



TRAFFIC STUDY

Proposed Retail Development

580 Lake Road

Andover, CT

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EXECUTIVE SUMMARY

This traffic study has been prepared for a new retail development at 580 Lake Road in Andover, CT. The study area is along a rural stretch of US Route 6 (Johnathan Trumbull Highway) that consists of industrial and commercial land uses. The Site will consist of an approximate 10,700 square foot retail development. Access to the Site will be via two driveways, full access via Lake Road and full access via US Route 6 (Johnathan Trumbull Highway).

This study investigated the potential traffic impacts of the proposed development during the weekday morning, weekday evening, and Saturday mid-day traffic periods. To assess existing traffic conditions in the vicinity of the Site, peak hour manual turning movement traffic volumes, vehicle classification and pedestrian counts were recorded at key intersections within the study area.

Accounting for the 20% pass-by trips allowed by CTDOT, it is projected that the proposed development will generate approximately 25 net new trips in the AM peak hour (14 enter, 11 exit), 56 net new trips in the PM peak hour (29 enter, 27 exit), and 84 net new trips (44 enter, 40 exit) in the Saturday mid-day peak hour.

A detailed traffic analysis was conducted at key intersections and roadways in the general vicinity of the Site in accordance with methodologies outlined in the Highway Capacity Manual, published by the Transportation Research Board. After analyses of the Existing, No Build and Build Scenarios of the weekday AM peak hour, weekday PM peak hour and Saturday mid-day peak hour, it is projected that this development will have negligible impacts on the surrounding roadway network.

The following is a summary of the results/recommendations for this Site:

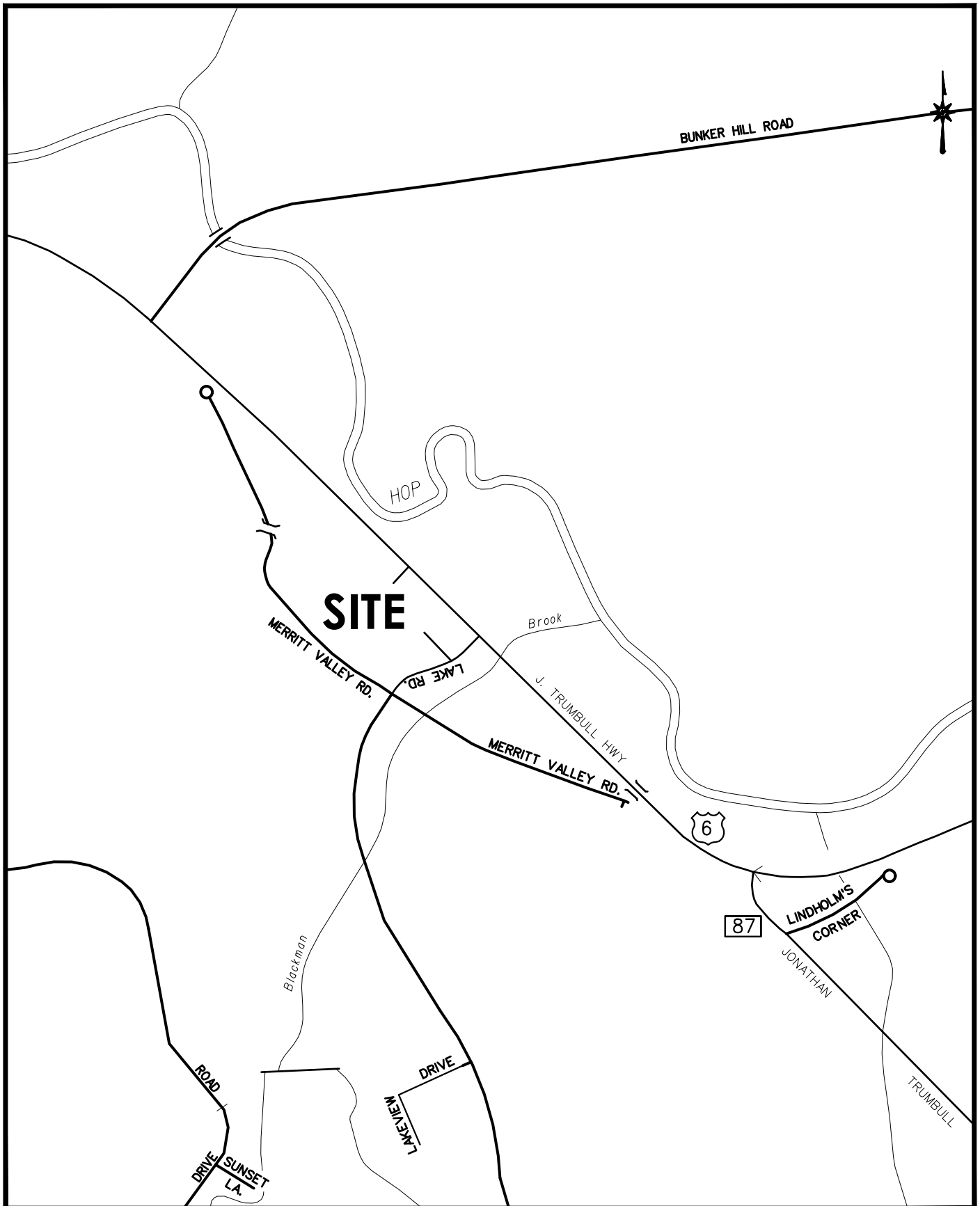
- Install 12" white Stop Bar and "Stop" Sign (R1-1) at the Site driveways egress as shown on Site Plan.
- Clearing of vegetation to increase sightlines on Lake Road.

I. INTRODUCTION

This traffic study has been prepared for a new retail development at 580 Lake Road in Andover, CT. The focus of this study was to evaluate the traffic flows and operating conditions on the roadways and intersections projected to be used by motorists traveling to and from the proposed development and to quantify the potential traffic impacts on these roadways and intersections. The study area is along a rural stretch of US Route 6 (Johnathan Trumbull Highway) that consists of industrial and commercial land uses. See **Figure 1** for a location map.

The Site will consist of a 10,700 square foot retail building and associated parking. Access to the Site will be via two driveways: full access via Lake Road driveway and US Route 6 driveway. The Site is located along the southerly side of US Route 6, at the corner of US Route 6 at Lake Road intersection. The Site is an empty lot next to commercial development.

The study investigated the potential traffic impacts associated with the development in the weekday morning, weekday evening and Saturday mid-day shopping peak periods. The greatest cumulative impacts of project related traffic are likely to occur during the weekday morning and evening peak hours, when traffic consists mostly of commuters, and the Saturday mid-day, which would include mostly shoppers. As such, traffic operating conditions at the study intersections were analyzed during these peak periods.



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SITE LOCATION

PROPOSED DEVELOPMENT
580 LAKE ROAD, ANDOVER, CT
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Project No. 2101726
Date MARCH 2022

FIGURE 1

II. EXISTING CONDITIONS

An investigation of the existing traffic conditions on the adjacent roadway network formed the basis for assessing any traffic issues associated with the proposed development. This investigation included a field reconnaissance, traffic counting, and research of pertinent planning and traffic data available with Connecticut Department of Transportation (CTDOT) and the Town of Andover.

Access Network

The project study area consists of the following intersections:

- US Route 6 (Johnathan Trumbull Highway) at Lake Road (Signalized)

Major roadways in the vicinity of the project include US Route 6 and Lake Road.

US Route 6 (Johnathan Trumbull Highway) within the state of Connecticut runs for approximately 120 miles from the New York state line near Danbury to the Rhode Island state line in Killingly. In the study area, US Route 6 is an east-west oriented principal arterial other, with one travel lane in each direction and approximately 12' wide with delineated shoulders within the study limits. US Route 6 has a posted speed limit of 50 mph and has roadway illumination. There are little to no pedestrian accommodations along US Route 6 on either side of the roadway. Annual Average Daily Traffic (AADT), as provided by CTDOT, northwest of Route 87 at US Route 6 intersection, with AADT being 10,600 vehicles per day (vpd), counted in 2020.

Lake Road is a two-lane local roadway, approximately 1.6 miles in length, running in the north/south direction. This road has a posted speed limit of 25 mph. There is no delineation between the two directions of travel, there is sporadic roadway illumination, and no pedestrian accommodations along the road.

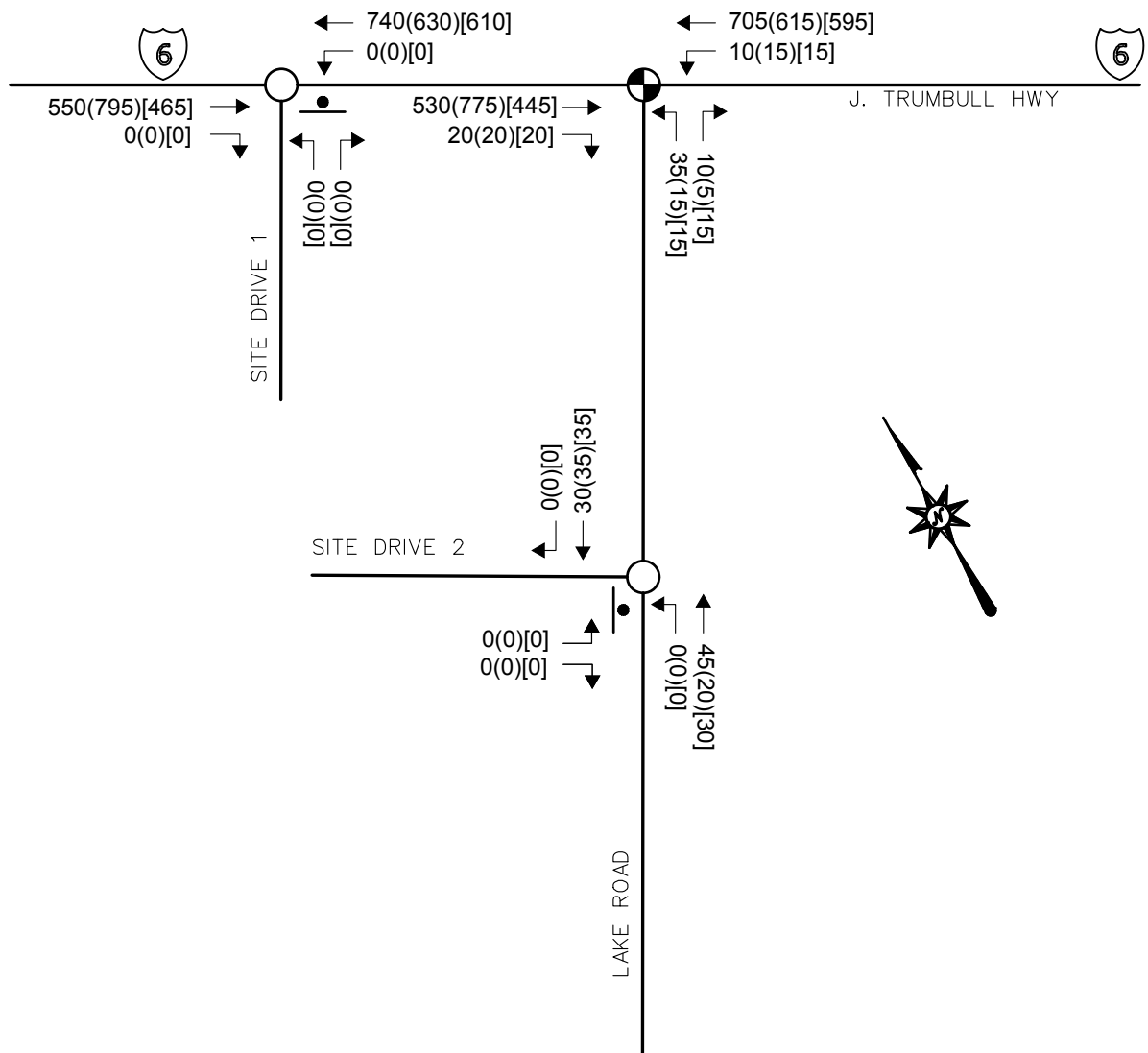
Intersection Characteristics

Several key intersections were reviewed in this study to determine if they would be impacted by the expected Site traffic volumes. They are as follows:

US Route 1 (Johnathan Trumbull Highway) at Lake Road –This is a signalized, 3-phased intersection. The US Route 6 eastbound approach has two lanes, one through lane and an exclusive right turn lane entering the intersection. The US Route 6 westbound approach has an exclusive left turn lane and through lane entering the intersection. Lake Road northbound has a shared right/left turn lane entering the intersection. This signal is not part of a coordinated system.

