

# Proposed Retail Development

1263 Hopmeadow Street (Route 10)  
Simsbury, Connecticut

PREPARED FOR

Gregg R. Nanni  
General Manager  
Prospect Enterprises, LLC  
231 Farmington Avenue  
Farmington, CT 06032

PREPARED BY

---



100 Great Meadow Road  
Suite 200  
Wethersfield, CT 06109  
860.807.4300

May 2023

# Table of Contents

<b>INTRODUCTION .....</b>	<b>1</b>
PROJECT DESCRIPTION AND BACKGROUND .....	1
STUDY METHODOLOGY .....	3
STUDY AREA.....	3
<b>EXISTING CONDITIONS ASSESSMENT .....</b>	<b>4</b>
ROADWAY NETWORK.....	4
ROADWAYS .....	4
INTERSECTIONS.....	5
TRAFFIC VOLUMES .....	6
SAFETY ASSESSMENT.....	8
<b>FUTURE CONDITIONS.....</b>	<b>10</b>
NO-BUILD TRAFFIC VOLUMES .....	10
BUILD CONDITION .....	13
<b>TRAFFIC OPERATIONS ANALYSIS.....</b>	<b>18</b>
LEVEL OF SERVICE AND DELAY CRITERIA .....	18
SIGNALIZED INTERSECTION CAPACITY ANALYSIS .....	20
UNSIGNALIZED INTERSECTION CAPACITY ANALYSIS.....	23
<b>CONCLUSIONS .....</b>	<b>25</b>

# List of Tables

Table No.	Description	Page
Table 1	Crash Analysis Summary .....	9
Table 2	Site Generated Traffic Summary .....	14
Table 3	Trip Distribution Summary .....	15
Table 4	Level of Service Criteria .....	19
Table 5	Signalized Intersection Capacity Analysis Summary .....	21
Table 5 cont.	Signalized Intersection Capacity Analysis Summary .....	22
Table 6	Unsignalized Intersection Capacity Analysis Summary .....	24

# List of Figures

Figure No.	Description	Page
Figure 1	Site Location Map.....	2
Figure 2	2022 Existing Conditions Peak Hour Traffic Volumes .....	7
Figure 3	2023 No-Build Conditions Peak Hour Traffic Volumes .....	12
Figure 4	Site-Generated Traffic Volumes.....	16
Figure 5	2023 Build Conditions Peak Hour Traffic Volumes .....	17



# 1

## Introduction

Vanasse Hangen Brustlin, Inc. (VHB) has been retained by Prospect Enterprises, LLC to conduct a Transportation Impact Assessment (TIA) for a proposed development to be located at 1263 Hopmeadow Street (Route 202) in Simsbury, Connecticut. VHB has evaluated existing traffic operations in the area, assessed the impacts of this development, and evaluated if transportation improvements are necessary to accommodate this development and potential traffic growth in this area.

### **Project Description and Background**

The Project site is currently a vacant lot located at 1263 Hopmeadow Street (Route 202) in Simsbury, Connecticut. The Project involves the construction of a 2,400 square foot coffee shop with drive through and patio, a 2,325 square foot fast-food restaurant with online order pick-up window and patio, a 11,600 square foot retail building, and a drive-up ATM. A new full-access entrance/right-out only driveway onto Route 202 is proposed between the coffee shop and fast-food restaurant pad sites. A new internal connection to the adjacent Big Y shopping plaza is also proposed, which will provide access to the project site via the existing signalized driveway to the Big Y shopping plaza.

A site location map is provided in Figure 1. This transportation study analyzes the traffic impacts that can be expected by the proposed development.



Study Location Map  
Commercial Development

Simsbury, CT

**Figure 1**



## **Study Methodology**

This traffic study was conducted in three stages. The first stage involved an assessment of existing traffic conditions in the study area and included an inventory of roadway geometrics and observations of traffic flow.

In the second stage of the study, future traffic conditions both with and without the project were estimated and analyzed. This study assessed specific travel demand forecasts for the project, and the estimated background growth unrelated to this project.

The third and final stage involved conducting traffic analyses to identify both existing and projected future roadway capacity and demand. From this information and other factors, the likely traffic impacts associated with the project can be determined. This analysis was used as the basis for determining if any resulting roadway improvements or measures would be required in support of the site-generated traffic.

## **Study Area**

The study area includes those locations that are expected to be affected by this project. The roads and intersections included in the study area were selected based on VHB's knowledge of the traffic patterns in the area and from discussion with the Town of Simsbury. The specific study area encompasses the following intersections:

- Hopmeadow Street (Route 202) at Big Y Plaza (signalized);
- Hopmeadow Street (Route 202) at Ely Lane (unsignalized); and,
- Hopmeadow Street (Route 202) at Hoskins Road (signalized)

An inventory of the existing conditions for each of the study intersection is provided in the following chapter.



# 2

## Existing Conditions Assessment

Effective evaluation of the transportation impacts associated with the proposed development project requires a thorough understanding of the existing transportation system surrounding the project study area. A complete inventory of the existing transportation system was conducted and is presented in this section. The analysis of the existing transportation conditions is based on the existing network, roadway and intersection geometry, traffic control, existing traffic volumes, traffic safety, and pedestrian facilities.

### Roadway Network

The principal roadways and intersections in the study area are described below.

#### Roadways

The description of the roadways includes the physical characteristics, geometric conditions, adjacent land uses, and current operating conditions.

#### **Hopmeadow Street (Route 202)**

Hopmeadow Street (Route 202) in the vicinity of the project site is an urban principal arterial roadway under state jurisdiction that runs through Simsbury in a primarily north/south direction. Hopmeadow Street to the north connects to the Town of Granby, to the south Hopmeadow Street (Route 202) connects to Downtown Simsbury. This roadway provides two travel lanes in the vicinity of the project area, one lane in each direction, with accessory lanes





provided at key intersections. The primary land use along this portion of Hopmeadow Street (Route 202) is commercial land use. Hopmeadow Street (Route 202) provides sidewalk accommodations intermittently along the west side of the roadway.

### **Ely Lane**

Ely Lane is an urban collector roadway in the vicinity of the project site under local jurisdiction and runs through Simsbury in an east/west direction. This roadway is short and measures approximately 730 feet in length. To the east it connects Hopmeadow Street (Route 202) with Hoskins Road to the west. Ely Lane provides two travel lanes, one in each direction. Sidewalks are not available along this roadway. The primary land use along Ely Lane is commercial with some residential.

### **Hoskins Road**

Hoskins Road is an urban collector roadway at its junction with Ely Lane. At the intersection with Route 202, Hoskins Road is a local roadway. To the east it connects Hopmeadow Street (Route 202) with residential communities to the west. Hoskins Road provides two travel lanes, one in each direction, with accessory lanes at key intersections. Sidewalks are not present on this roadway. The primary land use along Hoskins Road is residential land use.

## **Intersections**

The description of the intersections includes the physical characteristics, geometric conditions, and current operating conditions.

### **Hopmeadow Street (Route 202) at Big Y Plaza (signalized)**

The Big Y Plaza Driveway intersects Hopmeadow Street (Route 202) from the west to form a three-legged signalized intersection. The northbound approach consists of one exclusive left-turn lane and one through lane. In the southbound direction Hopmeadow Street (Route 202) consists of a single multi-purpose lane. The eastbound driveway approach provides an exclusive left-turn lane and an exclusive right-turn lane. Crosswalks with pedestrian signal heads are present at this intersection across the western and northern legs.

### **Hopmeadow Street (Route 202) at Ely Lane (unsignalized)**

Ely Lane intersects Hopmeadow Street (Route 202) from the west to form a three-legged unsignalized intersection. All approaches to the intersection consist of one multi-purpose lane. The eastbound approach to the intersection operates under stop control, while the northbound/southbound direction operate freely. Crosswalks and pedestrian accommodations are not provided at this intersection.

### **Hopmeadow Street (Route 202) at Hoskins Road (signalized)**

Hoskins Road intersects Hopmeadow Street (Route 202) from the west to form a three-legged signalized intersection. The eastbound and northbound approaches to the intersection contain



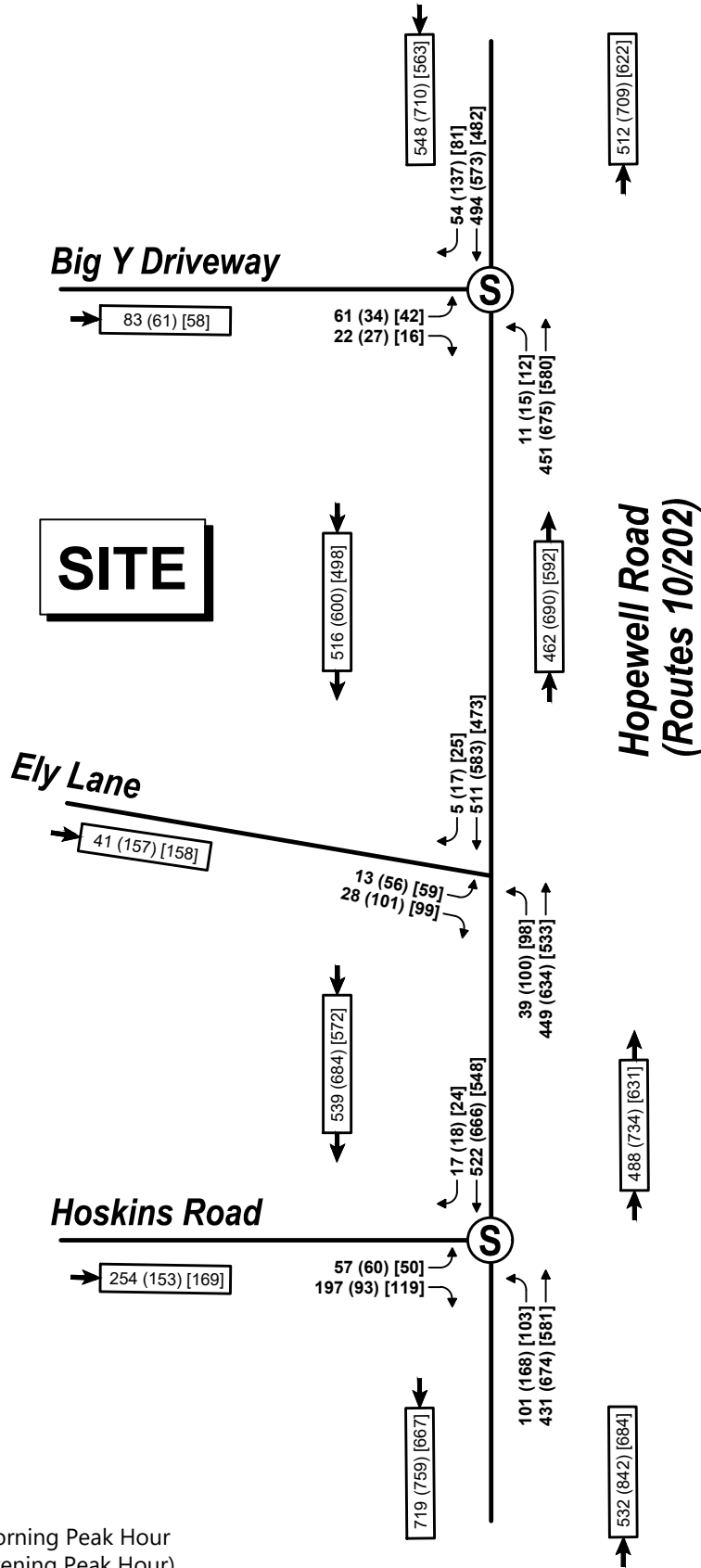
an exclusive left-turn lane, and a right-turn lane or through lane respectively. The southbound approach contains one multi-purpose lane. Crosswalks and pedestrian accommodations are present across the southbound approach.

## **Traffic Volumes**

VHB obtained TMC counts from the Connecticut Department of Transportation (CT DOT) for the study area intersection of Route 202 at Hoskins Road. This data was taken from the state MioVision system and balanced between intersections to account for any discrepancies in data. Manual turning movement and classification (TMC) counts were collected by VHB in July 2022 at the study area intersections of Route 202 at Big Y Plaza and Route 202 at Ely Lane. The counts were collected from 7:00 to 9:00 AM during a typical weekday morning, 4:00 to 6:00 PM during a typical weekday evening, and 11 AM to 1 PM during a typical Saturday midday peak hour. The July 2022 counts were balanced with the DOT provided December 2021 counts to account for seasonality in the collected data.

Overall, the peak hours of the network occurred from 8:00 to 9:00 AM during the weekday morning peak hour, from 4:00 PM to 5:00 PM during the weekday evening peak hour, and from approximately 11:45 AM to 12:45 PM during the Saturday midday peak hour.

The 2022 Existing conditions weekday morning, evening, and Saturday midday peak hour traffic volume networks are summarized in Figure 2.



# Weekday Morning Peak Hour  
 # (Weekday Evening Peak Hour)  
 # [Saturday Midday Peak Hour]



Not to Scale



2022 Existing Conditions  
 Peak Hour Traffic Volumes  
 Mixed-Use Development  
 Simsbury, CT

Figure 2



## Safety Assessment

To identify potential vehicle crash trends and/or roadway deficiencies near the project site, VHB conducted a review of the UConn Crash Database to document the number of geolocated vehicular collisions that have taken place over the most recent three years (2019-2021).

The review revealed no crashes reported at the intersection of Hopmeadow Street at Big Y Plaza Driveway, three reported crashes occurred at the intersection of Hopmeadow Street at Ely Lane, and five crashes were reported at the intersection of Hoskins Road at Hopmeadow Street. It should be noted that the results of the Crash Database review were dependent on the accuracy of crash reporting and geolocating.

Table presents the number of crashes and crash characteristics for the study intersections. No crashes resulted in a fatality, and no crashes included a non-motorist within the three years at the study intersections.

Approximately 75% (6 of 8) of all the crashes in the study area resulted in property damage only, with 25% of crashes resulting in injuries. Angle crashes occurred the most frequently at the study intersections with rear-end collisions following closely. The crashes occurred at varying times and under primarily dry pavement and daylight conditions.



**Table 1 Crash Analysis Summary**

	Route 10/202 at Big Y Driveway	Route 10/202 at Ely Lane	Route 10/202 at Hoskins Road
<b>Year</b>			
2019	0	2	3
2020	0	1	2
<u>2021</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	3	5
<b>Collision Type</b>			
Angle	0	2	2
Head-on	0	0	0
Rear-end	0	0	2
Sideswipe, same direction	0	1	0
<u>Unknown</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total	0	3	5
<b>Severity</b>			
Fatal Injury	0	0	0
Non-Fatal Injury	0	1	1
Property Damage Only	0	2	4
<u>Not Reported/Unknown</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	3	5
<b>Time of day</b>			
Weekday, 7:00 AM - 9:00 AM	0	2	1
Weekday, 4:00 – 6:00 PM	0	0	1
Saturday, 11:00 AM – 2:00 PM	0	0	0
Weekday, other time	0	1	3
<u>Weekend, other time</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	3	5
<b>Season</b>			
Dec – Feb	0	1	1
Mar – May	0	0	3
June – Aug	0	1	0
<u>Sept – Nov</u>	<u>0</u>	<u>1</u>	<u>1</u>
Total	0	3	5
<b>Pavement Conditions</b>			
Dry	0	3	4
Wet	0	0	0
Snow	0	0	1
<u>Ice</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	3	5
<b>Light Conditions</b>			
Daylight	0	3	4
Dawn/Dusk	0	0	0
Dark, Not Lighted	0	0	1
<u>Dark, Lighted</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	0	3	5
<b>Non-Motorist (Bike, Pedestrian)</b>	<b>0</b>	<b>0</b>	<b>0</b>

Source: UConn Connecticut Crash Data Repository 2019-2021.



# 3

## Future Conditions

To determine the impacts of the future site-generated traffic volumes on the roadway network when the site is fully operational, traffic conditions were projected to the year 2023. Future traffic projections include regional background traffic growth and planned roadway improvements. Consideration of these factors resulted in the development of the 2023 No-Build traffic volumes. Anticipated Future Site-generated traffic volumes were then added to the 2023 No-Build traffic flow networks to reflect the 2023 Build scenario with the proposed development.

### No-Build Traffic Volumes

Traffic growth on area roadways is a function of the expected land development, economic activity, and changes in demographics. A frequently used procedure is to estimate traffic that could be generated by planned new major developments, potentially affecting the project study area roadways. An alternative procedure is to estimate an overall area annual percentage increase and apply that increase to study area traffic volumes. For the purpose of this assessment, a conservative overall annual percentage increase was utilized and is detailed further below.



### **Background Projects**

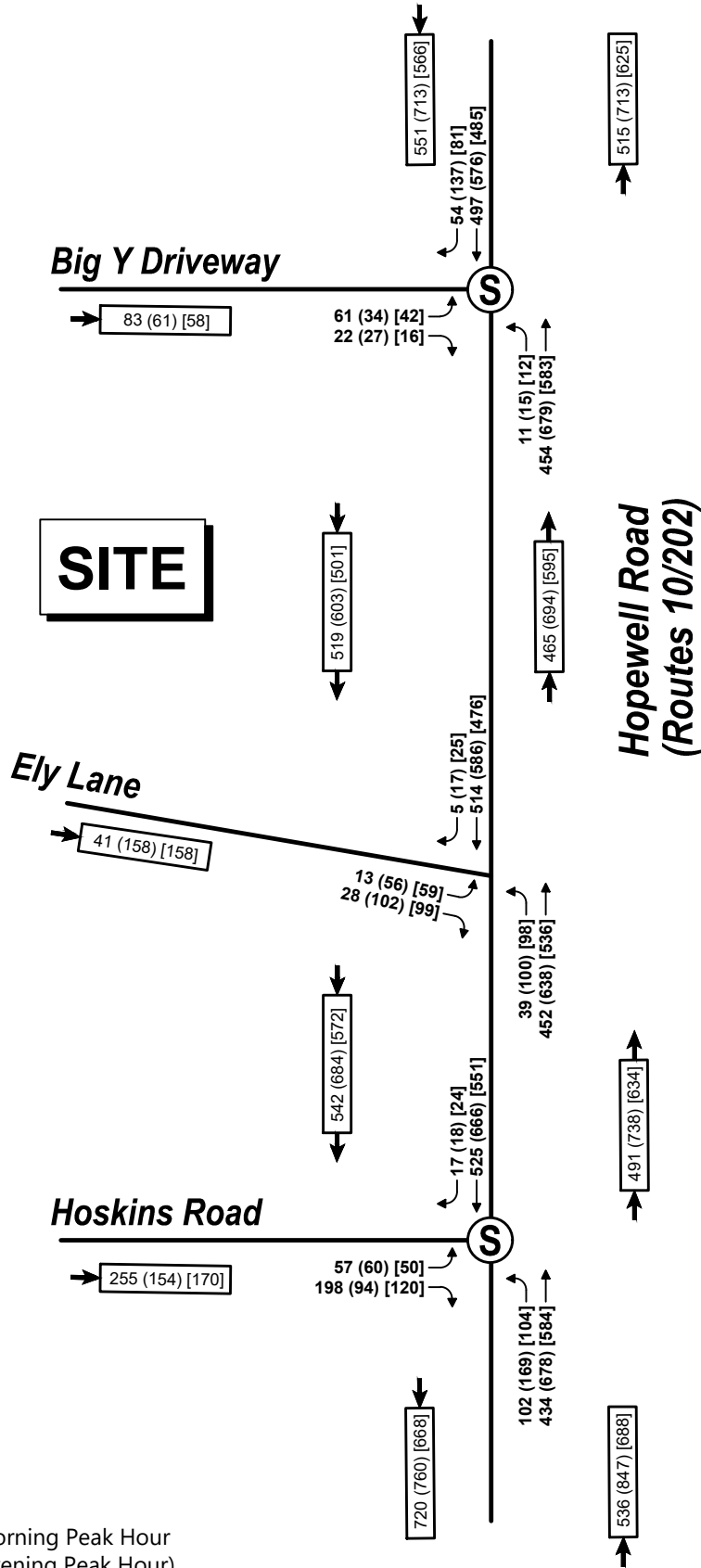
The CTDOT indicated that there were no significant recent developments in the area that would impact the traffic volume network. Within the last three years, a Big Y supermarket was constructed, however this has been accounted for in the traffic count data.

### **Historic Growth**

Per discussion with the CT DOT, an appropriate growth rate for this area is approximately 0.6-percent per year.

### **2023 No-Build Traffic Volumes**

The 0.6-percent per year annual growth rate was added to the 2022 Existing traffic volumes, to develop the projected 2023 No-Build (without the proposed project) weekday morning, weekday evening, and Saturday midday peak hour traffic volumes, which can be seen in Figure 3.



# Weekday Morning Peak Hour  
 # (Weekday Evening Peak Hour)  
 # [Saturday Middy Peak Hour]



Not to Scale



2023 No-Build Conditions  
 Peak Hour Traffic Volumes  
 Mixed-Use Development  
 Simsbury, CT

Figure 3





## Build Condition

Build traffic volumes for study area roadways were determined by estimating site generated traffic volumes and distributing these volumes over the study area roadways.

### Site Generated Traffic

The Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition<sup>1</sup> was used to estimate vehicle trips to be generated by the proposed development. The following ITE land use codes (LUC) were used to account for the proposed future conditions:

- LUC 822 "Strip Retail Plaza (<40k)" was used to estimate the vehicle trips with the 11,600 SF retail building
- LUC 934 "Fast-Food Restaurant with Drive-Through Window" was used to estimate the vehicle trips with the proposed 2,325 SF fast-food restaurant
- LUC 937 "Coffee/Donut Shop with Drive-Through Window" was used to estimate the vehicle trips with the proposed 2,400 SF coffee shop

In addition, a drive-up ATM is proposed within the parking lot. No data is available in the Trip Generation Manual for a drive-up ATM. Therefore, VHB conservatively assumed that the ATM would generate 20 standalone trips per hour (10 enter, 10 exit) during the peak periods.

It should be noted that the layout of the site and the connection to the adjacent Big Y Plaza will facilitate multi-purpose trips on the site. For example, customers to the Big Y plaza could visit one of the proposed restaurants or the ATM without traveling out onto the external road network. As such, an internal capture rate was applied to the trip generation rates to account for internal multi-purpose trips. As recommended by the CTDOT Bureau of Policy and Planning, a 10% internal capture rate was utilized to account for internal multi-purpose trips.

Not all the projected site traffic represents new vehicles on the adjacent roadway network. A portion of the trips generated by retail establishments are classified as "pass-by" traffic. Pass-by traffic consists of vehicles already on the roadway that are attracted to a site when passing through the area. The primary destination of this traffic is elsewhere, and the primary trip will be resumed following a stop at the proposed development. In accordance with CTDOT guidelines, a 50 percent pass-by rate was utilized for the coffee shop and a 20 percent pass-by rate was utilized for the retail and fast-food uses.

The resulting site traffic generation is presented on Table 2. As indicated in this table, the project is anticipated to generate 206 net new trips (108 entering, 98 exiting) during the morning peak hour, 168 trips (85 entering, 83 exiting) during the evening peak hour, and 256

<sup>1</sup> Trip Generation; Eleventh Edition; Institute of Transportation Engineers; Washington, D.C.; 2021.



trips (130 entering, 126 exiting) during the Saturday midday peak hour. The ITE Trip Generation data are included in the Appendix.

**Table 2 Site Generated Traffic Summary**

Time Period	Retail (11,600 SF) <sup>1</sup>	Fast-Food with Drive-Through (2,325 SF) <sup>2</sup>	Coffee Shop with Drive-Through (2,400 SF) <sup>3</sup>	Drive-up ATM	Internal Capture Trips <sup>5</sup>	Total External Trips	Pass-By Trips <sup>4</sup>	Net New Trips
<i>Weekday AM Peak Hour<sup>b</sup></i>								
Enter	16	53	105	10	-18	166	-58	108
Exit	<u>11</u>	<u>51</u>	<u>101</u>	<u>10</u>	<u>-17</u>	<u>156</u>	<u>-58</u>	<u>98</u>
Total	27	104	206	20	-35	322	-116	206
<i>Weekday PM Peak Hour<sup>b</sup></i>								
Enter	38	40	47	10	-14	121	-36	85
Exit	<u>38</u>	<u>37</u>	<u>47</u>	<u>10</u>	<u>-13</u>	<u>119</u>	<u>-36</u>	<u>83</u>
Total	76	77	94	20	-27	240	-72	168
<i>Saturday Midday Peak Hour<sup>b</sup></i>								
Enter	39	66	105	10	-22	198	-68	130
Exit	<u>37</u>	<u>63</u>	<u>106</u>	<u>10</u>	<u>-22</u>	<u>194</u>	<u>-68</u>	<u>126</u>
Total	76	129	211	20	-44	392	-136	256

Source: Trip Generation, 11th Edition; Institute of Transportation Engineers (ITE); Washington, D.C. (2021).

a vehicles per day

b vehicles per hour

1 Future trip generation based on LUC 822 Strip Retail Plaza (<40k), 11,600 SF

2 Future trip generation based on LUC 934 Fast-Food Restaurant with Drive-Through Window, 2,325 SF

3 Future trip generation based on LUC 937 Coffee/Donut Shop with Drive-Through Window, 2,400 SF

4 Pass-by Trips, per CTDOT 50% for coffee shop, 20% for retail, fast-food, and ATM

5 Internal Capture Rate, per CTDOT 10%

### Trip Distribution

The distribution for the site generated traffic was determined by examining the site location in relation to major routes and populations within the Town of Simsbury. Based on the site's proximity to both downtown Simsbury and downtown Granby, it was assumed that the directional distribution would be close to an even split.

Site-generated traffic was allocated across the major routes in the area based on the traffic percentages that are summarized in Table 3. The resulting net site-generated traffic volumes are depicted on Figure 4.

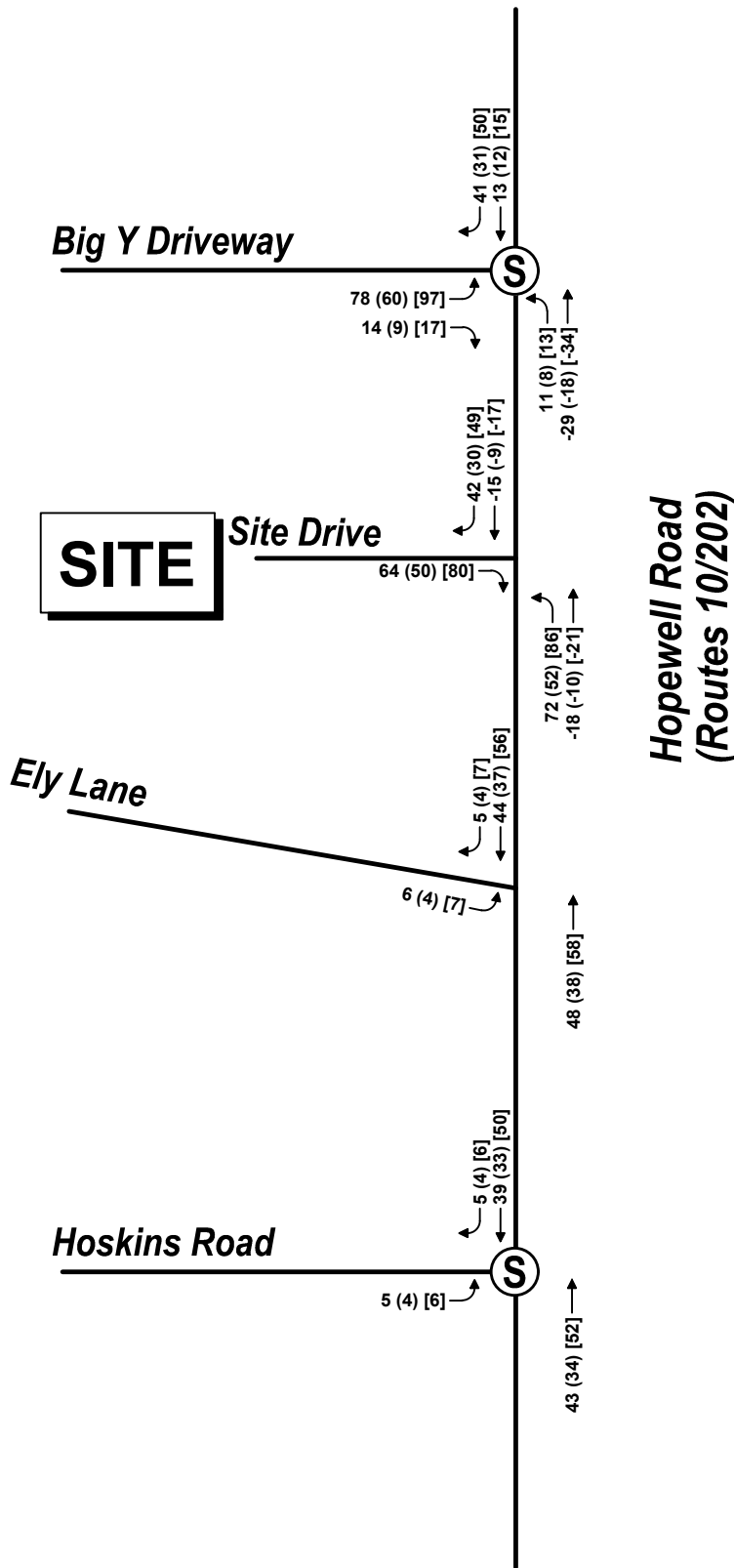


**Table 3 Trip Distribution Summary**

<b>Roadway</b>	<b>Direction [From/To]</b>	<b>Proposed Site Generated Trip Distribution To/From the Site</b>
Route 202	North	50%
Route 202	South	40%
Ely Lane/Hoskins Road	<u>West</u>	<u>10%</u>
Total		100%

**Build Conditions Traffic Volumes**

The future site-generated volumes will be assigned to the roadway network according to the distribution patterns and off-site improvements described above and combined with the 2023 No-Build traffic volumes to develop the 2023 Build peak hour networks. The 2023 Build peak hour network can be seen in Figure 5.



# Weekday Morning Peak Hour  
 # (Weekday Evening Peak Hour)  
 # [Saturday Midday Peak Hour]



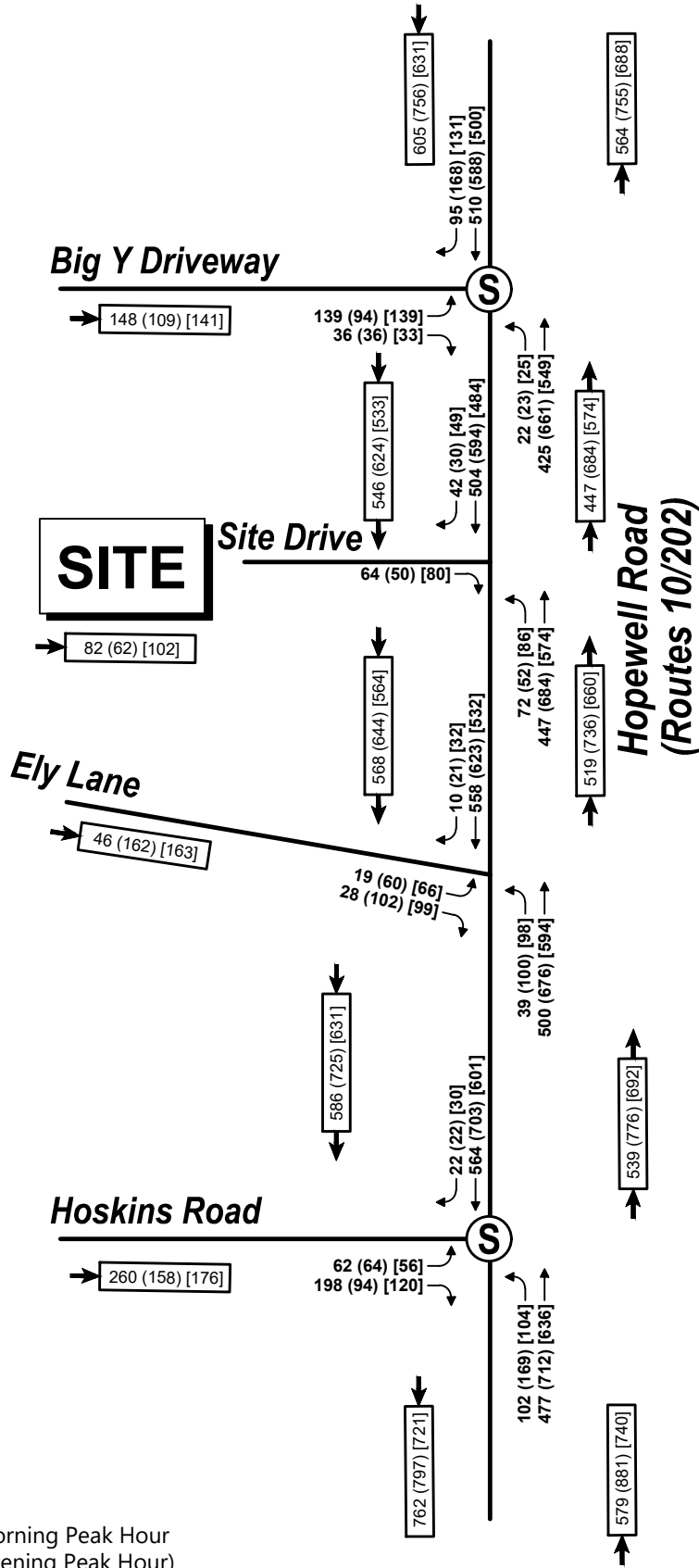
Not to Scale



Site Generated Traffic Volumes

Figure 4

Mixed-Use Development  
 Simsbury, CT



# Weekday Morning Peak Hour  
 # (Weekday Evening Peak Hour)  
 # [Saturday Midday Peak Hour]



Not to Scale



2023 Build Conditions  
 Peak Hour Traffic Volumes  
 Mixed-Use Development  
 Simsbury, CT

Figure 5

# 4

## Traffic Operations Analysis

Measuring existing traffic volumes and projecting future traffic volumes quantifies traffic flow within the study area. To assess the roadway and intersection capacity, analyses were conducted with respect to existing traffic volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed on them. The following sections describe the methodology used to evaluate the study area intersections.

