



FUSS & O'NEILL

February 13, 2019

Mr. Paul Harren
Electric Boat Corporation
75 Eastern Point Road
Groton, CT 06340

Re: Traffic Impact Statement – Assembly Building
Electric Boat Groton
Connecticut Campus
75 Eastern Point Road

Dear Mr. Harren:

Fuss & O'Neill has been retained by Electric Boat Corporation to study the traffic impact of the proposed 198,000 square foot assembly building with a 16,500 square foot utility building at their Groton campus located at 75 Eastern Point Road in Groton, Connecticut. This statement has been prepared to document the findings of the study and is being submitted to the City of Groton in support of the development's land use applications and to the Office of the State Traffic Administration (OSTA) in support of an Administrative Decision Review.

Introduction

Electric Boat Corporation proposes to construct a 198,000 square foot assembly building with a 16,500 square foot utility building at their Groton campus located at 75 Eastern Point Road in Groton, Connecticut. This facility is expected to be completed in the year 2024 and fully operational in the year 2029. The proposed development will reside on the Thames River at the southwest corner of the 74.89 acre parcel parallel to Eastern Point Road and CT Route 349. Access to the proposed development will be through the existing site driveways located on Eastern Point Road. The proposed site location is shown on the site location map, *Figure No.1* attached.

Existing Conditions

Site of Development

The existing parcel is a 74.89 acre site which currently holds existing Electric Boat facilities. The Electric Boat Groton campus contains facilities totaling 2,348,471 square feet and a total of 3,748 existing parking spaces for 8,010 existing employees, which is in conformance with the City of Groton zoning regulations of one parking space for every 3 employees during its largest shift. The existing parking is shown on the attached parking inventory map, attached. The site is located along

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www.fando.com

California
Connecticut
Maine
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Rhode Island
Vermont

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Mr. Paul Harren
February 13, 2019
Page 2

the Thames River on the west side of Eastern Point Road and CT Route 349. The site is bounded by Thames Street to the north, Eastern Point Road and CT Route 349 to the east, property owned by Buckeye Terminals LLC to the south and Thames River to the west.

Adjacent Roadway Network

The adjacent roadway network consists of the following roadways:

- Eastern Point Road
- Eastern Point Road (CT Route 349)
- Chester Street / Rainville Avenue (CT Route 349)
- Thames Street

Eastern Point Road runs primarily north/south from its intersection with Thames Street, Smith Street and Poquonnock Road to the north and continues south for approximately one quarter mile where it also becomes designated as CT Route 349 at its intersection with Chester Street (CT Route 349). Eastern Point Road mainly carries two lanes of travel, one in each direction, throughout its entirety and is classified by the CTDOT as an urban minor arterial road. The posted speed limit is 25 miles per hour in the vicinity of the site. The land use surrounding Eastern Point Road includes industrial, residential and restaurant.

Eastern Point Road (CT Route 349) begins at the intersection of Eastern Point Road and Chester Street (CT Route 349) to the north and runs south for approximately one and three-quarter miles before terminating at its intersection with Beach Pond Road and Shennecossett Road. Eastern Point Road (CT Route 349) provides two lanes of travel, one in each direction, throughout its entirety and is classified by the CTDOT as an urban minor arterial road. The posted speed limit is 25 miles per hour in the vicinity of the site. The land use surrounding Eastern Point Road (CT Route 349) is a mix of residential, industrial and commercial establishments.

Chester Street (CT Route 349) begins at the intersection of Eastern Point Road and Eastern Point Road (CT Route 349) and runs east for approximately 400 feet where it turns into Rainville Avenue at its intersection with Mumford Avenue. Rainville Avenue then continues east, intersecting with Benham Road, the Clarence B Sharp Highway/Brandege Avenue, and ultimately Poquonnock Road. The majority of this roadway provides four lanes of travel, two in each direction. It is classified by CTDOT as an urban minor arterial road. The posted speed limit is 30 miles per hour. The land use surrounding this stretch of roadway is primarily residential establishments.

Thames Street runs primarily north/south from its intersection with Eastern Point Road, Smith Street and Poquonnock Road to the south and continues north for approximately one mile where it terminates at its intersection with Bridge Street. Thames Street carries two lanes of travel, one in each



Mr. Paul Harren
February 13, 2019
Page 3

direction, throughout its entirety and is classified by the CTDOT as an urban collector road. The posted speed limit is 25 miles per hour. The land use surrounding Thames Street is a mix of residential and commercial.

Study Area Intersections

The following study area intersections were reviewed:

- CT Route 349 at Eastern Point Road
- CT Route 349 at Mumford Avenue
- CT Route 349 at Benham Road
- CT Route 349 at Route 649 and Brandegee Avenue
- Eastern Point Road at Thames Street, Smith Street and Poquonnock Road
- Poquonnock Road at Chicago Avenue, Benham Road, and Mitchell Street
- Poquonnock Road at EB Parking Lot (M-Lot)

The 3-way signalized intersection of CT Route 349 at Eastern Point Road provides an approach from the north on Eastern Point Road, and an approach from the east on Chester Street (CT Route 349) and an approach from the south on Eastern Point Road (CT Route 349). The Eastern Point Road approach from the north provides a dedicated left turn lane onto Chester Avenue (CT Route 349) and an exclusive through lane onto Eastern Point Road (CT Route 349). The Chester Street (CT Route 349) approach from the east provides a dedicated left turn lane onto Eastern Point Road (CT Route 349) and a combined left/right turn lane onto Eastern Point Road (CT Route 349) and Eastern Point Road. The Eastern Point Road (CT Route 349) approach from the south provides an exclusive through lane onto Eastern Point Road and a dedicated right turn lane onto Chester Street (CT Route 349).

The 4-way unsignalized intersection of CT Route 349 at Mumford Avenue provides an approach from the south on Mumford Avenue, an approach from the east on Rainville Avenue (CT Route 349), an approach from the north on Mumford Avenue, and an approach from the west on Chester Street (CT Route 349). The Mumford Avenue (south) and Mumford Avenue (north) approaches both provide one combined left/through/right turn lane. The Rainville Avenue (CT Route 349) and Chester Street (CT Route 349) approaches both provide two travel lanes for all movements.

The 4-way signalized intersection of CT Route 349 and Benham Road provides approaches from the north and south on Benham Road, and approaches from the west and east on Rainville Avenue (CT Route 349). The Benham Road approach from the north provides a dedicated left turn lane onto CT Route 349 and a shared through/right turn lane. The Benham Road approach from the south provides a dedicated right turn lane onto CT Route 349 and a shared through/left turn lane. The Rainville Avenue (CT Route 349) approaches from the east and west provide a shared left turn/through lane and a shared right turn/through lane.



Mr. Paul Harren
February 13, 2019
Page 4

The 4-way signalized intersection of CT Route 349 at CT Route 649 and Brandegee Avenue provides an approach from the north on Clarence Sharp Highway (CT Route 349), an approach from the east on Rainville Avenue (CT Route 649), an approach from the south on Brandegee Avenue, and an approach from the west on Rainville Avenue (CT Route 349). The Clarence Sharp Highway (CT Route 349) approach from the north provides exclusive left and right turn lanes along with a through lane. The Rainville Avenue (CT Route 649) approach from the east provides a shared through/left turn lane and an exclusive right turn lane. The Brandegee Avenue approach from the south provides a shared through/left turn lane and a shared through/right turn lane. The Rainville Avenue (CT Route 349) approach from the west provides an exclusive left turn lane onto Clarence Sharp Highway (CT Route 349) and a combined left/through/right turn lane.

