REVISED TRAFFIC IMPACT STUDY

FOR THE

BELMONT TOWN CENTER

LOCATED
IN
BELMONT, NORTH CAROLINA

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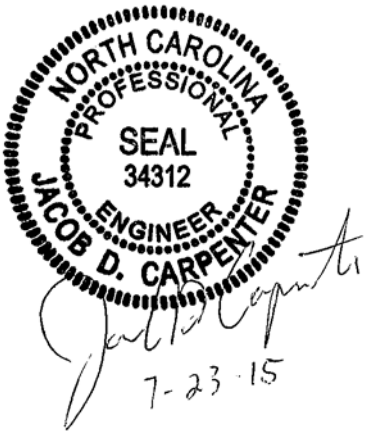

July 2015

RKA Project #14212

RAMEY KEMP & ASSOCIATES

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REVISED TRAFFIC IMPACT STUDY

BELMONT TOWN CENTER
BELMONT, NORTH CAROLINA

1. INTRODUCTION

1.1. Purpose of Report

This report summarizes the findings of the Traffic Impact Study (TIS) that was performed for the Belmont Town Center that is proposed along the east side of Southpoint Road, bound by R L Stowe Road and Stowe Road in Belmont, North Carolina. The purpose of this study is to determine the potential impact to the surrounding transportation system caused by the traffic generated by the proposed development.

1.2. Study Objectives

The Belmont Town Center is proposed to consist of 16 detached single-family homes, 92 townhomes, 27,800 s.f. of general office space, 21,600 s.f. of specialty retail, a 53,000 s.f. supermarket, a 4,330 s.f. fast-food restaurant with a drive thru window, and a gas station with 14 fueling positions. The proposed access plan includes two full movement driveways and one left over driveway on R L Stowe Road, one full movement driveway and one right-in right-out driveway on Southpoint Road, and two full movement driveways on Stowe Road. For purposes of this study, it is assumed that the development will be fully built out by 2017.

Refer to Figure 1 in Appendix A for an illustration of the site location. Refer to Figure 2 for the preliminary site plan. The objective of this report is to determine what geometric improvements are necessary to mitigate traffic conditions on the transportation network surrounding the site with the proposed development fully built out.

2. AREA CONDITIONS

2.1. Transportation Network Study Area

2.1.1. Area Roadway System

The project study area for this TIS was determined through coordination with the Town of Belmont and NCDOT. The study area consists of the following existing facilities: Southpoint Road, R L Stowe Road, and Stowe Road.

Southpoint Road is a three-lane facility with a speed limit of 35 miles per hour (mph). The road carries approximately 14,000 vehicles per day (vpd) within the vicinity of the site according to NCDOT 2012 Average Daily Traffic (ADT) data, which is the most recent available.

RL Stowe Road is a two-lane facility within the vicinity of the site with a speed limit of 45 mph. The road carries approximately 8,100 vpd east of South Point Road. The road carries approximately 3,600 vpd west of Southpoint Road. These volumes are the most recent NCDOT 2012 volumes.

Stowe Road is a two-lane local facility with a speed limit of 25 mph. The ADT of this road is not reported in the most recent NCDOT 2012 volumes.

2.1.1.1. Existing

Existing lane configurations (number of traffic lanes on the intersection approach), storage capacities, and other intersection and roadway information within the study area was collected through field reconnaissance by Ramey Kemp and Associates, Inc. (RKA). Refer to Figure 3 for the existing lane configurations and traffic control at study intersections.

2.1.1.2. Future

At this time, it is our understanding that no roadway projects have been identified within the vicinity of the site.

2.1.2. Existing Traffic Volumes and Conditions

Existing peak hour traffic volumes were obtained from traffic counts performed at the following intersections:

1) Southpoint Road at R L Stowe Road / Nixon Road
2) Southpoint Road at Stowe Road / McKee Farm Lane

Traffic counts were conducted by Quality Counts at the two intersections listed above. The intersections were counted during the AM peak period (from 7:00 AM to 9:00 AM) and during the

PM peak period (from 4:00 PM to 6:00 PM). The counts were performed during the week of September 8, 2014.

School traffic enters the site driveway located across from proposed Site Drive 4, with the majority of school traffic following the internal roadway around the school and some traffic exiting the northern driveway on Southpoint Road. These volumes differ from the traffic volumes shown in the original MSTA study, as traffic patterns have changed. Traffic volumes were balanced along Southpoint Road. It was assumed that 50 trips exit the northern school driveway in each direction, with the remaining trips travelling around the south side of the school on the internal road and either parking or exiting on Nixon Road.

Refer to Figure 4 for an illustration of the existing peak hour traffic volumes. The traffic count data can be found in Appendix B.

2.1.3. Area of Significant Traffic Impact

The study area for the TIS was determined through coordination with the Town of Belmont and NCDOT and consists of the following intersections:

1) Southpoint Road at R L Stowe Road / Nixon Road
2) Southpoint Road at Stowe Road / McKee Farm Lane
3) Stowe Road at Site Drive 1
4) Stowe Road at Site Drive 2
5) Southpoint Road at Site Drive 3
6) Southpoint Road at Site Drive 4
7) R L Stowe Road at Site Drive 5
8) R L Stowe Road at Site Drive 6
9) R L Stowe Road at Site Drive 7

2.2. Study Area – Adjacent Land Use

2.2.1. Existing Land Uses

The existing site is undeveloped. The surrounding land uses primarily consist of residential, school, and undeveloped land.

2.2.2. Anticipated or Approved Future Development

Based on coordination with the Town of Belmont and NCDOT, there are no adjacent developments that were determined to have an impact on the project study area.

3. PROJECTED TRAFFIC

3.1. Site Traffic

In order to determine the future traffic conditions after the development is completed, an estimate of traffic projected to travel to/from the proposed development is required.

3.1.1. Trip Generation

The average weekday daily as well as AM and PM peak hour site trips for this study were calculated based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition*. At build-out, the site is expected to consist of 16 detached single-family homes, 92 townhomes, 27,800 s.f. of general office space, 21,600 s.f. of specialty retail, a 53,000 s.f. supermarket, a 4,330 s.f. fast-food restaurant with a drive thru window, and a gas station with 14 fueling positions. Table 1 presents a summary of the trip generation calculations for the proposed development.

The ITE internal capture methodology predicts an internal capture rate between the office, retail and residential uses of 6.2% for the daily trips, and 8.2% for the PM peak hour trips. Reductions for internal capture trips were taken according to ITE methodology.

Retail centers attract pass-by trips, which are made by drivers who are already driving by the site today and will visit the center in the future because it is convenient. Table 1 shows the ITE pass-by trip adjustments that were applied in the study.

TABLE 1
SITE TRIP GENERATION

Land Use (ITE Land Use Code)	Size	Weekday Daily Traffic (vpd)		AM Peak Hour (vph)		PM Peak Hour (vph)	
		Enter	Exit	Enter	Exit	Enter	Exit
Single Family Detached Housing (210)	16 homes	98	98	5	16	13	7
Townhomes (230)	92 homes	299	299	8	40	38	18
General Office (710)	27,800 s.f.	248	248	60	9	19	91
Shopping Center (820)	21,600 s.f.	461	461	13	8	38	42
Supermarket (850)	53,000 s.f.	2,710	2,710	112	68	256	246
Fast-Food Restaurant with Drive-Through Window (934)	4,330 s.f.	1,074	1,074	100	97	74	67
Gas Station (944)	14 f.p.	1,180	1,180	87	83	97	97
Total Site Trips		**6,070**	**6,070**	**385**	**321**	**535**	**568**
ITE Internal Capture		-379	-379	--	--	-45	-45
Driveway Volumes		**5,691**	**5,691**	**369**	**302**	**490**	**523**
ITE Pass-By Trips:							
Shopping Center – 34%		--	--	--	--	-13	-13
Supermarket – 36%		--	--	--	--	-86	-86
Fast-Food Restaurant – 49% / 50%		--	--	-48	-48	-34	-34
Gas Station – 58% / 42%		--	--	-49	-49	-39	-39
Net New External Trips		**5,691**	**5,691**	**287**	**223**	**319**	**352**

3.1.2. Trip Distribution and Assignment

For this study, the trip distribution percentages were developed based on existing traffic patterns, location of employment and population centers, and engineering judgment. A separate distribution

was used for the office trips, retail trips, and residential trips. Refer to Figures 5 through 10 for an illustration of the primary site distribution percentages and assignments. Refer to Figures 11 and 12 for an illustration of the pass-by site trip distribution and assignments. Total site traffic assignment is illustrated in Figure 13.

3.2. Other Traffic

In order to account for the growth of traffic and subsequent traffic conditions at a future year, no-build traffic projections are needed. No-build traffic is the component of traffic due to the growth of the community and surrounding area that is anticipated to occur regardless of whether the proposed development is constructed. No-build traffic is comprised of projected traffic growth within the study area and additional traffic created as a result of nearby future developments.

3.2.1. Roadway Historical Growth Rate

To account for the growth of traffic that is anticipated to occur regardless of the proposed development, the existing traffic volumes were projected to the horizon year 2017 by applying a compounded annual growth rate to traffic volumes at the study intersections. An annual growth rate of 3 percent per year was used for this study per discussions with the NCDOT.

3.2.2. Additional Traffic Adjustments

As a part of the development, a new two-lane roadway is proposed along the rear of the site through the residential area. It is estimated that a portion of traffic travelling between RL Stowe Road and Stowe Road will utilize this new connection instead of travelling along the more congested Southpoint Road. An estimation of this traffic adjustment was based on a review of the existing volumes and engineering judgment. Refer to figure 14 for an illustration of the expected diverted traffic.

3.3. Total Future Traffic

3.3.1. No-Build Condition

Projected 2017 traffic volumes were developed by applying a compounded annual growth rate of 3% to existing traffic volumes and are shown in Figure 15.

3.3.2. Build Condition

In order to determine peak hour traffic volumes with the development, the total peak hour site traffic (Figure 13) was combined with the diverted traffic (Figure 14) and the projected 2017 traffic volumes (Figure 15) to determine build 2017 traffic volumes. The build 2017 traffic volumes are illustrated in Figure 16.

4. TRAFFIC ANALYSIS

4.1. Traffic Analysis Procedure

All study intersections (both unsignalized and signalized) were analyzed using the methodology outlined in the Highway Capacity Manual (HCM) published by the Transportation Research Board. A computer software package, Synchro (Version 9.1), was used to complete the analyses for all of the study area intersections. Synchro 9.1 was developed by Trafficware Corporation and allows the user to input data into the Synchro software and calculate the output based on methodologies in the HCM.

Analysis results for signalized intersections provide level of service calculations for all approaches and an overall resulting level of service. The capacity analysis for an unsignalized intersection does not provide an overall level of service for the intersection, but rather a level of service for movements and/or approaches that have a conflicting movement. Capacity and level of service are the design criteria for this traffic study.

The HCM defines capacity as "the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions". Level of service (LOS) is a term used to represent different driving conditions, and is defined as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers". Level of service varies from Level "A" representing free flow, to Level "F" where greater vehicle delays are evident.

Refer to Table 2 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay as defined by the HCM includes "initial

deceleration delay, queue move-up time, stopped delay, and final acceleration delay". As shown in Table 2, an average control delay of 40 seconds at a signalized intersection results in a LOS D operation.

TABLE 2
HIGHWAY CAPACITY MANUAL - LEVELS OF SERVICE AND DELAY

UNSIGNALIZED INTERSECTION		SIGNALIZED INTERSECTION	
LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)
A	0-10	A	0-10
B	10-15	B	10-20
C	15-25	C	20-35
D	25-35	D	35-55
E	35-50	E	55-80
F	>50	F	>80

4.2. Capacity and Level of Service at Study Intersections

4.2.1. Existing 2014 Conditions

Existing 2014 conditions were analyzed to determine how the study intersections currently operate. The existing traffic signal cycle length and splits were optimized. Refer to Table 3 for a summary of the existing 2014 capacity analysis results. Refer to Appendix C for detailed capacity analysis of existing 2014 peak hour traffic conditions.

Capacity analyses of the signalized intersection of Southpoint Road and RL Stowe Road / Nixon Road indicate that all approaches currently operate at LOS C or better during both peak hours. The overall intersection currently operates at LOS C or better during both peak hours.

Capacity analyses of the unsignalized intersection of Southpoint Road and Stowe Road / McKee Farm Lane indicate that the stop controlled approaches currently operates at LOS F during the AM peak hour and at LOS C and LOS F during the PM peak hour. It is common for the minor street approach at an unsignalized intersection to experience poorer levels of operation during the peak hours due to heavy traffic volumes along the major street. It is anticipated that these approaches should operate with improved levels of service throughout the remainder of the day. The

northbound and southbound left turn movements currently operate at LOS B or better during both peak hours.

TABLE 3
ANALYSIS SUMMARY OF EXISTING 2014 PEAK HOUR CONDITIONS

INTERSECTION	APPROACH	LANE CONFIGURATIONS	AM PEAK HOUR		PM PEAK HOUR	
			Approach LOS	Overall LOS (Delay in seconds)	Approach LOS	Overall LOS (Delay in seconds)
Southpoint Road and RL Stowe Road / Nixon Road (Signalized)	EB WB NB SB	1 LT, 1 TH-RT 1 LT, 1 TH-RT 1 LT, 1 TH, 1 RT 1 LT, 1 TH-RT	B B A B	B (13.2)	A C B C	C (20.5)
Southpoint Road and Stowe Road / McKee Farm Lane (Unsignalized)	EB[2] WB[2] NB[1] SB[1]	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT, 1 TH-RT	F F A B	N/A[3]	F C A A	N/A[3]

1. Major street left-turn movement for unsignalized intersection.
2. Stop controlled approach for unsignalized intersection.
3. Overall intersection LOS is not provided for unsignalized intersections

4.2.2. No-Build 2017 Conditions

The purpose of the no-build analysis is to establish a base line impact scenario for a comparative analysis with build scenario. The relative difference between the two scenarios can be characterized as the site impacts. The analysis of no-build conditions was conducted with the same lane configurations as existing conditions. Signal cycle lengths and splits were optimized. Refer to Table 4 for a summary of the no-build 2017 capacity analysis results. Refer to Appendix D for detailed capacity analysis of no-build 2017 peak hour traffic conditions.

Capacity analyses of the signalized intersection of Southpoint Road and RL Stowe Road / Nixon Road indicate that all approaches are expected to operate at LOS C or better during both peak hours. The overall intersection is expected to operate at LOS C or better during both peak hours.

Capacity analyses of the unsignalized intersection of Southpoint Road and Stowe Road / McKee Farm Lane indicate that the stop controlled approaches are expected to continue to experience poor levels of service and operate at LOS F during the AM peak hour and at LOS D and LOS F during the PM peak hour. It is common for the minor street approach at an unsignalized intersection to

experience poorer levels of operation during the peak hours due to heavy traffic volumes along the major street. It is anticipated that these approaches should operate with improved levels of service throughout the remainder of the day. The northbound and southbound left turn movements are expected to operate at LOS B or better during both peak hours.

TABLE 4
ANALYSIS SUMMARY OF NO-BUILD 2017 PEAK HOUR CONDITIONS

INTERSECTION	APPROACH	LANE CONFIGURATIONS	AM PEAK HOUR		PM PEAK HOUR	
			Approach LOS	Overall LOS (Delay in seconds)	Approach LOS	Overall LOS (Delay in seconds)
Southpoint Road and RL Stowe Road / Nixon Road (Signalized)	EB WB NB SB	1 LT, 1 TH-RT 1 LT, 1 TH-RT 1 LT, 1 TH, 1 RT 1 LT, 1 TH-RT	C C B B	B (15.1)	A C B C	C (24.9)
Southpoint Road and Stowe Road / McKee Farm Lane (Unsignalized)	EB[2] WB[2] NB[1] SB[1]	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT, 1 TH-RT	F F A B	N/A[3]	F D A A	N/A[3]

1. Major street left-turn movement for unsignalized intersection.
2. Stop controlled approach for unsignalized intersection.
3. Overall intersection LOS is not provided for unsignalized intersections

4.2.3. Build 2017 Conditions

The analysis of build traffic conditions allows a determination of impacts created by the site by comparing the analysis results of no-build traffic conditions (without the site) with build out traffic conditions (with the site). The analysis of build 2017 conditions was conducted with the same lane configurations and intersection control as discussed under no-build conditions, with exceptions as noted. Signal phasings were not changed between no-build and build scenarios, while cycles and splits were optimized. Table 5 summarizes the build 2017 capacity analysis results. Refer to Appendix E for detailed capacity analysis of build 2017 peak hour traffic conditions.

Capacity analyses of the signalized intersection of Southpoint Road and RL Stowe Road / Nixon Road indicate that all approaches are expected to operate at LOS C or better during both peak hours. The overall intersection is expected to operate at LOS C or better during both peak hours. The addition of the internal site connection between RL Stowe Road and Stowe Road is expected

to provide increased levels of service at this intersection by diverting turning movements and thus removing vehicles from travelling along Southpoint Road.

TABLE 5
ANALYSIS SUMMARY OF BUILD 2017 PEAK HOUR CONDITIONS

INTERSECTION	APPROACH	LANE CONFIGURATIONS	AM PEAK HOUR		PM PEAK HOUR	
			Approach LOS	Overall LOS (Delay in seconds)	Approach LOS	Overall LOS (Delay in seconds)
Southpoint Road and RL Stowe Road / Nixon Road (Signalized)	EB WB NB SB	1 LT, 1 TH-RT 1 LT, 1 TH-RT 1 LT, 1 TH, 1 RT 1 LT, 1 TH-RT	C C A B	B (13.4)	A C B C	C (21.1)
Southpoint Road and Stowe Road / McKee Farm Lane (Unsignalized)	EB[2] WB[2] NB[1] SB[1]	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT, 1 TH-RT	F F A B	N/A[3]	F F A A	N/A[3]
Stowe Road and Site Drive 1 (Unsignalized)	EB[1] WB SB[2]	1 LT-TH 1 TH-RT **1 LT-RT**	A - A	N/A[3]	A - B	N/A[3]
Stowe Road and Site Drive 2 (Unsignalized)	EB[1] WB SB[2]	1 LT-TH 1 TH-RT **1 LT-RT**	A - A	N/A[3]	A - A	N/A[3]
Southpoint Road and Site Drive 3 (Unsignalized)	WB[2] NB SB[1]	**1 RT** 1 TH-RT 1 TH	D - -	N/A[3]	B - -	N/A[3]
Southpoint Road and Site Drive 4 (**Signalized**)	WB NB SB	**1 TH-LT, 1 RT** 1 TH-RT **1 LT**, 1 TH	B B A	B (13.2)	B A A	A (9.9)
RL Stowe Road and Site Drive 5 (Unsignalized)	EB WB[1] NB[2]	1 TH, **1 RT** **1 LT**, 1 TH **1 RT**	- B C	N/A[3]	- A B	N/A[3]
RL Stowe Road and Site Drive 6 (Unsignalized)	EB WB[1] NB[2]	1 TH-RT **1 LT**, 1 TH **1 LT, 1 RT**	- A C	N/A[3]	- A B	N/A[3]
RL Stowe Road and Site Drive 7 (Unsignalized)	EB WB[1] NB[2]	1 TH-RT 1 LT-TH **1 LT-RT**	- A C	N/A[3]	- A B	N/A[3]

1. Major street left-turn movement for unsignalized intersection.
2. Stop controlled approach for unsignalized intersection.
3. Overall intersection LOS is not provided for unsignalized intersections

Bold denotes improvements by developer.