Existing Traffic Volumes

Weekday morning peak period, weekday afternoon peak period and Saturday mid-day peak period traffic volumes were counted at the above intersections on March 3rd, 2022 for the morning and afternoon peak periods and March 5, 2022 for the Saturday mid-day peak period. The collected counts were then compared to data available from CTDOT. After comparison, the volumes were reviewed and approved by CTDOT Bureau of Policy and Planning. The current peak hour traffic volumes for the intersections are illustrated in **Figure 2**.



LEGEND

- | | | |
|-----|---------------------------|-------------------------|
| ⊕ | SIGNALIZED INTERSECTION | WEEKDAY AM: XXX |
| ○ | UNSIGNALIZED INTERSECTION | WEEKDAY PM: (XXX) |
| —●— | STOP-CONTROLLED APPROACH | SATURDAY MID-DAY: [XXX] |



EXISTING TRAFFIC VOLUMES (2022)

PROPOSED DEVELOPMENT
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FIGURE 2

Public Transit

Within the study area, there are no bus services. The closest bus service includes the Express Route 918, with a bus stop at Andover Park-and-Ride Lot and Willimantic Road. Other bus services in neighboring towns are Bus Route 83 and Bus Route 88.

Crash Data Analysis

As part of the existing conditions analysis, crash data for the most recent three-year period from January 1, 2019 through December 31, 2021, was obtained from the Connecticut Crash Data Repository.

Nine crashes in the study area were reviewed; the most common crashes were the front to rear at sixty-seven percent (67%) and angle crashes at thirty-three percent (33%). The majority of crashes resulted in "No Apparent Injury" at seventy eight percent (78%) and two crashes as "Suspected Minor Injury." There were no fatalities in the corridor for the three-year period. Below **Table 1** summarizes the crash data.

Table 1 – Crash Data Summary

	Segment 1: US Route 6 (Jonathan Trumbull Highway) from Mobil Gas Station to Lake Road	US Route 6 (Jonathan Trumbull Highway) @ Lake Road	Segment 2: US Route 6 (Jonathan Trumbull Highway) from Lake Road to Hop River State Park Trail	Total
Year				
2019	1	2	0	3
2020	1	1	1	3
2021	1	1	1	3
Total	3	4	2	9
Crash Type				
Angle	1	1		2
Front to Front				0
Front to Rear	1	3	2	6
Not Applicable	1			1
Other				0
Rear to Rear				0
Rear to Side				0
Sideswipe, Opposite Direction				0
Sideswipe, Same Direction				0
Unknown				0
Total	3	4	2	9
Severity				
Fatal Injury (K)				0
Suspected Serious Injury (A)				0
Suspected Minor Injury (B)	1	1		2
Possible Injury (C)				0
No Apparent Injury (O)	2	3	2	7
Unknown				0
Total	3	4	2	9

Note: Data collected from the Connecticut Crash Data Repository

III. PROJECTED TRAFFIC CONDITIONS

In order to evaluate traffic conditions when the proposed development is completed in 2023, future traffic volumes were forecast under the 2023 No Build Conditions (without the proposed retail development) and under 2023 Build Conditions (with the proposed retail development). The projected traffic volumes on the roadway network under 2023 No Build conditions were assumed to include all existing traffic and new traffic resulting from background sources of traffic growth, independent of the proposed development. The project traffic volumes on the roadway network under 2023 Build conditions were assumed to include the anticipated project Site generated traffic volumes in addition to the assumed background traffic growth.

No Build Traffic Volumes

A 1% annual growth rate was applied to the existing traffic volumes to develop the 2023 No Build traffic volumes. In addition to applying a growth rate, any approved or pending developments in the area that may add substantial traffic volume to the study intersections were considered. In discussions with CTDOT and the Town of Andover there were no additional developments in the vicinity of the project. **Figure 3** graphically illustrates the No Build Traffic Volumes.

Trip Generation and Pass-By Trips

The anticipated traffic volumes generated by the proposed development were projected based upon guidelines set forth by CTDOT and data provided by the ITE Trip Generation Manual 11th Edition. This widely used reference manual provided trip generation rates for various land uses based on traffic count data collected at similar sites. The following table shows projected trip generation for a variety store (Land Use Code 814). Saturday mid-day peak hour data for this Land Use Code 814 is not available in the ITE Trip Generation Manual 11th Edition and is conservatively estimated to be 1.5 times the PM peak hour. A portion of trips generated are classified as “pass-by” traffic. Pass-by traffic consists of vehicles already on the roadway that are attracted to the 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. While empirical studies of similar sized retail buildings by the ITE Trip Generation Manual 11th Edition use a pass-by component of 30%, this study referred to the CTDOT guidelines which allows 20% pass-by component.

Table 2 illustrates the trip generation for the proposed development scenarios. Accounting for the 20% pass-by trips allowed by CTDOT, it is projected that the proposed development will generate approximately 25 net new trips in the AM peak hour (14 enter, 11 exit), 56 net new trips in the PM peak hour (29 enter, 27 exit), and 84 net new trips (44 enter, 40 exit) in the Saturday mid-day peak hour.

Table 2 – Peak Hour Trip Generation

Proposed Retail		Trips								
ITE Land Use Code	Size	AM Peak Hour			PM Peak Hour			Saturday Mid-Day Peak Hour ²		
		Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
814 - Variety Store	10.7	33	18	15	72	37	35	108	56	52
Less Pass-By (20%) ¹		-8	-4	-4	-16	-8	-8	-24	-12	-12
Net New Trips		25	14	11	56	29	27	84	44	40

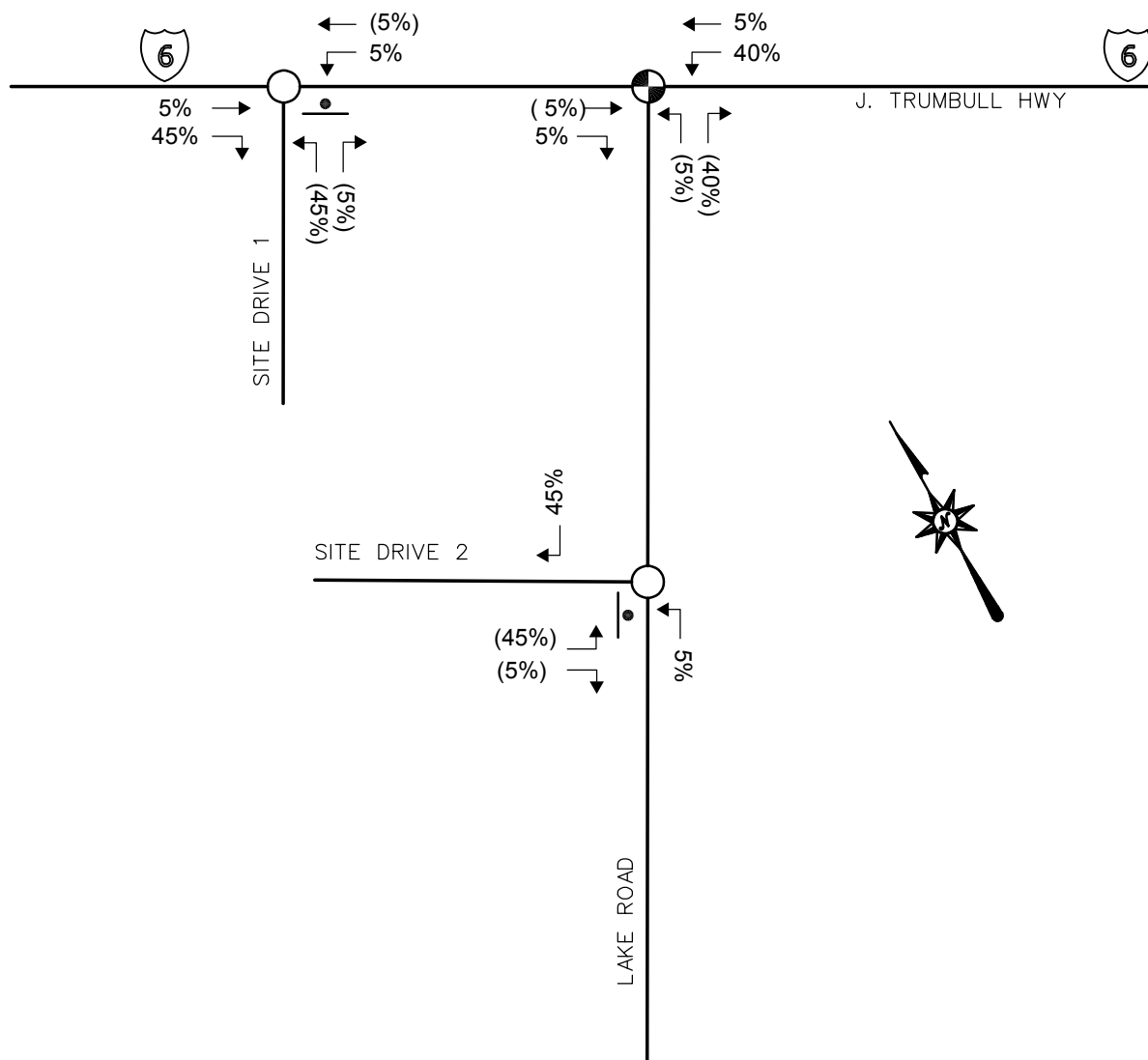
Ref: Trip Generation, 11th Edition

¹ CTDOT Allowance for Pass-By Used 20%;

² Estimated as 1.5 times the PM Peak Hour

Trip Distribution

The directional distribution of traffic is typically a function of population densities, competing opportunities, existing travel patterns adjacent to the Site, and the efficiency and limitations of the existing roadway system. The distribution of the anticipated traffic volumes was based on arrival/departure patterns shown in **Figure 4**.



LEGEND

- ⊕ SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- STOP-CONTROLLED APPROACH

INCOMING TRAFFIC: XX%
OUTGOING TRAFFIC: (XX%)



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TRIP DISTRIBUTION

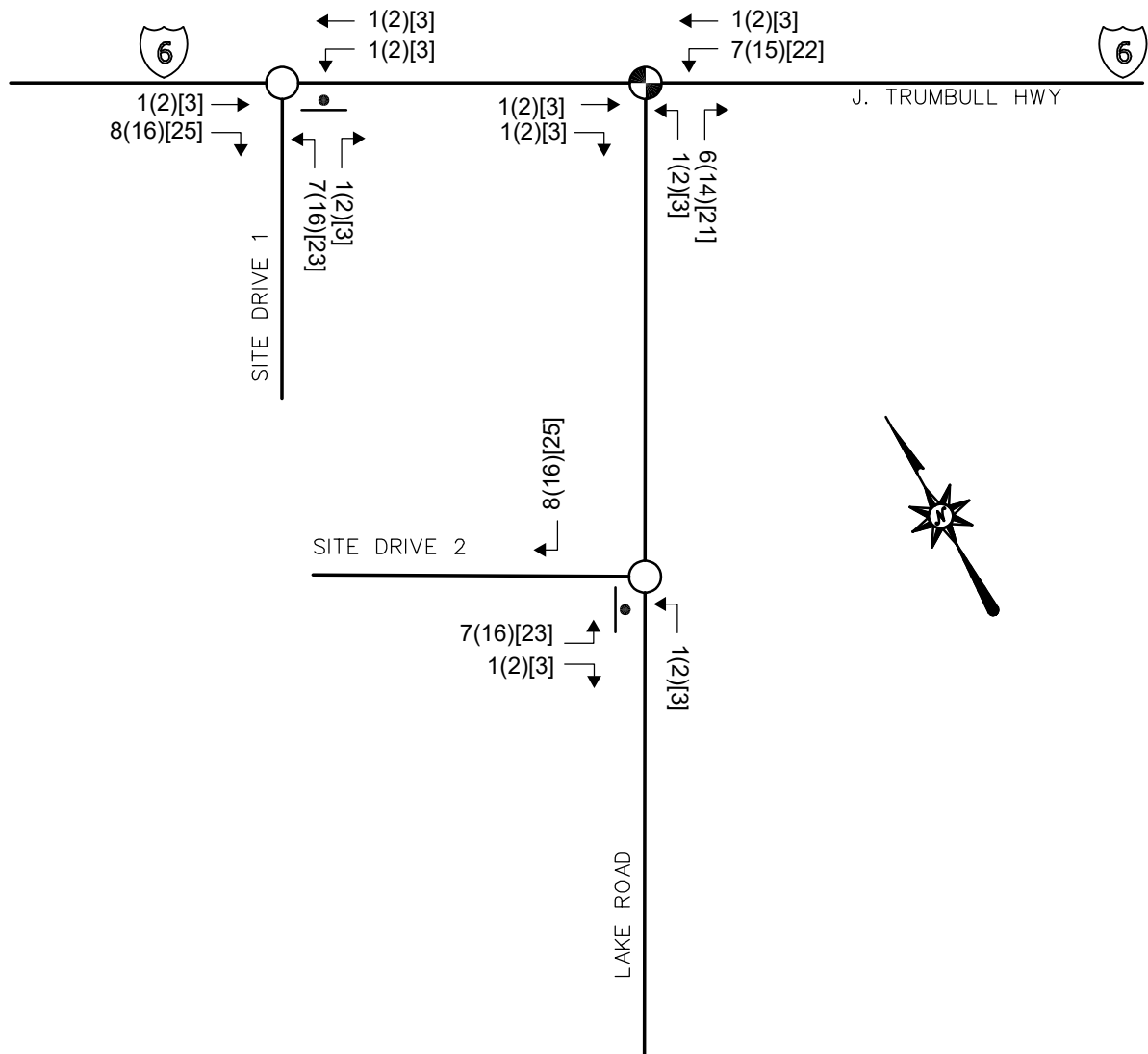
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Date MARCH 2022

FIGURE 4

Assigned Site Generated Traffic Volumes

The generated trips are multiplied by the corresponding proportions to ascertain the Site generated traffic volumes. **Figure 5** shows the Site generated peak hour traffic assigned to the nearby roadway network.