The 4-way signalized intersection of Eastern Point Rd. at Thames St., Smith St. and Poquonnock Rd. provides an approach from the north on Smith Street, from the south on Eastern Point Road, from the east on Poquonnock Road and from the west on Thames Street. The Smith Street approach from the north, the Poquonnock Road approach from the east and the East Point Road from the south all provide a shared left/through/right turn lane. The Thames Street approach from the west provides an exclusive right turn lane onto Eastern Point Road and a combined through/left turn lane.

The 5-way signalized intersection of Poquonnock Rd. at Chicago Ave, Benham Rd, and Mitchell St. provides an approach from the north on Mitchell Street, approaches from the east and west on Poquonnock Road, an approach from the south on Chicago Avenue and an approach from the southeast on Benham Road. The Mitchell Street approach from the north provides a shared through/left turn lane and a shared through/right turn lane. The Poquonnock Road approaches from the east and west, the Chicago Avenue approach from the south and the Benham Road approach from the southeast all provide a single shared left/through/right turn lane.

The 3-way unsignalized intersection of Poquonnock Road at the EB Parking Lot (M-Lot) provides approaches from the east and west on Poquonnock Road, and an approach from the south at the parking lot driveway. The Poquonnock Road approach from the west provides a free-flowing combined through/right turn lane and the approach from the east provides a free-flowing combined through/left turn lane. The parking lot driveway approach from the south provides a stop-controlled combined left/right turn lane onto Poquonnock Road.

Traffic Volumes and Counts

The greatest potential for traffic impact on the roadway network by the proposed development will occur during the weekday morning and weekday afternoon peak hours, the periods when commuter and/or Electric Boat and transit related trips are at their highest levels. In order to determine the traffic impact of the proposed development on adjacent street traffic, representatives of Fuss &



Mr. Paul Harren
February 13, 2019
Page 5

O'Neill, Inc. conducted weekday morning and weekday afternoon peak hour manual turning movement counts on October 18, 2018 at the seven (7) intersections in the study area. The traffic count data collected indicates that the weekday morning peak hour of traffic varies from 6:00 a.m. to 8:15 a.m. and the weekday afternoon peak hour varies from 3:00 p.m. to 5:15 p.m. throughout each of the study area intersections. These peak hours were subsequently analyzed for impacts. The existing traffic volumes for these peak hours are shown in Figures No. 2, of the traffic volume figures, attached. The raw turning movement count data can be found, attached.

Background Traffic Conditions

Growth Rate

Upon review of historical ADT traffic volume data from the Connecticut Department of Transportation (CTDOT) within the study area, a gradual decline in traffic volumes was observed over the past 10 years. For the purposes of this study however, the 2018 existing traffic volumes were projected to the 2029 peak design year using an 0.5 percent per year peak hour growth factor to account for potential future traffic growth in the study area. This growth rate should be considered conservative based on the observed gradual decline in traffic volumes over the past several years and based on the fact that there are no significant planned major traffic generators in the study area that would substantially increase traffic volumes in the foreseeable future.

Other Developments

Fuss & O'Neill contacted the Connecticut Department of Transportation's (CTDOT) Office of the State Traffic Administration (OSTA) and the City of Groton to identify any other pending or approved developments having site related traffic in the study area. No such developments were identified.

Planned Roadway Improvement Projects

Fuss & O'Neill contacted the CTDOT and the City of Groton Planning office to determine if any roadway improvements are planned in the area of the proposed development. The CTDOT District 2 office indicated that Route 349 is scheduled for resurfacing in the year 2019 as part of the 2019 Pavement Preservation program. The resurfacing of Route 349 will improve the safety of traffic operations in the vicinity of the site.

Proposed Conditions

Electric Boat Corporation proposes to construct a 198,000 square foot assembly building with a 16,500 square foot utility building at their Groton campus located at 75 Eastern Point Road in



Mr. Paul Harren
February 13, 2019
Page 6

Groton, Connecticut. This facility is expected to be completed in the year 2024 and fully operational in the year 2029. It is anticipated that the development will result in no significant increase in the number of employees until the year 2024, therefore no significant increase in trip generation or increase in the number of parking spaces is proposed until the year 2024.

Beginning in the year 2024, Electric Boat anticipates 8,854 total employees (7,036 first shift, 1,455 second shift, and 364 third shift). The increase in the number of employees starting in the year 2024 will be accommodated via additional parking facilities located outside the City of Groton. Employees parking in these facilities will then be shuttled into the site. Therefore, no significant increase in trip generation is expected at any City of Groton intersection.

Although an increase in the number of employees is expected starting in the year 2024 it is anticipated that Electric Boat will not exceed City of Groton zoning regulations of 1 parking space for every 3 employees during its largest shift over the next 11 years. The expected number of employees and the parking rate projections from the year 2019 to 2030 are shown in *Table 1 & 2*, attached.

Given that the proposed development expansion will not generate a significant net increase in vehicular trips to the site between 2019 and 2030, only a 2029 background analysis was performed to verify sufficient traffic operations during the 2029 peak year of development on the adjacent roadway network during the weekday morning and afternoon peak hours. The background growth rate applied to the existing traffic volumes for a period of 10 years will account for any minor increases in traffic resulting from the proposed employee increase over this time period. The background traffic volumes for these peak hours are shown in *Figures No. 3*, of the traffic volume figures, attached.

Crash Analysis

Crash data was gathered from the University of Connecticut Crash Data Repository for the following intersections:

- CT Route 349 at Eastern Point Road
- CT Route 349 at Mumford Avenue
- CT Route 349 at Benham Road
- CT Route 349 at Route 649 and Brandegee Avenue
- Eastern Point Road at Thames Street, Smith Street, and Poquonnock Road
- Poquonnock Road at Chicago Avenue, Benham Road, and Mitchell Street
- Poquonnock Road at EB Parking Lot (M-Lot)

The records were gathered for the most recent three years of available data, November 20, 2015 through November 20, 2018. A summary of the crash data per intersection is attached.



Mr. Paul Harren
February 13, 2019
Page 7

The intersection of CT Route 349 at Eastern Point Road experienced an average of less than one crash per year. During the three year span, the intersection experienced one angle crash and one front to rear end crash.

The intersection of CT Route 349 at Mumford Avenue experienced an average of less than one crash per year. During the three year span, the intersection experienced one front to rear end crash.

The intersection of CT Route 349 at Benham Road experienced an average of approximately five crashes per year. During the three year span the intersection experienced a total of 14 crashes, with a majority being front to rear end crashes.

The intersection of CT Route 349 at CT Route 649 and Brandegee Avenue experienced an average of seven crashes per year. During the three year span the intersection experienced a total of 21 crashes, with a majority being angled (8) and front to rear end (8) crashes. Although eight angled crashes are reported at this intersection, abnormal crash patterns or frequencies were not identified, based on the size and volume of traffic at the intersection.

The intersection of Eastern Point Rd. at Thames St., Smith St. and Poquonnock Rd. experienced an average of less than one crash per year. During the three year span, the intersection experienced one sideswipe same-direction crash.

The intersection of Poquonnock Rd. at Chicago Ave, Benham Rd, and Mitchell St. experienced an average of less than three crashes per year. During the three year span the intersection experienced a total of seven crashes, with a majority being front to rear end crashes.

The intersection of Poquonnock Road at the EB Parking Lot (M-Lot) experienced an average of less than one crash per year. During the three year span, the intersection experienced one unknown crash.

The majority of the crashes reported at the intersections were rear-end type crashes, consistent with what is typically experienced in the vicinity of signalized intersections. No abnormal crash patterns or frequencies were identified. A crash data summary and more detailed crash data reports are attached at the conclusion of this report.

Intersection Capacity Analysis

Capacity analyses for both signalized and unsignalized intersections were conducted using Synchro Professional Software, version 10.0.