Capacity analyses of the unsignalized intersection of Southpoint Road and Stowe Road / McKee Farm Lane indicate that the stop controlled approaches are expected to continue to experience poor levels of service and operate at LOS F during both the AM and PM peak hours. It is common for the minor street approach at an unsignalized intersection to experience poorer levels of operation

during the peak hours due to heavy traffic volumes along the major street. It is anticipated that these approaches should operate with improved levels of service throughout the remainder of the day. The northbound and southbound left turn movements are expected to operate at LOS B or better during both peak hours.

Analyses indicate that the southbound approaches of Site Drive's 1 and 2 on Stowe Road are expected to operate at LOS B or better during the peak hours, with major street left turn movements operating at LOS A. No auxiliary turn lanes are expected to be needed along Stowe Road due to the low current and future traffic volumes.

Based on discussions with NCDOT, Site Drive 3 will be restricted to right-in/right-out movement only, with a median along Southpoint Road to restrict movements. The minor street approach at the intersection of Southpoint Road and Site Drive 3 is expected to operate at LOS D or better during the peak hours.

Based on discussions with the developer and NCDOT, It is recommended that the intersection of Southpoint Road and Site Drive 4 become signalized. Capacity analyses of the signalized intersection of Southpoint Road and Site Drive 4 indicate that all approaches are expected to operate at LOS B or better during both peak hours. The overall intersection is expected to operate at LOS B or better during both peak hours. In addition, Southpoint Road will be restriped along the frontage of the site to provide left turn lanes into Site Drive 4. Analyses indicate that the southbound left turn movement into Site Drive 4 is expected to operate acceptably at LOS C or better.

Based on discussions with the NCDOT and the developer, RL Stowe Road will be widened along the frontage of the site to provide left turn lanes into both Site Drive 5 and Site Drive 6. In addition, an eastbound right turn will be constructed into Site Driveway 5, along with a median to restrict egress movements to right-out only at this driveway. Analyses indicate that the northbound approaches of Site Drive's 5, 6, and 7 on Stowe Road are expected to operate at LOS C or better during the peak hours, with major street left turn movements operating at LOS B or better.

A simulation analysis was performed for the network during both peak hours. While no significant queuing problems are expected, some minor to moderate queuing is expected along westbound Stowe Road during the AM peak hour. However, it is expected that drivers will make use of the new connection to RL Stowe Road to bypass queues on Stowe Road if they develop. Refer to Appendix F for printouts of the simulation queuing reports.

5. CONCLUSIONS

This report summarizes the findings of the TIS that was performed for the Belmont Town Center Development that is proposed along the east side of Southpoint Road, bounded by RL Stowe Road and Stowe Road in Belmont, North Carolina. The purpose of this study is to determine the potential impact to the surrounding transportation system caused by the traffic generated by the proposed development.

The Belmont Town Center is proposed to consist of 16 detached single-family homes, 92 townhomes, 27,800 s.f. of general office space, 21,600 s.f. of specialty retail, a 53,000 s.f. supermarket, a 4,330 s.f. fast-food restaurant with a drive thru window, and a gas station with 14 fueling positions. The proposed access plan includes two full movement driveways and one left over driveway on R L Stowe Road, one full movement driveway and one right-in right-out driveway on Southpoint Road, and two full movement driveways on Stowe Road. For purposes of this study, it is assumed that the development will be fully built out by 2017.

5.1. Summary of Recommended Improvements

Some geometric improvements are recommended to be constructed by the developer of the site. Refer to Figure 17 for an illustration of the future lane configurations. In addition, conceptual layouts of the proposed improvements are shown on the site plan attached to this traffic study. All internal driveway stem lengths have been coordinated with NCDOT and deemed to be appropriate as shown on the attached site plan. The following is a list of the recommended improvements by the developer:

Southpoint Road and RL Stowe Road

- Lengthen westbound left turn lane on RL Stowe Road to extend to Site Drive 5

Stowe Road and Site Drive 1

- Construct the southbound approach of Site Drive 1 with one ingress and one egress lane (shared left-right lane).

Stowe Road and Site Drive 2

- Construct the southbound approach of Site Drive 2 with one ingress and one egress lane (shared left-right lane).

Southpoint Road and Site Drive 3

- Construct Site Drive 3 to form a right-in / right-out intersection with Southpoint Road.
- Provide a median along the portion of Southpoint Road in front of Site Drive 3 to restrict ingress and egress movements to right turns only.

Southpoint Road and Site Drive 4

- Construct the westbound approach of Site Drive 4 with one ingress and two egress lanes (one through-left and one right turn lane).
- Install a traffic signal at this intersection prior to opening of the site.
- Restripe Southpoint Road to provide a northbound and southbound left turn lanes.

RL Stowe Road and Site Drive 5

- Construct the northbound approach of Site Drive 5 with one ingress and one egress lane (one right turn lane).
- Construct an eastbound right turn lane on RL Stowe Road, with approximately 225 feet of storage and appropriate taper.
- Provide a left turn lane at Site Drive 5 which extends to Site Drive 6. Construct a median to restrict movement to left-in/right-in/right-out only at Site Drive 5.

RL Stowe Road and Site Drive 6

- Construct the northbound approach of Site Drive 6 with one ingress and two egress lanes (one left and one right turn lane)
- Provide a left turn lane at Site Drive 6 which extends to Site Drive 7.

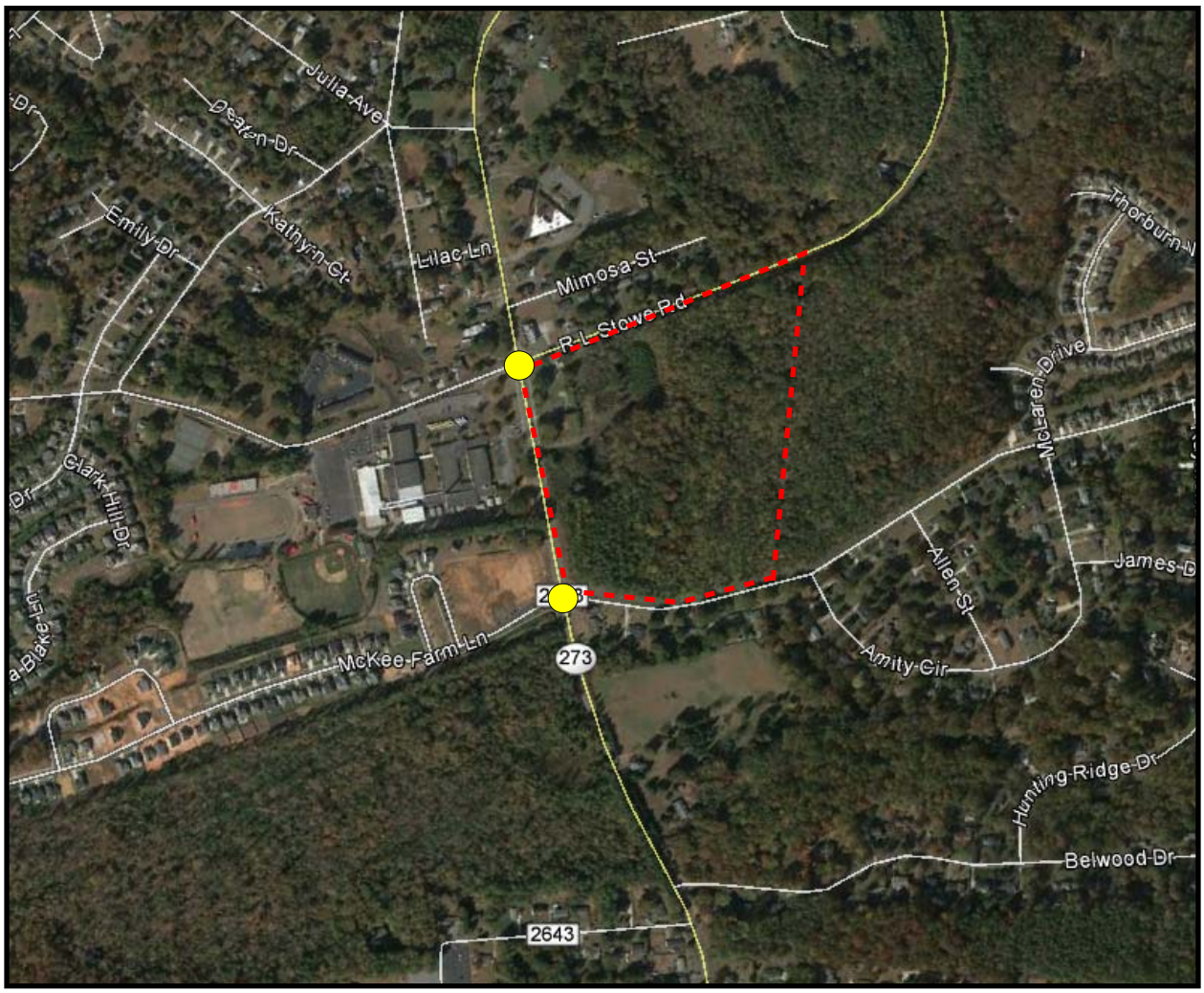
RL Stowe Road and Site Drive 7

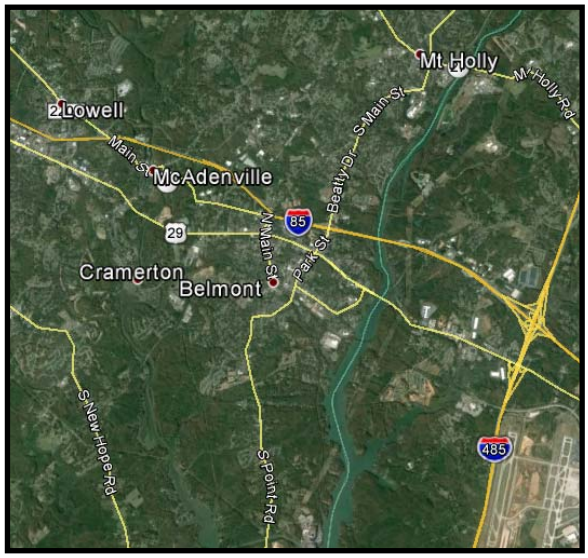
- Construct the northbound approach of Site Drive 7 with one ingress and one egress lane (shared left-right lane).

TECHNICAL APPENDIX

APPENDIX A

FIGURES





LEGEND

N

Proposed Site Location

Off-Site Study Intersection

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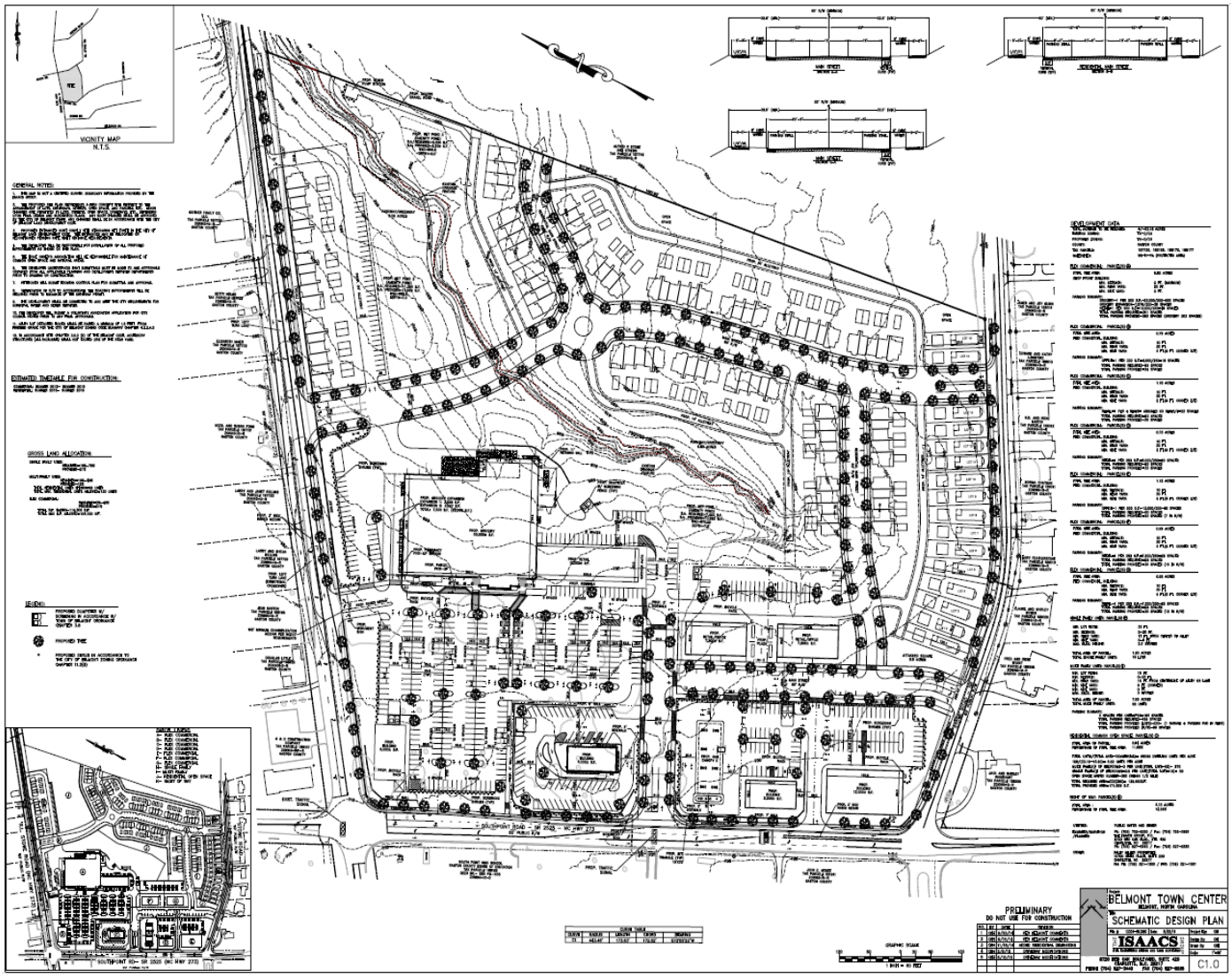
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Site Location Map

Scale: Not to Scale

Figure 1



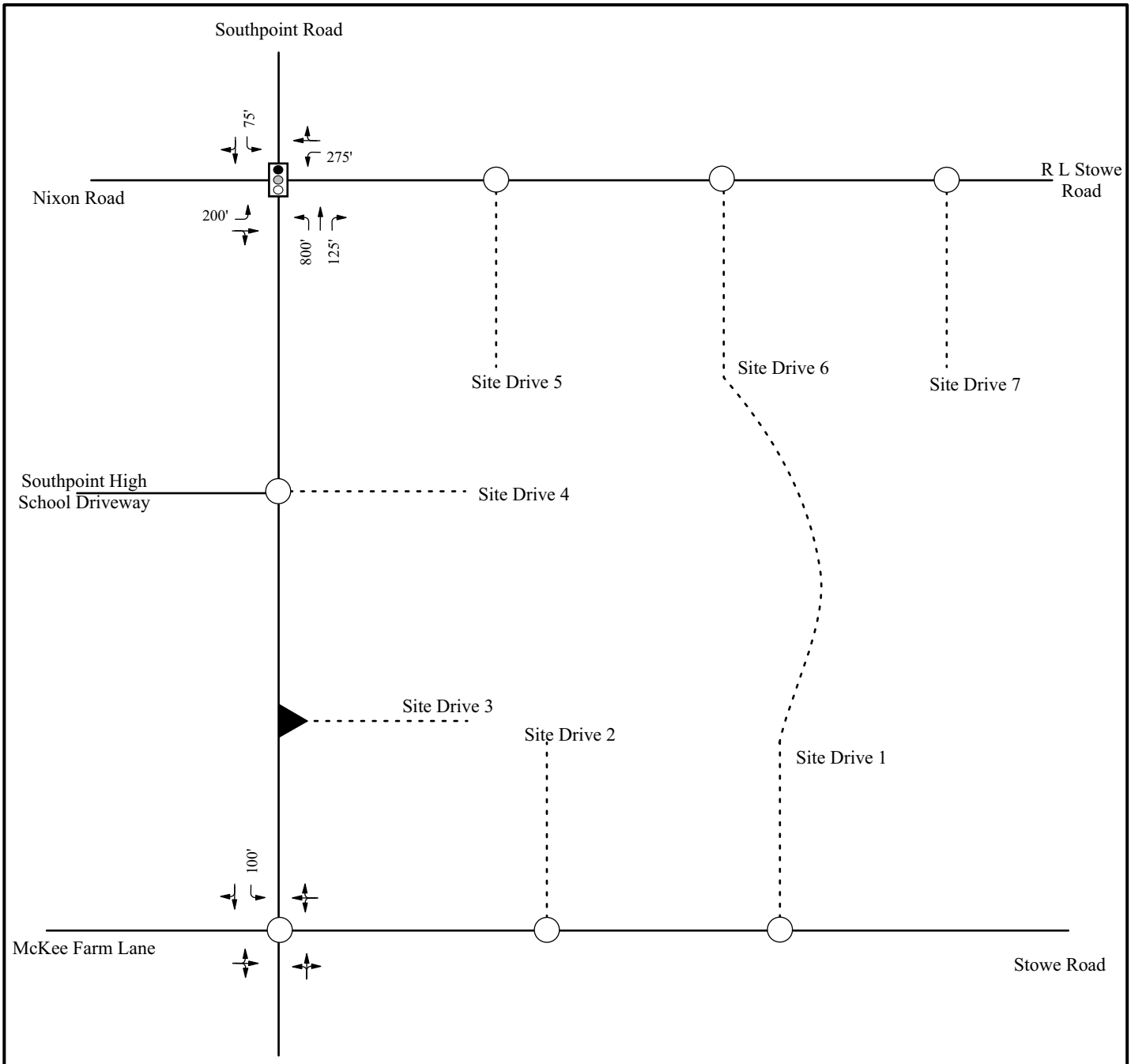
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Preliminary Site Plan

Scale: Not to Scale

Figure 2



LEGEND

- Unsignalized Intersection
- Signalized Intersection
- Existing Lane
- X' Storage (In Feet)

