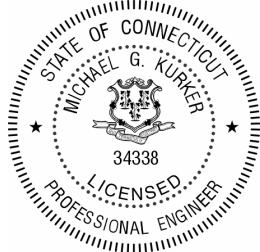




Michael G. Kurker



TRAFFIC STUDY

Multi-Family Residential Development
1947 Center Groton Road
Ledyard, CT

PREPARED BY:
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EXECUTIVE SUMMARY i

I. INTRODUCTION 1

II. EXISTING CONDITIONS 3

 Access Network 3

 Intersection Characteristics 5

 Sight Distance Requirements 7

 Multi-Modal 8

 Existing Traffic Volumes 8

 Crash Data Review 10

III. PROJECTED TRAFFIC CONDITIONS 12

 No Build Traffic Volumes 12

 Trip Generation 14

 Trip Distribution 15

 Assigned Site-Generated Traffic Volumes 17

 Build Traffic Volumes 19

IV. ROADWAY ADEQUACY 21

 Signalized Intersections 22

 Unsignalized Intersections 23

 Capacity Analysis Results 23

 Left-Turn Warrant Analysis 25

V. CONCLUSIONS AND RECOMMENDATIONS 26

ILLUSTRATIONS

FIGURE 1 – LOCATION MAP	2
FIGURE 2 – EXISTING TRAFFIC VOLUMES (2026)	9
FIGURE 3 – NO BUILD TRAFFIC VOLUMES (2026)	13
FIGURE 4 – TRIP DISTRIBUTION	16
FIGURE 5 – SITE GENERATED TRAFFIC VOLUMES	18
FIGURE 6 – BUILD TRAFFIC VOLUMES (2028)	20

TABLES

TABLE 1 – SIGHT DISTANCES	7
TABLE 2 – CRASH DATA REVIEW	11
TABLE 3 – SITE-GENERATED TRAFFIC VOLUMES	14
TABLE 4 – SIGNALIZED INTERSECTION – LEVEL OF SERVICE	22
TABLE 5 – UNSIGNALIZED INTERSECTION – LEVEL OF SERVICE	23
TABLE 6 – PEAK HOUR TRAFFIC OPERATIONS	24

APPENDIX

A: TRAFFIC COUNTS
B: CAPACITY ANALYSES
C: TRAFFIC SIGNAL PLAN
D: COORDINATION WITH CTDOT
E: LEFT TURN-LANE WARRANT

EXECUTIVE SUMMARY

This traffic study has been prepared for the development at 1947 CT Route 117 (Center Groton Road) in Ledyard, Connecticut. 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 existing property is +/- 10.6 acres of undeveloped wooded land. The proposed development consists of 18 low-rise townhouse style buildings totaling 76 proposed residential units and associated parking spaces. The Site is located on the west side of CT Route 117 (Center Groton Road), approximately 0.1 mile south of the intersection of Colonel Ledyard Highway and CT Route 117 (Center Groton Road). The proposed development will be serviced by one full access driveway for vehicular traffic on CT Route 117 (Center Groton Road) and one emergency gated access driveway.

The study investigated the potential traffic impacts associated with the development during the weekday morning (7-9 AM) and evening (4-6 PM) commuting peak hour periods. The proposed development is projected to generate 34 new trips in the AM peak hour (8 in/enter, 26 out/exit) and 37 new trips in the PM peak hour (21 in/enter, 16 out/exit).

A detailed traffic analysis was conducted at key intersections and roadways in the general vicinity of the Site in accordance with the methods of *Highway Capacity Manual*, published by the Transportation Research Board. After analysis of Existing, No Build, and Build scenarios for the weekday morning peak hour and weekday evening peak hour, it is projected that this proposed development will have negligible impacts on the surrounding roadway network.

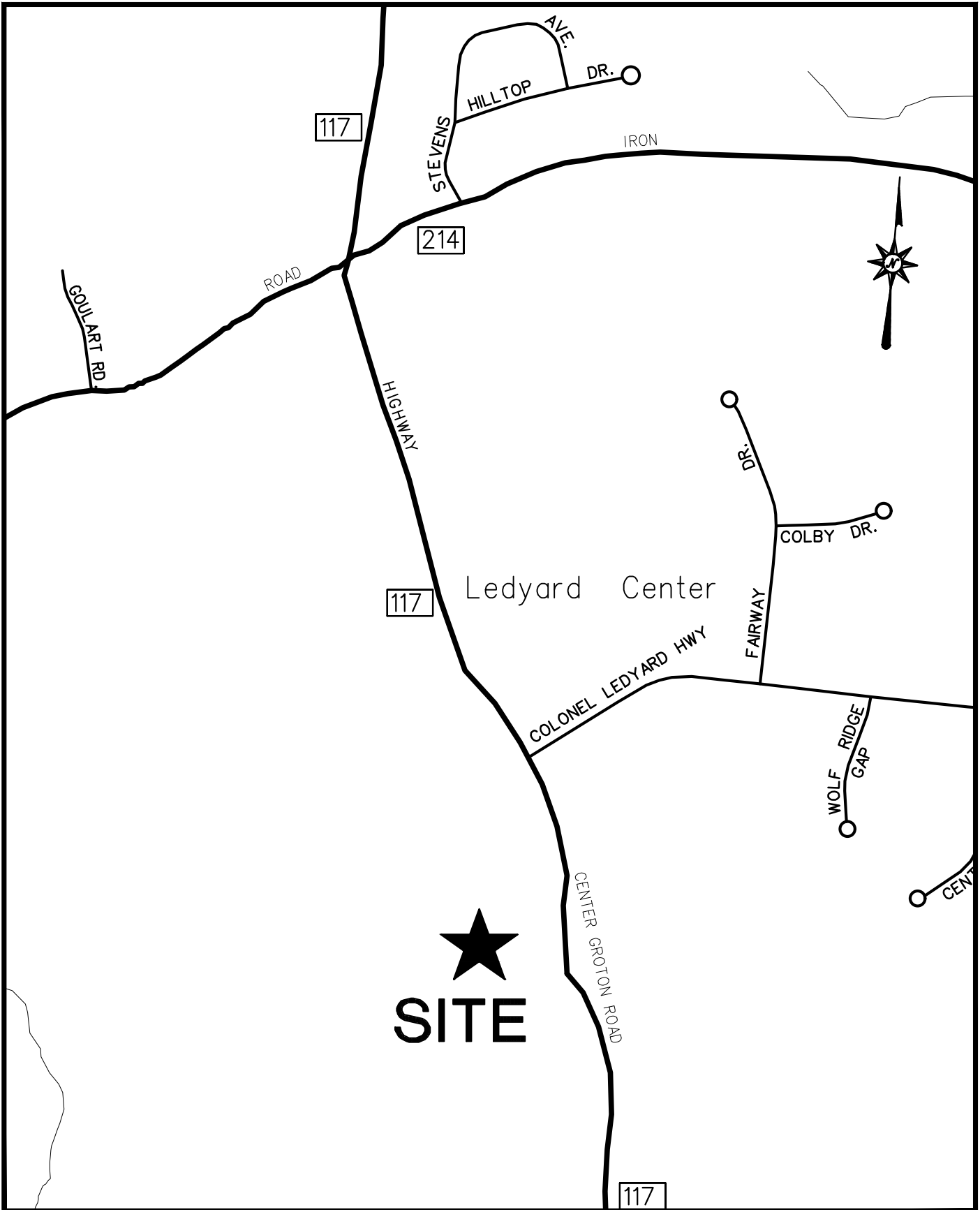
For the development, the following are suggested:

- Provide selective clearing of vegetation to improve sightline from new access point.
- Install MUTCD R1-1 36" (stop sign), 12" white stop bar, and 4" double yellow center line at the new Site Driveway on CT Route 117 (Center Groton Road), per the site plan.
- Provide a sidewalk connection between the Site and the CT Route 117 (Center Groton Road) sidewalk, as shown on the Site plan.

I. INTRODUCTION

This traffic study has been prepared for the development at 1947 CT Route 117 (Center Groton Road) in Ledyard, Connecticut. The proposed residential development sits on a +/- 10.9 acre Site and will consist of 72 residential units. The proposed development will be serviced by one full access driveway on CT Route 117 (Center Groton Road) and one gated emergency gated access driveway.

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 investigated the potential traffic impacts associated with the development during the weekday morning (7-9 AM) and evening (4-6 PM) commuting peak hour periods. The greatest cumulative impacts of project related traffic are most likely to occur during these time periods, when the traffic volumes are the highest along the roadway network. As such, traffic operating conditions at the study intersections were analyzed during these periods. The study area is located in a transitional land use area with nearby residential, retail, and Town of Ledyard public buildings just north of the signalized intersection of CT Route 117 (Center Groton Road / Colonel Ledyard Highway) and Colonel Ledyard Highway. See **Figure 1** for a location map.



LOCATION MAP

PROPOSED RESIDENTIAL DEVELOPMENT
 1947 CENTER GROTON ROAD, LEDYARD, CT
 SCHEMATIC, NOT TO SCALE

Project No. 2502197
 Date MAY 2025

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 field reconnaissance, traffic counting, and research of pertinent planning and traffic data available from Connecticut Department of Transportation (CTDOT).

Access Network

The project study area consists of the following intersections in Ledyard:

- CT Route 117 (Center Groton Road) at Citgo Drive (Enter Only) – Unsignalized
- CT Route 117 (Center Groton Road) at Citgo Drive (Exit Only) – Stop-controlled
- CT Route 117 (Center Groton Road / Colonel Ledyard Highway) at Colonel Ledyard Highway – Signalized
- CT Route 117 (Center Groton Road) at Proposed Site Driveway – Stop-controlled

Major roadways in the vicinity of the project include CT Route 117 (Center Groton Road / Colonel Ledyard Highway) and Colonel Ledyard Highway.

CT Route 117 (Center Groton Road / Colonel Ledyard Highway) is a state-owned minor arterial, approximately 3 miles in length traveling between the town line of Ledyard/Groton and the intersection with Colonel Ledyard Highway just north of the Site. In the vicinity of the Site, CT Route 117 (Center Groton Road) has one travel lane in each direction, delineated with a double yellow centerline and white shoulder markings. Adjacent to the Site, CT Route 117 (Center Groton Road) has a posted speed limit of 30 MPH. A stretch of sidewalk is present along the westerly side connecting the intersection of CT Route 117 (Center Groton Road) at Colonel Ledyard Highway and points north to the intersection of CT Route 117 (Center Groton Road) at Citgo Drive. Street lighting is not present. The average daily traffic volume provided by CTDOT in 2024, is approximately 7,700 vehicles per day (vpd) past the Site.

CT Route 117 (Colonel Ledyard Highway) is a state-owned minor arterial, approximately 3.5 miles in length traveling between the town line of Ledyard/Preston and the intersection with Colonel Ledyard Highway just north of the Site. CT Route 117 (Colonel Ledyard Highway) has one travel lane in each direction, delineated with a double yellow centerline and white shoulder markings. CT Route 117 (Colonel Ledyard Highway) has a posted speed limit of 30 MPH. Sidewalk is present along the westerly side connecting the intersection of CT Route 117 (Colonel Ledyard Highway) at Colonel Ledyard Highway to Ledyard Center. Street lighting is present by town-owned decorative lighting. The average daily traffic volume provided by CTDOT in 2024 is approximately 11,200 vpd.

Colonel Ledyard Highway is a major collector, approximately 4.3 miles in length traveling between the intersection with CT Route 117 (Colonel Ledyard Highway / Center Groton Road) and the intersection with CT Route 184 (Gold Star Highway). Colonel Ledyard Highway has one travel lane in each direction, delineated with a double yellow centerline and white shoulder markings. Colonel Ledyard Highway has a posted speed limit of 35 MPH. A multi-use path extends from the intersection of CT Route 117 (Center Groton Road / Colonel Ledyard Highway) at Colonel Ledyard Highway and extends 0.8 miles along the northerly side of Colonel Ledyard Highway to Ledyard High School. Illumination is not present. The average daily traffic provided by CTDOT in 2024, is approximately 5,000 vpd.

Intersection Characteristics

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

CT Route 117 (Center Groton Road / Colonel Ledyard Highway) at Colonel Ledyard

Highway is a signalized T-intersection. This intersection operates on three phases, includes emergency vehicle pre-emption, and operates as actuated uncoordinated. CT Route 117 (Center Groton Road) is approximately 45' wide from curb to curb. The CT Route 117 (Center Groton Road) northbound approach contains one shared through lane/right-turn lane. The CT Route 117 (Colonel Ledyard Highway) southbound approach contains one left-turn lane and one through lane. The westbound approach (Colonel Ledyard Highway) contains one left-turn lane and one right-turn lane. Pedestrian accommodations are present across the northern leg of the intersection with a marked crosswalk; pedestrian push buttons and ramps are present. Leading pedestrian interval phasing is present at the intersection. The travel lanes are approximately 11' wide with 3' delineated white shoulder lines.

CT Route 117 (Center Groton Road) at Citgo Drive (Enter Only) is an unsignalized T-intersection. The northbound approach contains one shared through/left-turn lane and the southbound approach contains one shared through/right-turn lane. The westbound approach is an enter only driveway. Pedestrian sidewalks are present along the western leg of the intersection. No marked crosswalks are present. The travel lanes are approximately 11' wide with 8' delineated white shoulder lines in the northbound direction and 3' delineated white shoulder lines in the southbound direction.

CT Route 117 (Center Groton Road) at Citgo Drive (Exit Only) is an unsignalized T-intersection. The northbound approach contains one shared through lane and the southbound approach contains one shared through lane. The eastbound approach (Citgo) is stop-controlled and contains one left-turn lane and one right-turn lane. Sidewalks are present along the western leg of the intersection. No marked crosswalks are present. The travel lanes are approximately 11' wide with 8' delineated white shoulder lines in the northbound direction and 3' delineated white shoulder lines in the southbound direction.

CT Route 117 (Center Groton Road) at Proposed Site Driveway will be an unsignalized T-intersection. The northbound approach will consist of one shared through/left-turn lane and the southbound approach will consist of one shared through/right-turn lane. The eastbound approach (Site) is stop-controlled and contains one shared left-turn/right-turn lane. Travel lanes are approximately 12' wide with 5' delineated shoulders in the northbound and southbound direction. The site plan shows the Site Driveway will be 24' wide.

Sight Distance Requirements

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 design speed and roadway geometry attributes. The CTDOT follows these methods for unsignalized and signalized intersection in the CTDOT Highway Design Manual 2023 Edition (including revisions to July 2025).

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 driveway. CT Route 117 (Center Groton Road) has a posted speed limit of 30 MPH. Automatic Traffic Recorder (ATR) counts were collected for one week, between March 13 and March 19. Using typical weekday data averaged from Tuesday, March 17 through Thursday, March 19, the 85th percentile speed in the northbound and southbound directions of CT Route 117 (Center Groton Road) is 41.40 mph and 43.72 mph, respectively. Therefore, a design speed of 45 mph was used. This ATR speed data can be found in **Appendix A**. The sight distance looking in both directions along CT Route 117 (Center Groton Road) at the proposed Site Driveway appear adequate due to the intersecting street being relatively flat and straight. To increase sight lines, clearing of vegetation and overgrown shrubs from surrounding Site Driveway area is recommended where needed. **Table 1** below summarizes the required SSD and ISD at the Site Driveway for a left and right turn movement.

Table 1 – Sight Distances

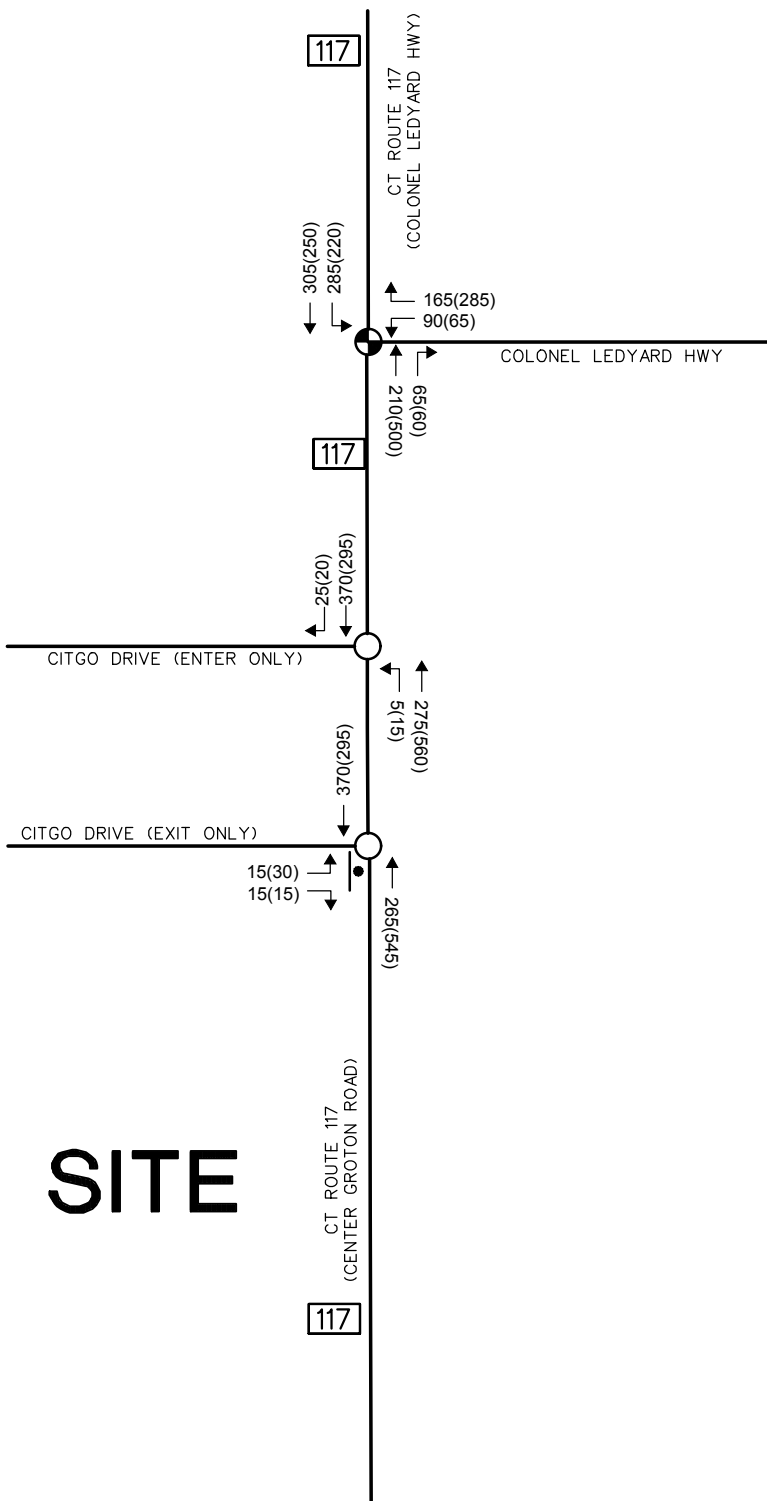
<u>Intersection</u>	<u>Direction</u>		<u>Design Speed (mph)</u>	<u>SSD Required (ft)</u>	<u>ISD Required (ft)</u>	<u>Measured Sightline Provided (ft)</u>
CT Route 117 (Center Groton Road) at Site Driveway	Approach Left Turn	Looking Left	45	360	500	515
		Looking Right	45	360	500	575
	Approach Right Turn	Looking Left	45	360	500	515

Multi-Modal

There are no bus routes that operate through the roadway network for this study area in Ledyard. Sidewalks are available as noted.

Existing Traffic Volumes

Traffic counts were collected on Tuesday, April 21, 2026, for weekday analysis of the following peak periods: morning commuter peak period (7AM – 9AM) and evening peak period (4PM – 6PM). The volumes were reviewed and approved by CTDOT. The current peak hour traffic volumes for the intersections are illustrated in **Figure 2**.



SITE

LEGEND

- SIGNALIZED INTERSECTION
 - UNSIGNALIZED INTERSECTION
 - STOP-CONTROLLED APPROACH
- WEEKDAY AM: XXX
WEEKDAY PM: (XXX)



EXISTING TRAFFIC VOLUMES (2026)
PROPOSED RESIDENTIAL DEVELOPMENT
1947 CENTER GROTON ROAD, LEDYARD, CT
SCHEMATIC, NOT TO SCALE

Project No. 2502197
Date MAY 2025

FIGURE 2

Crash Data Review

As part of the existing conditions analysis, crash data for the most recent three-year period from January 1, 2023 through December 31, 2025, was obtained from the Connecticut Crash Data Repository. Crash data is requested by CTDOT, and often by local agencies, and therefore included herein, although in the context of a traffic impact study, is not particularly useful.

Three (3) crashes in the study area were recorded. There were 2 “front to rear” crashes and 1 “angle” crash. There were no “Suspected Serious Injury” crashes in the study area. There were no fatalities reported at the intersections of this study area during the three-year period. **Table 2** summarizes the crash data.