Mr. Paul Harren
February 13, 2019
Page 8

In discussing intersection capacity analyses results, two terms are used to describe the operating condition of the road or intersection. These two terms are volume to capacity ratio (v/c) and level of service (LOS).

The v/c ratio is a ratio of the volume of traffic using an intersection to the total capacity of the intersection (the maximum number of vehicles that can utilize the intersection during an hour). The v/c ratio can be used to describe the percentage of capacity utilized by a single intersection movement, a combination of movements, an entire intersection approach, or the intersection as a whole.

LOS is a measure of the delay experienced by stopped vehicles at an intersection. LOS is rated on a scale from A to F, with A describing a condition of very low delay (less than 10 seconds per vehicle), and F describing a condition where delays will exceed 50 seconds per vehicle for unsignalized intersections and 80 seconds per vehicle for signalized intersections. Delay is described as a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Therefore, intersections with longer delay times are less acceptable to most drivers.

LOS is generally used to describe the operation (based on delay time) of both signalized and unsignalized intersections, while v/c ratio is applied to signalized intersections only. These definitions for v/c ratio and LOS, as well as the methodology for conducting signalized and unsignalized intersection capacity analyses, are taken from the "Highway Capacity Manual, 6th Edition" published by the Transportation Research Board.

Using the above referenced methodologies, the weekday morning and weekday afternoon peak hour 2029 background conditions analyses were conducted at the following intersections:

- CT Route 349 at Eastern Point Road
- CT Route 349 at Mumford Avenue
- CT Route 349 at Benham Road
- CT Route 349 at Route 649 and Brandegee Avenue
- Eastern Point Road at Thames Street, Smith Street and Poquonnock Road
- Poquonnock Road at Chicago Avenue, Benham Road, and Mitchell Street
- Poquonnock Road at EB Parking Lot (M-Lot)

Tables No. 3 & 4 attached present a summary of the levels of service at the signalized and unsignalized intersections, for 2029 background conditions traffic volume. Copies of the analysis worksheets can be found attached for the weekday morning, and weekday afternoon peak hours respectively.



Mr. Paul Harren
February 13, 2019
Page 9

The signalized intersection of CT Route 349 at Eastern Point Road operates at LOS B under background conditions during the weekday morning peak hour and operates at LOS A under background conditions during the weekday afternoon peak hour. All approaches on Route 349 and Eastern Point Rd. operate at acceptable levels of service under 2029 background conditions during the weekday morning and afternoon peak hour.

At the unsignalized intersection of CT Route 349 at Mumford Avenue, the northbound, eastbound and westbound approaches operate at LOS A under background conditions during the weekday morning peak hour. The southbound approach operates at LOS B under background conditions during the weekday morning peak hour. The eastbound and westbound approaches operate at LOS A under background conditions while the northbound and southbound approaches operate at LOS B under existing conditions during the weekday afternoon peak hour. All approaches on Route 349 and Mumford Avenue operate at acceptable levels of service under 2029 background conditions during the weekday morning and afternoon peak hour.

The signalized intersection of CT Route 349 at Benham Road operates at LOS A under background conditions during the weekday morning peak hour and operates at LOS B under background conditions during the weekday afternoon peak hour. All approaches on Route 349 and Benham Road operate at acceptable levels of service under 2029 background conditions during the weekday morning and afternoon peak hour.

The signalized intersection of CT Route 349 at Route 649 and Brandegee Avenue operates at LOS C under background conditions during the weekday morning peak hour and operates at LOS C under background conditions during the weekday afternoon peak hour. All approaches on Route 349, Route 649 and Brandegee Road operate at acceptable levels of service under 2029 background conditions during the weekday morning and afternoon peak hour.

The signalized intersection of Eastern Point Rd. at Thames St., Smith St. and Poquonnock Rd. operates at LOS B under background conditions during the weekday morning and afternoon peak hours. All approaches on Eastern Point Rd., Thames St., Smith St., and Poquonnock Rd. operate at acceptable levels of service under 2029 background conditions during the weekday morning and afternoon peak hour.

The signalized intersection of Poquonnock Rd. at Chicago Ave., Benham Rd., and Mitchell St. operates at LOS B under background conditions during the weekday morning peak hour and operates at LOS C under background conditions during the weekday afternoon peak hour. All approaches on Poquonnock Rd., Chicago Ave., Benham Rd., and Mitchell St. operate at acceptable levels of service under 2029 background conditions during the weekday morning and afternoon peak hour.



Mr. Paul Harren
February 13, 2019
Page 10

At the unsignalized intersection of Poquonnock Rd. at the EB Parking Lot (M-Lot), the Poquonnock Road eastbound and westbound approaches operate at LOS A under background conditions during the weekday morning and weekday afternoon peak hours. The northbound parking lot approach operates at LOS B under background conditions during the weekday morning peak hour and operates at LOS C under background conditions during the weekday afternoon peak hour. All approaches on Poquonnock Rd. and the EB Parking Lot (M-Lot) driveway operate at acceptable levels of service under 2029 background conditions during the weekday morning and afternoon peak hour.

Queue Analysis

Existing Condition 95th percentile (design) queue lengths were reviewed at each intersection in the study area. The 95th percentile (design) vehicle queue lengths represent the maximum queue lengths that can be expected at each of the critical approach lanes of the study area intersections and is a function of the traffic signal timing, vehicular arrival patterns during the analysis period, and the saturation flow rate. The queue lengths are provided in the Synchro capacity analysis worksheets, attached, and *Table #5* attached provides a summary of the queue lengths for the critical lanes at each intersection.

Overall, minor queuing is experienced at all study intersection approaches under 2029 background conditions during the weekday morning and afternoon peak hours. A review of existing storage capacity reveals that adequate storage exists to accommodate existing queue lengths at all study intersection approaches.

Conclusion

The purpose of preparing a Traffic Impact Statement is to identify the impact of the proposed development expansion's site generated traffic. Given that the proposed assembly and utility building will not generate a significant net increase in the number of vehicular trips to the site between 2019 and 2030, only a 2029 background analysis was performed to verify sufficient traffic operations during the 2029 peak year of development on the adjacent roadway network during the weekday morning and afternoon peak hours. The 0.5 percent per year background growth rate applied to the existing traffic volumes for a period of 10 years will account for any minor increases in traffic resulting from the proposed employee increase over this time period.

The 198,000 square foot assembly building and 16,500 square foot utility building is expected to be completed in the year 2024 and fully operational in the year 2029. Access to the proposed development will be through the existing site driveways located on Eastern Pont Road. The expected increase in the number of employees starting in the year 2024 will be accommodated via additional



Mr. Paul Harren
February 13, 2019
Page 11

parking facilities located outside the City of Groton. Employees parking in these facilities will then be shuttled into the site.

Capacity analysis revealed that all study intersections operate efficiently at LOS B or better under 2029 background conditions during the weekday morning peak hour and operate efficiently at LOS C or better under 2029 background conditions during the weekday afternoon peak hour.

A review of crash data provided by the University of Connecticut Crash Data Repository indicated that there were no abnormal crash frequencies and crash patterns in the study area given the volume of traffic and presence of traffic signals in the study area.

Based on the results of the foregoing analysis, it is the professional opinion of Fuss & O'Neill, Inc. that the proposed Electric Boat development expansion will not have a significant impact to traffic operations and employees can be safely and efficiently accommodated within the study area.