LEGEND

- ⊕ SIGNALIZED INTERSECTION
 - UNSIGNALIZED INTERSECTION
 - STOP-CONTROLLED APPROACH
- WEEKDAY AM: XXX
WEEKDAY PM: (XXX)
SATURDAY MID-DAY: [XXX]

NOTE

VOLUME BALANCING MAY SLIGHTLY DIFFER AS A RESULT OF ROUNDING.



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SITE GENERATED TRAFFIC VOLUMES

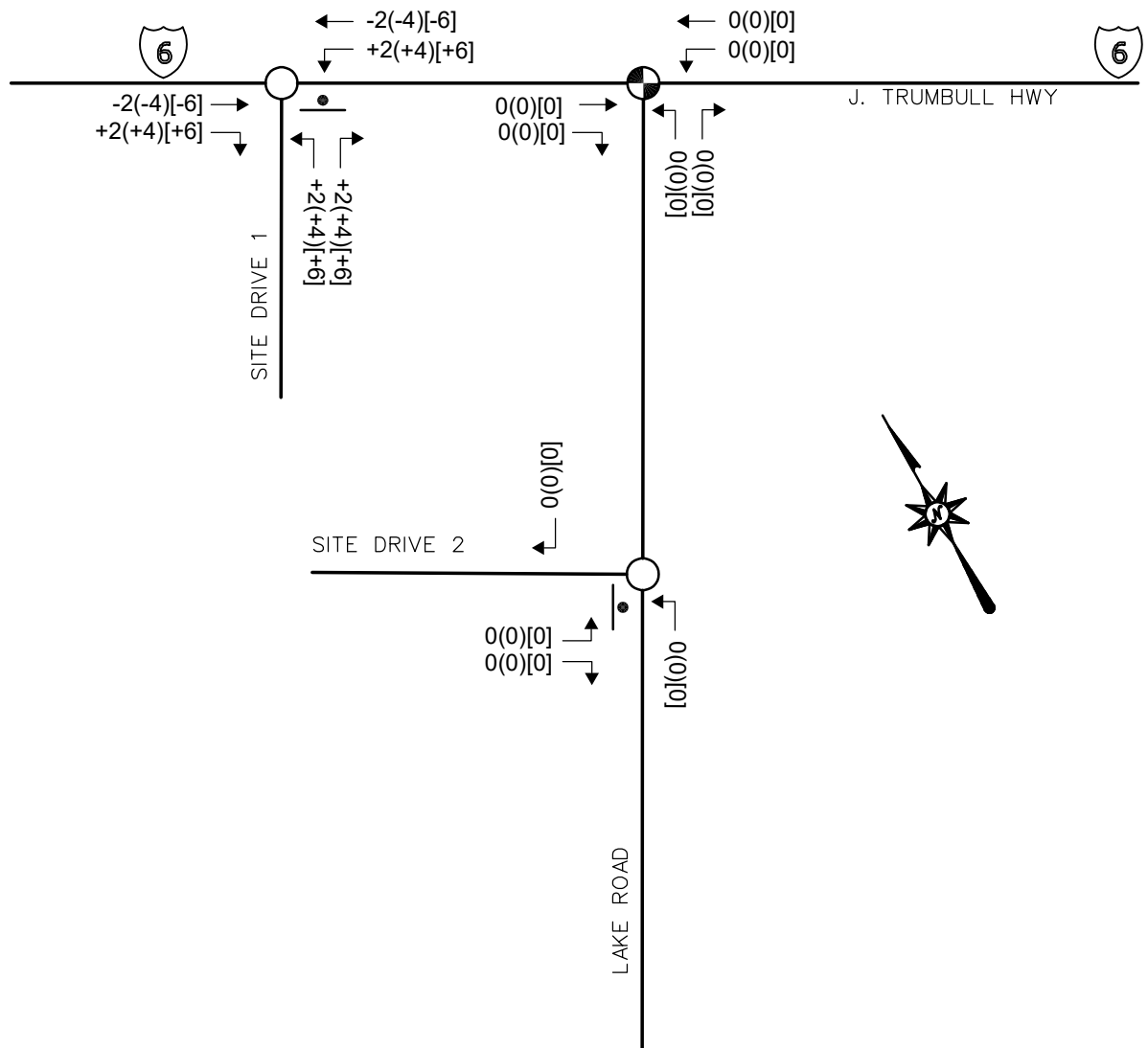
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FIGURE 5

Pass-By Traffic Volume

The pass-by volumes consisting of vehicles already on the roadway that are attracted to the Site when passing through the area are illustrated in **Figure 6**.



LEGEND

- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- STOP-CONTROLLED APPROACH

PASS-BY TRAFFIC VOLUME

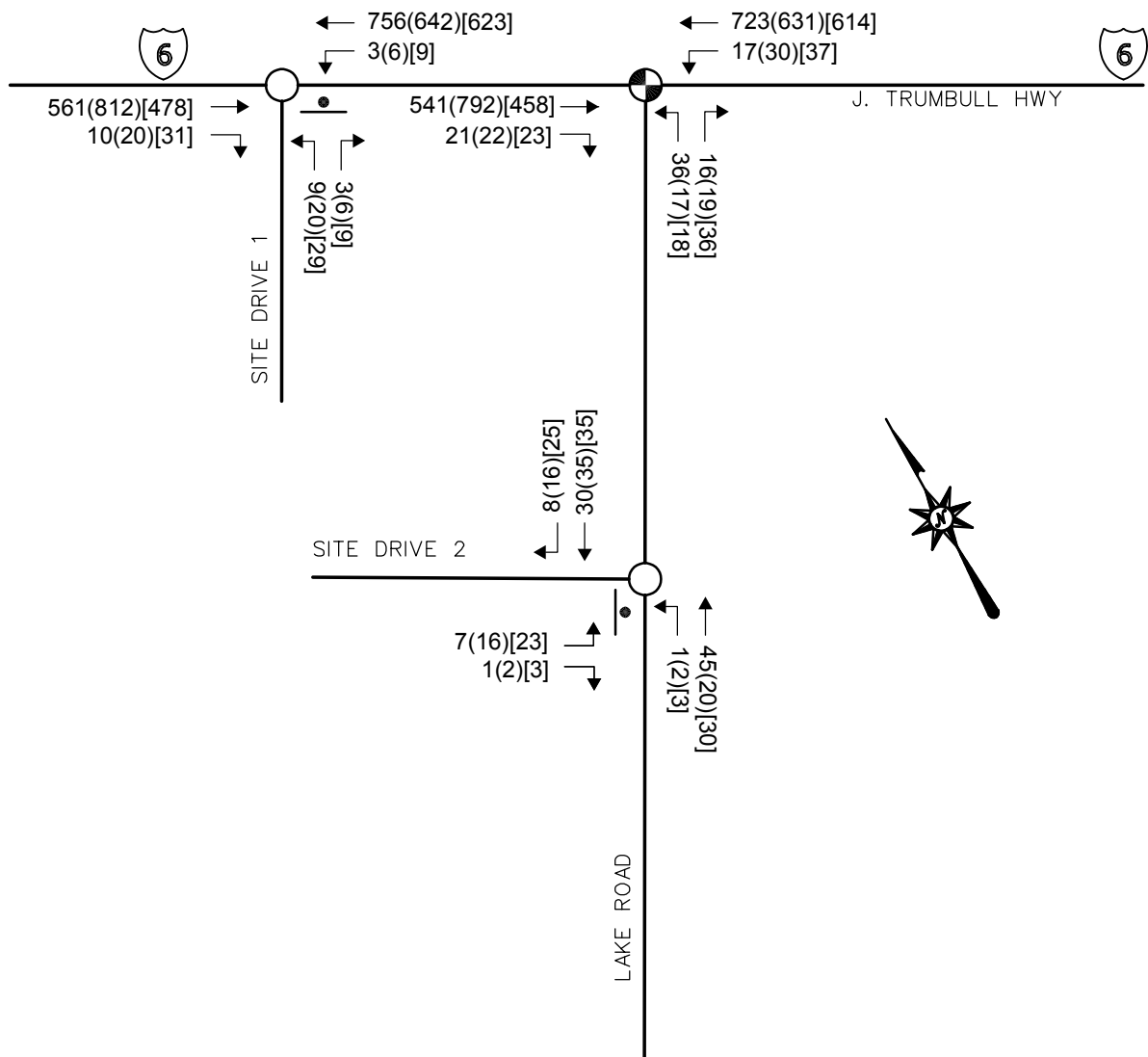
PROPOSED DEVELOPMENT
580 LAKE ROAD, ANDOVER, CT
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Project No. 2101726
Date MARCH 2022

FIGURE 6

Build Traffic Volumes

The assigned Site generated traffic volumes were superimposed onto the 2023 No Build Traffic volumes to establish the future 2023 Build Traffic volumes, as illustrated in **Figure 7**.



LEGEND

- ⊕ SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- STOP-CONTROLLED APPROACH
- WEEKDAY AM: XXX
- WEEKDAY PM: (XXX)
- SATURDAY MID-DAY: [XXX]



BUILD TRAFFIC VOLUMES (2023)

PROPOSED DEVELOPMENT
580 LAKE ROAD, ANDOVER, CT
SCHEMATIC, NOT TO SCALE

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FIGURE 7

IV. ROADWAY ADEQUACY

The intersection capacity analyses were prepared using the methodology described in the Highway Capacity Manual (HCM), published by the Transportation Research Board (TRB) for the existing, no build, build, and build improve traffic volume scenarios to simulate the traffic impact of a proposed retail development on the adjacent roadway network. As documented in the HCM, intersection performance is influenced by several factors, including traffic demand; lane configurations; lane widths; turning restrictions; roadway grades; and signal phasing. The existing physical roadway characteristics and signal phasing and timing settings were determined by observing conditions in the field and reviewing the current traffic control signal plans provided by CTDOT.

Synchro™ software (Version 11) was used to model the study intersections based on the parameters mentioned above. The Synchro software is widely utilized by the traffic engineering industry and is consistent with the procedures in the HCM.

Signalized Intersections

Signalized intersections are analyzed in terms of vehicle capacity and motorist delay. Capacity is the maximum rate of vehicle flow through an intersection given typical operating conditions. The number of vehicles traveling through an intersection is divided by the capacity of the intersection to determine an overall volume to capacity ratio (v/c). A v/c value under 1.00 indicates that the number of vehicles traveling through an intersection is less than capacity.

As stated in the HCM, level of service for signalized intersections is defined in terms of control delay. Control delay measures the increase in delay a motorist experiences while encountering a traffic control signal. These factors include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. This delay is measured per vehicle for a 15-minute analysis period and is associated with the levels of service, which are summarized in **Table 3** below:

Table 3 – Signalized Intersection – Level of Service

<u>Level of Service¹</u>	<u>Average Control Delay (seconds per vehicle)</u>
A	≤ 10
B	$> 10 \text{ and } \leq 20$
C	$> 20 \text{ and } \leq 35$
D	$> 35 \text{ and } \leq 55$
E	$> 55 \text{ and } \leq 80$
F	> 80

¹If volume-to-capacity ratio is over 1.0 for a lane group, LOS F. Intersection and approach-based LOS is based solely on control delay.