Table 2 – Crash Data Review

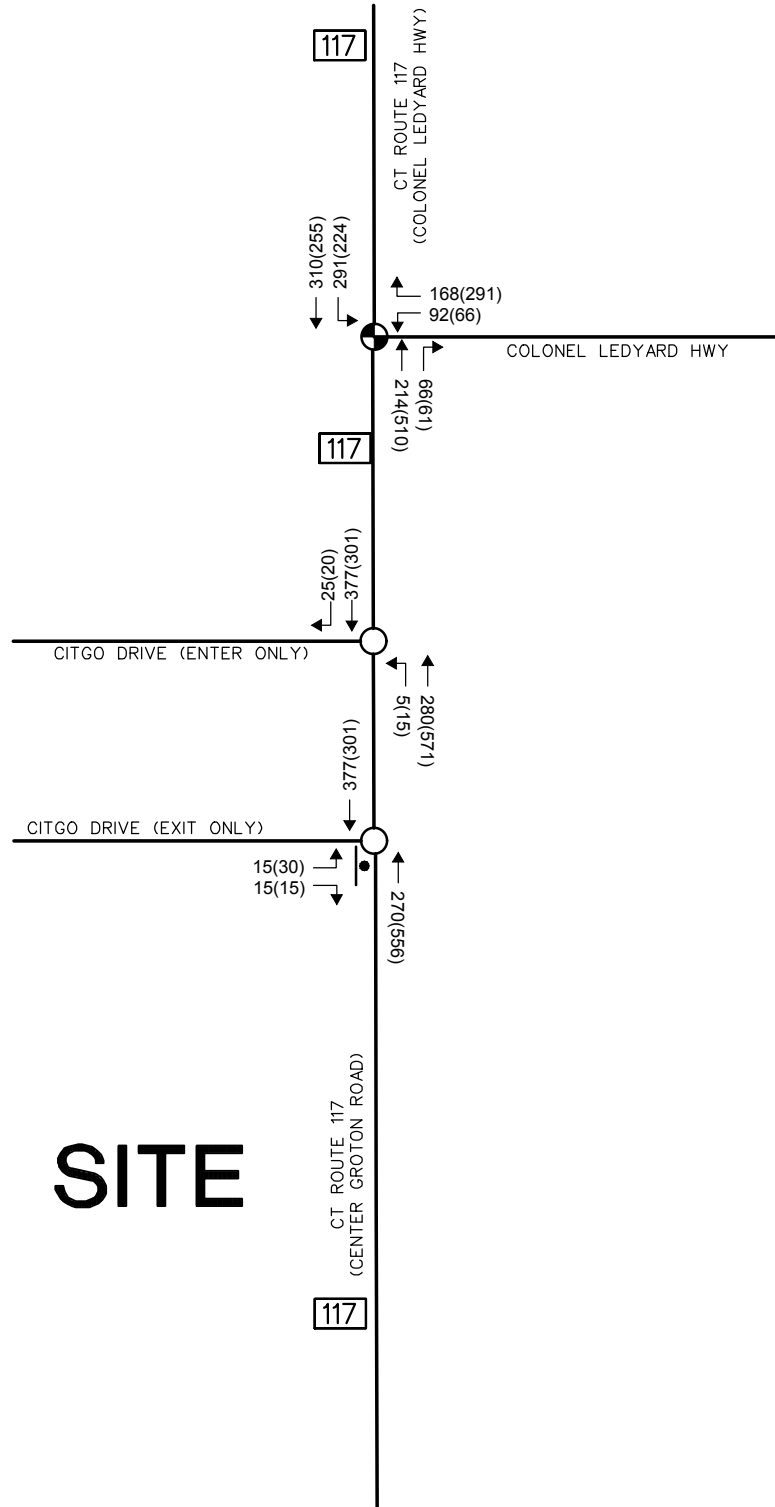
Ledyard				
	CT Route 117 (Center Groton Road / Colonel Ledyard Highway) at Colonel Ledyard Highway	CT Route 117 (Center Groton Road) at Citgo Drive	Segment of CT Route 117 (Center Groton Road) between Citgo Drive and Proposed Site Driveway	Total
Year				
2023	2	0	1	3
2024	0	0	0	0
2025	0	0	0	0
Total	2	0	1	3
Crash Type				
Angle	0	0	1	0
Front to Front	0	0	0	0
Front to Rear	2	0	0	0
Not Applicable	0	0	0	0
Other	0	0	0	0
Rear to Rear	0	0	0	0
Rear to Side	0	0	0	0
Sideswipe, Opposite Direction	0	0	0	0
Sideswipe, Same Direction	0	0	0	0
Unknown	0	0	0	0
Total	2	0	1	3
Severity				
Fatal Injury (K)	0	0	0	0
Suspected Serious Injury (A)	0	0	0	0
Suspected Minor Injury (B)	1	0	1	0
Possible Injury (C)	0	0	0	0
No Apparent Injury (O)	1	0	0	0
Unknown	0	0	0	0
Total	2	0	1	3

III. PROJECTED TRAFFIC CONDITIONS

In order to evaluate traffic conditions when the proposed development is expected to be completed in 2028, future traffic volumes were forecast under the 2028 No Build conditions (without the proposed development) and under 2028 Build conditions (with the proposed development). The projected traffic volumes on the roadway network under 2028 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 2028 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 2028 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 Connecticut Department of Transportation and upon review of the State's Office of State Traffic Administration (OSTA), there were no sites identified on the Office of the State Traffic Administration GIS website that would impact this traffic study. The No Build Traffic Volumes are graphically illustrated in **Figure 3**.



LEGEND

- SIGNALIZED INTERSECTION WEEKDAY AM: XXX
- UNSIGNALIZED INTERSECTION WEEKDAY PM: (XXX)
- STOP-CONTROLLED APPROACH



NO BUILD TRAFFIC VOLUMES (2028)

PROPOSED RESIDENTIAL DEVELOPMENT
 1947 CENTER GROTON ROAD, LEDYARD, CT
 SCHEMATIC, NOT TO SCALE

Project No. 2502197
 Date MAY 2025

FIGURE 3

Trip Generation

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, 12th Edition*. This widely used reference manual provided trip generation rates for various land uses based on traffic count data collected at similar sites. **Table 3** shows projected trip generation for the proposed residential land use.

For the proposed single-family attached housing (townhomes) development at 1947 CT Route 117 (Center Groton Road), during weekday morning peak hour there are 34 trips generated (8 in/enter, 26 out/exit) and 37 trips generated (21 in/enter, 16 out/exit) during the weekday evening peak hour.

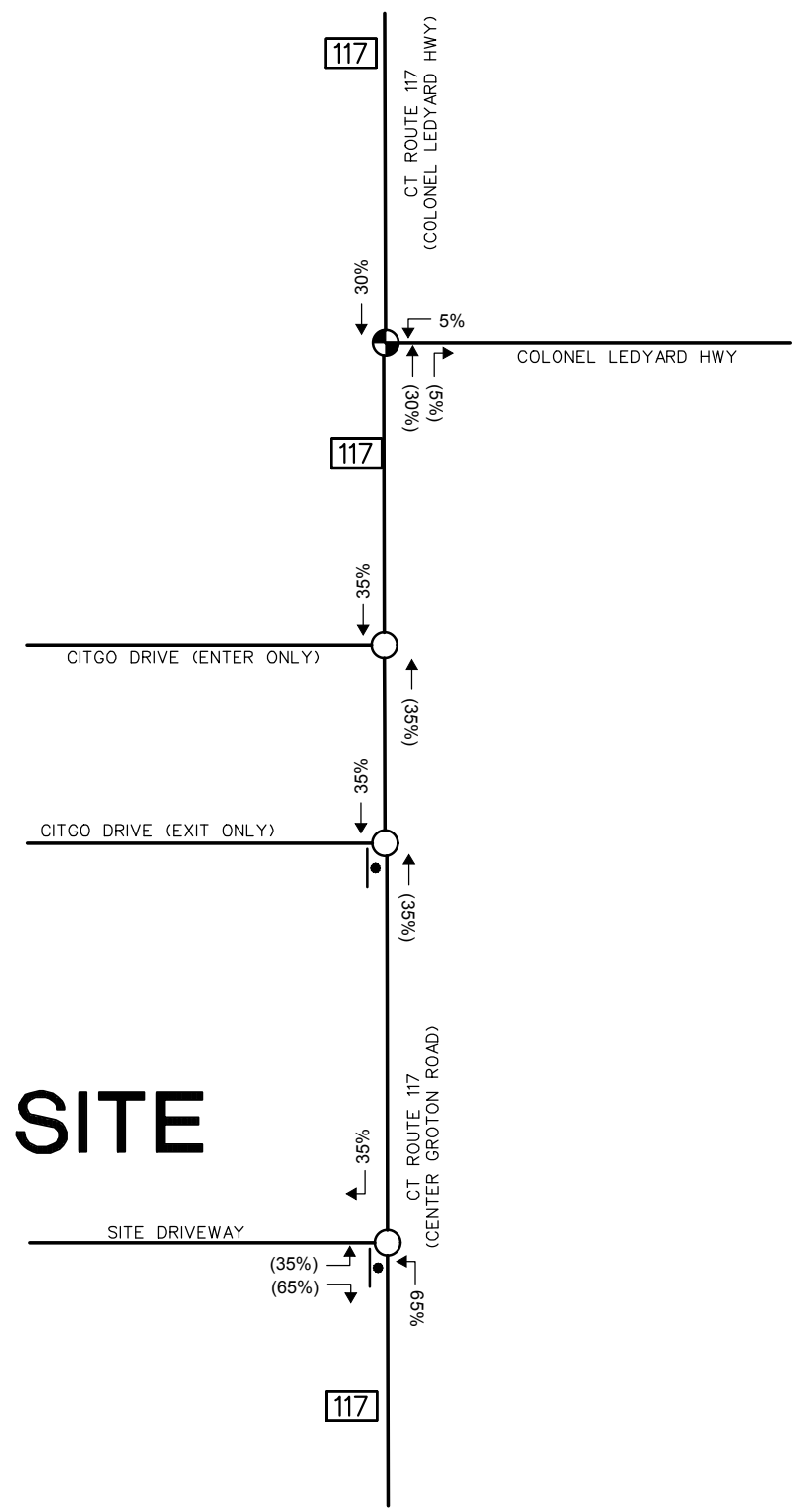
Table 3 – Site-Generated Traffic Volumes

Proposed Residential Development, 1947 Center Groton Road									
Trip Generation									
Land Use	ITE Land Use Code	Size	Type	Trips					
				AM Peak Hour Adjacent Street Traffic			PM Peak Hour Adjacent Street Traffic		
				Total	In	Out	Total	In	Out
215	Single-Family Attached Housing (Townhomes)	72		34	8	26	37	21	16
	Net New Trips			34	8	26	37	21	16

Ref: Trip Generation, 12TH Edition

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. **Figure 4** shows the anticipated distribution of new Site trips for the residential development, based on a review of arrival/departure traffic patterns and general knowledge of the area.



LEGEND

- ⊕ SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION
- STOP-CONTROLLED APPROACH
- INCOMING TRAFFIC: XX%
- OUTGOING TRAFFIC: (XX%)



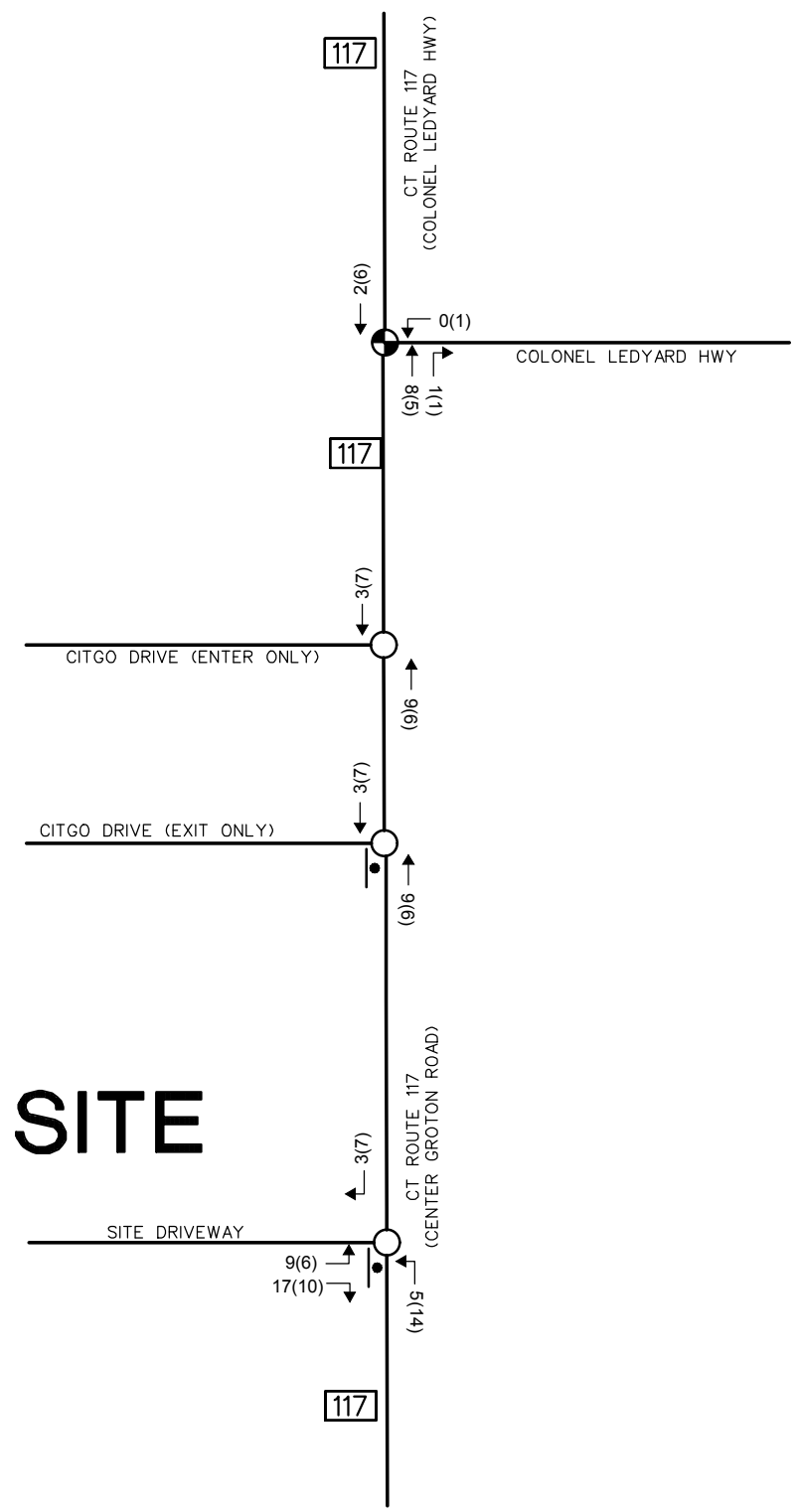
TRIP DISTRIBUTION
 PROPOSED RESIDENTIAL DEVELOPMENT
 1947 CENTER GROTON ROAD, LEDYARD, CT
 SCHEMATIC, NOT TO SCALE

Project No. 2502197
 Date MAY 2025

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 new Site generated peak hour traffic generated by the Site distributed to the nearby roadway network.



SITE

LEGEND

- SIGNALIZED INTERSECTION
 - UNSIGNALIZED INTERSECTION
 - STOP-CONTROLLED APPROACH
- WEEKDAY AM: XXX
WEEKDAY PM: (XXX)



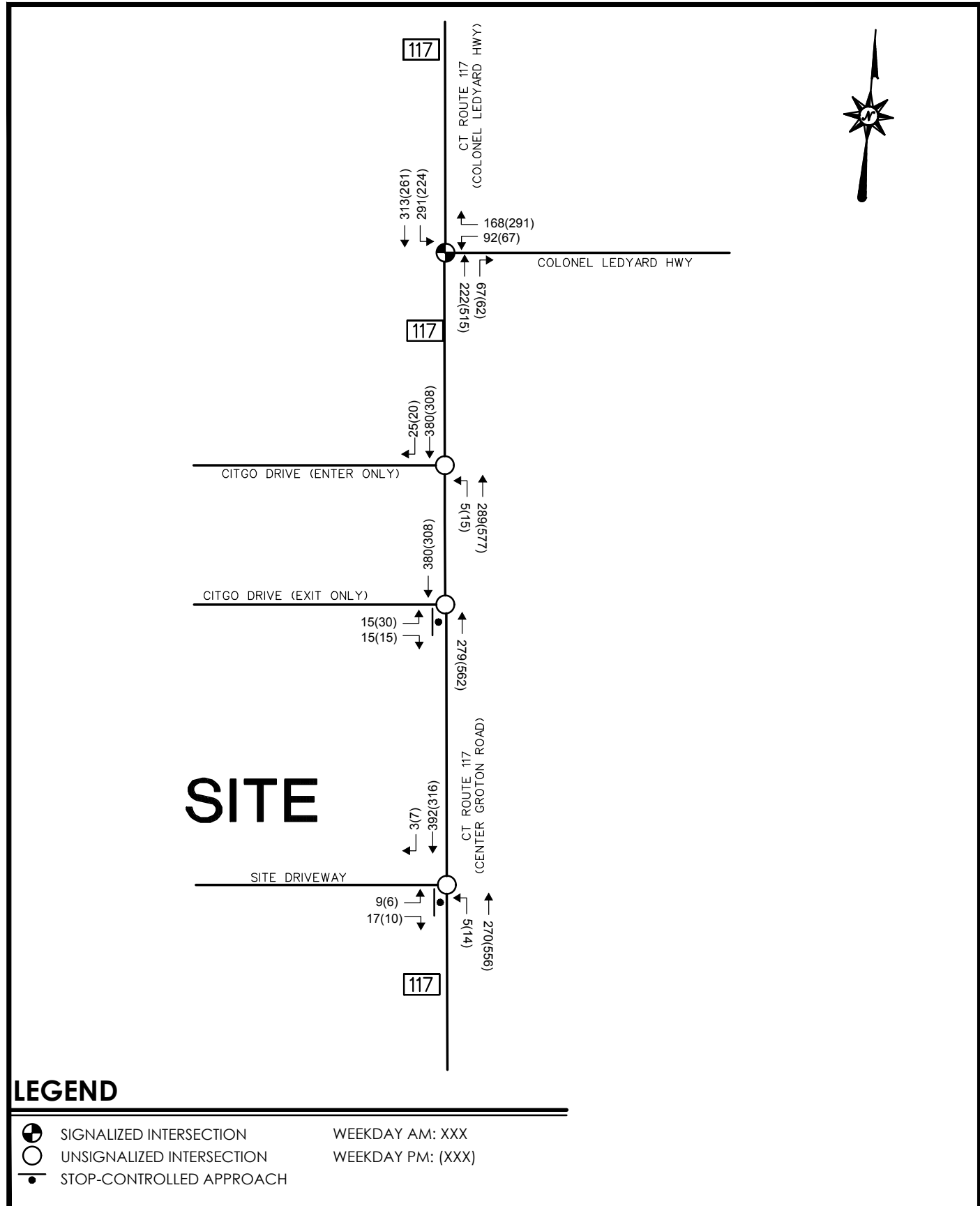
NEW SITE GENERATED TRAFFIC VOLUMES
 PROPOSED RESIDENTIAL DEVELOPMENT
 1947 CENTER GROTON ROAD, LEDYARD, CT
 SCHEMATIC, NOT TO SCALE

Project No. 2502197
 Date MAY 2025

FIGURE 5

Build Traffic Volumes

The assigned site-generated traffic volumes were superimposed onto the 2028 No Build Traffic volumes to establish the future 2028 Build Traffic volumes, as illustrated in **Figure 6**.



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 and build traffic volume scenarios to simulate the traffic impact of a proposed 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 plan provided by the Connecticut Department of Transportation.

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 4** below:

Table 4 – Signalized Intersection – Level of Service

<u>Level of Service</u>¹	<u>Average Control Delay</u> (seconds per vehicle)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 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 5 below:

Table 5 – Unsignalized Intersection – Level of Service

<u>Level of Service</u> ¹	<u>Average Control Delay</u> (seconds per vehicle)
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 Analysis Results

Table 6 below shows the Peak Hour Traffic Operations with Level of Service (LOS) along with other traffic operational parameters. A detailed report of the analysis results can be found in the **Appendix**.

Table 6 – Peak Hour Traffic Operations

	<u>Weekday AM</u>			<u>Weekday PM</u>		
	2026 Existing	2028 No Build	2028 Build	2026 Existing	2028 No Build	2028 Build
CT Route 117 (Center Groton Road / Colonel Ledyard Highway) at Colonel Ledyard Highway¹	A/9	A/9	A/9	B/11	B/12	B/12
Colonel Ledyard Highway WB Left	C/0.34/30/95	C/0.34/31/100	C/0.35/32/100	D/0.29/38/80	D/0.30/38/80	D/0.30/38/80
Colonel Ledyard Highway WB Right	A/0.22/4/40	A/0.23/4/40	A/0.23/4/40	A/0.44/8/85	A/0.45/8/95	A/0.45/9/95
CT Route 117 (Center Groton Road) NB Thru/Right	B/0.42/14/135	B/0.42/14/140	B/0.42/14/145	B/0.63/17/345	B/0.64/17/365	B/0.65/17/370
CT Route 117 (Colonel Ledyard HWY) SB Left	A/0.40/5/65	A/0.41/5/70	A/0.41/5/70	A/0.42/5/55	A/0.43/6/60	A/0.44/6/60
CT Route 117 (Colonel Ledyard HWY) SB Thru	A/0.26/4/70	A/0.26/4/70	A/0.26/4/75	A/0.19/3/60	A/0.20/3/65	A/0.20/3/65
CT Route 117 (Center Groton Road) at Citgo Drive (Exit Only)²	-	-	-	-	-	-
CT Route 117 (Center Groton Road) NB Thru	-	-	-	-	-	-
CT Route 117 (Center Groton Road) SB Thru	-	-	-	-	-	-
Citgo Drive EB Left	B/0.04/14/25	B/0.04/14/25	B/0.04/15/25	C/0.11/18/25	C/0.11/19/25	C/0.11/19/25
Citgo Drive EB Right	B/0.03/11/25	B/0.03/11/25	B/0.03/11/25	B/0.02/10/25	B/0.02/10/25	B/0.02/10/25
CT Route 117 (Center Groton Road) at Proposed Site Drive²	-	-	-	-	-	-
CT Route 117 (Center Groton Road) NB Left	-	-	A/0.01/8/25	-	-	A/0.01/8/25
Site Driveway EB Left/Right	-	-	B/0.05/12/25	-	-	B/0.04/13/25

Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec
Approaches - X/X.XX/XX/XXX – Level of Service/Volume to Capacity Ratio/Control Delay in seconds/95% Queue Length in ft

¹ – Signalized Intersection

² – Unsignalized Intersection, Analysis of controlled movements

As illustrated in **Table 6**, both peak hours analyzed had no intersections with overall Level of Service (LOS) or an individual movement LOS that has undesirable results in the Existing, No Build, or Build conditions. A review of operational parameters shows little or no change.