N

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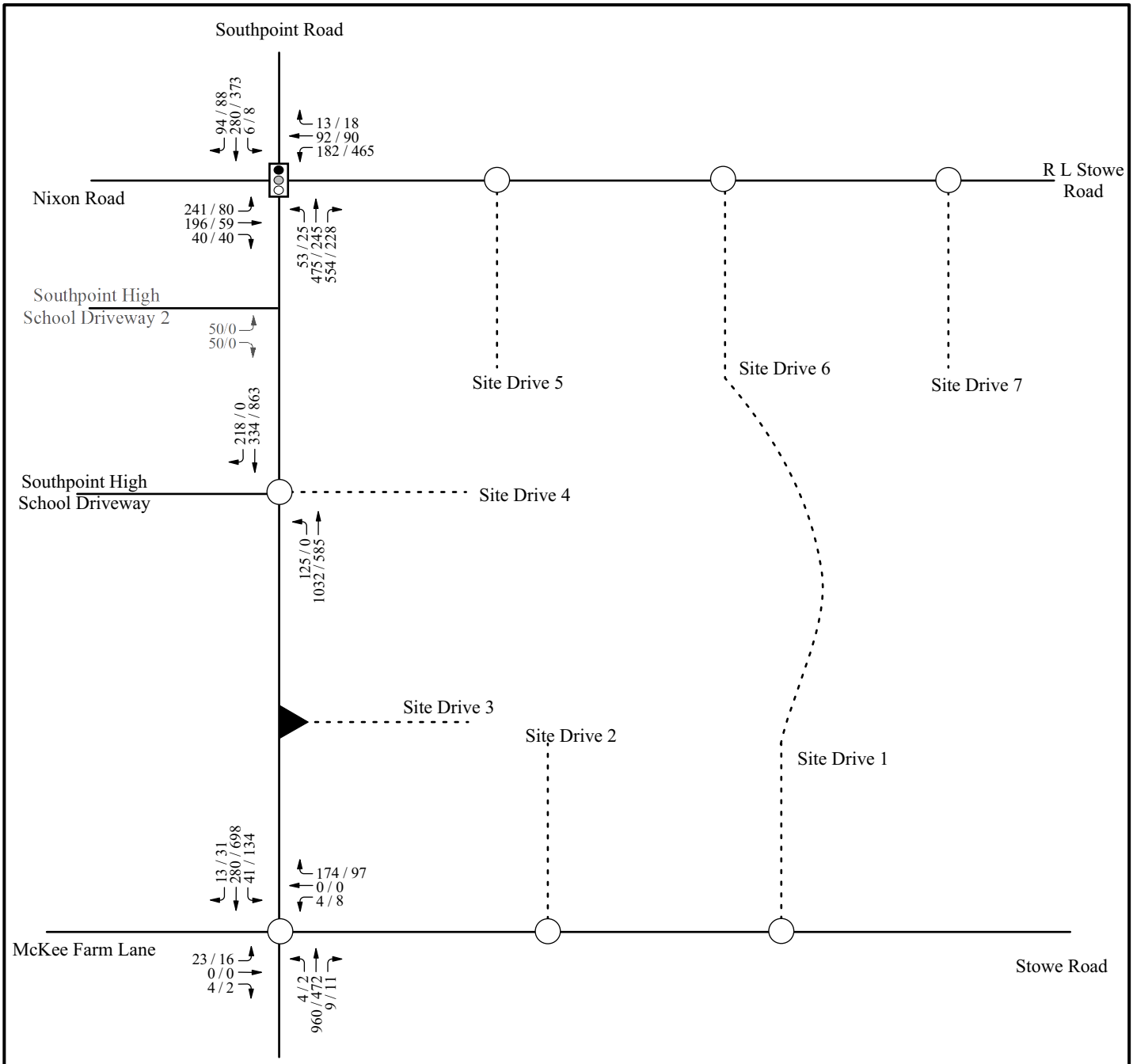
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Existing (2014)
Lane Configurations

Scale: Not to Scale | Figure 3



LEGEND

Unsignalized Intersection

Signalized Intersection

X / Y — AM / PM Peak Hour Traffic

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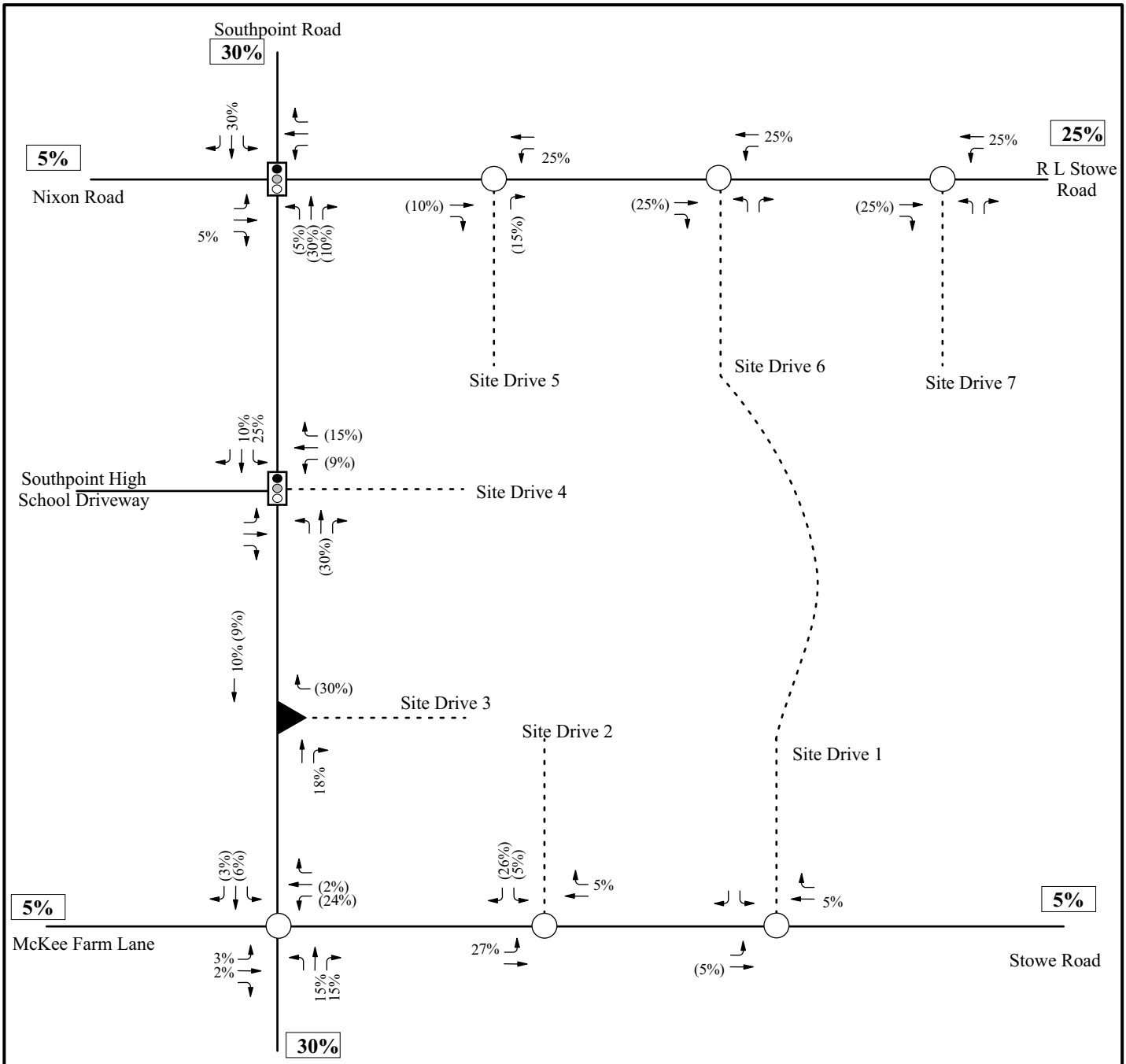
BELMONT TOWN CENTER
Belmont, NC

Existing (2014)
Peak Hour Traffic Volumes

Scale: Not to Scale

Figure 4



LEGEND

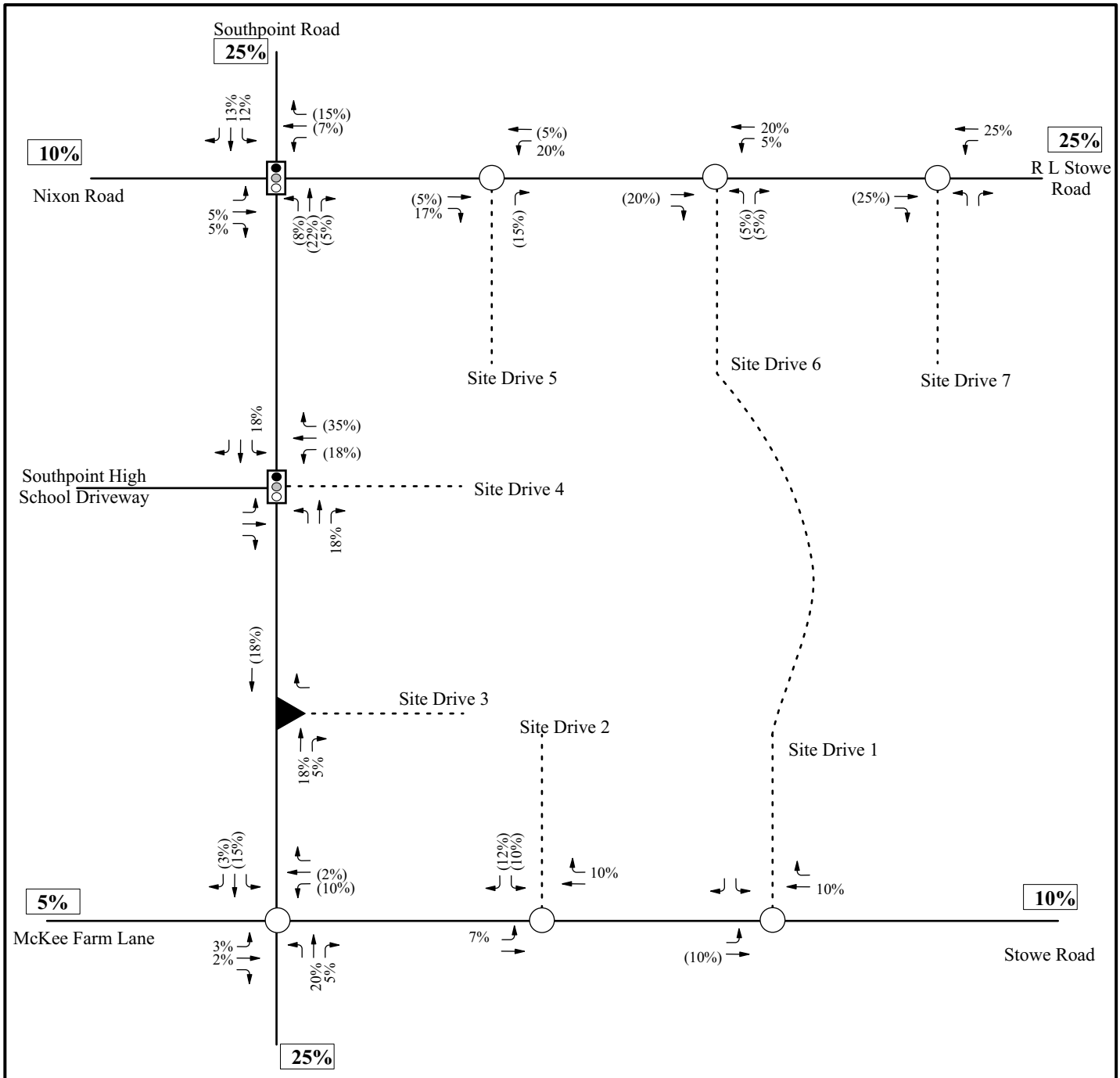
- Unsignalized Intersection
- Signalized Intersection
- X% → Entering Trip Distribution
- (X%) → Exiting Trip Distribution

RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Office
Trip Distribution

Scale: Not to Scale | Figure 5



LEGEND

- Unsignalized Intersection
- Signalized Intersection
- X% → Entering Trip Distribution
- (X%) → Exiting Trip Distribution

N

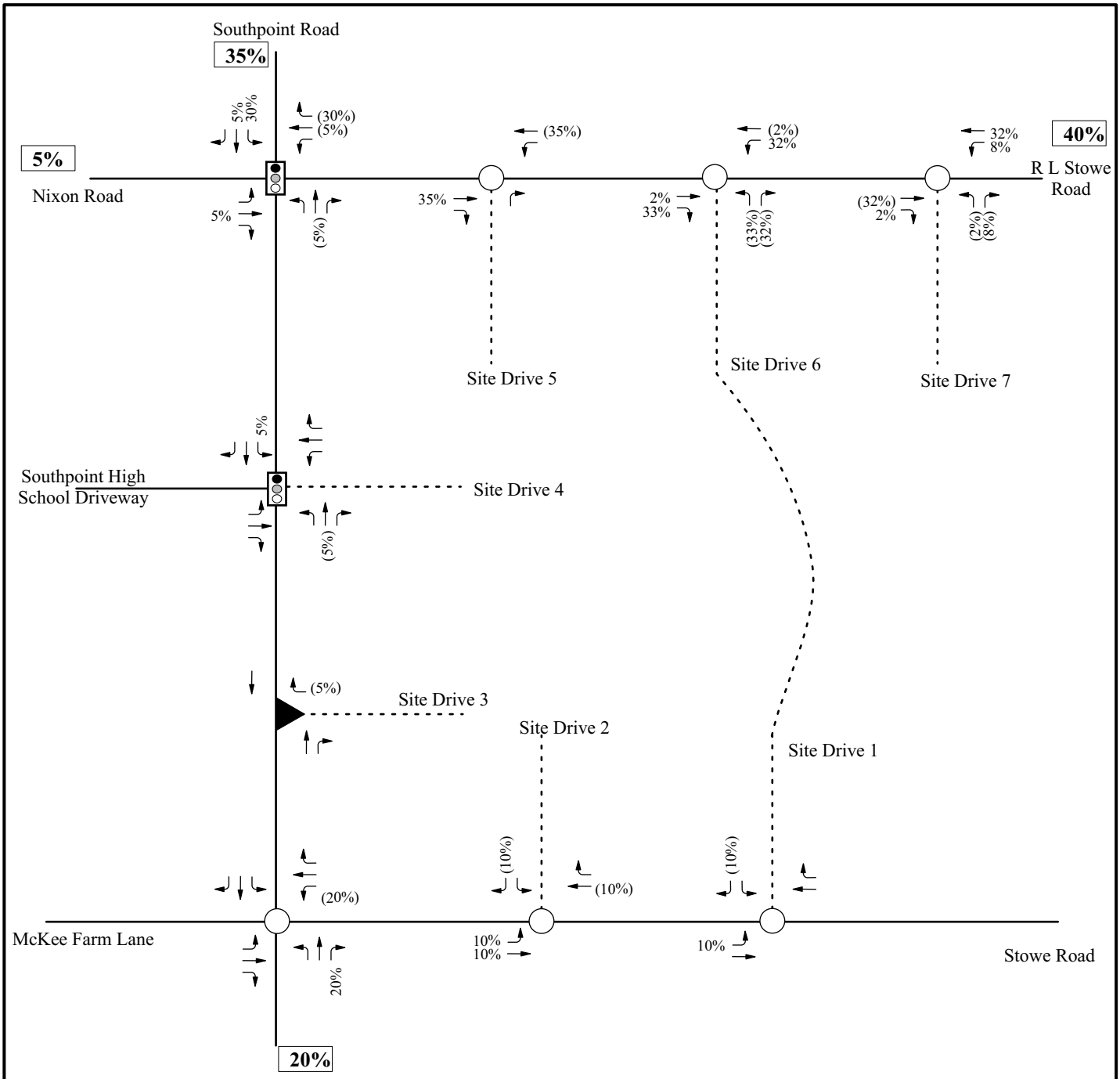
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Retail
Trip Distribution

Scale: Not to Scale

Figure 6



LEGEND

- Unsignalized Intersection
- Signalized Intersection
- X% → Entering Trip Distribution
- (X%) → Exiting Trip Distribution

N

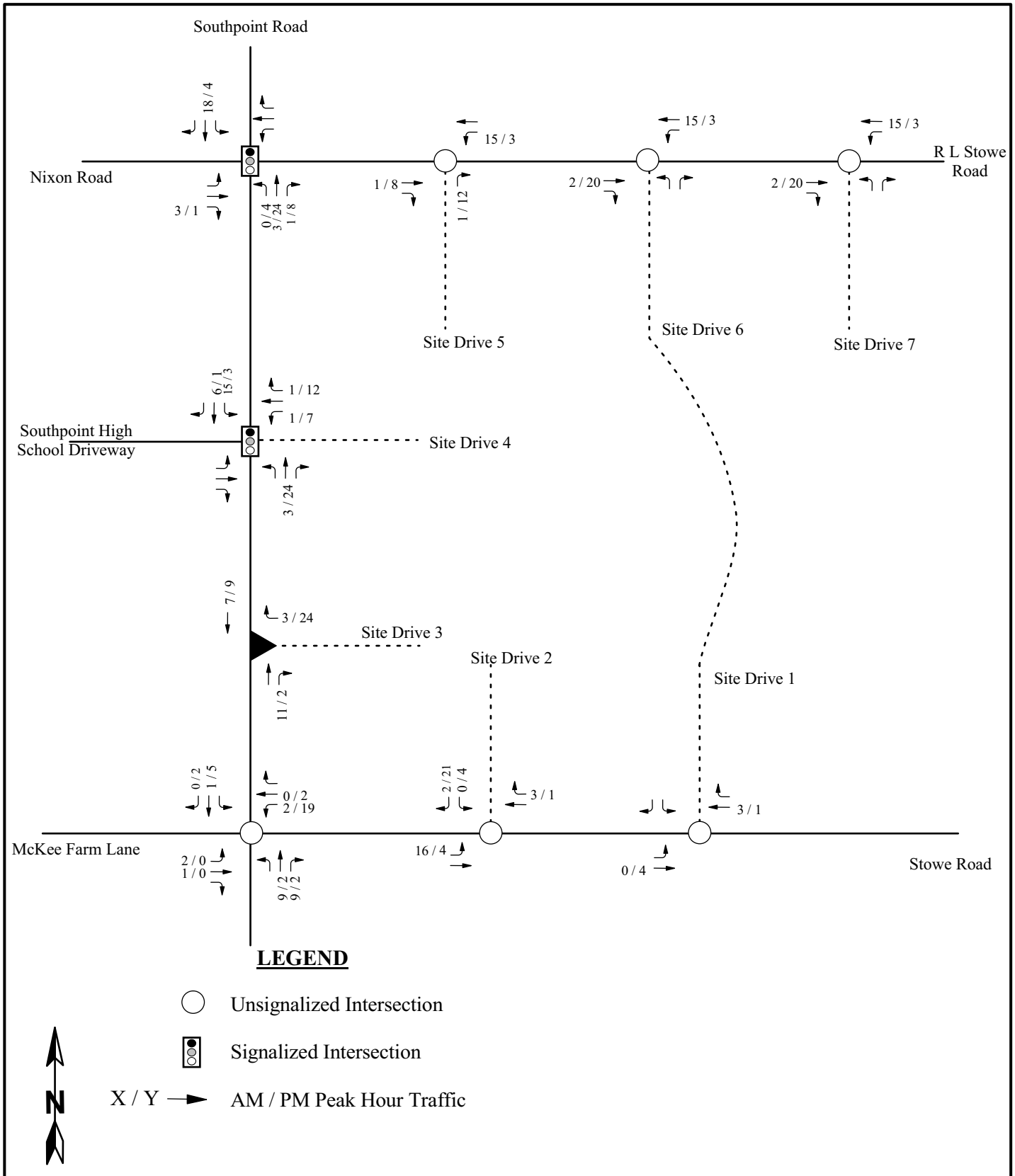
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Residential
Trip Distribution