Level of Service A represents the optimum level where most motorists arrive at the subject intersection during the green phase and thus experience virtually no delay. Conversely, Level of Service F indicates that motorists are delayed over 80 seconds while traveling through the intersection and can often imply a complete breakdown of that location. Level of Service D is generally considered the limit of acceptable motorist delay.

Unsignalized Intersections

Unsignalized intersections are generally evaluated in terms of average side street delay, as well as the capacity of the roadway approach. This analysis is based on the random arrival of vehicles and the associated gaps generated by this random arrival within the traffic stream. There is no overall level of service for unsignalized intersections. The relationship between levels of service and average side street delay are summarized in **Table 4** below:

Table 4 – Unsignalized Intersection – Level of Service

<u>Level of Service¹</u>	<u>Average Control Delay (seconds per vehicle)</u>
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

¹If volume-to-capacity ratio is over 1.0 for a lane group, LOS F. Intersection and approach-based LOS is based solely on control delay.

It should be noted that unsignalized levels of service do not correspond to those for signalized intersections, nor do they constitute warrants for the installation of traffic control signals. It is also recognized that the methodology is overly conservative and that computations can indicate operations at poor levels of service (E or F) with even very low side street volumes, although they often function without serious problems in the real world.

Capacity Analyses Results

Table 5 shows the levels of service (LOS) and other operational characteristics at the subject intersections. The detailed analysis information is included in the Appendix.

Table 5 – Peak Hour Levels of Service

	AM			PM			SAT MD		
	2022	2023	2023	2022	2023	2023	2022	2023	2023
	Existing	No Build	Build	Existing	No Build	Build	Existing	No Build	Build
US Route 6 (Johnathan Trumbull Highway) at Site#1 Driveway ²	-	-	-	-	-	-	-	-	-
US Route 6 (Johnathan Trumbull Highway) EB Through/ Right	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25
US Route 6 (Johnathan Trumbull Highway) WB Left/ Through	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25
Site #1 NB Left/ Right	-	-	D/0.08/25	-	-	D/0.18/25	-	-	C/0.18/25
Lake Road at Site#2 Driveway ²	-	-	-	-	-	-	-	-	-
US Route 6 (Johnathan Trumbull Highway) at Lake Road ¹	A/7.5	A/7.5	A/7.6	A/6.3	A/6.4	A/8.6	A/5.6	A/5.6	A/6.7
US Route 6 (Johnathan Trumbull Highway) EB Through	B/0.57/215	B/0.58/220	B/0.58/225	B/0.69/330	B/0.70/340	B/0.73/355	A/0.48/160	A/0.48/165	B/0.51/170
US Route 6 (Johnathan Trumbull Highway) EB Right	A/0.03/25	A/0.03/25	A/0.03/25	A/0.02/25	A/0.02/25	A/0.02/25	A/0.02/25	A/0.02/25	A/0.03/25
US Route 6 (Johnathan Trumbull Highway) WB Left	A/0.02/25	A/0.02/25	A/0.03/25	A/0.03/25	A/0.03/25	A/0.07/25	A/0.02/25	A/0.02/25	A/0.06/25
US Route 6 (Johnathan Trumbull Highway) WB Through	A/0.49/155	A/0.50/165	A/0.50/165	A/0.39/105	A/0.39/110	A/0.43/115	A/0.39/105	A/0.39/105	A/0.43/115
Lake Road NB Left/ Right	C/0.24/50	C/0.24/50	C/0.27/50	C/0.10/30	C/0.11/30	C/0.20/35	B/0.14/30	B/0.14/30	B/0.25/35

Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec
Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft
¹ – Signalized Intersection
² – Unsignalized Intersections, controlled movements
³ – Approach revised to left turn lane and through lane for Build Improv scenario

As illustrated in **Table 5**, weekday AM peak hour, weekday PM peak hour and Saturday Midday peak hour Existing and No Build Scenario traffic operations were analyzed as the base conditions for comparison with the Build Scenarios.

During the AM Peak hour, traffic operations for the overall intersection LOS and individual movements are projected to be negligibly impacted by the proposed development. The signalized intersection remains at the LOS of "A" and so does the overall delay of 7.5 seconds.

During the PM Peak hour, traffic operations for the overall intersection LOS and individual movements are projected to be negligibly impacted by the proposed development. The signalized intersection remains at the LOS of "A" with a net increase of one second of delay. The queue length increases by ten feet between No Build and Build scenarios, which is less than a car length.

Last, during the Saturday Mid-Day Peak hour, traffic operations for the overall intersection LOS and individual movements are projected to have negligible impacts from the proposed development. The signalized intersection remains at the LOS of "A" and so does the overall delay of 6.7 seconds.

V. INTERSECTION SIGHT DISTANCE

Sight Distances

The American Association of State Highway and Transportation Officials' (AASHTO) publication, A Policy on Geometric Design, 2018 Edition, defines minimum sight distances at intersections based on the eighty-fifth percentile speed and roadway geometry attributes. The CTDOT follows these methods for unsignalized and signalized intersections in the CTDOT Highway Design Manual.

Two distances to consider are the stopping sight distance (SSD) for vehicles traveling along the main road and intersection sight distance (ISD) from the proposed driveways, shown in **Table 6**.

Table 6 – Sight Lines Project Access Points

Intersection	Direction	Posted Speed Limit (mph)	85 th Percentile Speed (mph)	SSD Required (ft)	ISD Required (ft)	Estimated Distance (ft)
Site Drive #1 at US Route 6 (Johnathan Trumbull Highway)	Eastbound	50	55*	495	610	1,000+
	Westbound					1,000+
Site Drive #2 at Lake Road	Northbound	25	30*	200	335	220
	Southbound					140

*-assumed

As shown in **Table 6** the sight distance looks in both directions for both driveways. Along US Route 6 (Johnathan Trumbull Highway) from Site Driveway #1 the SSD and ISD requirements are met for the prevailing speeds. Clearing of vegetation / overgrown shrubs from surrounding Route 6 (Johnathan Trumbull Highway) roadway is recommended where needed.

The sightlines from Site Driveway #2 at Lake Road are limited by the vegetation at the neighboring property (580 Lake Road) and proximity to the signalized intersection. Looking towards the signalized intersection, the sightline is over 200 ft thus meeting the SSD limits; in the southbound direction, the sightline for SSD and ISD is not met. Minimum clearing of vegetation / overgrown shrubs is recommended to improve sightlines. Overall, vehicles are expected to be able to exit the project Site Driveways safely.

VI. CONCLUSIONS AND RECOMMENDATIONS

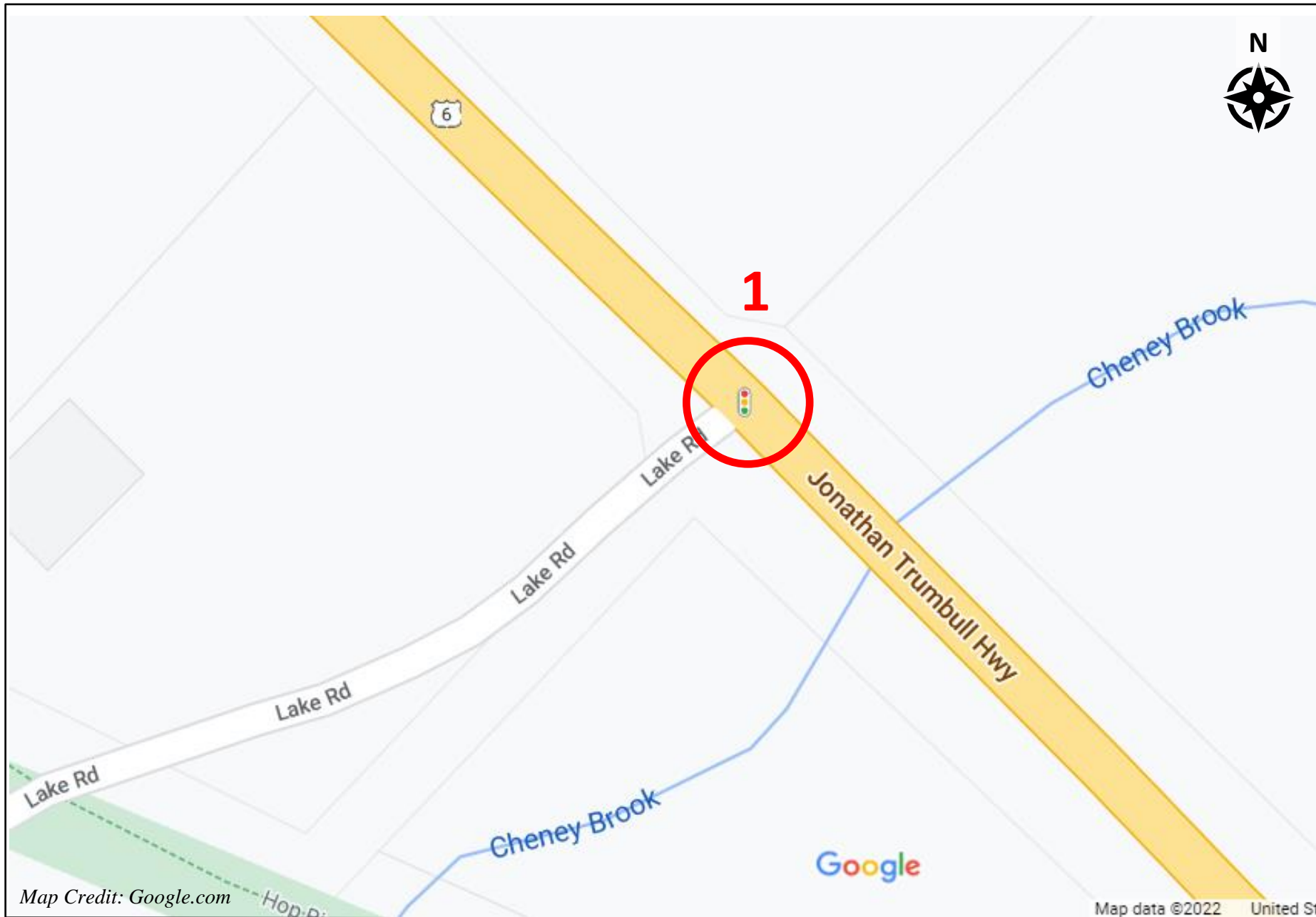
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The following is a summary of the results/recommendations for this Site:

- Install 12" white Stop Bar and "Stop" Sign (R1-1) at the Site driveways egress as shown on Site Plan.
- Clearing of vegetation to increase sightlines on Lake Road.

APPENDIX

Traffic Counts



Map Credit: Google.com

Map data ©2022 United St

New England
COUNTS

ID: 876_001_BL

Andover, CT

of TMC's: 01

Client: BL Companies

Collected on March 3 & 5, 2022

of ATR's: 00

Contact: Pat Padlo, P.E., PTOE

Client: Pat Padlo, P.E., PTOE
 Project #: 876_001_BL
 LTD #: Location 1
 Location: Andover, CT
 Street 1: Route 6 (Jonathan Trumbull Hwy)
 Street 2: Lake Road
 Count Date: 3/3/2022
 Day of Week: Thursday
 Weather: Clouds & Sun, 30°F

New England COUNTS

PO Box 1723
 Framingham, MA 01701

PASSENGER CARS & HEAVY VEHICLES COMBINED

Lake Road Northbound					Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	10	0	2	0	0	0	0	0	0	116	1	0	1	164	0
7:15 AM	0	6	0	2	0	0	0	0	0	0	122	10	0	1	182	0
7:30 AM	0	8	0	4	0	0	0	0	0	0	148	2	0	2	189	0
7:45 AM	0	9	0	1	0	0	0	0	0	0	129	4	0	2	160	0
8:00 AM	0	9	0	2	0	0	0	0	0	0	131	3	0	1	170	0
8:15 AM	0	6	0	1	0	0	0	0	0	0	136	9	0	2	165	0
8:30 AM	0	3	0	5	0	0	0	0	0	0	112	0	0	1	141	0
8:45 AM	0	4	0	6	0	0	0	0	0	0	123	3	0	1	127	0