Left-Turn Lane Warrant Analysis

The need for a left-turn lane was studied at the proposed intersection of CT Route 117 (Center Groton Road) at proposed Site Driveway. The AM and PM peak hour were selected for review. Based on Figure 11.5-C of the *CTDOT Roadway Design Manual, 2026*, for a left-turn lane warrant analysis the advancing volume during the AM design hour was 233 vehicles and opposing volume during the design hour of 353 vehicles. For the AM peak period, ATR counts from March 17, March 18, March 19, and turning movement counts from April 21 were averaged during the peak hour (7AM – 8AM) to produce the advancing volumes and opposing volumes. Using the left-turn advancing volume of 5, the proportion of left-turn over total advancing volumes is 2%. The advancing volumes during the PM design hour was 465 vehicles and opposing volumes during the design hour of 314 vehicles. For the PM peak period, ATR counts from March 17, March 18, March 19, and turning movement counts from April 21 were averaged during the peak hour (4 PM – 5PM) to produce the advancing volumes and opposing volumes. Using the left-turn advancing volume of 14, the proportion of left-turn over total advancing volumes is 3%. Using these volumes, Figure 11.5-C suggests a left-turn lane is not needed at this intersection. It should be noted this figure is based on a two-lane roadway with a design speed of 55 MPH. Figure 11.5-C can be found in **Appendix E**.

V. CONCLUSIONS AND RECOMMENDATIONS

This traffic study has been prepared for the development at 1947 CT Route 117 (Center Groton Road) in Ledyard, Connecticut. 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 proposed development has a total of 76 residential units and associated parking spaces. The proposed development will be serviced by one full access driveway for vehicular traffic on CT Route 117 (Center Groton Road) and one emergency gated access driveway.

The study investigated the potential traffic impacts associated with the development during the weekday morning (7-9 AM) and evening (4-6 PM) commuting peak hour periods. The proposed development is projected to generate 34 new trips in the AM peak hour (8 in/enter, 26 out/exit) and 37 new trips in the PM peak hour (21 in/enter, 16 out/exit).

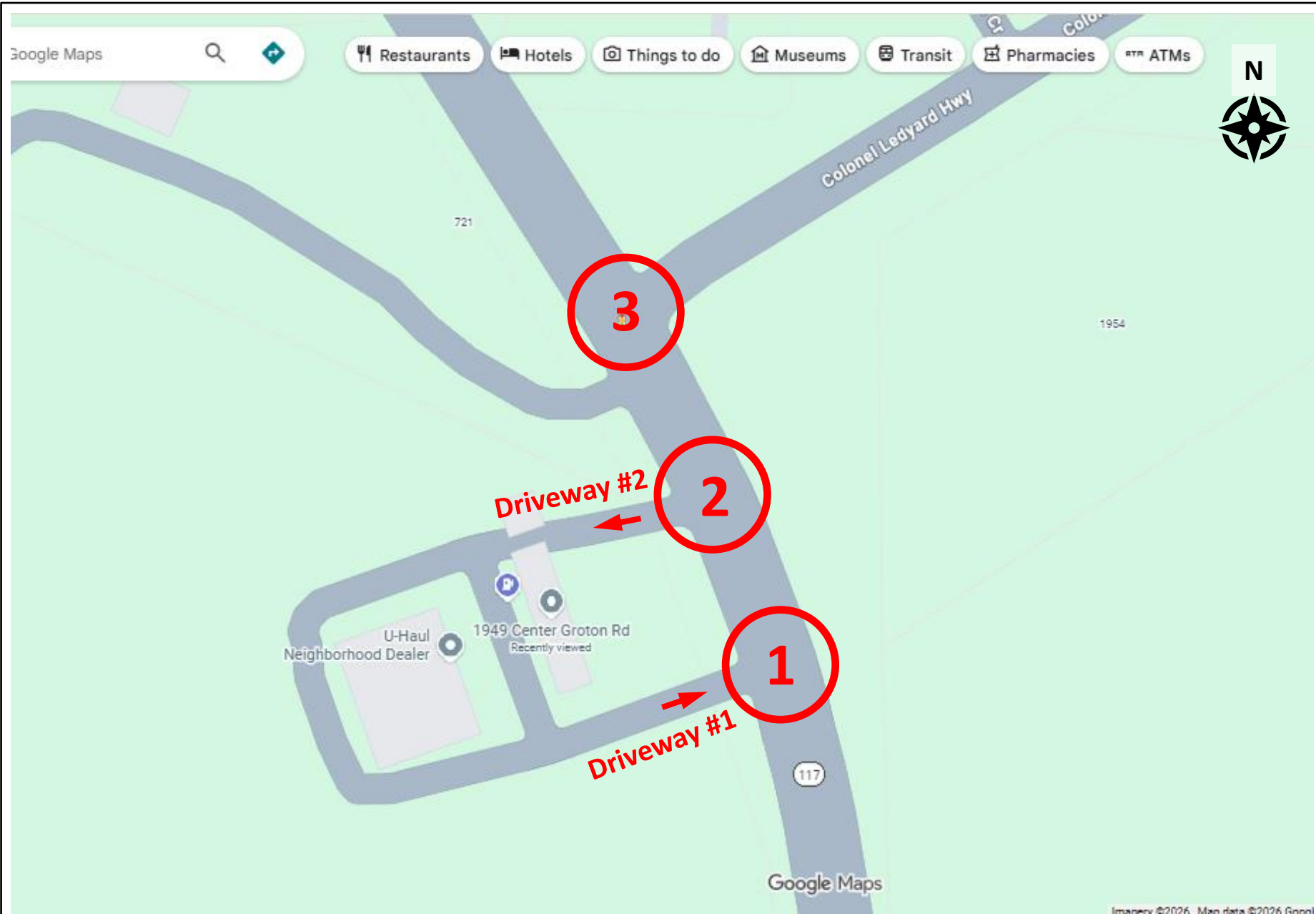
A detailed traffic analysis was conducted at key intersections and roadways in the general vicinity of the Site in accordance with the methods of *Highway Capacity Manual*, published by the Transportation Research Board. After analysis of Existing, No Build, and Build scenarios for the weekday morning peak hour and weekday evening peak hour, it is projected that this proposed development will have negligible impacts on the surrounding roadway network.


For the development, the following are suggested:

- Provide selective clearing of vegetation to improve sightline from new access point.
- Install MUTCD R1-1 36" (stop sign), 12" white stop bar, and 4" double yellow center line at the new Site Driveway on CT Route 117 (Center Groton Road), per the site plan.
- Provide a sidewalk connection between the Site and the CT Route 117 (Center Groton Road) sidewalk, as shown on the Site plan.

APPENDIX

A: TRAFFIC COUNTS



	ID: 1825_BL	Ledyard, CT	# of TMC's: 03	Client: BL Companies
		Collected on April 21, 2026	# of ATR's: 00	Contact: Michael Dion, P.E., PTOE, Principal

Client: Michael Dion, P.E., PTOE
 Project #: 1825_BL
 BTD #: Location 1
 Location: Ledyard, CT
 Street 1: Center Groton Road (Route 117)
 Street 2: Bestway Gas Station Drive #1 (Exit)
 Count Date: 4/21/2026
 Day of Week: Tuesday
 Weather: Clouds & Sun, 50°F



PO Box 1723
 Framingham, MA 01701

PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				Westbound			
	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	40	0	0	0	81	0	0	3	0	3	0	0	0	0
7:15 AM	0	1	85	0	0	0	90	0	0	5	0	2	0	0	0	0
7:30 AM	0	0	79	0	0	0	107	0	0	5	0	4	0	0	0	0
7:45 AM	0	0	57	0	0	0	90	0	0	2	0	3	0	0	0	0
8:00 AM	0	0	51	0	0	0	71	0	0	4	0	5	0	0	0	0
8:15 AM	0	0	50	0	0	0	79	0	0	4	0	1	0	0	0	0
8:30 AM	0	0	55	0	0	0	71	0	0	3	0	0	0	0	0	0
8:45 AM	0	0	71	0	0	0	58	0	0	3	0	1	0	0	0	0

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	123	0	0	0	61	0	0	10	0	3	0	0	0	0
4:15 PM	0	0	144	0	0	0	89	0	0	8	0	3	0	0	0	0
4:30 PM	0	0	141	0	0	0	70	0	0	4	0	5	0	0	0	0
4:45 PM	0	0	140	0	0	0	76	0	0	6	0	2	0	0	0	0
5:00 PM	0	0	120	0	0	0	54	0	0	7	0	3	0	0	0	0
5:15 PM	0	1	119	0	0	0	80	0	0	6	0	2	0	0	0	0
5:30 PM	0	1	107	0	0	0	59	0	0	2	0	1	0	0	0	0
5:45 PM	0	0	94	0	0	0	68	0	0	5	0	1	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	272	0	0	0	358	0	0	16	0	14	0	0	0	0
PHF	0.79				0.84				0.83				0.00			
HV %	0.0%	0.0%	3.3%	0.0%	0.0%	0.0%	3.4%	0.0%	0.0%	12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

PM PEAK HOUR 4:00 PM to 5:00 PM	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	548	0	0	0	296	0	0	28	0	13	0	0	0	0
PHF	0.95				0.83				0.79				0.00			
HV %	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: Michael Dion, P.E., PTOE
 Project #: 1825_BL
 BTD #: Location 1
 Location: Ledyard, CT
 Street 1: Center Groton Road (Route 117)
 Street 2: Bestway Gas Station Drive #1 (Exit)
 Count Date: 4/21/2026
 Day of Week: Tuesday
 Weather: Clouds & Sun, 50°F



PO Box 1723
 Framingham, MA 01701

HEAVY VEHICLES

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				Westbound			
	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	2	0	0	0	2	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0
7:30 AM	0	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	2	0	0	0	3	0	0	1	0	0	0	0	0	0
8:15 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM PHF	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	9	0	0	0	12	0	0	2	0	0	0	0	0	0
	0.56				0.60				0.50				0.00			

PM PEAK HOUR 4:30 PM to 5:30 PM PHF	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0
	0.50				0.67				0.00				0.00			

Client: Michael Dion, P.E., PTOE
 Project #: 1825_BL
 BTD #: Location 1
 Location: Ledyard, CT
 Street 1: Center Groton Road (Route 117)
 Street 2: Bestway Gas Station Drive #1 (Exit)
 Count Date: 4/21/2026
 Day of Week: Tuesday
 Weather: Clouds & Sun, 50°F



PO Box 1723
 Framingham, MA 01701

PEDESTRIANS & BICYCLES

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				Westbound			
	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				Westbound			
	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	1	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	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				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	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #1 (Exit) Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	1	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: Michael Dion, P.E., PTOE
 Project #: 1825_BL
 BTD #: Location 2
 Location: Ledyard, CT
 Street 1: Center Groton Road (Route 117)
 Street 2: Bestway Gas Station Dr #2 (Enter)
 Count Date: 4/21/2026
 Day of Week: Tuesday
 Weather: Clouds & Sun, 50°F



PO Box 1723
 Framingham, MA 01701

PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	2	42	0	0	0	81	5	0	0	0	0	0	0	0	0
7:15 AM	0	0	90	0	0	0	90	6	0	0	0	0	0	0	0	0
7:30 AM	0	1	83	0	0	0	107	8	0	1	0	0	0	0	0	0
7:45 AM	0	0	58	0	0	0	90	6	0	0	0	0	0	0	0	0
8:00 AM	0	5	51	0	0	0	71	3	0	0	0	0	0	0	0	0
8:15 AM	0	0	53	0	0	0	79	3	0	0	0	0	0	0	0	0
8:30 AM	0	0	58	0	0	0	71	3	0	0	0	0	0	0	0	0
8:45 AM	0	2	72	0	0	0	58	3	0	0	0	0	0	0	0	0

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				Westbound			
	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	131	0	0	0	61	5	0	0	0	0	0	0	0	0
4:15 PM	0	7	144	0	0	0	89	5	0	0	0	0	0	0	0	0
4:30 PM	0	5	140	0	0	0	70	5	0	0	0	0	0	0	0	0
4:45 PM	0	1	145	0	0	0	76	7	0	0	0	0	0	0	0	0
5:00 PM	0	2	125	0	0	0	54	6	0	0	0	0	0	0	0	0
5:15 PM	0	2	123	0	0	0	80	4	0	0	0	0	0	0	0	0
5:30 PM	0	3	106	0	0	0	59	2	0	0	0	0	0	0	0	0
5:45 PM	0	2	97	0	0	0	68	8	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:00 AM to 8:00 AM	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	3	273	0	0	0	368	25	0	1	0	0	0	0	0	0
PHF	0.77				0.85				0.25				0.00			
HV %	0.0%	0.0%	3.7%	0.0%	0.0%	0.0%	3.0%	12.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

PM PEAK HOUR 4:00 PM to 5:00 PM	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	16	560	0	0	0	296	22	0	0	0	0	0	0	0	0
PHF	0.95				0.85				0.00				0.00			
HV %	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: Michael Dion, P.E., PTOE
 Project #: 1825_BL
 BTD #: Location 2
 Location: Ledyard, CT
 Street 1: Center Groton Road (Route 117)
 Street 2: Bestway Gas Station Dr #2 (Enter)
 Count Date: 4/21/2026
 Day of Week: Tuesday
 Weather: Clouds & Sun, 50°F



PO Box 1723
 Framingham, MA 01701

HEAVY VEHICLES

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				Westbound			
	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	2	0	0	0	2	1	0	0	0	0	0	0	0	0
7:15 AM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	4	0	0	0	5	1	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0
8:00 AM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM PHF	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	11	0	0	0	12	2	0	0	0	0	0	0	0	0
	0.69				0.58				0.00				0.00			

PM PEAK HOUR 4:30 PM to 5:30 PM PHF	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	4	0	0	0	8	0	0	0	0	0	0	0	0	0
	0.50				0.67				0.00				0.00			

Client: Michael Dion, P.E., PTOE
 Project #: 1825_BL
 BTD #: Location 2
 Location: Ledyard, CT
 Street 1: Center Groton Road (Route 117)
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 Count Date: 4/21/2026
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PO Box 1723
 Framingham, MA 01701

PEDESTRIANS & BICYCLES

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				Westbound			
	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				Westbound			
	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	1	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 7:00 AM to 8:00 AM	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				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	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Bestway Gas Station Driveway #2 (Enter) Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	1	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: Michael Dion, P.E., PTOE
 Project #: 1825_BL
 BTD #: Location 3
 Location: Ledyard, CT
 Street 1: Center Groton Road (Route 117)
 Street 2: Colonel Ledyard Highway
 Count Date: 4/21/2026
 Day of Week: Tuesday
 Weather: Clouds & Sun, 50°F



PO Box 1723
 Framingham, MA 01701

PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Colonel Ledyard Highway Eastbound				Colonel Ledyard Highway Westbound			
	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	31	11	0	62	65	0	0	0	0	0	0	21	0	44
7:15 AM	0	0	65	25	0	77	77	0	0	0	0	0	0	19	0	42
7:30 AM	0	0	64	20	0	92	85	0	0	0	0	0	0	30	0	60
7:45 AM	0	0	49	9	0	52	77	0	0	0	0	0	0	19	0	18
8:00 AM	0	0	44	8	0	35	64	0	0	0	0	0	0	10	0	35
8:15 AM	0	0	43	9	0	29	77	0	0	0	0	0	0	5	0	24
8:30 AM	0	0	51	7	0	44	64	0	0	0	0	0	0	10	0	28
8:45 AM	0	0	65	7	0	35	50	0	0	0	0	0	0	11	0	28

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Colonel Ledyard Highway Eastbound				Colonel Ledyard Highway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	121	10	0	65	48	0	0	0	0	0	0	19	0	85
4:15 PM	0	0	131	13	0	59	76	0	0	0	0	0	0	18	0	68
4:30 PM	0	0	121	19	0	48	58	0	0	0	0	0	0	16	0	65
4:45 PM	0	0	126	19	0	46	69	0	0	0	0	0	0	14	0	65
5:00 PM	0	0	110	16	0	46	50	0	0	0	0	0	0	11	0	56
5:15 PM	0	0	109	13	0	37	73	0	0	0	0	0	0	12	0	36
5:30 PM	0	0	94	11	0	37	52	0	0	0	0	0	0	9	0	34
5:45 PM	0	0	85	13	0	22	66	0	0	0	0	0	0	10	0	47

AM PEAK HOUR 7:00 AM to 8:00 AM	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Colonel Ledyard Highway Eastbound				Colonel Ledyard Highway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	209	65	0	283	304	0	0	0	0	0	0	89	0	164
PHF	0.76				0.83				0.00				0.70			
HV %	0.0%	0.0%	2.4%	9.2%	0.0%	7.4%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.9%	0.0%	7.9%

PM PEAK HOUR 4:00 PM to 5:00 PM	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Colonel Ledyard Highway Eastbound				Colonel Ledyard Highway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	499	61	0	218	251	0	0	0	0	0	0	67	0	283
PHF	0.97				0.87				0.00				0.84			
HV %	0.0%	0.0%	0.4%	0.0%	0.0%	1.4%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.0%	0.0%	1.4%

Client: Michael Dion, P.E., PTOE
 Project #: 1825_BL
 BTD #: Location 3
 Location: Ledyard, CT
 Street 1: Center Groton Road (Route 117)
 Street 2: Colonel Ledyard Highway
 Count Date: 4/21/2026
 Day of Week: Tuesday
 Weather: Clouds & Sun, 50°F



PO Box 1723
 Framingham, MA 01701

HEAVY VEHICLES

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Eastbound				Colonel Ledyard Highway Westbound			
	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	2	0	2	1	0	0	0	0	0	0	2	0	3
7:15 AM	0	0	2	2	0	7	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	3	2	0	8	3	0	0	0	0	0	0	3	0	7
7:45 AM	0	0	0	0	0	4	2	0	0	0	0	0	0	2	0	1
8:00 AM	0	0	2	0	0	2	4	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	0	2	1	0	0	0	0	0	0	2	0	4
8:45 AM	0	0	4	0	0	3	0	0	0	0	0	0	0	0	0	2

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Eastbound				Colonel Ledyard Highway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	2	0	2
5:00 PM	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:00 AM to 8:00 AM PHF	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Eastbound				Colonel Ledyard Highway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	5	6	0	21	6	0	0	0	0	0	0	7	0	13
	0.55				0.61				0.00				0.50			

PM PEAK HOUR 4:45 PM to 5:45 PM PHF	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Eastbound				Colonel Ledyard Highway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	7	0	0	2	3	0	0	0	0	0	0	2	0	4
	0.58				0.63				0.00				0.38			

Client: Michael Dion, P.E., PTOE
 Project #: 1825_BL
 BTD #: Location 3
 Location: Ledyard, CT
 Street 1: Center Groton Road (Route 117)
 Street 2: Colonel Ledyard Highway
 Count Date: 4/21/2026
 Day of Week: Tuesday
 Weather: Clouds & Sun, 50°F



PO Box 1723
 Framingham, MA 01701

PEDESTRIANS & BICYCLES

Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Eastbound				Colonel Ledyard Highway Westbound			
	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0


Start Time	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Eastbound				Colonel Ledyard Highway Westbound			
	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	1	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 7:00 AM to 8:00 AM	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Eastbound				Colonel Ledyard 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	Center Groton Road (Route 117) Northbound				Center Groton Road (Route 117) Southbound				Eastbound				Colonel Ledyard Highway Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	1	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.