### **Level of Service and Delay Criteria**

The evaluation criteria used to analyze area intersections in this traffic study are based on the 2000 Highway Capacity Manual (HCM). The HCM 2000 methodology was used instead of HCM 2010 or HCM 6<sup>th</sup> Edition due to limitations in these newer HCM methodologies that would preclude analysis of some signalized study intersections. For instance, the HCM 2010 and HCM 6<sup>th</sup> Edition methodologies do not support analysis of intersections with non-NEMA phasing, more than four approaches, or clustered intersections. The term 'Level of service' (LOS) is used to denote the different operating conditions that occur on a given roadway segment under various traffic volume loads. It is a qualitative measure that considers several factors including roadway geometry, speed, travel delay and freedom to maneuver. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level-of-service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions.



In addition to LOS, two other measures of effectiveness (MOEs) are typically used to quantify the traffic operations at intersections; volume-to-capacity ratio (v/c) and delay (expressed in seconds per vehicle). For example, an existing v/c ratio of 0.9 for an intersection indicates that the intersection is operating at 90 percent of its available capacity. A delay of 15 seconds for a particular vehicular movement or approach indicates that vehicles on the movement or approach will experience an average additional travel time of 15 seconds. It should be noted that v/c and delay could have a range of values for a given LOS letter designation. Comparison of intersection capacity results therefore requires that, in addition to the LOS, the other MOEs should also be considered.

The level-of-service designations, which are based on delay, are reported differently for signalized and unsignalized intersections. For signalized intersections, the analysis considers the operation of all traffic entering the intersection and the LOS designation is for overall conditions at the intersection. For unsignalized intersections, however, the analysis assumes that traffic on the mainline is not affected by traffic on the side streets. Thus, the LOS designation is for the critical movement exiting the side street, which is generally the left turn out of the side street or site driveway. Table 4 shows the level of service criteria for both signalized intersections and unsignalized intersections.

It should be noted that the analytical methodologies typically used for the analysis of unsignalized intersections use conservative analysis parameters, such as long critical gaps. Actual field observations indicate that drivers on minor streets generally accept shorter gaps in traffic than those used in the analysis procedures and therefore experience less delay than reported by the analysis software. The analysis methodologies also do not fully consider the beneficial grouping effects caused by nearby signalized intersections. The net effect of these analysis procedures is the over-estimation of calculated delays at unsignalized intersections in the study area. Cautious judgment should therefore be exercised when interpreting the capacity analysis results at unsignalized intersections.

**Table 4 Level of Service Criteria**

<b>Level of Service</b>	<b>Signalized Intersection</b>	<b>Unsignalized Intersection</b>
A	0 to 10 seconds	0 to 10 seconds
B	10 to 20 seconds	10 to 15 seconds
C	20 to 35 seconds	15 to 25 seconds
D	35 to 55 seconds	25 to 35 seconds
E	55 to 80 seconds	35 to 50 seconds
F	Greater than 80 seconds	Greater than 50 seconds

Source: 2000 Highway Capacity Manual Exhibits 16-2 and 17-2



## **Signalized Intersection Capacity Analysis**

Capacity analyses were conducted for the signalized study area intersections of Big Y at Hopmeadow Street (Route 202) and Hoskins Road at Hopmeadow Street (Route 202) during the 2022 Existing Conditions, the 2023 No-Build conditions (without the proposed development) and the 2023 Build conditions (with the development). A summary of this analysis is presented below in Table 5.

The signalized intersection of Hopmeadow Street (Route 202) at Big Y Driveway operates at an overall LOS B or better under existing conditions and future No-Build conditions. The additional traffic generated by the proposed development is expected to cause increases in delays of 8 to 15 seconds per vehicle during the peak traffic periods. However, the intersection is expected to operate at an overall acceptable LOS C or better condition under future Build conditions.

The signalized intersection of Hopmeadow Street (Route 202) at Hoskins Road operates at an overall LOS B or better under existing conditions and future No-Build conditions. Under Build conditions, the LOS is expected to remain as LOS B during the weekday morning and Saturday midday peak hour conditions and degrade to LOS C for the weekday evening peak hour.

Overall, the additional traffic generated by the proposed mixed-use development is expected to have only a nominal impact on traffic operating conditions in the study area, and all signalized study intersections are expected to continue operating at overall acceptable LOS C or better during the peak traffic periods.





**Table 5 Signalized Intersection Capacity Analysis Summary**

Approach	Lane Group	2022 Existing Conditions					2023 No-Build Conditions					2023 Build Conditions				
		V/C <sup>1</sup>	Delay <sup>2</sup>	LOS <sup>3</sup>	50 <sup>th</sup> <sup>4</sup>	95 <sup>th</sup> <sup>5</sup>	V/C	Delay	LOS	50 <sup>th</sup>	95 <sup>th</sup>	V/C	Delay	LOS	50 <sup>th</sup>	95 <sup>th</sup>
<b>Big Y at Hopmeadow Street (Route 202)– Weekday Morning Peak Hour</b>																
Big Y Driveway	EB L	0.41	23.6	C	57	52	0.41	23.4	C	27	52	0.59	24.7	C	67	100
Big Y Driveway	EB R	0.02	11.1	B	0	8	0.02	13.7	B	0	8	0.03	12.2	B	0	9
Hopmeadow St	NB L	0.03	5.1	A	1	4	0.03	5.2	A	1	4	0.06	8.6	A	3	10
Hopmeadow St	NB T	0.41	3.5	A	57	99	0.42	3.5	A	57	100	0.42	5.3	A	65	138
Hopmeadow St	SB TR	0.79	18.0	B	194	#377	0.79	18.2	B	196	#380	0.98	45.7	D	255	#508
	<b>Overall</b>	<b>0.65</b>	<b>12.3</b>	<b>B</b>	-	-	<b>0.65</b>	<b>12.4</b>	<b>B</b>	-	-	<b>0.76</b>	<b>27.9</b>	<b>C</b>	-	-
<b>Big Y at Hopmeadow Street (Route 202)– Weekday Evening Peak Hour</b>																
Big Y Driveway	EB L	0.30	30.6	C	20	42	0.30	30.7	C	20	42	0.54	31.6	C	59	90
Big Y Driveway	EB R	0.02	14.7	B	0	11	0.02	14.6	B	0	11	0.03	13.3	B	0	12
Hopmeadow St	NB L	0.03	6.8	A	1	4	0.03	6.9	A	1	4	0.06	10.5	A	2	9
Hopmeadow St	NB T	0.56	3.5	A	106	151	0.56	3.6	A	107	153	0.58	5.2	A	115	221
Hopmeadow St	SB TR	0.86	23.4	C	336	#581	0.86	24.0	C	340	#585	1.00	52.6	D	~411	#714
	<b>Overall</b>	<b>0.73</b>	<b>14.0</b>	<b>B</b>	-	-	<b>0.73</b>	<b>14.3</b>	<b>B</b>	-	-	<b>0.82</b>	<b>29.5</b>	<b>C</b>	-	-
<b>Big Y at Hopmeadow Street (Route 202)– Saturday Midday Peak Hour</b>																
Big Y Driveway	EB L	0.36	27.1	C	25	47	0.37	24.2	C	26	47	0.67	34.0	C	94	122
Big Y Driveway	EB R	0.02	12.6	B	0	8	0.01	15.3	B	0	8	0.03	15.1	B	0	9
Hopmeadow St	NB L	0.02	4.3	A	1	4	0.02	4.3	A	1	4	0.06	8.1	A	3	13
Hopmeadow St	NB T	0.48	3.3	A	79	131	0.48	3.3	A	80	133	0.49	5.8	A	110	223
Hopmeadow St	SB TR	0.68	14.9	B	190	357	0.68	15.0	B	192	361	0.82	25.5	C	278	#595
	<b>Overall</b>	<b>0.60</b>	<b>9.7</b>	<b>A</b>	-	-	<b>0.60</b>	<b>9.8</b>	<b>A</b>	-	-	<b>0.72</b>	<b>18.3</b>	<b>B</b>	-	-

1 V/C – Volume-to-capacity ratio  
 2 Delay – Control delay per vehicle  
 3 LOS – Level-of-Service  
 4 50<sup>th</sup> – 50<sup>th</sup> percentile queue length estimate, in feet  
 5 95<sup>th</sup> – 95<sup>th</sup> percentile queue length estimate, in feet  
 6 Proposed Build Condition lane group  
 ~ Volume exceeds capacity, queue is theoretically infinite  
 # 95<sup>th</sup> percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles  
 M Volume for 95<sup>th</sup> percentile queue is metered by upstream signal  
 NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = left-turn; T = through; R = right-turn



**Table 5 cont. Signalized Intersection Capacity Analysis Summary**

Approach	Lane Group	2022 Existing Conditions					2023 No-Build Conditions					2023 Build Conditions				
		V/C <sup>1</sup>	Delay <sup>2</sup>	LOS <sup>3</sup>	50 <sup>th</sup> <sup>4</sup>	95 <sup>th</sup> <sup>5</sup>	V/C	Delay	LOS	50 <sup>th</sup>	95 <sup>th</sup>	V/C	Delay	LOS	50 <sup>th</sup>	95 <sup>th</sup>
<b>Hoskins Road at Hopmeadow Street (Route 202)– Weekday Morning Peak Hour</b>																
Hoskins Road	EB L	0.25	32.3	C	39	57	0.25	32.1	C	38	57	0.26	31.7	C	42	60
Hoskins Road	EB R	0.48	26.2	C	88	94	0.47	26.0	C	89	94	0.48	25.7	C	95	99
Hopmeadow St	NB L	0.25	6.9	A	16	39	0.25	7.1	A	16	39	0.28	8.0	A	17	40
Hopmeadow St	NB T	0.45	11.9	B	150	287	0.46	12.2	B	153	291	0.51	13.3	B	179	335
Hopmeadow St	SB TR	0.59	14.3	B	210	399	0.59	14.6	B	214	403	0.65	16.3	B	247	#502
	<b>Overall</b>	<b>0.61</b>	<b>15.9</b>	<b>B</b>	-	-	<b>0.61</b>	<b>16.1</b>	<b>B</b>	-	-	<b>0.66</b>	<b>17.0</b>	<b>B</b>	-	-
<b>Hoskins Road at Hopmeadow Street (Route 202)– Weekday Evening Peak Hour</b>																
Hoskins Road	EB L	0.37	38.0	D	39	71	0.36	37.9	D	39	71	0.38	38.0	D	42	74
Hoskins Road	EB R	0.21	24.1	C	37	61	0.22	24.0	C	38	62	0.22	24.0	C	40	63
Hopmeadow St	NB L	0.45	10.0	A	17	39	0.46	10.3	B	17	43	0.50	12.5	B	18	68
Hopmeadow St	NB T	0.66	15.4	B	258	490	0.67	15.7	B	262	495	0.71	16.7	B	287	#598
Hopmeadow St	SB TR	0.78	19.3	B	326	#510	0.78	19.8	B	332	#524	0.83	22.5	C	373	#626
	<b>Overall</b>	<b>0.71</b>	<b>17.9</b>	<b>B</b>	-	-	<b>0.71</b>	<b>18.2</b>	<b>B</b>	-	-	<b>0.76</b>	<b>20.0</b>	<b>C</b>	-	-
<b>Hoskins Road at Hopmeadow Street (Route 202)– Saturday Midday Peak Hour</b>																
Hoskins Road	EB L	0.32	42.2	D	32	68	0.32	42.2	D	32	68	0.35	42.3	D	36	75
Hoskins Road	EB R	0.11	31.2	C	5	49	0.12	31.1	C	6	50	0.17	30.5	C	17	59
Hopmeadow St	NB L	0.20	3.9	A	9	21	0.20	3.9	A	9	21	0.22	4.6	A	9	22
Hopmeadow St	NB T	0.50	8.9	A	158	290	0.50	8.9	A	159	294	0.56	10.4	B	190	366
Hopmeadow St	SB TR	0.51	9.1	A	157	291	0.51	9.2	A	158	295	0.57	10.7	B	192	372
	<b>Overall</b>	<b>0.48</b>	<b>11.6</b>	<b>B</b>	-	-	<b>0.49</b>	<b>11.7</b>	<b>B</b>	-	-	<b>0.54</b>	<b>12.8</b>	<b>B</b>	-	-

1 V/C – Volume-to-capacity ratio  
 2 Delay – Control delay per vehicle  
 3 LOS – Level-of-Service  
 4 50<sup>th</sup> – 50<sup>th</sup> percentile queue length estimate, in feet  
 5 95<sup>th</sup> – 95<sup>th</sup> percentile queue length estimate, in feet  
 ~ Volume exceeds capacity, queue is theoretically infinite  
 # 95<sup>th</sup> percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles  
 M Volume for 95<sup>th</sup> percentile queue is metered by upstream signal  
 NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; L = left-turn; T = through; R = right-turn



## **Unsignalized Intersection Capacity Analysis**

Unsignalized intersection capacity analyses were conducted for the existing intersection of Hopmeadow Street (Route 202) at Ely Lane and the proposed full access entry/right-out only site drive (Site Drive) on Hopmeadow Street (Route 202). Capacity analyses were conducted for the 2022 Existing, 2023 No-Build (without the proposed project), and the 2023 Build conditions (with the development). The results of the analysis are shown in Table 6.

The existing intersection of Hopmeadow Street (Route 202) at Ely Lane currently operates with LOS C or better during all peak hours and is expected to do so through the 2023 No-Build Conditions. Under 2023 Build conditions, the Ely Lane approach degrades to LOS D during the weekday evening and Saturday midday peak periods. However, the additional traffic generated by the development is only expected to cause a minimal increase in delays of approximately 7 seconds per vehicle.

The proposed full access entry/right-out only site drive on Hopmeadow Street (Route 202) operates with acceptable levels of service B or better during all peak hours under 2023 Build conditions.



**Table 6 Unsignalized Intersection Capacity Analysis Summary**

Location	Period	Movement	2022 Existing				2023 No-Build				2023 Build			
			Queue <sup>a</sup>	v/c <sup>b</sup>	Delay <sup>c</sup>	LOS <sup>d</sup>	Queue	v/c	Delay	LOS	Queue	v/c	Delay	LOS
Ely Lane at Hopmeadow Street (Route 202)	Weekday Morning	EB-LR	11	0.12	14.0	B	11	0.13	14.0	B	15	0.17	16.1	C
		NB-LT	4	0.05	1.3	A	4	0.05	1.3	A	4	0.05	1.3	A
		SB-TR	0	0.35	0.0	-	0	0.36	0.0	-	0	0.39	0.0	-
	Weekday Evening	EB-LR	66	0.49	21.8	C	66	0.49	21.8	C	77	0.54	24.5	C
		NB-LT	9	0.11	2.8	A	9	0.11	2.8	A	10	0.12	3.0	A
		SB-TR	0	0.38	0.0	-	0	0.39	0.0	-	0	0.41	0.0	-
	Saturday Midday	EB-LR	77	0.54	24.7	C	77	0.54	24.9	C	104	0.64	32.4	D
		NB-LT	9	0.11	2.7	A	9	0.11	2.7	A	10	0.12	2.9	A
		SB-TR	0	0.33	0.0	-	0	0.33	0.0	-	0	0.37	0.0	-
Site Drive at Hopmeadow Street (Route 202)	Weekday Morning	EB-R	-	-	-	-	-	-	-	-	9	0.11	11.1	B
		NB-LT	-	-	-	-	-	-	-	-	7	0.08	1.2	A
	Weekday Evening	EB-R	-	-	-	-	-	-	-	-	7	0.09	11.6	B
		NB-LT	-	-	-	-	-	-	-	-	5	0.06	0.7	A
	Saturday Midday	EB-R	-	-	-	-	-	-	-	-	12	0.14	11.5	B
		NB-LT	-	-	-	-	-	-	-	-	8	0.10	1.2	A

a 95<sup>th</sup> percentile vehicle queue in feet  
b volume-to-capacity ratio for the critical movement  
c delay of critical approach only  
d level of service of the critical movement  
EB, WB Eastbound, westbound,  
NB, SB Northbound, southbound  
LR shared left/right-turn movements;  
LTR shared left/through/right turn movements  
L left-turn movement  
LT shared left/through movement



# 5

## Conclusions

This study has been prepared to evaluate the traffic impacts associated with a proposed mixed-use development on currently a vacant lot located at 1263 Hopmeadow Street (Route 202) in Simsbury, Connecticut. The Project involves the creation of a 2,400 square foot coffee shop with drive through and patio, a 2,325 square foot fast-food restaurant with online order pick-up window and patio, a 11,600 square foot retail building, and a drive-up ATM.

A new full-access entrance/right-out only driveway onto Route 202 is proposed between the coffee shop and fast-food restaurant pad sites. A new internal connection to the adjacent Big Y shopping plaza is also proposed, which will provide access to the project site via the existing signalized driveway to the Big Y shopping plaza.

The project is anticipated to generate 206 net new trips (108 entering, 98 exiting) during the morning peak hour, 168 trips (85 entering, 83 exiting) during the evening peak hour, and 256 trips (130 entering, 126 exiting) during the Saturday midday peak hour.

Capacity analyses indicate that the signalized intersections of Hopmeadow Street (Route 202) at Big Y Driveway and Hopmeadow Street (Route 202) at Hoskins Road will continue operating at an overall acceptable LOS C or better under future Build conditions.



Capacity analyses were also conducted for the unsignalized intersections of Hopmeadow Street (Route 202) at Ely Lane and Hopmeadow Street (Route 202) at the proposed Site Drive. The proposed site driveway is expected to operate at LOS B or better during the peak traffic periods with minimal delays. The intersection of Hopmeadow Street at Ely Lane is projected to operate with LOS D or better conditions during the peak hours under future Build conditions, and the additional traffic generated by the development is only expected to cause a minimal increase in delays of approximately 7 seconds per vehicle.

It is therefore the conclusion of this Traffic Impact Assessment that the surrounding roadway network will not be greatly impacted by the traffic increases anticipated by the proposed development.



# Appendix

## **Appendix No. & Title**

---

Attachment A – Preliminary Site Plan

Attachment B – Traffic Counts

Attachment C – Crash Data

Attachment D – Trip Generation and Distribution

Attachment E – Capacity Analyses



---

**Attachment A – Preliminary Site Plan**





100 Great Meadow Road  
Suite 200  
Wethersfield, CT 06109  
860.807.4300

### Zoning Summary Chart

Zoning District(S):	B2 - General Business	
Overlay District(S):	Level A - Aquifer Projection Zone	
Zoning Regulation Requirements	Required*	Provided
MINIMUM LOT AREA	NONE	±4.45 AC
FRONTAGE	NONE	371.7 Feet
FRONT YARD BUILDING SETBACK	25 Feet	64.2 Feet
FRONT YARD PARKING SETBACK	25 Feet	25 Feet
SIDE YARD BUILDING SETBACK	20 Feet	52.3 Feet
SIDE YARD PARKING SETBACK	15 Feet	15 Feet
REAR YARD BUILDING SETBACK	25 Feet	69.1 Feet
REAR YARD PARKING SETBACK	25 Feet	34.2 Feet
REAR YARD RESIDENTIAL LOADING SETBACK	50 Feet	59.1 Feet
MAXIMUM BUILDING HEIGHT	40 Feet	<40 Feet
MAXIMUM IMPERVIOUS	40.0%/60.0% **	59.7 %

\* Zoning regulation requirements as specified in Simsbury Zoning Regulations dated 03/01/2022  
 \*\* Per Section 4.4.B. The Zoning Commission may, after notice and public hearing, grant a special exception to allow up to 50 percent increase to the maximum coverage allowed in any zone.

### Parking Summary Chart

Description	Size (FT)		Spaces	
	Required	Provided	Required	Provided
STANDARD SPACES	9 x 18	9 x 18	92	108
COMPACT SPACES (50% ALLOWED W/ SE)	8 x 16	8 x 16	N/A	N/A
STANDARD ACCESSIBLE SPACES *	15 x 18	15 x 18	3	4
VAN ACCESSIBLE SPACES	16 x 18	16 x 18	1	3
TOTAL SPACES			96	115

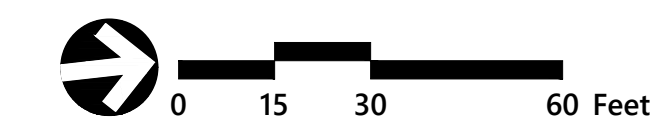
\* ADA/STATE/LOCAL REGULATIONS REQUIRE 5 ACCESSIBLE PARKING SPACES FOR LOTS BETWEEN 101 TO 150 PARKING SPACES - 1 OF WHICH BEING VAN ACCESSIBLE

### Parking Requirements:

RETAIL (OVER 10,000 GSF)	11,600 SF	x	2.75	/	500	=	64 SPACES
RESTAURANT 1	2,400 SF	x	3.3	/	500	=	16 SPACES
RESTAURANT 2	2,325 SF	x	3.3	/	500	=	16 SPACES
TOTAL PARKING REQUIRED =							96 SPACES

### Sign Summary

CONNDOT Number	Specification Width	Specification Height	Desc.
31-0552	30"	30"	
31-1119	30"	30"	
31-0662	12"	24"	
31-0648	12"	6"	



## Proposed Commercial Development

1263 Hopmeadow Street  
Simsbury, Connecticut

No. Revision Date Appr.

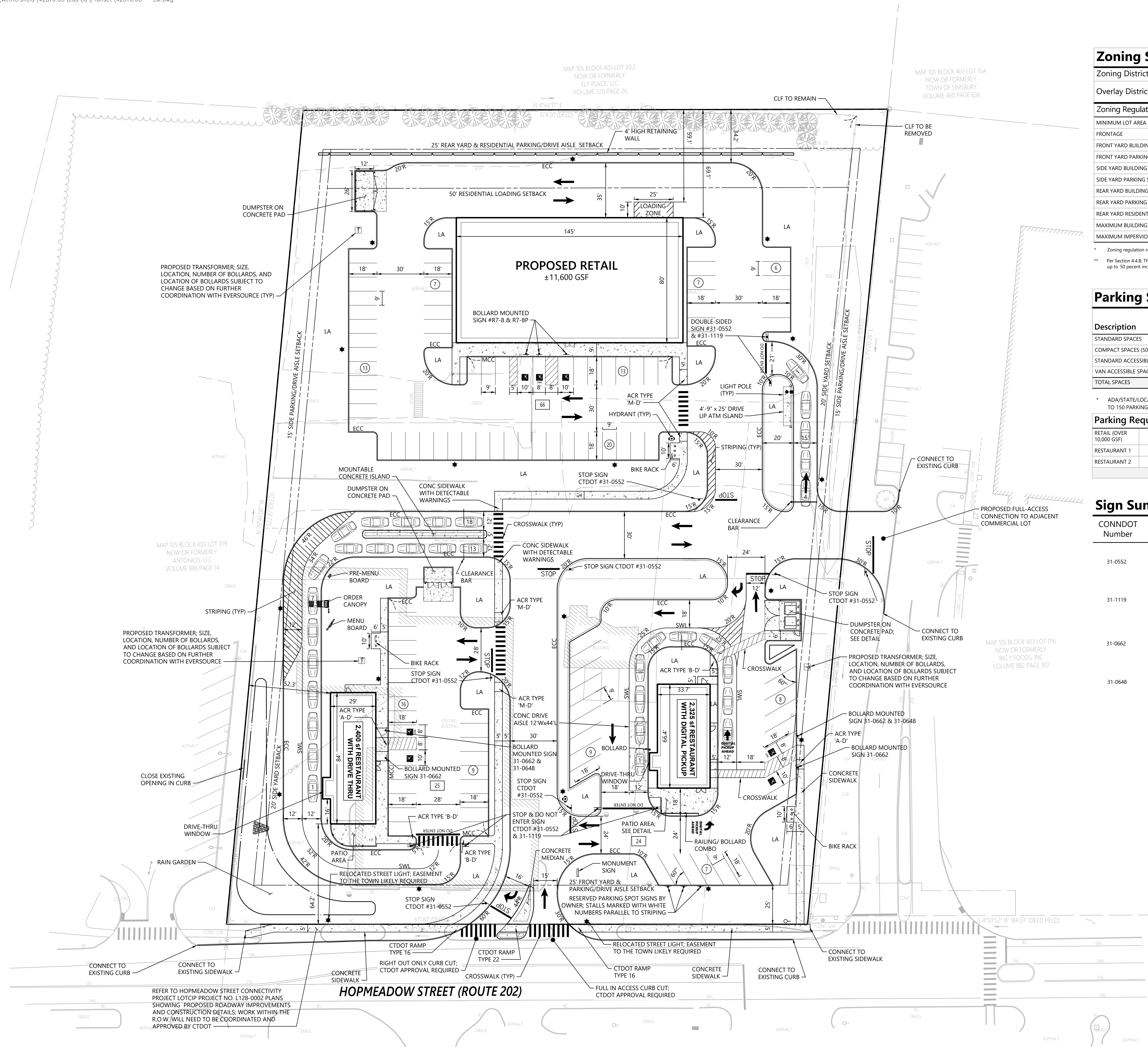

Designed by \_\_\_\_\_ Checked by \_\_\_\_\_

Issued for \_\_\_\_\_ Date \_\_\_\_\_  
**Local Approvals** May 26, 2023

## Layout and Materials Plan

Drawing Number

**C-2**



PROPOSED TRANSFORMER, SIZE, LOCATION, NUMBER OF BOLLARDS, AND LOCATION OF BOLLARDS SUBJECT TO CHANGE BASED ON FURTHER COORDINATION WITH EVERSOURCE (TYP)

PROPOSED TRANSFORMER, SIZE, LOCATION, NUMBER OF BOLLARDS, AND LOCATION OF BOLLARDS SUBJECT TO CHANGE BASED ON FURTHER COORDINATION WITH EVERSOURCE

PROPOSED TRANSFORMER, SIZE, LOCATION, NUMBER OF BOLLARDS, AND LOCATION OF BOLLARDS SUBJECT TO CHANGE BASED ON FURTHER COORDINATION WITH EVERSOURCE

REFER TO HOPMEADOW STREET CONNECTIVITY PROJECT LOT/CIP PROJECT NO. 1128-0002 PLANS SHOWING PROPOSED ROADWAY IMPROVEMENTS AND CONSTRUCTION DETAILS. WORK WITHIN THE R.O.W. WILL NEED TO BE COORDINATED AND APPROVED BY CTDOT

### HOPMEADOW STREET (ROUTE 202)



---

## Attachment B – Traffic Counts

**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Route 202 at Big Y Drive  
Simsbury, Connecticut

File Name : 23307  
Site Code : 23307  
Start Date : 7/14/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Route 202 From North					From East					Route 202 From South					Big Y Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	5	77	0	0	82	0	0	0	0	0	0	72	2	0	74	2	1	11	0	14	170
07:15 AM	9	100	0	0	109	0	0	0	0	0	0	89	3	0	92	1	0	8	0	9	210
07:30 AM	14	102	0	0	116	0	0	0	0	0	0	68	4	0	72	5	0	20	0	25	213
07:45 AM	11	108	0	0	119	0	0	0	0	0	0	75	3	0	78	3	0	18	0	21	218
Total	39	387	0	0	426	0	0	0	0	0	0	304	12	0	316	11	1	57	0	69	811
08:00 AM	13	121	0	0	134	0	0	0	0	0	0	93	4	0	97	4	0	15	0	19	250
08:15 AM	15	130	0	0	145	0	0	0	0	0	0	114	4	0	118	9	0	20	0	29	292
08:30 AM	20	145	0	0	165	0	0	0	0	0	0	133	1	0	134	5	0	21	0	26	325
08:45 AM	6	98	0	0	104	0	0	0	0	0	0	111	2	0	113	4	0	5	0	9	226
Total	54	494	0	0	548	0	0	0	0	0	0	451	11	0	462	22	0	61	0	83	1093
Grand Total	93	881	0	0	974	0	0	0	0	0	0	755	23	0	778	33	1	118	0	152	1904
Apprch %	9.5	90.5	0	0		0	0	0	0		0	97	3	0		21.7	0.7	77.6	0		
Total %	4.9	46.3	0	0	51.2	0	0	0	0	0	0	39.7	1.2	0	40.9	1.7	0.1	6.2	0	8	
Lights	92	859	0	0	951	0	0	0	0	0	0	738	23	0	761	32	1	117	0	150	1862
% Lights	98.9	97.5	0	0	97.6	0	0	0	0	0	0	97.7	100	0	97.8	97	100	99.2	0	98.7	97.8
Trucks	1	18	0	0	19	0	0	0	0	0	0	14	0	0	14	1	0	1	0	2	35
% Trucks	1.1	2	0	0	2	0	0	0	0	0	0	1.9	0	0	1.8	3	0	0.8	0	1.3	1.8
Buses	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	7
% Buses	0	0.5	0	0	0.4	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0.4

# Connecticut Counts LLC

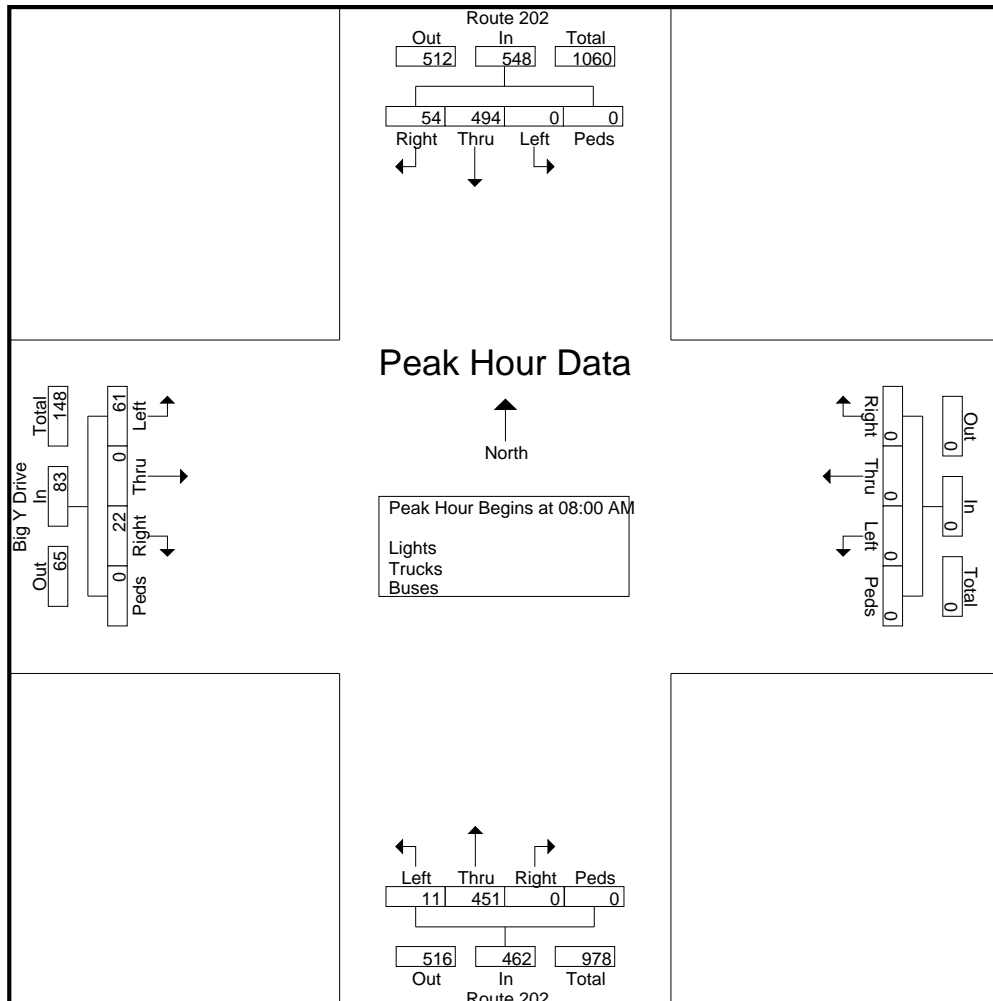
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23307  
Site Code : 23307  
Start Date : 7/14/2022  
Page No : 2

Start Time	Route 202 From North					From East					Route 202 From South					Big Y Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 08:00 AM

08:00 AM	13	121	0	0	134	0	0	0	0	0	0	93	4	0	97	4	0	15	0	19	250
08:15 AM	15	130	0	0	145	0	0	0	0	0	0	114	4	0	118	9	0	20	0	29	292
08:30 AM	20	145	0	0	165	0	0	0	0	0	0	133	1	0	134	5	0	21	0	26	325
08:45 AM	6	98	0	0	104	0	0	0	0	0	0	111	2	0	113	4	0	5	0	9	226
Total Volume	54	494	0	0	548	0	0	0	0	0	0	451	11	0	462	22	0	61	0	83	1093
% App. Total	9.9	90.1	0	0		0	0	0	0	0	0	97.6	2.4	0		26.5	0	73.5	0		
PHF	.675	.852	.000	.000	.830	.000	.000	.000	.000	.000	.000	.848	.688	.000	.862	.611	.000	.726	.000	.716	.841