Scale: Not to Scale

Figure 7

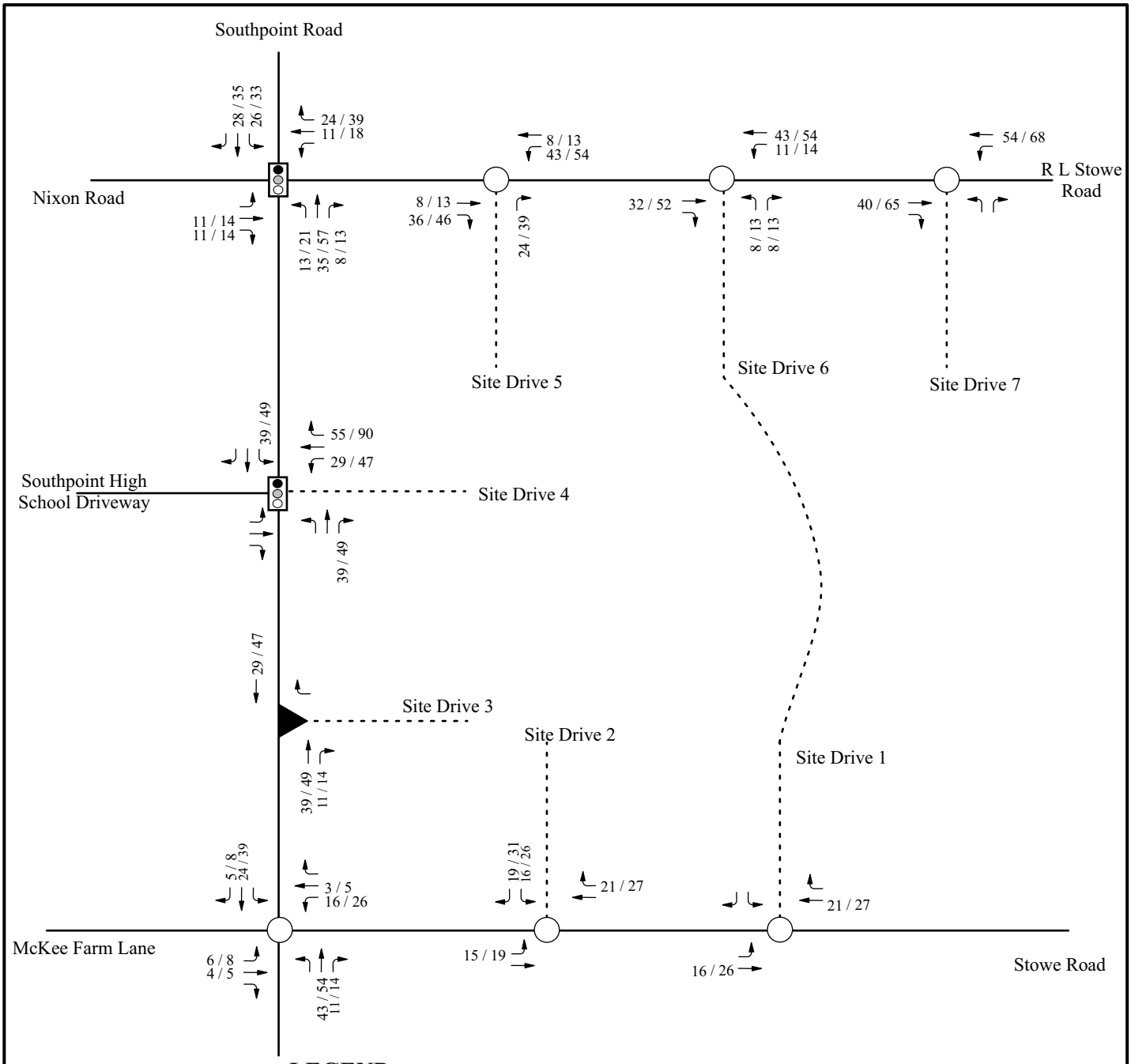


RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Office Site
Trip Assignment

Scale: Not to Scale | Figure 8



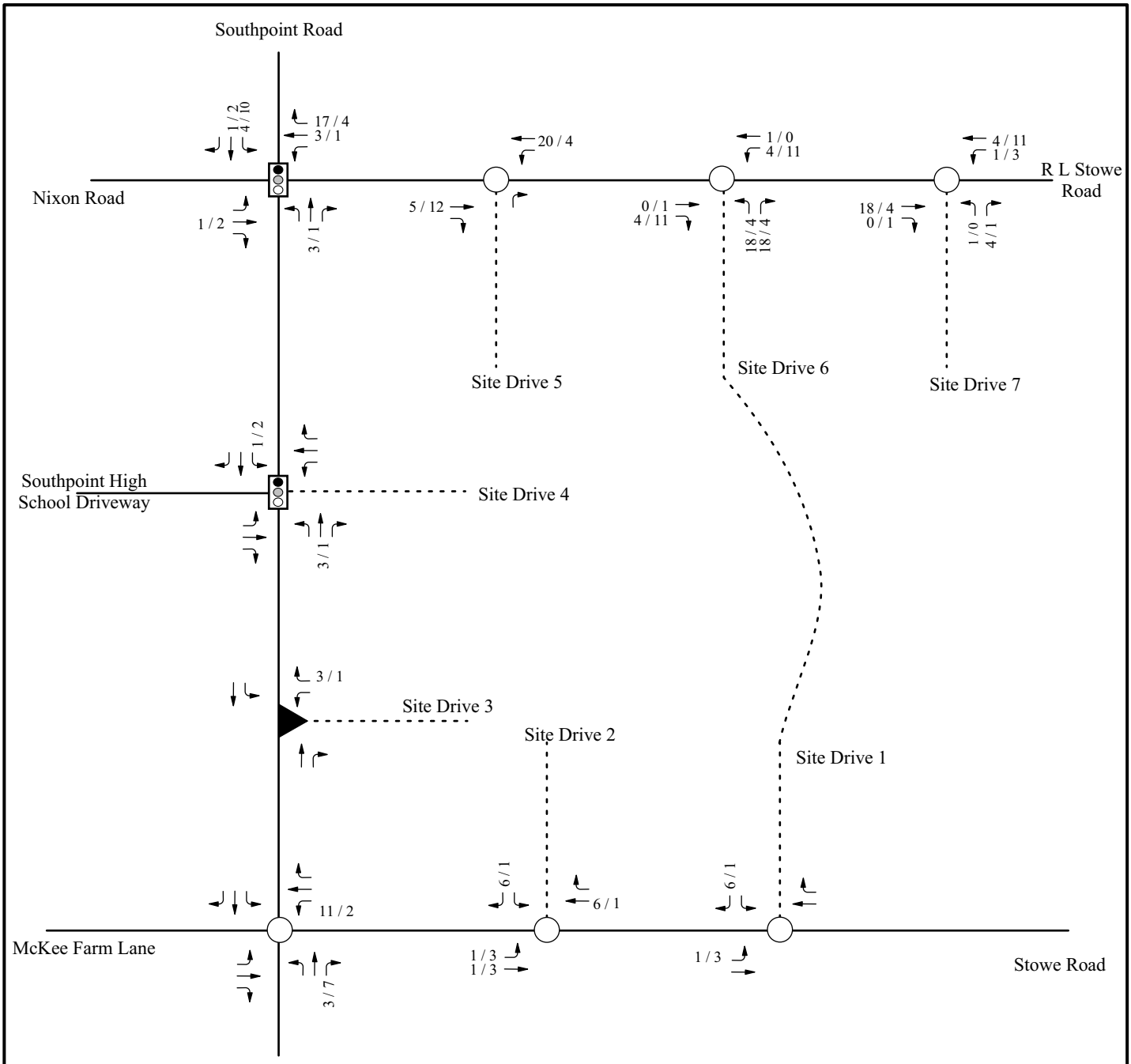
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Retail Site
Trip Assignment

Scale: Not to Scale

Figure 9



LEGEND

- Unsignalized Intersection
- Signalized Intersection
- X / Y → AM / PM Peak Hour Traffic

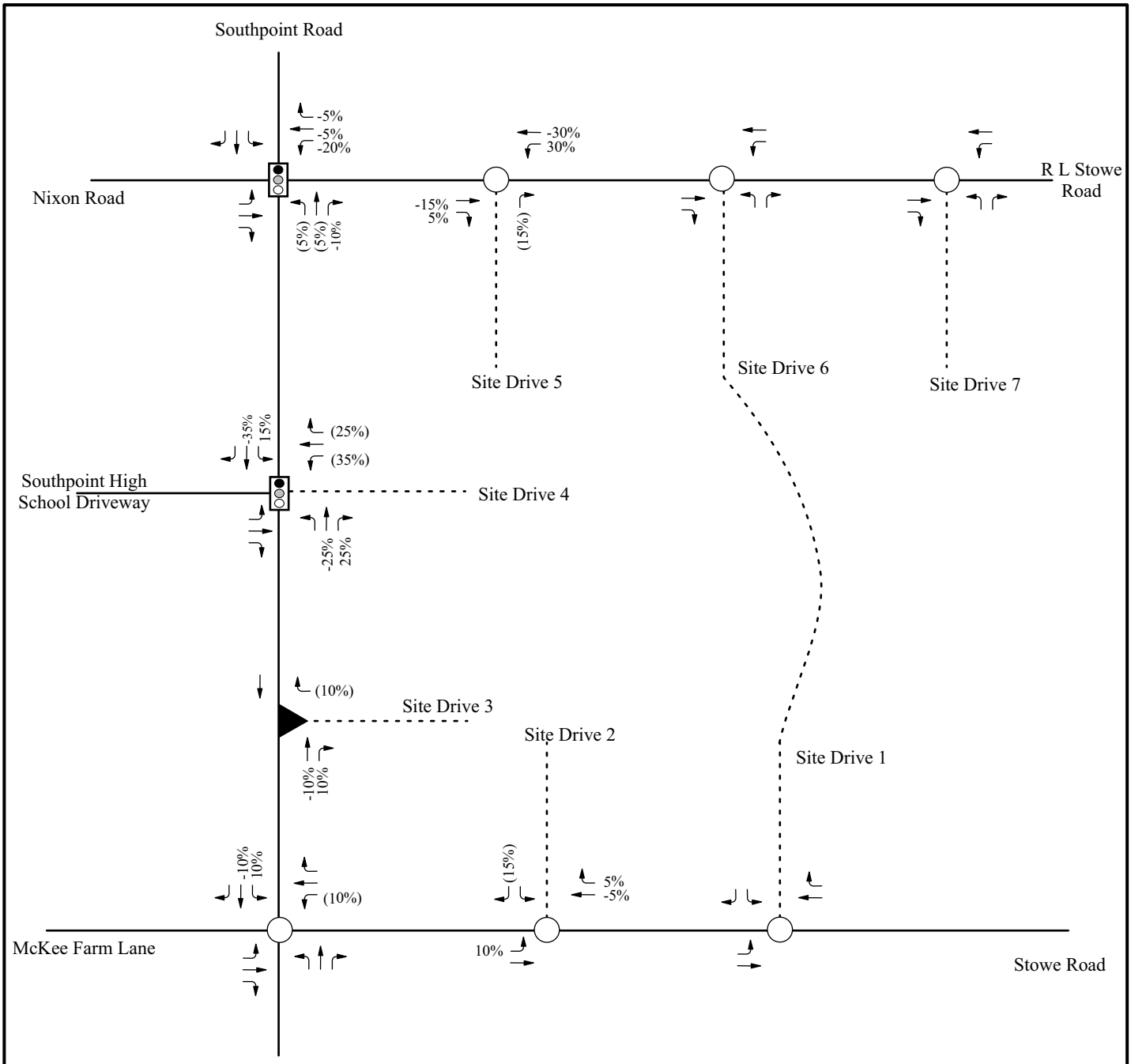
N

RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Residential Site Trip Assignment

Scale: Not to Scale | Figure 10



LEGEND

- Unsignalized Intersection
- Signalized Intersection
- X% → Entering Trip Distribution
- (X%) → Exiting Trip Distribution
- XX% Regional Distribution

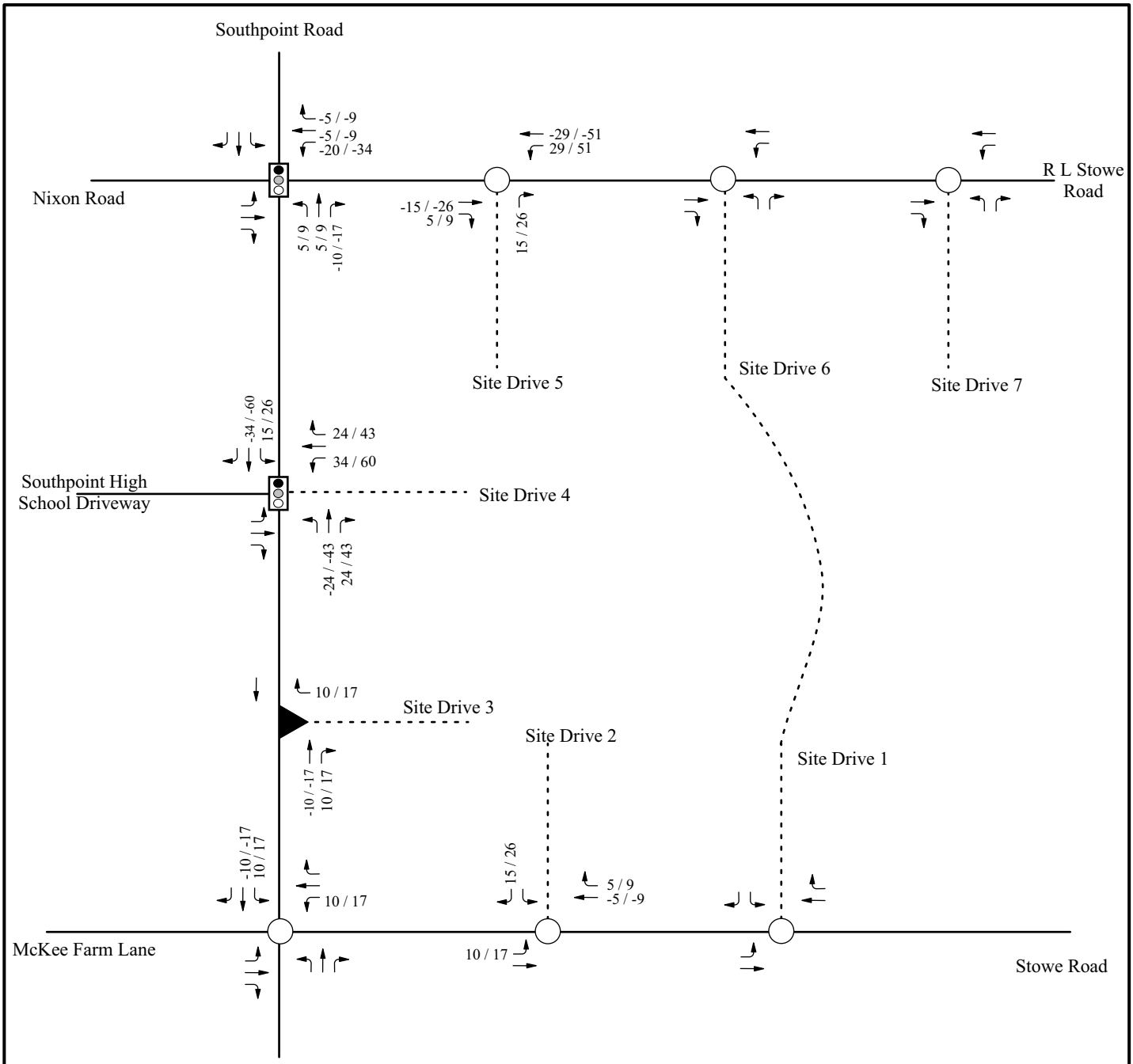
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Pass-By Site Trip Distribution Percentages

Scale: Not to Scale

Figure 11



LEGEND

Unsignalized Intersection

Signalized Intersection

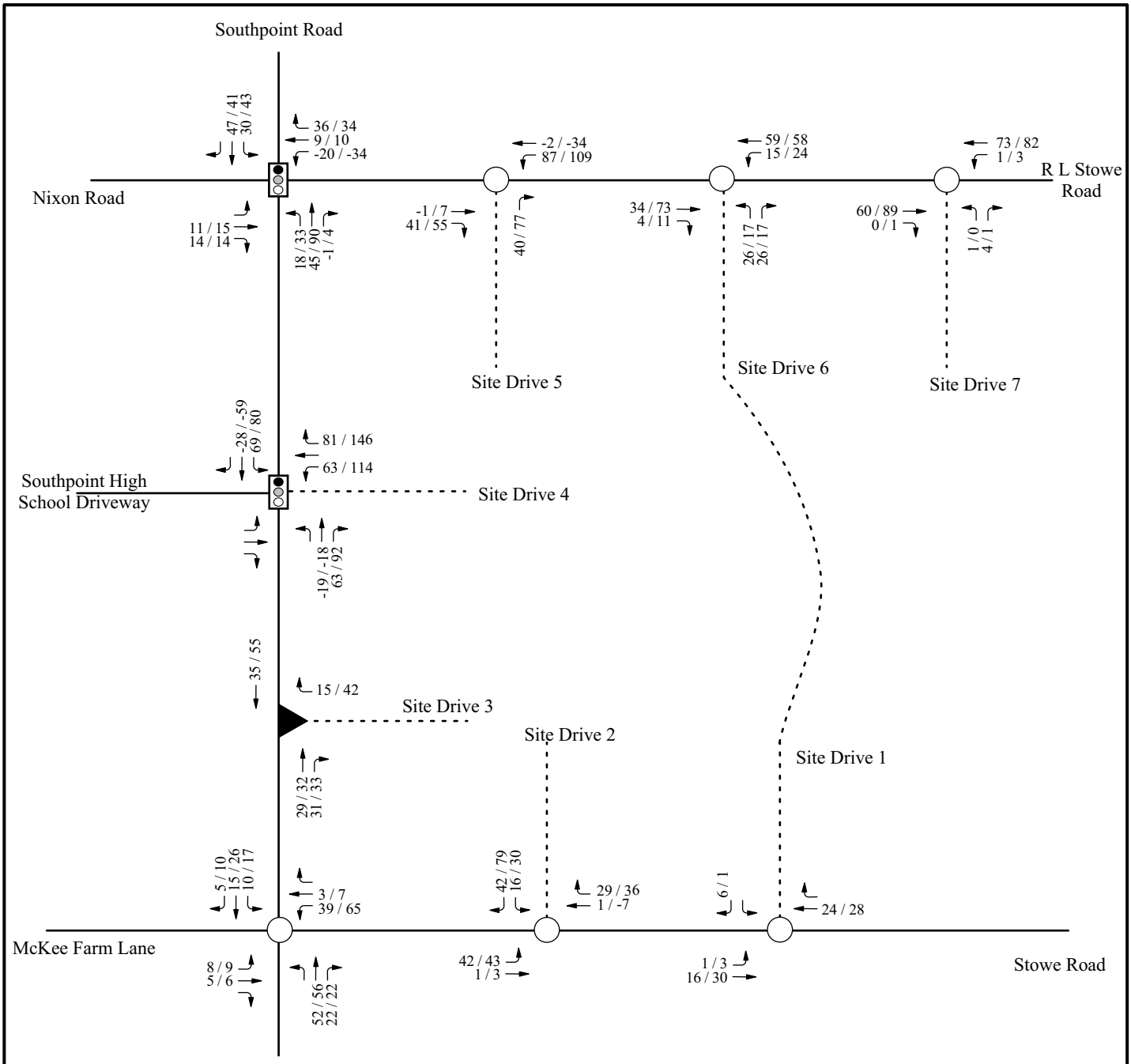
X / Y — AM / PM Peak Hour Traffic

RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Pass-By
Site Trip Assignment