Lake Road Northbound					Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	3	0	1	0	0	0	0	0	0	197	5	0	1	141	0
4:15 PM	0	6	0	1	0	0	0	0	0	0	194	5	0	8	159	0
4:30 PM	0	3	0	0	0	0	0	0	0	0	192	3	0	1	170	0
4:45 PM	0	0	0	2	0	0	0	0	0	0	189	6	0	2	143	0
5:00 PM	0	3	0	0	0	0	0	0	0	0	203	4	0	2	132	0
5:15 PM	0	8	0	5	0	0	0	0	0	0	191	2	0	4	151	0
5:30 PM	0	3	0	3	0	0	0	0	0	0	161	6	0	7	171	0
5:45 PM	0	1	0	2	0	0	0	0	0	0	157	4	0	3	140	0

AM PEAK HOUR 7:15 AM to 8:15 AM PHF HV %	Lake Road Northbound				Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	32	0	9	0	0	0	0	0	0	530	19	0	6	701	0
	0.85				0.00				0.92				0.93			
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.7%	15.8%	0.0%	66.7%	5.6%	0.0%

PM PEAK HOUR 4:00 PM to 5:00 PM PHF HV %	Lake Road Northbound				Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	12	0	4	0	0	0	0	0	0	772	19	0	12	613	0
	0.57				0.00				0.98				0.91			
	0.0%	8.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	5.3%	0.0%	0.0%	3.8%	0.0%

Client: Pat Padlo, P.E., PTOE
 Project #: 876_001_BL
 BTM #: Location 1
 Location: Andover, CT
 Street 1: Route 6 (Jonathan Trumbull Hwy)
 Street 2: Lake Road
 Count Date: 3/3/2022
 Day of Week: Thursday
 Weather: Clouds & Sun, 30°F

New England COUNTS

PO Box 1723
 Framingham, MA 01701

HEAVY VEHICLES

Lake Road Northbound					Lake Road Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	3	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	9	1	0	1	11	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	15	1	0	1	11	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	8	0	0	2	10	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	14	1	0	0	7	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	14	1	0	0	13	0
8:30 AM	0	0	0	1	0	0	0	0	0	0	7	0	0	0	8	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	13	0

Lake Road Northbound					Lake Road Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	1	0	0	0	0	0	0	0	0	7	1	0	0	7	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	7	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	6	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	7	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
5:30 PM	0	0	0	1	0	0	0	0	0	0	4	0	0	0	3	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	9	0

AM PEAK HOUR 7:30 AM to 8:30 AM PHF	Lake Road Northbound				Lake Road Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	0	0	51	3	0	3	41	0
0.00				0.00				0.84				0.85				

PM PEAK HOUR 4:00 PM to 5:00 PM PHF	Lake Road Northbound				Lake Road Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	0	0	0	0	0	0	0	0	23	1	0	0	23	0
0.25				0.00				0.75				0.82				

Client: Pat Padlo, P.E., PTOE
 Project #: 876_001_BL
 BTM #: Location 1
 Location: Andover, CT
 Street 1: Route 6 (Jonathan Trumbull Hwy)
 Street 2: Lake Road
 Count Date: 3/3/2022
 Day of Week: Thursday
 Weather: Clouds & Sun, 30°F



PO Box 1723
 Framingham, MA 01701

PEDESTRIANS & BICYCLES

Lake Road Northbound					Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Lake Road Northbound					Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR ¹ 7:15 AM to 8:15 AM	Lake Road Northbound				Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PM PEAK HOUR ¹ 4:00 PM to 5:00 PM	Lake Road Northbound				Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

¹ NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Pat Padlo, P.E., PTOE
 Project #: 876_001_BL
 BTD #: Location 1
 Location: Andover, CT
 Street 1: Route 6 (Jonathan Trumbull Hwy)
 Street 2: Lake Road
 Count Date: 3/5/2022
 Day of Week: Saturday
 Weather: Clouds & Sun, 40°F



PO Box 1723
 Framingham, MA 01701

PASSENGER CARS & HEAVY VEHICLES COMBINED

Lake Road Northbound					Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	8	0	5	0	0	0	0	0	0	102	4	0	4	140	0
11:15 AM	0	7	0	3	0	0	0	0	0	0	108	3	0	2	155	0
11:30 AM	0	0	0	6	0	0	0	0	0	0	119	2	0	2	144	0
11:45 AM	0	5	0	1	0	0	0	0	0	0	128	6	0	4	124	0
12:00 PM	0	0	0	3	0	0	0	0	0	0	97	6	0	5	156	0
12:15 PM	0	1	0	6	0	0	0	0	0	0	119	1	0	5	150	0
12:30 PM	0	8	0	2	0	0	0	0	0	0	113	2	0	2	132	0
12:45 PM	0	6	0	2	0	0	0	0	0	0	115	8	0	1	156	0

MID PEAK HOUR 12:00 PM to 1:00 PM	Lake Road Northbound				Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	15	0	13	0	0	0	0	0	0	444	17	0	13	594	0
PHF	0.70				0.00				0.94				0.94			
HV %	0.0%	6.7%	0.0%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	5.9%	0.0%	0.0%	2.2%	0.0%

Client: Pat Padlo, P.E., PTOE
 Project #: 876_001_BL
 BTD #: Location 1
 Location: Andover, CT
 Street 1: Route 6 (Jonathan Trumbull Hwy)
 Street 2: Lake Road
 Count Date: 3/5/2022
 Day of Week: Saturday
 Weather: Clouds & Sun, 40°F



PO Box 1723
 Framingham, MA 01701

HEAVY VEHICLES

Lake Road Northbound					Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	1	0	0	0	0	0	0	0	0	5	1	0	0	5	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0
11:30 AM	0	0	0	1	0	0	0	0	0	0	1	0	0	0	4	0
11:45 AM	0	0	0	1	0	0	0	0	0	0	2	0	0	1	2	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	6	0
12:15 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3	0
12:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0

MID PEAK HOUR 11:00 AM to 12:00 PM <i>PHF</i>	Lake Road Northbound				Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	0	2	0	0	0	0	0	0	9	2	0	1	13	0
<i>PHF</i>	0.75				0.00				0.46				0.70			

Client: Pat Padlo, P.E., PTOE
 Project #: 876_001_BL
 BTD #: Location 1
 Location: Andover, CT
 Street 1: Route 6 (Jonathan Trumbull Hwy)
 Street 2: Lake Road
 Count Date: 3/5/2022
 Day of Week: Saturday
 Weather: Clouds & Sun, 40°F



PO Box 1723
 Framingham, MA 01701

PEDESTRIANS & BICYCLES

Lake Road Northbound					Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
Start Time	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

MID PEAK HOUR 12:00 PM to 1:00 PM	Lake Road Northbound				Southbound				US Route 6 (Jonathan Trumbull Highway) Eastbound				US Route 6 (Jonathan Trumbull Highway) Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

CAPACITY ANALYSES

EXISTING

Lanes, Volumes, Timings
101: SITE 1 & US Rt 6

Existing
Timing Plan: AM



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	550	0	0	740	0	0
Future Volume (vph)	550	0	0	740	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frnt						
Flt Protected						
Satd. Flow (prot)	1827	0	0	1827	1863	0
Flt Permitted						
Satd. Flow (perm)	1827	0	0	1827	1863	0
Link Speed (mph)	50			30	30	
Link Distance (ft)	1507			279	137	
Travel Time (s)	20.6			6.3	3.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	598	0	0	804	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	598	0	0	804	0	0
Sign Control	Free			Free	Stop	




Intersection Summary

Area Type: Other

Control Type: Unsignalized

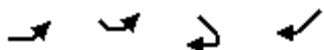
Intersection Capacity Utilization 42.3% ICU Level of Service A




Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	550	0	0	740	0	0
Future Vol, veh/h	550	0	0	740	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	598	0	0	804	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	598	0	1402	598
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	804	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	969	-	154	502
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	440	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	969	-	154	502
Mov Cap-2 Maneuver	-	-	-	-	154	-
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	440	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	-	969	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	0	-	-	-	
HCM Lane LOS	A	A	-	-	-	
HCM 95th %tile Q(veh)	-	0	-	-	-	

Lanes, Volumes, Timings
102: Lake Rd & SITE 2













Existing
Timing Plan: AM



Lane Group	EBL	SEL	SER	SWR
Lane Configurations				
Traffic Volume (vph)	45	0	0	30
Future Volume (vph)	45	0	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00
Frt				0.865
Flt Protected	0.950			
Satd. Flow (prot)	1703	1863	0	1550
Flt Permitted	0.950			
Satd. Flow (perm)	1703	1863	0	1550
Link Speed (mph)	30	30		30
Link Distance (ft)	266	219		199
Travel Time (s)	6.0	5.0		4.5
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	2%	2%	6%
Adj. Flow (vph)	49	0	0	33
Shared Lane Traffic (%)				
Lane Group Flow (vph)	49	0	0	33
Sign Control	Free	Stop		Free
Intersection Summary				
Area Type:	Other			
Control Type:	Unsignalized			
Intersection Capacity Utilization	6.7%		ICU Level of Service A	
Analysis Period (min)	15			







Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Existing
Timing Plan: AM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	530	20	10	705	35	10
Future Volume (vph)	530	20	10	705	35	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	200		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.969	
Flt Protected			0.950		0.963	
Satd. Flow (prot)	1827	1553	1736	1827	1673	0
Flt Permitted			0.369		0.963	
Satd. Flow (perm)	1827	1553	674	1827	1673	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		22			12	
Link Speed (mph)	50			50	25	
Link Distance (ft)	279			1691	199	
Travel Time (s)	3.8			23.1	5.4	
Peak Hour Factor	0.92	0.92	0.93	0.93	0.85	0.85
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Adj. Flow (vph)	576	22	11	758	41	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	576	22	11	758	53	0
Turn Type	NA	Perm	D.P+P	NA	Prot	
Protected Phases	2		1	1 2	4	
Permitted Phases		2	2			
Detector Phase	2	2	1	1 2	4	
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0		5.0	
Minimum Split (s)	26.4	26.4	7.0		9.3	
Total Split (s)	51.4	51.4	10.0		21.3	
Total Split (%)	62.2%	62.2%	12.1%		25.8%	
Maximum Green (s)	45.0	45.0	6.0		17.0	
Yellow Time (s)	4.7	4.7	3.0		3.3	
All-Red Time (s)	1.7	1.7	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	4.0		4.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	2.5	2.5	1.5		1.5	
Recall Mode	Min	Min	None		None	
Walk Time (s)					18.0	
Flash Dont Walk (s)					1.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	27.7	27.7	36.2	42.8	6.3	
Actuated g/C Ratio	0.55	0.55	0.72	0.85	0.12	
v/c Ratio	0.57	0.03	0.02	0.49	0.24	
Control Delay	11.0	3.0	2.1	3.8	24.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Existing
Timing Plan: AM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Total Delay	11.0	3.0	2.1	3.8	24.3	
LOS	B	A	A	A	C	
Approach Delay	10.7			3.8	24.3	
Approach LOS	B			A	C	
Queue Length 50th (ft)	118	0	1	70	11	
Queue Length 95th (ft)	214	8	3	155	46	
Internal Link Dist (ft)	199			1611	119	
Turn Bay Length (ft)		150	200			
Base Capacity (vph)	1566	1335	629	1723	620	
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	0.37	0.02	0.02	0.44	0.09	

Intersection Summary

Area Type: Other

Cycle Length: 82.7

Actuated Cycle Length: 50.5

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 7.5

Intersection LOS: A

Intersection Capacity Utilization 48.2%

ICU Level of Service A










Analysis Period (min) 15




Splits and Phases: 103: Lake Rd & US Rt 6

 Ø1	 Ø2	 Ø4
10 s	51.4 s	21.3 s

Lanes, Volumes, Timings
101: SITE 1 & US Rt 6

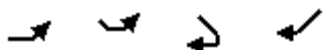
Existing
Timing Plan: PM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	795	0	0	630	0	0
Future Volume (vph)	795	0	0	630	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1827	0	0	1827	1863	0
Flt Permitted						
Satd. Flow (perm)	1827	0	0	1827	1863	0
Link Speed (mph)	50			30	30	
Link Distance (ft)	1507			279	137	
Travel Time (s)	20.6			6.3	3.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	811	0	0	643	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	811	0	0	643	0	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	45.2%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	795	0	0	630	0	0
Future Vol, veh/h	795	0	0	630	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	811	0	0	643	0	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	811	0	1454	811
Stage 1	-	-	-	-	811	-
Stage 2	-	-	-	-	643	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	806	-	143	379
Stage 1	-	-	-	-	437	-
Stage 2	-	-	-	-	523	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	806	-	143	379
Mov Cap-2 Maneuver	-	-	-	-	143	-
Stage 1	-	-	-	-	437	-
Stage 2	-	-	-	-	523	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	-	806	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	-	-
HCM Lane LOS	A	A	-	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-	-