Sincerely,

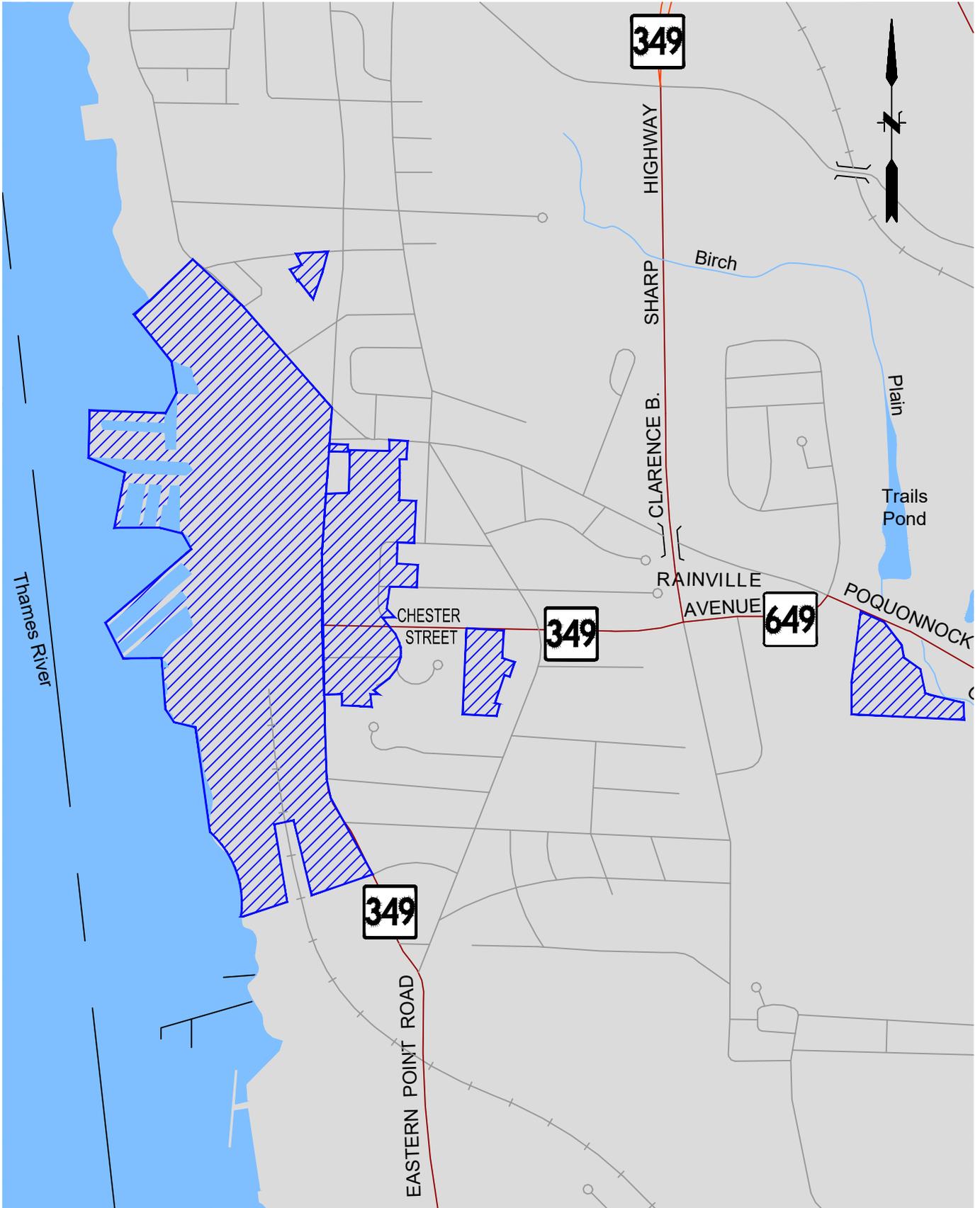
Kristen E. Solloway, PE
Vice President

Mark G. Vertucci, PE, PTOE
Associate

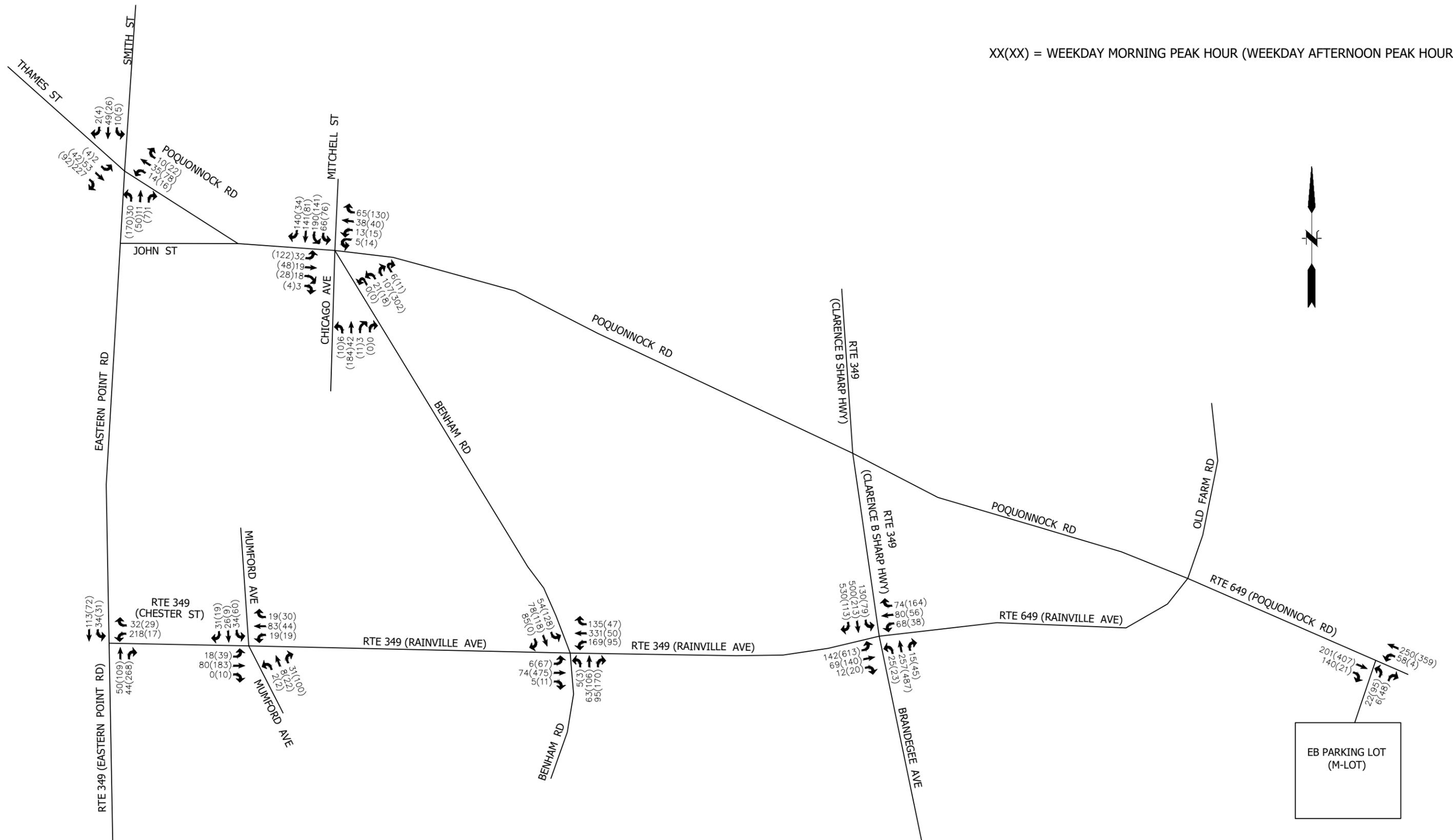
Attachments:

- Location Map
- Traffic Volume Figures
- Parking Inventory Map
- Table 1- Electric Boat Employee Projection
- Table 2 - Electric Boat Employee vs Parking Projection
- Crash Data Summary
- Crash Data Detailed Report
- Table 3 - Signalized Intersection LOS Summary
- Table 4 - Unsignalized Intersection LOS Summary
- Table 5- Queue Length Summary
- Raw Turning Movement Counts
- A.M. & P.M. Synchro Reports