Scale: Not to Scale | Figure 12



LEGEND

- ○ Unsignalized Intersection
- Signalized Intersection
- X / Y → AM / PM Peak Hour Traffic

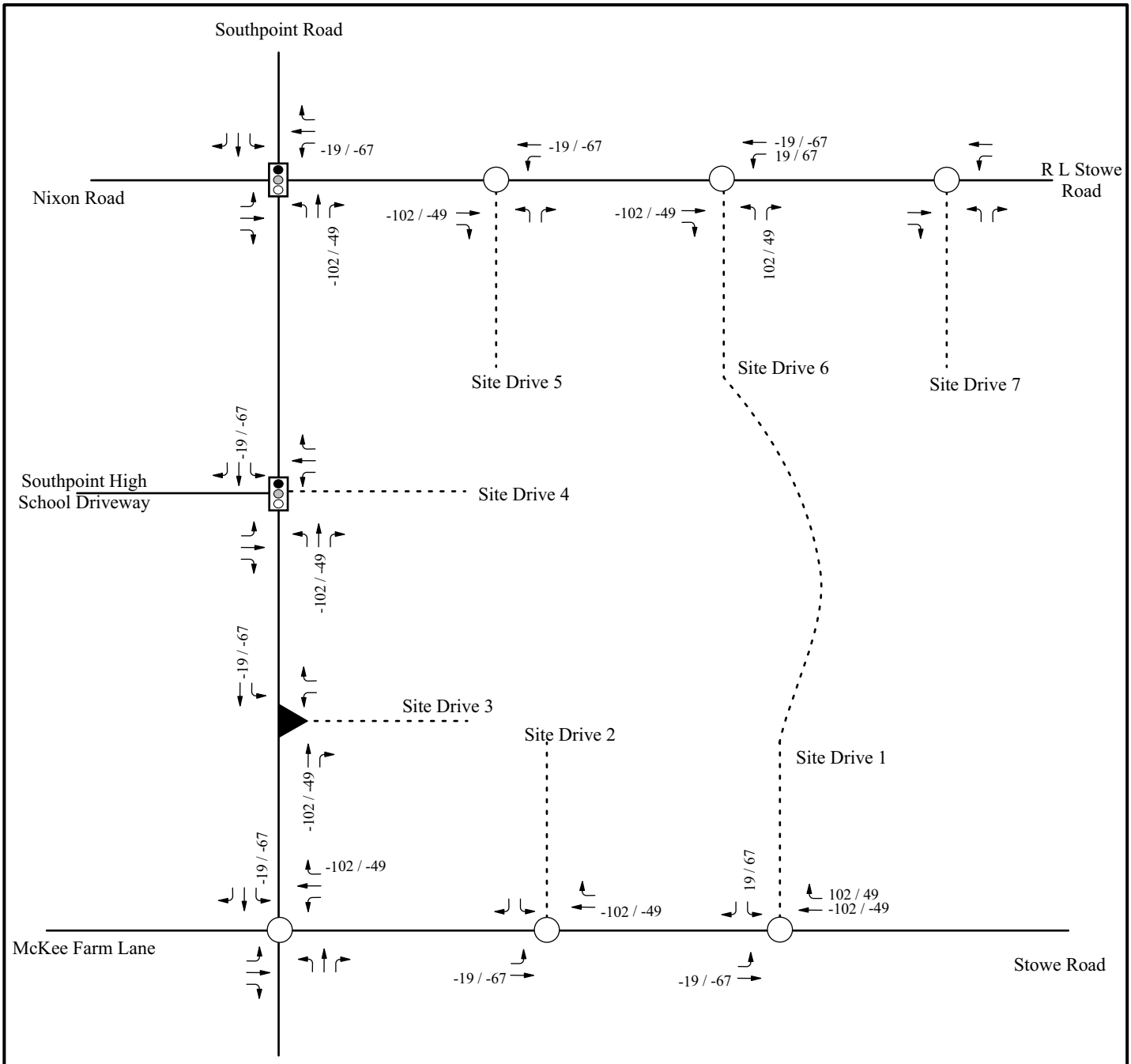
N

RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Total Peak Hour
Site Trip Assignment

Scale: Not to Scale | Figure 13



LEGEND

N

Unsignalized Intersection

Signalized Intersection

X / Y — AM / PM Peak Hour Traffic

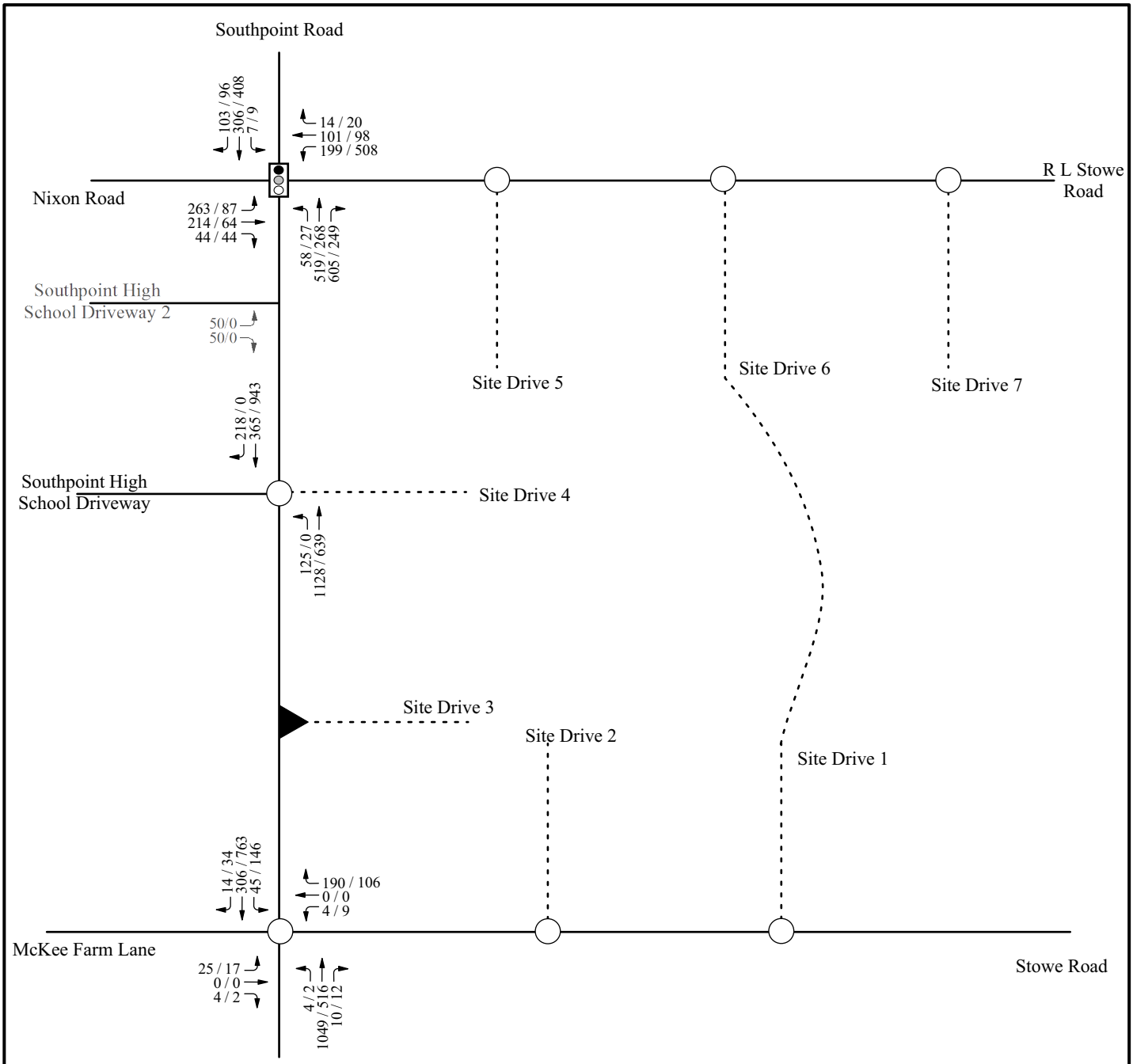
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Diverted Trips

Scale: Not to Scale

Figure 14



LEGEND

N

Unsignalized Intersection

Signalized Intersection

X / Y → AM / PM Peak Hour Traffic

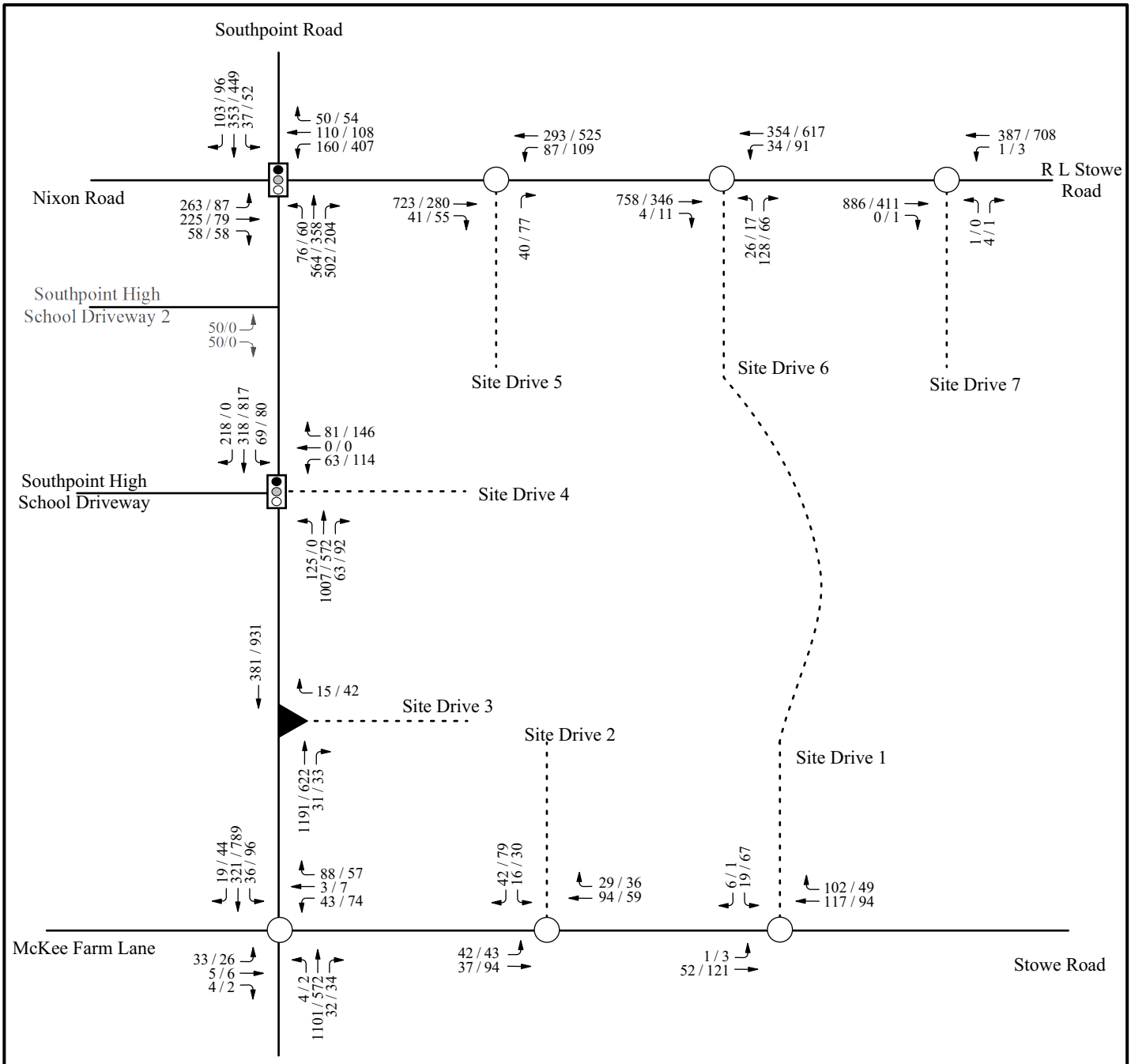
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Projected (2017)
Peak Hour Traffic Volumes

Scale: Not to Scale

Figure 15



LEGEND

Unsignalized Intersection

Signalized Intersection

X / Y → AM / PM Peak Hour Traffic

N

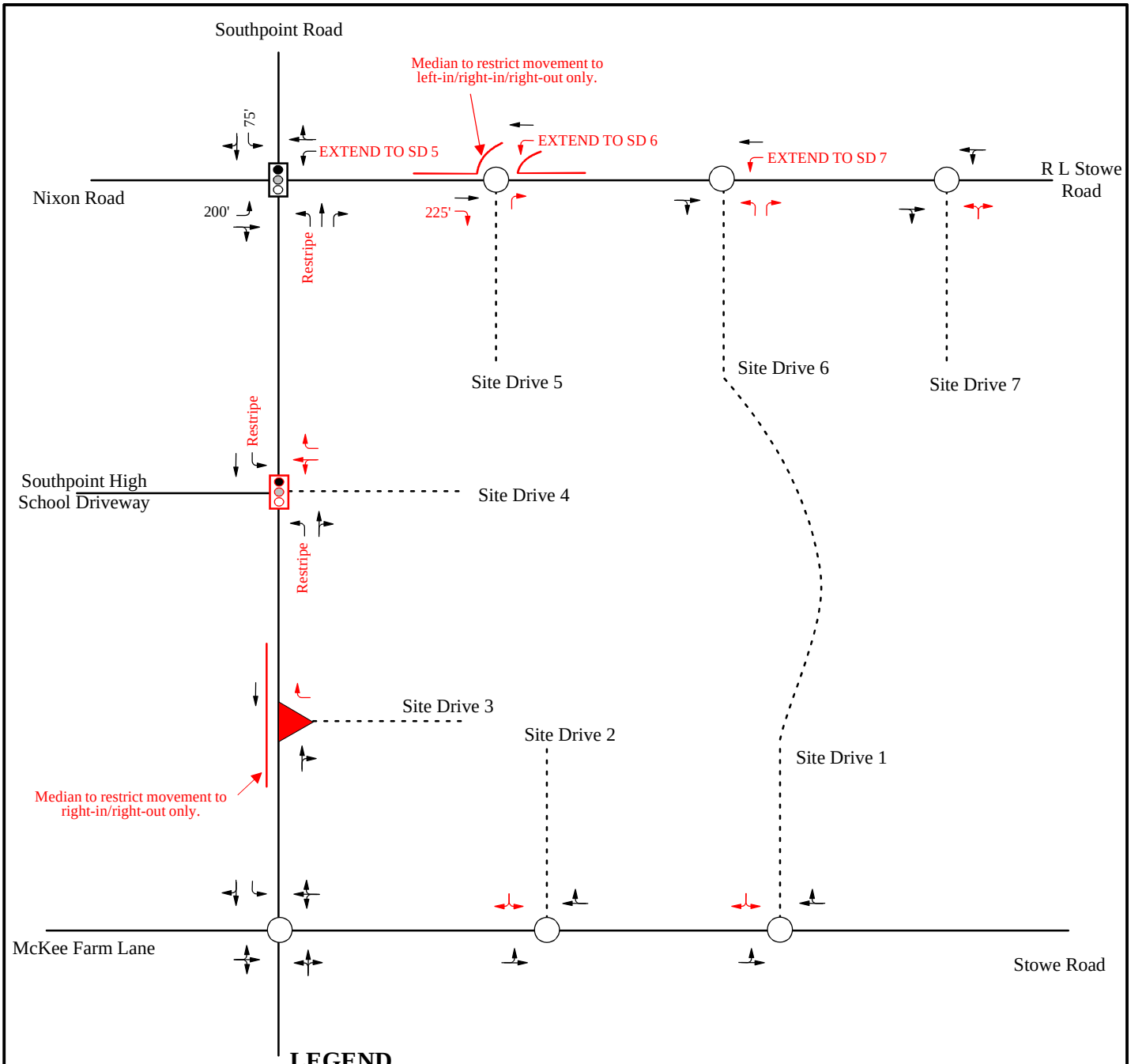
RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Build (2017)
Peak Hour Traffic Volumes

Scale: Not to Scale

Figure 16



LEGEND

- Unsignalized Intersection
- Signalized Intersection
- Existing Lane
- X' Storage (In Feet)
- TWLTL Two Way Left Turn Lane
- Improvement by the Belmont Town Center Development

N

RAMEY KEMP & ASSOCIATES
TRANSPORTATION ENGINEERS

BELMONT TOWN CENTER
Belmont, NC

Future
Lane Configurations

Scale: Not to Scale

Figure 17

APPENDIX B

TRAFFIC COUNT DATA

Type of peak hour being reported: Intersection Peak

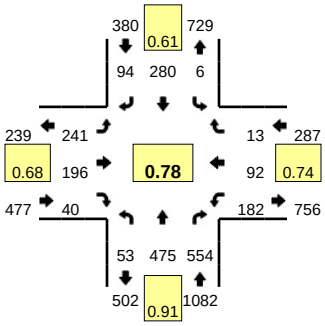
Method for determining peak hour: Total Entering Volume

LOCATION: Southpoint Rd -- R L Stowe Rd/Nixon Rd

QC JOB #: 12785501

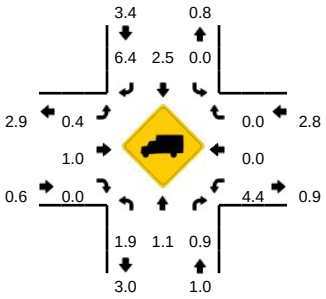
CITY/STATE: Belmont, NC

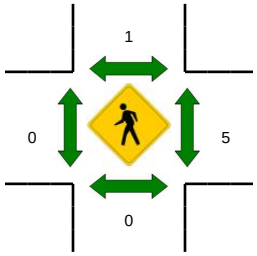
DATE: Tue, Sep 09 2014

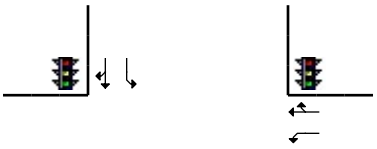


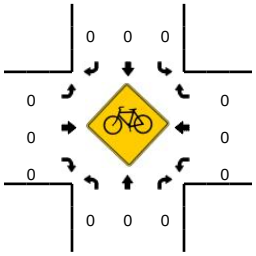
Peak-Hour: 7:15 AM -- 8:15 AM

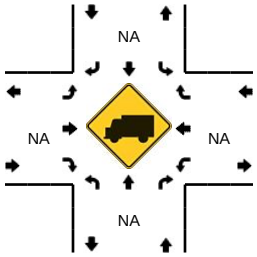
Peak 15-Min: 7:45 AM -- 8:00 AM

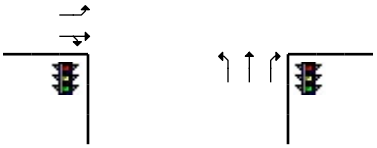


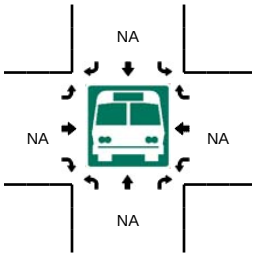












15-Min Count Period Beginning At	Southpoint Rd (Northbound)				Southpoint Rd (Southbound)				R L Stowe Rd/Nixon Rd (Eastbound)				R L Stowe Rd/Nixon Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	82	154	0	1	23	5	0	16	21	1	0	34	4	1	0	346	
7:15 AM	8	143	168	0	2	27	12	0	56	48	5	0	31	12	1	0	513	
7:30 AM	16	145	150	0	2	84	24	0	74	57	10	0	49	35	1	0	647	
7:45 AM	29	122	134	0	1	113	45	0	85	69	21	0	50	39	8	0	716	2222
8:00 AM	0	65	102	0	1	56	13	0	26	22	4	0	52	6	3	0	350	2226
8:15 AM	1	63	96	0	5	41	3	0	7	8	3	0	26	2	4	0	259	1972
8:30 AM	1	68	99	0	1	40	4	0	5	8	1	0	29	3	1	0	260	1585
8:45 AM	0	47	71	0	0	43	3	0	6	7	1	0	31	3	1	0	213	1082