	ID: 1806_BL	Ledyard, CT	# of TMC's: 00	Client: BL Companies
		Collected March 13 to 19, 2026	# of ATR's: 01	Contact: Michael Dion, P.E., PTOE, Principal

Volume Report

Job 1806_BL_Ledyard CT
Area 1806_Ledyard CT_ATR 1
Location Center Groton Road, south Colonel Ledyard Hwy



PO Box 1723
 Framingham, MA 01701

Sunday, March 15, 2026

Time	Total	NB	SB		Time	Total	NB	SB
0000	26	6	20		1200	118	57	61
0015	53	13	40		1215	133	77	56
0030	34	6	28		1230	116	62	54
0045	27	7	20	108	1245	113	60	53
0100	26	8	18		1300	102	51	51
0115	29	10	19		1315	92	45	47
0130	19	6	13		1330	113	59	54
0145	15	3	12	62	1345	120	69	51
0200	16	5	11		1400	114	61	53
0215	10	5	5		1415	132	60	72
0230	10	1	9		1430	126	68	58
0245	12	1	11	36	1445	122	66	56
0300	11	2	9		1500	148	90	58
0315	12	4	8		1515	147	86	61
0330	9	6	3		1530	126	53	73
0345	12	2	10	30	1545	106	62	44
0400	17	2	15		1600	111	55	56
0415	13	4	9		1615	128	70	58
0430	9	3	6		1630	110	57	53
0445	2	0	2	32	1645	106	60	46
0500	15	4	11		1700	118	59	59
0515	9	2	7		1715	118	59	59
0530	12	2	10		1730	106	61	45
0545	9	3	6	34	1745	87	39	48
0600	18	3	15		1800	84	39	45
0615	17	9	8		1815	96	43	53
0630	29	17	12		1830	86	35	51
0645	32	20	12	47	1845	84	41	43
0700	29	15	14		1900	88	44	44
0715	34	24	10		1915	77	39	38
0730	37	19	18		1930	74	33	41
0745	41	22	19	61	1945	58	26	32
0800	49	26	23		2000	62	21	41
0815	64	30	34		2015	45	19	26
0830	83	34	49		2030	46	20	26
0845	68	25	43	149	2045	48	25	23
0900	80	39	41		2100	32	10	22
0915	97	57	40		2115	27	11	16
0930	109	50	59		2130	32	10	22
0945	121	57	64	204	2145	26	10	16
1000	91	50	41		2200	34	9	25
1015	97	42	55		2215	34	12	22
1030	108	55	53		2230	30	9	21
1045	105	52	53	202	2245	29	12	17
1100	92	47	45		2300	29	12	17
1115	113	51	62		2315	28	13	15
1130	124	62	62		2330	27	14	13
1145	121	58	63	232	2345	21	3	18
Total	6175	2965	3210					

Volume Report

Job 1806_BL_Ledyard CT
Area 1806_Ledyard CT_ATR 1
Location Center Groton Road, south Colonel Ledyard Hwy



PO Box 1723
 Framingham, MA 01701

Monday, March 16, 2026

Time	Total	NB	SB		Time	Total	NB	SB
0000	22	8	14		1200	94	38	56
0015	17	3	14		1215	80	35	45
0030	12	2	10		1230	100	56	44
0045	13	2	11	49	1245	93	39	54
0100	8	1	7		1300	77	35	42
0115	8	0	8		1315	82	47	35
0130	5	0	5		1330	106	58	48
0145	7	2	5	25	1345	106	60	46
0200	9	0	9		1400	135	67	68
0215	5	2	3		1415	145	79	66
0230	10	2	8		1430	147	76	71
0245	7	1	6	26	1445	153	86	67
0300	9	2	7		1500	181	94	87
0315	6	1	5		1515	178	108	70
0330	9	3	6		1530	156	93	63
0345	10	4	6	24	1545	164	111	53
0400	12	1	11		1600	164	87	77
0415	26	2	24		1615	148	87	61
0430	25	2	23		1630	162	92	70
0445	38	4	34	92	1645	160	107	53
0500	49	7	42		1700	146	89	57
0515	36	8	28		1715	178	99	79
0530	56	9	47		1730	152	91	61
0545	32	5	27	144	1745	119	75	44
0600	44	10	34		1800	112	65	47
0615	64	11	53		1815	100	48	52
0630	73	19	54		1830	73	37	36
0645	96	32	64	205	1845	82	50	32
0700	124	53	71		1900	80	44	36
0715	118	54	64		1915	76	47	29
0730	142	49	93		1930	51	26	25
0745	123	46	77	305	1945	51	28	23
0800	135	51	84		2000	39	21	18
0815	124	52	72		2015	47	20	27
0830	99	49	50		2030	33	11	22
0845	110	38	72	278	2045	38	14	24
0900	84	36	48		2100	48	20	28
0915	104	63	41		2115	49	26	23
0930	90	46	44		2130	41	23	18
0945	84	45	39	172	2145	27	13	14
1000	89	43	46		2200	19	8	11
1015	59	19	40		2215	30	17	13
1030	76	36	40		2230	13	6	7
1045	81	42	39	165	2245	18	5	13
1100	58	25	33		2300	18	10	8
1115	82	42	40		2315	28	18	10
1130	80	37	43		2330	20	9	11
1145	78	37	41	157	2345	23	17	6
Total	6990	3398	3592					

Volume Report

Job 1806_BL_Ledyard CT
Area 1806_Ledyard CT_ATR 1
Location Center Groton Road, south Colonel Ledyard Hwy



PO Box 1723
 Framingham, MA 01701

Tuesday, March 17, 2026

Time	Total	NB	SB	Time	Total	NB	SB						
0000	19	8	11	1200	107	46	61						
0015	23	8	15	1215	112	60	52						
0030	11	4	7	1230	128	69	59						
0045	15	68	4	24	11	44	1245	114	461	54	229	60	232
0100	12	4	8	1300	123	61	62						
0115	13	8	5	1315	107	61	46						
0130	4	1	3	1330	131	60	71						
0145	4	33	1	14	3	19	1345	116	477	71	253	45	224
0200	7	2	5	1400	155	73	82						
0215	3	1	2	1415	143	89	54						
0230	1	0	1	1430	163	95	68						
0245	11	22	4	7	7	15	1445	154	615	89	346	65	269
0300	4	2	2	1500	191	119	72						
0315	4	1	3	1515	183	114	69						
0330	10	2	8	1530	174	100	74						
0345	6	24	2	7	4	17	1545	201	749	137	470	64	279
0400	20	1	19	1600	180	738	66						
0415	27	4	23	1615	208	763	91						
0430	30	4	26	1630	198	787	84						
0445	24	101	7	16	17	85	1645	184	770	106	451	78	319
0500	49	5	44	1700	166	756	91	428	75	328			
0515	42	3	39	1715	165	713	102	63					
0530	68	9	59	1730	160	675	97	63					
0545	47	206	14	31	33	175	1745	122	613	79	369	43	244
0600	63	18	45	1800	130	577	70	60					
0615	69	13	56	1815	107	54	53						
0630	105	36	69	1830	96	56	40						
0645	110	347	34	101	76	246	1845	95	58	238	37	190	
0700	133	417	52	81	73	1900	95	393	51	44			
0715	127	475	54	73	1915	75	43	32					
0730	176	546	61	115	1930	83	39	44					
0745	142	578	49	216	93	362	1945	57	310	32	165	25	145
0800	123	568	54	218	69	350	2000	58	28	30			
0815	116	557	42	74	2015	67	35	32					
0830	143	524	66	77	2030	51	27	24					
0845	116	498	50	212	66	286	2045	52	228	32	122	20	106
0900	105	480	46	59	2100	45	23	22					
0915	100	49	51	2115	44	22	22						
0930	112	56	56	2130	33	17	16						
0945	98	415	34	185	64	230	2145	31	153	16	78	15	75
1000	112	69	43	2200	18	7	11						
1015	86	46	40	2215	28	15	13						
1030	81	36	45	2230	21	8	13						
1045	105	384	48	199	57	185	2245	28	95	10	40	18	55
1100	109	52	57	2300	21	14	7						
1115	107	57	50	2315	26	16	10						
1130	110	58	52	2330	37	19	18						
1145	100	426	57	224	43	202	2345	34	118	22	71	12	47
Total	8119	4068	4051										

Volume Report

Job 1806_BL_Ledyard CT
Area 1806_Ledyard CT_ATR 1
Location Center Groton Road, south Colonel Ledyard Hwy



PO Box 1723
 Framingham, MA 01701

Thursday, March 19, 2026

Time	Total	NB	SB	Time	Total	NB	SB
0000	23	10	13	1200	129	59	70
0015	27	5	22	1215	110	47	63
0030	13	6	7	1230	92	44	48
0045	13	76	1	22	12	54	230
0100	7	1	6	1245	103	434	54
0115	7	6	1	1300	103	47	204
0130	12	2	10	1315	127	70	56
0145	6	32	2	11	4	21	57
0200	10	1	9	1330	99	49	50
0215	5	2	3	1345	102	431	57
0230	10	5	5	1400	117	50	67
0245	10	35	2	10	8	25	77
0300	6	2	4	1415	160	77	83
0315	8	7	1	1430	150	75	75
0330	7	5	2	1445	174	601	104
0345	17	38	6	20	11	18	306
0400	14	2	12	1500	172	99	73
0415	26	4	22	1515	182	110	72
0430	24	2	22	1530	186	107	79
0445	22	86	2	10	20	76	442
0500	41	7	34	1545	195	735	126
0515	38	2	36	1600	188	751	101
0530	67	11	56	1615	209	778	128
0545	44	190	15	35	29	155	87
0600	51	17	34	1630	191	783	106
0615	83	23	60	1645	203	791	115
0630	97	28	69	1700	177	780	97
0645	101	332	30	98	71	234	446
0700	118	399	48	70	70	76	80
0715	147	463	67	80	80	348	93
0730	171	537	54	117	117	299	106
0745	122	558	41	210	81	348	74
0800	148	588	64	84	84	299	52
0815	147	588	71	76	76	299	370
0830	136	553	63	73	73	299	52
0845	120	551	54	252	66	299	66
0900	102	505	44	58	58	299	74
0915	117	59	59	58	58	299	74
0930	94	44	50	50	50	299	74
0945	96	409	42	189	54	220	74
1000	98	51	47	47	47	220	74
1015	81	32	49	49	49	220	74
1030	117	58	59	59	59	220	74
1045	91	387	54	195	37	192	74
1100	100	48	52	52	52	192	74
1115	85	44	41	41	41	192	74
1130	126	70	56	56	56	192	74
1145	89	400	44	206	45	194	74
Total	8047	3952	4095				

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Northbound
 Friday, March 13, 2026



PO Box 1723
 Framingham, MA 01701

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	32	0	0	0	0	0	0	4	11	11	6	0	0	0	0	0	0
0100	7	0	0	0	0	0	0	1	3	2	1	0	0	0	0	0	0
0200	6	0	0	0	0	0	0	0	5	1	0	0	0	0	0	0	0
0300	16	0	0	0	0	0	1	4	6	2	2	1	0	0	0	0	0
0400	9	0	0	0	0	0	0	1	3	3	2	0	0	0	0	0	0
0500	38	0	0	0	0	0	1	3	12	17	5	0	0	0	0	0	0
0600	83	0	0	0	0	0	0	14	43	18	8	0	0	0	0	0	0
0700	220	0	0	0	0	3	24	53	100	35	5	0	0	0	0	0	0
0800	237	0	0	0	0	0	7	40	122	54	14	0	0	0	0	0	0
0900	172	0	0	0	0	0	0	24	85	54	8	1	0	0	0	0	0
1000	195	0	0	0	0	0	0	23	100	58	13	1	0	0	0	0	0
1100	241	0	0	0	0	0	6	25	141	62	7	0	0	0	0	0	0
1200	230	0	0	0	0	0	4	39	141	43	3	0	0	0	0	0	0
1300	250	0	0	0	0	2	12	60	101	67	8	0	0	0	0	0	0
1400	369	0	0	0	0	0	19	97	185	66	2	0	0	0	0	0	0
1500	463	0	2	4	7	14	22	82	253	75	4	0	0	0	0	0	0
1600	431	0	0	0	0	5	17	107	216	79	7	0	0	0	0	0	0
1700	344	0	0	0	0	0	11	69	171	89	4	0	0	0	0	0	0
1800	230	0	0	0	0	0	4	32	110	75	8	1	0	0	0	0	0
1900	183	0	0	0	0	0	2	47	94	35	5	0	0	0	0	0	0
2000	168	0	0	0	0	0	3	42	82	38	3	0	0	0	0	0	0
2100	106	0	0	0	0	0	1	17	61	20	6	1	0	0	0	0	0
2200	73	0	0	0	0	0	2	9	39	18	4	1	0	0	0	0	0
2300	64	0	0	0	0	0	0	9	21	25	7	2	0	0	0	0	0
Total	4167	0	2	4	7	24	136	802	2105	947	132	8	0	0	0	0	0

100.00% 0.00% 0.05% 0.10% 0.17% 0.58% 3.26% 19.25% 50.52% 22.73% 3.17% 0.19% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 52.4 mph, Minimum = 5.1 mph, Mean = 37.5 mph
 85% Speed = 41.54 mph, 95% Speed = 44.07 mph, Median = 37.75 mph
 10 mph Pace = 33 - 43, Number in Pace = 3318 (79.63%)
 Variance = 19.09, Standard Deviation = 4.37 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Northbound
Saturday, March 14, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	40	0	0	0	0	0	1	4	14	12	7	2	0	0	0	0	
0100	8	0	0	0	0	1	0	1	1	4	1	0	0	0	0	0	
0200	12	0	0	0	0	0	0	3	9	0	0	0	0	0	0	0	
0300	16	0	0	0	0	0	0	1	5	6	4	0	0	0	0	0	
0400	9	0	0	0	0	0	0	0	5	4	0	0	0	0	0	0	
0500	20	0	0	0	0	0	0	3	8	7	2	0	0	0	0	0	
0600	67	0	0	0	0	0	3	10	29	19	5	1	0	0	0	0	
0700	104	0	0	0	0	1	3	21	50	24	5	0	0	0	0	0	
0800	154	0	0	0	0	0	2	15	69	56	11	1	0	0	0	0	
0900	191	0	0	0	0	0	4	23	102	55	5	2	0	0	0	0	
1000	212	0	0	0	0	0	2	27	107	61	14	1	0	0	0	0	
1100	302	0	0	0	0	2	9	53	169	63	6	0	0	0	0	0	
1200	272	0	0	0	0	0	1	63	147	55	6	0	0	0	0	0	
1300	268	0	0	0	0	0	3	30	160	67	8	0	0	0	0	0	
1400	288	0	0	0	0	0	3	61	145	75	4	0	0	0	0	0	
1500	308	0	0	0	0	0	12	49	156	88	3	0	0	0	0	0	
1600	254	0	0	0	0	0	2	19	128	99	5	1	0	0	0	0	
1700	237	0	0	0	0	0	2	31	137	59	8	0	0	0	0	0	
1800	217	0	0	0	0	1	6	35	128	44	2	1	0	0	0	0	
1900	154	0	0	0	0	0	0	30	87	30	6	1	0	0	0	0	
2000	118	0	0	0	0	0	6	20	58	27	6	1	0	0	0	0	
2100	73	0	0	0	0	7	0	15	25	20	6	0	0	0	0	0	
2200	78	0	0	0	0	0	0	21	36	13	5	3	0	0	0	0	
2300	52	0	0	0	0	0	0	8	20	18	5	1	0	0	0	0	
Total	3454	0	0	0	0	12	59	543	1795	906	124	15	0	0	0	0	

100.00%
0.00%
0.00%
0.00%
0.00%
0.35%
1.71%
15.72%
51.97%
26.23%
3.59%
0.43%
0.00%
0.00%
0.00%
0.00%
0.00%

Maximum = 54.3 mph, Minimum = 20.7 mph, Mean = 38.3 mph
 85% Speed = 42.00 mph, 95% Speed = 44.57 mph, Median = 38.36 mph
 10 mph Pace = 33 - 43, Number in Pace = 2849 (82.48%)
 Variance = 15.41, Standard Deviation = 3.93 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Northbound
Sunday, March 15, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	32	0	0	0	0	0	2	5	9	8	8	0	0	0	0	0	0
0100	27	0	0	0	0	0	2	6	14	4	1	0	0	0	0	0	0
0200	12	0	0	0	0	0	0	2	7	3	0	0	0	0	0	0	0
0300	14	0	0	0	0	0	0	1	3	7	2	1	0	0	0	0	0
0400	9	0	0	0	0	0	0	2	6	1	0	0	0	0	0	0	0
0500	11	0	0	0	0	0	1	2	4	4	0	0	0	0	0	0	0
0600	49	0	0	0	0	0	1	6	21	15	5	1	0	0	0	0	0
0700	80	0	0	0	0	0	0	10	30	37	3	0	0	0	0	0	0
0800	115	0	0	0	0	0	0	13	38	52	11	1	0	0	0	0	0
0900	203	0	0	0	0	0	2	35	114	46	5	1	0	0	0	0	0
1000	199	0	0	0	0	0	0	41	99	58	1	0	0	0	0	0	0
1100	218	0	0	0	0	0	0	24	126	63	5	0	0	0	0	0	0
1200	256	0	0	0	0	0	10	32	132	66	16	0	0	0	0	0	0
1300	224	0	0	0	0	0	3	35	119	60	7	0	0	0	0	0	0
1400	255	0	0	0	0	0	1	18	138	84	14	0	0	0	0	0	0
1500	291	0	0	0	0	0	7	49	143	77	15	0	0	0	0	0	0
1600	242	0	0	0	0	0	5	41	104	75	17	0	0	0	0	0	0
1700	218	0	0	0	0	0	3	37	115	51	12	0	0	0	0	0	0
1800	158	0	0	0	0	0	4	21	82	46	5	0	0	0	0	0	0
1900	142	0	0	0	0	0	4	34	66	29	7	2	0	0	0	0	0
2000	85	0	0	0	0	0	4	19	44	16	2	0	0	0	0	0	0
2100	41	0	0	0	0	0	2	9	19	8	3	0	0	0	0	0	0
2200	42	0	0	0	0	0	1	12	19	6	2	2	0	0	0	0	0
2300	42	0	0	0	0	0	1	6	22	9	3	1	0	0	0	0	0
Total	2965	0	0	0	0	0	53	460	1474	825	144	9	0	0	0	0	0

100.00% 0.00% 0.00% 0.00% 0.00% 0.00% 1.79% 15.51% 49.71% 27.82% 4.86% 0.30% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 54.2 mph, Minimum = 25.1 mph, Mean = 38.5 mph
 85% Speed = 42.45 mph, 95% Speed = 45.07 mph, Median = 38.36 mph
 10 mph Pace = 34 - 44, Number in Pace = 2416 (81.48%)
 Variance = 15.23, Standard Deviation = 3.90 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Northbound
Monday, March 16, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	15	0	0	0	0	1	0	6	3	4	1	0	0	0	0	0	0
0100	3	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0
0200	5	0	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0
0300	10	0	0	0	0	0	0	3	3	2	2	0	0	0	0	0	0
0400	9	0	0	0	0	0	0	4	4	1	0	0	0	0	0	0	0
0500	29	0	0	0	0	1	3	12	9	3	1	0	0	0	0	0	0
0600	72	0	0	0	0	1	21	18	19	8	3	2	0	0	0	0	0
0700	202	0	0	0	6	18	35	64	55	23	1	0	0	0	0	0	0
0800	190	0	0	0	0	3	13	34	103	33	3	1	0	0	0	0	0
0900	190	0	0	0	0	0	7	66	73	40	4	0	0	0	0	0	0
1000	140	0	0	0	1	1	12	37	60	24	5	0	0	0	0	0	0
1100	141	0	0	0	0	0	3	26	67	37	6	2	0	0	0	0	0
1200	168	0	0	0	0	0	1	18	89	52	8	0	0	0	0	0	0
1300	200	0	0	0	0	0	20	37	96	40	7	0	0	0	0	0	0
1400	308	0	0	0	0	0	8	60	157	72	11	0	0	0	0	0	0
1500	406	0	0	0	1	2	21	91	206	82	3	0	0	0	0	0	0
1600	373	0	0	0	0	1	6	49	212	103	2	0	0	0	0	0	0
1700	354	0	0	0	0	0	2	110	179	58	4	1	0	0	0	0	0
1800	200	0	0	0	0	1	4	70	105	20	0	0	0	0	0	0	0
1900	145	0	0	0	0	0	12	46	66	21	0	0	0	0	0	0	0
2000	66	0	0	0	0	2	11	24	20	7	1	1	0	0	0	0	0
2100	82	0	0	1	0	5	13	46	13	3	1	0	0	0	0	0	0
2200	36	0	0	0	0	0	2	10	18	4	1	1	0	0	0	0	0
2300	54	0	0	0	0	0	1	18	27	6	1	1	0	0	0	0	0
Total	3398	0	0	1	8	36	195	851	1585	647	66	9	0	0	0	0	0

100.00%
0.00%
0.00%
0.03%
0.24%
1.06%
5.74%
25.04%
46.65%
19.04%
1.94%
0.26%
0.00%
0.00%
0.00%
0.00%
0.00%

Maximum = 53.9 mph, Minimum = 14.8 mph, Mean = 36.7 mph
 85% Speed = 40.88 mph, 95% Speed = 43.34 mph, Median = 37.02 mph
 10 mph Pace = 32 - 42, Number in Pace = 2631 (77.43%)
 Variance = 20.23, Standard Deviation = 4.50 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Northbound
 Tuesday, March 17, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	24	0	0	0	0	0	2	5	7	6	4	0	0	0	0	0	0
0100	14	0	0	0	0	0	1	8	5	0	0	0	0	0	0	0	0
0200	7	0	0	0	0	0	0	4	3	0	0	0	0	0	0	0	0
0300	7	0	0	0	0	0	0	1	4	2	0	0	0	0	0	0	0
0400	16	0	0	0	0	0	0	2	9	5	0	0	0	0	0	0	0
0500	31	0	0	0	0	0	1	6	7	15	2	0	0	0	0	0	0
0600	101	0	0	0	0	0	1	30	46	19	5	0	0	0	0	0	0
0700	216	0	4	6	1	7	16	42	88	46	6	0	0	0	0	0	0
0800	212	0	0	0	0	2	13	31	99	53	13	1	0	0	0	0	0
0900	185	0	0	0	0	0	1	19	80	70	14	1	0	0	0	0	0
1000	199	0	0	0	0	0	8	36	79	67	9	0	0	0	0	0	0
1100	224	0	0	0	1	1	5	45	105	58	8	1	0	0	0	0	0
1200	229	0	0	0	0	0	2	37	112	65	13	0	0	0	0	0	0
1300	253	0	0	0	0	1	6	41	110	86	9	0	0	0	0	0	0
1400	346	0	0	0	0	0	20	90	155	78	3	0	0	0	0	0	0
1500	470	0	0	5	9	27	30	83	220	89	7	0	0	0	0	0	0
1600	451	0	0	0	0	2	9	85	261	85	9	0	0	0	0	0	0
1700	369	0	0	0	0	4	4	39	214	103	5	0	0	0	0	0	0
1800	238	0	0	0	0	0	4	46	109	73	5	1	0	0	0	0	0
1900	165	0	0	0	0	1	6	45	79	31	2	1	0	0	0	0	0
2000	122	0	0	0	0	0	5	32	56	26	3	0	0	0	0	0	0
2100	78	0	0	0	0	0	4	17	37	19	1	0	0	0	0	0	0
2200	40	0	0	0	0	0	2	8	14	11	5	0	0	0	0	0	0
2300	71	0	0	0	0	0	2	16	32	16	2	3	0	0	0	0	0
Total	4068	0	4	11	11	45	142	768	1931	1023	125	8	0	0	0	0	0

100.00% 0.00% 0.10% 0.27% 0.27% 1.11% 3.49% 18.88% 47.47% 25.15% 3.07% 0.20% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 52.7 mph, Minimum = 6.9 mph, Mean = 37.5 mph
 85% Speed = 41.66 mph, 95% Speed = 44.01 mph, Median = 37.86 mph
 10 mph Pace = 33 - 43, Number in Pace = 3216 (79.06%)
 Variance = 22.04, Standard Deviation = 4.69 mph