# Connecticut Counts LLC

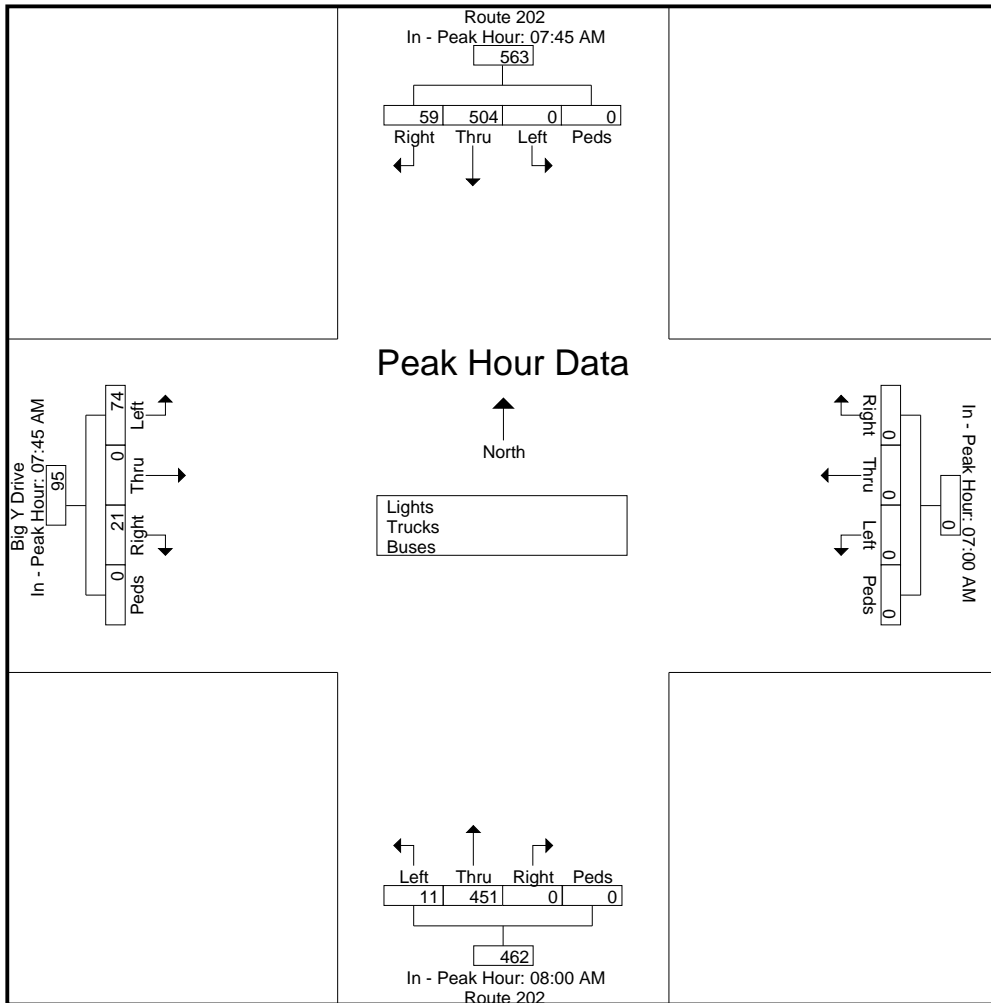
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23307  
 Site Code : 23307  
 Start Date : 7/14/2022  
 Page No : 3

Start Time	Route 202 From North					From East					Route 202 From South					Big Y Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:45 AM					07:00 AM					08:00 AM					07:45 AM				
+0 mins.	11	108	0	0	119	0	0	0	0	0	0	93	4	0	97	3	0	18	0	21
+15 mins.	13	121	0	0	134	0	0	0	0	0	0	114	4	0	118	4	0	15	0	19
+30 mins.	15	130	0	0	145	0	0	0	0	0	0	133	1	0	134	9	0	20	0	29
+45 mins.	20	145	0	0	165	0	0	0	0	0	0	111	2	0	113	5	0	21	0	26
Total Volume	59	504	0	0	563	0	0	0	0	0	0	451	11	0	462	21	0	74	0	95
% App. Total	10.5	89.5	0	0		0	0	0	0		0	97.6	2.4	0		22.1	0	77.9	0	
PHF	.738	.869	.000	.000	.853	.000	.000	.000	.000	.000	.000	.848	.688	.000	.862	.583	.000	.881	.000	.819



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Route 202 at Big Y Drive  
 Simsbury, Connecticut

File Name : 23308  
 Site Code : 23308  
 Start Date : 7/14/2022  
 Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Route 202 From North					From East					Route 202 From South					Big Y Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	28	136	0	0	164	0	0	0	0	0	0	146	3	0	149	7	0	8	0	15	328
04:15 PM	33	129	0	0	162	0	0	0	0	0	0	158	3	0	161	7	1	6	0	14	337
04:30 PM	46	149	0	0	195	0	0	0	0	0	0	194	6	0	200	9	0	12	0	21	416
04:45 PM	30	134	0	0	164	0	0	0	0	0	0	177	3	0	180	3	0	8	0	11	355
Total	137	548	0	0	685	0	0	0	0	0	0	675	15	0	690	26	1	34	0	61	1436
05:00 PM	28	130	0	0	158	0	0	0	0	0	0	155	2	0	157	2	0	10	0	12	327
05:15 PM	26	132	0	0	158	0	0	0	0	0	0	135	4	0	139	2	0	17	0	19	316
05:30 PM	23	104	0	0	127	0	0	0	0	0	0	150	0	0	150	2	0	7	0	9	286
05:45 PM	31	135	0	0	166	0	0	0	0	0	0	132	4	0	136	1	0	12	0	13	315
Total	108	501	0	0	609	0	0	0	0	0	0	572	10	0	582	7	0	46	0	53	1244
Grand Total	245	1049	0	0	1294	0	0	0	0	0	0	1247	25	0	1272	33	1	80	0	114	2680
Apprch %	18.9	81.1	0	0		0	0	0	0		0	98	2	0		28.9	0.9	70.2	0		
Total %	9.1	39.1	0	0	48.3	0	0	0	0	0	0	46.5	0.9	0	47.5	1.2	0	3	0	4.3	
Lights	245	1044										1233									
% Lights	100	99.5	0	0	99.6	0	0	0	0	0	0	98.9	100	0	98.9	100	100	100	0	100	99.3
Trucks	0	3	0	0	3	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	13
% Trucks	0	0.3	0	0	0.2	0	0	0	0	0	0	0.8	0	0	0.8	0	0	0	0	0	0.5
Buses	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
% Buses	0	0.2	0	0	0.2	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0.2

# Connecticut Counts LLC

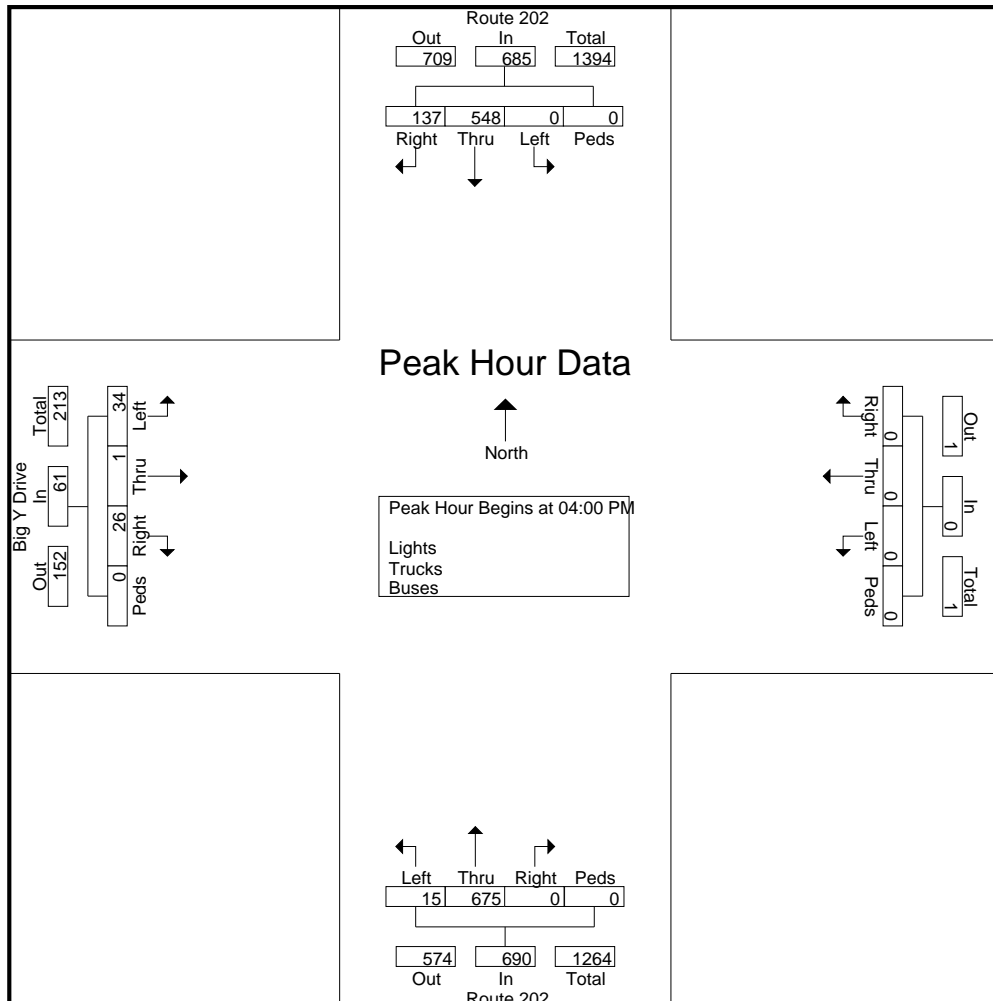
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23308  
Site Code : 23308  
Start Date : 7/14/2022  
Page No : 2

Start Time	Route 202 From North					From East					Route 202 From South					Big Y Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 04:00 PM

04:00 PM	28	136	0	0	164	0	0	0	0	0	0	146	3	0	149	7	0	8	0	15	328
04:15 PM	33	129	0	0	162	0	0	0	0	0	0	158	3	0	161	7	1	6	0	14	337
04:30 PM	46	149	0	0	195	0	0	0	0	0	0	194	6	0	200	9	0	12	0	21	416
04:45 PM	30	134	0	0	164	0	0	0	0	0	0	177	3	0	180	3	0	8	0	11	355
Total Volume	137	548	0	0	685	0	0	0	0	0	0	675	15	0	690	26	1	34	0	61	1436
% App. Total	20	80	0	0		0	0	0	0		0	97.8	2.2	0		42.6	1.6	55.7	0		
PHF	.745	.919	.000	.000	.878	.000	.000	.000	.000	.000	.000	.870	.625	.000	.863	.722	.250	.708	.000	.726	.863



# Connecticut Counts LLC

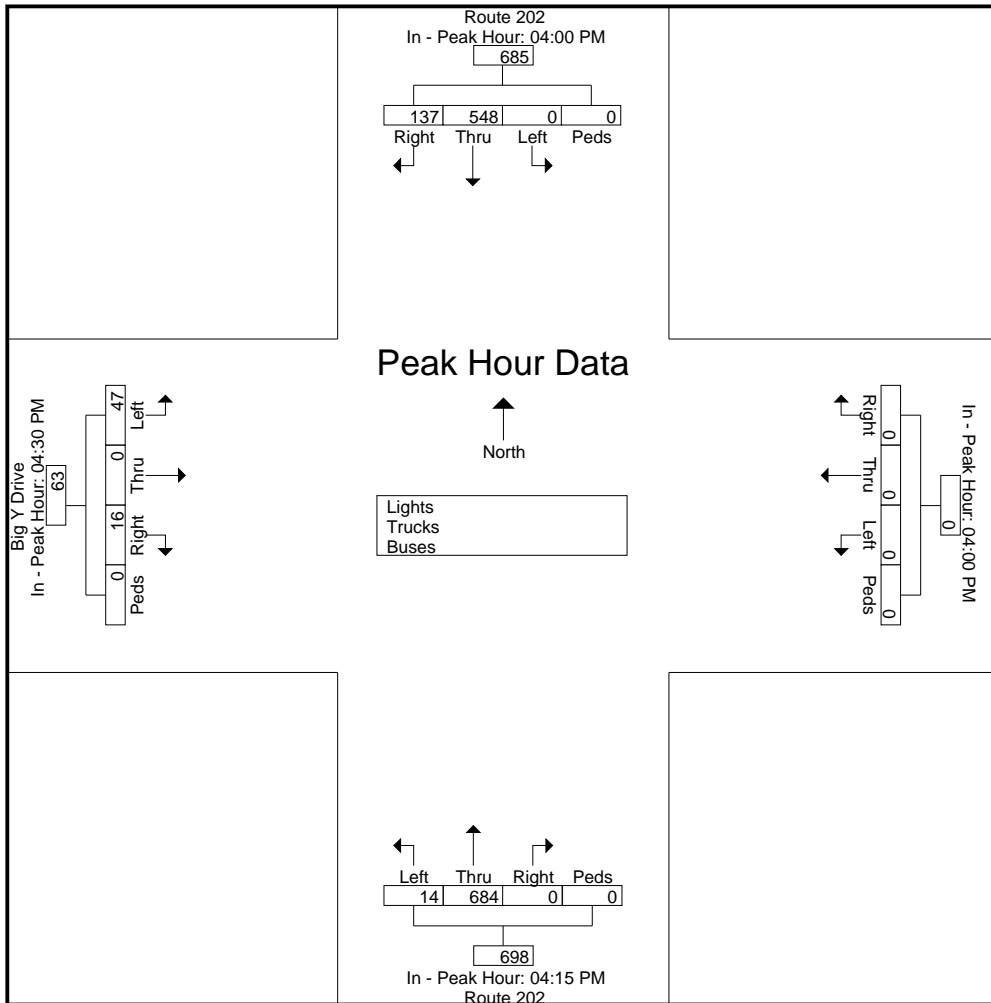
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23308  
 Site Code : 23308  
 Start Date : 7/14/2022  
 Page No : 3

Start Time	Route 202 From North					From East					Route 202 From South					Big Y Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:00 PM					04:00 PM					04:15 PM					04:30 PM				
+0 mins.	28	136	0	0	164	0	0	0	0	0	0	158	3	0	161	9	0	12	0	21
+15 mins.	33	129	0	0	162	0	0	0	0	0	0	194	6	0	200	3	0	8	0	11
+30 mins.	46	149	0	0	195	0	0	0	0	0	0	177	3	0	180	2	0	10	0	12
+45 mins.	30	134	0	0	164	0	0	0	0	0	0	155	2	0	157	2	0	17	0	19
Total Volume	137	548	0	0	685	0	0	0	0	0	0	684	14	0	698	16	0	47	0	63
% App. Total	20	80	0	0		0	0	0	0		0	98	2	0		25.4	0	74.6	0	
PHF	.745	.919	.000	.000	.878	.000	.000	.000	.000	.000	.000	.881	.583	.000	.873	.444	.000	.691	.000	.750







# Connecticut Counts LLC

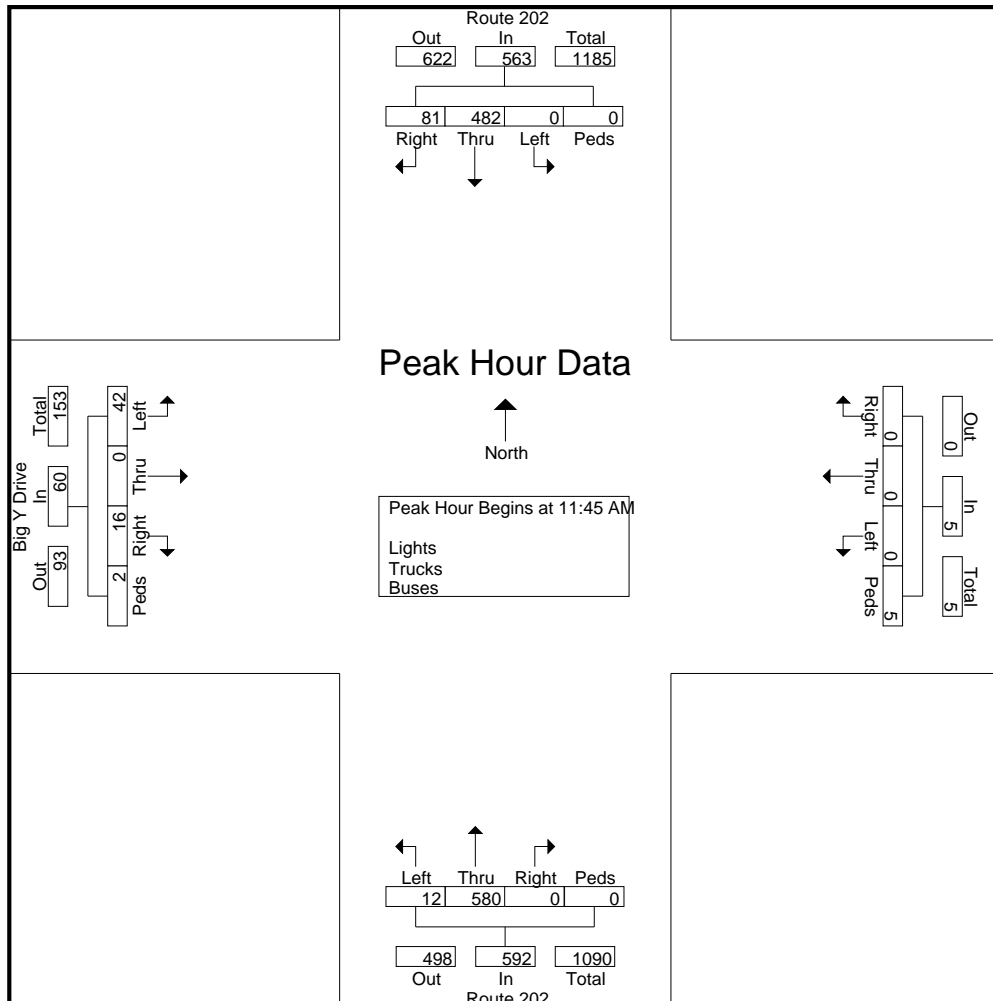
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23309  
Site Code : 23309  
Start Date : 7/16/2022  
Page No : 2

Start Time	Route 202 From North					From East					Route 202 From South					Big Y Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 11:45 AM

11:45 AM	21	123	0	0	144	0	0	0	0	0	0	159	4	0	163	3	0	17	2	22	329
12:00 PM	13	105	0	0	118	0	0	0	0	0	0	128	1	0	129	3	0	2	0	5	252
12:15 PM	20	130	0	0	150	0	0	0	3	3	0	166	3	0	169	7	0	11	0	18	340
12:30 PM	27	124	0	0	151	0	0	0	2	2	0	127	4	0	131	3	0	12	0	15	299
Total Volume	81	482	0	0	563	0	0	0	5	5	0	580	12	0	592	16	0	42	2	60	1220
% App. Total	14.4	85.6	0	0		0	0	0	100		0	98	2	0		26.7	0	70	3.3		
PHF	.750	.927	.000	.000	.932	.000	.000	.000	.417	.417	.000	.873	.750	.000	.876	.571	.000	.618	.250	.682	.897



# Connecticut Counts LLC

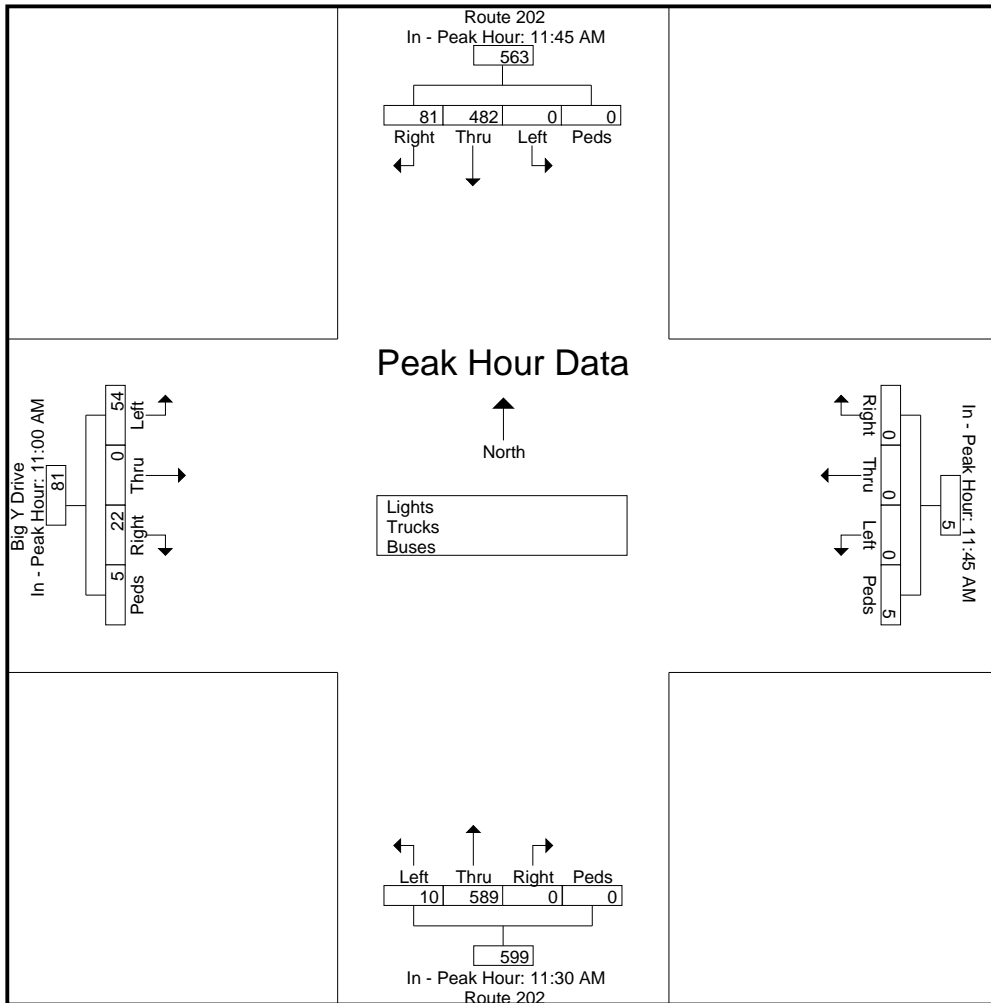
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23309  
Site Code : 23309  
Start Date : 7/16/2022  
Page No : 3

Start Time	Route 202 From North					From East					Route 202 From South					Big Y Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

	11:45 AM					11:45 AM					11:30 AM					11:00 AM				
+0 mins.	21	123	0	0	144	0	0	0	0	0	0	136	2	0	138	8	0	18	0	26
+15 mins.	13	105	0	0	118	0	0	0	0	0	0	159	4	0	163	9	0	12	0	21
+30 mins.	20	130	0	0	150	0	0	0	3	3	0	128	1	0	129	2	0	7	3	12
+45 mins.	27	124	0	0	151	0	0	0	2	2	0	166	3	0	169	3	0	17	2	22
Total Volume	81	482	0	0	563	0	0	0	5	5	0	589	10	0	599	22	0	54	5	81
% App. Total	14.4	85.6	0	0		0	0	0	100		0	98.3	1.7	0		27.2	0	66.7	6.2	
PHF	.750	.927	.000	.000	.932	.000	.000	.000	.417	.417	.000	.887	.625	.000	.886	.611	.000	.750	.417	.779



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Route 202 at Ely Lane  
 Simsbury, Connecticut

File Name : 23310  
 Site Code : 23310  
 Start Date : 7/14/2022  
 Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	Route 202 From North					From East					Route 202 From South					Ely Lane From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	2	80	0	0	82	0	0	0	0	0	0	76	7	0	83	0	0	2	0	2	167
07:15 AM	3	134	0	0	137	0	0	0	0	0	0	96	7	0	103	5	0	3	0	8	248
07:30 AM	0	74	0	0	74	0	0	0	0	0	0	56	2	0	58	2	0	0	0	2	134
07:45 AM	2	130	0	0	132	0	0	0	0	0	0	77	6	0	83	7	0	2	0	9	224
Total	7	418	0	0	425	0	0	0	0	0	0	305	22	0	327	14	0	7	0	21	773
08:00 AM	1	117	0	0	118	0	0	0	0	0	0	91	5	0	96	4	0	3	0	7	221
08:15 AM	2	138	4	0	144	0	0	0	0	0	0	106	13	0	119	8	0	2	0	10	273
08:30 AM	2	117	0	0	119	0	0	0	0	0	0	98	9	0	107	4	0	5	0	9	235
08:45 AM	0	115	0	0	115	0	0	0	0	0	0	115	12	0	127	12	0	2	0	14	256
Total	5	487	4	0	496	0	0	0	0	0	0	410	39	0	449	28	0	12	0	40	985
Grand Total	12	905	4	0	921	0	0	0	0	0	0	715	61	0	776	42	0	19	0	61	1758
Apprch %	1.3	98.3	0.4	0		0	0	0	0		0	92.1	7.9	0		68.9	0	31.1	0		
Total %	0.7	51.5	0.2	0	52.4	0	0	0	0	0	0	40.7	3.5	0	44.1	2.4	0	1.1	0	3.5	
Lights	12	884	4	0	900	0	0	0	0	0	0	701	60	0	761	42	0	19	0	61	1722
% Lights	100	97.7	100	0	97.7	0	0	0	0	0	0	98	98.4	0	98.1	100	0	100	0	100	98
Trucks	0	17	0	0	17	0	0	0	0	0	0	12	1	0	13	0	0	0	0	0	30
% Trucks	0	1.9	0	0	1.8	0	0	0	0	0	0	1.7	1.6	0	1.7	0	0	0	0	0	1.7
Buses	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
% Buses	0	0.4	0	0	0.4	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0.3

# Connecticut Counts LLC

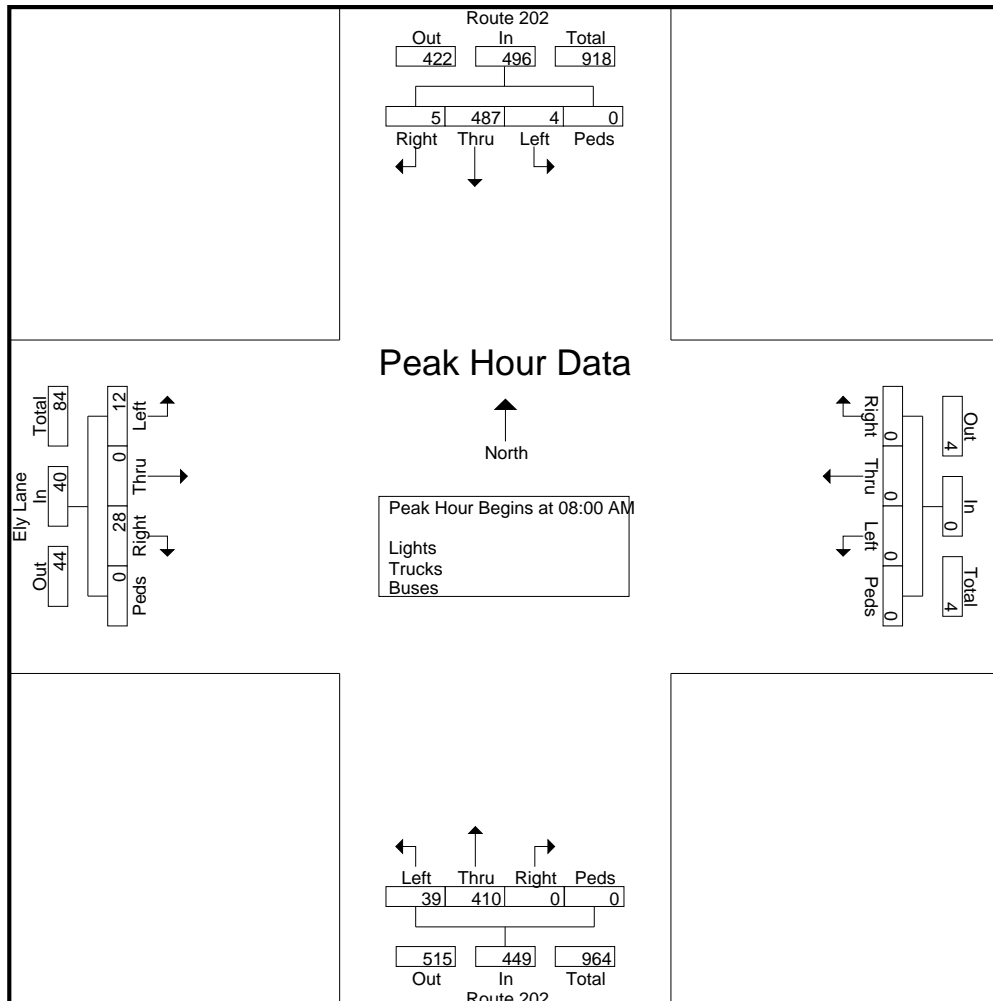
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23310  
Site Code : 23310  
Start Date : 7/14/2022  
Page No : 2

Start Time	Route 202 From North					From East					Route 202 From South					Ely Lane From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Entire Intersection Begins at 08:00 AM

08:00 AM	1	117	0	0	118	0	0	0	0	0	0	91	5	0	96	4	0	3	0	7	221
08:15 AM	2	138	4	0	144	0	0	0	0	0	0	106	13	0	119	8	0	2	0	10	273
08:30 AM	2	117	0	0	119	0	0	0	0	0	0	98	9	0	107	4	0	5	0	9	235
08:45 AM	0	115	0	0	115	0	0	0	0	0	0	115	12	0	127	12	0	2	0	14	256
Total Volume	5	487	4	0	496	0	0	0	0	0	0	410	39	0	449	28	0	12	0	40	985
% App. Total	1	98.2	0.8	0		0	0	0	0		0	91.3	8.7	0		70	0	30	0		
PHF	.625	.882	.250	.000	.861	.000	.000	.000	.000	.000	.000	.891	.750	.000	.884	.583	.000	.600	.000	.714	.902



# Connecticut Counts LLC

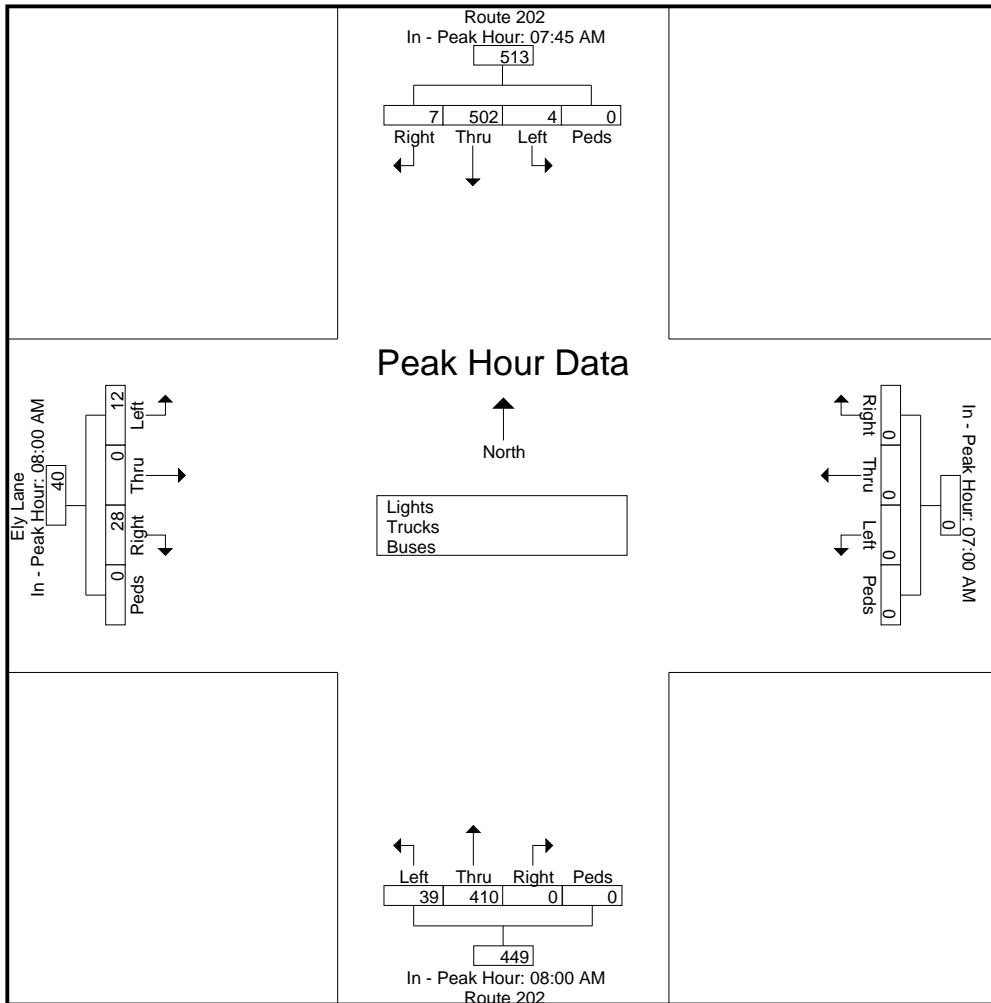
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23310  
 Site Code : 23310  
 Start Date : 7/14/2022  
 Page No : 3

Start Time	Route 202 From North					From East					Route 202 From South					Ely Lane From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	07:45 AM					07:00 AM					08:00 AM					08:00 AM				
+0 mins.	2	130	0	0	132	0	0	0	0	0	0	91	5	0	96	4	0	3	0	7
+15 mins.	1	117	0	0	118	0	0	0	0	0	0	106	13	0	119	8	0	2	0	10
+30 mins.	2	138	4	0	144	0	0	0	0	0	0	98	9	0	107	4	0	5	0	9
+45 mins.	2	117	0	0	119	0	0	0	0	0	0	115	12	0	127	12	0	2	0	14
Total Volume	7	502	4	0	513	0	0	0	0	0	0	410	39	0	449	28	0	12	0	40
% App. Total	1.4	97.9	0.8	0		0	0	0	0		0	91.3	8.7	0		70	0	30	0	
PHF	.875	.909	.250	.000	.891	.000	.000	.000	.000	.000	.000	.891	.750	.000	.884	.583	.000	.600	.000	.714