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	116	488	536	0	4	452	180	0	340	276	84	0	200	156	32	0	2864
Heavy Trucks	0	8	4		0	8	12		0	0	0		8	0	0		40
Pedestrians		0				0				0				8			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/12/2014 1:41 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

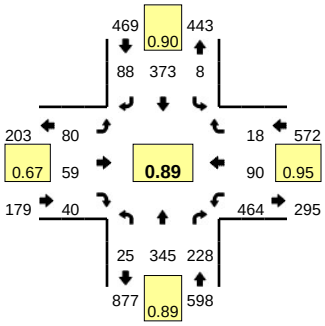
Method for determining peak hour: Total Entering Volume

LOCATION: Southpoint Rd -- R L Stowe Rd/Nixon Rd

QC JOB #: 12785502

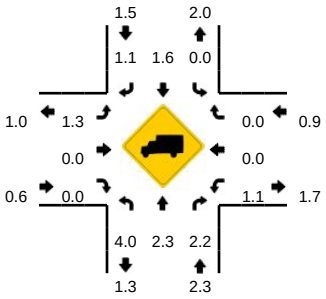
CITY/STATE: Belmont, NC

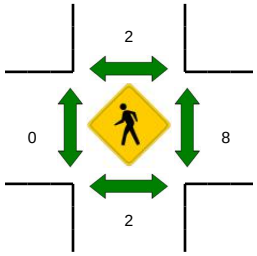
DATE: Tue, Sep 09 2014

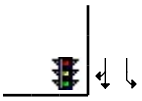


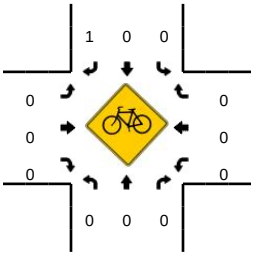
Peak-Hour: 5:15 PM -- 6:15 PM

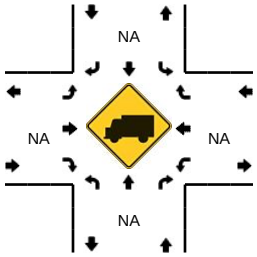
Peak 15-Min: 5:45 PM -- 6:00 PM

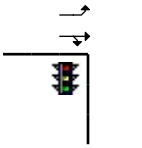


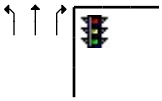


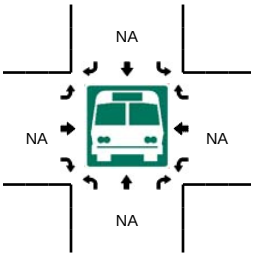












15-Min Count Period Beginning At	Southpoint Rd (Northbound)				Southpoint Rd (Southbound)				R L Stowe Rd/Nixon Rd (Eastbound)				R L Stowe Rd/Nixon Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	6	59	58	0	1	73	20	0	13	9	6	0	103	20	3	0	371	
4:45 PM	3	50	51	0	1	98	17	0	14	15	10	0	106	18	4	0	387	
5:00 PM	4	67	65	0	2	96	19	0	21	12	4	0	120	19	2	0	431	
5:15 PM	6	86	75	0	3	91	22	0	15	14	8	0	116	14	5	0	455	1644
5:30 PM	3	79	48	0	3	89	19	0	15	7	2	0	116	23	5	0	409	1682
5:45 PM	8	104	58	0	1	101	30	0	32	21	14	0	106	30	6	0	511	1806
6:00 PM	8	76	47	0	1	92	17	0	18	17	16	0	126	23	2	0	443	1818
6:15 PM	4	60	53	0	2	101	14	0	11	14	6	0	99	16	3	0	383	1746

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	416	232	0	4	404	120	0	128	84	56	0	424	120	24	0	2044
Heavy Trucks	0	0	4		0	8	0		0	0	0		12	0	0		24
Pedestrians		4				0				0				16			20
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/12/2014 1:41 AM

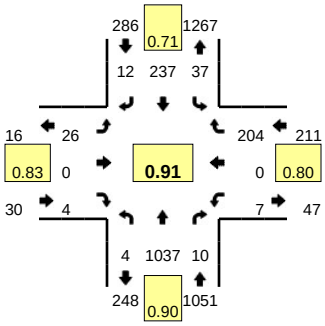
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

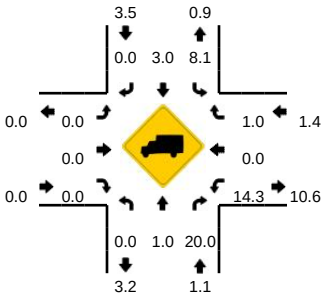
Method for determining peak hour: Total Entering Volume

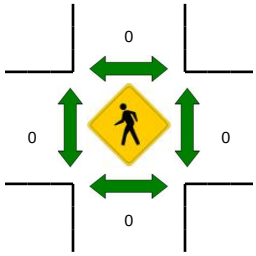
LOCATION: Southpoint Rd -- Stowe Rd
CITY/STATE: Belmont, NC

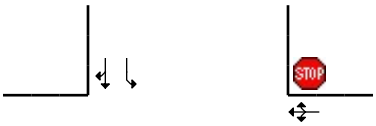
QC JOB #: 12785503
DATE: Tue, Sep 09 2014

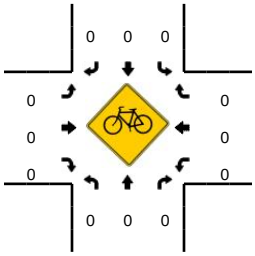


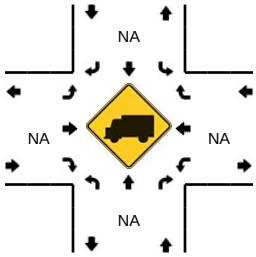
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

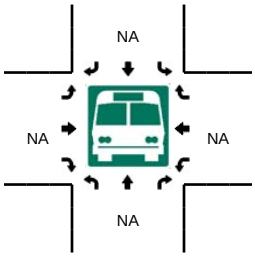












15-Min Count Period Beginning At	Southpoint Rd (Northbound)				Southpoint Rd (Southbound)				Stowe Rd (Eastbound)				Stowe Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	213	2	0	3	43	0	0	8	0	0	0	3	0	46	0	318	
7:15 AM	2	290	0	0	4	31	2	0	5	0	3	0	2	0	60	0	399	
7:30 AM	0	276	5	0	6	68	2	0	8	0	1	0	1	0	65	0	432	
7:45 AM	2	258	3	0	24	95	8	0	5	0	0	0	1	0	33	0	429	1578
8:00 AM	0	136	1	0	7	86	1	0	5	0	0	0	0	0	16	0	252	1512
8:15 AM	1	130	2	0	10	52	4	0	4	0	1	0	2	0	28	0	234	1347
8:30 AM	0	127	5	0	9	55	3	0	5	2	1	0	2	1	19	0	229	1144
8:45 AM	2	107	1	0	10	64	0	0	1	1	1	0	1	0	16	0	204	919

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1104	20	0	24	272	8	0	32	0	4	0	4	0	260	0	1728
Heavy Trucks	0	4	0		4	12	0		0	0	0		0	0	0		20
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/12/2014 1:41 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

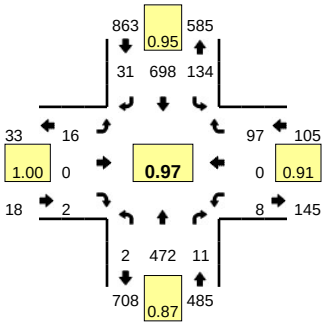
Method for determining peak hour: Total Entering Volume

LOCATION: Southpoint Rd -- Stowe Rd

QC JOB #: 12785504

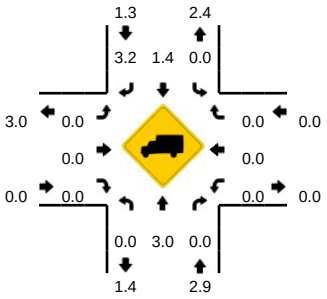
CITY/STATE: Belmont, NC

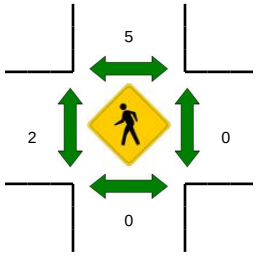
DATE: Tue, Sep 09 2014

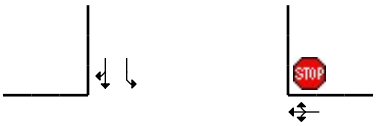


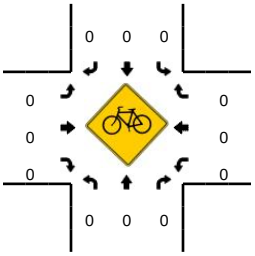
Peak-Hour: 5:15 PM -- 6:15 PM

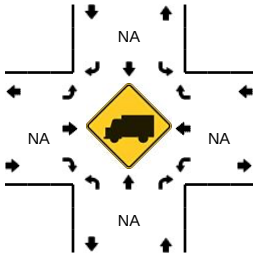
Peak 15-Min: 5:45 PM -- 6:00 PM

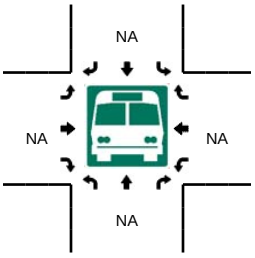












15-Min Count Period Beginning At	Southpoint Rd (Northbound)				Southpoint Rd (Southbound)				Stowe Rd (Eastbound)				Stowe Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	0	95	2	0	28	148	10	0	3	0	1	0	5	1	14	0	307	
4:45 PM	0	95	4	0	25	180	7	0	2	2	0	0	3	0	20	0	338	
5:00 PM	0	117	2	1	35	177	10	0	2	0	2	0	1	2	13	0	362	
5:15 PM	1	138	3	0	33	170	8	0	1	0	2	0	1	0	20	0	377	1384
5:30 PM	0	106	2	0	36	158	8	0	5	0	0	0	5	0	24	0	344	1421
5:45 PM	0	121	3	0	38	176	8	0	5	0	0	0	1	0	27	0	379	1462
6:00 PM	1	107	3	0	27	194	7	0	5	0	0	0	1	0	26	0	371	1471
6:15 PM	1	98	1	0	27	158	9	0	2	1	2	0	2	0	15	0	316	1410

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	484	12	0	152	704	32	0	20	0	0	0	4	0	108	0	1516
Heavy Trucks	0	4	0		0	16	4		0	0	0		0	0	0		24
Pedestrians		0				12				0				0			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

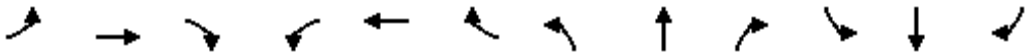
Comments:

Report generated on 9/12/2014 1:41 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

APPENDIX C

EXISTING (2014)
SYNCHRO REPORTS

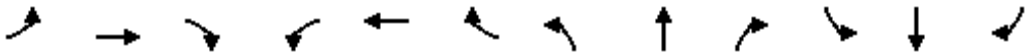


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	241	196	40	182	92	13	53	475	554	6	280	94
Future Volume (vph)	241	196	40	182	92	13	53	475	554	6	280	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	275		0	800		125	75		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	250			125			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.982				0.850		0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1816	0	1770	1829	0	1770	1863	1583	1770	1792	0
Flt Permitted	0.682			0.572			0.453			0.347		
Satd. Flow (perm)	1270	1816	0	1065	1829	0	844	1863	1583	646	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			13				490		39	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1103			1428			1123			887	
Travel Time (s)		16.7			21.6			21.9			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	268	218	44	202	102	14	59	528	616	7	311	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	268	262	0	202	116	0	59	528	616	7	415	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	12.0	12.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0	23.0	23.0	23.0	
Total Split (s)	26.0	26.0		26.0	26.0		34.0	34.0	34.0	34.0	34.0	
Total Split (%)	43.3%	43.3%		43.3%	43.3%		56.7%	56.7%	56.7%	56.7%	56.7%	
Maximum Green (s)	19.0	19.0		19.0	19.0		27.0	27.0	27.0	27.0	27.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	16.8	16.8		16.8	16.8		23.6	23.6	23.6	23.6	23.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.46	0.46	0.46	0.46	0.46	
v/c Ratio	0.64	0.43		0.57	0.19		0.15	0.61	0.62	0.02	0.49	
Control Delay	23.6	15.7		22.8	12.9		9.7	14.3	5.5	8.3	11.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	23.6	15.7		22.8	12.9		9.7	14.3	5.5	8.3	11.1	
LOS	C	B		C	B		A	B	A	A	B	
Approach Delay		19.7			19.2			9.6			11.1	
Approach LOS		B			B			A			B	
Queue Length 50th (ft)	73	60		53	23		10	116	22	1	75	
Queue Length 95th (ft)	149	119		117	56		29	213	86	7	147	
Internal Link Dist (ft)		1023			1348			1043			807	
Turn Bay Length (ft)	200			275			800		125	75		
Base Capacity (vph)	549	795		460	798		503	1112	1142	385	1085	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.49	0.33		0.44	0.15		0.12	0.47	0.54	0.02	0.38	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 50.9			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 13.2		Intersection LOS: B	
Intersection Capacity Utilization 74.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: S. Point Road & Nixon Road/RL Stowe Road



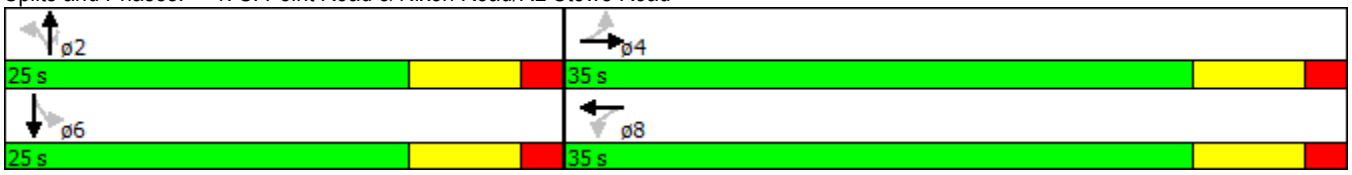
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	59	40	465	90	18	25	245	228	8	373	88
Future Volume (vph)	80	59	40	465	90	18	25	245	228	8	373	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	275		0	800		125	75		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	250			125			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.940			0.975				0.850		0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1751	0	1770	1816	0	1770	1863	1583	1770	1809	0
Flt Permitted	0.680			0.686			0.234			0.544		
Satd. Flow (perm)	1267	1751	0	1278	1816	0	436	1863	1583	1013	1809	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			20				253		21	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1103			1428			1123			887	
Travel Time (s)		16.7			21.6			21.9			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	89	66	44	517	100	20	28	272	253	9	414	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	89	110	0	517	120	0	28	272	253	9	512	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	12.0	12.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0	23.0	23.0	23.0	
Total Split (s)	35.0	35.0		35.0	35.0		25.0	25.0	25.0	25.0	25.0	
Total Split (%)	58.3%	58.3%		58.3%	58.3%		41.7%	41.7%	41.7%	41.7%	41.7%	
Maximum Green (s)	28.0	28.0		28.0	28.0		18.0	18.0	18.0	18.0	18.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	26.8	26.8		26.8	26.8		19.0	19.0	19.0	19.0	19.0	

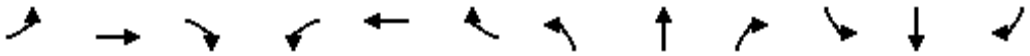
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.34	0.34	0.34	0.34	0.34	
v/c Ratio	0.15	0.13		0.84	0.14		0.19	0.43	0.36	0.03	0.82	
Control Delay	8.9	5.8		28.5	7.4		18.3	17.8	4.1	13.9	30.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	8.9	5.8		28.5	7.4		18.3	17.8	4.1	13.9	30.3	
LOS	A	A		C	A		B	B	A	B	C	
Approach Delay		7.2			24.6			11.5			30.0	
Approach LOS		A			C			B			C	
Queue Length 50th (ft)	16	11		145	18		7	75	0	2	161	
Queue Length 95th (ft)	37	33		#316	41		25	134	41	10	#317	
Internal Link Dist (ft)		1023			1348			1043			807	
Turn Bay Length (ft)	200			275			800		125	75		
Base Capacity (vph)	691	976		698	1000		158	678	737	368	672	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.13	0.11		0.74	0.12		0.18	0.40	0.34	0.02	0.76	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 55.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 20.5 Intersection LOS: C
Intersection Capacity Utilization 65.7% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: S. Point Road & Nixon Road/RL Stowe Road

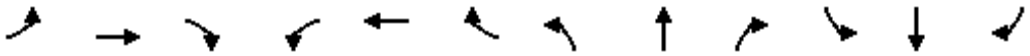




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	0	4	4	0	174	4	960	9	41	280	13
Future Volume (Veh/h)	23	0	4	4	0	174	4	960	9	41	280	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	26	0	4	4	0	193	4	1067	10	46	311	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1123	
pX, platoon unblocked												
vC, conflicting volume	1683	1495	318	1487	1497	1072	325			1077		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1683	1495	318	1487	1497	1072	325			1077		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	99	96	100	28	100			93		
cM capacity (veh/h)	20	114	723	96	113	268	1235			647		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	30	197	1081	46	325
Volume Left	26	4	4	46	0
Volume Right	4	193	10	0	14
cSH	23	259	1235	647	1700
Volume to Capacity	1.32	0.76	0.00	0.07	0.19
Queue Length 95th (ft)	96	139	0	6	0
Control Delay (s)	552.7	52.8	0.1	11.0	0.0
Lane LOS	F	F	A	B	
Approach Delay (s)	552.7	52.8	0.1	1.4	
Approach LOS	F	F			

Intersection Summary				
Average Delay	16.4			
Intersection Capacity Utilization	75.9%	ICU Level of Service	D	
Analysis Period (min)	15			



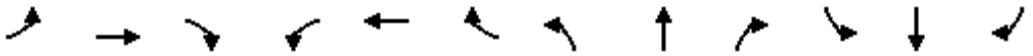
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	0	2	8	0	97	2	472	11	134	698	31
Future Volume (Veh/h)	16	0	2	8	0	97	2	472	11	134	698	31
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	0	2	9	0	108	2	524	12	149	776	34
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1123	
pX, platoon unblocked	0.82	0.82	0.82	0.82	0.82		0.82					
vC, conflicting volume	1733	1631	793	1610	1642	530	810			536		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1784	1660	639	1634	1673	530	659			536		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	52	100	99	85	100	80	100			86		
cM capacity (veh/h)	37	68	391	59	67	549	762			1032		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	20	117	538	149	810
Volume Left	18	9	2	149	0
Volume Right	2	108	12	0	34
cSH	41	334	762	1032	1700
Volume to Capacity	0.49	0.35	0.00	0.14	0.48
Queue Length 95th (ft)	43	38	0	13	0
Control Delay (s)	158.9	21.5	0.1	9.1	0.0
Lane LOS	F	C	A	A	
Approach Delay (s)	158.9	21.5	0.1	1.4	
Approach LOS	F	C			