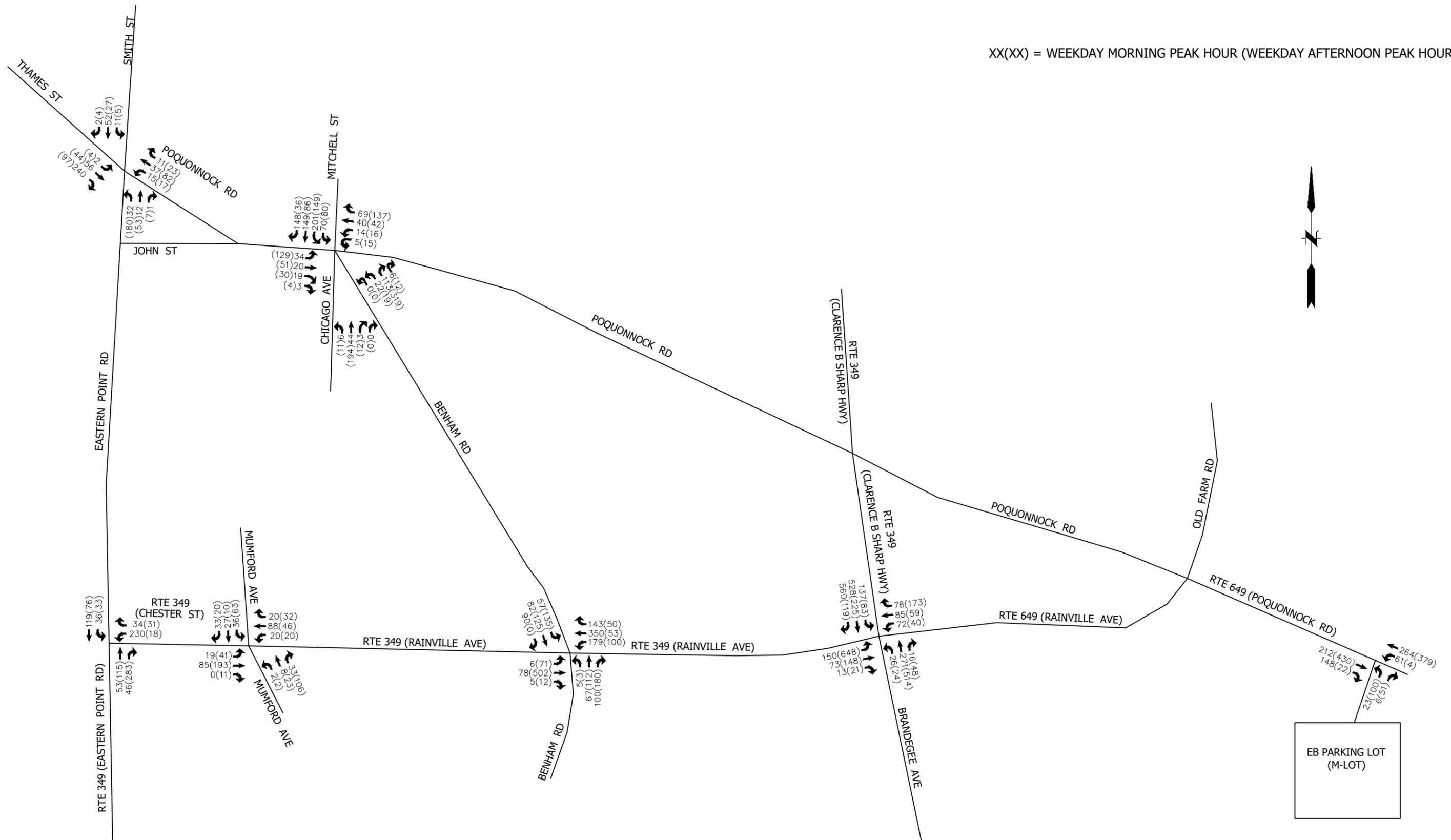
File Path: J:\DWG\1997570A11\CivilTraffic\Figures\1997570A11_LOC01.dwg Layout: LOC-01 Plotted: Wed, January 16, 2019 - 9:28 AM User: MARC MANCINI



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)



XX(XX) = WEEKDAY MORNING PEAK HOUR (WEEKDAY AFTERNOON PEAK HOUR)



PARKING SUMMARY

OWNER	NUMBER OF PARKING SPACES
ELECTRIC BOAT CORP	3,818
THIRD PARTY	1,128



RELOCATED BUILDINGS #170 & #179

LEGEND

- 500' PROPERTY LINE OFFSET FOR PARKING FACILITIES (CITY OF GROTON PARKING REGULATIONS)
- ELECTRIC BOAT PROPERTY LINE
- PROPERTY LINE
- THIRD PARTY PARKING LOTS
- TO BE DEMOLISHED
- TO BE RELOCATED
- 100 ELECTRIC BOAT BUILDING NUMBER (BUILDING SUMMARY UNDER SEPARATE COVER)

File Path: J:\DWG\97570A11\CivilTraffic\Figures\1997570A11_Parking Map.dwg Layout: P-MAP Plotted: Mon, February 11, 2019 - 12:10 PM User: rmanchini
 Plotter: DWG TO PDF PC3 CTB File: FO.STB
 LAYER STATE:

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

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SEAL

SCALE:

HORIZ.: 1" = 150'

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DATUM:

HORIZ.:

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150 75 0 150

GRAPHIC SCALE

FUSS & O'NEILL

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ELECTRIC BOAT CORPORATION

PARKING INVENTORY

75 EASTERN POINT ROAD

GROTON CONNECTICUT

PROJ. No.: 1997570.A11
 DATE: FEBRUARY 2019

P-MAP

Table 1

Electric Boat Employee Projections
 Electric Boat – Assembly Building Development
 Groton, Connecticut

Year	Employees									
	Total	Office	Shipyard Trades	Supships	DXC	Café & Other Long Term	Navy Crew	1st Shift	2nd Shift	3rd Shift
2019	8,010	4,146	2,864	350	100	50	500	6,578	1,146	286
2020	8,026	3,779	3,247	350	100	50	500	6,403	1,299	325
2021	8,301	3,536	3,765	350	100	50	500	6,419	1,506	377
2022	8,309	3,917	3,392	350	100	50	500	6,613	1,357	339
2023	8,455	3,984	3,446	375	100	50	500	6,732	1,378	345
2024	8,854	4,094	3,637	400	100	50	573	7,036	1,455	364
2025	9,042	4,225	3,614	425	100	50	628	7,235	1,446	361
2026	9,098	3,878	4,131	150	100	50	789	7,033	1,652	413
2027	9,662	4,073	4,081	475	100	50	883	7,622	1,632	408
2028	10,042	3,637	4,897	475	100	50	883	7,594	1,959	490
2029	10,882	3,789	5,415	500	100	50	1,028	8,175	2,166	542
2030	10,168	3,950	4,769	500	100	50	799	7,784	1,908	477

Notes:

1. Assumes Engineering, Finance, HR, etc. are all on 1st shift and the shipyard trades are broken down by 50% 1st shift, 40% 2nd shift, and 10% 3rd shift.
2. 1st Shift Employees include Supship, DXC Café & Long Term Employees and Navy crew members
3. Additional Navy crew members starting in the year 2024

Table 2

Electric Boat Employees vs EB Parking Projections
 Electric Boat – Assembly Building Development
 Groton, Connecticut