**Connecticut Counts LLC**  
**Kensington, Connecticut 06037**  
**(860) 828-1693**

Route 202 at Ely Lane  
Simsbury, Connecticut

File Name : 23311  
Site Code : 23311  
Start Date : 7/14/2022  
Page No : 1

Groups Printed- Lights - Trucks - Buses

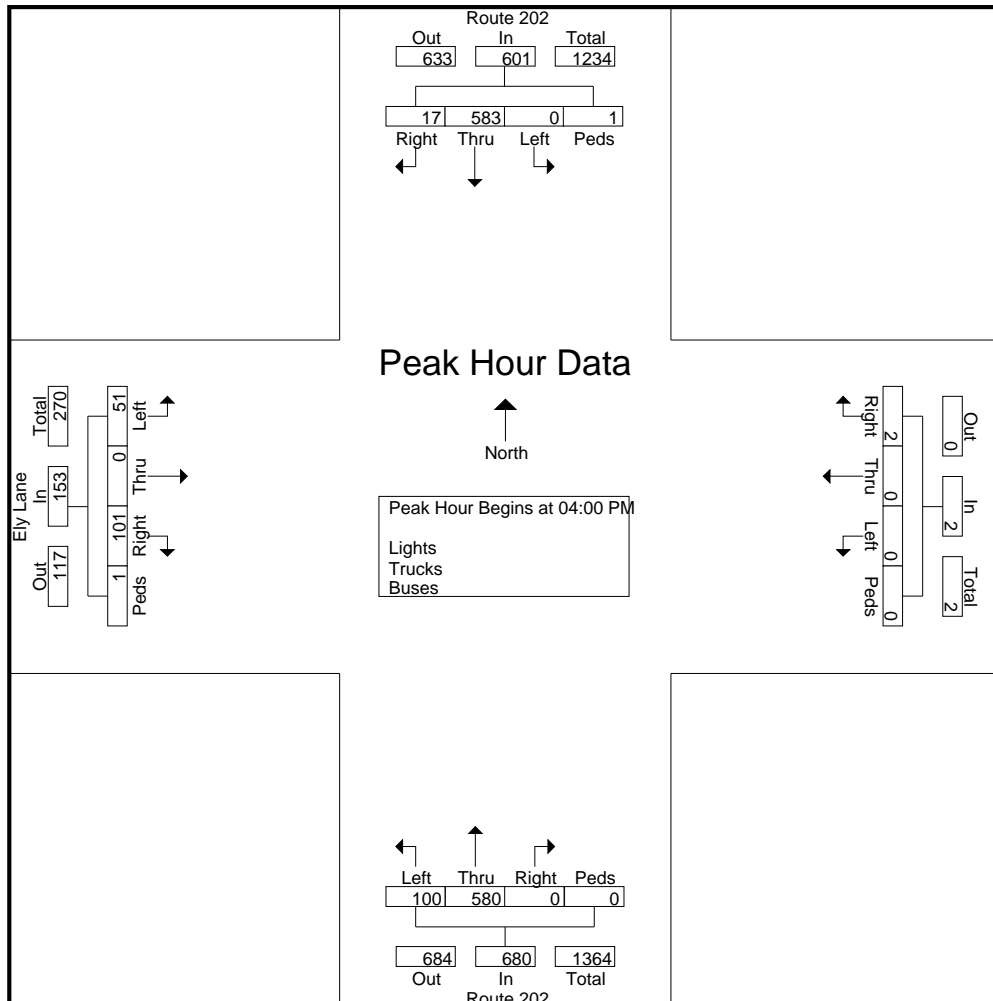
Start Time	Route 202 From North					From East					Route 202 From South					Ely Lane From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	7	156	0	0	163	0	0	0	0	0	0	139	27	0	166	33	0	16	1	50	379
04:15 PM	4	146	0	0	150	0	0	0	0	0	0	152	20	0	172	20	0	12	0	32	354
04:30 PM	4	126	0	1	131	0	0	0	0	0	0	144	26	0	170	20	0	11	0	31	332
04:45 PM	2	155	0	0	157	2	0	0	0	2	0	145	27	0	172	28	0	12	0	40	371
Total	17	583	0	1	601	2	0	0	0	2	0	580	100	0	680	101	0	51	1	153	1436
05:00 PM	5	147	0	1	153	0	0	0	0	0	0	152	26	0	178	28	0	11	0	39	370
05:15 PM	2	139	0	0	141	0	0	0	0	0	0	135	28	0	163	26	0	13	0	39	343
05:30 PM	4	104	0	0	108	0	0	0	0	0	0	144	14	0	158	29	0	7	0	36	302
05:45 PM	6	132	0	0	138	0	0	0	0	0	0	116	19	0	135	28	0	9	0	37	310
Total	17	522	0	1	540	0	0	0	0	0	0	547	87	0	634	111	0	40	0	151	1325
Grand Total	34	1105	0	2	1141	2	0	0	0	2	0	1127	187	0	1314	212	0	91	1	304	2761
Apprch %	3	96.8	0	0.2		100	0	0	0		0	85.8	14.2	0		69.7	0	29.9	0.3		
Total %	1.2	40	0	0.1	41.3	0.1	0	0	0	0.1	0	40.8	6.8	0	47.6	7.7	0	3.3	0	11	
Lights	33	1097										1118									
% Lights	97.1	99.3	0	100	99.2	100	0	0	0	100	0	99.2	100	0	99.3	100	0	100	100	100	99.3
Trucks	1	4	0	0	5	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	10
% Trucks	2.9	0.4	0	0	0.4	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0	0.4
Buses	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	8
% Buses	0	0.4	0	0	0.4	0	0	0	0	0	0	0.4	0	0	0.3	0	0	0	0	0	0.3

# Connecticut Counts LLC

Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23311  
 Site Code : 23311  
 Start Date : 7/14/2022  
 Page No : 2

Start Time	Route 202 From North					From East					Route 202 From South					Ely Lane From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	7	156	0	0	163	0	0	0	0	0	0	139	27	0	166	33	0	16	1	50	379
04:15 PM	4	146	0	0	150	0	0	0	0	0	0	152	20	0	172	20	0	12	0	32	354
04:30 PM	4	126	0	1	131	0	0	0	0	0	0	144	26	0	170	20	0	11	0	31	332
04:45 PM	2	155	0	0	157	2	0	0	0	2	0	145	27	0	172	28	0	12	0	40	371
Total Volume	17	583	0	1	601	2	0	0	0	2	0	580	100	0	680	101	0	51	1	153	1436
% App. Total	2.8	97	0	0.2		100	0	0	0		0	85.3	14.7	0		66	0	33.3	0.7		
PHF	.607	.934	.000	.250	.922	.250	.000	.000	.000	.250	.000	.954	.926	.000	.988	.765	.000	.797	.250	.765	.947





# Connecticut Counts LLC

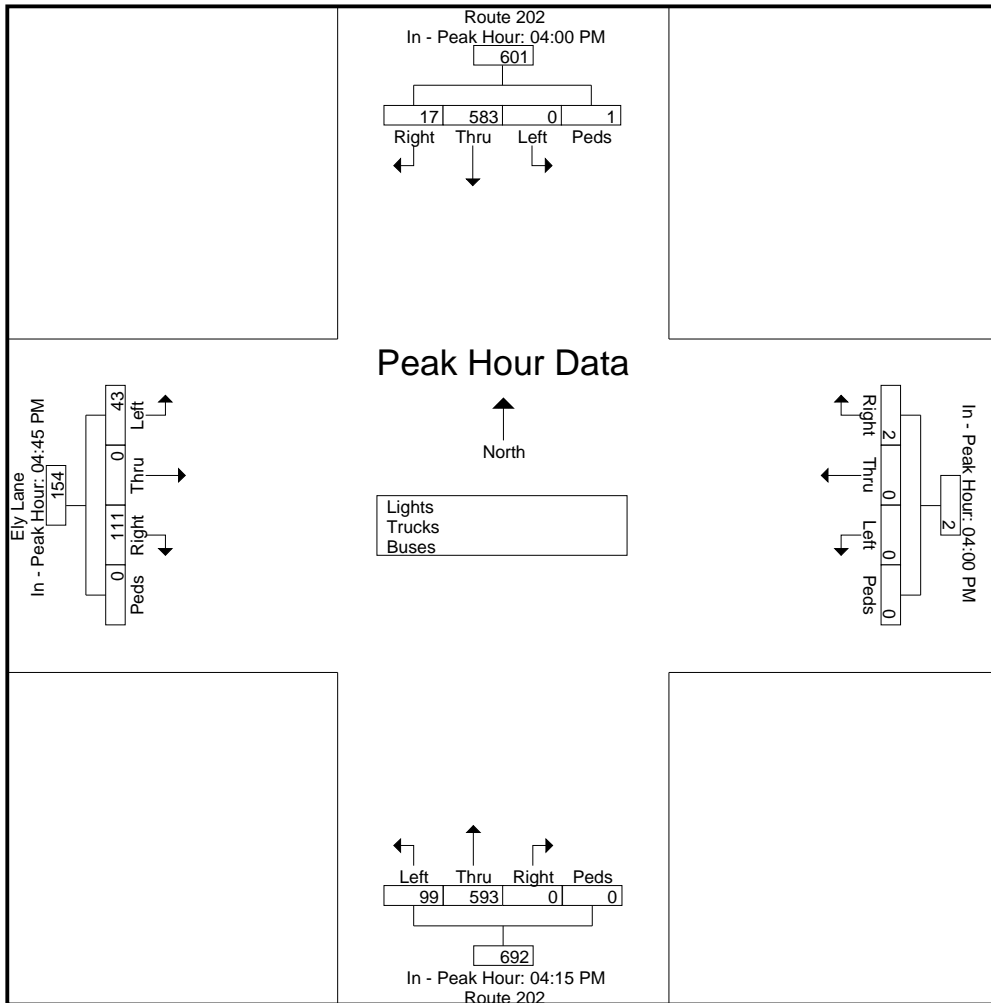
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23311  
 Site Code : 23311  
 Start Date : 7/14/2022  
 Page No : 3

Start Time	Route 202 From North					From East					Route 202 From South					Ely Lane From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	04:00 PM					04:00 PM					04:15 PM					04:45 PM				
+0 mins.	7	156	0	0	163	0	0	0	0	0	0	152	20	0	172	28	0	12	0	40
+15 mins.	4	146	0	0	150	0	0	0	0	0	0	144	26	0	170	28	0	11	0	39
+30 mins.	4	126	0	1	131	0	0	0	0	0	0	145	27	0	172	26	0	13	0	39
+45 mins.	2	155	0	0	157	2	0	0	0	2	0	152	26	0	178	29	0	7	0	36
Total Volume	17	583	0	1	601	2	0	0	0	2	0	593	99	0	692	111	0	43	0	154
% App. Total	2.8	97	0	0.2	100	0	0	0	0	0	0	85.7	14.3	0	72.1	0	0	27.9	0	0
PHF	.607	.934	.000	.250	.922	.250	.000	.000	.000	.250	.000	.975	.917	.000	.972	.957	.000	.827	.000	.963





# Connecticut Counts LLC

Kensington, Connecticut 06037  
(860) 828-1693

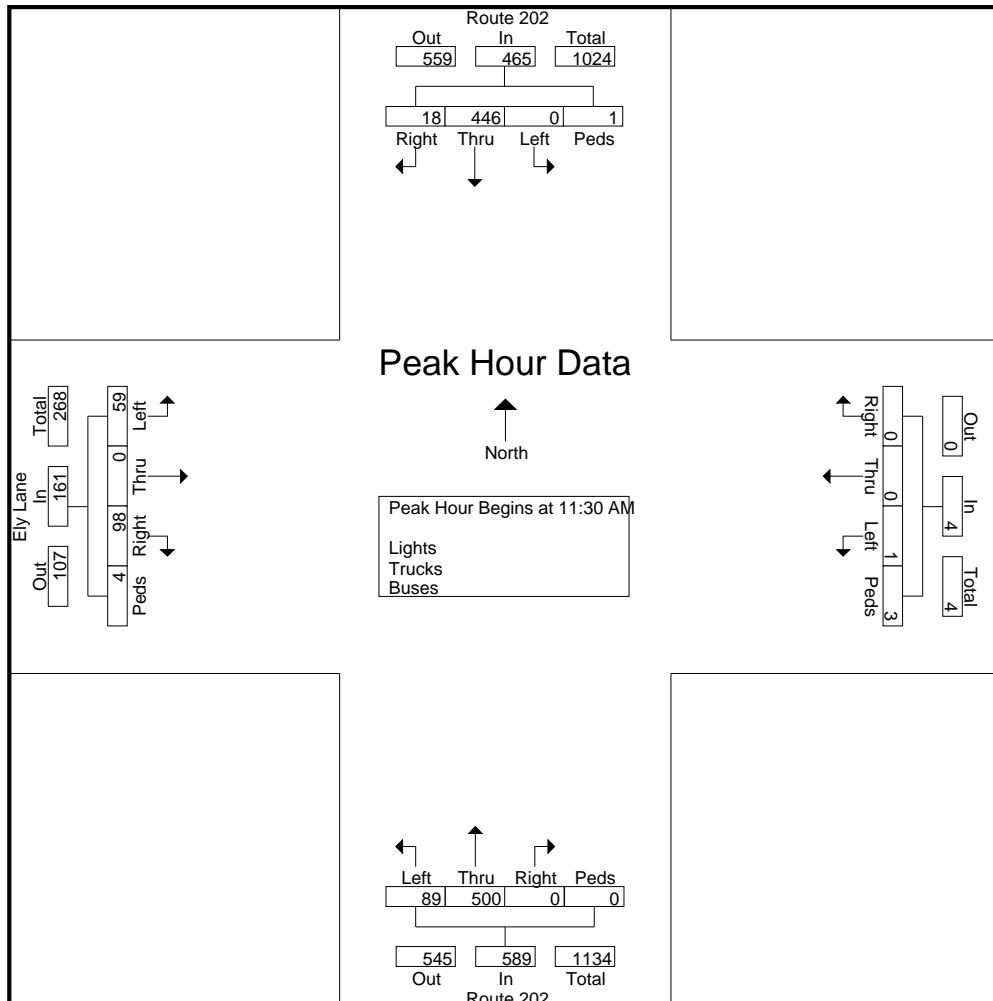
File Name : 23312  
 Site Code : 23312  
 Start Date : 7/16/2022  
 Page No : 2

Start Time	Route 202 From North					From East					Route 202 From South					Ely Lane From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 11:30 AM

11:30 AM	4	125	0	1	130	0	0	1	0	1	0	139	16	0	155	32	0	19	2	53	339
11:45 AM	4	111	0	0	115	0	0	0	0	0	0	128	25	0	153	21	0	13	0	34	302
12:00 PM	6	85	0	0	91	0	0	0	0	0	0	91	24	0	115	21	0	15	2	38	244
12:15 PM	4	125	0	0	129	0	0	0	3	3	0	142	24	0	166	24	0	12	0	36	334
Total Volume	18	446	0	1	465	0	0	1	3	4	0	500	89	0	589	98	0	59	4	161	1219
% App. Total	3.9	95.9	0	0.2		0	0	25	75		0	84.9	15.1	0		60.9	0	36.6	2.5		
PHF	.750	.892	.000	.250	.894	.000	.000	.250	.250	.333	.000	.880	.890	.000	.887	.766	.000	.776	.500	.759	.899



# Connecticut Counts LLC

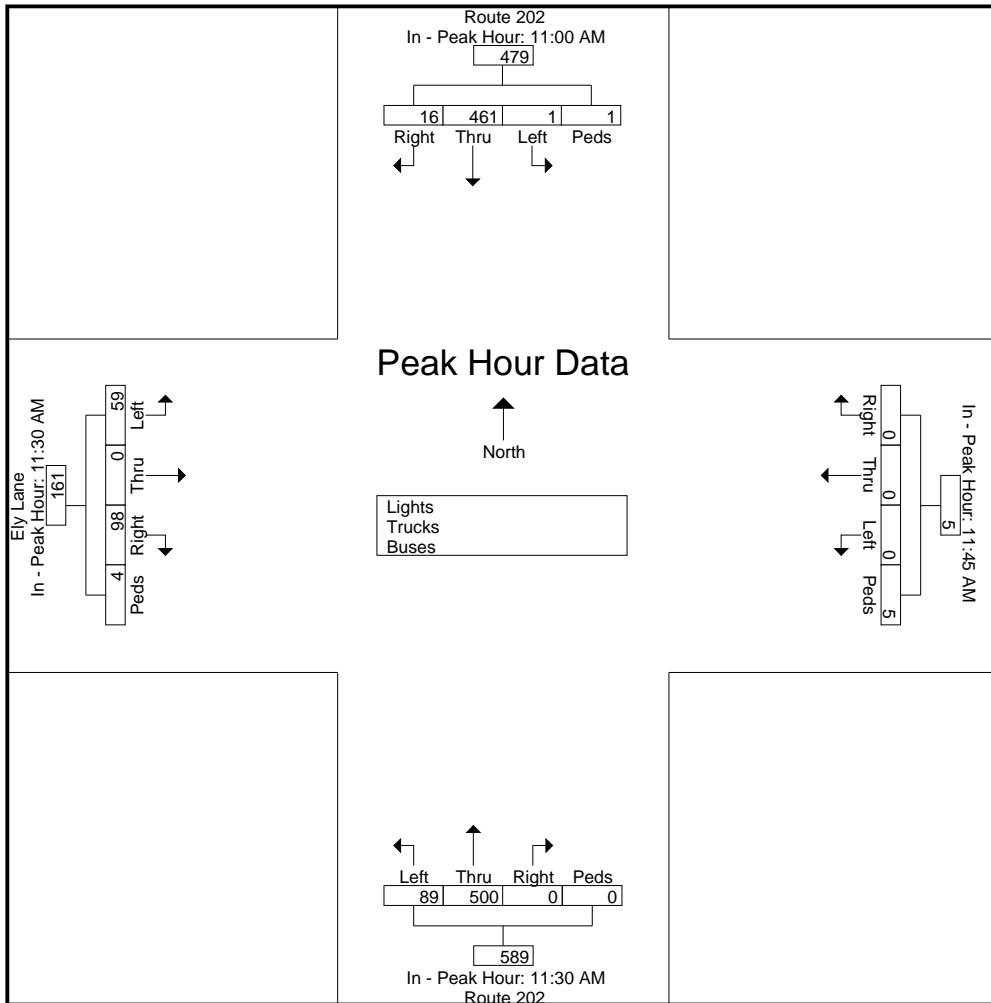
Kensington, Connecticut 06037  
(860) 828-1693

File Name : 23312  
 Site Code : 23312  
 Start Date : 7/16/2022  
 Page No : 3

Start Time	Route 202 From North					From East					Route 202 From South					Ely Lane From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

	11:00 AM					11:45 AM					11:30 AM					11:30 AM				
+0 mins.	4	129	0	0	133	0	0	0	0	0	0	139	16	0	155	32	0	19	2	53
+15 mins.	4	96	1	0	101	0	0	0	0	0	0	128	25	0	153	21	0	13	0	34
+30 mins.	4	125	0	1	130	0	0	0	3	3	0	91	24	0	115	21	0	15	2	38
+45 mins.	4	111	0	0	115	0	0	0	2	2	0	142	24	0	166	24	0	12	0	36
Total Volume	16	461	1	1	479	0	0	0	5	5	0	500	89	0	589	98	0	59	4	161
% App. Total	3.3	96.2	0.2	0.2		0	0	0	100		0	84.9	15.1	0		60.9	0	36.6	2.5	
PHF	1.000	.893	.250	.250	.900	.000	.000	.000	.417	.417	.000	.880	.890	.000	.887	.766	.000	.776	.500	.759



Connecticut DOT  
P.O. Box 317546

Newington, Connecticut, United States 06131  
(860) 594-2087 dhruval.patel@ct.gov

Count Name: Route 10/U.S. Route 202 at  
Hoskins Road (128-245) - Simsbury  
Site Code: 12  
Start Date: 12/08/2021  
Page No: 1

### Turning Movement Data

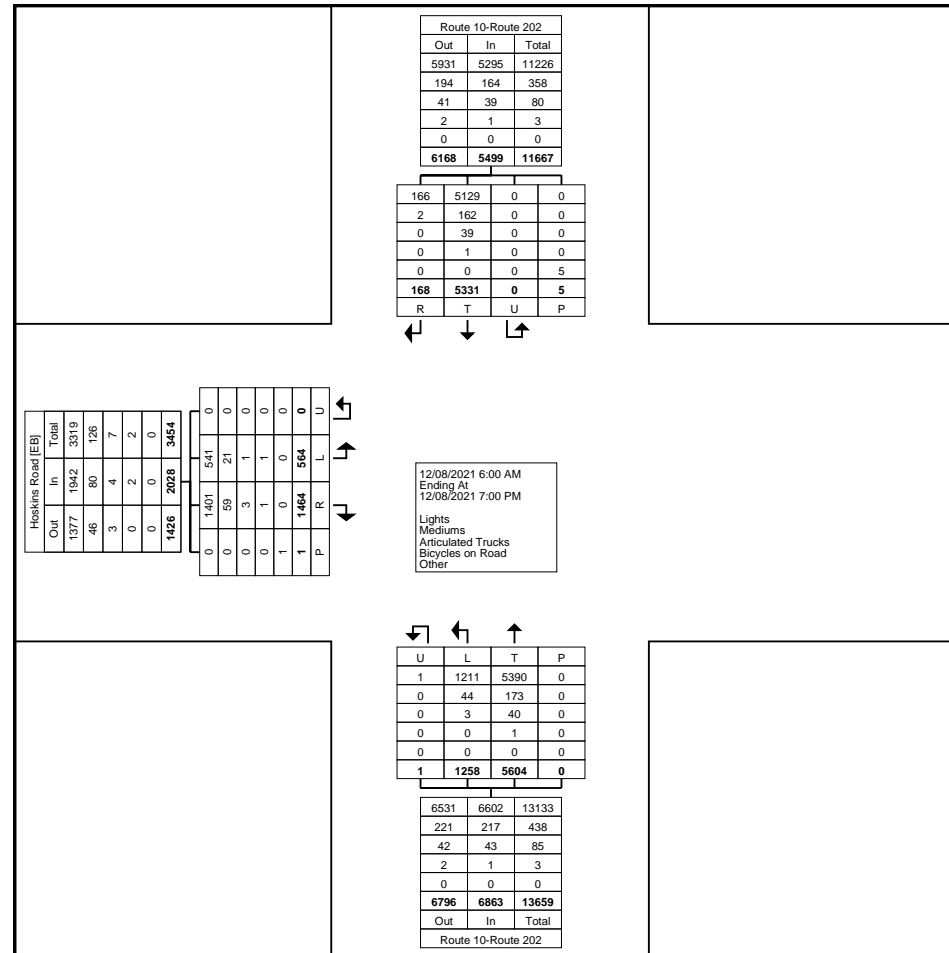
Start Time	Route 10-Route 202 (Hopmeadow Street) Southbound					Route 10-Route 202 (Hopmeadow Street) Northbound					Hoskins Road Eastbound					Int. Total
	Right	Thru	U-Turn	Peds	App. Total	Thru	Left	U-Turn	Peds	App. Total	Right	Left	U-Turn	Peds	App. Total	
6:00 AM	0	37	0	0	37	26	3	0	0	29	18	2	0	0	20	86
6:15 AM	0	52	0	0	52	39	2	0	0	41	13	2	0	0	15	108
6:30 AM	1	64	0	0	65	54	2	0	0	56	21	4	0	0	25	146
6:45 AM	2	95	0	0	97	70	4	0	0	74	35	2	0	0	37	208
Hourly Total	3	248	0	0	251	189	11	0	0	200	87	10	0	0	97	548
7:00 AM	1	74	0	0	75	69	14	0	0	83	49	6	0	0	55	213
7:15 AM	1	97	0	0	98	76	16	0	0	92	50	6	0	0	56	246
7:30 AM	1	140	0	0	141	93	11	0	0	104	40	5	0	0	45	290
7:45 AM	1	127	0	0	128	84	20	0	0	104	59	3	0	0	62	294
Hourly Total	4	438	0	0	442	322	61	0	0	383	198	20	0	0	218	1043
8:00 AM	7	115	0	0	122	102	26	0	0	128	37	7	0	0	44	294
8:15 AM	4	135	0	0	139	89	21	0	0	110	53	13	0	0	66	315
8:30 AM	2	99	0	0	101	90	27	0	0	117	69	17	0	0	86	304
8:45 AM	2	117	0	0	119	116	27	0	0	143	38	16	0	0	54	316
Hourly Total	15	466	0	0	481	397	101	0	0	498	197	53	0	0	250	1229
9:00 AM	3	87	0	0	90	91	25	0	0	116	44	13	0	0	57	263
9:15 AM	4	102	0	0	106	83	23	0	0	106	22	5	0	0	27	239
9:30 AM	1	103	0	0	104	87	17	0	0	104	21	13	0	0	34	242
9:45 AM	3	87	0	0	90	90	13	0	0	103	26	12	0	0	38	231
Hourly Total	11	379	0	0	390	351	78	0	0	429	113	43	0	0	156	975
10:00 AM	4	81	0	0	85	83	14	0	0	97	14	9	0	0	23	205
10:15 AM	2	105	0	0	107	103	12	0	0	115	17	8	0	0	25	247
10:30 AM	2	125	0	0	127	98	11	0	0	109	33	13	0	0	46	282
10:45 AM	2	94	0	0	96	98	16	0	0	114	25	10	0	0	35	245
Hourly Total	10	405	0	0	415	382	53	0	0	435	89	40	0	0	129	979
11:00 AM	2	98	0	0	100	86	20	0	0	106	20	12	0	0	32	238
11:15 AM	1	87	0	0	88	115	18	0	0	133	21	16	0	0	37	258
11:30 AM	3	109	0	0	112	126	18	0	0	144	15	9	0	0	24	280
11:45 AM	1	123	0	1	124	126	24	0	0	150	36	9	0	0	45	319
Hourly Total	7	417	0	1	424	453	80	0	0	533	92	46	0	0	138	1095
12:00 PM	8	107	0	0	115	133	30	0	0	163	27	9	0	0	36	314
12:15 PM	6	113	0	0	119	122	24	0	0	146	16	11	0	0	27	292
12:30 PM	5	118	0	0	123	128	25	1	0	154	40	15	0	0	55	332
12:45 PM	1	117	0	0	118	109	25	0	0	134	42	24	0	0	66	318
Hourly Total	20	455	0	0	475	492	104	1	0	597	125	59	0	0	184	1256
1:00 PM	1	107	0	0	108	100	31	0	0	131	30	11	0	0	41	280
1:15 PM	8	93	0	0	101	105	27	0	0	132	30	17	0	0	47	280
1:30 PM	4	113	0	0	117	107	25	0	0	132	24	14	0	0	38	287
1:45 PM	5	109	0	0	114	101	15	0	0	116	29	13	0	0	42	272

Hourly Total	18	422	0	0	440	413	98	0	0	511	113	55	0	0	168	1119
2:00 PM	2	103	0	0	105	116	19	0	0	135	23	8	0	0	31	271
2:15 PM	2	119	0	0	121	128	24	0	0	152	31	9	0	0	40	313
2:30 PM	4	92	0	0	96	144	19	0	0	163	17	7	0	0	24	283
2:45 PM	5	122	0	0	127	141	24	0	0	165	17	11	0	1	28	320
Hourly Total	13	436	0	0	449	529	86	0	0	615	88	35	0	1	123	1187
3:00 PM	6	112	0	0	118	119	18	0	0	137	18	11	0	0	29	284
3:15 PM	4	92	0	0	96	153	34	0	0	187	37	15	0	0	52	335
3:30 PM	10	112	0	3	122	135	39	0	0	174	29	12	0	0	41	337
3:45 PM	5	112	0	0	117	144	39	0	0	183	23	18	0	0	41	341
Hourly Total	25	428	0	3	453	551	130	0	0	681	107	56	0	0	163	1297
4:00 PM	4	148	0	0	152	141	41	0	0	182	16	15	0	0	31	365
4:15 PM	4	114	0	0	118	157	43	0	0	200	25	13	0	0	38	356
4:30 PM	3	98	0	0	101	171	50	0	0	221	31	14	0	0	45	367
4:45 PM	2	119	0	0	121	154	34	0	0	188	21	13	0	0	34	343
Hourly Total	13	479	0	0	492	623	168	0	0	791	93	55	0	0	148	1431
5:00 PM	6	98	0	1	104	134	44	0	0	178	29	19	0	0	48	330
5:15 PM	4	95	0	0	99	140	50	0	0	190	30	19	0	0	49	338
5:30 PM	5	111	0	0	116	148	37	0	0	185	21	16	0	0	37	338
5:45 PM	5	107	0	0	112	117	42	0	0	159	19	7	0	0	26	297
Hourly Total	20	411	0	1	431	539	173	0	0	712	99	61	0	0	160	1303
6:00 PM	2	101	0	0	103	109	34	0	0	143	17	6	0	0	23	269
6:15 PM	4	87	0	0	91	104	37	0	0	141	20	6	0	0	26	258
6:30 PM	3	81	0	0	84	67	28	0	0	95	11	7	0	0	18	197
6:45 PM	0	78	0	0	78	83	16	0	0	99	15	12	0	0	27	204
Hourly Total	9	347	0	0	356	363	115	0	0	478	63	31	0	0	94	928
Grand Total	168	5331	0	5	5499	5604	1258	1	0	6863	1464	564	0	1	2028	14390
Approach %	3.1	96.9	0.0	-	-	81.7	18.3	0.0	-	-	72.2	27.8	0.0	-	-	-
Total %	1.2	37.0	0.0	-	38.2	38.9	8.7	0.0	-	47.7	10.2	3.9	0.0	-	14.1	-
Lights	166	5129	0	-	5295	5390	1211	1	-	6602	1401	541	0	-	1942	13839
% Lights	98.8	96.2	-	-	96.3	96.2	96.3	100.0	-	96.2	95.7	95.9	-	-	95.8	96.2
Mediums	2	162	0	-	164	173	44	0	-	217	59	21	0	-	80	461
% Mediums	1.2	3.0	-	-	3.0	3.1	3.5	0.0	-	3.2	4.0	3.7	-	-	3.9	3.2
Articulated Trucks	0	39	0	-	39	40	3	0	-	43	3	1	0	-	4	86
% Articulated Trucks	0.0	0.7	-	-	0.7	0.7	0.2	0.0	-	0.6	0.2	0.2	-	-	0.2	0.6
Bicycles on Road	0	1	0	-	1	1	0	0	-	1	1	1	0	-	2	4
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.1	0.2	-	-	0.1	0.0
Bicycles on Crosswalk	-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	40.0	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	3	-	-	-	-	0	-	-	-	-	1	-	-
% Pedestrians	-	-	-	60.0	-	-	-	-	-	-	-	-	-	100.0	-	-

Connecticut DOT  
P.O. Box 317546

Newington, Connecticut, United States 06131  
(860) 594-2087 dhruval.patel@ct.gov

Count Name: Route 10/U.S. Route 202 at  
Hoskins Road (128-245) - Simsbury  
Site Code: 12  
Start Date: 12/08/2021  
Page No: 3



Turning Movement Data Plot

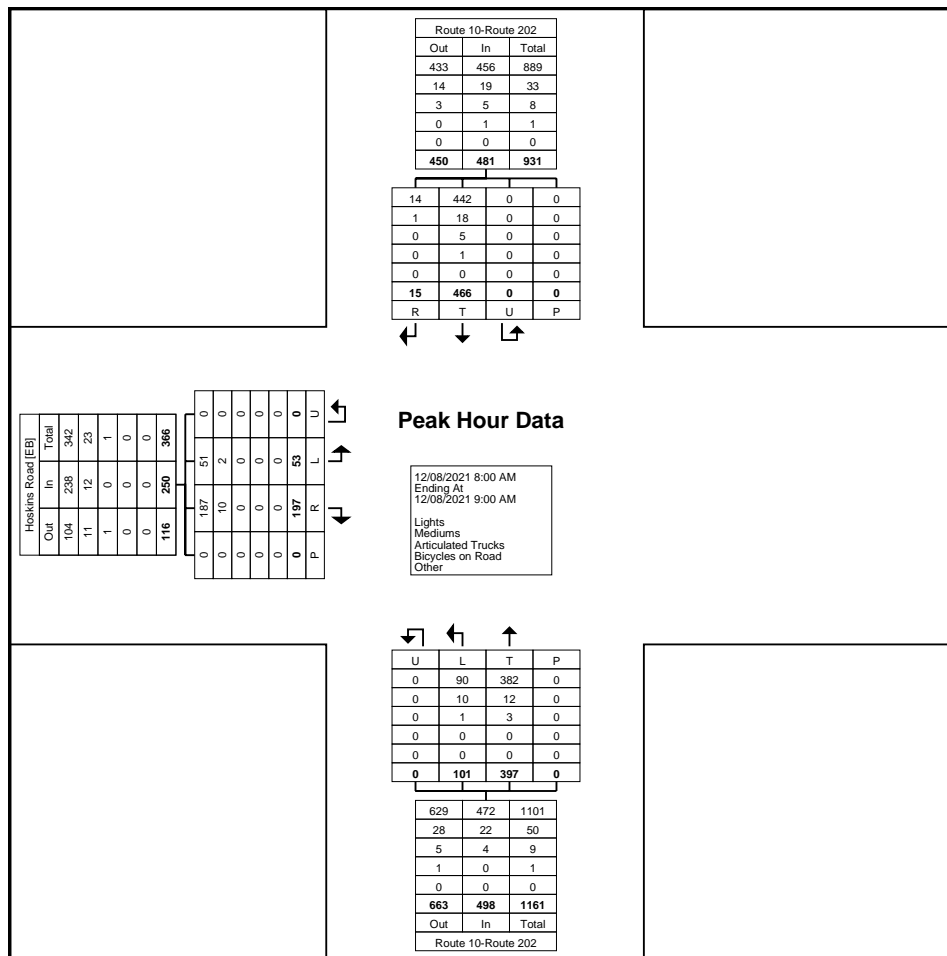




Connecticut DOT  
P.O. Box 317546

Newington, Connecticut, United States 06131  
(860) 594-2087 dhruval.patel@ct.gov