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Northbound
 Wednesday, March 18, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	22	0	0	0	0	0	0	1	6	8	4	2	1	0	0	0	0
0100	10	0	0	0	0	0	0	2	6	1	1	0	0	0	0	0	0
0200	10	0	0	0	0	0	0	0	3	3	3	1	0	0	0	0	0
0300	14	0	0	0	0	0	0	0	1	8	3	1	1	0	0	0	0
0400	8	0	0	0	0	0	0	1	2	3	1	1	0	0	0	0	0
0500	42	0	0	0	0	0	0	0	10	15	16	1	0	0	0	0	0
0600	117	0	0	0	0	0	0	1	18	64	27	7	0	0	0	0	0
0700	209	0	0	0	1	17	17	17	45	90	35	4	0	0	0	0	0
0800	247	0	0	0	0	3	6	6	48	111	67	11	1	0	0	0	0
0900	178	0	0	0	0	0	6	6	29	72	57	14	0	0	0	0	0
1000	169	0	0	0	0	1	14	14	36	79	34	5	0	0	0	0	0
1100	205	0	0	0	0	0	5	5	48	108	40	3	1	0	0	0	0
1200	231	0	0	0	0	0	5	5	54	101	66	5	0	0	0	0	0
1300	243	0	0	0	0	4	6	6	38	135	53	7	0	0	0	0	0
1400	344	0	0	3	3	2	12	12	78	166	77	3	0	0	0	0	0
1500	419	0	0	0	0	9	32	32	129	192	54	3	0	0	0	0	0
1600	431	0	0	0	0	0	17	17	86	237	84	7	0	0	0	0	0
1700	392	0	0	0	0	1	8	8	98	208	76	1	0	0	0	0	0
1800	230	0	0	0	0	0	1	1	39	125	63	2	0	0	0	0	0
1900	163	0	0	0	0	0	5	5	40	83	32	3	0	0	0	0	0
2000	134	0	0	0	0	0	5	5	41	64	23	1	0	0	0	0	0
2100	57	0	0	0	0	0	0	0	9	29	14	5	0	0	0	0	0
2200	51	0	0	0	0	0	2	2	11	22	13	3	0	0	0	0	0
2300	59	0	0	0	0	0	5	5	5	24	21	3	1	0	0	0	0
Total	3985	0	0	3	4	37	151	880	1948	864	93	5	0	0	0	0	0

100.00% 0.00% 0.00% 0.08% 0.10% 0.93% 3.79% 22.08% 48.88% 21.68% 2.33% 0.13% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 52.4 mph, Minimum = 10.1 mph, Mean = 37.2 mph
 85% Speed = 41.10 mph, 95% Speed = 43.60 mph, Median = 37.47 mph
 10 mph Pace = 32 - 42, Number in Pace = 3178 (79.75%)
 Variance = 18.83, Standard Deviation = 4.34 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Northbound
Thursday, March 19, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	22	0	0	0	0	0	0	2	6	5	4	4	1	0	0	0	0
0100	11	0	0	0	0	0	0	0	6	5	0	0	0	0	0	0	0
0200	10	0	0	0	0	0	0	0	1	6	3	0	0	0	0	0	0
0300	20	0	0	0	0	0	0	0	2	5	6	1	0	0	0	0	0
0400	10	0	0	0	0	0	0	0	2	3	5	0	0	0	0	0	0
0500	35	0	0	0	0	0	0	0	3	11	14	7	0	0	0	0	0
0600	98	0	0	0	0	0	0	0	31	40	24	3	0	0	0	0	0
0700	210	0	0	1	2	2	32	61	74	31	7	0	0	0	0	0	0
0800	252	0	0	0	0	4	10	35	128	66	9	0	0	0	0	0	0
0900	189	0	0	0	0	0	3	21	103	52	10	0	0	0	0	0	0
1000	195	0	0	0	0	0	6	31	85	63	10	0	0	0	0	0	0
1100	206	0	0	0	0	0	1	22	106	69	8	0	0	0	0	0	0
1200	204	0	0	0	0	0	3	38	101	52	9	1	0	0	0	0	0
1300	223	0	0	0	0	0	6	30	119	62	6	0	0	0	0	0	0
1400	306	0	0	0	0	6	20	92	145	36	6	1	0	0	0	0	0
1500	442	0	1	6	2	7	33	105	214	70	4	0	0	0	0	0	0
1600	450	0	0	0	0	0	6	131	225	79	9	0	0	0	0	0	0
1700	370	0	0	0	0	0	3	67	211	85	4	0	0	0	0	0	0
1800	217	0	0	0	0	1	12	53	107	42	2	0	0	0	0	0	0
1900	166	0	0	0	0	0	2	29	95	37	3	0	0	0	0	0	0
2000	102	0	0	0	0	0	2	24	56	16	4	0	0	0	0	0	0
2100	87	0	0	0	0	0	0	11	48	26	2	0	0	0	0	0	0
2200	65	0	0	0	0	0	1	20	25	17	2	0	0	0	0	0	0
2300	62	0	0	0	0	2	5	9	24	16	6	0	0	0	0	0	0
Total	3952	0	1	7	4	22	147	830	1941	875	121	4	0	0	0	0	0

100.00% 0.00% 0.03% 0.18% 0.10% 0.56% 3.72% 21.00% 49.11% 22.14% 3.06% 0.10% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 52.1 mph, Minimum = 9.0 mph, Mean = 37.3 mph
 85% Speed = 41.44 mph, 95% Speed = 43.84 mph, Median = 37.58 mph
 10 mph Pace = 32 - 42, Number in Pace = 3112 (78.82%)
 Variance = 18.93, Standard Deviation = 4.35 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Southbound
 Friday, March 13, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	45	0	0	0	0	0	0	3	13	17	11	1	0	0	0	0	0
0100	25	0	0	0	0	0	1	5	11	7	1	0	0	0	0	0	0
0200	18	0	0	0	0	0	0	5	4	8	1	0	0	0	0	0	0
0300	20	0	0	0	0	0	1	1	10	6	2	0	0	0	0	0	0
0400	67	0	0	0	0	0	0	3	16	32	14	2	0	0	0	0	0
0500	133	0	0	0	0	0	0	13	46	50	20	4	0	0	0	0	0
0600	222	0	0	0	0	0	4	13	98	88	19	0	0	0	0	0	0
0700	298	0	0	0	0	0	6	35	133	103	21	0	0	0	0	0	0
0800	312	0	0	0	0	3	5	42	118	116	27	1	0	0	0	0	0
0900	219	0	0	0	0	0	4	9	95	89	21	1	0	0	0	0	0
1000	187	0	0	0	0	0	6	19	76	70	14	2	0	0	0	0	0
1100	196	0	0	0	0	0	3	13	85	68	22	5	0	0	0	0	0
1200	244	0	0	0	0	1	6	35	114	69	16	3	0	0	0	0	0
1300	247	0	0	0	0	1	5	16	128	85	10	2	0	0	0	0	0
1400	309	0	0	0	0	1	7	46	148	90	17	0	0	0	0	0	0
1500	271	0	0	0	1	0	0	32	135	84	19	0	0	0	0	0	0
1600	297	0	0	0	0	0	5	30	142	111	8	1	0	0	0	0	0
1700	272	0	0	0	0	0	0	22	128	108	14	0	0	0	0	0	0
1800	201	0	0	0	0	0	1	14	92	77	17	0	0	0	0	0	0
1900	136	0	0	0	0	0	4	21	62	40	7	2	0	0	0	0	0
2000	126	0	0	0	0	0	4	10	64	43	5	0	0	0	0	0	0
2100	102	0	0	0	0	0	1	14	50	31	6	0	0	0	0	0	0
2200	126	0	0	0	0	1	3	18	67	30	7	0	0	0	0	0	0
2300	87	0	0	0	0	0	2	12	45	24	4	0	0	0	0	0	0
Total	4160	0	0	0	1	7	68	431	1880	1446	303	24	0	0	0	0	0

100.00% 0.00% 0.00% 0.00% 0.02% 0.17% 1.63% 10.36% 45.19% 34.76% 7.28% 0.58% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 53.3 mph, Minimum = 15.6 mph, Mean = 39.4 mph
 85% Speed = 43.34 mph, 95% Speed = 46.08 mph, Median = 39.37 mph
 10 mph Pace = 34 - 44, Number in Pace = 3345 (80.41%)
 Variance = 17.39, Standard Deviation = 4.17 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Southbound
Saturday, March 14, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	68	0	0	0	0	0	0	2	26	31	9	0	0	0	0	0	0
0100	22	0	0	0	0	0	0	8	8	1	5	0	0	0	0	0	0
0200	26	0	0	0	0	0	0	2	12	10	2	0	0	0	0	0	0
0300	27	0	0	0	0	0	0	4	4	14	5	0	0	0	0	0	0
0400	26	0	0	0	0	0	0	2	8	15	1	0	0	0	0	0	0
0500	34	0	0	0	0	0	0	2	10	16	6	0	0	0	0	0	0
0600	57	0	0	0	0	0	1	9	20	18	8	1	0	0	0	0	0
0700	103	0	0	0	0	0	1	6	41	41	11	3	0	0	0	0	0
0800	163	0	0	0	0	0	1	19	52	71	15	5	0	0	0	0	0
0900	205	0	0	0	0	1	1	20	93	74	12	4	0	0	0	0	0
1000	252	0	0	0	0	0	5	23	110	91	19	4	0	0	0	0	0
1100	267	0	0	0	0	0	1	32	135	85	13	1	0	0	0	0	0
1200	248	0	0	0	0	0	3	18	98	106	20	3	0	0	0	0	0
1300	244	0	0	0	0	1	1	31	100	98	12	1	0	0	0	0	0
1400	268	0	0	0	0	0	1	21	119	107	19	1	0	0	0	0	0
1500	265	0	0	0	0	0	4	30	117	92	20	2	0	0	0	0	0
1600	245	0	0	0	0	0	0	32	85	102	23	3	0	0	0	0	0
1700	231	0	0	0	0	0	1	13	75	108	32	2	0	0	0	0	0
1800	203	0	0	0	0	0	4	17	81	91	10	0	0	0	0	0	0
1900	184	0	0	0	0	0	3	19	83	62	15	2	0	0	0	0	0
2000	155	0	0	0	0	0	2	27	63	54	8	1	0	0	0	0	0
2100	138	0	0	0	0	0	2	14	66	52	4	0	0	0	0	0	0
2200	157	0	0	0	0	0	1	20	90	38	5	3	0	0	0	0	0
2300	130	0	0	0	0	0	1	22	77	18	11	1	0	0	0	0	0
Total	3718	0	0	0	0	2	33	393	1573	1395	285	37	0	0	0	0	0

100.00% 0.00% 0.00% 0.00% 0.00% 0.05% 0.89% 10.57% 42.31% 37.52% 7.67% 1.00% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 54.0 mph, Minimum = 20.6 mph, Mean = 39.7 mph
 85% Speed = 43.73 mph, 95% Speed = 46.64 mph, Median = 39.65 mph
 10 mph Pace = 35 - 45, Number in Pace = 2968 (79.83%)
 Variance = 17.14, Standard Deviation = 4.14 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Southbound
Sunday, March 15, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	108	0	0	0	0	0	0	13	52	35	7	1	0	0	0	0	
0100	62	0	0	0	0	0	0	10	30	17	5	0	0	0	0	0	
0200	36	0	0	0	0	0	2	2	20	10	2	0	0	0	0	0	
0300	30	0	0	0	0	0	0	1	7	17	5	0	0	0	0	0	
0400	32	0	0	0	0	0	0	0	14	13	5	0	0	0	0	0	
0500	34	0	0	0	0	0	0	6	13	10	5	0	0	0	0	0	
0600	47	0	0	0	0	0	1	2	14	18	11	1	0	0	0	0	
0700	61	0	0	0	0	0	0	8	22	25	6	0	0	0	0	0	
0800	149	0	0	0	0	0	2	10	58	65	12	2	0	0	0	0	
0900	204	0	0	0	0	0	3	13	82	78	28	0	0	0	0	0	
1000	202	0	0	0	0	0	1	18	81	81	19	2	0	0	0	0	
1100	232	0	0	0	0	0	6	28	118	64	14	2	0	0	0	0	
1200	224	0	0	0	0	0	4	28	102	78	12	0	0	0	0	0	
1300	203	0	0	0	0	0	1	19	98	67	18	0	0	0	0	0	
1400	239	0	0	0	0	1	1	20	109	91	15	2	0	0	0	0	
1500	236	0	0	0	0	0	1	32	106	72	21	4	0	0	0	0	
1600	213	0	0	0	0	1	3	25	87	88	8	1	0	0	0	0	
1700	211	0	0	0	0	0	4	15	88	80	23	1	0	0	0	0	
1800	192	0	0	0	0	1	2	22	68	82	14	3	0	0	0	0	
1900	155	0	0	0	0	0	0	22	89	35	7	2	0	0	0	0	
2000	116	0	0	0	0	0	1	18	46	39	12	0	0	0	0	0	
2100	76	0	0	0	0	0	1	15	28	26	4	2	0	0	0	0	
2200	85	0	0	0	0	0	0	18	46	19	2	0	0	0	0	0	
2300	63	0	0	0	0	0	0	7	25	25	3	3	0	0	0	0	
Total	3210	0	0	0	0	3	33	352	1403	1135	258	26	0	0	0	0	

100.00% 0.00% 0.00% 0.00% 0.00% 0.09% 1.03% 10.97% 43.71% 35.36% 8.04% 0.81% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 53.5 mph, Minimum = 21.6 mph, Mean = 39.6 mph
 85% Speed = 43.70 mph, 95% Speed = 46.27 mph, Median = 39.48 mph
 10 mph Pace = 34 - 44, Number in Pace = 2561 (79.78%)
 Variance = 17.22, Standard Deviation = 4.15 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Southbound
Monday, March 16, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	49	0	0	0	0	0	0	3	17	23	5	1	0	0	0	0	0
0100	25	0	0	0	0	0	0	6	10	6	3	0	0	0	0	0	0
0200	26	0	0	0	0	0	0	1	10	10	5	0	0	0	0	0	0
0300	24	0	0	0	0	0	1	1	7	13	1	1	0	0	0	0	0
0400	92	0	0	0	0	2	2	16	31	32	8	1	0	0	0	0	0
0500	144	0	0	0	2	1	5	29	45	50	10	2	0	0	0	0	0
0600	205	0	0	0	4	4	24	79	66	26	2	0	0	0	0	0	0
0700	305	0	0	0	0	0	12	74	149	65	3	2	0	0	0	0	0
0800	278	0	0	0	0	1	13	71	111	73	7	2	0	0	0	0	0
0900	172	0	0	0	0	2	10	23	86	41	9	1	0	0	0	0	0
1000	165	0	0	0	0	0	9	38	78	34	6	0	0	0	0	0	0
1100	157	0	0	0	0	0	1	28	76	43	8	1	0	0	0	0	0
1200	199	0	0	0	0	0	2	36	96	55	9	1	0	0	0	0	0
1300	171	0	0	0	0	0	11	37	69	48	6	0	0	0	0	0	0
1400	272	0	0	0	0	0	9	51	119	79	13	1	0	0	0	0	0
1500	273	0	0	0	0	0	2	42	137	78	13	1	0	0	0	0	0
1600	261	0	0	0	0	0	1	30	128	86	15	1	0	0	0	0	0
1700	241	0	0	0	0	0	2	31	118	77	11	2	0	0	0	0	0
1800	167	0	0	0	0	0	2	28	99	33	3	2	0	0	0	0	0
1900	113	0	0	0	0	1	2	29	56	22	1	2	0	0	0	0	0
2000	91	0	0	1	0	2	18	43	21	6	0	0	0	0	0	0	0
2100	83	0	1	0	1	4	26	31	18	2	0	0	0	0	0	0	0
2200	44	0	0	0	0	1	5	14	19	5	0	0	0	0	0	0	0
2300	35	0	0	0	0	0	1	12	16	6	0	0	0	0	0	0	0
Total	3592	0	1	1	7	18	158	753	1582	913	138	21	0	0	0	0	0

100.00% 0.00% 0.03% 0.03% 0.19% 0.50% 4.40% 20.96% 44.04% 25.42% 3.84% 0.58% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 54.1 mph, Minimum = 7.4 mph, Mean = 37.6 mph
 85% Speed = 42.11 mph, 95% Speed = 44.74 mph, Median = 37.86 mph
 10 mph Pace = 33 - 43, Number in Pace = 2690 (74.89%)
 Variance = 21.74, Standard Deviation = 4.66 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Southbound
 Tuesday, March 17, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	44	0	0	0	0	0	0	6	24	10	3	0	0	0	0	0	0
0100	19	0	0	0	0	0	0	4	8	6	1	0	0	0	0	0	0
0200	15	0	0	0	0	0	1	4	8	1	1	0	0	0	0	0	0
0300	17	0	0	0	0	0	1	4	4	8	0	0	0	0	0	0	0
0400	85	0	0	0	0	0	1	7	34	34	9	0	0	0	0	0	0
0500	175	0	0	0	0	0	2	18	47	87	21	0	0	0	0	0	0
0600	246	0	0	0	0	0	6	35	115	78	12	0	0	0	0	0	0
0700	362	0	0	0	0	1	2	42	182	112	23	0	0	0	0	0	0
0800	286	0	0	0	0	0	1	28	109	124	22	2	0	0	0	0	0
0900	230	0	0	0	0	0	0	26	85	98	18	3	0	0	0	0	0
1000	185	0	0	0	0	0	5	13	71	81	13	2	0	0	0	0	0
1100	202	0	0	0	0	0	2	29	87	67	14	3	0	0	0	0	0
1200	232	0	0	0	0	1	2	20	93	97	15	4	0	0	0	0	0
1300	224	0	0	0	0	0	5	28	83	82	23	3	0	0	0	0	0
1400	269	0	0	0	0	0	4	27	108	105	24	1	0	0	0	0	0
1500	279	0	0	1	0	0	6	37	128	89	18	0	0	0	0	0	0
1600	319	0	0	0	0	0	4	15	136	145	19	0	0	0	0	0	0
1700	244	0	0	0	0	0	2	20	87	112	22	1	0	0	0	0	0
1800	190	0	0	0	0	0	2	21	74	72	17	4	0	0	0	0	0
1900	145	0	0	0	0	0	1	19	69	47	8	1	0	0	0	0	0
2000	106	0	0	0	0	0	3	14	65	22	2	0	0	0	0	0	0
2100	75	0	0	0	0	0	0	9	24	35	5	2	0	0	0	0	0
2200	55	0	0	0	0	0	2	10	14	21	8	0	0	0	0	0	0
2300	47	0	0	0	0	0	0	1	18	18	9	1	0	0	0	0	0
Total	4051	0	0	1	0	2	52	437	1673	1551	307	28	0	0	0	0	0

100.00% 0.00% 0.00% 0.02% 0.00% 0.05% 1.28% 10.79% 41.30% 38.29% 7.58% 0.69% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 53.0 mph, Minimum = 14.7 mph, Mean = 39.7 mph
 85% Speed = 43.73 mph, 95% Speed = 46.55 mph, Median = 39.71 mph
 10 mph Pace = 35 - 45, Number in Pace = 3233 (79.81%)
 Variance = 17.51, Standard Deviation = 4.18 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Southbound
Wednesday, March 18, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	53	0	0	0	0	0	0	2	14	27	9	1	0	0	0	0	0
0100	18	0	0	0	0	0	0	2	7	7	2	0	0	0	0	0	0
0200	19	0	0	0	0	0	0	3	9	4	3	0	0	0	0	0	0
0300	18	0	0	0	0	0	0	1	7	9	1	0	0	0	0	0	0
0400	80	0	0	0	0	0	0	4	21	32	22	1	0	0	0	0	0
0500	153	0	0	0	0	0	1	9	34	73	32	4	0	0	0	0	0
0600	238	0	0	0	0	0	3	23	101	95	16	0	0	0	0	0	0
0700	334	0	0	0	0	0	7	34	141	127	22	3	0	0	0	0	0
0800	311	0	0	0	0	2	2	32	114	133	24	4	0	0	0	0	0
0900	229	0	0	0	0	1	6	29	88	88	16	1	0	0	0	0	0
1000	174	0	0	0	0	0	2	22	64	68	18	0	0	0	0	0	0
1100	182	0	0	0	1	0	6	22	72	64	17	0	0	0	0	0	0
1200	234	0	0	0	0	0	4	23	111	77	14	5	0	0	0	0	0
1300	205	0	0	0	0	0	3	28	86	77	10	1	0	0	0	0	0
1400	276	0	0	0	0	0	2	31	113	109	16	5	0	0	0	0	0
1500	280	0	0	0	0	0	4	36	134	94	11	1	0	0	0	0	0
1600	303	0	0	0	0	0	1	25	120	123	34	0	0	0	0	0	0
1700	293	0	0	0	0	0	0	39	113	109	27	5	0	0	0	0	0
1800	185	0	0	0	0	0	4	22	70	74	13	2	0	0	0	0	0
1900	131	0	0	0	0	0	3	10	67	38	13	0	0	0	0	0	0
2000	109	0	0	0	0	0	1	17	44	38	8	1	0	0	0	0	0
2100	68	0	0	0	0	0	2	12	30	21	3	0	0	0	0	0	0
2200	59	0	0	0	0	0	0	5	27	25	1	1	0	0	0	0	0
2300	39	0	0	0	0	0	0	5	15	12	6	1	0	0	0	0	0
Total	3991	0	0	0	1	3	51	436	1602	1524	338	36	0	0	0	0	0

100.00% 0.00% 0.00% 0.00% 0.03% 0.08% 1.28% 10.92% 40.14% 38.19% 8.47% 0.90% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 54.2 mph, Minimum = 16.6 mph, Mean = 39.7 mph
 85% Speed = 43.90 mph, 95% Speed = 46.36 mph, Median = 39.76 mph
 10 mph Pace = 35 - 45, Number in Pace = 3131 (78.45%)
 Variance = 17.71, Standard Deviation = 4.21 mph

Speed Report

Job 1806_BL_Ledyard CT
 Area 1806_Ledyard CT_ATR 1
 Location Center Groton Road, south Colonel Ledyard Hwy
 Dir Southbound
Thursday, March 19, 2026