Lanes, Volumes, Timings
102: Lake Rd & SITE 2

Existing
Timing Plan: PM



Lane Group	EBL	SEL	SER	SWR
Lane Configurations				
Traffic Volume (vph)	20	0	0	35
Future Volume (vph)	20	0	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00
Fr _t				0.865
Fl _t Protected	0.950			
Satd. Flow (prot)	1703	1863	0	1550
Fl _t Permitted	0.950			
Satd. Flow (perm)	1703	1863	0	1550
Link Speed (mph)	30	30		30
Link Distance (ft)	266	219		199
Travel Time (s)	6.0	5.0		4.5
Peak Hour Factor	0.92	0.92	0.92	0.85
Heavy Vehicles (%)	6%	2%	2%	6%
Adj. Flow (vph)	22	0	0	41
Shared Lane Traffic (%)				
Lane Group Flow (vph)	22	0	0	41
Sign Control	Free	Stop		Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized













Intersection Capacity Utilization 6.7%

ICU Level of Service A

Analysis Period (min) 15







Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Existing
Timing Plan: PM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	775	20	15	615	15	5
Future Volume (vph)	775	20	15	615	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	200		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.968	
Flt Protected			0.950		0.963	
Satd. Flow (prot)	1827	1553	1736	1827	1671	0
Flt Permitted			0.244		0.963	
Satd. Flow (perm)	1827	1553	446	1827	1671	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		17			5	
Link Speed (mph)	50			50	25	
Link Distance (ft)	279			1691	199	
Travel Time (s)	3.8			23.1	5.4	
Peak Hour Factor	0.98	0.98	0.91	0.91	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Adj. Flow (vph)	791	20	16	676	16	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	791	20	16	676	21	0
Turn Type	NA	Perm	D.P+P	NA	Prot	
Protected Phases	2		1	1 2	4	
Permitted Phases		2	2			
Detector Phase	2	2	1	1 2	4	
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0		5.0	
Minimum Split (s)	26.4	26.4	7.0		9.3	
Total Split (s)	51.4	51.4	10.0		21.3	
Total Split (%)	62.2%	62.2%	12.1%		25.8%	
Maximum Green (s)	45.0	45.0	6.0		17.0	
Yellow Time (s)	4.7	4.7	3.0		3.3	
All-Red Time (s)	1.7	1.7	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	4.0		4.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	2.5	2.5	1.5		1.5	
Recall Mode	Min	Min	None		None	
Walk Time (s)					18.0	
Flash Dont Walk (s)					1.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	29.7	29.7	37.5	45.6	5.6	
Actuated g/C Ratio	0.63	0.63	0.79	0.96	0.12	
v/c Ratio	0.69	0.02	0.03	0.39	0.10	
Control Delay	10.2	2.5	1.1	1.5	23.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Existing
Timing Plan: PM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Total Delay	10.2	2.5	1.1	1.5	23.7	
LOS	B	A	A	A	C	
Approach Delay	10.1			1.5	23.7	
Approach LOS	B			A	C	
Queue Length 50th (ft)	98	0	0	0	4	
Queue Length 95th (ft)	329	7	4	103	27	
Internal Link Dist (ft)	199			1611	119	
Turn Bay Length (ft)		150	200			
Base Capacity (vph)	1643	1399	538	1752	645	
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	0.48	0.01	0.03	0.39	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 82.7

Actuated Cycle Length: 47.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 6.3

Intersection LOS: A

Intersection Capacity Utilization 53.9%

ICU Level of Service A










Analysis Period (min) 15




Splits and Phases: 103: Lake Rd & US Rt 6

 Ø1	 Ø2	 Ø4
10 s	51.4 s	21.3 s

Lanes, Volumes, Timings
101: SITE 1 & US Rt 6

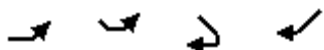
Existing
Timing Plan: SAT MD

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	465	0	0	610	0	0
Future Volume (vph)	465	0	0	610	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1827	0	0	1827	1863	0
Flt Permitted						
Satd. Flow (perm)	1827	0	0	1827	1863	0
Link Speed (mph)	50			30	30	
Link Distance (ft)	1507			279	137	
Travel Time (s)	20.6			6.3	3.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	495	0	0	649	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	495	0	0	649	0	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 35.4%				ICU Level of Service A		
Analysis Period (min) 15						

Intersection						
Int Delay, s/veh	0					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	465	0	0	610	0	0
Future Vol, veh/h	465	0	0	610	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	495	0	0	649	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	495	0	1144	495
Stage 1	-	-	-	-	495	-
Stage 2	-	-	-	-	649	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1058	-	221	575
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	520	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1058	-	221	575
Mov Cap-2 Maneuver	-	-	-	-	221	-
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	520	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	-	1058	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	0	-	-	-	
HCM Lane LOS	A	A	-	-	-	
HCM 95th %tile Q(veh)	-	0	-	-	-	

Lanes, Volumes, Timings
102: Lake Rd & SITE 2

Existing
Timing Plan: SAT MD



Lane Group	EBL	SEL	SER	SWR
Lane Configurations				
Traffic Volume (vph)	30	0	0	35
Future Volume (vph)	30	0	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00
Fr _t				0.865
Fl _t Protected	0.950			
Satd. Flow (prot)	1703	1863	0	1550
Fl _t Permitted	0.950			
Satd. Flow (perm)	1703	1863	0	1550
Link Speed (mph)	30	30		30
Link Distance (ft)	266	219		199
Travel Time (s)	6.0	5.0		4.5
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	2%	2%	6%
Adj. Flow (vph)	33	0	0	38
Shared Lane Traffic (%)				
Lane Group Flow (vph)	33	0	0	38
Sign Control	Free	Stop		Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized













Intersection Capacity Utilization 6.7%

ICU Level of Service A

Analysis Period (min) 15

Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Existing
Timing Plan: SAT MD

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	445	20	15	595	15	15
Future Volume (vph)	445	20	15	595	15	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	200		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.932	
Flt Protected			0.950		0.976	
Satd. Flow (prot)	1827	1553	1736	1827	1630	0
Flt Permitted			0.463		0.976	
Satd. Flow (perm)	1827	1553	846	1827	1630	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21			16	
Link Speed (mph)	50			50	25	
Link Distance (ft)	279			1691	199	
Travel Time (s)	3.8			23.1	5.4	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Adj. Flow (vph)	473	21	16	633	16	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	473	21	16	633	32	0
Turn Type	NA	Perm	D.P+P	NA	Prot	
Protected Phases	2		1	1 2	4	
Permitted Phases		2	2			
Detector Phase	2	2	1	1 2	4	
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0		5.0	
Minimum Split (s)	26.4	26.4	7.0		9.3	
Total Split (s)	51.4	51.4	10.0		21.3	
Total Split (%)	62.2%	62.2%	12.1%		25.8%	
Maximum Green (s)	45.0	45.0	6.0		17.0	
Yellow Time (s)	4.7	4.7	3.0		3.3	
All-Red Time (s)	1.7	1.7	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	4.0		4.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	2.5	2.5	1.5		1.5	
Recall Mode	Min	Min	None		None	
Walk Time (s)					18.0	
Flash Dont Walk (s)					1.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	22.7	22.7	30.3	37.4	5.5	
Actuated g/C Ratio	0.54	0.54	0.72	0.89	0.13	
v/c Ratio	0.48	0.02	0.02	0.39	0.14	
Control Delay	9.1	3.5	1.9	2.5	16.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Existing
Timing Plan: SAT MD



Lane Group	SET	SER	NWL	NWT	NEL	NER
Total Delay	9.1	3.5	1.9	2.5	16.4	
LOS	A	A	A	A	B	
Approach Delay	8.9			2.5	16.4	
Approach LOS	A			A	B	
Queue Length 50th (ft)	44	0	0	0	3	
Queue Length 95th (ft)	160	8	4	101	26	
Internal Link Dist (ft)	199			1611	119	
Turn Bay Length (ft)		150	200			
Base Capacity (vph)	1726	1468	769	1823	700	
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	0.27	0.01	0.02	0.35	0.05	

Intersection Summary

Area Type: Other

Cycle Length: 82.7

Actuated Cycle Length: 41.9

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 5.6

Intersection LOS: A

Intersection Capacity Utilization 42.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 103: Lake Rd & US Rt 6

 Ø1	 Ø2	 Ø4
10 s	51.4 s	21.3 s

NO BUILD

Lanes, Volumes, Timings
101: SITE 1 & US Rt 6

No Build
Timing Plan: AM



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	560	0	0	755	0	0
Future Volume (vph)	560	0	0	755	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frnt						
Flt Protected						
Satd. Flow (prot)	1827	0	0	1827	1863	0
Flt Permitted						
Satd. Flow (perm)	1827	0	0	1827	1863	0
Link Speed (mph)	50			30	30	
Link Distance (ft)	1507			279	137	
Travel Time (s)	20.6			6.3	3.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	609	0	0	821	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	609	0	0	821	0	0
Sign Control	Free			Free	Stop	




Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 43.1% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	560	0	0	755	0	0
Future Vol, veh/h	560	0	0	755	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	609	0	0	821	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	609	0	1430	609
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	821	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	960	-	148	495
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	432	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	960	-	148	495
Mov Cap-2 Maneuver	-	-	-	-	148	-
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	432	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	-	960	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	0	-	-	-	
HCM Lane LOS	A	A	-	-	-	
HCM 95th %tile Q(veh)	-	0	-	-	-	

Lanes, Volumes, Timings
102: Lake Rd & SITE 2

No Build
Timing Plan: AM



Lane Group	EBL	SEL	SER	SWR
Lane Configurations				
Traffic Volume (vph)	45	0	0	30
Future Volume (vph)	45	0	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00
Fr _t				0.865
Fl _t Protected	0.950			
Satd. Flow (prot)	1703	1863	0	1550
Fl _t Permitted	0.950			
Satd. Flow (perm)	1703	1863	0	1550
Link Speed (mph)	30	30		30
Link Distance (ft)	266	219		199
Travel Time (s)	6.0	5.0		4.5
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	2%	2%	6%
Adj. Flow (vph)	49	0	0	33
Shared Lane Traffic (%)				
Lane Group Flow (vph)	49	0	0	33
Sign Control	Free	Stop		Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized













Intersection Capacity Utilization 6.7%

ICU Level of Service A

Analysis Period (min) 15







Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

No Build
Timing Plan: AM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	540	20	10	720	35	10
Future Volume (vph)	540	20	10	720	35	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	200		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.969	
Flt Protected			0.950		0.963	
Satd. Flow (prot)	1827	1553	1736	1827	1673	0
Flt Permitted			0.361		0.963	
Satd. Flow (perm)	1827	1553	660	1827	1673	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		22			12	
Link Speed (mph)	50			50	25	
Link Distance (ft)	279			1691	199	
Travel Time (s)	3.8			23.1	5.4	
Peak Hour Factor	0.92	0.92	0.93	0.93	0.85	0.85
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Adj. Flow (vph)	587	22	11	774	41	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	587	22	11	774	53	0
Turn Type	NA	Perm	D.P+P	NA	Prot	
Protected Phases	2		1	1 2	4	
Permitted Phases		2	2			
Detector Phase	2	2	1	1 2	4	
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0		5.0	
Minimum Split (s)	26.4	26.4	7.0		9.3	
Total Split (s)	51.4	51.4	10.0		21.3	
Total Split (%)	62.2%	62.2%	12.1%		25.8%	
Maximum Green (s)	45.0	45.0	6.0		17.0	
Yellow Time (s)	4.7	4.7	3.0		3.3	
All-Red Time (s)	1.7	1.7	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	4.0		4.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	2.5	2.5	1.5		1.5	
Recall Mode	Min	Min	None		None	
Walk Time (s)					18.0	
Flash Dont Walk (s)					1.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	28.1	28.1	36.6	43.2	6.3	
Actuated g/C Ratio	0.55	0.55	0.72	0.85	0.12	
v/c Ratio	0.58	0.03	0.02	0.50	0.24	
Control Delay	11.0	3.0	2.1	3.9	24.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

No Build
Timing Plan: AM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Total Delay	11.0	3.0	2.1	3.9	24.5	
LOS	B	A	A	A	C	
Approach Delay	10.7			3.8	24.5	
Approach LOS	B			A	C	
Queue Length 50th (ft)	121	0	1	72	11	
Queue Length 95th (ft)	220	8	3	162	46	
Internal Link Dist (ft)	199			1611	119	
Turn Bay Length (ft)		150	200			
Base Capacity (vph)	1556	1326	621	1711	616	
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	0.38	0.02	0.02	0.45	0.09	