Count Name: Route 10/U.S. Route 202 at  
Hoskins Road (128-245) - Simsbury  
Site Code: 12  
Start Date: 12/08/2021  
Page No: 5



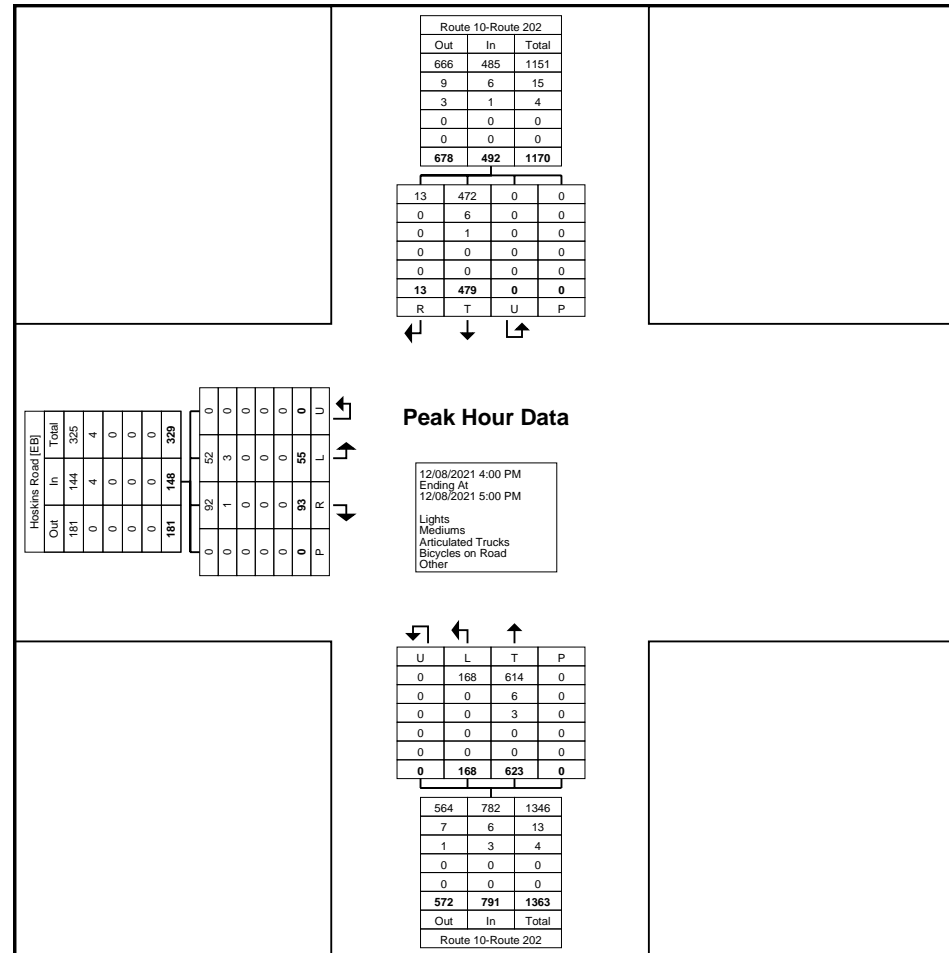
Turning Movement Peak Hour Data Plot (8:00 AM)



Connecticut DOT  
P.O. Box 317546

Newington, Connecticut, United States 06131  
(860) 594-2087 dhruval.patel@ct.gov

Count Name: Route 10/U.S. Route 202 at  
Hoskins Road (128-245) - Simsbury  
Site Code: 12  
Start Date: 12/08/2021  
Page No: 7



Turning Movement Peak Hour Data Plot (4:00 PM)



---

**Attachment C – Crash Data**

**2019-2021 Crash Data: Hopmeadow Street at Ely Lane**

<b>CrashId</b>	<b>Town Name</b>	<b>Date Of Crash</b>	<b>Time of Crash</b>	<b>Crash Severity</b>	<b>Manner of Crash / Collision Impact</b>	<b>Light Condition</b>	<b>Road Surface Condition</b>
584066	Simsbury	8/21/2019	8:34:00	Injury of any type (Serious, Minor, Possible)	Angle	Daylight	Dry
608224	Simsbury	10/25/2019	8:43:00	Property Damage Only	Front to rear	Daylight	Dry
776370	Simsbury	12/31/2020	14:29:00	Property Damage Only	Angle	Daylight	Dry

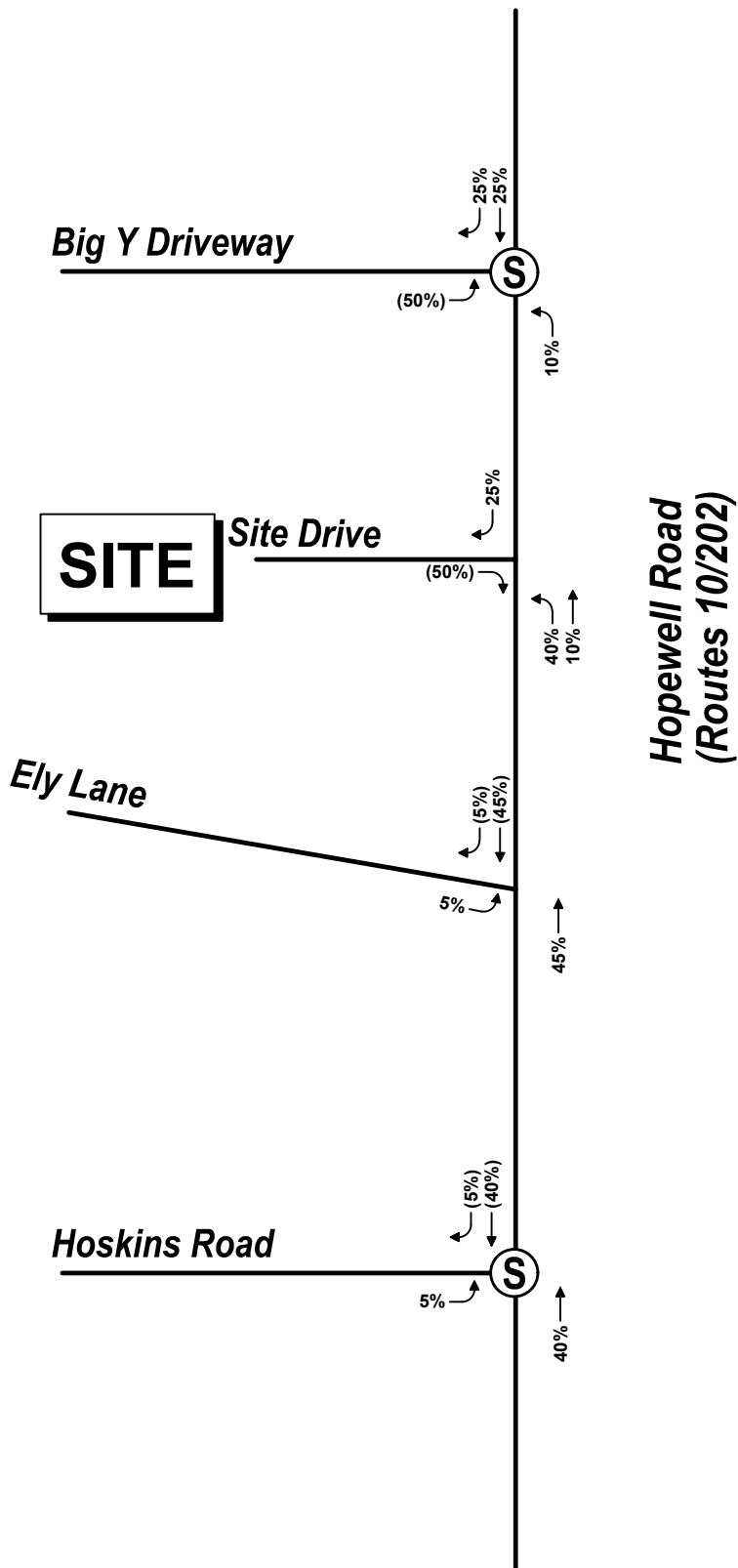
**2019-2021 Crash Data: Hopmeadow Street at Hoskins Road**

<b>CrashId</b>	<b>Town Name</b>	<b>Date Of Crash</b>	<b>Time of Crash</b>	<b>Crash Severity</b>	<b>Manner of Crash / Collision Impact</b>	<b>Light Condition</b>	<b>Road Surface Condition</b>
510935	Simsbury	1/30/2019	17:25:00	Property Damage Only	Not Applicable	Dark-Not Lighted	Snow
564784	Simsbury	5/29/2019	8:28:00	Property Damage Only	Front to rear	Daylight	Dry
611840	Simsbury	10/28/2019	6:49:00	Injury of any type (Serious, Minor, Possible)	Angle	Daylight	Dry
674897	Simsbury	3/31/2020	14:06:00	Property Damage Only	Angle	Daylight	Dry
685245	Simsbury	5/26/2020	12:44:00	Property Damage Only	Front to rear	Daylight	Dry



---

## Attachment D – Trip Generation and Distribution



# Entering Trips  
 # (Exiting Trips)



Not to Scale

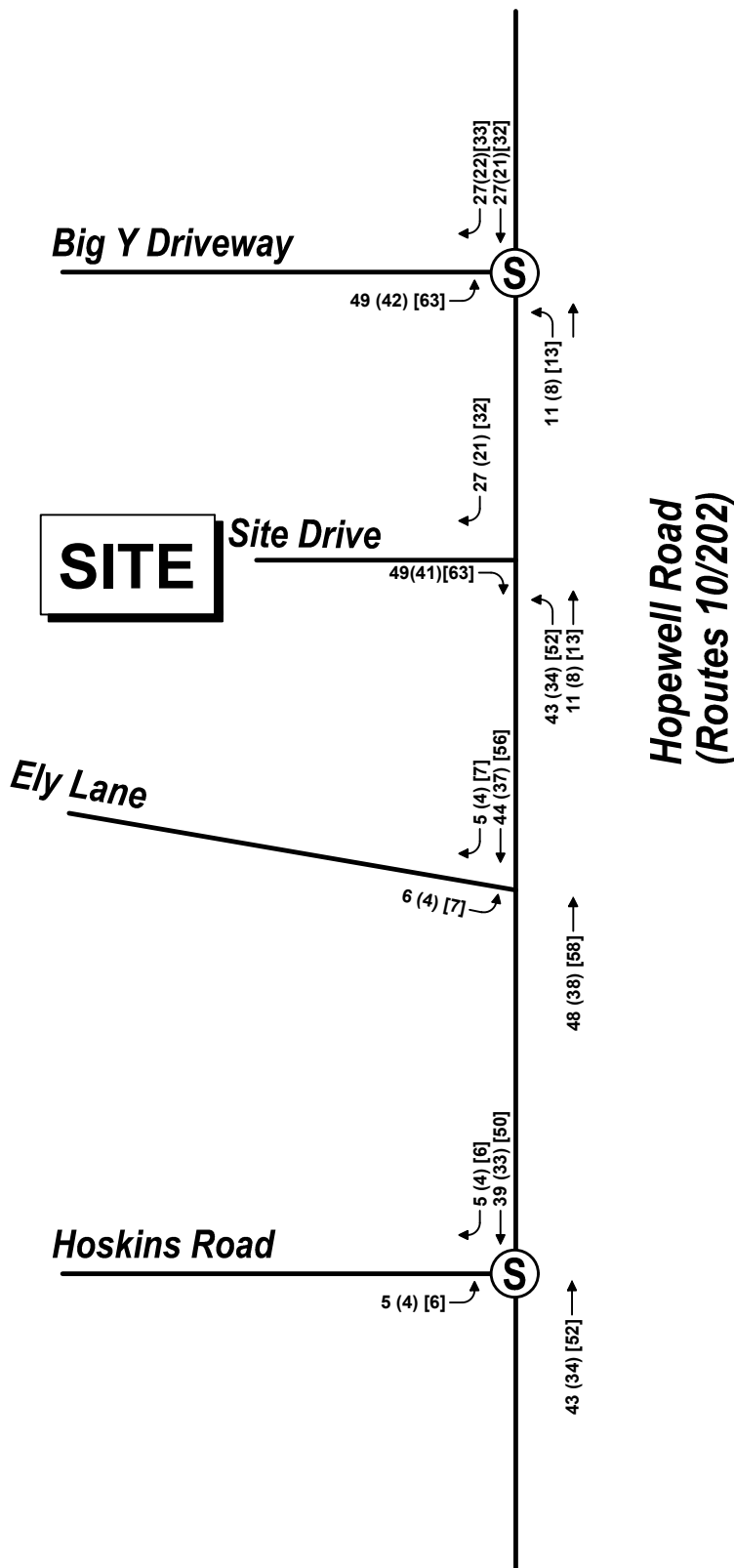


Trip Distribution

Figure

Mixed-Use Development  
 Simsbury, CT





# Weekday Morning Peak Hour  
 # (Weekday Evening Peak Hour)  
 # [Saturday Midday Peak Hour]



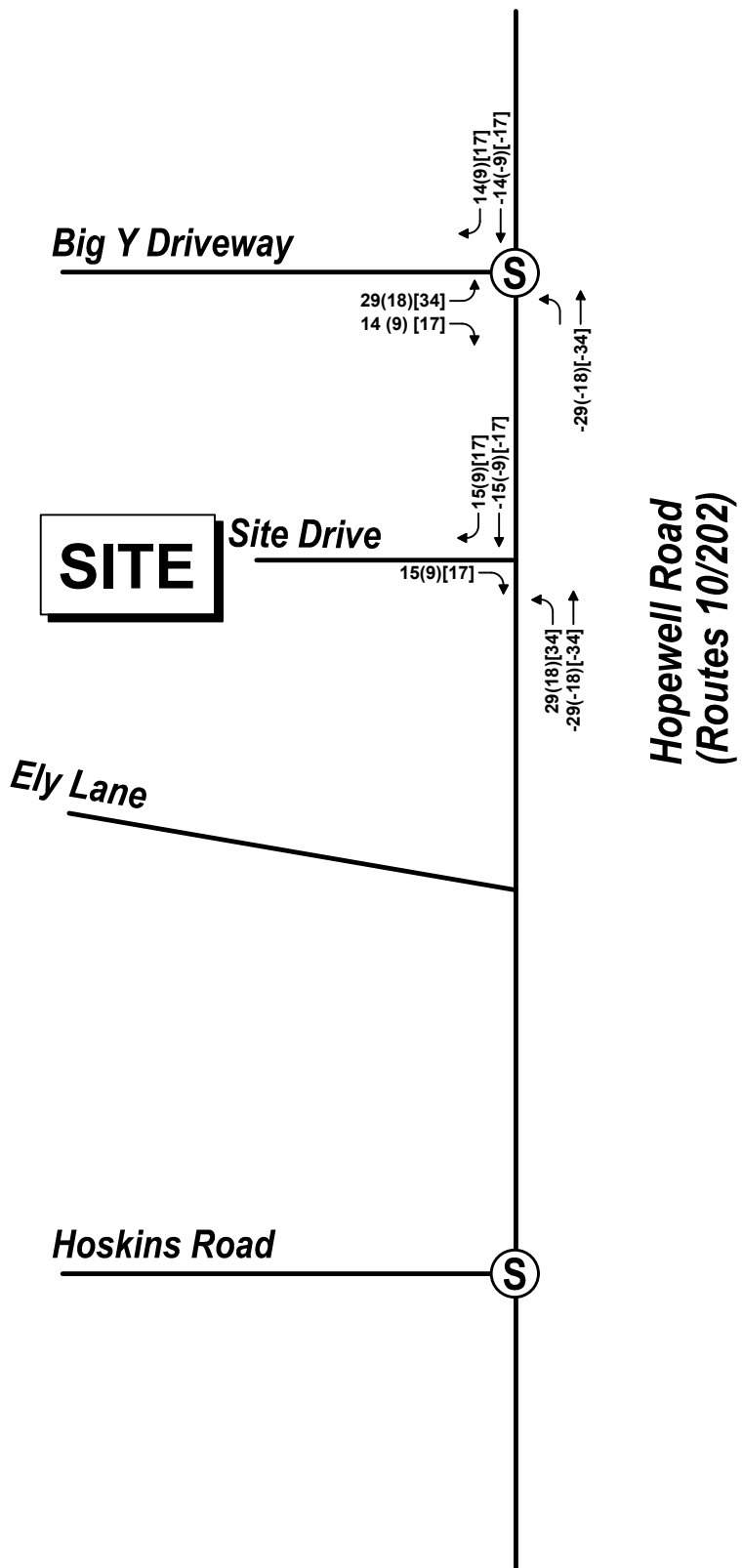
Not to Scale



Primary Trips

Figure

Mixed-Use Development  
 Simsbury, CT



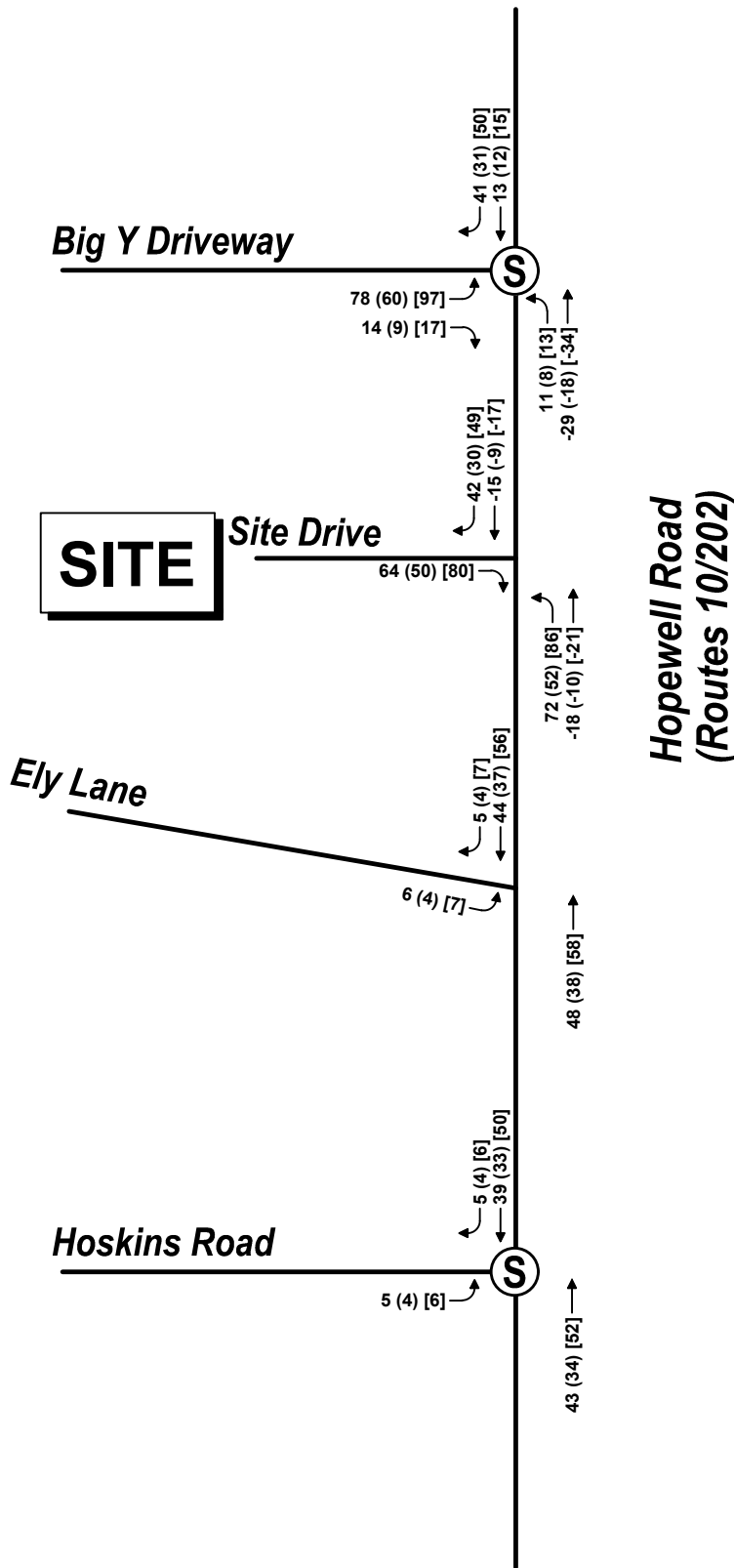
# Weekday Morning Peak Hour  
 # (Weekday Evening Peak Hour)  
 # [Saturday Midday Peak Hour]

 **Not to Scale**

 **Pass-by Trips**

**Figure**

Mixed-Use Development  
 Simsbury, CT



# Weekday Morning Peak Hour  
 # (Weekday Evening Peak Hour)  
 # [Saturday Midday Peak Hour]



Not to Scale



Site Generated Traffic Volumes

Figure 4

Mixed-Use Development  
 Simsbury, CT

# Strip Retail Plaza (<40k) (822)

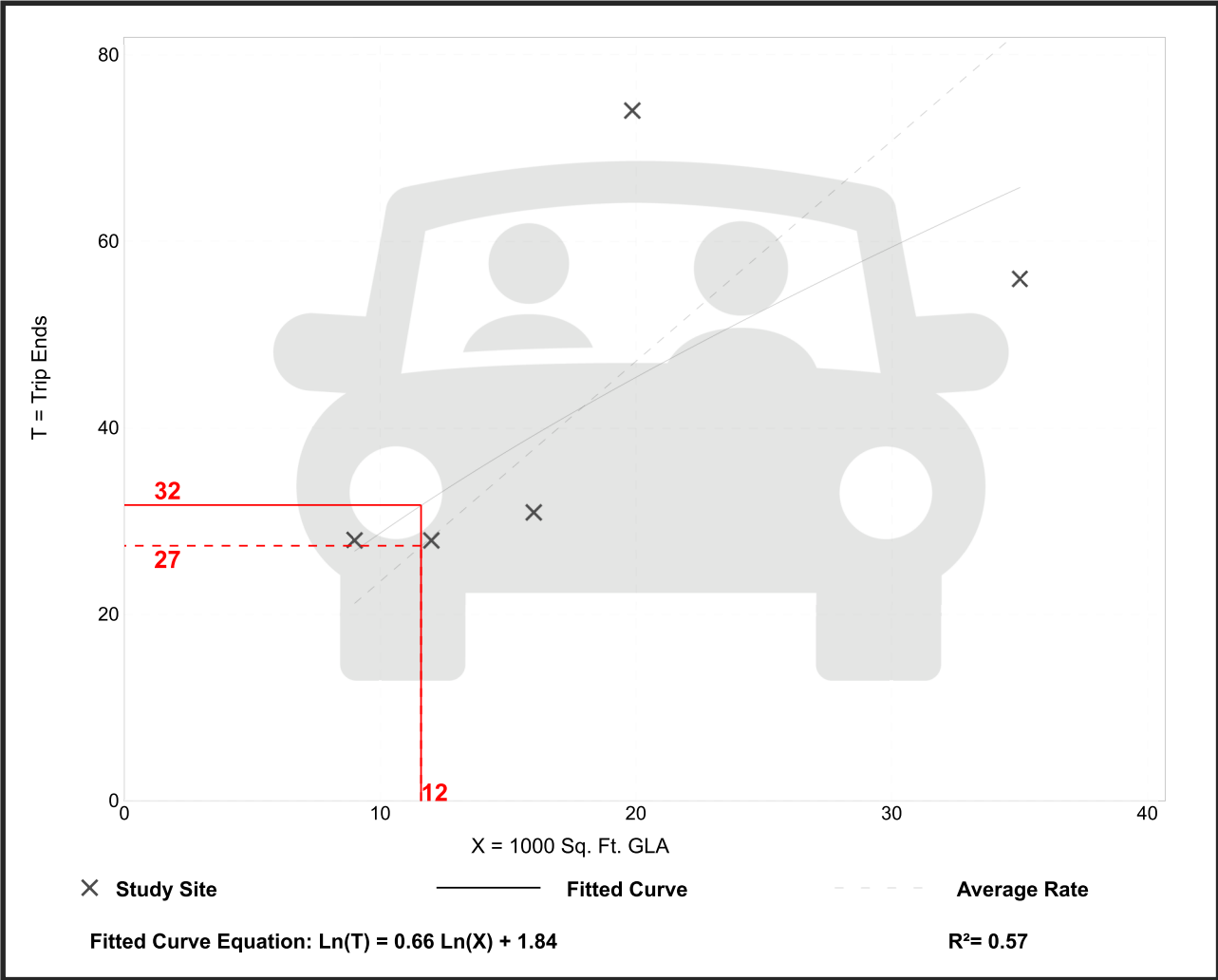
**Vehicle Trip Ends vs: 1000 Sq. Ft. GLA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 5  
 Avg. 1000 Sq. Ft. GLA: 18  
 Directional Distribution: 60% entering, 40% exiting

### Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

### Data Plot and Equation

*Caution – Small Sample Size*



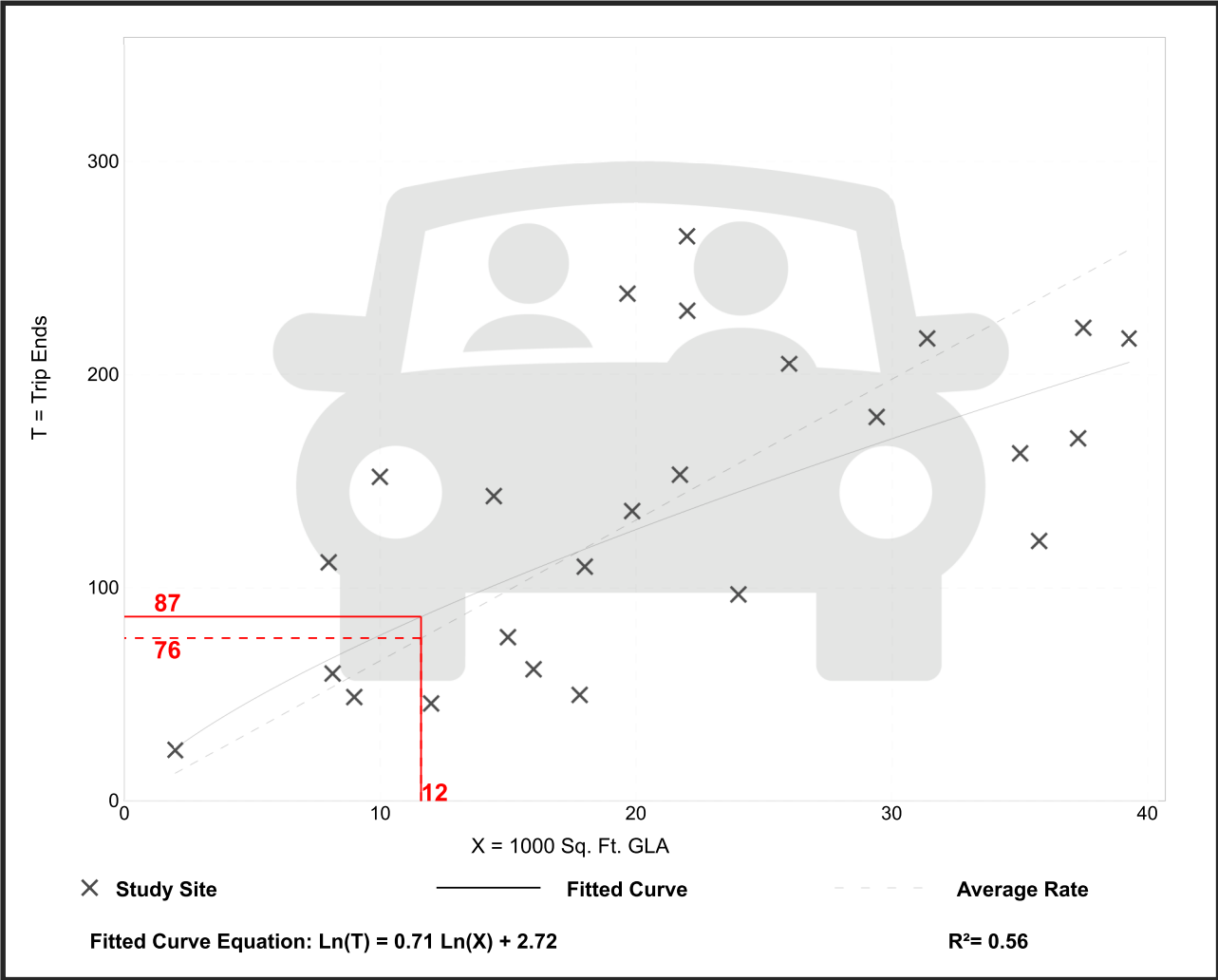
# Strip Retail Plaza (<40k) (822)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GLA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 25  
 Avg. 1000 Sq. Ft. GLA: 21  
 Directional Distribution: 50% entering, 50% exiting

### Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

### Data Plot and Equation



# Strip Retail Plaza (<40k)

## (822)

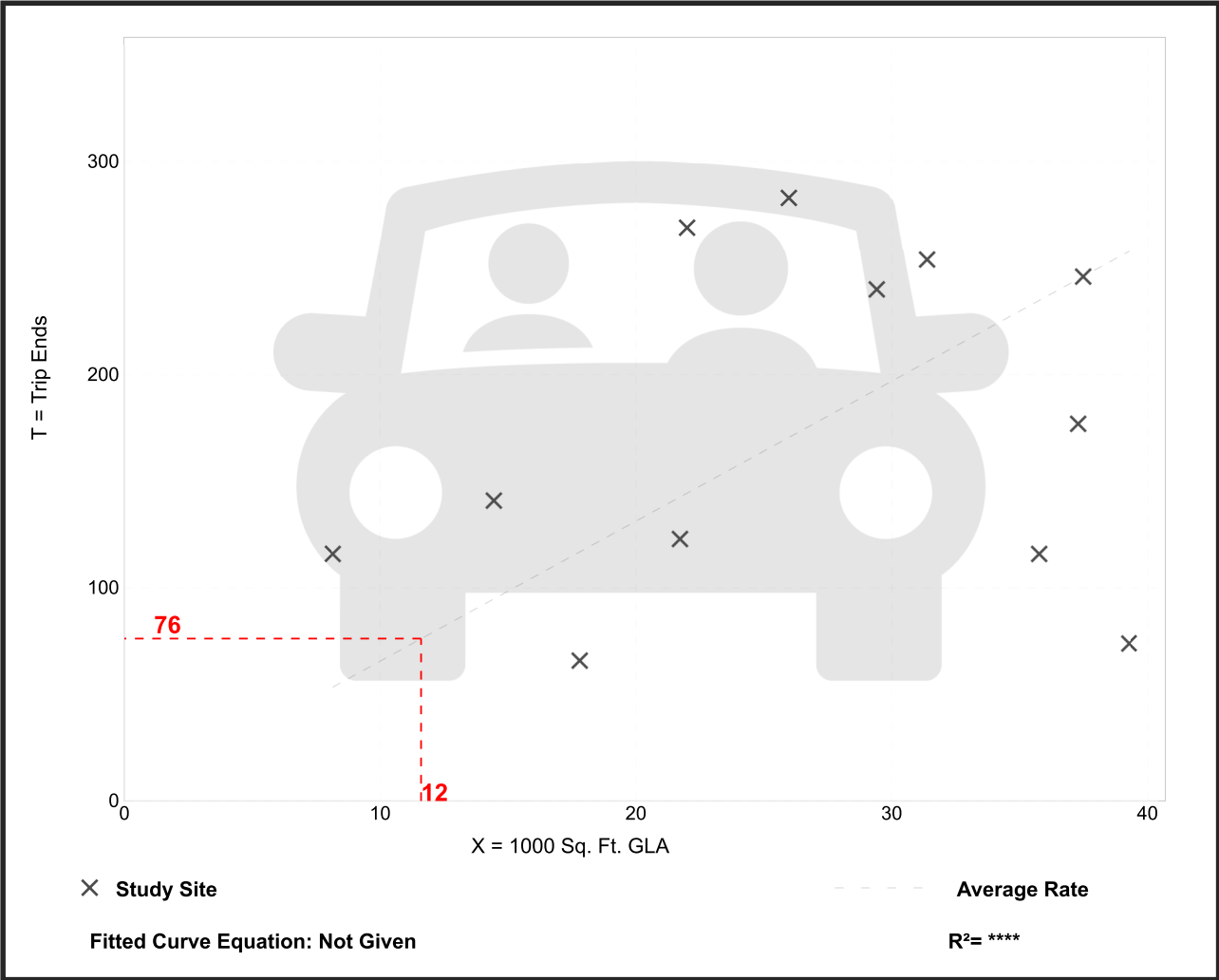
**Vehicle Trip Ends vs: 1000 Sq. Ft. GLA**  
**On a: Saturday, Peak Hour of Generator**

**Setting/Location: General Urban/Suburban**  
 Number of Studies: 12  
 Avg. 1000 Sq. Ft. GLA: 27  
 Directional Distribution: 51% entering, 49% exiting

### Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.57	1.88 - 14.23	3.45

### Data Plot and Equation



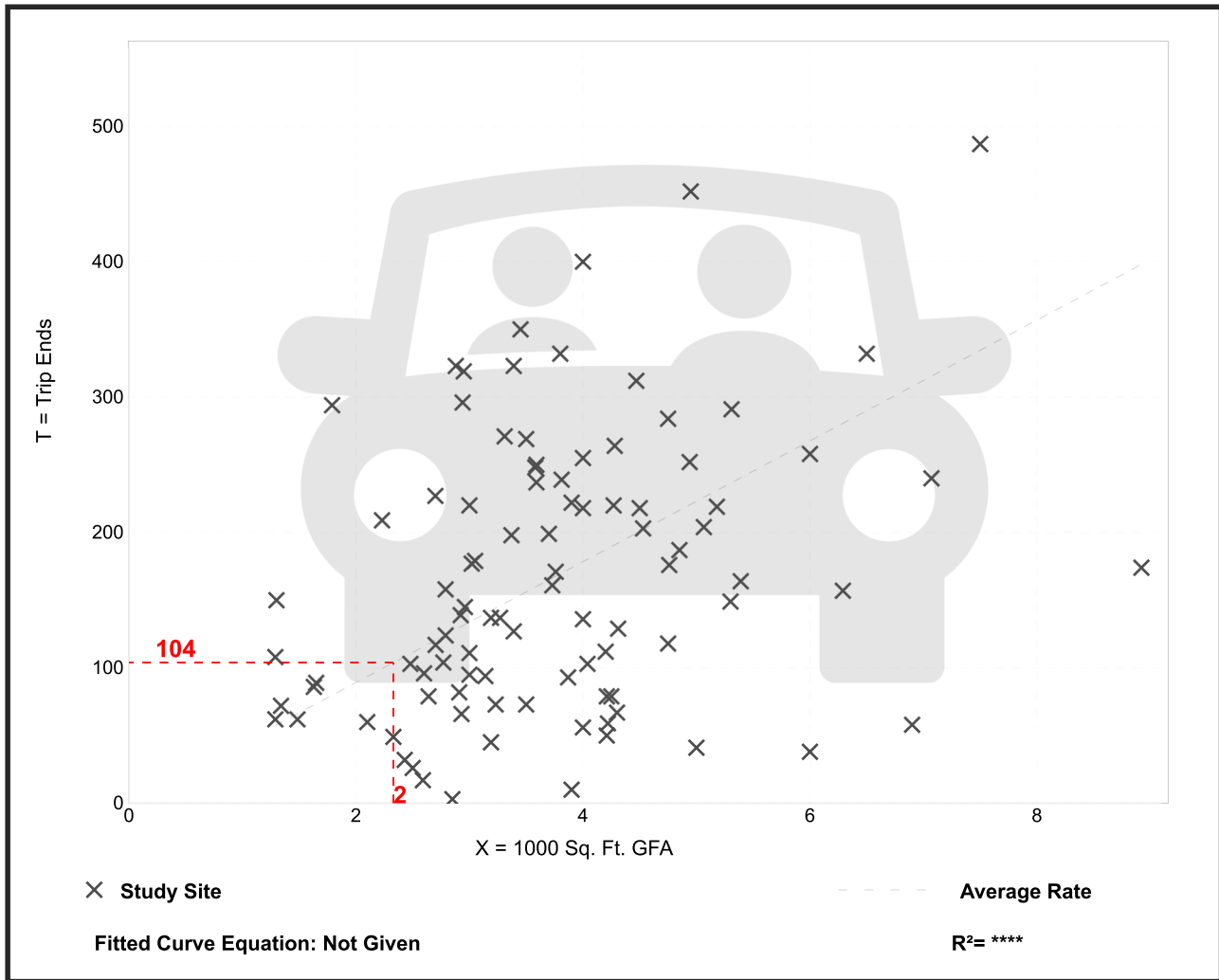
# Fast-Food Restaurant with Drive-Through Window (934)

**Vehicle Trip Ends vs:** 1000 Sq. Ft. GFA  
**On a:** Weekday,  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**  
**Setting/Location:** General Urban/Suburban  
 Number of Studies: 96  
 Avg. 1000 Sq. Ft. GFA: 4  
 Directional Distribution: 51% entering, 49% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
44.61	1.05 - 164.25	27.14

## Data Plot and Equation



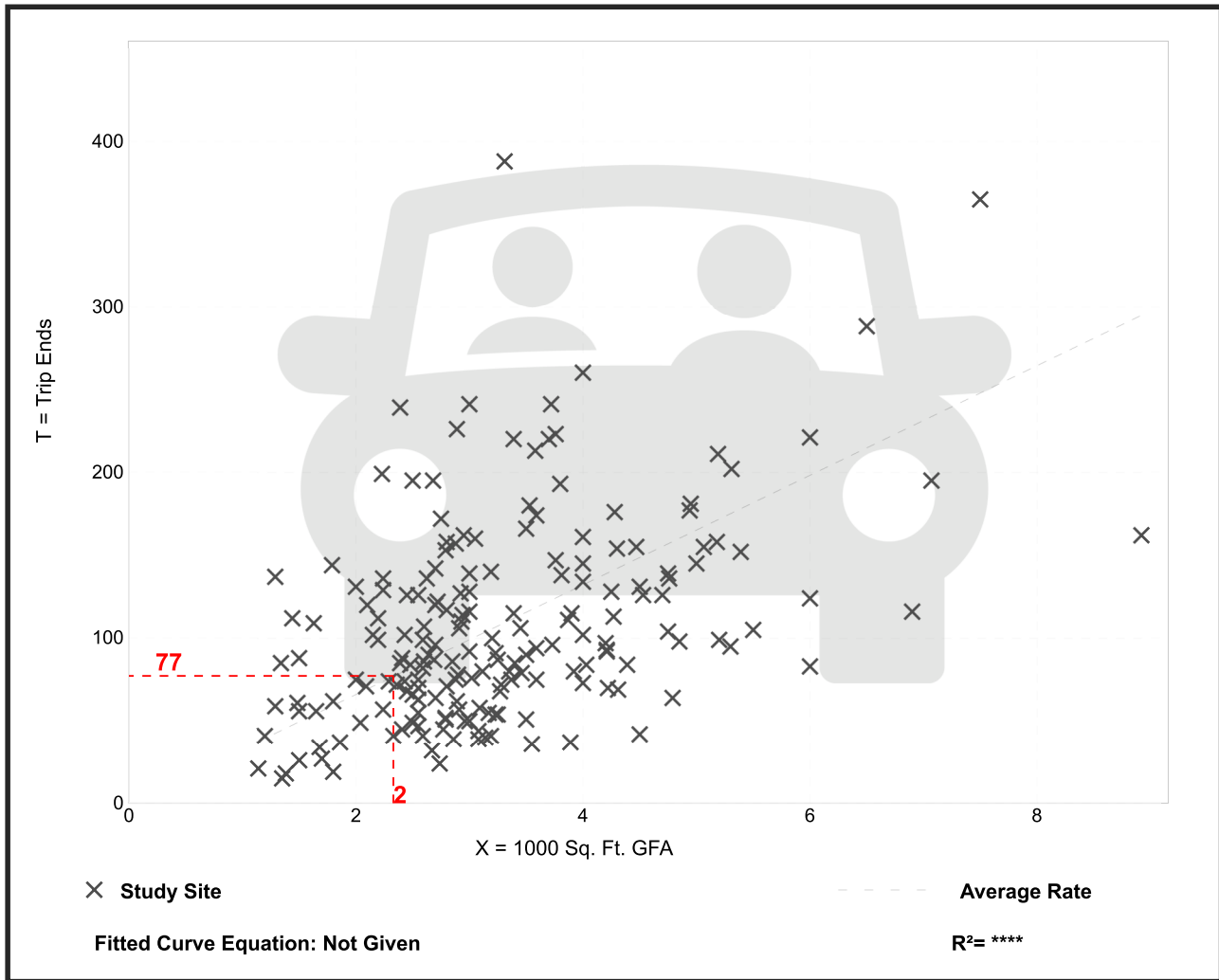
# Fast-Food Restaurant with Drive-Through Window (934)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 190  
 Avg. 1000 Sq. Ft. GFA: 3  
 Directional Distribution: 52% entering, 48% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
33.03	8.77 - 117.22	17.59

## Data Plot and Equation





# Fast-Food Restaurant with Drive-Through Window (934)

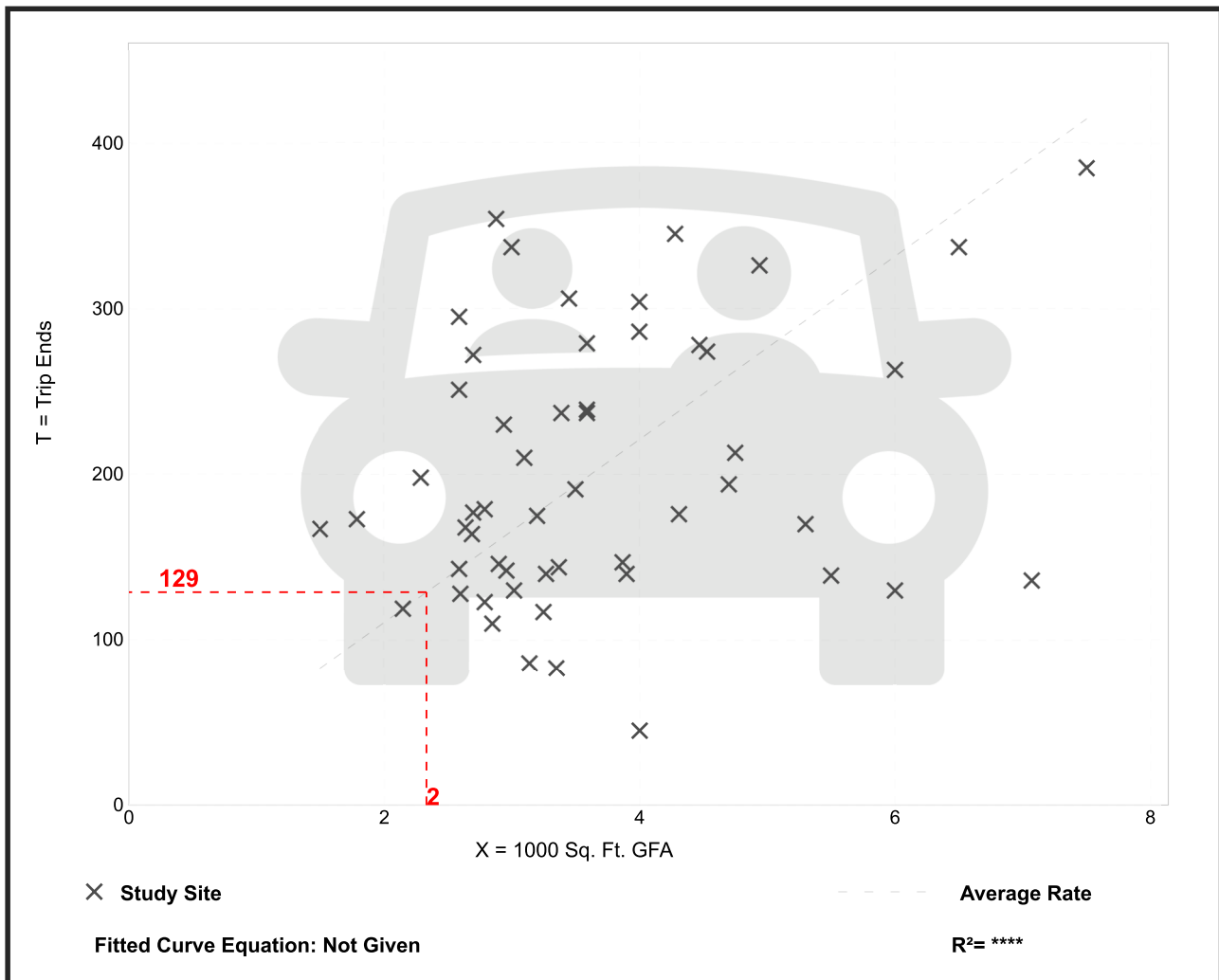
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA  
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban  
Number of Studies: 53  
Avg. 1000 Sq. Ft. GFA: 4  
Directional Distribution: 51% entering, 49% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
55.25	11.25 - 122.92	24.62

## Data Plot and Equation



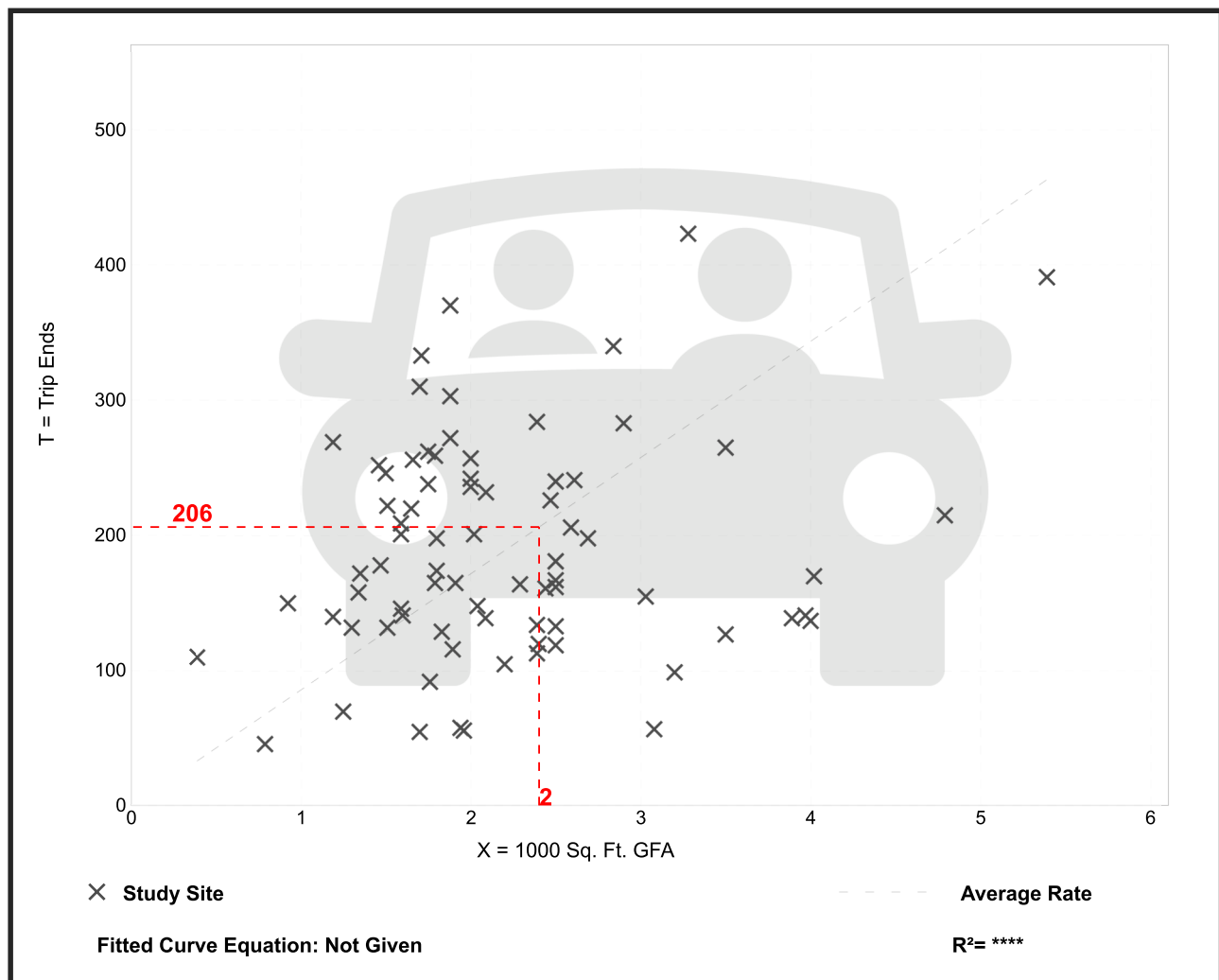
# Coffee/Donut Shop with Drive-Through Window (937)

**Vehicle Trip Ends vs:** 1000 Sq. Ft. GFA  
**On a:** Weekday,  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**  
**Setting/Location:** General Urban/Suburban  
 Number of Studies: 78  
 Avg. 1000 Sq. Ft. GFA: 2  
 Directional Distribution: 51% entering, 49% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
85.88	18.51 - 282.05	44.92

## Data Plot and Equation



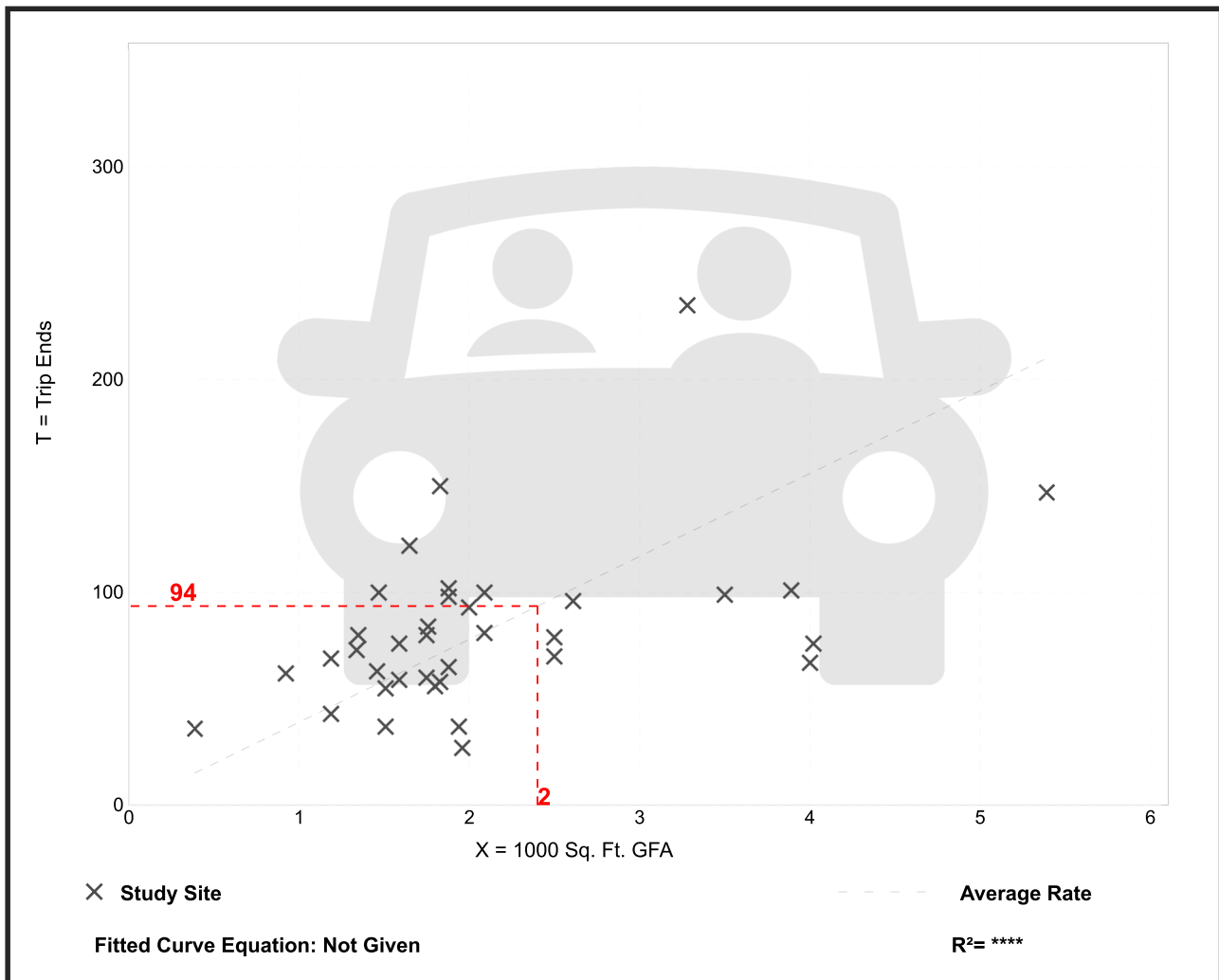
# Coffee/Donut Shop with Drive-Through Window (937)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 36  
 Avg. 1000 Sq. Ft. GFA: 2  
 Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
38.99	13.78 - 92.31	17.79

## Data Plot and Equation



# Coffee/Donut Shop with Drive-Through Window (937)

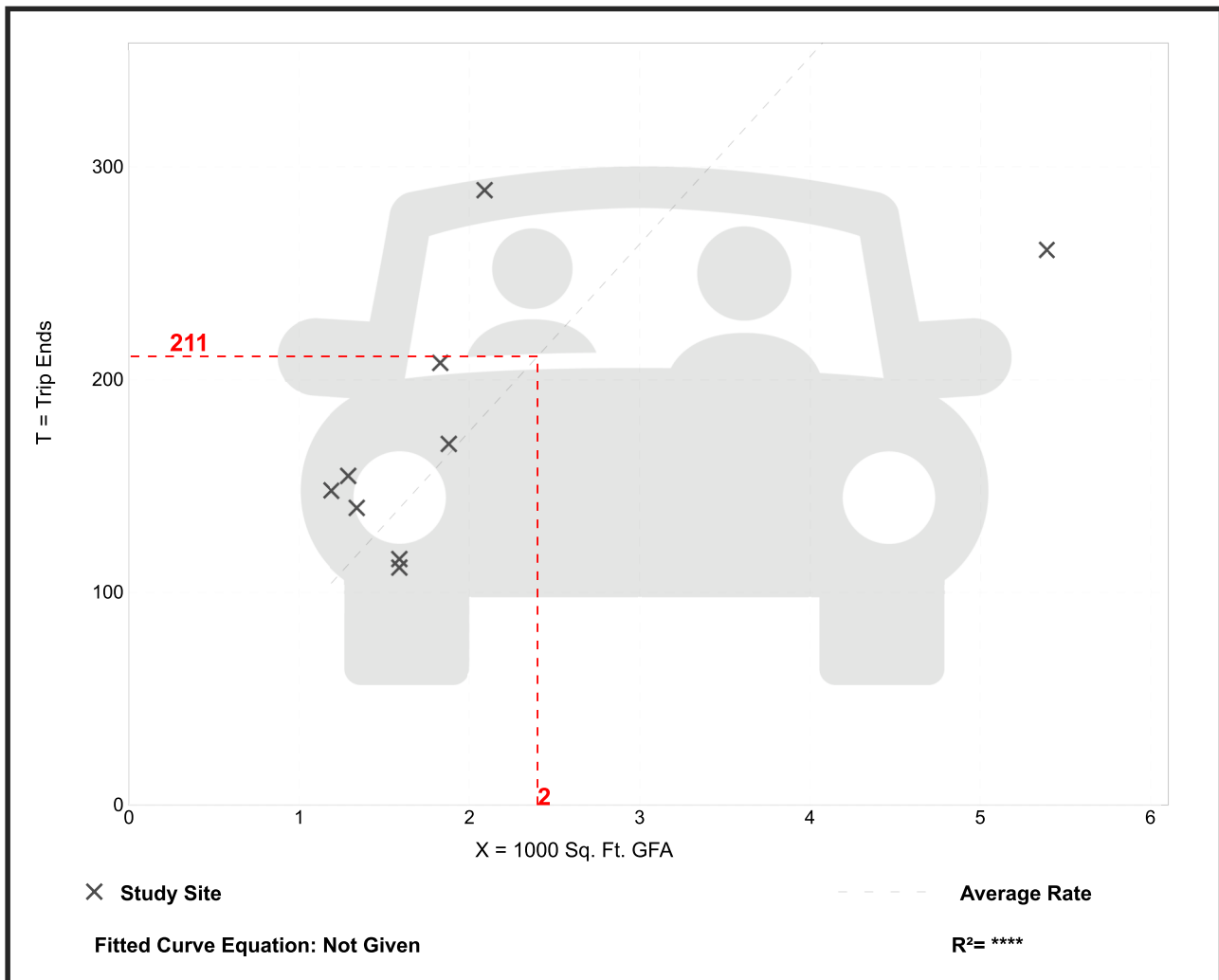
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA  
On a: Saturday, Peak Hour of Generator

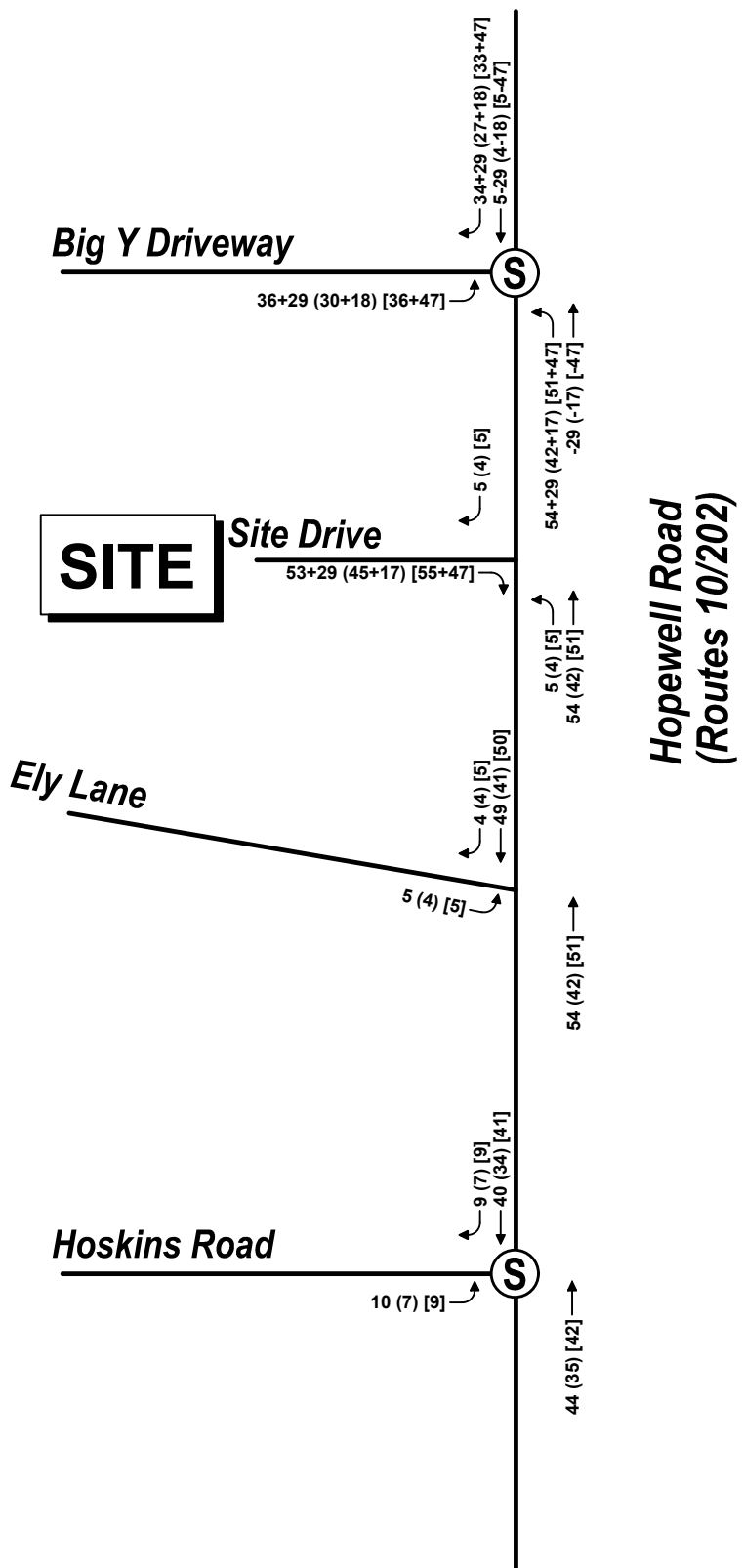
Setting/Location: General Urban/Suburban  
Number of Studies: 9  
Avg. 1000 Sq. Ft. GFA: 2  
Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
87.91	48.42 - 138.28	34.34

## Data Plot and Equation





# Weekday Morning Peak Hour  
 # (Weekday Evening Peak Hour)  
 # [Saturday Midday Peak Hour]



Not to Scale



Site Generated Trips

Figure

Mixed-Use Development  
 Simsbury, CT



---

## Attachment E – Capacity Analyses

HCM Unsignalized Intersection Capacity Analysis  
3: Route 10/202 & Ely Lane

2022 Existing Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	28	39	449	511	5
Future Volume (Veh/h)	13	28	39	449	511	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.71	0.71	0.88	0.88	0.86	0.86
Hourly flow rate (vph)	18	39	44	510	594	6
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				365	948	
pX, platoon unblocked	0.80	0.72	0.72			
vC, conflicting volume	1195	597	600			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	688	251	255			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	93	95			
cM capacity (veh/h)	317	573	947			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	57	554	600			
Volume Left	18	44	0			
Volume Right	39	0	6			
cSH	456	947	1700			
Volume to Capacity	0.12	0.05	0.35			
Queue Length 95th (ft)	11	4	0			
Control Delay (s)	14.0	1.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.0	1.3	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.2			
Intersection Capacity Utilization			65.9%	ICU Level of Service	C	
Analysis Period (min)			15			

Queues  
5: Route 10/202 & Hoskins Road

2022 Existing Conditions  
Weekday Morning Peak Hour

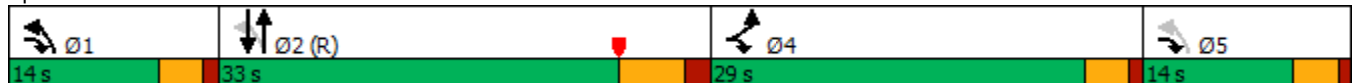


Lane Group	EBL	EBR	NBL	NBT	SBT	Ø5
Lane Configurations						
Traffic Volume (vph)	57	197	101	431	522	
Future Volume (vph)	57	197	101	431	522	
Lane Group Flow (vph)	78	270	116	495	620	
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	5
Permitted Phases			2 5			
Detector Phase	4	4	1	2	2	
Switch Phase						
Minimum Initial (s)	9.0		6.0	15.0	15.0	6.0
Minimum Split (s)	22.5		10.5	22.5	22.5	10.0
Total Split (s)	29.0		14.0	33.0	33.0	14.0
Total Split (%)	32.2%		15.6%	36.7%	36.7%	16%
Yellow Time (s)	3.0		3.0	4.4	4.4	3.0
All-Red Time (s)	1.0		1.0	1.7	1.7	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		4.0	6.1	6.1	
Lead/Lag	Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes
Recall Mode	None		None	C-Min	C-Min	None
v/c Ratio	0.25	0.54	0.23	0.44	0.58	
Control Delay	31.9	20.8	5.6	14.3	17.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.9	20.8	5.6	14.3	17.0	
Queue Length 50th (ft)	39	88	16	150	210	
Queue Length 95th (ft)	57	94	39	287	399	
Internal Link Dist (ft)	612			389	285	
Turn Bay Length (ft)	230		160			
Base Capacity (vph)	484	548	525	1113	1072	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.49	0.22	0.44	0.58	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 10 (11%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Route 10/202 & Hoskins Road





HCM Signalized Intersection Capacity Analysis  
5: Route 10/202 & Hoskins Road

2022 Existing Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	57	197	101	431	522	17
Future Volume (vph)	57	197	101	431	522	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	10	10	12	11	11
Total Lost time (s)	4.0	4.0	4.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1745	1507	1668	1881	1811	
Flt Permitted	0.95	1.00	0.32	1.00	1.00	
Satd. Flow (perm)	1745	1507	559	1881	1811	
Peak-hour factor, PHF	0.73	0.73	0.87	0.87	0.87	0.87
Adj. Flow (vph)	78	270	116	495	600	20
RTOR Reduction (vph)	0	52	0	0	1	0
Lane Group Flow (vph)	78	218	116	495	619	0
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	
Permitted Phases			2 5			
Actuated Green, G (s)	16.0	27.4	59.9	52.5	52.5	
Effective Green, g (s)	16.0	27.4	59.9	52.5	52.5	
Actuated g/C Ratio	0.18	0.30	0.67	0.58	0.58	
Clearance Time (s)	4.0		4.0	6.1	6.1	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	310	458	463	1097	1056	
v/s Ratio Prot	0.04	c0.14	0.02	0.26	c0.34	
v/s Ratio Perm			0.15			
v/c Ratio	0.25	0.48	0.25	0.45	0.59	
Uniform Delay, d1	31.8	25.5	6.6	10.6	11.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.8	0.3	1.3	2.4	
Delay (s)	32.3	26.2	6.9	11.9	14.3	
Level of Service	C	C	A	B	B	
Approach Delay (s)	27.6			11.0	14.3	
Approach LOS	C			B	B	

Intersection Summary

HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues  
8: Route 10/202 & Big Y

2022 Existing Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	61	22	11	451	494
Future Volume (vph)	61	22	11	451	494
Lane Group Flow (vph)	85	31	13	524	660
Turn Type	Perm	pt+ov	D.P+P	NA	NA
Protected Phases		1 4	1	1 2	2
Permitted Phases	4		2		
Detector Phase	4	1 4	1	1 2	2
Switch Phase					
Minimum Initial (s)	9.0		5.0		15.0
Minimum Split (s)	22.5		9.0		30.6
Total Split (s)	29.0		19.0		30.6
Total Split (%)	36.9%		24.2%		38.9%
Yellow Time (s)	3.0		3.0		4.0
All-Red Time (s)	1.0		1.0		1.6
Lost Time Adjust (s)	0.0		0.0		0.0
Total Lost Time (s)	4.0		4.0		5.6
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None		None		Min
v/c Ratio	0.30	0.05	0.02	0.38	0.78
Control Delay	26.3	4.3	2.8	4.3	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	4.3	2.8	4.3	24.6
Queue Length 50th (ft)	27	0	1	57	194
Queue Length 95th (ft)	52	8	4	99	#377
Internal Link Dist (ft)	149			868	614
Turn Bay Length (ft)	130		215		
Base Capacity (vph)	765	820	668	1369	847
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.04	0.02	0.38	0.78