Time	Total	Speed Bins (mph)															
		0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75-80
0000	54	0	0	0	0	0	0	3	14	28	9	0	0	0	0	0	0
0100	21	0	0	0	0	0	0	5	8	5	2	1	0	0	0	0	0
0200	25	0	0	0	0	0	0	3	12	7	2	1	0	0	0	0	0
0300	18	0	0	0	0	0	0	2	6	7	3	0	0	0	0	0	0
0400	76	0	0	0	0	0	1	8	24	26	17	0	0	0	0	0	0
0500	155	0	0	0	0	0	0	7	33	89	23	3	0	0	0	0	0
0600	234	0	0	0	0	0	5	18	107	86	18	0	0	0	0	0	0
0700	348	0	0	0	0	0	1	40	151	138	18	0	0	0	0	0	0
0800	299	0	0	0	1	1	7	27	98	125	40	0	0	0	0	0	0
0900	220	0	0	0	0	0	2	31	90	82	13	2	0	0	0	0	0
1000	192	0	0	0	0	2	10	21	74	71	13	1	0	0	0	0	0
1100	194	0	0	0	0	0	3	23	92	65	11	0	0	0	0	0	0
1200	230	0	0	0	0	0	3	21	100	84	20	2	0	0	0	0	0
1300	208	0	0	0	0	0	3	21	91	79	13	1	0	0	0	0	0
1400	295	0	0	0	0	1	3	49	139	84	16	3	0	0	0	0	0
1500	293	0	0	0	0	0	3	49	151	78	12	0	0	0	0	0	0
1600	341	0	0	0	0	0	5	57	153	115	9	2	0	0	0	0	0
1700	261	0	0	0	0	0	1	34	108	92	24	2	0	0	0	0	0
1800	171	0	0	0	0	1	1	20	73	58	16	2	0	0	0	0	0
1900	121	0	0	0	0	0	1	19	51	40	7	3	0	0	0	0	0
2000	113	0	0	0	0	0	4	18	58	27	4	2	0	0	0	0	0
2100	105	0	0	0	0	0	3	15	52	30	5	0	0	0	0	0	0
2200	65	0	0	0	0	2	2	10	28	17	5	1	0	0	0	0	0
2300	56	0	0	0	0	1	1	9	23	14	7	1	0	0	0	0	0
Total	4095	0	0	0	1	8	59	510	1736	1447	307	27	0	0	0	0	0

100.00% 0.00% 0.00% 0.00% 0.02% 0.20% 1.44% 12.45% 42.39% 35.34% 7.50% 0.66% 0.00% 0.00% 0.00% 0.00% 0.00%

Maximum = 53.2 mph, Minimum = 16.0 mph, Mean = 39.4 mph
 85% Speed = 43.52 mph, 95% Speed = 46.18 mph, Median = 39.43 mph
 10 mph Pace = 34 - 44, Number in Pace = 3207 (78.53%)
 Variance = 18.51, Standard Deviation = 4.30 mph

B: CAPACITY ANALYSES

EXISTING

Lanes, Volumes, Timings

Existing AM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	90	165	210	65	285	305
Future Volume (vph)	90	165	210	65	285	305
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125	0		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	200				125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.968			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1803	0	1770	1863
Flt Permitted	0.950				0.541	
Satd. Flow (perm)	1770	1583	1803	0	1008	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		179	21			
Link Speed (mph)	35		30			30
Link Distance (ft)	736		116			712
Travel Time (s)	14.3		2.6			16.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	179	228	71	310	332
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	179	299	0	310	332
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	3		1	2
Detector Template	Left	Right				
Leading Detector (ft)	63	63	376		40	206
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	63	63	39		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			200			200
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Detector 3 Position(ft)			370			
Detector 3 Size(ft)			6			
Detector 3 Type			Cl+Ex			

Lanes, Volumes, Timings

Existing AM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 3 Channel						
Detector 3 Extend (s)			0.0			
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	12
Permitted Phases		14			12	
Detector Phase	4	14	2		1	12
Switch Phase						
Minimum Initial (s)	9.0		15.0		5.0	
Minimum Split (s)	22.3		20.7		9.0	
Total Split (s)	29.3		55.7		19.0	
Total Split (%)	28.2%		53.6%		18.3%	
Maximum Green (s)	25.0		50.0		15.0	
Yellow Time (s)	3.3		4.2		3.0	
All-Red Time (s)	1.0		1.5		1.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	4.3		5.7		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.5		2.0	
Recall Mode	None		Min		None	
Walk Time (s)	7.0					
Flash Dont Walk (s)	11.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	10.1	26.8	23.9		37.9	42.1
Actuated g/C Ratio	0.17	0.44	0.39		0.62	0.69
v/c Ratio	0.34	0.22	0.42		0.40	0.26
Control Delay	30.4	3.7	14.0		5.0	3.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	30.4	3.7	14.0		5.0	3.8
LOS	C	A	B		A	A
Approach Delay	13.1		14.0			4.4
Approach LOS	B		B			A

Intersection Summary

Area Type:	Other
Cycle Length:	104
Actuated Cycle Length:	60.9
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.42
Intersection Signal Delay:	8.7
Intersection LOS:	A
Intersection Capacity Utilization:	50.0%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Queues

Existing AM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	98	179	299	310	332
v/c Ratio	0.34	0.22	0.42	0.40	0.26
Control Delay	30.4	3.7	14.0	5.0	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	3.7	14.0	5.0	3.8
Queue Length 50th (ft)	31	0	69	30	32
Queue Length 95th (ft)	94	39	136	63	67
Internal Link Dist (ft)	656		36		632
Turn Bay Length (ft)	125			150	
Base Capacity (vph)	762	877	1520	864	1789
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	0.13	0.20	0.20	0.36	0.19

Intersection Summary

Lanes, Volumes, Timings
 4: CT Route 117 (Center Groton Road & Citgo Drive (Exit Only))

Existing AM
 Timing Plan: AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	15	0	265	370	0
Future Volume (vph)	15	15	0	265	370	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
Fr _t	0.850					
Fl _t Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	110			747	120	
Travel Time (s)	2.5			17.0	2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	16	0	288	402	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	16	0	288	402	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.5%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	15	15	0	265	370	0
Future Vol, veh/h	15	15	0	265	370	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	16	0	288	402	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	690	402	-	0	-	0
Stage 1	402	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	411	648	0	-	-	0
Stage 1	676	-	0	-	-	0
Stage 2	761	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	411	648	-	-	-	-
Mov Cap-2 Maneuver	411	-	-	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	761	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	411	648	-
HCM Lane V/C Ratio	-	0.04	0.025	-
HCM Control Delay (s)	-	14.1	10.7	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.1	0.1	-

HCM 6th TWSC
 4: CT Route 117 (Center Groton Road & Citgo Drive (Exit Only))

Existing AM
 Timing Plan: AM

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	15	15	0	265	370	0
Future Vol, veh/h	15	15	0	265	370	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	16	0	288	402	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	690	402	-	0	-	0
Stage 1	402	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	411	648	0	-	-	0
Stage 1	676	-	0	-	-	0
Stage 2	761	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	411	648	-	-	-	-
Mov Cap-2 Maneuver	411	-	-	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	761	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	411	648	-
HCM Lane V/C Ratio	-	0.04	0.025	-
HCM Control Delay (s)	-	14.1	10.7	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.1	0.1	-

Lanes, Volumes, Timings
 7: CT Route 117 (Center Groton Road & Citgo Drive (Enter Only))

Existing AM
 Timing Plan: AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Traffic Volume (vph)	0	0	5	275	370	25
Future Volume (vph)	0	0	5	275	370	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
Fr _t					0.992	
Fl _t Protected				0.999		
Satd. Flow (prot)	0	0	0	1861	1848	0
Fl _t Permitted				0.999		
Satd. Flow (perm)	0	0	0	1861	1848	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	101			120	116	
Travel Time (s)	2.3			2.7	2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	5	299	402	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	304	429	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	24.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings

Existing PM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	65	285	500	60	220	250
Future Volume (vph)	65	285	500	60	220	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125	0		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	200				125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.986			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1837	0	1770	1863
Flt Permitted	0.950				0.297	
Satd. Flow (perm)	1770	1583	1837	0	553	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		250	8			
Link Speed (mph)	35		30			30
Link Distance (ft)	736		116			712
Travel Time (s)	14.3		2.6			16.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	310	543	65	239	272
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	310	608	0	239	272
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	3		1	2
Detector Template	Left	Right				
Leading Detector (ft)	63	63	376		40	206
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	63	63	39		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			200			200
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Detector 3 Position(ft)			370			
Detector 3 Size(ft)			6			
Detector 3 Type			Cl+Ex			

Lanes, Volumes, Timings

Existing PM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 3 Channel						
Detector 3 Extend (s)			0.0			
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	1 2
Permitted Phases		1 4			1 2	
Detector Phase	4	1 4	2		1	1 2
Switch Phase						
Minimum Initial (s)	9.0		15.0		5.0	
Minimum Split (s)	22.3		20.7		9.0	
Total Split (s)	29.3		55.7		19.0	
Total Split (%)	28.2%		53.6%		18.3%	
Maximum Green (s)	25.0		50.0		15.0	
Yellow Time (s)	3.3		4.2		3.0	
All-Red Time (s)	1.0		1.5		1.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	4.3		5.7		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.5		2.0	
Recall Mode	None		Min		None	
Walk Time (s)	7.0					
Flash Dont Walk (s)	11.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	10.5	26.7	40.2		53.6	57.8
Actuated g/C Ratio	0.14	0.35	0.52		0.70	0.75
v/c Ratio	0.29	0.44	0.63		0.42	0.19
Control Delay	38.0	7.5	16.5		5.2	3.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	38.0	7.5	16.5		5.2	3.0
LOS	D	A	B		A	A
Approach Delay	13.2		16.5			4.0
Approach LOS	B		B			A

Intersection Summary

Area Type:	Other
Cycle Length:	104
Actuated Cycle Length:	77
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	11.4
Intersection LOS:	B
Intersection Capacity Utilization:	61.3%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Queues

Existing PM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	71	310	608	239	272
v/c Ratio	0.29	0.44	0.63	0.42	0.19
Control Delay	38.0	7.5	16.5	5.2	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	7.5	16.5	5.2	3.0
Queue Length 50th (ft)	35	22	183	22	25
Queue Length 95th (ft)	78	84	345	52	59
Internal Link Dist (ft)	656		36		632
Turn Bay Length (ft)	125			150	
Base Capacity (vph)	602	782	1252	652	1609
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	0.40	0.49	0.37	0.17

Intersection Summary

Lanes, Volumes, Timings
 4: CT Route 117 (Center Groton Road & Citgo Drive (Exit Only))

Existing PM
 Timing Plan: PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	15	0	545	295	0
Future Volume (vph)	30	15	0	545	295	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
Fr _t	0.850					
Fl _t Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	110			747	120	
Travel Time (s)	2.5			17.0	2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	16	0	592	321	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	16	0	592	321	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM 2010 TWSC
 4: CT Route 117 (Center Groton Road & Citgo Drive (Exit Only))

Existing PM
 Timing Plan: PM

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	30	15	0	545	295	0
Future Vol, veh/h	30	15	0	545	295	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	16	0	592	321	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	913	321	-	0	-	0
Stage 1	321	-	-	-	-	-
Stage 2	592	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	304	720	0	-	-	0
Stage 1	735	-	0	-	-	0
Stage 2	553	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	304	720	-	-	-	-
Mov Cap-2 Maneuver	304	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	553	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	304	720	-
HCM Lane V/C Ratio	-	0.107	0.023	-
HCM Control Delay (s)	-	18.3	10.1	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	0.4	0.1	-

HCM 6th TWSC
 4: CT Route 117 (Center Groton Road & Citgo Drive (Exit Only))

Existing PM
 Timing Plan: PM

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	30	15	0	545	295	0
Future Vol, veh/h	30	15	0	545	295	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	16	0	592	321	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	913	321	-	0	-	0
Stage 1	321	-	-	-	-	-
Stage 2	592	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	304	720	0	-	-	0
Stage 1	735	-	0	-	-	0
Stage 2	553	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	304	720	-	-	-	-
Mov Cap-2 Maneuver	304	-	-	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	553	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	304	720	-
HCM Lane V/C Ratio	-	0.107	0.023	-
HCM Control Delay (s)	-	18.3	10.1	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	0.4	0.1	-

Lanes, Volumes, Timings
 7: CT Route 117 (Center Groton Road & Citgo Drive (Enter Only))

Existing PM
 Timing Plan: PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Traffic Volume (vph)	0	0	15	560	295	20
Future Volume (vph)	0	0	15	560	295	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.991	
Fl _t Protected				0.999		
Satd. Flow (prot)	0	0	0	1861	1846	0
Fl _t Permitted				0.999		
Satd. Flow (perm)	0	0	0	1861	1846	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	101			120	116	
Travel Time (s)	2.3			2.7	2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	16	609	321	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	625	343	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.9%
ICU Level of Service	A
Analysis Period (min)	15

NO BUILD

Lanes, Volumes, Timings

No Build AM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	92	168	214	66	291	310
Future Volume (vph)	92	168	214	66	291	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125	0		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	200				125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.968			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1803	0	1770	1863
Flt Permitted	0.950				0.534	
Satd. Flow (perm)	1770	1583	1803	0	995	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		183	21			
Link Speed (mph)	35		30			30
Link Distance (ft)	736		116			712
Travel Time (s)	14.3		2.6			16.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	183	233	72	316	337
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	183	305	0	316	337
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	3		1	2
Detector Template	Left	Right				
Leading Detector (ft)	63	63	376		40	206
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	63	63	39		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			200			200
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Detector 3 Position(ft)			370			
Detector 3 Size(ft)			6			
Detector 3 Type			Cl+Ex			

Lanes, Volumes, Timings

No Build AM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 3 Channel						
Detector 3 Extend (s)			0.0			
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	1 2
Permitted Phases		1 4			1 2	
Detector Phase	4	1 4	2		1	1 2
Switch Phase						
Minimum Initial (s)	9.0		15.0		5.0	
Minimum Split (s)	22.3		20.7		9.0	
Total Split (s)	29.3		55.7		19.0	
Total Split (%)	28.2%		53.6%		18.3%	
Maximum Green (s)	25.0		50.0		15.0	
Yellow Time (s)	3.3		4.2		3.0	
All-Red Time (s)	1.0		1.5		1.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	4.3		5.7		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.5		2.0	
Recall Mode	None		Min		None	
Walk Time (s)	7.0					
Flash Dont Walk (s)	11.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	10.2	27.0	24.8		38.8	43.1
Actuated g/C Ratio	0.16	0.44	0.40		0.63	0.70
v/c Ratio	0.34	0.23	0.42		0.41	0.26
Control Delay	31.2	3.8	13.9		5.1	3.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	31.2	3.8	13.9		5.1	3.8
LOS	C	A	B		A	A
Approach Delay	13.5		13.9			4.4
Approach LOS	B		B			A

Intersection Summary

Area Type:	Other
Cycle Length:	104
Actuated Cycle Length:	62
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.42
Intersection Signal Delay:	8.8
Intersection LOS:	A
Intersection Capacity Utilization:	50.6%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Queues

No Build AM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	100	183	305	316	337
v/c Ratio	0.34	0.23	0.42	0.41	0.26
Control Delay	31.2	3.8	13.9	5.1	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	3.8	13.9	5.1	3.8
Queue Length 50th (ft)	32	0	71	30	32
Queue Length 95th (ft)	97	40	139	66	70
Internal Link Dist (ft)	656		36		632
Turn Bay Length (ft)	125			150	
Base Capacity (vph)	751	872	1499	860	1779
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	0.13	0.21	0.20	0.37	0.19

Intersection Summary

Lanes, Volumes, Timings
 4: CT Route 117 (Center Groton Road & Citgo Drive (Exit Only))

No Build AM
 Timing Plan: AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	15	0	270	377	0
Future Volume (vph)	15	15	0	270	377	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
Fr _t	0.850					
Fl _t Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	110			747	120	
Travel Time (s)	2.5			17.0	2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	16	0	293	410	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	16	0	293	410	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.8%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	15	15	0	270	377	0
Future Vol, veh/h	15	15	0	270	377	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	16	0	293	410	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	703	410	-	0	-	0
Stage 1	410	-	-	-	-	-
Stage 2	293	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	404	642	0	-	-	0
Stage 1	670	-	0	-	-	0
Stage 2	757	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	404	642	-	-	-	-
Mov Cap-2 Maneuver	404	-	-	-	-	-
Stage 1	670	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	404	642	-
HCM Lane V/C Ratio	-	0.04	0.025	-
HCM Control Delay (s)	-	14.3	10.8	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.1	0.1	-

HCM 6th TWSC
 4: CT Route 117 (Center Groton Road & Citgo Drive (Exit Only))

No Build AM
 Timing Plan: AM

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	15	15	0	270	377	0
Future Vol, veh/h	15	15	0	270	377	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	16	0	293	410	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	703	410	-	0	-	0
Stage 1	410	-	-	-	-	-
Stage 2	293	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	404	642	0	-	-	0
Stage 1	670	-	0	-	-	0
Stage 2	757	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	404	642	-	-	-	-
Mov Cap-2 Maneuver	404	-	-	-	-	-
Stage 1	670	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	404	642	-
HCM Lane V/C Ratio	-	0.04	0.025	-
HCM Control Delay (s)	-	14.3	10.8	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.1	0.1	-

Lanes, Volumes, Timings
 7: CT Route 117 (Center Groton Road & Citgo Drive (Enter Only))

No Build AM
 Timing Plan: AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Traffic Volume (vph)	0	0	5	280	377	25
Future Volume (vph)	0	0	5	280	377	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
Fr _t					0.992	
Fl _t Protected				0.999		
Satd. Flow (prot)	0	0	0	1861	1848	0
Fl _t Permitted				0.999		
Satd. Flow (perm)	0	0	0	1861	1848	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	101			120	116	
Travel Time (s)	2.3			2.7	2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	5	304	410	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	309	437	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	24.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings

No Build PM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	66	291	510	61	224	255
Future Volume (vph)	66	291	510	61	224	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125	0		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	200				125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.986			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1837	0	1770	1863
Flt Permitted	0.950				0.289	
Satd. Flow (perm)	1770	1583	1837	0	538	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		243	8			
Link Speed (mph)	35		30			30
Link Distance (ft)	736		116			712
Travel Time (s)	14.3		2.6			16.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	316	554	66	243	277
Shared Lane Traffic (%)						
Lane Group Flow (vph)	72	316	620	0	243	277
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	3		1	2
Detector Template	Left	Right				
Leading Detector (ft)	63	63	376		40	206
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	63	63	39		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			200			200
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Detector 3 Position(ft)			370			
Detector 3 Size(ft)			6			
Detector 3 Type			Cl+Ex			

Lanes, Volumes, Timings

No Build PM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 3 Channel						
Detector 3 Extend (s)			0.0			
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	1 2
Permitted Phases		1 4			1 2	
Detector Phase	4	1 4	2		1	1 2
Switch Phase						
Minimum Initial (s)	9.0		15.0		5.0	
Minimum Split (s)	22.3		20.7		9.0	
Total Split (s)	29.3		55.7		19.0	
Total Split (%)	28.2%		53.6%		18.3%	
Maximum Green (s)	25.0		50.0		15.0	
Yellow Time (s)	3.3		4.2		3.0	
All-Red Time (s)	1.0		1.5		1.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	4.3		5.7		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.5		2.0	
Recall Mode	None		Min		None	
Walk Time (s)	7.0					
Flash Dont Walk (s)	11.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	10.8	27.0	41.2		54.7	58.8
Actuated g/C Ratio	0.14	0.34	0.53		0.70	0.75
v/c Ratio	0.30	0.45	0.64		0.43	0.20
Control Delay	38.1	8.2	16.8		5.5	3.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	38.1	8.2	16.8		5.5	3.1
LOS	D	A	B		A	A
Approach Delay	13.8		16.8			4.2
Approach LOS	B		B			A

Intersection Summary

Area Type:	Other
Cycle Length:	104
Actuated Cycle Length:	78.3
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	11.8
Intersection LOS:	B
Intersection Capacity Utilization:	62.1%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Queues

No Build PM

1: CT Route 117 (Center Groton Road/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	72	316	620	243	277
v/c Ratio	0.30	0.45	0.64	0.43	0.20
Control Delay	38.1	8.2	16.8	5.5	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	8.2	16.8	5.5	3.1
Queue Length 50th (ft)	36	28	189	22	26
Queue Length 95th (ft)	78	92	362	56	63
Internal Link Dist (ft)	656		36		632
Turn Bay Length (ft)	125			150	
Base Capacity (vph)	590	772	1228	639	1590
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	0.41	0.50	0.38	0.17

Intersection Summary

Lanes, Volumes, Timings
 4: CT Route 117 (Center Groton Road & Citgo Drive (Exit Only))

No Build PM
 Timing Plan: PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	15	0	556	301	0
Future Volume (vph)	30	15	0	556	301	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
Fr _t	0.850					
Fl _t Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	110			747	120	
Travel Time (s)	2.5			17.0	2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	16	0	604	327	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	16	0	604	327	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.3%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	30	15	0	556	301	0
Future Vol, veh/h	30	15	0	556	301	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	16	0	604	327	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	931	327	-	0	-	0
Stage 1	327	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	296	714	0	-	-	0
Stage 1	731	-	0	-	-	0
Stage 2	546	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	296	714	-	-	-	-
Mov Cap-2 Maneuver	296	-	-	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	546	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	296	714	-
HCM Lane V/C Ratio	-	0.11	0.023	-
HCM Control Delay (s)	-	18.7	10.2	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	0.4	0.1	-

HCM 6th TWSC
 4: CT Route 117 (Center Groton Road & Citgo Drive (Exit Only))

No Build PM
 Timing Plan: PM

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	30	15	0	556	301	0
Future Vol, veh/h	30	15	0	556	301	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	16	0	604	327	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	931	327	-	0	-	0
Stage 1	327	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	296	714	0	-	-	0
Stage 1	731	-	0	-	-	0
Stage 2	546	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	296	714	-	-	-	-
Mov Cap-2 Maneuver	296	-	-	-	-	-
Stage 1	731	-	-	-	-	-
Stage 2	546	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	296	714	-
HCM Lane V/C Ratio	-	0.11	0.023	-
HCM Control Delay (s)	-	18.7	10.2	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	0.4	0.1	-