Intersection Summary

Area Type: Other

Cycle Length: 82.7

Actuated Cycle Length: 50.9

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 7.5

Intersection LOS: A

Intersection Capacity Utilization 49.0%

ICU Level of Service A










Analysis Period (min) 15




Splits and Phases: 103: Lake Rd & US Rt 6

 Ø1	 Ø2	 Ø4
10 s	51.4 s	21.3 s

Lanes, Volumes, Timings
101: SITE 1 & US Rt 6

No Build
Timing Plan: PM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	810	0	0	640	0	0
Future Volume (vph)	810	0	0	640	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1827	0	0	1827	1863	0
Flt Permitted						
Satd. Flow (perm)	1827	0	0	1827	1863	0
Link Speed (mph)	50			30	30	
Link Distance (ft)	1507			279	137	
Travel Time (s)	20.6			6.3	3.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	827	0	0	653	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	827	0	0	653	0	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 46.0%				ICU Level of Service A		
Analysis Period (min) 15						

Intersection						
Int Delay, s/veh	0					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	810	0	0	640	0	0
Future Vol, veh/h	810	0	0	640	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	827	0	0	653	0	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	827	0	1480	827
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	653	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	795	-	138	371
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	518	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	795	-	138	371
Mov Cap-2 Maneuver	-	-	-	-	138	-
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	518	-
Approach	SE	NW		NE		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	-	795	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	-	-
HCM Lane LOS	A	A	-	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-	-

Lanes, Volumes, Timings
102: Lake Rd & SITE 2

No Build
Timing Plan: PM



Lane Group	EBL	SEL	SER	SWR
Lane Configurations				
Traffic Volume (vph)	20	0	0	35
Future Volume (vph)	20	0	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00
Fr _t				0.865
Fl _t Protected	0.950			
Satd. Flow (prot)	1703	1863	0	1550
Fl _t Permitted	0.950			
Satd. Flow (perm)	1703	1863	0	1550
Link Speed (mph)	30	30		30
Link Distance (ft)	266	219		199
Travel Time (s)	6.0	5.0		4.5
Peak Hour Factor	0.92	0.92	0.92	0.85
Heavy Vehicles (%)	6%	2%	2%	6%
Adj. Flow (vph)	22	0	0	41
Shared Lane Traffic (%)				
Lane Group Flow (vph)	22	0	0	41
Sign Control	Free	Stop		Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized













Intersection Capacity Utilization 6.7%

ICU Level of Service A

Analysis Period (min) 15







Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

No Build
Timing Plan: PM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	790	20	15	625	15	5
Future Volume (vph)	790	20	15	625	15	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	200		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.968	
Flt Protected			0.950		0.963	
Satd. Flow (prot)	1827	1553	1736	1827	1671	0
Flt Permitted			0.236		0.963	
Satd. Flow (perm)	1827	1553	431	1827	1671	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		17			5	
Link Speed (mph)	50			50	25	
Link Distance (ft)	279			1691	199	
Travel Time (s)	3.8			23.1	5.4	
Peak Hour Factor	0.98	0.98	0.91	0.91	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Adj. Flow (vph)	806	20	16	687	16	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	806	20	16	687	21	0
Turn Type	NA	Perm	D.P+P	NA	Prot	
Protected Phases	2		1	1 2	4	
Permitted Phases		2	2			
Detector Phase	2	2	1	1 2	4	
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0		5.0	
Minimum Split (s)	26.4	26.4	7.0		9.3	
Total Split (s)	51.4	51.4	10.0		21.3	
Total Split (%)	62.2%	62.2%	12.1%		25.8%	
Maximum Green (s)	45.0	45.0	6.0		17.0	
Yellow Time (s)	4.7	4.7	3.0		3.3	
All-Red Time (s)	1.7	1.7	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	4.0		4.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	2.5	2.5	1.5		1.5	
Recall Mode	Min	Min	None		None	
Walk Time (s)					18.0	
Flash Dont Walk (s)					1.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	30.4	30.4	38.3	46.3	5.6	
Actuated g/C Ratio	0.63	0.63	0.79	0.96	0.12	
v/c Ratio	0.70	0.02	0.03	0.39	0.11	
Control Delay	10.4	2.5	1.1	1.5	24.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

No Build
Timing Plan: PM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Total Delay	10.4	2.5	1.1	1.5	24.1	
LOS	B	A	A	A	C	
Approach Delay	10.2			1.5	24.1	
Approach LOS	B			A	C	
Queue Length 50th (ft)	102	0	0	0	4	
Queue Length 95th (ft)	340	7	4	106	27	
Internal Link Dist (ft)	199			1611	119	
Turn Bay Length (ft)		150	200			
Base Capacity (vph)	1631	1388	525	1752	635	
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	0.49	0.01	0.03	0.39	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 82.7

Actuated Cycle Length: 48.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 6.4

Intersection LOS: A

Intersection Capacity Utilization 54.7%

ICU Level of Service A










Analysis Period (min) 15




Splits and Phases: 103: Lake Rd & US Rt 6

 Ø1	 Ø2	 Ø4
10 s	51.4 s	21.3 s

Lanes, Volumes, Timings
101: SITE 1 & US Rt 6

No Build
Timing Plan: Sat MD

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	475	0	0	620	0	0
Future Volume (vph)	475	0	0	620	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1827	0	0	1827	1863	0
Flt Permitted						
Satd. Flow (perm)	1827	0	0	1827	1863	0
Link Speed (mph)	50			30	30	
Link Distance (ft)	1507			279	137	
Travel Time (s)	20.6			6.3	3.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	505	0	0	660	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	505	0	0	660	0	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 36.0%				ICU Level of Service A		
Analysis Period (min) 15						

Intersection						
Int Delay, s/veh	0					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	475	0	0	620	0	0
Future Vol, veh/h	475	0	0	620	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	505	0	0	660	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	505	0	1165	505
Stage 1	-	-	-	-	505	-
Stage 2	-	-	-	-	660	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1049	-	215	567
Stage 1	-	-	-	-	606	-
Stage 2	-	-	-	-	514	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1049	-	215	567
Mov Cap-2 Maneuver	-	-	-	-	215	-
Stage 1	-	-	-	-	606	-
Stage 2	-	-	-	-	514	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	-	1049	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	0	-	-	-	
HCM Lane LOS	A	A	-	-	-	
HCM 95th %tile Q(veh)	-	0	-	-	-	

Lanes, Volumes, Timings
102: Lake Rd & SITE 2

No Build
Timing Plan: Sat MD



Lane Group	EBL	SEL	SER	SWR
Lane Configurations				
Traffic Volume (vph)	30	0	0	35
Future Volume (vph)	30	0	0	35
Ideal Flow (vphpl)	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00
Fr _t				0.865
Fl _t Protected	0.950			
Satd. Flow (prot)	1703	1863	0	1550
Fl _t Permitted	0.950			
Satd. Flow (perm)	1703	1863	0	1550
Link Speed (mph)	30	30		30
Link Distance (ft)	266	219		199
Travel Time (s)	6.0	5.0		4.5
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	2%	2%	6%
Adj. Flow (vph)	33	0	0	38
Shared Lane Traffic (%)				
Lane Group Flow (vph)	33	0	0	38
Sign Control	Free	Stop		Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized













Intersection Capacity Utilization 6.7%

ICU Level of Service A

Analysis Period (min) 15







Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

No Build
Timing Plan: Sat MD

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	455	20	15	605	15	15
Future Volume (vph)	455	20	15	605	15	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	200		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.932	
Flt Protected			0.950		0.976	
Satd. Flow (prot)	1827	1553	1736	1827	1630	0
Flt Permitted			0.455		0.976	
Satd. Flow (perm)	1827	1553	831	1827	1630	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21			16	
Link Speed (mph)	50			50	25	
Link Distance (ft)	279			1691	199	
Travel Time (s)	3.8			23.1	5.4	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Adj. Flow (vph)	484	21	16	644	16	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	484	21	16	644	32	0
Turn Type	NA	Perm	D.P+P	NA	Prot	
Protected Phases	2		1	1 2	4	
Permitted Phases		2	2			
Detector Phase	2	2	1	1 2	4	
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0		5.0	
Minimum Split (s)	26.4	26.4	7.0		9.3	
Total Split (s)	51.4	51.4	10.0		21.3	
Total Split (%)	62.2%	62.2%	12.1%		25.8%	
Maximum Green (s)	45.0	45.0	6.0		17.0	
Yellow Time (s)	4.7	4.7	3.0		3.3	
All-Red Time (s)	1.7	1.7	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	4.0		4.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	2.5	2.5	1.5		1.5	
Recall Mode	Min	Min	None		None	
Walk Time (s)					18.0	
Flash Dont Walk (s)					1.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	23.3	23.3	30.9	38.0	5.5	
Actuated g/C Ratio	0.55	0.55	0.73	0.89	0.13	
v/c Ratio	0.48	0.02	0.02	0.39	0.14	
Control Delay	9.1	3.5	1.9	2.5	16.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

No Build
Timing Plan: Sat MD

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Total Delay	9.1	3.5	1.9	2.5	16.8	
LOS	A	A	A	A	B	
Approach Delay	8.9			2.5	16.8	
Approach LOS	A			A	B	
Queue Length 50th (ft)	46	0	0	0	3	
Queue Length 95th (ft)	164	8	4	104	27	
Internal Link Dist (ft)	199			1611	119	
Turn Bay Length (ft)		150	200			
Base Capacity (vph)	1709	1454	761	1803	693	
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	0.28	0.01	0.02	0.36	0.05	

Intersection Summary

Area Type: Other

Cycle Length: 82.7

Actuated Cycle Length: 42.5

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 5.6

Intersection LOS: A

Intersection Capacity Utilization 42.9%

ICU Level of Service A

Analysis Period (min) 15

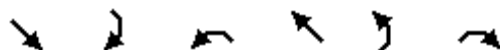
Splits and Phases: 103: Lake Rd & US Rt 6

		
Ø1	Ø2	Ø4
10 s	51.4 s	21.3 s

BUILD

Lanes, Volumes, Timings
101: SITE 1 & US Rt 6

Build
Timing Plan: AM



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	561	10	3	756	9	3
Future Volume (vph)	561	10	3	756	9	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.969	
Flt Protected					0.963	
Satd. Flow (prot)	1823	0	0	1827	1738	0
Flt Permitted					0.963	
Satd. Flow (perm)	1823	0	0	1827	1738	0
Link Speed (mph)	50			30	30	
Link Distance (ft)	1507			279	137	
Travel Time (s)	20.6			6.3	3.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	610	11	3	822	10	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	621	0	0	825	13	0
Sign Control	Free			Free	Stop	




Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 52.2% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.2					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	561	10	3	756	9	3
Future Vol, veh/h	561	10	3	756	9	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	610	11	3	822	10	3
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	621	0	1444	616
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	828	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	950	-	145	491
Stage 1	-	-	-	-	539	-
Stage 2	-	-	-	-	429	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	950	-	144	491
Mov Cap-2 Maneuver	-	-	-	-	144	-
Stage 1	-	-	-	-	539	-
Stage 2	-	-	-	-	426	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		0		27.2	
HCM LOS	D					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	175	950	-	-	-	
HCM Lane V/C Ratio	0.075	0.003	-	-	-	
HCM Control Delay (s)	27.2	8.8	0	-	-	
HCM Lane LOS	D	A	A	-	-	
HCM 95th %tile Q(veh)	0.2	0	-	-	-	

Lanes, Volumes, Timings
102: Lake Rd & SITE 2

Build
Timing Plan: AM



Lane Group	EBL2	EBL	SEL	SER	SWR	SWR2
Lane Configurations						
Traffic Volume (vph)	1	45	7	1	30	8
Future Volume (vph)	1	45	7	1	30	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.985		0.865	
Flt Protected		0.950	0.957			
Satd. Flow (prot)	0	1703	1756	0	1550	0
Flt Permitted		0.950	0.957			
Satd. Flow (perm)	0	1703	1756	0	1550	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		266	219		199	
Travel Time (s)		6.0	5.0		4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	2%	2%	6%	6%
Adj. Flow (vph)	1	49	8	1	33	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	50	9	0	42	0
Sign Control		Free	Stop		Free	