Intersection Summary

Cycle Length: 78.6  
 Actuated Cycle Length: 56.1  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 8: Route 10/202 & Big Y



HCM Signalized Intersection Capacity Analysis  
8: Route 10/202 & Big Y

2022 Existing Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	61	22	11	451	494	54
Future Volume (vph)	61	22	11	451	494	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	11	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1668	1599	1770	1801	1838	
Flt Permitted	0.95	1.00	0.21	1.00	1.00	
Satd. Flow (perm)	1668	1599	400	1801	1838	
Peak-hour factor, PHF	0.72	0.72	0.86	0.86	0.83	0.83
Adj. Flow (vph)	85	31	13	524	595	65
RTOR Reduction (vph)	0	19	0	0	4	0
Lane Group Flow (vph)	85	12	13	524	656	0
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type	Perm	pt+ov	D.P+P	NA	NA	
Protected Phases		1 4	1	1 2	2	
Permitted Phases	4		2			
Actuated Green, G (s)	7.0	21.5	36.3	40.3	25.8	
Effective Green, g (s)	7.0	21.5	36.3	40.3	25.8	
Actuated g/C Ratio	0.12	0.38	0.64	0.71	0.45	
Clearance Time (s)	4.0		4.0		5.6	
Vehicle Extension (s)	2.0		1.5		2.5	
Lane Grp Cap (vph)	205	604	507	1275	833	
v/s Ratio Prot		0.01	0.00	c0.29	c0.36	
v/s Ratio Perm	c0.05		0.01			
v/c Ratio	0.41	0.02	0.03	0.41	0.79	
Uniform Delay, d1	23.1	11.1	5.1	3.4	13.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.0	0.0	0.1	4.8	
Delay (s)	23.6	11.1	5.1	3.5	18.0	
Level of Service	C	B	A	A	B	
Approach Delay (s)	20.2			3.5	18.0	
Approach LOS	C			A	B	

Intersection Summary

HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	56.9	Sum of lost time (s)	13.6
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
3: Route 10/202 & Ely Lane

2022 Existing Conditions  
Weekday Evening Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	56	101	100	634	583	17
Future Volume (Veh/h)	56	101	100	634	583	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.99	0.99	0.92	0.92
Hourly flow rate (vph)	73	131	101	640	634	18
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				365	948	
pX, platoon unblocked	0.80	0.66	0.66			
vC, conflicting volume	1485	643	652			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	713	210	224			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	74	76	89			
cM capacity (veh/h)	286	555	902			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	204	741	652			
Volume Left	73	101	0			
Volume Right	131	0	18			
cSH	415	902	1700			
Volume to Capacity	0.49	0.11	0.38			
Queue Length 95th (ft)	66	9	0			
Control Delay (s)	21.8	2.8	0.0			
Lane LOS	C	A				
Approach Delay (s)	21.8	2.8	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			4.1			
Intersection Capacity Utilization			89.9%	ICU Level of Service	E	
Analysis Period (min)			15			

Queues  
5: Route 10/202 & Hoskins Road

2022 Existing Conditions  
Weekday Evening Peak Hour

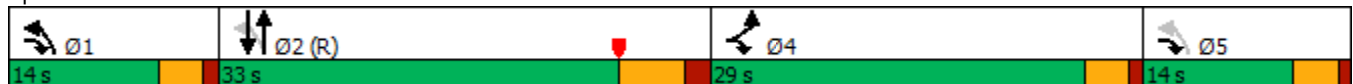


Lane Group	EBL	EBR	NBL	NBT	SBT	Ø5
Lane Configurations						
Traffic Volume (vph)	60	93	168	674	666	
Future Volume (vph)	60	93	168	674	666	
Lane Group Flow (vph)	73	113	187	749	844	
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	5
Permitted Phases			2 5			
Detector Phase	4	4	1	2	2	
Switch Phase						
Minimum Initial (s)	9.0		5.0	15.0	15.0	6.0
Minimum Split (s)	16.0		9.0	32.6	32.6	10.0
Total Split (s)	29.0		14.0	33.0	33.0	14.0
Total Split (%)	32.2%		15.6%	36.7%	36.7%	16%
Yellow Time (s)	3.0		3.0	4.4	4.4	3.0
All-Red Time (s)	1.0		1.0	1.7	1.7	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		4.0	6.1	6.1	
Lead/Lag	Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes
Recall Mode	None		None	C-Min	C-Min	None
v/c Ratio	0.36	0.24	0.44	0.67	0.78	
Control Delay	41.7	18.1	6.4	17.5	22.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.7	18.1	6.4	17.5	22.1	
Queue Length 50th (ft)	39	37	17	258	326	
Queue Length 95th (ft)	71	61	39	490	#510	
Internal Link Dist (ft)	612			389	285	
Turn Bay Length (ft)	230		160			
Base Capacity (vph)	484	487	435	1126	1085	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.15	0.23	0.43	0.67	0.78	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 39 (43%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Route 10/202 & Hoskins Road



HCM Signalized Intersection Capacity Analysis  
5: Route 10/202 & Hoskins Road

2022 Existing Conditions  
Weekday Evening Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	93	168	674	666	18
Future Volume (vph)	60	93	168	674	666	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	10	10	12	11	11
Total Lost time (s)	4.0	4.0	4.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1745	1507	1685	1900	1830	
Flt Permitted	0.95	1.00	0.18	1.00	1.00	
Satd. Flow (perm)	1745	1507	315	1900	1830	
Peak-hour factor, PHF	0.82	0.82	0.90	0.90	0.81	0.81
Adj. Flow (vph)	73	113	187	749	822	22
RTOR Reduction (vph)	0	18	0	0	1	0
Lane Group Flow (vph)	73	95	187	749	843	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	
Permitted Phases			2 5			
Actuated Green, G (s)	10.3	26.5	65.6	53.4	53.4	
Effective Green, g (s)	10.3	26.5	65.6	53.4	53.4	
Actuated g/C Ratio	0.11	0.29	0.73	0.59	0.59	
Clearance Time (s)	4.0		4.0	6.1	6.1	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	199	443	415	1127	1085	
v/s Ratio Prot	c0.04	0.06	c0.06	0.39	c0.46	
v/s Ratio Perm			0.27			
v/c Ratio	0.37	0.21	0.45	0.66	0.78	
Uniform Delay, d1	36.8	23.9	9.2	12.3	13.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.2	0.8	3.1	5.5	
Delay (s)	38.0	24.1	10.0	15.4	19.3	
Level of Service	D	C	A	B	B	
Approach Delay (s)	29.6			14.3	19.3	
Approach LOS	C			B	B	

Intersection Summary

HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues  
8: Route 10/202 & Big Y

2022 Existing Conditions  
Weekday Evening Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	34	27	15	675	573
Future Volume (vph)	34	27	15	675	573
Lane Group Flow (vph)	47	37	17	785	807
Turn Type	Perm	pt+ov	D.P+P	NA	NA
Protected Phases		1 4	1	1 2	2
Permitted Phases	4		2		
Detector Phase	4	1 4	1	1 2	2
Switch Phase					
Minimum Initial (s)	9.0		5.0		15.0
Minimum Split (s)	22.5		9.0		32.6
Total Split (s)	29.0		24.0		40.6
Total Split (%)	31.0%		25.6%		43.4%
Yellow Time (s)	3.0		3.0		4.0
All-Red Time (s)	1.0		1.0		1.6
Lost Time Adjust (s)	0.0		0.0		0.0
Total Lost Time (s)	4.0		4.0		5.6
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None		None		Min
v/c Ratio	0.21	0.06	0.03	0.53	0.85
Control Delay	33.6	5.1	2.1	4.6	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.6	5.1	2.1	4.6	29.5
Queue Length 50th (ft)	20	0	1	106	336
Queue Length 95th (ft)	42	11	4	151	#581
Internal Link Dist (ft)	149			868	614
Turn Bay Length (ft)	130		215		
Base Capacity (vph)	611	743	636	1482	948
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.05	0.03	0.53	0.85

Intersection Summary

Cycle Length: 93.6  
 Actuated Cycle Length: 70.8  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 8: Route 10/202 & Big Y



HCM Signalized Intersection Capacity Analysis  
8: Route 10/202 & Big Y

2022 Existing Conditions  
Weekday Evening Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	27	15	675	573	137
Future Volume (vph)	34	27	15	675	573	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	11	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1685	1615	1787	1818	1850	
Flt Permitted	0.95	1.00	0.13	1.00	1.00	
Satd. Flow (perm)	1685	1615	241	1818	1850	
Peak-hour factor, PHF	0.73	0.73	0.86	0.86	0.88	0.88
Adj. Flow (vph)	47	37	17	785	651	156
RTOR Reduction (vph)	0	24	0	0	7	0
Lane Group Flow (vph)	47	13	17	785	800	0
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	Perm	pt+ov	D.P+P	NA	NA	
Protected Phases		1 4	1	1 2	2	
Permitted Phases	4		2			
Actuated Green, G (s)	6.7	25.9	51.2	55.2	36.0	
Effective Green, g (s)	6.7	25.9	51.2	55.2	36.0	
Actuated g/C Ratio	0.09	0.36	0.72	0.77	0.50	
Clearance Time (s)	4.0		4.0		5.6	
Vehicle Extension (s)	2.0		1.5		2.5	
Lane Grp Cap (vph)	157	585	501	1403	931	
v/s Ratio Prot		0.01	0.01	c0.43	c0.43	
v/s Ratio Perm	c0.03		0.02			
v/c Ratio	0.30	0.02	0.03	0.56	0.86	
Uniform Delay, d1	30.2	14.7	6.8	3.3	15.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.0	0.0	0.3	7.9	
Delay (s)	30.6	14.7	6.8	3.5	23.4	
Level of Service	C	B	A	A	C	
Approach Delay (s)	23.6			3.6	23.4	
Approach LOS	C			A	C	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	13.6
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



HCM Unsignalized Intersection Capacity Analysis  
3: Route 10/202 & Ely Lane

2022 Existing Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	59	99	98	533	473	25
Future Volume (Veh/h)	59	99	98	533	473	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.76	0.76	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	78	130	110	599	531	28
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				365	948	
pX, platoon unblocked	0.87	0.78	0.78			
vC, conflicting volume	1364	545	559			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	889	277	295			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	68	78	89			
cM capacity (veh/h)	243	597	998			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	208	709	559			
Volume Left	78	110	0			
Volume Right	130	0	28			
cSH	386	998	1700			
Volume to Capacity	0.54	0.11	0.33			
Queue Length 95th (ft)	77	9	0			
Control Delay (s)	24.7	2.7	0.0			
Lane LOS	C	A				
Approach Delay (s)	24.7	2.7	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			4.8			
Intersection Capacity Utilization			79.2%	ICU Level of Service	D	
Analysis Period (min)			15			

Queues  
5: Route 10/202 & Hoskins Road

2022 Existing Conditions  
Saturday Midday Peak Hour

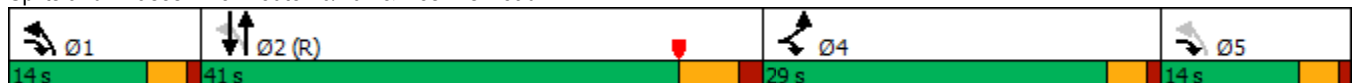


Lane Group	EBL	EBR	NBL	NBT	SBT	Ø5
Lane Configurations						
Traffic Volume (vph)	50	119	103	581	548	
Future Volume (vph)	50	119	103	581	548	
Lane Group Flow (vph)	54	129	112	632	622	
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	5
Permitted Phases			2 5			
Detector Phase	4	4	1	2	2	
Switch Phase						
Minimum Initial (s)	9.0		6.0	15.0	15.0	6.0
Minimum Split (s)	22.5		10.0	24.1	24.1	10.0
Total Split (s)	29.0		14.0	41.0	41.0	14.0
Total Split (%)	29.6%		14.3%	41.8%	41.8%	14%
Yellow Time (s)	3.0		3.0	4.4	4.4	3.0
All-Red Time (s)	1.0		1.0	1.7	1.7	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		4.0	6.1	6.1	
Lead/Lag	Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes
Recall Mode	None		None	C-Min	C-Min	None
v/c Ratio	0.32	0.31	0.20	0.50	0.51	
Control Delay	46.1	9.0	2.7	9.6	9.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.1	9.0	2.7	9.6	9.8	
Queue Length 50th (ft)	32	5	9	158	157	
Queue Length 95th (ft)	68	49	21	290	291	
Internal Link Dist (ft)	612			389	285	
Turn Bay Length (ft)	230		160			
Base Capacity (vph)	436	468	613	1271	1222	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.12	0.28	0.18	0.50	0.51	

Intersection Summary

Cycle Length: 98  
 Actuated Cycle Length: 98  
 Offset: 10 (10%), Referenced to phase 2:NBSB and 6:, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Route 10/202 & Hoskins Road



HCM Signalized Intersection Capacity Analysis  
5: Route 10/202 & Hoskins Road

2022 Existing Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	119	103	581	548	24
Future Volume (vph)	50	119	103	581	548	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	10	10	12	11	11
Total Lost time (s)	4.0	4.0	4.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1711	1478	1652	1863	1790	
Flt Permitted	0.95	1.00	0.36	1.00	1.00	
Satd. Flow (perm)	1711	1478	631	1863	1790	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	129	112	632	596	26
RTOR Reduction (vph)	0	94	0	0	1	0
Lane Group Flow (vph)	54	36	112	632	621	0
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	
Permitted Phases			2 5			
Actuated Green, G (s)	9.7	21.0	74.2	66.9	66.9	
Effective Green, g (s)	9.7	21.0	74.2	66.9	66.9	
Actuated g/C Ratio	0.10	0.21	0.76	0.68	0.68	
Clearance Time (s)	4.0		4.0	6.1	6.1	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	169	316	553	1271	1221	
v/s Ratio Prot	c0.03	0.02	c0.02	0.34	c0.35	
v/s Ratio Perm			0.14			
v/c Ratio	0.32	0.11	0.20	0.50	0.51	
Uniform Delay, d1	41.1	31.0	3.7	7.5	7.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.2	0.2	1.4	1.5	
Delay (s)	42.2	31.2	3.9	8.9	9.1	
Level of Service	D	C	A	A	A	
Approach Delay (s)	34.4			8.1	9.1	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	98.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues  
8: Route 10/202 & Big Y

2022 Existing Conditions  
Saturday Midday Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	42	16	12	580	482
Future Volume (vph)	42	16	12	580	482
Lane Group Flow (vph)	62	24	14	659	605
Turn Type	Perm	pt+ov	D.P+P	NA	NA
Protected Phases		1 4	1	1 2	2
Permitted Phases	4		2		
Detector Phase	4	1 4	1	1 2	2
Switch Phase					
Minimum Initial (s)	9.0		5.0		15.0
Minimum Split (s)	22.5		9.0		32.6
Total Split (s)	29.0		24.0		40.6
Total Split (%)	31.0%		25.6%		43.4%
Yellow Time (s)	3.0		3.0		4.0
All-Red Time (s)	1.0		1.0		1.6
Lost Time Adjust (s)	0.0		0.0		0.0
Total Lost Time (s)	4.0		4.0		5.6
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None		None		Min
v/c Ratio	0.24	0.04	0.02	0.45	0.68
Control Delay	32.2	5.9	2.2	4.1	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	5.9	2.2	4.1	19.5
Queue Length 50th (ft)	25	0	1	79	190
Queue Length 95th (ft)	47	8	4	131	357
Internal Link Dist (ft)	149			868	614
Turn Bay Length (ft)	130		215		
Base Capacity (vph)	709	836	848	1523	1111
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.02	0.43	0.54

Intersection Summary

Cycle Length: 93.6  
 Actuated Cycle Length: 63.7  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Route 10/202 & Big Y



HCM Signalized Intersection Capacity Analysis  
8: Route 10/202 & Big Y

2022 Existing Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	16	12	580	482	81
Future Volume (vph)	42	16	12	580	482	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	11	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1620	1553	1805	1837	1863	
Flt Permitted	0.95	1.00	0.27	1.00	1.00	
Satd. Flow (perm)	1620	1553	517	1837	1863	
Peak-hour factor, PHF	0.68	0.68	0.88	0.88	0.93	0.93
Adj. Flow (vph)	62	24	14	659	518	87
RTOR Reduction (vph)	0	15	0	0	5	0
Lane Group Flow (vph)	62	9	14	659	600	0
Heavy Vehicles (%)	4%	4%	0%	0%	0%	0%
Turn Type	Perm	pt+ov	D.P+P	NA	NA	
Protected Phases		1 4	1	1 2	2	
Permitted Phases	4		2			
Actuated Green, G (s)	6.7	23.9	43.5	47.5	30.3	
Effective Green, g (s)	6.7	23.9	43.5	47.5	30.3	
Actuated g/C Ratio	0.11	0.37	0.68	0.74	0.47	
Clearance Time (s)	4.0		4.0		5.6	
Vehicle Extension (s)	2.0		1.5		2.5	
Lane Grp Cap (vph)	170	581	618	1367	884	
v/s Ratio Prot		0.01	0.00	c0.36	c0.32	
v/s Ratio Perm	c0.04		0.01			
v/c Ratio	0.36	0.02	0.02	0.48	0.68	
Uniform Delay, d1	26.6	12.5	4.3	3.2	13.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.0	0.0	0.1	1.9	
Delay (s)	27.1	12.6	4.3	3.3	14.9	
Level of Service	C	B	A	A	B	
Approach Delay (s)	23.0			3.4	14.9	
Approach LOS	C			A	B	

Intersection Summary

HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	63.8	Sum of lost time (s)	13.6
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 3: Route 10/202 & Ely Lane

2023 No-Build Conditions  
 Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	28	39	452	514	5
Future Volume (Veh/h)	13	28	39	452	514	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.71	0.71	0.88	0.88	0.86	0.86
Hourly flow rate (vph)	18	39	44	514	598	6
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				365	948	
pX, platoon unblocked	0.80	0.72	0.72			
vC, conflicting volume	1203	601	604			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	687	251	255			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	93	95			
cM capacity (veh/h)	316	571	943			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	57	558	604			
Volume Left	18	44	0			
Volume Right	39	0	6			
cSH	455	943	1700			
Volume to Capacity	0.13	0.05	0.36			
Queue Length 95th (ft)	11	4	0			
Control Delay (s)	14.0	1.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.0	1.3	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.2			
Intersection Capacity Utilization			66.1%	ICU Level of Service	C	
Analysis Period (min)			15			

Queues  
5: Route 10/202 & Hoskins Road

2023 No-Build Conditions  
Weekday Morning Peak Hour

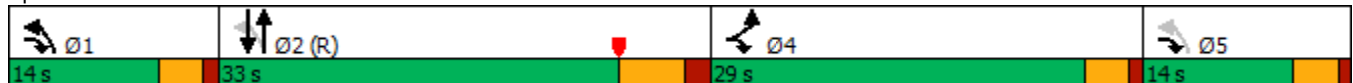


Lane Group	EBL	EBR	NBL	NBT	SBT	Ø5
Lane Configurations						
Traffic Volume (vph)	57	198	102	434	525	
Future Volume (vph)	57	198	102	434	525	
Lane Group Flow (vph)	78	271	117	499	623	
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	5
Permitted Phases			2 5			
Detector Phase	4	4	1	2	2	
Switch Phase						
Minimum Initial (s)	9.0		6.0	15.0	15.0	6.0
Minimum Split (s)	22.5		10.5	22.5	22.5	10.0
Total Split (s)	29.0		14.0	33.0	33.0	14.0
Total Split (%)	32.2%		15.6%	36.7%	36.7%	16%
Yellow Time (s)	3.0		3.0	4.4	4.4	3.0
All-Red Time (s)	1.0		1.0	1.7	1.7	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		4.0	6.1	6.1	
Lead/Lag	Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes
Recall Mode	None		None	C-Min	C-Min	None
v/c Ratio	0.25	0.54	0.24	0.45	0.58	
Control Delay	31.7	20.9	5.7	14.5	17.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.7	20.9	5.7	14.5	17.3	
Queue Length 50th (ft)	38	89	16	153	214	
Queue Length 95th (ft)	57	94	39	291	403	
Internal Link Dist (ft)	612			389	285	
Turn Bay Length (ft)	230		160			
Base Capacity (vph)	484	549	520	1109	1069	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.49	0.23	0.45	0.58	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 10 (11%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Route 10/202 & Hoskins Road



HCM Signalized Intersection Capacity Analysis  
5: Route 10/202 & Hoskins Road

2023 No-Build Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	57	198	102	434	525	17
Future Volume (vph)	57	198	102	434	525	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	10	10	12	11	11
Total Lost time (s)	4.0	4.0	4.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1745	1507	1668	1881	1811	
Flt Permitted	0.95	1.00	0.31	1.00	1.00	
Satd. Flow (perm)	1745	1507	552	1881	1811	
Peak-hour factor, PHF	0.73	0.73	0.87	0.87	0.87	0.87
Adj. Flow (vph)	78	271	117	499	603	20
RTOR Reduction (vph)	0	51	0	0	1	0
Lane Group Flow (vph)	78	220	117	499	622	0
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	
Permitted Phases			2 5			
Actuated Green, G (s)	16.2	27.7	59.7	52.2	52.2	
Effective Green, g (s)	16.2	27.7	59.7	52.2	52.2	
Actuated g/C Ratio	0.18	0.31	0.66	0.58	0.58	
Clearance Time (s)	4.0		4.0	6.1	6.1	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	314	463	459	1090	1050	
v/s Ratio Prot	0.04	c0.15	0.02	0.27	c0.34	
v/s Ratio Perm			0.15			
v/c Ratio	0.25	0.47	0.25	0.46	0.59	
Uniform Delay, d1	31.7	25.3	6.8	10.8	12.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.8	0.3	1.4	2.5	
Delay (s)	32.1	26.0	7.1	12.2	14.6	
Level of Service	C	C	A	B	B	
Approach Delay (s)	27.4			11.2	14.6	
Approach LOS	C			B	B	

Intersection Summary				
HCM 2000 Control Delay		16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio		0.61		
Actuated Cycle Length (s)		90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization		53.6%	ICU Level of Service	A
Analysis Period (min)		15		

c Critical Lane Group



Queues  
8: Route 10/202 & Big Y

2023 No-Build Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	61	22	11	454	497
Future Volume (vph)	61	22	11	454	497
Lane Group Flow (vph)	85	31	13	528	664
Turn Type	Perm	custom	D.P+P	NA	NA
Protected Phases		4	1	1 2	2
Permitted Phases	4	1	2		
Detector Phase	4	4	1	1 2	2
Switch Phase					
Minimum Initial (s)	9.0	9.0	5.0		15.0
Minimum Split (s)	22.5	22.5	9.0		30.6
Total Split (s)	29.0	29.0	19.0		30.6
Total Split (%)	36.9%	36.9%	24.2%		38.9%
Yellow Time (s)	3.0	3.0	3.0		4.0
All-Red Time (s)	1.0	1.0	1.0		1.6
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	4.0	4.0		5.6
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None		Min
v/c Ratio	0.30	0.05	0.03	0.38	0.78
Control Delay	26.2	4.4	2.8	4.3	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	4.4	2.8	4.3	24.6
Queue Length 50th (ft)	27	0	1	57	196
Queue Length 95th (ft)	52	8	4	100	#380
Internal Link Dist (ft)	149			868	614
Turn Bay Length (ft)	130		215		
Base Capacity (vph)	767	778	667	1373	849
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.04	0.02	0.38	0.78

Intersection Summary

Cycle Length: 78.6  
 Actuated Cycle Length: 56  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 8: Route 10/202 & Big Y



HCM Signalized Intersection Capacity Analysis  
8: Route 10/202 & Big Y

2023 No-Build Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	61	22	11	454	497	54
Future Volume (vph)	61	22	11	454	497	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	11	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1668	1599	1770	1801	1838	
Flt Permitted	0.95	1.00	0.21	1.00	1.00	
Satd. Flow (perm)	1668	1599	396	1801	1838	
Peak-hour factor, PHF	0.72	0.72	0.86	0.86	0.83	0.83
Adj. Flow (vph)	85	31	13	528	599	65
RTOR Reduction (vph)	0	22	0	0	4	0
Lane Group Flow (vph)	85	9	13	528	660	0
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type	Perm	custom	D.P+P	NA	NA	
Protected Phases		4	1	1 2	2	
Permitted Phases	4	1	2			
Actuated Green, G (s)	7.0	17.3	36.0	40.0	25.7	
Effective Green, g (s)	7.0	17.3	36.0	40.0	25.7	
Actuated g/C Ratio	0.12	0.31	0.64	0.71	0.45	
Clearance Time (s)	4.0	4.0	4.0		5.6	
Vehicle Extension (s)	2.0	2.0	1.5		2.5	
Lane Grp Cap (vph)	206	601	501	1272	834	
v/s Ratio Prot		0.00	0.00	c0.29	c0.36	
v/s Ratio Perm	c0.05	0.00	0.01			
v/c Ratio	0.41	0.02	0.03	0.42	0.79	
Uniform Delay, d1	22.9	13.7	5.2	3.4	13.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.0	0.0	0.1	5.0	
Delay (s)	23.4	13.7	5.2	3.5	18.2	
Level of Service	C	B	A	A	B	
Approach Delay (s)	20.8			3.6	18.2	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	56.6	Sum of lost time (s)	13.6
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 3: Route 10/202 & Ely Lane

2023 No-Build Conditions  
 Weekday Evening Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	56	102	100	638	586	17
Future Volume (Veh/h)	56	102	100	638	586	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.99	0.99	0.92	0.92
Hourly flow rate (vph)	73	132	101	644	637	18
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				365	948	
pX, platoon unblocked	0.80	0.66	0.66			
vC, conflicting volume	1492	646	655			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	708	206	220			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	75	76	89			
cM capacity (veh/h)	287	554	899			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	205	745	655			
Volume Left	73	101	0			
Volume Right	132	0	18			
cSH	416	899	1700			
Volume to Capacity	0.49	0.11	0.39			
Queue Length 95th (ft)	66	9	0			
Control Delay (s)	21.8	2.8	0.0			
Lane LOS	C	A				
Approach Delay (s)	21.8	2.8	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			4.1			
Intersection Capacity Utilization			90.4%	ICU Level of Service	E	
Analysis Period (min)			15			

Queues  
5: Route 10/202 & Hoskins Road

2023 No-Build Conditions  
Weekday Evening Peak Hour

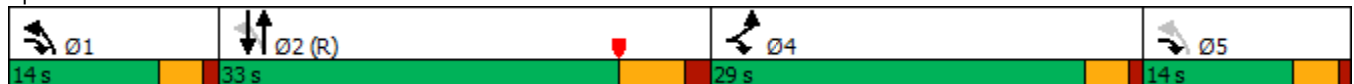


Lane Group	EBL	EBR	NBL	NBT	SBT	Ø5
Lane Configurations						
Traffic Volume (vph)	60	94	169	678	670	
Future Volume (vph)	60	94	169	678	670	
Lane Group Flow (vph)	73	115	188	753	849	
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	5
Permitted Phases			2 5			
Detector Phase	4	4	1	2	2	
Switch Phase						
Minimum Initial (s)	9.0		5.0	15.0	15.0	6.0
Minimum Split (s)	16.0		9.0	32.6	32.6	25.5
Total Split (s)	29.0		14.0	33.0	33.0	14.0
Total Split (%)	32.2%		15.6%	36.7%	36.7%	16%
Yellow Time (s)	3.0		3.0	4.4	4.4	3.0
All-Red Time (s)	1.0		1.0	1.7	1.7	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		4.0	6.1	6.1	
Lead/Lag	Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes
Recall Mode	None		None	C-Min	C-Min	None
v/c Ratio	0.36	0.25	0.45	0.67	0.78	
Control Delay	41.5	18.2	6.8	17.8	22.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.5	18.2	6.8	17.8	22.5	
Queue Length 50th (ft)	39	38	17	262	332	
Queue Length 95th (ft)	71	62	43	495	#524	
Internal Link Dist (ft)	612			389	285	
Turn Bay Length (ft)	230		160			
Base Capacity (vph)	484	488	430	1123	1084	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.15	0.24	0.44	0.67	0.78	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 39 (43%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 105  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Route 10/202 & Hoskins Road



HCM Signalized Intersection Capacity Analysis  
5: Route 10/202 & Hoskins Road

2023 No-Build Conditions  
Weekday Evening Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	94	169	678	670	18
Future Volume (vph)	60	94	169	678	670	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	10	10	12	11	11
Total Lost time (s)	4.0	4.0	4.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1745	1507	1685	1900	1830	
Flt Permitted	0.95	1.00	0.17	1.00	1.00	
Satd. Flow (perm)	1745	1507	306	1900	1830	
Peak-hour factor, PHF	0.82	0.82	0.90	0.90	0.81	0.81
Adj. Flow (vph)	73	115	188	753	827	22
RTOR Reduction (vph)	0	18	0	0	1	0
Lane Group Flow (vph)	73	97	188	753	848	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	
Permitted Phases			2 5			
Actuated Green, G (s)	10.4	26.7	65.5	53.2	53.2	
Effective Green, g (s)	10.4	26.7	65.5	53.2	53.2	
Actuated g/C Ratio	0.12	0.30	0.73	0.59	0.59	
Clearance Time (s)	4.0		4.0	6.1	6.1	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	201	447	411	1123	1081	
v/s Ratio Prot	c0.04	0.06	c0.06	0.40	c0.46	
v/s Ratio Perm			0.27			
v/c Ratio	0.36	0.22	0.46	0.67	0.78	
Uniform Delay, d1	36.7	23.8	9.5	12.5	14.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.2	0.8	3.2	5.7	
Delay (s)	37.9	24.0	10.3	15.7	19.8	
Level of Service	D	C	B	B	B	
Approach Delay (s)	29.4			14.6	19.8	
Approach LOS	C			B	B	

Intersection Summary

HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues  
8: Route 10/202 & Big Y

2023 No-Build Conditions  
Weekday Evening Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	34	27	15	679	576
Future Volume (vph)	34	27	15	679	576
Lane Group Flow (vph)	47	37	17	790	811
Turn Type	Perm	pt+ov	D.P+P	NA	NA
Protected Phases		1 4	1	1 2	2
Permitted Phases	4		2		
Detector Phase	4	1 4	1	1 2	2
Switch Phase					
Minimum Initial (s)	9.0		5.0		15.0
Minimum Split (s)	22.5		9.0		32.6
Total Split (s)	29.0		24.0		40.6
Total Split (%)	31.0%		25.6%		43.4%
Yellow Time (s)	3.0		3.0		4.0
All-Red Time (s)	1.0		1.0		1.6
Lost Time Adjust (s)	0.0		0.0		0.0
Total Lost Time (s)	4.0		4.0		5.6
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None		None		Min
v/c Ratio	0.21	0.06	0.03	0.53	0.86
Control Delay	33.6	5.1	2.1	4.6	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.6	5.1	2.1	4.6	30.0
Queue Length 50th (ft)	20	0	1	107	340
Queue Length 95th (ft)	42	11	4	153	#585
Internal Link Dist (ft)	149			868	614
Turn Bay Length (ft)	130		215		
Base Capacity (vph)	610	742	632	1482	947
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.08	0.05	0.03	0.53	0.86

Intersection Summary

Cycle Length: 93.6  
 Actuated Cycle Length: 70.9  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 8: Route 10/202 & Big Y



HCM Signalized Intersection Capacity Analysis  
8: Route 10/202 & Big Y

2023 No-Build Conditions  
Weekday Evening Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	27	15	679	576	137
Future Volume (vph)	34	27	15	679	576	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	11	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1685	1615	1787	1818	1851	
Flt Permitted	0.95	1.00	0.12	1.00	1.00	
Satd. Flow (perm)	1685	1615	233	1818	1851	
Peak-hour factor, PHF	0.73	0.73	0.86	0.86	0.88	0.88
Adj. Flow (vph)	47	37	17	790	655	156
RTOR Reduction (vph)	0	24	0	0	7	0
Lane Group Flow (vph)	47	13	17	790	804	0
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	Perm	pt+ov	D.P+P	NA	NA	
Protected Phases		1 4	1	1 2	2	
Permitted Phases	4		2			
Actuated Green, G (s)	6.7	26.0	51.3	55.3	36.0	
Effective Green, g (s)	6.7	26.0	51.3	55.3	36.0	
Actuated g/C Ratio	0.09	0.36	0.72	0.77	0.50	
Clearance Time (s)	4.0		4.0		5.6	
Vehicle Extension (s)	2.0		1.5		2.5	
Lane Grp Cap (vph)	157	586	499	1404	930	
v/s Ratio Prot		0.01	0.01	c0.43	c0.43	
v/s Ratio Perm	c0.03		0.02			
v/c Ratio	0.30	0.02	0.03	0.56	0.86	
Uniform Delay, d1	30.3	14.6	6.9	3.3	15.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.0	0.0	0.3	8.3	
Delay (s)	30.7	14.6	6.9	3.6	24.0	
Level of Service	C	B	A	A	C	
Approach Delay (s)	23.6			3.7	24.0	
Approach LOS	C			A	C	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	71.6	Sum of lost time (s)	13.6
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 3: Route 10/202 & Ely Lane