Lanes, Volumes, Timings
 7: CT Route 117 (Center Groton Road & Citgo Drive (Enter Only))

No Build PM
 Timing Plan: PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Traffic Volume (vph)	0	0	15	571	301	20
Future Volume (vph)	0	0	15	571	301	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.991	
Fl _t Protected				0.999		
Satd. Flow (prot)	0	0	0	1861	1846	0
Fl _t Permitted				0.999		
Satd. Flow (perm)	0	0	0	1861	1846	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	101			120	116	
Travel Time (s)	2.3			2.7	2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	16	621	327	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	637	349	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.5%
Analysis Period (min)	15
	ICU Level of Service A

BUILD



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	92	168	222	67	291	313
Future Volume (vph)	92	168	222	67	291	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125	0		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	200				125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.969			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1805	0	1770	1863
Flt Permitted	0.950				0.525	
Satd. Flow (perm)	1770	1583	1805	0	978	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		183	20			
Link Speed (mph)	35		30			30
Link Distance (ft)	736		116			712
Travel Time (s)	14.3		2.6			16.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	183	241	73	316	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	183	314	0	316	340
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	3		1	2
Detector Template	Left	Right				
Leading Detector (ft)	63	63	376		40	206
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	63	63	39		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			200			200
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Detector 3 Position(ft)			370			
Detector 3 Size(ft)			6			
Detector 3 Type			Cl+Ex			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 3 Channel						
Detector 3 Extend (s)			0.0			
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	1 2
Permitted Phases		1 4			1 2	
Detector Phase	4	1 4	2		1	1 2
Switch Phase						
Minimum Initial (s)	9.0		15.0		5.0	
Minimum Split (s)	22.3		20.7		9.0	
Total Split (s)	29.3		55.7		19.0	
Total Split (%)	28.2%		53.6%		18.3%	
Maximum Green (s)	25.0		50.0		15.0	
Yellow Time (s)	3.3		4.2		3.0	
All-Red Time (s)	1.0		1.5		1.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	4.3		5.7		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.5		2.0	
Recall Mode	None		Min		None	
Walk Time (s)	7.0					
Flash Dont Walk (s)	11.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	10.2	27.1	25.5		39.6	43.8
Actuated g/C Ratio	0.16	0.43	0.41		0.63	0.70
v/c Ratio	0.35	0.23	0.42		0.41	0.26
Control Delay	31.7	3.9	14.0		5.1	3.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	31.7	3.9	14.0		5.1	3.8
LOS	C	A	B		A	A
Approach Delay	13.7		14.0			4.4
Approach LOS	B		B			A

Intersection Summary

Area Type:	Other
Cycle Length:	104
Actuated Cycle Length:	62.8
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.42
Intersection Signal Delay:	8.9
Intersection LOS:	A
Intersection Capacity Utilization:	51.0%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 1: CT Route 117 (Center Groton Road)/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Queues

Build AM

1: CT Route 117 (Center Groton Road)/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	100	183	314	316	340
v/c Ratio	0.35	0.23	0.42	0.41	0.26
Control Delay	31.7	3.9	14.0	5.1	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	3.9	14.0	5.1	3.8
Queue Length 50th (ft)	33	0	74	30	33
Queue Length 95th (ft)	99	41	144	67	71
Internal Link Dist (ft)	656		36		632
Turn Bay Length (ft)	125			150	
Base Capacity (vph)	743	865	1484	853	1773
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	0.13	0.21	0.21	0.37	0.19

Intersection Summary

Lanes, Volumes, Timings
 4: CT Route 117 (Center Groton Road) & Citgo Drive (Exit Only)

Build AM
 Timing Plan: AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	15	0	279	380	0
Future Volume (vph)	15	15	0	279	380	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
Fr _t	0.850					
Fl _t Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	110			334	120	
Travel Time (s)	3.0			7.6	2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	16	0	303	413	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	16	0	303	413	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.0%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	15	15	0	279	380	0
Future Vol, veh/h	15	15	0	279	380	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	16	0	303	413	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	716	413	-	0	-	0
Stage 1	413	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	397	639	0	-	-	0
Stage 1	668	-	0	-	-	0
Stage 2	749	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	397	639	-	-	-	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	668	-	-	-	-	-
Stage 2	749	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	397	639	-
HCM Lane V/C Ratio	-	0.041	0.026	-
HCM Control Delay (s)	-	14.5	10.8	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.1	0.1	-

HCM 6th TWSC
 4: CT Route 117 (Center Groton Road) & Citgo Drive (Exit Only)

Build AM
 Timing Plan: AM

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	15	15	0	279	380	0
Future Vol, veh/h	15	15	0	279	380	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	16	0	303	413	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	716	413	-	0	-	0
Stage 1	413	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	397	639	0	-	-	0
Stage 1	668	-	0	-	-	0
Stage 2	749	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	397	639	-	-	-	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	668	-	-	-	-	-
Stage 2	749	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	397	639	-
HCM Lane V/C Ratio	-	0.041	0.026	-
HCM Control Delay (s)	-	14.5	10.8	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.1	0.1	-

Lanes, Volumes, Timings
 5: CT Route 117 (Center Groton Road) & Proposed Site Driveway

Build AM
 Timing Plan: AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	17	5	270	392	3
Future Volume (vph)	9	17	5	270	392	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
Fr _t	0.913				0.999	
Fl _t Protected	0.982			0.999		
Satd. Flow (prot)	1670	0	0	1861	1861	0
Fl _t Permitted	0.982			0.999		
Satd. Flow (perm)	1670	0	0	1861	1861	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	201			365	334	
Travel Time (s)	5.5			8.3	7.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	18	5	293	426	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	0	0	298	429	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	60	60	60			60
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.8%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	9	17	5	270	392	3
Future Vol, veh/h	9	17	5	270	392	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	18	5	293	426	3

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	731	428	429	0	0
Stage 1	428	-	-	-	-
Stage 2	303	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	389	627	1130	-	-
Stage 1	657	-	-	-	-
Stage 2	749	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	387	627	1130	-	-
Mov Cap-2 Maneuver	387	-	-	-	-
Stage 1	654	-	-	-	-
Stage 2	749	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1130	-	516	-	-
HCM Lane V/C Ratio	0.005	-	0.055	-	-
HCM Control Delay (s)	8.2	0	12.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

HCM 6th TWSC
 5: CT Route 117 (Center Groton Road) & Proposed Site Driveway

Build AM
 Timing Plan: AM

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	9	17	5	270	392	3
Future Vol, veh/h	9	17	5	270	392	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	18	5	293	426	3

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	731	428	429	0	-	0
Stage 1	428	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	389	627	1130	-	-	-
Stage 1	657	-	-	-	-	-
Stage 2	749	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	387	627	1130	-	-	-
Mov Cap-2 Maneuver	387	-	-	-	-	-
Stage 1	654	-	-	-	-	-
Stage 2	749	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1130	-	516	-	-
HCM Lane V/C Ratio	0.005	-	0.055	-	-
HCM Control Delay (s)	8.2	0	12.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Lanes, Volumes, Timings
 7: CT Route 117 (Center Groton Road) & Citgo Drive (Enter Only)

Build AM
 Timing Plan: AM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Traffic Volume (vph)	0	0	5	289	380	25
Future Volume (vph)	0	0	5	289	380	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
Fr _t					0.992	
Fl _t Protected				0.999		
Satd. Flow (prot)	0	0	0	1861	1848	0
Fl _t Permitted				0.999		
Satd. Flow (perm)	0	0	0	1861	1848	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	95			120	116	
Travel Time (s)	2.2			2.7	2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	5	314	413	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	319	440	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	24.8%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings

Build PM

1: CT Route 117 (Center Groton Road)/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	291	515	62	224	261
Future Volume (vph)	67	291	515	62	224	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125	0		0	150	
Storage Lanes	1	1		0	1	
Taper Length (ft)	200				125	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.986			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1837	0	1770	1863
Flt Permitted	0.950				0.284	
Satd. Flow (perm)	1770	1583	1837	0	529	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		239	8			
Link Speed (mph)	35		30			30
Link Distance (ft)	736		116			712
Travel Time (s)	14.3		2.6			16.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	316	560	67	243	284
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	316	627	0	243	284
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	3		1	2
Detector Template	Left	Right				
Leading Detector (ft)	63	63	376		40	206
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	63	63	39		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			200			200
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Detector 3 Position(ft)			370			
Detector 3 Size(ft)			6			
Detector 3 Type			Cl+Ex			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector 3 Channel						
Detector 3 Extend (s)			0.0			
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	1 2
Permitted Phases		1 4			1 2	
Detector Phase	4	1 4	2		1	1 2
Switch Phase						
Minimum Initial (s)	9.0		15.0		5.0	
Minimum Split (s)	22.3		20.7		9.0	
Total Split (s)	29.3		55.7		19.0	
Total Split (%)	28.2%		53.6%		18.3%	
Maximum Green (s)	25.0		50.0		15.0	
Yellow Time (s)	3.3		4.2		3.0	
All-Red Time (s)	1.0		1.5		1.0	
Lost Time Adjust (s)	0.0		0.0		0.0	
Total Lost Time (s)	4.3		5.7		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Vehicle Extension (s)	2.0		2.5		2.0	
Recall Mode	None		Min		None	
Walk Time (s)	7.0					
Flash Dont Walk (s)	11.0					
Pedestrian Calls (#/hr)	0					
Act Effct Green (s)	10.9	27.1	41.5		55.0	59.2
Actuated g/C Ratio	0.14	0.34	0.53		0.70	0.75
v/c Ratio	0.30	0.45	0.65		0.44	0.20
Control Delay	38.2	8.5	17.0		5.5	3.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	38.2	8.5	17.0		5.5	3.2
LOS	D	A	B		A	A
Approach Delay	14.0		17.0			4.3
Approach LOS	B		B			A

Intersection Summary

Area Type:	Other
Cycle Length:	104
Actuated Cycle Length:	78.7
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.65
Intersection Signal Delay:	11.9
Intersection LOS:	B
Intersection Capacity Utilization:	62.4%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 1: CT Route 117 (Center Groton Road)/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Queues

Build PM

1: CT Route 117 (Center Groton Road)/CT Route 117 (Colonel Ledyard HWY) & Colonel Ledyard HWY



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	73	316	627	243	284
v/c Ratio	0.30	0.45	0.65	0.44	0.20
Control Delay	38.2	8.5	17.0	5.5	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	8.5	17.0	5.5	3.2
Queue Length 50th (ft)	37	30	193	22	26
Queue Length 95th (ft)	80	94	370	57	65
Internal Link Dist (ft)	656		36		632
Turn Bay Length (ft)	125			150	
Base Capacity (vph)	587	769	1223	633	1584
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	0.41	0.51	0.38	0.18

Intersection Summary

Lanes, Volumes, Timings
 4: CT Route 117 (Center Groton Road) & Citgo Drive (Exit Only)

Build PM
 Timing Plan: PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	15	0	562	308	0
Future Volume (vph)	30	15	0	562	308	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
Fr _t	0.850					
Fl _t Protected	0.950					
Satd. Flow (prot)	1770	1583	0	1863	1863	0
Fl _t Permitted	0.950					
Satd. Flow (perm)	1770	1583	0	1863	1863	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	110			334	120	
Travel Time (s)	3.0			7.6	2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	16	0	611	335	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	16	0	611	335	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.6% ICU Level of Service A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	30	15	0	562	308	0
Future Vol, veh/h	30	15	0	562	308	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	16	0	611	335	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	946	335	-	0	-	0
Stage 1	335	-	-	-	-	-
Stage 2	611	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	290	707	0	-	-	0
Stage 1	725	-	0	-	-	0
Stage 2	542	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	290	707	-	-	-	-
Mov Cap-2 Maneuver	290	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	542	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	290	707	-
HCM Lane V/C Ratio	-	0.112	0.023	-
HCM Control Delay (s)	-	19	10.2	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	0.4	0.1	-

HCM 6th TWSC
 4: CT Route 117 (Center Groton Road) & Citgo Drive (Exit Only)

Build PM
 Timing Plan: PM

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘	↗		↑	↑	
Traffic Vol, veh/h	30	15	0	562	308	0
Future Vol, veh/h	30	15	0	562	308	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	16	0	611	335	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	946	335	-	0	-	0
Stage 1	335	-	-	-	-	-
Stage 2	611	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	290	707	0	-	-	0
Stage 1	725	-	0	-	-	0
Stage 2	542	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	290	707	-	-	-	-
Mov Cap-2 Maneuver	290	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	542	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	-	290	707	-
HCM Lane V/C Ratio	-	0.112	0.023	-
HCM Control Delay (s)	-	19	10.2	-
HCM Lane LOS	-	C	B	-
HCM 95th %tile Q(veh)	-	0.4	0.1	-

Lanes, Volumes, Timings
 5: CT Route 117 (Center Groton Road) & Proposed Site Driveway

Build PM
 Timing Plan: PM



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	10	14	556	316	7
Future Volume (vph)	6	10	14	556	316	7
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	0.917				0.997	
Flt Protected	0.981			0.999		
Satd. Flow (prot)	1676	0	0	1861	1857	0
Flt Permitted	0.981			0.999		
Satd. Flow (perm)	1676	0	0	1861	1857	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	201			365	334	
Travel Time (s)	5.5			8.3	7.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	11	15	604	343	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	619	351	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	60	60	60			60
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.5%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	6	10	14	556	316	7
Future Vol, veh/h	6	10	14	556	316	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	11	15	604	343	8

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	981	347	351	0	0
Stage 1	347	-	-	-	-
Stage 2	634	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	277	696	1208	-	-
Stage 1	716	-	-	-	-
Stage 2	529	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	272	696	1208	-	-
Mov Cap-2 Maneuver	272	-	-	-	-
Stage 1	702	-	-	-	-
Stage 2	529	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.5	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1208	-	439	-	-
HCM Lane V/C Ratio	0.013	-	0.04	-	-
HCM Control Delay (s)	8	0	13.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC
 5: CT Route 117 (Center Groton Road) & Proposed Site Driveway

Build PM
 Timing Plan: PM

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	6	10	14	556	316	7
Future Vol, veh/h	6	10	14	556	316	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	11	15	604	343	8

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	981	347	351	0	0
Stage 1	347	-	-	-	-
Stage 2	634	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	277	696	1208	-	-
Stage 1	716	-	-	-	-
Stage 2	529	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	272	696	1208	-	-
Mov Cap-2 Maneuver	272	-	-	-	-
Stage 1	702	-	-	-	-
Stage 2	529	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.5	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1208	-	439	-	-
HCM Lane V/C Ratio	0.013	-	0.04	-	-
HCM Control Delay (s)	8	0	13.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lanes, Volumes, Timings
 7: CT Route 117 (Center Groton Road) & Citgo Drive (Enter Only)

Build PM
 Timing Plan: PM

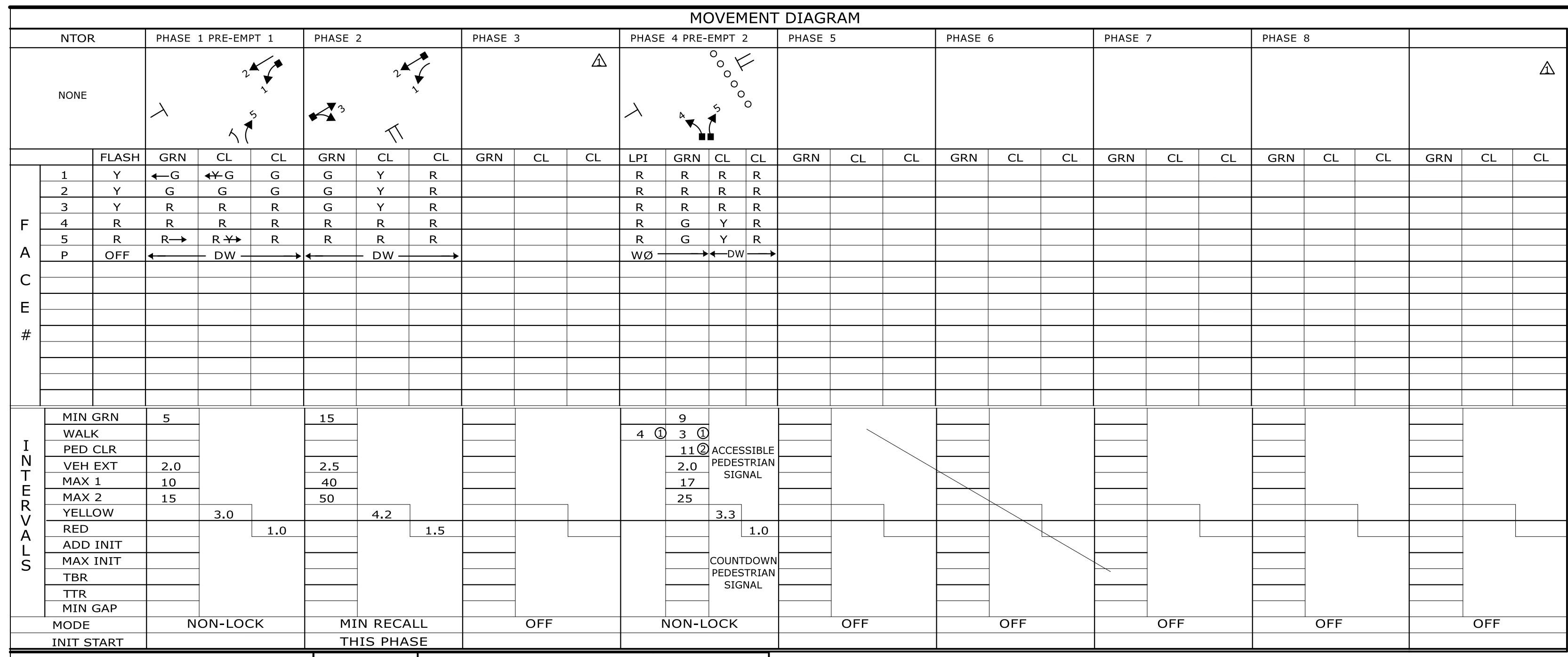


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Traffic Volume (vph)	0	0	15	577	308	20
Future Volume (vph)	0	0	15	577	308	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t					0.992	
Fl _t Protected				0.999		
Satd. Flow (prot)	0	0	0	1861	1848	0
Fl _t Permitted				0.999		
Satd. Flow (perm)	0	0	0	1861	1848	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	95			120	116	
Travel Time (s)	2.6			2.7	2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	16	627	335	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	643	357	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Free			Free	Free	

Intersection Summary

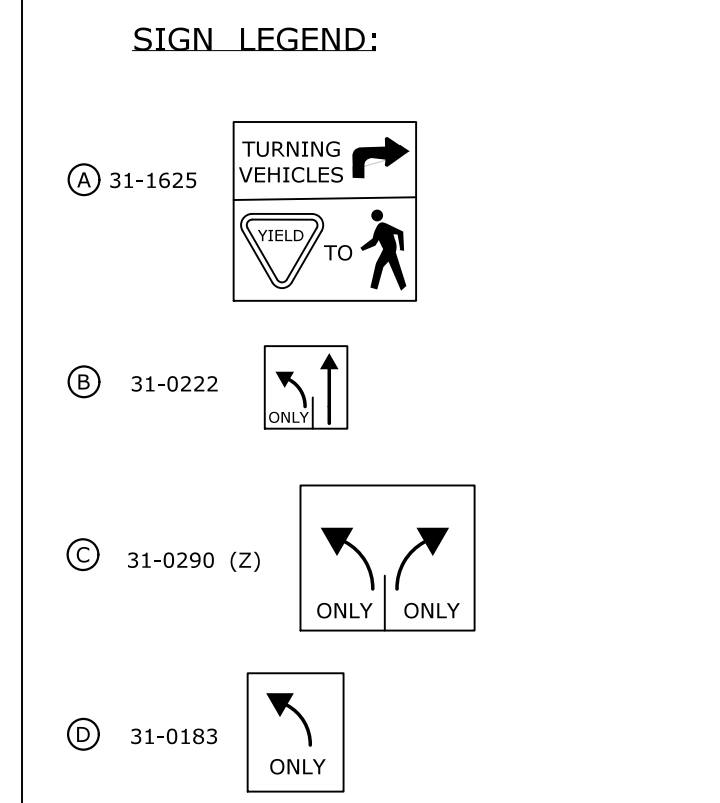
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.8%
Analysis Period (min)	15
	ICU Level of Service A

C: TRAFFIC SIGNAL PLAN



TECHNICAL NOTES	OFFICE RECORD
STANDARD OVERLAP SKIP FEATURES APPLY PERCUSSIVE TONE ONLY DURING LPI AND PEDESTRIAN WALK INTERVAL. COUNTDOWN ONLY DURING FLASHING PEDESTRIAN CHANGE INTERVAL. LPI AND CONCURRENT PED PHASE ONLY COMES IN WHEN ACTUATED BY PUSHBUTTON. PHASE 2 ON TO OMIT PHASE 1	REV # 5 TIR # N/A SM # N/A SIGNAL REVISED: 07/18/2023 REPLACED TRAFFIC CONTROL SIGNAL EQUIPMENT AND ADDED EMERGENCY VEHICLE PRE-EMPTION UNDER STATE PROJECT NO. 0172-0476.

