	0	250	9	259
4:00 PM - 5:00 PM	4	0	4	453	9	462	0	0	0	457	9	466
5:00 PM - 6:00 PM	2	0	2	470	8	478	0	0	0	472	8	480
6:00 PM - 7:00 PM	1	0	1	238	1	239	0	0	0	239	1	240
PASSENGER	7 100.0%			2438 98.0%			0 #DIV/0!			2445 98.0%		
TRUCK	0 0.0%			49 2.0%			0 #DIV/0!			49 2.0%		
BOTH	7 0.3%			2487 99.7%			0 0.0%			2494 100.0%		

DIRECTION OF TRAVEL : EASTBOUND

HOUR	LEFT			THROUGH			RIGHT			TOTAL		
	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
AM TIME PERIOD												
6:00 AM - 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM - 8:00 AM	0	0	0	0	0	0	2	0	2	2	0	2
8:00 AM - 9:00 AM	3	0	3	0	0	0	5	0	5	8	0	8
PM TIME PERIOD												
3:00 PM - 4:00 PM	1	0	1	0	0	0	2	0	2	3	0	3
4:00 PM - 5:00 PM	1	0	1	0	0	0	6	0	6	7	0	7
5:00 PM - 6:00 PM	3	0	3	0	0	0	11	0	11	14	0	14
6:00 PM - 7:00 PM	0	0	0	0	0	0	1	0	1	1	0	1
PASSENGER	8 100.0%			0 #DIV/0!			27 100.0%			35 100.0%		
TRUCK	0 0.0%			0 #DIV/0!			0 0.0%			0 0.0%		
BOTH	8 22.9%			0 0.0%			27 77.1%			35 100.0%		

DIRECTION OF TRAVEL : WESTBOUND

HOUR	LEFT			THROUGH			RIGHT			TOTAL		
	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH	PASS	TRUCK	BOTH
AM TIME PERIOD												
6:00 AM - 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
PM TIME PERIOD												
3:00 PM - 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM - 5:00 PM	1	0	1	0	0	0	2	0	2	3	0	3
5:00 PM - 6:00 PM	0	0	0	0	0	0	3	0	3	3	0	3
6:00 PM - 7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
PASSENGER	1 100.0%			0 #DIV/0!			5 100.0%			6 100.0%		
TRUCK	0 0.0%			0 #DIV/0!			0 0.0%			0 0.0%		
BOTH	1 16.7%			0 0.0%			5 83.3%			6 100.0%		

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	21	62	62	373	437	25
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	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	3	2	0
Mvmt Flow	23	69	69	414	486	28

Major/Minor	Minor2	Major1		Major2
Conflicting Flow All	1051	499	513	0
Stage 1	499	-	-	-
Stage 2	552	-	-	-
Critical Hdwy	6.4	6.2	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-
Pot Cap-1 Maneuver	253	576	1063	-
Stage 1	614	-	-	-
Stage 2	581	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	232	576	1063	-
Mov Cap-2 Maneuver	232	-	-	-
Stage 1	614	-	-	-
Stage 2	532	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.7	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1063	-	232	576	-	-
HCM Lane V/C Ratio	0.065	-	0.101	0.12	-	-
HCM Control Delay (s)	8.6	0	22.2	12.1	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	0.4	-	-

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	32	65	67	697	474	30
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	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	2	0
Mvmt Flow	33	67	69	719	489	31

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1361	504	520 0
Stage 1	504	-	- -
Stage 2	857	-	- -
Critical Hdwy	6.4	6.2	4.1 -
Critical Hdwy Stg 1	5.4	-	- -
Critical Hdwy Stg 2	5.4	-	- -
Follow-up Hdwy	3.5	3.3	2.2 -
Pot Cap-1 Maneuver	165	572	1056 -
Stage 1	611	-	- -
Stage 2	419	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	147	572	1056 -
Mov Cap-2 Maneuver	147	-	- -
Stage 1	611	-	- -
Stage 2	373	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	20.1	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1056	-	147	572	-	-
HCM Lane V/C Ratio	0.065	-	0.224	0.117	-	-
HCM Control Delay (s)	8.6	0	36.4	12.1	-	-
HCM Lane LOS	A	A	E	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.8	0.4	-	-