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	80.6%	ICU Level of Service		D
Analysis Period (min)	15			

APPENDIX D

NO-BUILD (2017)
SYNCHRO REPORTS

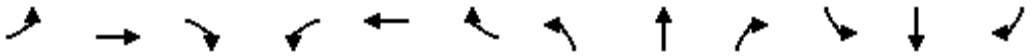


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	263	214	44	199	101	14	58	519	605	7	306	103
Future Volume (vph)	263	214	44	199	101	14	58	519	605	7	306	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	275		0	800		125	75		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	250			125			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.981				0.850		0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1814	0	1770	1827	0	1770	1863	1583	1770	1792	0
Flt Permitted	0.675			0.532			0.412			0.300		
Satd. Flow (perm)	1257	1814	0	991	1827	0	767	1863	1583	559	1792	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			13				454		39	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1103			1428			1123			887	
Travel Time (s)		16.7			21.6			21.9			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	292	238	49	221	112	16	64	577	672	8	340	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	292	287	0	221	128	0	64	577	672	8	454	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	12.0	12.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0	23.0	23.0	23.0	
Total Split (s)	26.0	26.0		26.0	26.0		34.0	34.0	34.0	34.0	34.0	
Total Split (%)	43.3%	43.3%		43.3%	43.3%		56.7%	56.7%	56.7%	56.7%	56.7%	
Maximum Green (s)	19.0	19.0		19.0	19.0		27.0	27.0	27.0	27.0	27.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	17.9	17.9		17.9	17.9		24.7	24.7	24.7	24.7	24.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.47	0.47	0.47	0.47	0.47	
v/c Ratio	0.69	0.46		0.66	0.21		0.18	0.66	0.69	0.03	0.53	
Control Delay	26.4	16.4		27.8	13.3		10.3	15.8	7.9	8.6	12.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	26.4	16.4		27.8	13.3		10.3	15.8	7.9	8.6	12.1	
LOS	C	B		C	B		B	B	A	A	B	
Approach Delay		21.5			22.5			11.5			12.0	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	87	72		65	28		12	145	44	1	95	
Queue Length 95th (ft)	#186	132		#152	61		32	241	137	8	166	
Internal Link Dist (ft)		1023			1348			1043			807	
Turn Bay Length (ft)	200			275			800		125	75		
Base Capacity (vph)	517	757		407	759		435	1058	1095	317	1035	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.56	0.38		0.54	0.17		0.15	0.55	0.61	0.03	0.44	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 53			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 15.1		Intersection LOS: B	
Intersection Capacity Utilization 78.9%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: S. Point Road & Nixon Road/RL Stowe Road

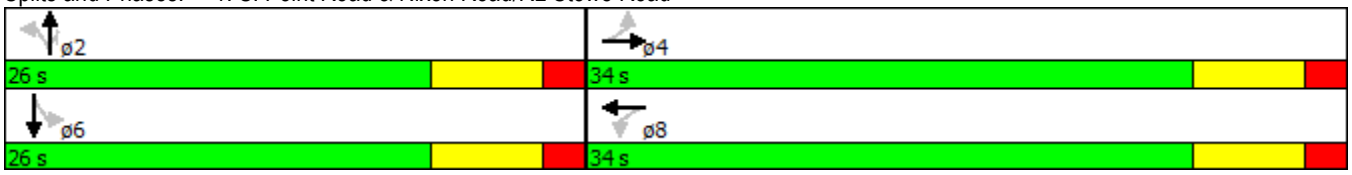


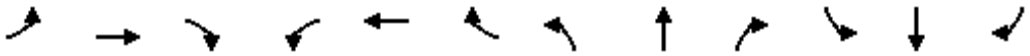
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	64	44	508	98	20	27	268	249	9	408	96
Future Volume (vph)	87	64	44	508	98	20	27	268	249	9	408	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	275		0	800		125	75		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	250			125			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939			0.975				0.850		0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1749	0	1770	1816	0	1770	1863	1583	1770	1809	0
Flt Permitted	0.673			0.680			0.197			0.505		
Satd. Flow (perm)	1254	1749	0	1267	1816	0	367	1863	1583	941	1809	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			22				277		22	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1103			1428			1123			887	
Travel Time (s)		16.7			21.6			21.9			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	97	71	49	564	109	22	30	298	277	10	453	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	120	0	564	131	0	30	298	277	10	560	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	12.0	12.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0	23.0	23.0	23.0	
Total Split (s)	34.0	34.0		34.0	34.0		26.0	26.0	26.0	26.0	26.0	
Total Split (%)	56.7%	56.7%		56.7%	56.7%		43.3%	43.3%	43.3%	43.3%	43.3%	
Maximum Green (s)	27.0	27.0		27.0	27.0		19.0	19.0	19.0	19.0	19.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	28.2	28.2		28.2	28.2		20.4	20.4	20.4	20.4	20.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.35	0.35	0.35	0.35	0.35	
v/c Ratio	0.16	0.14		0.93	0.15		0.24	0.46	0.38	0.03	0.87	
Control Delay	9.6	6.1		40.0	7.8		19.6	17.9	3.9	13.2	34.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	9.6	6.1		40.0	7.8		19.6	17.9	3.9	13.2	34.8	
LOS	A	A		D	A		B	B	A	B	C	
Approach Delay		7.7			34.0			11.6			34.4	
Approach LOS		A			C			B			C	
Queue Length 50th (ft)	18	13		176	20		8	81	0	2	177	
Queue Length 95th (ft)	41	36		#369	45		27	143	42	11	#350	
Internal Link Dist (ft)		1023			1348			1043			807	
Turn Bay Length (ft)	200			275			800		125	75		
Base Capacity (vph)	622	892		629	913		131	670	746	338	664	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.16	0.13		0.90	0.14		0.23	0.44	0.37	0.03	0.84	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 58.6			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 24.9		Intersection LOS: C	
Intersection Capacity Utilization 70.5%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: S. Point Road & Nixon Road/RL Stowe Road

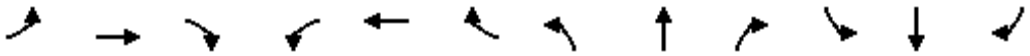




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	0	4	4	0	190	4	1049	10	45	306	14
Future Volume (Veh/h)	25	0	4	4	0	190	4	1049	10	45	306	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	0	4	4	0	211	4	1166	11	50	340	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1123	
pX, platoon unblocked												
vC, conflicting volume	1838	1633	348	1624	1636	1172	356			1177		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1838	1633	348	1624	1636	1172	356			1177		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	99	95	100	10	100			92		
cM capacity (veh/h)	5	92	695	76	92	234	1203			593		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	32	215	1181	50	356
Volume Left	28	4	4	50	0
Volume Right	4	211	11	0	16
cSH	6	226	1203	593	1700
Volume to Capacity	5.18	0.95	0.00	0.08	0.21
Queue Length 95th (ft)	Err	208	0	7	0
Control Delay (s)	Err	93.7	0.1	11.6	0.0
Lane LOS	F	F	A	B	
Approach Delay (s)	Err	93.7	0.1	1.4	
Approach LOS	F	F			

Intersection Summary				
Average Delay	185.8			
Intersection Capacity Utilization	82.3%	ICU Level of Service		E
Analysis Period (min)	15			



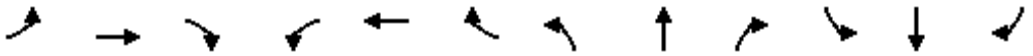
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	0	2	9	0	106	2	516	12	146	763	34
Future Volume (Veh/h)	17	0	2	9	0	106	2	516	12	146	763	34
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	19	0	2	10	0	118	2	573	13	162	848	38
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											1123	
pX, platoon unblocked	0.72	0.72	0.72	0.72	0.72		0.72					
vC, conflicting volume	1892	1781	867	1758	1794	580	886			586		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2042	1888	626	1855	1905	580	653			586		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	6	100	99	72	100	77	100			84		
cM capacity (veh/h)	20	43	351	36	41	515	677			989		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	21	128	588	162	886
Volume Left	19	10	2	162	0
Volume Right	2	118	13	0	38
cSH	22	251	677	989	1700
Volume to Capacity	0.94	0.51	0.00	0.16	0.52
Queue Length 95th (ft)	68	67	0	15	0
Control Delay (s)	415.3	33.5	0.1	9.4	0.0
Lane LOS	F	D	A	A	
Approach Delay (s)	415.3	33.5	0.1	1.4	
Approach LOS	F	D			

Intersection Summary				
Average Delay	8.2			
Intersection Capacity Utilization	87.0%	ICU Level of Service		E
Analysis Period (min)	15			

APPENDIX E

BUILD (2017)
SYNCHRO REPORTS



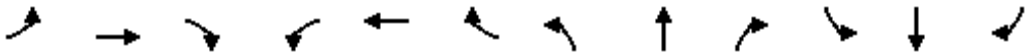
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	263	225	58	160	110	50	76	564	502	37	353	103
Future Volume (vph)	263	225	58	160	110	50	76	564	502	37	353	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	265		0	300		125	75		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	250			70			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.953				0.850		0.966	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1805	0	1770	1775	0	1770	1863	1583	1770	1799	0
Flt Permitted	0.645			0.461			0.379			0.281		
Satd. Flow (perm)	1201	1805	0	859	1775	0	706	1863	1583	523	1799	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			42				434		34	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1103			375			623			887	
Travel Time (s)		16.7			5.7			12.1			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	292	250	64	178	122	56	84	627	558	41	392	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	292	314	0	178	178	0	84	627	558	41	506	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	12.0	12.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0	23.0	23.0	23.0	
Total Split (s)	26.0	26.0		26.0	26.0		34.0	34.0	34.0	34.0	34.0	
Total Split (%)	43.3%	43.3%		43.3%	43.3%		56.7%	56.7%	56.7%	56.7%	56.7%	
Maximum Green (s)	19.0	19.0		19.0	19.0		27.0	27.0	27.0	27.0	27.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Min	C-Min	C-Min	C-Min	C-Min	
Act Effct Green (s)	19.1	19.1		19.1	19.1		30.9	30.9	30.9	30.9	30.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.52	0.52	0.52	0.52	0.52	
v/c Ratio	0.76	0.53		0.65	0.30		0.23	0.65	0.54	0.15	0.54	
Control Delay	33.0	18.6		29.7	12.4		6.5	9.3	2.0	10.5	12.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	33.0	18.6		29.7	12.4		6.5	9.3	2.0	10.5	12.3	
LOS	C	B		C	B		A	A	A	B	B	
Approach Delay		25.5			21.1			5.9			12.2	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)	89	79		52	34		6	74	0	8	112	
Queue Length 95th (ft)	#194	144		#127	73		m11	m134	m1	25	194	
Internal Link Dist (ft)		1023			295			543			807	
Turn Bay Length (ft)	200			265			300		125	75		
Base Capacity (vph)	420	647		300	648		363	958	1025	268	942	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.70	0.49		0.59	0.27		0.23	0.65	0.54	0.15	0.54	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 18 (30%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 13.4 Intersection LOS: B
Intersection Capacity Utilization 80.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S. Point Road & Nixon Road/RL Stowe Road

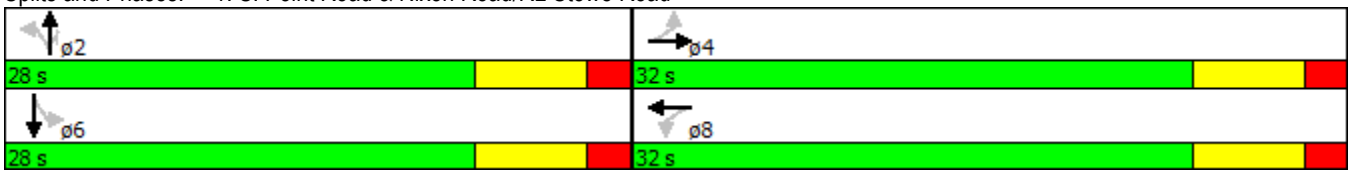


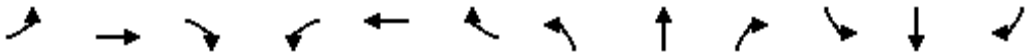
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	79	58	407	108	54	60	358	204	52	449	96
Future Volume (vph)	87	79	58	407	108	54	60	358	204	52	449	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	265		0	300		125	75		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	250			70			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.937			0.950				0.850		0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1745	0	1770	1770	0	1770	1863	1583	1770	1814	0
Flt Permitted	0.644			0.660			0.183			0.410		
Satd. Flow (perm)	1200	1745	0	1229	1770	0	341	1863	1583	764	1814	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		64			55				227		21	
Link Speed (mph)		45			45			35			35	
Link Distance (ft)		1103			375			623			887	
Travel Time (s)		16.7			5.7			12.1			17.3	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	97	88	64	452	120	60	67	398	227	58	499	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	152	0	452	180	0	67	398	227	58	606	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		8	8		2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		12.0	12.0	12.0	12.0	12.0	
Minimum Split (s)	23.0	23.0		23.0	23.0		23.0	23.0	23.0	23.0	23.0	
Total Split (s)	32.0	32.0		32.0	32.0		28.0	28.0	28.0	28.0	28.0	
Total Split (%)	53.3%	53.3%		53.3%	53.3%		46.7%	46.7%	46.7%	46.7%	46.7%	
Maximum Green (s)	25.0	25.0		25.0	25.0		21.0	21.0	21.0	21.0	21.0	
Yellow Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	24.7	24.7		24.7	24.7		21.8	21.8	21.8	21.8	21.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.38	0.38	0.38	0.38	0.38	
v/c Ratio	0.19	0.19		0.84	0.22		0.51	0.56	0.30	0.20	0.85	
Control Delay	11.1	6.9		31.9	8.0		32.1	17.8	3.4	14.5	30.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	11.1	6.9		31.9	8.0		32.1	17.8	3.4	14.5	30.4	
LOS	B	A		C	A		C	B	A	B	C	
Approach Delay		8.6			25.1			14.5			29.0	
Approach LOS		A			C			B			C	
Queue Length 50th (ft)	20	17		134	25		18	109	0	14	188	
Queue Length 95th (ft)	45	46		#292	58		#69	185	36	37	#367	
Internal Link Dist (ft)		1023			295			543			807	
Turn Bay Length (ft)	200			265			300		125	75		
Base Capacity (vph)	579	875		593	883		140	766	784	314	758	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.17	0.17		0.76	0.20		0.48	0.52	0.29	0.18	0.80	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 56.7			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 21.1		Intersection LOS: C	
Intersection Capacity Utilization 86.4%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: S. Point Road & Nixon Road/RL Stowe Road

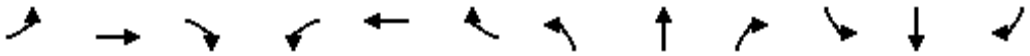




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	5	4	43	3	88	4	1101	32	36	321	19
Future Volume (Veh/h)	33	5	4	43	3	88	4	1101	32	36	321	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	37	6	4	48	3	98	4	1223	36	40	357	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											500	
pX, platoon unblocked												
vC, conflicting volume	1796	1714	368	1693	1707	1241	378			1259		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1796	1714	368	1693	1707	1241	378			1259		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	93	99	26	96	54	100			93		
cM capacity (veh/h)	31	83	678	65	84	213	1180			552		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	47	149	1263	40	378
Volume Left	37	48	4	40	0
Volume Right	4	98	36	0	21
cSH	37	121	1180	552	1700
Volume to Capacity	1.28	1.23	0.00	0.07	0.22
Queue Length 95th (ft)	122	236	0	6	0
Control Delay (s)	410.2	225.5	0.1	12.0	0.0
Lane LOS	F	F	A	B	
Approach Delay (s)	410.2	225.5	0.1	1.2	
Approach LOS	F	F			

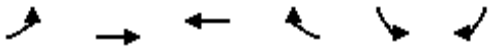
Intersection Summary				
Average Delay	28.5			
Intersection Capacity Utilization	77.4%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	6	2	74	7	57	2	572	34	96	789	44
Future Volume (Veh/h)	26	6	2	74	7	57	2	572	34	96	789	44
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	29	7	2	82	8	63	2	636	38	107	877	49
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											500	
pX, platoon unblocked	0.65	0.65	0.65	0.65	0.65		0.65					
vC, conflicting volume	1842	1794	902	1756	1799	655	926			674		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2026	1952	577	1894	1961	655	615			674		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	81	99	0	78	86	100			88		
cM capacity (veh/h)	18	37	335	27	36	466	626			917		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	38	153	676	107	926
Volume Left	29	82	2	107	0
Volume Right	2	63	38	0	49
cSH	21	44	626	917	1700
Volume to Capacity	1.80	3.44	0.00	0.12	0.54
Queue Length 95th (ft)	124	Err	0	10	0
Control Delay (s)	766.4	Err	0.1	9.4	0.0
Lane LOS	F	F	A	A	
Approach Delay (s)	766.4	Err	0.1	1.0	
Approach LOS	F	F			

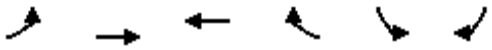
Intersection Summary				
Average Delay	821.1			
Intersection Capacity Utilization	90.8%	ICU Level of Service		E
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	52	117	102	19	6
Future Volume (Veh/h)	1	52	117	102	19	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	1	58	130	113	21	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	243				246	186
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	243				246	186
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	99
cM capacity (veh/h)	1323				741	856

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	59	243	28
Volume Left	1	0	21
Volume Right	0	113	7
cSH	1323	1700	767
Volume to Capacity	0.00	0.14	0.04
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.1	0.0	9.9
Lane LOS	A		A
Approach Delay (s)	0.1	0.0	9.9
Approach LOS			A

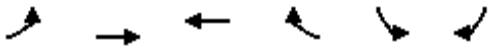
Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		22.4%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	121	94	49	67	1
Future Volume (Veh/h)	3	121	94	49	67	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	134	104	54	74	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	158				271	131
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	158				271	131
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				90	100
cM capacity (veh/h)	1422				717	919

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	137	158	75
Volume Left	3	0	74
Volume Right	0	54	1
cSH	1422	1700	719
Volume to Capacity	0.00	0.09	0.10
Queue Length 95th (ft)	0	0	9
Control Delay (s)	0.2	0.0	10.6
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	10.6
Approach LOS			B

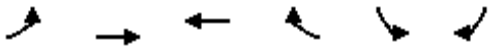
Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	19.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	42	37	94	29	16	42
Future Volume (Veh/h)	42	37	94	29	16	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	47	41	104	32	18	47
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	136				255	120
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	136				255	120
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				97	95
cM capacity (veh/h)	1448				710	931

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	88	136	65
Volume Left	47	0	18
Volume Right	0	32	47
cSH	1448	1700	857
Volume to Capacity	0.03	0.08	0.08
Queue Length 95th (ft)	3	0	6
Control Delay (s)	4.2	0.0	9.5
Lane LOS	A		A
Approach Delay (s)	4.2	0.0	9.5
Approach LOS			A