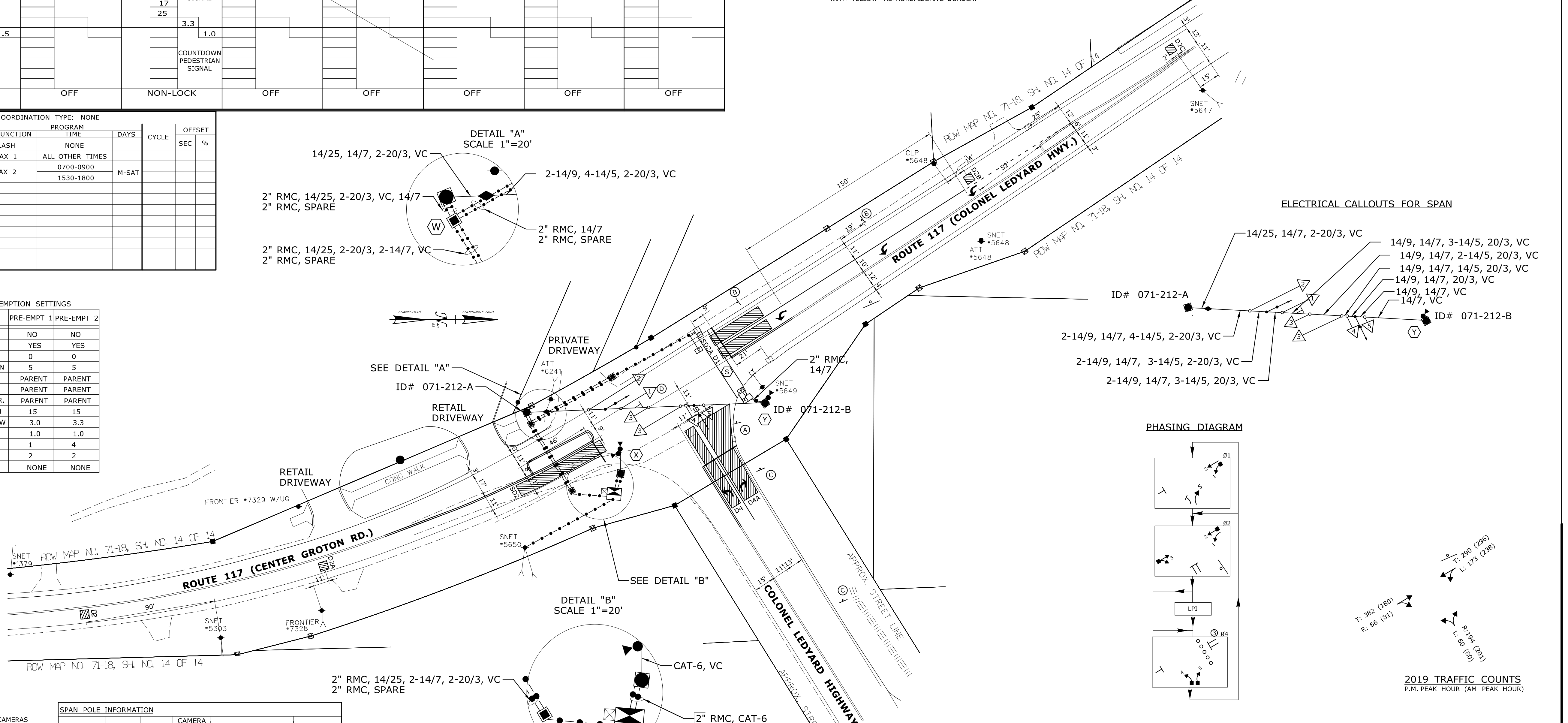
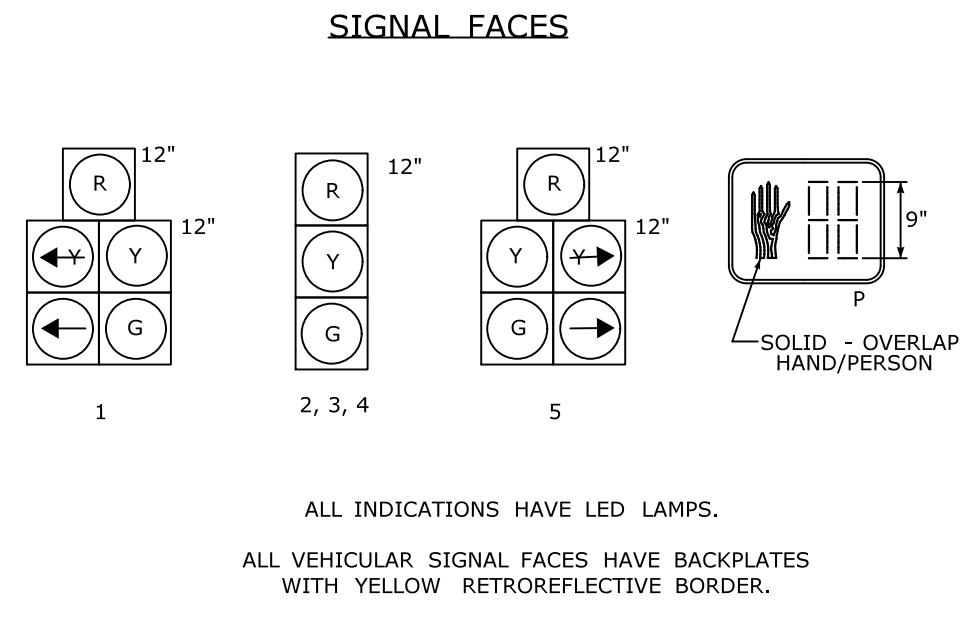
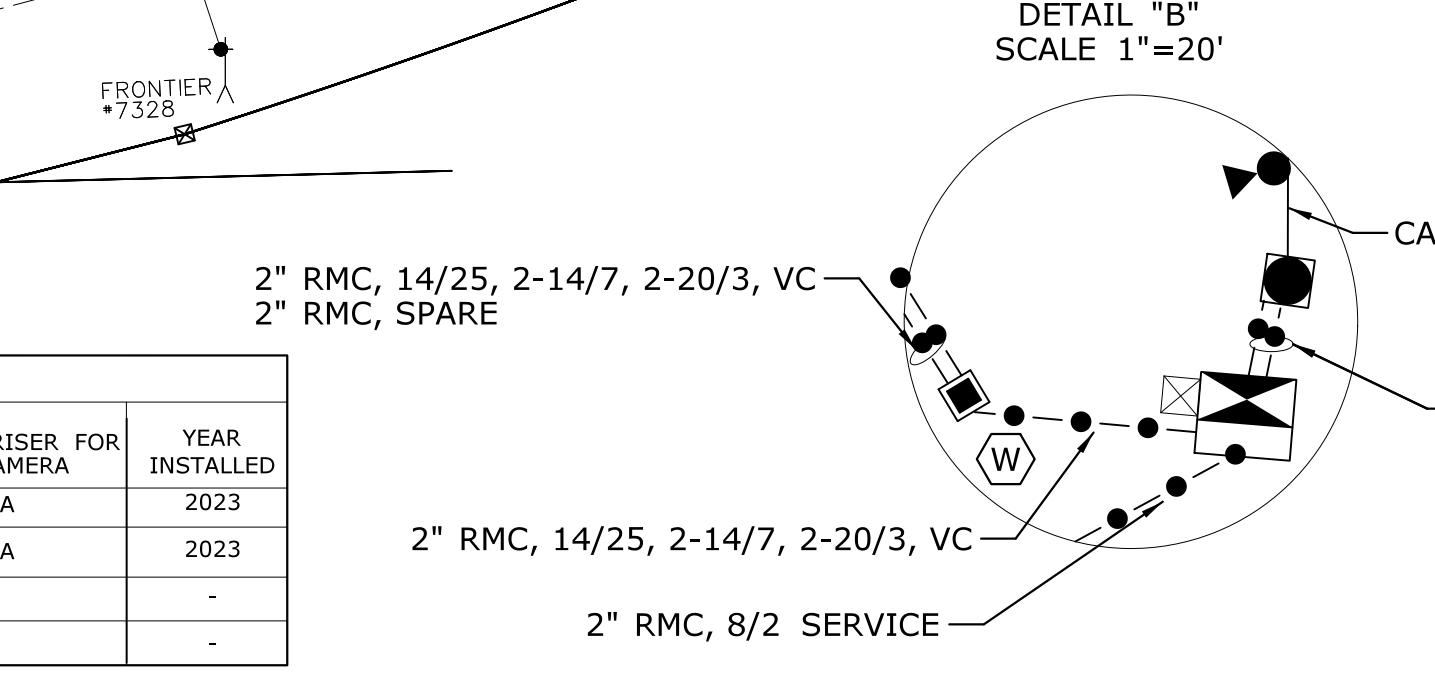
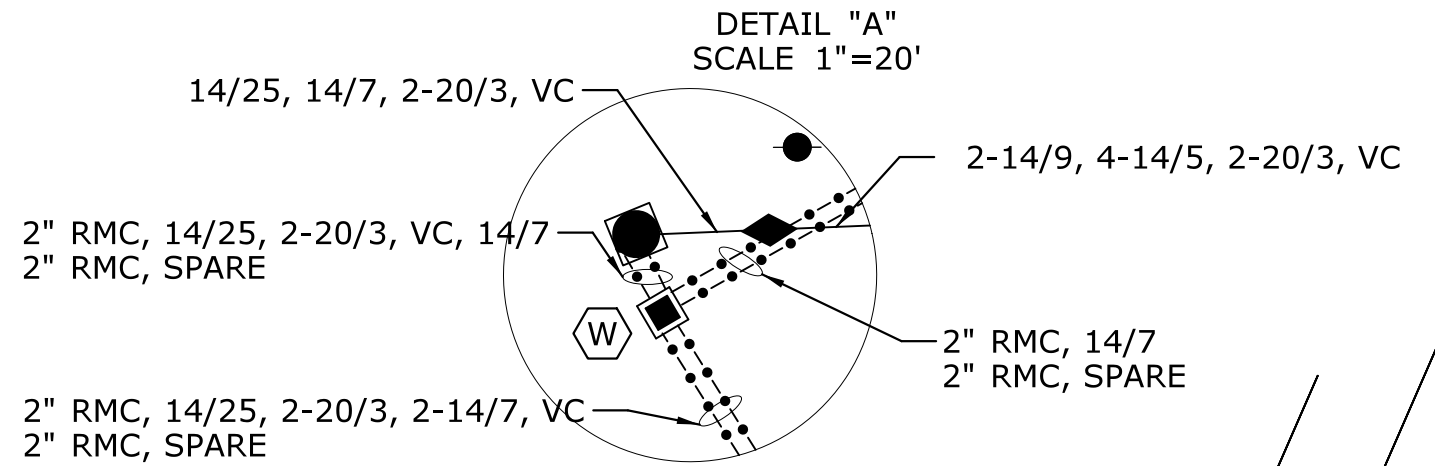
I N T E R V A L S	MIN GRN		WALK		PED CLR		VEH EXT		MAX 1		MAX 2		YELLOW		RED		ADD INIT		MAX INIT		TBR		TTR		MIN GAP		MODE		INIT START		
	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	PHASE 1	PHASE 2	
	5	15					2.0	2.5	10	40	15	50	3.0	4.2	1.0	1.5															



PRE-EMPTION SETTINGS			
	PRE-EMPT 1	PRE-EMPT 2	
PRIORITY	NO	NO	
DET. LOCK	YES	YES	
DELAY	0	0	
ALT. MIN. GRN	5	5	
ALT. YELLOW	PARENT	PARENT	
ALT. RED	PARENT	PARENT	
ALT. PED. CLR.	PARENT	PARENT	
HOLD GREEN	15	15	
HOLD YELLOW	3.0	3.3	
HOLD RED	1.0	1.0	
HOLD PHASE	1	4	
EXIT PHASE	2	2	
EXIT CALL	NONE	NONE	

- #### NOTES:
- STATE TO MAINTAIN ALL SIGNS AND PAVEMENT MARKINGS ON ROUTE 117 (CENTER GROTON RD. & COLONEL LEDYARD HWY) AND ALL STOP BARS.
 - TOWN OF LEDYARD TO MAINTAIN SIGNS AND ALL OTHER PAVEMENT MARKINGS ON COLONEL LEDYARD HIGHWAY.
 - OTHERS TO MAINTAIN ALL SIGNS AND PAVEMENT MARKINGS ON RETAIL AND PRIVATE DRIVEWAY.
 - TOWN OF LEDYARD TO OWN AND MAINTAIN THE PRE-EMPTION EQUIPMENT.
 - Ⓔ BAR TYPE CROSSWALK - STATE MAINTAINED.
 - Ⓕ 30" X 30" HANDHOLE.
 - Ⓖ VIDEO DETECTION BY USE OF VIDEO-THERMAL AND 360 DEGREE CAMERAS WITH 3 VERTICAL RISER MOUNTED ON LIGHT STANDARD (15' BRACKET, 30' MOUNTING HEIGHT) ALUMINUM.
 - Ⓗ VIDEO DETECTION BY USE OF VIDEO-THERMAL CAMERA MOUNTED ON SPAN POLE 071-212-B

SPAN POLE INFORMATION					
ID #	POLE LENGTH	BOLT CIRCLE	CAMERA BRACKET LENGTH	VERTICAL RISER FOR 360 CAMERA	YEAR INSTALLED
071-212-A	34'	24"	N/A	N/A	2023
071-212-B	30'	24"	N/A	N/A	2023



ENGINEER	TRAFFIC DESIGN	ELECTRICAL DESIGN
JONAS LUCCEUS	JONAS LUCCEUS	WALEED TELLAWI
DANIEL VERONESI	DANIEL VERONESI	WALEED TELLAWI
GREGORY PALMER	GREGORY PALMER	JORGE M. KULJIS
MARK F. MAKUCH	MARK F. MAKUCH	MARK F. MAKUCH
APPROVED DATE	02/05/2021	02/05/2021

REV # 5 INTERSECTION # 071-212	
ENERGY BY - TOWN	ADDRESS #
MAINT LEVEL 5	SERVICE POLE SNET #5650
UNMETERED SERVICE	

NO.	DATE	REVISION DESCRIPTION

- #### LEGEND:
- R, Y, G RED, YEL, GRN
 - ← RED ARROW
 - ← Y YELLOW ARROW
 - ← G GREEN ARROW
 - W0 WALK/ PED. CLR
 - D.W. DON'T WALK
 - FL. FLASHING
 - PROPOSED WOOD SPAN POLE
 - EXISTING WOOD SPAN POLE
 - PROPOSED STEEL SPAN POLE
 - ⊠ EXISTING STEEL SPAN POLE
 - PROPOSED UTILITY POLE
 - EXISTING UTILITY POLE
 - ⊠ EXISTING UTILITY POLE
 - PEDESTAL MOUNTING
 - ⊠ PEDESTRIAN PUSH BUTTON & SIGN
 - ⊠ DIRECTIONAL ARW. FOR PUSH BUTTON
 - ⊠ TRAFFIC SIGNAL FACE
 - ⊠ PEDESTRIAN SIGNAL FACE
 - ⊠ DET. LEADS IN SAW CUT
 - ⊠ PROPOSED RMC (RIGID METAL CONDUIT)
 - ⊠ EXISTING RMC (RIGID METAL CONDUIT)
 - ⊠ AUXILIARY TERMINATION CABINET
 - ⊠ AUXILIARY EQUIPMENT CABINET
 - ⊠ VIDEO DETECTION ZONE
 - ⊠ PROPOSED CONTROLLER
 - ⊠ EXISTING CONTROLLER
 - ⊠ LOOP DETECTOR
 - ⊠ SYSTEM DETECTOR
 - ⊠ MAGNETIC DETECTOR
 - ⊠ OPTICAL DETECTOR
 - ⊠ VIDEO DETECTOR
 - ⊠ AUDIO DETECTOR
 - ⊠ VC VIDEO CAMERA CABLE
 - ⊠ CABLE CLOSURE
 - ⊠ WIRELESS SENSOR
 - ⊠ WIRELESS RECEIVER
 - ⊠ WIRELESS TRANSMITTER
 - ⊠ GUY WIRE
 - ⊠ PROPOSED HANDHOLE
 - ⊠ EXISTING HANDHOLE

STATE OF CONNECTICUT
 DEPARTMENT OF TRANSPORTATION

ROUTE 117 (CENTER GROTON ROAD AND COLONEL LEDYARD HIGHWAY)
 AT COLONEL LEDYARD HIGHWAY

SCALE 1" = 40'

TOWN:	PROJECT NO.
LEDYARD	
DRAWING TITLE:	DRAWING NO.
TRAFFIC CONTROL SIGNAL PLAN	
SHEET NO.	

D: COORDINATION WITH CTDOT

Carey, Ryan

From: Sojka, Gary J <Gary.Sojka@ct.gov>
Sent: Monday, April 27, 2026 7:30 AM
To: Carey, Ryan
Cc: Kurker, Michael, PE; Hiller, Todd; Patil, Hitesh G.
Subject: RE: Volumes for your approval: 1947 Center Groton Road, Ledyard CT

Hi Ryan,

The volumes are acceptable as is the 1% growth rate. There are currently no proposed developments in the area that I am aware of.

Have a great day.

GARY SOJKA

Transportation Supervising Planner

Connecticut Department of Transportation
Bureau of Planning, Technology, and Innovation
Phone: 860-594-2025

Gary.Sojka@ct.gov



From: Carey, Ryan <rcarey@blcompanies.com>
Sent: Friday, April 24, 2026 11:06 AM
To: Sojka, Gary J <Gary.Sojka@ct.gov>
Cc: Kurker, Michael, PE <mkurker@blcompanies.com>; Hiller, Todd <Todd.Hiller@ct.gov>; Jacobson, Richard C <richard.jacobson@ct.gov>; Patil, Hitesh G. <Hitesh.Patil@ct.gov>
Subject: Volumes for your approval: 1947 Center Groton Road, Ledyard CT

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Hi Gary,

I hope all is well. BL Companies is preparing a Traffic Impact Study for a Proposed Multi-Family Residential Development in Ledyard. Turning movement counts for AM and PM peak hour have been collected.

The counts were collected at the following intersections:

- CT Route 117 (Center Groton Road) at Colonel Ledyard Highway
- CT Route 117 (Center Groton Road) at Citgo Drive (enter only)
- CT Route 117 (Center Groton Road) at Citgo Drive (exit only)

Attached you will find figures displaying the raw peak hour traffic counts and adjusted counts to ensure continuity of volumes. I am also attaching the raw counts from New England Counts. We are proposing using

1% growth rate for No Build and Build conditions, please confirm if this is acceptable. Also, if there are any proposed developments in the area that may impact our analysis, please let us know.

Thank you very much in advance and please let us know if there is any other data necessary to get the volumes approved.

Ryan Carey

Staff Engineer

BL Companies | *Employee owned. Client driven.*



355 Research Parkway, Meriden, CT 06450

tel: 203.630.1406 | direct: **203.608.2556**

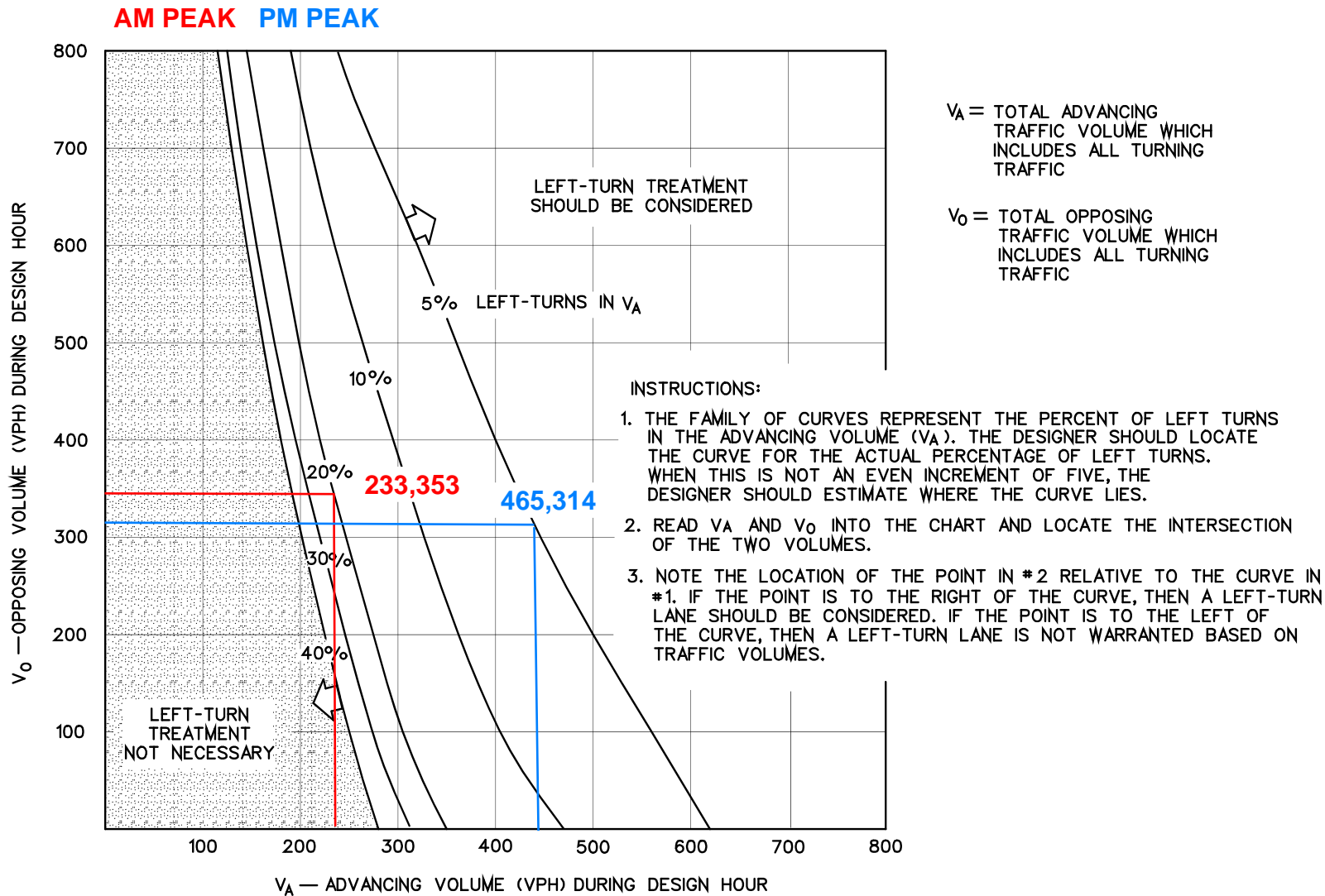
fax: 203.630.2615

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E: LEFT-TURN LANE WARRANT



VOLUME GUIDELINES FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON 2-LANE HIGHWAYS (55 mph)

Figure 11-5C