2023 No-Build Condition  
 Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	59	99	98	536	476	25
Future Volume (Veh/h)	59	99	98	536	476	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.76	0.76	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	78	130	110	602	535	28
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				365	948	
pX, platoon unblocked	0.87	0.78	0.78			
vC, conflicting volume	1371	549	563			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	891	278	296			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	68	78	89			
cM capacity (veh/h)	242	594	994			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	208	712	563			
Volume Left	78	110	0			
Volume Right	130	0	28			
cSH	385	994	1700			
Volume to Capacity	0.54	0.11	0.33			
Queue Length 95th (ft)	77	9	0			
Control Delay (s)	24.9	2.7	0.0			
Lane LOS	C	A				
Approach Delay (s)	24.9	2.7	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay				4.8		
Intersection Capacity Utilization				79.5%	ICU Level of Service	D
Analysis Period (min)				15		



Queues  
5: Route 10/202 & Hoskins Road

2023 No-Build Condition  
Saturday Midday Peak Hour

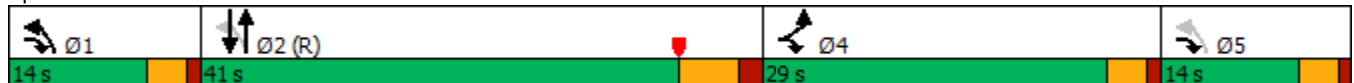


Lane Group	EBL	EBR	NBL	NBT	SBT	Ø5
Lane Configurations						
Traffic Volume (vph)	50	120	104	584	551	
Future Volume (vph)	50	120	104	584	551	
Lane Group Flow (vph)	54	130	113	635	625	
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	5
Permitted Phases			2 5			
Detector Phase	4	4	1	2	2	
Switch Phase						
Minimum Initial (s)	9.0		6.0	15.0	15.0	6.0
Minimum Split (s)	22.5		10.0	24.1	24.1	10.0
Total Split (s)	29.0		14.0	41.0	41.0	14.0
Total Split (%)	29.6%		14.3%	41.8%	41.8%	14%
Yellow Time (s)	3.0		3.0	4.4	4.4	3.0
All-Red Time (s)	1.0		1.0	1.7	1.7	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		4.0	6.1	6.1	
Lead/Lag	Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes
Recall Mode	None		None	C-Min	C-Min	None
v/c Ratio	0.32	0.32	0.20	0.50	0.51	
Control Delay	46.1	9.3	2.8	9.7	9.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.1	9.3	2.8	9.7	9.9	
Queue Length 50th (ft)	32	6	9	159	158	
Queue Length 95th (ft)	68	50	21	294	295	
Internal Link Dist (ft)	612			389	285	
Turn Bay Length (ft)	230		160			
Base Capacity (vph)	436	467	611	1269	1220	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.12	0.28	0.18	0.50	0.51	

Intersection Summary

Cycle Length: 98  
 Actuated Cycle Length: 98  
 Offset: 10 (10%), Referenced to phase 2:NBSB and 6:, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Route 10/202 & Hoskins Road



HCM Signalized Intersection Capacity Analysis  
5: Route 10/202 & Hoskins Road

2023 No-Build Condition  
Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	120	104	584	551	24
Future Volume (vph)	50	120	104	584	551	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	10	10	12	11	11
Total Lost time (s)	4.0	4.0	4.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1711	1478	1652	1863	1791	
Flt Permitted	0.95	1.00	0.36	1.00	1.00	
Satd. Flow (perm)	1711	1478	627	1863	1791	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	130	113	635	599	26
RTOR Reduction (vph)	0	93	0	0	1	0
Lane Group Flow (vph)	54	37	113	635	624	0
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	
Permitted Phases			2 5			
Actuated Green, G (s)	9.7	21.1	74.2	66.8	66.8	
Effective Green, g (s)	9.7	21.1	74.2	66.8	66.8	
Actuated g/C Ratio	0.10	0.22	0.76	0.68	0.68	
Clearance Time (s)	4.0		4.0	6.1	6.1	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	169	318	552	1269	1220	
v/s Ratio Prot	c0.03	0.03	c0.02	0.34	c0.35	
v/s Ratio Perm			0.14			
v/c Ratio	0.32	0.12	0.20	0.50	0.51	
Uniform Delay, d1	41.1	31.0	3.8	7.5	7.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.2	0.2	1.4	1.5	
Delay (s)	42.2	31.1	3.9	8.9	9.2	
Level of Service	D	C	A	A	A	
Approach Delay (s)	34.4			8.2	9.2	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	98.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues  
8: Route 10/202 & Big Y

2023 No-Build Condition  
Saturday Midday Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	42	16	12	583	485
Future Volume (vph)	42	16	12	583	485
Lane Group Flow (vph)	62	24	14	663	609
Turn Type	Perm	custom	D.P+P	NA	NA
Protected Phases		4	1	1 2	2
Permitted Phases	4	1	2		
Detector Phase	4	4	1	1 2	2
Switch Phase					
Minimum Initial (s)	9.0	9.0	5.0		15.0
Minimum Split (s)	22.5	22.5	9.0		32.6
Total Split (s)	29.0	29.0	24.0		40.6
Total Split (%)	31.0%	31.0%	25.6%		43.4%
Yellow Time (s)	3.0	3.0	3.0		4.0
All-Red Time (s)	1.0	1.0	1.0		1.6
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	4.0	4.0		5.6
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None		Min
v/c Ratio	0.24	0.04	0.02	0.45	0.68
Control Delay	32.3	5.9	2.2	4.1	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	5.9	2.2	4.1	19.5
Queue Length 50th (ft)	26	0	1	80	192
Queue Length 95th (ft)	47	8	4	133	361
Internal Link Dist (ft)	149			868	614
Turn Bay Length (ft)	130		215		
Base Capacity (vph)	705	755	844	1519	1107
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.02	0.44	0.55

Intersection Summary

Cycle Length: 93.6  
 Actuated Cycle Length: 64  
 Natural Cycle: 65  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Route 10/202 & Big Y



HCM Signalized Intersection Capacity Analysis  
8: Route 10/202 & Big Y

2023 No-Build Condition  
Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	16	12	583	485	81
Future Volume (vph)	42	16	12	583	485	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	11	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1620	1553	1805	1837	1863	
Flt Permitted	0.95	1.00	0.27	1.00	1.00	
Satd. Flow (perm)	1620	1553	513	1837	1863	
Peak-hour factor, PHF	0.68	0.68	0.88	0.88	0.93	0.93
Adj. Flow (vph)	62	24	14	662	522	87
RTOR Reduction (vph)	0	17	0	0	5	0
Lane Group Flow (vph)	62	7	14	663	604	0
Heavy Vehicles (%)	4%	4%	0%	0%	0%	0%
Turn Type	Perm	custom	D.P+P	NA	NA	
Protected Phases		4	1	1	2	
Permitted Phases	4	1	2			
Actuated Green, G (s)	6.7	19.9	43.7	47.7	30.5	
Effective Green, g (s)	6.7	19.9	43.7	47.7	30.5	
Actuated g/C Ratio	0.10	0.31	0.68	0.75	0.48	
Clearance Time (s)	4.0	4.0	4.0		5.6	
Vehicle Extension (s)	2.0	2.0	1.5		2.5	
Lane Grp Cap (vph)	169	579	616	1369	887	
v/s Ratio Prot		0.00	0.00	c0.36	c0.32	
v/s Ratio Perm	c0.04	0.00	0.01			
v/c Ratio	0.37	0.01	0.02	0.48	0.68	
Uniform Delay, d1	26.7	15.3	4.3	3.2	13.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.0	0.0	0.1	2.0	
Delay (s)	27.2	15.3	4.3	3.3	15.0	
Level of Service	C	B	A	A	B	
Approach Delay (s)	23.8			3.4	15.0	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	64.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 3: Route 10/202 & Ely Lane

2023 Build Conditions  
 Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	28	39	500	558	10
Future Volume (Veh/h)	19	28	39	500	558	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.71	0.71	0.88	0.88	0.86	0.86
Hourly flow rate (vph)	27	39	44	568	649	12
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				365	948	
pX, platoon unblocked	0.83	0.74	0.74			
vC, conflicting volume	1311	655	661			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	781	362	371			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	92	95			
cM capacity (veh/h)	290	510	882			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	66	612	661			
Volume Left	27	44	0			
Volume Right	39	0	12			
cSH	389	882	1700			
Volume to Capacity	0.17	0.05	0.39			
Queue Length 95th (ft)	15	4	0			
Control Delay (s)	16.1	1.3	0.0			
Lane LOS	C	A				
Approach Delay (s)	16.1	1.3	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			1.4			
Intersection Capacity Utilization		68.5%		ICU Level of Service		C
Analysis Period (min)			15			

Queues  
5: Route 10/202 & Hoskins Road

2023 Build Conditions  
Weekday Morning Peak Hour

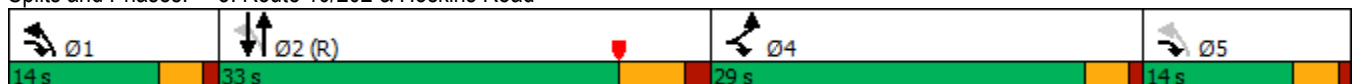


Lane Group	EBL	EBR	NBL	NBT	SBT	Ø5
Lane Configurations						
Traffic Volume (vph)	62	198	102	477	564	
Future Volume (vph)	62	198	102	477	564	
Lane Group Flow (vph)	85	271	117	548	673	
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	5
Permitted Phases			2 5			
Detector Phase	4	4	1	2	2	
Switch Phase						
Minimum Initial (s)	9.0		6.0	15.0	15.0	6.0
Minimum Split (s)	22.5		10.5	22.5	22.5	10.0
Total Split (s)	29.0		14.0	33.0	33.0	14.0
Total Split (%)	32.2%		15.6%	36.7%	36.7%	16%
Yellow Time (s)	3.0		3.0	4.4	4.4	3.0
All-Red Time (s)	1.0		1.0	1.7	1.7	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		4.0	6.1	6.1	
Lead/Lag	Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes
Recall Mode	None		None	C-Min	C-Min	None
v/c Ratio	0.26	0.54	0.26	0.50	0.64	
Control Delay	31.5	21.8	6.1	15.9	19.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	31.5	21.8	6.1	15.9	19.4	
Queue Length 50th (ft)	42	95	17	179	247	
Queue Length 95th (ft)	60	99	40	335	#502	
Internal Link Dist (ft)	612			389	285	
Turn Bay Length (ft)	230		160			
Base Capacity (vph)	484	545	477	1092	1052	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.18	0.50	0.25	0.50	0.64	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 10 (11%), Referenced to phase 2:NBSB and 6:, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Route 10/202 & Hoskins Road



HCM Signalized Intersection Capacity Analysis  
5: Route 10/202 & Hoskins Road

2023 Build Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	62	198	102	477	564	22
Future Volume (vph)	62	198	102	477	564	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	10	10	12	11	11
Total Lost time (s)	4.0	4.0	4.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1745	1507	1668	1881	1809	
Flt Permitted	0.95	1.00	0.27	1.00	1.00	
Satd. Flow (perm)	1745	1507	483	1881	1809	
Peak-hour factor, PHF	0.73	0.73	0.87	0.87	0.87	0.87
Adj. Flow (vph)	85	271	117	548	648	25
RTOR Reduction (vph)	0	41	0	0	1	0
Lane Group Flow (vph)	85	230	117	548	672	0
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	
Permitted Phases			2 5			
Actuated Green, G (s)	16.8	28.4	59.1	51.5	51.5	
Effective Green, g (s)	16.8	28.4	59.1	51.5	51.5	
Actuated g/C Ratio	0.19	0.32	0.66	0.57	0.57	
Clearance Time (s)	4.0		4.0	6.1	6.1	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	325	475	417	1076	1035	
v/s Ratio Prot	0.05	c0.15	0.02	0.29	c0.37	
v/s Ratio Perm			0.16			
v/c Ratio	0.26	0.48	0.28	0.51	0.65	
Uniform Delay, d1	31.3	24.9	7.6	11.6	13.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.8	0.4	1.7	3.2	
Delay (s)	31.7	25.7	8.0	13.3	16.3	
Level of Service	C	C	A	B	B	
Approach Delay (s)	27.1			12.4	16.3	
Approach LOS	C			B	B	

Intersection Summary

HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues  
8: Route 10/202 & Big Y

2023 Build Conditions  
Weekday Morning Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	139	36	22	425	510
Future Volume (vph)	139	36	22	425	510
Lane Group Flow (vph)	193	50	26	494	728
Turn Type	Perm	custom	D.P+P	NA	NA
Protected Phases		4	1	1 2	2
Permitted Phases	4	1	2		
Detector Phase	4	4	1	1 2	2
Switch Phase					
Minimum Initial (s)	9.0	9.0	5.0		15.0
Minimum Split (s)	22.5	22.5	9.0		30.6
Total Split (s)	29.0	29.0	19.0		30.6
Total Split (%)	36.9%	36.9%	24.2%		38.9%
Yellow Time (s)	3.0	3.0	3.0		4.0
All-Red Time (s)	1.0	1.0	1.0		1.6
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	4.0	4.0		5.6
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None		Min
v/c Ratio	0.59	0.07	0.06	0.41	0.98
Control Delay	31.4	3.3	4.5	6.2	51.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.4	3.3	4.5	6.2	51.3
Queue Length 50th (ft)	67	0	3	65	255
Queue Length 95th (ft)	100	9	10	138	#508
Internal Link Dist (ft)	149			114	614
Turn Bay Length (ft)	130		132		
Base Capacity (vph)	673	770	550	1196	744
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.29	0.06	0.05	0.41	0.98

Intersection Summary

Cycle Length: 78.6

Actuated Cycle Length: 62.4

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: Route 10/202 & Big Y





HCM Signalized Intersection Capacity Analysis  
8: Route 10/202 & Big Y

2023 Build Conditions  
Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	139	36	22	425	510	95
Future Volume (vph)	139	36	22	425	510	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	11	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1668	1599	1770	1801	1823	
Flt Permitted	0.95	1.00	0.16	1.00	1.00	
Satd. Flow (perm)	1668	1599	296	1801	1823	
Peak-hour factor, PHF	0.72	0.72	0.86	0.86	0.83	0.83
Adj. Flow (vph)	193	50	26	494	614	114
RTOR Reduction (vph)	0	31	0	0	7	0
Lane Group Flow (vph)	193	19	26	494	721	0
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type	Perm	custom	D.P+P	NA	NA	
Protected Phases		4	1	1 2	2	
Permitted Phases	4	1	2			
Actuated Green, G (s)	12.2	23.5	36.5	40.5	25.2	
Effective Green, g (s)	12.2	23.5	36.5	40.5	25.2	
Actuated g/C Ratio	0.20	0.38	0.59	0.65	0.40	
Clearance Time (s)	4.0	4.0	4.0		5.6	
Vehicle Extension (s)	2.0	2.0	1.5		2.5	
Lane Grp Cap (vph)	326	705	440	1170	737	
v/s Ratio Prot		0.01	0.01	c0.27	c0.40	
v/s Ratio Perm	c0.12	0.01	0.02			
v/c Ratio	0.59	0.03	0.06	0.42	0.98	
Uniform Delay, d1	22.8	12.2	8.6	5.3	18.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.9	0.0	0.0	0.1	27.4	
Delay (s)	24.7	12.2	8.6	5.3	45.7	
Level of Service	C	B	A	A	D	
Approach Delay (s)	22.1			5.5	45.7	
Approach LOS	C			A	D	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	62.3	Sum of lost time (s)	13.6
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 10: Route 10/202 & Site Drive

2023 Build Conditions  
 Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗	↘	↑	↓	↙
Traffic Volume (veh/h)	0	64	72	447	504	42
Future Volume (Veh/h)	0	64	72	447	504	42
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	70	78	486	548	46
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1119	194	
pX, platoon unblocked	0.67	0.63	0.63			
vC, conflicting volume	1213	571	594			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	19	56			
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	92			
cM capacity (veh/h)	227	664	972			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>		
Volume Total	70	78	486	594		
Volume Left	0	78	0	0		
Volume Right	70	0	0	46		
cSH	664	972	1700	1700		
Volume to Capacity	0.11	0.08	0.29	0.35		
Queue Length 95th (ft)	9	7	0	0		
Control Delay (s)	11.1	9.0	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.1	1.2	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			1.2			
Intersection Capacity Utilization			39.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 3: Route 10/202 & Ely Lane

2023 Build Conditions  
 Weekday Evening Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	102	100	676	623	21
Future Volume (Veh/h)	60	102	100	676	623	21
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.77	0.77	0.99	0.99	0.92	0.92
Hourly flow rate (vph)	78	132	101	683	677	23
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				365	948	
pX, platoon unblocked	0.79	0.64	0.64			
vC, conflicting volume	1574	688	700			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	731	238	255			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	72	75	88			
cM capacity (veh/h)	274	518	849			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	210	784	700			
Volume Left	78	101	0			
Volume Right	132	0	23			
cSH	390	849	1700			
Volume to Capacity	0.54	0.12	0.41			
Queue Length 95th (ft)	77	10	0			
Control Delay (s)	24.5	3.0	0.0			
Lane LOS	C	A				
Approach Delay (s)	24.5	3.0	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			4.4			
Intersection Capacity Utilization			94.8%	ICU Level of Service	F	
Analysis Period (min)			15			

Queues  
5: Route 10/202 & Hoskins Road

2023 Build Conditions  
Weekday Evening Peak Hour

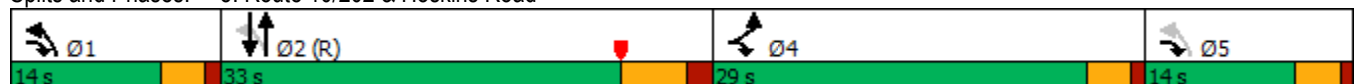


Lane Group	EBL	EBR	NBL	NBT	SBT	Ø5
Lane Configurations						
Traffic Volume (vph)	64	94	169	712	703	
Future Volume (vph)	64	94	169	712	703	
Lane Group Flow (vph)	78	115	188	791	899	
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	5
Permitted Phases			2 5			
Detector Phase	4	4	1	2	2	
Switch Phase						
Minimum Initial (s)	9.0		5.0	15.0	15.0	6.0
Minimum Split (s)	16.0		9.0	32.6	32.6	10.0
Total Split (s)	29.0		14.0	33.0	33.0	14.0
Total Split (%)	32.2%		15.6%	36.7%	36.7%	16%
Yellow Time (s)	3.0		3.0	4.4	4.4	3.0
All-Red Time (s)	1.0		1.0	1.7	1.7	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		4.0	6.1	6.1	
Lead/Lag	Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes
Recall Mode	None		None	C-Min	C-Min	None
v/c Ratio	0.38	0.25	0.49	0.71	0.83	
Control Delay	41.9	19.2	9.9	19.1	25.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.9	19.2	9.9	19.1	25.5	
Queue Length 50th (ft)	42	40	18	287	373	
Queue Length 95th (ft)	74	63	68	#598	#626	
Internal Link Dist (ft)	612			389	285	
Turn Bay Length (ft)	230		160			
Base Capacity (vph)	484	487	393	1121	1078	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.24	0.48	0.71	0.83	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 39 (43%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 90  
 Control Type: Actuated-Coordinated  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Route 10/202 & Hoskins Road



HCM Signalized Intersection Capacity Analysis  
5: Route 10/202 & Hoskins Road

2023 Build Conditions  
Weekday Evening Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	64	94	169	712	703	25
Future Volume (vph)	64	94	169	712	703	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	10	10	12	11	11
Total Lost time (s)	4.0	4.0	4.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1745	1507	1685	1900	1828	
Flt Permitted	0.95	1.00	0.14	1.00	1.00	
Satd. Flow (perm)	1745	1507	248	1900	1828	
Peak-hour factor, PHF	0.82	0.82	0.90	0.90	0.81	0.81
Adj. Flow (vph)	78	115	188	791	868	31
RTOR Reduction (vph)	0	15	0	0	1	0
Lane Group Flow (vph)	78	100	188	791	898	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	
Permitted Phases			2 5			
Actuated Green, G (s)	10.5	26.8	65.4	53.1	53.1	
Effective Green, g (s)	10.5	26.8	65.4	53.1	53.1	
Actuated g/C Ratio	0.12	0.30	0.73	0.59	0.59	
Clearance Time (s)	4.0		4.0	6.1	6.1	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	203	448	376	1121	1078	
v/s Ratio Prot	c0.04	0.07	c0.07	0.42	c0.49	
v/s Ratio Perm			0.30			
v/c Ratio	0.38	0.22	0.50	0.71	0.83	
Uniform Delay, d1	36.8	23.8	11.5	13.0	14.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.3	1.0	3.7	7.6	
Delay (s)	38.0	24.0	12.5	16.7	22.5	
Level of Service	D	C	B	B	C	
Approach Delay (s)	29.7			15.9	22.5	
Approach LOS	C			B	C	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues  
8: Route 10/202 & Big Y

2023 Build Conditions  
Weekday Evening Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	94	36	23	661	588
Future Volume (vph)	94	36	23	661	588
Lane Group Flow (vph)	129	49	27	769	859
Turn Type	Perm	pt+ov	D.P+P	NA	NA
Protected Phases		1 4	1	1 2	2
Permitted Phases	4		2		
Detector Phase	4	1 4	1	1 2	2
Switch Phase					
Minimum Initial (s)	9.0		5.0		15.0
Minimum Split (s)	22.5		9.0		32.6
Total Split (s)	29.0		24.0		40.6
Total Split (%)	31.0%		25.6%		43.4%
Yellow Time (s)	3.0		3.0		4.0
All-Red Time (s)	1.0		1.0		1.6
Lost Time Adjust (s)	0.0		0.0		0.0
Total Lost Time (s)	4.0		4.0		5.6
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None		None		Min
v/c Ratio	0.53	0.07	0.05	0.56	1.00
Control Delay	39.7	4.3	3.2	6.3	55.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	4.3	3.2	6.3	55.9
Queue Length 50th (ft)	59	0	2	115	~411
Queue Length 95th (ft)	90	12	9	221	#714
Internal Link Dist (ft)	149			117	614
Turn Bay Length (ft)	130		132		
Base Capacity (vph)	552	766	567	1354	855
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.06	0.05	0.57	1.00

Intersection Summary

Cycle Length: 93.6

Actuated Cycle Length: 76.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: Route 10/202 & Big Y



HCM Signalized Intersection Capacity Analysis  
8: Route 10/202 & Big Y

2023 Build Conditions  
Weekday Evening Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	94	36	23	661	588	168
Future Volume (vph)	94	36	23	661	588	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	11	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1685	1615	1787	1818	1843	
Flt Permitted	0.95	1.00	0.11	1.00	1.00	
Satd. Flow (perm)	1685	1615	214	1818	1843	
Peak-hour factor, PHF	0.73	0.73	0.86	0.86	0.88	0.88
Adj. Flow (vph)	129	49	27	769	668	191
RTOR Reduction (vph)	0	29	0	0	10	0
Lane Group Flow (vph)	129	20	27	769	849	0
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type	Perm	pt+ov	D.P+P	NA	NA	
Protected Phases		1 4	1	1 2	2	
Permitted Phases	4		2			
Actuated Green, G (s)	11.0	31.8	52.0	56.0	35.2	
Effective Green, g (s)	11.0	31.8	52.0	56.0	35.2	
Actuated g/C Ratio	0.14	0.42	0.68	0.73	0.46	
Clearance Time (s)	4.0		4.0		5.6	
Vehicle Extension (s)	2.0		1.5		2.5	
Lane Grp Cap (vph)	241	670	490	1329	846	
v/s Ratio Prot		0.01	0.01	c0.42	c0.46	
v/s Ratio Perm	c0.08		0.03			
v/c Ratio	0.54	0.03	0.06	0.58	1.00	
Uniform Delay, d1	30.4	13.3	10.5	4.8	20.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.0	0.0	0.4	31.9	
Delay (s)	31.6	13.3	10.5	5.2	52.6	
Level of Service	C	B	B	A	D	
Approach Delay (s)	26.5			5.4	52.6	
Approach LOS	C			A	D	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	13.6
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Route 10/202 & Site Drive

2023 Build Conditions  
 Weekday Evening Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	50	52	684	594	30
Future Volume (Veh/h)	0	50	52	684	594	30
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	54	57	743	646	33
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1116	197	
pX, platoon unblocked	0.68	0.56	0.56			
vC, conflicting volume	1520	662	679			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	756	11	41			
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	94			
cM capacity (veh/h)	239	602	883			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>		
Volume Total	54	57	743	679		
Volume Left	0	57	0	0		
Volume Right	54	0	0	33		
cSH	602	883	1700	1700		
Volume to Capacity	0.09	0.06	0.44	0.40		
Queue Length 95th (ft)	7	5	0	0		
Control Delay (s)	11.6	9.4	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.6	0.7	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	0.8					
Intersection Capacity Utilization	43.1%			ICU Level of Service	A	
Analysis Period (min)	15					



HCM Unsignalized Intersection Capacity Analysis  
 3: Route 10/202 & Ely Lane

2023 Build Conditions  
 Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	66	99	98	594	532	32
Future Volume (Veh/h)	66	99	98	594	532	32
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.76	0.76	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	87	130	110	667	598	36
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				365	948	
pX, platoon unblocked	0.87	0.76	0.76			
vC, conflicting volume	1503	616	634			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	954	339	363			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	60	76	88			
cM capacity (veh/h)	220	537	919			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	217	777	634			
Volume Left	87	110	0			
Volume Right	130	0	36			
cSH	341	919	1700			
Volume to Capacity	0.64	0.12	0.37			
Queue Length 95th (ft)	104	10	0			
Control Delay (s)	32.4	2.9	0.0			
Lane LOS	D	A				
Approach Delay (s)	32.4	2.9	0.0			
Approach LOS	D					
<b>Intersection Summary</b>						
Average Delay			5.7			
Intersection Capacity Utilization			86.4%	ICU Level of Service	E	
Analysis Period (min)			15			

Queues  
5: Route 10/202 & Hoskins Road

2023 Build Conditions  
Saturday Midday Peak Hour

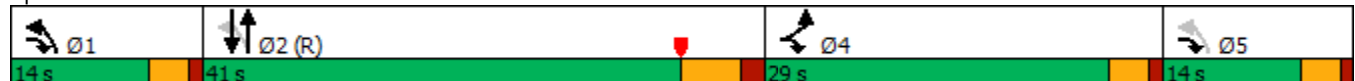


Lane Group	EBL	EBR	NBL	NBT	SBT	Ø5
Lane Configurations						
Traffic Volume (vph)	56	120	104	636	601	
Future Volume (vph)	56	120	104	636	601	
Lane Group Flow (vph)	61	130	113	691	686	
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	5
Permitted Phases			2 5			
Detector Phase	4	4	1	2	2	
Switch Phase						
Minimum Initial (s)	9.0		6.0	15.0	15.0	6.0
Minimum Split (s)	22.5		10.0	24.1	24.1	10.0
Total Split (s)	29.0		14.0	41.0	41.0	14.0
Total Split (%)	29.6%		14.3%	41.8%	41.8%	14%
Yellow Time (s)	3.0		3.0	4.4	4.4	3.0
All-Red Time (s)	1.0		1.0	1.7	1.7	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		4.0	6.1	6.1	
Lead/Lag	Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes	Yes
Recall Mode	None		None	C-Min	C-Min	None
v/c Ratio	0.35	0.32	0.22	0.56	0.57	
Control Delay	46.5	11.8	3.0	11.5	11.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.5	11.8	3.0	11.5	11.9	
Queue Length 50th (ft)	36	17	9	190	192	
Queue Length 95th (ft)	75	59	22	366	372	
Internal Link Dist (ft)	612			389	285	
Turn Bay Length (ft)	230		160			
Base Capacity (vph)	436	459	558	1244	1196	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.14	0.28	0.20	0.56	0.57	

Intersection Summary

Cycle Length: 98  
 Actuated Cycle Length: 98  
 Offset: 10 (10%), Referenced to phase 2:NBSB, Start of Yellow  
 Natural Cycle: 80  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Route 10/202 & Hoskins Road



HCM Signalized Intersection Capacity Analysis  
5: Route 10/202 & Hoskins Road

2023 Build Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	120	104	636	601	30
Future Volume (vph)	56	120	104	636	601	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	10	10	12	11	11
Total Lost time (s)	4.0	4.0	4.0	6.1	6.1	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1711	1478	1652	1863	1789	
Flt Permitted	0.95	1.00	0.32	1.00	1.00	
Satd. Flow (perm)	1711	1478	553	1863	1789	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	130	113	691	653	33
RTOR Reduction (vph)	0	74	0	0	1	0
Lane Group Flow (vph)	61	56	113	691	685	0
Turn Type	Prot	custom	custom	NA	NA	
Protected Phases	4	1 4 5	1	2	2	
Permitted Phases			2 5			
Actuated Green, G (s)	9.9	22.4	74.0	65.5	65.5	
Effective Green, g (s)	9.9	22.4	74.0	65.5	65.5	
Actuated g/C Ratio	0.10	0.23	0.76	0.67	0.67	
Clearance Time (s)	4.0		4.0	6.1	6.1	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	172	337	512	1245	1195	
v/s Ratio Prot	c0.04	0.04	c0.02	0.37	c0.38	
v/s Ratio Perm			0.15			
v/c Ratio	0.35	0.17	0.22	0.56	0.57	
Uniform Delay, d1	41.1	30.3	4.3	8.6	8.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	0.2	0.2	1.8	2.0	
Delay (s)	42.3	30.5	4.6	10.4	10.7	
Level of Service	D	C	A	B	B	
Approach Delay (s)	34.3			9.5	10.7	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	98.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues  
8: Route 10/202 & Big Y

2023 Build Conditions  
Saturday Midday Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	139	33	25	549	500
Future Volume (vph)	139	33	25	549	500
Lane Group Flow (vph)	204	49	28	624	684
Turn Type	Perm	custom	D.P+P	NA	NA
Protected Phases		4	1	1 2	2
Permitted Phases	4	1	2		
Detector Phase	4	4	1	1 2	2
Switch Phase					
Minimum Initial (s)	9.0	9.0	5.0		15.0
Minimum Split (s)	22.5	22.5	9.0		32.6
Total Split (s)	29.0	29.0	24.0		40.6
Total Split (%)	31.0%	31.0%	25.6%		43.4%
Yellow Time (s)	3.0	3.0	3.0		4.0
All-Red Time (s)	1.0	1.0	1.0		1.6
Lost Time Adjust (s)	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.0	4.0	4.0		5.6
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None		Min
v/c Ratio	0.67	0.07	0.06	0.48	0.83
Control Delay	42.1	3.9	4.6	7.1	31.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.1	3.9	4.6	7.1	31.6
Queue Length 50th (ft)	94	0	3	110	278
Queue Length 95th (ft)	122	9	13	223	#595
Internal Link Dist (ft)	149			117	614
Turn Bay Length (ft)	130		132		
Base Capacity (vph)	527	710	600	1325	849
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.39	0.07	0.05	0.47	0.81

Intersection Summary

Cycle Length: 93.6

Actuated Cycle Length: 78.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: Route 10/202 & Big Y



HCM Signalized Intersection Capacity Analysis  
8: Route 10/202 & Big Y

2023 Build Conditions  
Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	139	33	25	549	500	131
Future Volume (vph)	139	33	25	549	500	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	11	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Fr <sub>t</sub>	1.00	0.85	1.00	1.00	0.97	
Fl <sub>t</sub> Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1620	1553	1805	1837	1847	
Fl <sub>t</sub> Permitted	0.95	1.00	0.16	1.00	1.00	
Satd. Flow (perm)	1620	1553	304	1837	1847	
Peak-hour factor, PHF	0.68	0.68	0.88	0.88	0.92	0.93
Adj. Flow (vph)	204	49	28	624	543	141
RTOR Reduction (vph)	0	30	0	0	9	0
Lane Group Flow (vph)	204	19	28	624	675	0
Heavy Vehicles (%)	4%	4%	0%	0%	0%	0%
Turn Type	Perm	custom	D.P+P	NA	NA	
Protected Phases		4	1	1 2	2	
Permitted Phases	4	1	2			
Actuated Green, G (s)	14.6	29.7	49.7	53.7	34.6	
Effective Green, g (s)	14.6	29.7	49.7	53.7	34.6	
Actuated g/C Ratio	0.19	0.38	0.64	0.69	0.44	
Clearance Time (s)	4.0	4.0	4.0		5.6	
Vehicle Extension (s)	2.0	2.0	1.5		2.5	
Lane Grp Cap (vph)	303	671	484	1266	820	
v/s Ratio Prot		0.01	0.01	c0.34	c0.37	
v/s Ratio Perm	c0.13	0.01	0.03			
v/c Ratio	0.67	0.03	0.06	0.49	0.82	
Uniform Delay, d <sub>1</sub>	29.4	15.1	8.1	5.7	19.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d <sub>2</sub>	4.6	0.0	0.0	0.1	6.6	
Delay (s)	34.0	15.1	8.1	5.8	25.5	
Level of Service	C	B	A	A	C	
Approach Delay (s)	30.3			5.9	25.5	
Approach LOS	C			A	C	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	77.9	Sum of lost time (s)	13.6
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Route 10/202 & Site Drive

2023 Build Conditions  
 Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	80	86	574	484	49
Future Volume (Veh/h)	0	80	86	574	484	49
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	87	93	624	526	53
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				1116	197	
pX, platoon unblocked	0.74	0.69	0.69			
vC, conflicting volume	1362	552	579			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	975	117	156			
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	86	90			
cM capacity (veh/h)	187	641	976			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total	87	93	624	579		
Volume Left	0	93	0	0		
Volume Right	87	0	0	53		
cSH	641	976	1700	1700		
Volume to Capacity	0.14	0.10	0.37	0.34		
Queue Length 95th (ft)	12	8	0	0		
Control Delay (s)	11.5	9.1	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.5	1.2	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	1.3					
Intersection Capacity Utilization	40.1%			ICU Level of Service	A	
Analysis Period (min)	15					