Intersection Summary

Area Type: Other













Control Type: Unsignalized

Intersection Capacity Utilization 13.3% ICU Level of Service A

Analysis Period (min) 15







Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Build
Timing Plan: AM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	541	21	17	723	36	16
Future Volume (vph)	541	21	17	723	36	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	200		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.958	
Flt Protected			0.950		0.967	
Satd. Flow (prot)	1827	1553	1736	1827	1661	0
Flt Permitted			0.359		0.967	
Satd. Flow (perm)	1827	1553	656	1827	1661	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		23			19	
Link Speed (mph)	50			50	25	
Link Distance (ft)	279			1691	199	
Travel Time (s)	3.8			23.1	5.4	
Peak Hour Factor	0.92	0.92	0.93	0.93	0.85	0.85
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Adj. Flow (vph)	588	23	18	777	42	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	588	23	18	777	61	0
Turn Type	NA	Perm	D.P+P	NA	Prot	
Protected Phases	2		1	1 2	4	
Permitted Phases		2	2			
Detector Phase	2	2	1	1 2	4	
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0		5.0	
Minimum Split (s)	26.4	26.4	7.0		9.3	
Total Split (s)	51.4	51.4	10.0		21.3	
Total Split (%)	62.2%	62.2%	12.1%		25.8%	
Maximum Green (s)	45.0	45.0	6.0		17.0	
Yellow Time (s)	4.7	4.7	3.0		3.3	
All-Red Time (s)	1.7	1.7	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	4.0		4.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	2.5	2.5	1.5		1.5	
Recall Mode	Min	Min	None		None	
Walk Time (s)					18.0	
Flash Dont Walk (s)					1.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	28.1	28.1	36.6	43.3	6.4	
Actuated g/C Ratio	0.55	0.55	0.72	0.85	0.13	
v/c Ratio	0.58	0.03	0.03	0.50	0.27	
Control Delay	11.1	3.0	2.2	3.9	23.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Build
Timing Plan: AM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Total Delay	11.1	3.0	2.2	3.9	23.1	
LOS	B	A	A	A	C	
Approach Delay	10.8			3.9	23.1	
Approach LOS	B			A	C	
Queue Length 50th (ft)	121	0	1	73	12	
Queue Length 95th (ft)	223	8	5	167	48	
Internal Link Dist (ft)	199			1611	119	
Turn Bay Length (ft)		150	200			
Base Capacity (vph)	1554	1324	617	1708	615	
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	0.38	0.02	0.03	0.45	0.10	

Intersection Summary

Area Type: Other

Cycle Length: 82.7

Actuated Cycle Length: 51

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 7.6

Intersection LOS: A

Intersection Capacity Utilization 49.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 103: Lake Rd & US Rt 6

 Ø1	 Ø2	 Ø4
10 s	51.4 s	21.3 s

Lanes, Volumes, Timings
101: SITE 1 & US Rt 6

Build
Timing Plan: PM



Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	812	20	6	642	20	6
Future Volume (vph)	812	20	6	642	20	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.967	
Flt Protected					0.963	
Satd. Flow (prot)	1821	0	0	1827	1735	0
Flt Permitted					0.963	
Satd. Flow (perm)	1821	0	0	1827	1735	0
Link Speed (mph)	50			30	30	
Link Distance (ft)	1507			279	137	
Travel Time (s)	20.6			6.3	3.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	829	20	6	655	22	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	849	0	0	661	29	0
Sign Control	Free			Free	Stop	




Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 53.9% ICU Level of Service A

Analysis Period (min) 15

Intersection						
Int Delay, s/veh	0.7					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	812	20	6	642	20	6
Future Vol, veh/h	812	20	6	642	20	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	829	20	6	655	22	7
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	849	0	1506	839
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	667	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	780	-	133	366
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	510	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	780	-	131	366
Mov Cap-2 Maneuver	-	-	-	-	131	-
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	504	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		0.1		33.6	
HCM LOS	D					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	154	780	-	-	-	
HCM Lane V/C Ratio	0.184	0.008	-	-	-	
HCM Control Delay (s)	33.6	9.7	0	-	-	
HCM Lane LOS	D	A	A	-	-	
HCM 95th %tile Q(veh)	0.6	0	-	-	-	

Lanes, Volumes, Timings
102: Lake Rd & SITE 2

Build
Timing Plan: PM



Lane Group	EBL2	EBL	SEL	SER	SWR	SWR2
Lane Configurations						
Traffic Volume (vph)	2	20	16	2	35	16
Future Volume (vph)	2	20	16	2	35	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.986		0.865	
Flt Protected		0.950	0.957			
Satd. Flow (prot)	0	1703	1758	0	1550	0
Flt Permitted		0.950	0.957			
Satd. Flow (perm)	0	1703	1758	0	1550	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		266	219		199	
Travel Time (s)		6.0	5.0		4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.85	0.85
Heavy Vehicles (%)	6%	6%	2%	2%	6%	6%
Adj. Flow (vph)	2	22	17	2	41	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	24	19	0	60	0
Sign Control		Free	Stop		Free	

Intersection Summary

Area Type: Other













Control Type: Unsignalized

Intersection Capacity Utilization 13.3% ICU Level of Service A

Analysis Period (min) 15







Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Build
Timing Plan: PM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	792	22	30	631	17	19
Future Volume (vph)	792	22	30	631	17	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	200		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.927	
Flt Protected			0.950		0.977	
Satd. Flow (prot)	1827	1553	1736	1827	1623	0
Flt Permitted			0.229		0.977	
Satd. Flow (perm)	1827	1553	418	1827	1623	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		18			21	
Link Speed (mph)	50			50	25	
Link Distance (ft)	279			1691	199	
Travel Time (s)	3.8			23.1	5.4	
Peak Hour Factor	0.98	0.98	0.91	0.91	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Adj. Flow (vph)	808	22	33	693	18	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	808	22	33	693	39	0
Turn Type	NA	Perm	D.P+P	NA	Prot	
Protected Phases	2		1	1 2	4	
Permitted Phases		2	2			
Detector Phase	2	2	1	1 2	4	
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0		5.0	
Minimum Split (s)	26.4	26.4	7.0		9.3	
Total Split (s)	51.4	51.4	10.0		21.3	
Total Split (%)	62.2%	62.2%	12.1%		25.8%	
Maximum Green (s)	45.0	45.0	6.0		17.0	
Yellow Time (s)	4.7	4.7	3.0		3.3	
All-Red Time (s)	1.7	1.7	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	4.0		4.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	2.5	2.5	1.5		1.5	
Recall Mode	Min	Min	None		None	
Walk Time (s)					18.0	
Flash Dont Walk (s)					1.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	33.7	33.7	41.8	48.8	6.0	
Actuated g/C Ratio	0.61	0.61	0.75	0.88	0.11	
v/c Ratio	0.73	0.02	0.07	0.43	0.20	
Control Delay	13.2	3.1	2.0	2.8	22.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Build
Timing Plan: PM

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Total Delay	13.2	3.1	2.0	2.8	22.2	
LOS	B	A	A	A	C	
Approach Delay	13.0			2.8	22.2	
Approach LOS	B			A	C	
Queue Length 50th (ft)	198	1	2	57	7	
Queue Length 95th (ft)	354	8	6	117	34	
Internal Link Dist (ft)	199			1611	119	
Turn Bay Length (ft)		150	200			
Base Capacity (vph)	1449	1235	481	1647	565	
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	0.56	0.02	0.07	0.42	0.07	

Intersection Summary

Area Type: Other

Cycle Length: 82.7

Actuated Cycle Length: 55.7

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 8.6

Intersection LOS: A

Intersection Capacity Utilization 54.8%

ICU Level of Service A










Analysis Period (min) 15




Splits and Phases: 103: Lake Rd & US Rt 6

 Ø1	 Ø2	 Ø4
10 s	51.4 s	21.3 s

Lanes, Volumes, Timings
101: SITE 1 & US Rt 6

Build
Timing Plan: Sat MD

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	478	31	9	623	29	9
Future Volume (vph)	478	31	9	623	29	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992				0.968	
Flt Protected				0.999	0.963	
Satd. Flow (prot)	1812	0	0	1825	1736	0
Flt Permitted				0.999	0.963	
Satd. Flow (perm)	1812	0	0	1825	1736	0
Link Speed (mph)	50			30	30	
Link Distance (ft)	1507			279	137	
Travel Time (s)	20.6			6.3	3.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Adj. Flow (vph)	509	33	10	663	32	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	542	0	0	673	42	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	50.0%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.8					
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Vol, veh/h	478	31	9	623	29	9
Future Vol, veh/h	478	31	9	623	29	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	509	33	10	663	32	10
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	542	0	1209	526
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	683	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1017	-	202	552
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	502	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1017	-	199	552
Mov Cap-2 Maneuver	-	-	-	-	199	-
Stage 1	-	-	-	-	593	-
Stage 2	-	-	-	-	494	-
Approach	SE		NW		NE	
HCM Control Delay, s	0		0.1		23.6	
HCM LOS	C					
Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER	
Capacity (veh/h)	235	1017	-	-	-	
HCM Lane V/C Ratio	0.176	0.009	-	-	-	
HCM Control Delay (s)	23.6	8.6	0	-	-	
HCM Lane LOS	C	A	A	-	-	
HCM 95th %tile Q(veh)	0.6	0	-	-	-	

Lanes, Volumes, Timings
102: Lake Rd & SITE 2

Build
Timing Plan: Sat MD



Lane Group	EBL2	EBL	SEL	SER	SWR	SWR2
Lane Configurations						
Traffic Volume (vph)	3	30	23	3	35	25
Future Volume (vph)	3	30	23	3	35	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.986		0.865	
Flt Protected		0.950	0.957			
Satd. Flow (prot)	0	1703	1758	0	1550	0
Flt Permitted		0.950	0.957			
Satd. Flow (perm)	0	1703	1758	0	1550	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		266	219		199	
Travel Time (s)		6.0	5.0		4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	6%	2%	2%	6%	6%
Adj. Flow (vph)	3	33	25	3	38	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	36	28	0	65	0
Sign Control		Free	Stop		Free	

Intersection Summary

Area Type: Other













Control Type: Unsignalized

Intersection Capacity Utilization 13.3% ICU Level of Service A

Analysis Period (min) 15







Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Build
Timing Plan: Sat MD

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	458	23	37	614	18	36
Future Volume (vph)	458	23	37	614	18	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		150	200		0	0
Storage Lanes		1	1		1	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.911	
Flt Protected			0.950		0.983	
Satd. Flow (prot)	1827	1553	1736	1827	1605	0
Flt Permitted			0.442		0.983	
Satd. Flow (perm)	1827	1553	807	1827	1605	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		24			39	
Link Speed (mph)	50			50	25	
Link Distance (ft)	279			1691	199	
Travel Time (s)	3.8			23.1	5.4	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	4%	6%	6%
Adj. Flow (vph)	487	24	39	653	20	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	487	24	39	653	59	0
Turn Type	NA	Perm	D.P+P	NA	Prot	
Protected Phases	2		1	1 2	4	
Permitted Phases		2	2			
Detector Phase	2	2	1	1 2	4	
Switch Phase						
Minimum Initial (s)	20.0	20.0	3.0		5.0	
Minimum Split (s)	26.4	26.4	7.0		9.3	
Total Split (s)	51.4	51.4	10.0		21.3	
Total Split (%)	62.2%	62.2%	12.1%		25.8%	
Maximum Green (s)	45.0	45.0	6.0		17.0	
Yellow Time (s)	4.7	4.7	3.0		3.3	
All-Red Time (s)	1.7	1.7	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.4	6.4	4.0		4.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	2.5	2.5	1.5		1.5	
Recall Mode	Min	Min	None		None	
Walk Time (s)					18.0	
Flash Dont Walk (s)					1.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	23.5	23.5	31.2	37.5	5.7	
Actuated g/C Ratio	0.52	0.52	0.69	0.83	0.13	
v/c Ratio	0.51	0.03	0.06	0.43	0.25	
Control Delay	10.6	3.4	2.4	3.5	15.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings
103: Lake Rd & US Rt 6

Build
Timing Plan: Sat MD

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Total Delay	10.6	3.4	2.4	3.5	15.0	
LOS	B	A	A	A	B	
Approach Delay	10.2			3.4	15.0	
Approach LOS	B			A	B	
Queue Length 50th (ft)	91	0	2	52	5	
Queue Length 95th (ft)	172	9	8	117	35	
Internal Link Dist (ft)	199			1611	119	
Turn Bay Length (ft)		150	200			
Base Capacity (vph)	1690	1438	710	1788	660	
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	0.02	0.05	0.37	0.09	

Intersection Summary

Area Type: Other

Cycle Length: 82.7

Actuated Cycle Length: 45

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 6.7

Intersection LOS: A

Intersection Capacity Utilization 43.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 103: Lake Rd & US Rt 6

 Ø1	 Ø2	 Ø4
10 s	51.4 s	21.3 s