Year	Employees		Parking Spaces	Parking Rate
	Total	1st Shift	EB Total	Spaces : Employees
2019	8,010	6,578	3,818	1: 1.7
2020	8,026	6,403	3,818	1: 1.7
2021	8,301	6,419	3,818	1: 1.7
2022	8,309	6,613	3,818	1: 1.7
2023	8,455	6,732	3,818	1: 1.8
2024	8,854	7,036	3,818	1: 1.8
2025	9,042	7,235	3,818	1: 1.9
2026	9,098	7,033	3,818	1: 1.8
2027	9,662	7,622	3,818	1: 2.0
2028	10,042	7,594	3,818	1: 2.0
2029	10,882	8,175	3,818	1: 2.1
2030	10,168	7,784	3,818	1: 2.0

Notes:

1. Assumes Engineering, Finance, HR, etc. are all on 1st shift and the shipyard trades are broken down by 50% 1st shift, 40% 2nd shift, and 10% 3rd shift.
2. Parking rate based on number of 1st shift employees
3. City of Groton Parking Regulation: 1 parking space for every 3 employees on largest shift (1:3)
4. 1st Shift Employees include Supship, DXC Café & Long Term Employees and Navy crew members
5. 1st Shift Employees includes additional Navy crew members starting in the year 2024
6. EB Total Parking Spaces does not include portion of M-Lot used for snow removal stockpile

CRASH DATA SUMMARY - 11/20/2015 - 11/20/2018
 STUDY AREA: ELECTRIC BOAT - ASSEMBLY BUILDING
 GROTON, CONNECTICUT

Criteria	CT Rte. 349 at Eastern Point Rd.	CT Rte. 349 at Mumford Ave.	CT Rte. 349 at Benham Rd.	CT Rte. 349 at Rte. 649 and Brandegee Ave.	Eastern Point Rd. at Thames St., Smith St. & Poquonnock Rd.	Poquonnock Rd. at Chicago Ave., Benham Rd., & Mitchell St.	Poquonnock Rd. at EB Parking Lot (M-Lot)
YEAR							
2015	1	-	-	1	-	1	-
2016	-	-	4	4	-	3	-
2017	-	1	3	7	-	1	1
2018	1	-	7	9	1	2	-
Total	2	1	14	21	1	7	1
Avg. No. of Crashes/ Year	1	1	5	7	1	3	1
TYPE							
Angle	1	-	3	8	-	2	-
Front to Rear	1	1	6	8	-	5	-
Sideswipe-Same Direction	-	-	2	1	1	-	-
Sideswipe-Opp. Direction	-	-	-	-	-	-	-
Unknown/Other	-	-	3	4	-	-	1
Total	2	1	14	21	1	7	1
SEVERITY							
Property Damage Only	2	1	10	19	1	7	1
Non-fatal Injury	-	-	4	2	-	-	-

UConn Crash Data
 Electric Boat - Assembly Building
 Groton, Connecticut
 11/20/2015 - 11/20/2018

Date Of Crash	Time Of Crash	Severity	No. of Veh.	Town	Mileage	Roadway	Intersecting Roadway	Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances
1) CT Route 349 at Eastern Point Road												
12/17/2015	14:23:00	PDO	2	Groton	1.81	EASTERN POINT RD	unknown	Angle	Freezing Rain	Other	Wet	Weather
9/12/2018	15:30:00	PDO	3	Groton	0.02	EASTERN POINT RD	unknown	Rear to rear	Cloudy	Daylight	Wet	None
2) CT Route 349 at Mumford Avenue												
6/29/2017	16:50:00	PDO	2	Groton	0	MUMFORD AVE	RT 349-RAINVILLE AV	Front to rear	Clear	Daylight	Dry	Other
3) CT Route 349 at Benham Road												
4/6/2016	11:24:00	PDO	2	Groton	0.49	BENHAM RD	RT 349-RAINVILLE AV	Front to rear	Clear	Daylight	Dry	None
9/29/2016	11:39:00	PDO	2	Groton	0.49	BENHAM RD	RT 349-RAINVILLE AV	Sideswipe, same dir.	Clear	Daylight	Dry	Other
10/14/2016	18:06:00	PDO	2	Groton	0.5	BENHAM RD	unknown	Front to rear	Clear	Daylight	Dry	None
12/26/2016	9:51:00	PDO	2	Groton	1.27	RAINVILLE AVE	unknown	Front to rear	Clear	Daylight	Dry	Not Applicable
5/25/2017	15:02:00	PDO	2	Groton	1.29	RAINVILLE AVE	unknown	Angle	Rain	Other	Wet	None
8/14/2017	18:36:00	Possible Injury	2	Groton	1.29	RAINVILLE AVE	S JCT BENHAM RD	Angle	Clear	Daylight	Dry	None
8/18/2017	14:38:00	Possible Injury	2	Groton	0.49	BENHAM RD	RT 349-RAINVILLE AV	Front to rear	Cloudy	Daylight	Wet	None
1/30/2018	5:25:00	PDO	2	Groton	0.49	BENHAM RD	349-N	Other	Snow	Dark-Lighted	Snow	Weather
2/12/2018	13:41:00	Suspected Inj.	2	Groton	0.49	BENHAM RD	349-N	Other	Clear	Daylight	Dry	None
6/8/2018	8:06:00	PDO	2	Groton	0.49	BENHAM RD	349-N	Front to rear	Clear	Daylight	Dry	None
6/15/2018	7:10:00	PDO	2	Groton	0.47	BENHAM RD	unknown	Angle	Clear	Daylight	Dry	None
6/21/2018	13:10:00	Suspected Inj.	2	Groton	0.49	BENHAM RD	349-N	Front to front	Clear	Daylight	Dry	None
10/11/2018	15:59:00	PDO	1	Groton	0.51	BENHAM RD	unknown	Not Applicable	Clear	Daylight	Dry	None
10/20/2018	21:52:00	PDO	2	Groton	0.49	BENHAM RD	349-N	Sideswipe, same dir.	Clear	Dark-Not Lighted	Dry	None
4) CT Route 349 at Route 649 and Brandegee Avenue												
12/16/2015	7:36:00	PDO	2	Groton	0.52	BRANDEGEE AVE	SR 649-RAINVILLE AV	Sideswipe, same dir.	Clear	Daylight	Dry	None
2/17/2016	5:46:00	PDO	2	Groton	0	CLARENCE B. SHARP HWY	RTE 349(RAINVILLE AVE)(NB)	Angle	Clear	Dark-Lighted	Dry	None
1/16/2016	12:13:00	PDO	2	Groton	0.52	BRANDEGEE AVE	RT 349-CLARENCE B SHARP	Angle	Clear	Daylight	Wet	Weather
11/14/2016	8:37:00	PDO	2	Groton	2.3	RAINVILLE AVE	BRANDEGEE AVE	Angle	Clear	Daylight	Dry	None
11/17/2016	8:54:00	PDO	2	Groton	2.3	CLARENCE B. SHARP HWY	SR 649(RAINVILLE AVE)	Other	Clear	Daylight	Dry	None
4/3/2017	13:11:00	PDO	2	Groton	0.51	BRANDEGEE AVE	unknown	Angle	Clear	Daylight	Dry	None
4/13/2017	17:28:00	PDO	2	Groton	2.29	RAINVILLE AVE	unknown	Front to rear	Clear	Daylight	Dry	Unknown
4/18/2017	15:37:00	PDO	2	Groton	0.52	BRANDEGEE AVE	RT 349-RAINVILLE AV	Front to rear	Clear	Daylight	Dry	None
1/31/2017	12:36:00	PDO	2	Groton	2.26	RAINVILLE AVE	unknown	Front to rear	Snow	Daylight	Snow	Weather
5/12/2017	17:49:00	PDO	2	Groton	2.34	CLARENCE B. SHARP HWY	unknown	Angle	Cloudy	Daylight	Dry	None
6/30/2017	20:43:00	PDO	2	Groton	0	RAINVILLE AVE	BRANDEGEE AVE	Front to rear	Rain	Dark-Unknown Lighting	Wet	Weather
9/6/2017	14:29:00	PDO	2	Groton	2.3	CLARENCE B. SHARP HWY	SR 649(RAINVILLE AVE)	Angle	Cloudy	Daylight	Wet	Weather
5/11/2018	10:17:00	Suspected Inj.	2	Groton	0	649-E	BRANDEGEE AV	Angle	Clear	Daylight	Dry	None
5/3/2018	16:53:00	PDO	2	Groton	2.3	349-N	BRANDEGEE AV	Front to rear	Clear	Daylight	Dry	None
5/17/2018	12:12:00	PDO	1	Groton	2.3	349-N	BRANDEGEE AV	Not Applicable	Cloudy	Daylight	Wet	Weather
5/22/2018	14:51:00	PDO	2	Groton	2.33	349-N	unknown	Rear to rear	Rain	Daylight	Wet	None
5/25/2018	21:04:00	Suspected Inj.	2	Groton	0.52	BRANDEGEE AV	unknown	Other	Clear	Dark-Lighted	Dry	None
7/18/2018	14:44:00	PDO	2	Groton	2.3	349-N	BRANDEGEE AV	Front to rear	Clear	Daylight	Dry	None
8/1/2018	5:34:00	PDO	2	Groton	2.3	349-N	BRANDEGEE AV	Other	Clear	Daylight	Dry	None
9/26/2018	14:13:00	PDO	2	Groton	2.3	349-N	BRANDEGEE AV	Front to rear	Cloudy	Daylight	Dry	None
9/28/2018	18:02:00	PDO	2	Groton	2.3	349-N	BRANDEGEE AV	Angle	Clear	Daylight	Dry	None