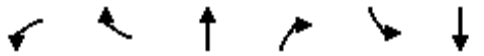
Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	24.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	43	94	59	36	30	79
Future Volume (Veh/h)	43	94	59	36	30	79
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	48	104	66	40	33	88
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	106				286	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	106				286	86
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				95	91
cM capacity (veh/h)	1485				682	973

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	152	106	121
Volume Left	48	0	33
Volume Right	0	40	88
cSH	1485	1700	871
Volume to Capacity	0.03	0.06	0.14
Queue Length 95th (ft)	3	0	12
Control Delay (s)	2.5	0.0	9.8
Lane LOS	A		A
Approach Delay (s)	2.5	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	27.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	15	1191	31	0	381
Future Volume (Veh/h)	0	15	1191	31	0	381
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	17	1323	34	0	423
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						300
pX, platoon unblocked	0.95					
vC, conflicting volume	1763	1340			1357	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1776	1340			1357	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	91			100	
cM capacity (veh/h)	87	187			507	

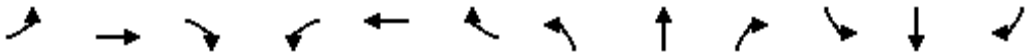
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	17	1357	423
Volume Left	0	0	0
Volume Right	17	34	0
cSH	187	1700	1700
Volume to Capacity	0.09	0.80	0.25
Queue Length 95th (ft)	7	0	0
Control Delay (s)	26.2	0.0	0.0
Lane LOS	D		
Approach Delay (s)	26.2	0.0	0.0
Approach LOS	D		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	42	622	33	0	931
Future Volume (Veh/h)	0	42	622	33	0	931
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	47	691	37	0	1034
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						300
pX, platoon unblocked	0.59					
vC, conflicting volume	1744	710			728	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1911	710			728	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	89			100	
cM capacity (veh/h)	44	434			876	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	47	728	1034
Volume Left	0	0	0
Volume Right	47	37	0
cSH	434	1700	1700
Volume to Capacity	0.11	0.43	0.61
Queue Length 95th (ft)	9	0	0
Control Delay (s)	14.3	0.0	0.0
Lane LOS	B		
Approach Delay (s)	14.3	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		



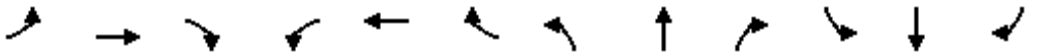
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	63	0	81	125	1007	63	69	318	218
Future Volume (vph)	0	0	0	63	0	81	125	1007	63	69	318	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	300		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.991			0.939	
Flt Protected					0.950		0.950			0.950		
Satd. Flow (prot)	0	0	0	0	1770	1583	1770	1846	0	1770	1749	0
Flt Permitted					0.950		0.402			0.094		
Satd. Flow (perm)	0	0	0	0	1770	1583	749	1846	0	175	1749	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						90		12			130	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		189			554			300			623	
Travel Time (s)		4.3			12.6			5.8			12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	70	0	90	139	1119	70	77	353	242
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	70	90	139	1189	0	77	595	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8		8	2			6		
Detector Phase				8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	14.0	14.0		14.0	14.0	
Minimum Split (s)				14.0	14.0	14.0	21.0	21.0		21.0	21.0	
Total Split (s)				14.0	14.0	14.0	46.0	46.0		46.0	46.0	
Total Split (%)				23.3%	23.3%	23.3%	76.7%	76.7%		76.7%	76.7%	
Maximum Green (s)				7.0	7.0	7.0	39.0	39.0		39.0	39.0	
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)					5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode				None	None	None	C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)					9.0	9.0	44.8	44.8		44.8	44.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio					0.15	0.15	0.75	0.75		0.75	0.75	
v/c Ratio					0.26	0.29	0.25	0.86		0.59	0.44	
Control Delay					25.5	9.0	5.0	17.4		29.1	3.6	
Queue Delay					0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay					25.5	9.0	5.0	17.4		29.1	3.6	
LOS					C	A	A	B		C	A	
Approach Delay					16.2			16.1			6.5	
Approach LOS					B			B			A	
Queue Length 50th (ft)					23	0	16	299		7	28	
Queue Length 95th (ft)					55	33	36	#652		m#64	95	
Internal Link Dist (ft)		109			474			220			543	
Turn Bay Length (ft)							300			100		
Base Capacity (vph)					265	313	559	1381		130	1339	
Starvation Cap Reductn					0	0	0	0		0	0	
Spillback Cap Reductn					0	0	0	0		0	0	
Storage Cap Reductn					0	0	0	0		0	0	
Reduced v/c Ratio					0.26	0.29	0.25	0.86		0.59	0.44	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 13.2 Intersection LOS: B
Intersection Capacity Utilization 86.8% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: S. Point Road & Site Drive 4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	114	0	146	0	572	92	80	817	0
Future Volume (vph)	0	0	0	114	0	146	0	572	92	80	817	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	300		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	100			100			100			100		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850		0.979				
Flt Protected					0.950					0.950		
Satd. Flow (prot)	0	0	0	0	1770	1583	1863	1824	0	1770	1863	0
Flt Permitted					0.950					0.308		
Satd. Flow (perm)	0	0	0	0	1770	1583	1863	1824	0	574	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						162		30				
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		189			554			300			623	
Travel Time (s)		4.3			12.6			5.8			12.1	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	127	0	162	0	636	102	89	908	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	127	162	0	738	0	89	908	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type				Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8		8	2			6		
Detector Phase				8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)				7.0	7.0	7.0	14.0	14.0		14.0	14.0	
Minimum Split (s)				14.0	14.0	14.0	21.0	21.0		21.0	21.0	
Total Split (s)				14.0	14.0	14.0	46.0	46.0		46.0	46.0	
Total Split (%)				23.3%	23.3%	23.3%	76.7%	76.7%		76.7%	76.7%	
Maximum Green (s)				7.0	7.0	7.0	39.0	39.0		39.0	39.0	
Yellow Time (s)				5.0	5.0	5.0	5.0	5.0		5.0	5.0	
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)					-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)					5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode				None	None	None	C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)					9.0	9.0		41.0		41.0	41.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Actuated g/C Ratio					0.15	0.15		0.68		0.68	0.68	
v/c Ratio					0.48	0.43		0.59		0.23	0.71	
Control Delay					30.1	8.7		7.2		5.3	9.9	
Queue Delay					0.0	0.0		0.0		0.0	0.0	
Total Delay					30.1	8.7		7.2		5.3	9.9	
LOS					C	A		A		A	A	
Approach Delay					18.1			7.2			9.5	
Approach LOS					B			A			A	
Queue Length 50th (ft)					43	0		105		10	161	
Queue Length 95th (ft)					89	44		181		25	280	
Internal Link Dist (ft)		109			474			220			543	
Turn Bay Length (ft)										100		
Base Capacity (vph)					265	375		1255		392	1273	
Starvation Cap Reductn					0	0		0		0	5	
Spillback Cap Reductn					0	0		0		0	0	
Storage Cap Reductn					0	0		0		0	0	
Reduced v/c Ratio					0.48	0.43		0.59		0.23	0.72	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 73.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 6: S. Point Road & Site Drive 4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	723	41	87	293	0	40
Future Volume (Veh/h)	723	41	87	293	0	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	803	46	97	326	0	44
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	375					
pX, platoon unblocked			0.89		0.89	0.89
vC, conflicting volume			849		1323	803
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			769		1301	717
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		100	88
cM capacity (veh/h)			753		138	382

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	803	46	97	326	44
Volume Left	0	0	97	0	0
Volume Right	0	46	0	0	44
cSH	1700	1700	753	1700	382
Volume to Capacity	0.47	0.03	0.13	0.19	0.12
Queue Length 95th (ft)	0	0	11	0	10
Control Delay (s)	0.0	0.0	10.5	0.0	15.6
Lane LOS			B		C
Approach Delay (s)	0.0		2.4		15.6
Approach LOS					C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	280	55	109	525	0	77
Future Volume (Veh/h)	280	55	109	525	0	77
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	311	61	121	583	0	86
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	375					
pX, platoon unblocked						
vC, conflicting volume			372		1136	311
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			372		1136	311
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		100	88
cM capacity (veh/h)			1186		201	729

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	311	61	121	583	86
Volume Left	0	0	121	0	0
Volume Right	0	61	0	0	86
cSH	1700	1700	1186	1700	729
Volume to Capacity	0.18	0.04	0.10	0.34	0.12
Queue Length 95th (ft)	0	0	8	0	10
Control Delay (s)	0.0	0.0	8.4	0.0	10.6
Lane LOS			A		B
Approach Delay (s)	0.0		1.4		10.6
Approach LOS					B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	758	4	34	354	26	128
Future Volume (Veh/h)	758	4	34	354	26	128
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	842	4	38	393	29	142
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	705					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			846		1313	844
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			788		1297	786
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		81	61
cM capacity (veh/h)			764		156	360

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2
Volume Total	846	38	393	29	142
Volume Left	0	38	0	29	0
Volume Right	4	0	0	0	142
cSH	1700	764	1700	156	360
Volume to Capacity	0.50	0.05	0.23	0.19	0.39
Queue Length 95th (ft)	0	4	0	16	46
Control Delay (s)	0.0	10.0	0.0	33.2	21.3
Lane LOS		A		D	C
Approach Delay (s)	0.0	0.9		23.4	
Approach LOS				C	

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	346	11	91	617	17	66
Future Volume (Veh/h)	346	11	91	617	17	66
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	384	12	101	686	19	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	705					
pX, platoon unblocked						
vC, conflicting volume			396		1278	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			396		1278	390
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		89	89
cM capacity (veh/h)			1163		168	658

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2
Volume Total	396	101	686	19	73
Volume Left	0	101	0	19	0
Volume Right	12	0	0	0	73
cSH	1700	1163	1700	168	658
Volume to Capacity	0.23	0.09	0.40	0.11	0.11
Queue Length 95th (ft)	0	7	0	9	9
Control Delay (s)	0.0	8.4	0.0	29.2	11.1
Lane LOS		A		D	B
Approach Delay (s)	0.0	1.1		14.9	
Approach LOS				B	

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	886	0	1	387	1	4
Future Volume (Veh/h)	886	0	1	387	1	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	984	0	1	430	1	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1185					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			984		1416	984
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			971		1414	971
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	99
cM capacity (veh/h)			693		148	299

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	984	431	5
Volume Left	0	1	1
Volume Right	0	0	4
cSH	1700	693	248
Volume to Capacity	0.58	0.00	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	19.8
Lane LOS		A	C
Approach Delay (s)	0.0	0.0	19.8
Approach LOS			C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	411	1	3	708	0	1
Future Volume (Veh/h)	411	1	3	708	0	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	457	1	3	787	0	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	1185					
pX, platoon unblocked						
vC, conflicting volume			458		1250	458
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			458		1250	458
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1103		190	603

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	458	790	1
Volume Left	0	3	0
Volume Right	1	0	1
cSH	1700	1103	603
Volume to Capacity	0.27	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.1	11.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	11.0
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX F

SIMTRAFFIC QUEUE REPORTS

Intersection: 1: S. Point Road & Nixon Road/RL Stowe Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	254	227	169	114	92	189	188	27	179
Average Queue (ft)	101	98	87	47	35	107	94	3	93
95th Queue (ft)	193	173	142	96	73	163	155	18	147
Link Distance (ft)		1063		1384		1059			846
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200		275		800		125	75	
Storage Blk Time (%)	2	1				4	3		8
Queuing Penalty (veh)	4	2				22	14		0

Intersection: 2: S. Point Road & McKee Farm Lane/Stowe Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	L
Maximum Queue (ft)	51	307	72	52
Average Queue (ft)	20	132	2	24
95th Queue (ft)	45	259	24	57
Link Distance (ft)	596	407	405	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 43

Intersection: 1: S. Point Road & Nixon Road/RL Stowe Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	220	241	284	98	70	158	210	26	218
Average Queue (ft)	123	103	128	55	29	109	104	6	104
95th Queue (ft)	203	175	218	87	62	148	171	23	184
Link Distance (ft)		1063		1384		1059			846
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200		275		800		125	75	
Storage Blk Time (%)	3		1			3	4		12
Queuing Penalty (veh)	7		1			17	25		1

Intersection: 2: S. Point Road & McKee Farm Lane/Stowe Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	L
Maximum Queue (ft)	92	308	30	95
Average Queue (ft)	30	128	2	26
95th Queue (ft)	73	272	13	61
Link Distance (ft)	596	407	405	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				100
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Network Summary

Network wide Queuing Penalty: 51

Intersection: 1: S. Point Road & Nixon Road/RL Stowe Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	245	184	182	119	88	260	200	85	197
Average Queue (ft)	118	96	96	49	38	109	87	27	102
95th Queue (ft)	198	158	165	96	75	196	152	65	169
Link Distance (ft)		1062		301		541			846
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200		265		300		125	75	
Storage Blk Time (%)	2	0				5	2	1	12
Queuing Penalty (veh)	4	0				26	10	4	4

Intersection: 2: S. Point Road & McKee Farm Lane/Stowe Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	L
Maximum Queue (ft)	149	198	70	63
Average Queue (ft)	55	157	8	19
95th Queue (ft)	128	241	40	50
Link Distance (ft)	596	180	404	
Upstream Blk Time (%)		46		
Queuing Penalty (veh)		60		
Storage Bay Dist (ft)				100
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Intersection: 3: Stowe Road & Site Drive 1

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (ft)	59	35
Average Queue (ft)	7	17
95th Queue (ft)	80	42
Link Distance (ft)	338	444
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Stowe Road & Site Drive 2

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	42	313	196
Average Queue (ft)	5	105	88
95th Queue (ft)	25	356	231
Link Distance (ft)	180	515	241
Upstream Blk Time (%)		2	15
Queuing Penalty (veh)		3	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: S. Point Road & Site Drive 3

Movement	WB	NB
Directions Served	R	TR
Maximum Queue (ft)	63	146
Average Queue (ft)	15	21
95th Queue (ft)	47	86
Link Distance (ft)	200	148
Upstream Blk Time (%)		0
Queuing Penalty (veh)		1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: S. Point Road & Site Drive 4

Movement	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	TR	L	TR
Maximum Queue (ft)	85	88	214	249	112	187
Average Queue (ft)	39	38	45	177	38	95
95th Queue (ft)	76	72	118	269	80	170
Link Distance (ft)	519	519		242		541
Upstream Blk Time (%)			0	1		
Queuing Penalty (veh)			0	10		
Storage Bay Dist (ft)			300		100	
Storage Blk Time (%)			0	1	1	4
Queuing Penalty (veh)			0	1	5	3

Intersection: 7: Site Drive 5 & RL Stowe Road

Movement	EB	EB	WB	NB
Directions Served	T	R	L	R
Maximum Queue (ft)	4	4	80	47
Average Queue (ft)	0	0	29	16
95th Queue (ft)	3	3	58	35
Link Distance (ft)	301		268	220
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		225		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Site Drive 6 & RL Stowe Road

Movement	WB	NB	NB
Directions Served	L	L	R
Maximum Queue (ft)	46	47	108
Average Queue (ft)	14	16	47
95th Queue (ft)	38	41	83
Link Distance (ft)		441	441
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	350		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Site Drive 7 & RL Stowe Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	26	37
Average Queue (ft)	1	4
95th Queue (ft)	14	23
Link Distance (ft)	329	158
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 131

Intersection: 1: S. Point Road & Nixon Road/RL Stowe Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	88	72	276	92	49	137	68	175	366
Average Queue (ft)	26	36	180	38	19	78	37	11	153
95th Queue (ft)	56	69	273	73	42	127	65	64	283
Link Distance (ft)		1063		1384		1059			846
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200		275		800		125	75	
Storage Blk Time (%)			0			0			27
Queuing Penalty (veh)			0			1			2

Intersection: 2: S. Point Road & McKee Farm Lane/Stowe Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	L
Maximum Queue (ft)	50	66	76	71
Average Queue (ft)	19	33	3	33
95th Queue (ft)	46	61	26	60
Link Distance (ft)	596	407	405	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				100
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 4

Intersection: 1: S. Point Road & Nixon Road/RL Stowe Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	70	114	400	553	71	152	90	174	543
Average Queue (ft)	32	39	255	81	21	90	43	20	280
95th Queue (ft)	61	79	418	299	53	142	76	91	515
Link Distance (ft)		1063		1384		1059			846
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	200		275		800		125	75	
Storage Blk Time (%)			17			2			49
Queuing Penalty (veh)			20			5			4

Intersection: 2: S. Point Road & McKee Farm Lane/Stowe Road

Movement	EB	WB	SB
Directions Served	LTR	LTR	L
Maximum Queue (ft)	70	208	74
Average Queue (ft)	17	41	36
95th Queue (ft)	46	105	58
Link Distance (ft)	596	407	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			100
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 30

Intersection: 1: S. Point Road & Nixon Road/RL Stowe Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	TR
Maximum Queue (ft)	91	110	265	213	94	197	75	174	384
Average Queue (ft)	36	45	158	58	36	96	32	48	185
95th Queue (ft)	76	87	241	148	76	170	59	135	339
Link Distance (ft)		1062		301		541			846
Upstream Blk Time (%)			0	0					
Queuing Penalty (veh)			0	2					
Storage Bay Dist (ft)	200		265		300		125	75	
Storage Blk Time (%)			1	0		3		1	33
Queuing Penalty (veh)			2	1		7		4	16

Intersection: 2: S. Point Road & McKee Farm Lane/Stowe Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	L
Maximum Queue (ft)	68	179	54	70
Average Queue (ft)	26	65	3	28
95th Queue (ft)	60	137	25	57
Link Distance (ft)	596	180	404	
Upstream Blk Time (%)		1		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)				100
Storage Blk Time (%)				0
Queuing Penalty (veh)				0

Intersection: 3: Stowe Road & Site Drive 1

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	5	55
Average Queue (ft)	0	31
95th Queue (ft)	6	50
Link Distance (ft)	515	444
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Stowe Road & Site Drive 2

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	42	69
Average Queue (ft)	5	35
95th Queue (ft)	24	58
Link Distance (ft)	180	241
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: S. Point Road & Site Drive 3

Movement	WB
Directions Served	R
Maximum Queue (ft)	61
Average Queue (ft)	23
95th Queue (ft)	50
Link Distance (ft)	200
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: S. Point Road & Site Drive 4

Movement	WB	WB	NB	SB	SB
Directions Served	LT	R	TR	L	TR
Maximum Queue (ft)	121	95	186	107	194
Average Queue (ft)	60	48	104	37	98
95th Queue (ft)	108	80	168	84	169
Link Distance (ft)	519	519	242		541
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)				100	
Storage Blk Time (%)			0	0	4
Queuing Penalty (veh)			0	2	3

Intersection: 7: Site Drive 5 & RL Stowe Road

Movement	EB	EB	WB	WB	NB
Directions Served	T	R	L	T	R
Maximum Queue (ft)	3	7	48	31	52
Average Queue (ft)	0	0	20	2	21
95th Queue (ft)	3	4	45	28	39
Link Distance (ft)	301		268	268	220
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		225			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 8: Site Drive 6 & RL Stowe Road

Movement	WB	NB	NB
Directions Served	L	L	R
Maximum Queue (ft)	50	36	71
Average Queue (ft)	20	12	31
95th Queue (ft)	46	35	55
Link Distance (ft)		441	441
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	350		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Site Drive 7 & RL Stowe Road

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	49	20
Average Queue (ft)	2	1
95th Queue (ft)	22	9
Link Distance (ft)	329	158
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 38