Date Of Crash	Time Of Crash	Severity	No. of Veh.	Town	Mileage	Roadway	Intersecting Roadway	Collision Type	Weather	Light Condition	Road Surface Condition	Contributing Circumstances
5) Eastern Point Rd. at Thames St., Smith St. and Poquonnock Rd.												
2/23/2018	14:43:00	PDO	2	Groton	0.28	EASTERN POINT RD	unknown	Sideswipe, same dir.	Cloudy	Daylight	Wet	None
6) Poquonnock Rd. at Chicago Ave, Benham Rd, and Mitchell St.												
2/23/2016	11:26:00	PDO	2	Groton	0.16	POQUONNOCK RD	MITCHELL ST	Front to rear	Cloudy	Daylight	Dry	None
12/3/2015	14:46:00	PDO	2	Groton	0	MITCHELL ST	POQUONNOCK RD NO 1	Front to rear	Clear	Daylight	Dry	None
11/22/2016	20:43:00	PDO	3	Groton	0	MITCHELL ST	POQUONNOCK RD NO 1	Angle	Clear	Dark-Lighted	Dry	Other
12/16/2016	16:57:00	PDO	2	Groton	0	MITCHELL ST	POQUONNOCK RD NO 1	Front to rear	Clear	Dark-Lighted	Dry	None
1/7/2017	12:59:00	PDO	2	Groton	0	MITCHELL ST	POQUONNOCK RD NO 1	Angle	Snow	Daylight	Snow	Weather
7/22/2018	13:13:00	PDO	2	Groton	0	MITCHELL ST	BENHAM RD	Front to rear	Cloudy	Daylight	Dry	None
10/15/2018	16:50:00	PDO	2	Groton	0	MITCHELL ST	BENHAM RD	Front to rear	Clear	Daylight	Dry	None
7) Poquonnock Rd. at EB Parking Lot (M-Lot)												
12/30/2017	19:53:00	PDO	1	Groton	0.1	POQUONNOCK RD	unknown	Not Applicable	Snow	Dark-Not Lighted	Snow	Weather

PDO- Property Damage only

Table 3

Signalized Intersection Level of Service Summary
 Electric Boat – Assembly Building Development
 Groton, Connecticut

Signalized Intersections	Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
	Background 2029	Background 2029
CT Route 349 at Eastern Point Road	0.22/LOS B*	0.17/LOS A
WB Approach	LOS B	LOS B
NB Approach	LOS A	LOS A
SB Approach	LOS A	LOS A
CT Route 349 at Benham Road	0.52/LOS A	0.47/LOS B
EB Approach	LOS B	LOS B
WB Approach	LOS A	LOS A
NB Approach	LOS B	LOS B
SB Approach	LOS B	LOS B
CT Route 349 at Route 649 and Brandegee Avenue	0.56/LOS C	0.63/LOS C
EB Approach	LOS D	LOS D
WB Approach	LOS E	LOS D
NB Approach	LOS B	LOS C
SB Approach	LOS A	LOS B

	Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
Signalized Intersections	Background 2029	Background 2029
Eastern Point Rd. at Thames St., Smith St. and Poquonnock Rd.	0.10/LOS B*	0.36/LOS B
EB Approach	LOS B	LOS B
WB Approach	LOS B	LOS B
NB Approach	LOS A	LOS A
SB Approach	LOS A	LOS A
Poquonnock Rd. at Chicago Ave., Benham Rd., and Mitchell St.	0.35/LOS B	0.69/LOS C
EB Approach	LOS C	LOS D
WB Approach	LOS C	LOS C
NB Approach	LOS B	LOS C
SB Approach	LOS B	LOS B
SB Approach	LOS B	LOS C

* Values indicated are intersection v/c Ratio/Level of Service/Delay (sec.)

+ Values indicated are intersection Level of Service/Delay (sec.)

Table 4

Unsignalized Intersection Level of Service Summary
 Electric Boat – Assembly Building Development
 Groton, Connecticut

Unsignalized Intersections	Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
	Background 2029	Background 2029
CT Route 349 at Mumford Avenue #1		
EB Approach	LOS A*	LOS A
WB Approach	LOS A	LOS A
NB Approach	LOS A	LOS B
SB Approach	LOS B	LOS B
Poquonnock Rd. at EB Parking Lot (M-Lot)		
EB Approach	LOS A	LOS A
WB Approach	LOS A	LOS A
NB Approach	LOS B	LOS C

*All values indicated are approach LOS

Table 5

Queue Length Summary
Electric Boat – Assembly Building Development
Groton, Connecticut

Intersection	Approach Lane	Weekday Morning Peak Hour	Weekday Afternoon Peak Hour	Available Storage
		Background 2029	Background 2029	
CT Route 349 at Eastern Point Road	WB Left Turn	55 Feet	10 Feet	320 Feet
	NB Through	30 Feet	45 Feet	320 Feet
	NB Right Turn	15 Feet	35 Feet	175 Feet
	SB Left Turn	10 Feet	10 Feet	125 Feet
	SB Through	25 Feet	15 Feet	345 Feet
CT Route 349 at Mumford Avenue #1	EB Approach	0 Feet	0 Feet	325 Feet
	WB Approach	0 Feet	0 Feet	1,000 Feet
	NB Approach	5 Feet	15 Feet	300 Feet
	SB Approach	15 Feet	20 Feet	245 Feet
CT Route 349 at Benham Road	EB Approach	20 Feet	155 Feet	1,000 Feet
	WB Approach	90 Feet	30 Feet	900 Feet
	NB Left/Through	50 Feet	85 Feet	215 Feet
	NB Right Turn	30 Feet	45 Feet	215 Feet
	SB Left Turn	45 Feet	105 Feet	210 Feet
	SB Through	80 Feet	95 Feet	210 Feet
CT Route 349 at Route 649 and Brandegee Avenue	EB Left Turn	165 Feet	465 Feet	1,000 Feet
	EB Through	165 Feet	460 Feet	1,000 Feet
	WB Through	260 Feet	145 Feet	>700 Feet
	WB Right Turn	45 Feet	105 Feet	>700 Feet
	NB Approach	110 Feet	295 Feet	>300 Feet
	SB Left Turn	80 Feet	85 Feet	100 Feet
	SB Through	345 Feet	210 Feet	>1,000 Feet

Intersection	Approach Lane	Weekday Morning Peak Hour	Weekday Afternoon Peak Hour	Available Storage
		Background 2029	Background 2029	
Eastern Point Rd. at Thames St., Smith St. and Poquonnock Rd.	EB Through	40 Feet	35 Feet	100 Feet
	EB Right Turn	45 Feet	30 Feet	100 Feet
	WB Approach	40 Feet	70 Feet	700 Feet
	NB Approach	25 Feet	115 Feet	>1,000 Feet
	SB Approach	20 Feet	15 Feet	575 Feet
Poquonnock Rd. at Chicago Ave., Benham Rd., and Mitchell St.	EB Approach	65 Feet	205 Feet	450 Feet
	WB Approach	65 Feet	90 Feet	>1,000 Feet
	NB Approach	85 Feet	265 Feet	720 Feet
	SB Through/Left	165 Feet	205 Feet	300 Feet
	SB Through/Right NE Approach	145 Feet 40 Feet	50 Feet 150 Feet	300 Feet 645 Feet
Poquonnock Rd. at EB Parking Lot (M-Lot)	EB Approach	0 Feet	0 Feet	435 Feet
	WB Approach	5 Feet	0 Feet	485 Feet
	NB Approach	5 Feet	40 Feet	>100 Feet

Connecticut Counts LLC

Kensington, Connecticut 06037

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Eastern Point Road at Chester Street
Groton, Connecticut

File Name : 18033
Site Code : 18033
Start Date : 10/18/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

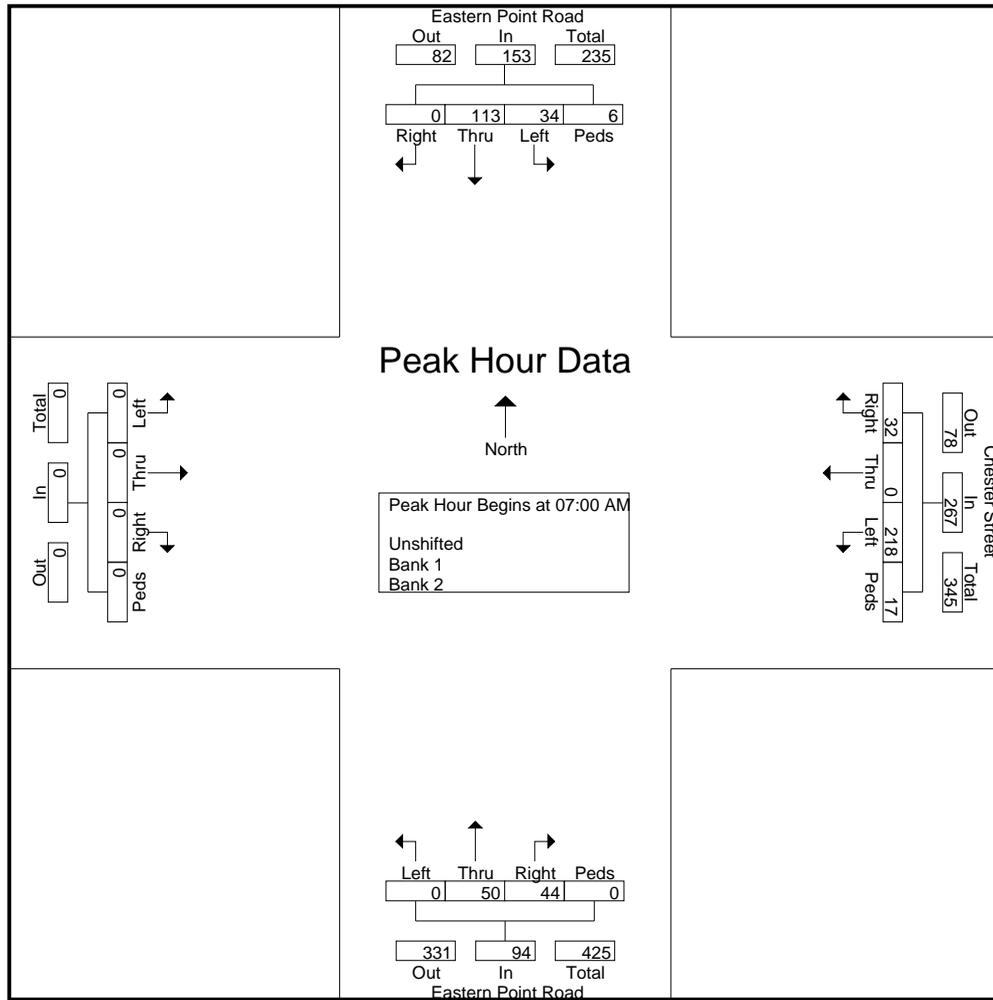
Start Time	Eastern Point Road From North					Chester Street From East					Eastern Point Road From South					From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	0	43	13	11	67	10	0	10	50	70	8	11	0	0	19	0	0	0	0	0	156
06:15 AM	0	20	11	6	37	10	0	5	13	28	9	8	0	0	17	0	0	0	0	0	82
06:30 AM	0	18	7	6	31	3	0	10	9	22	11	6	0	0	17	0	1	0	0	1	71
06:45 AM	0	29	12	10	51	9	0	10	10	29	15	8	0	0	23	0	0	0	0	0	103
Total	0	110	43	33	186	32	0	35	82	149	43	33	0	0	76	0	1	0	0	1	412
07:00 AM	0	43	25	2	70	14	0	34	9	57	16	22	0	0	38	0	0	0	0	0	165
07:15 AM	0	22	5	3	30	10	0	50	3	63	6	11	0	0	17	0	0	0	0	0	110
07:30 AM	0	20	2	0	22	5	0	55	2	62	12	9	0	0	21	0	0	0	0	0	105
07:45 AM	0	28	2	1	31	3	0	79	3	85	10	8	0	0	18	0	0	0	0	0	134
Total	0	113	34	6	153	32	0	218	17	267	44	50	0	0	94	0	0	0	0	0	514
08:00 AM	0	28	8	1	37	5	0	61	2	68	11	8	0	0	19	0	0	0	0	0	124
08:15 AM	0	19	4	0	23	7	0	81	2	90	7	5	0	0	12	0	0	0	0	0	125
08:30 AM	0	14	3	10	27	5	0	49	3	57	14	12	0	0	26	0	0	0	0	0	110
Grand Total	0	284	92	50	426	81	0	444	106	631	119	108	0	0	227	0	1	0	0	1	1285
Apprch %	0	66.7	21.6	11.7		12.8	0	70.4	16.8		52.4	47.6	0	0		0	100	0	0		
Total %	0	22.1	7.2	3.9	33.2	6.3	0	34.6	8.2	49.1	9.3	8.4	0	0	17.7	0	0.1	0	0	0.1	
Unshifted	0	277	87	50	414	79	0	427	106	612	108	105	0	0	213	0	1	0	0	1	1240
% Unshifted																					
Bank 1	0	7	2	0	9	2	0	16	0	18	9	3	0	0	12	0	0	0	0	0	39
% Bank 1	0	2.5	2.2	0	2.1	2.5	0	3.6	0	2.9	7.6	2.8	0	0	5.3	0	0	0	0	0	3
Bank 2	0	0	3	0	3	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	6
% Bank 2	0	0	3.3	0	0.7	0	0	0.2	0	0.2	1.7	0	0	0	0.9	0	0	0	0	0	0.5

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File Name : 18033
Site Code : 18033
Start Date : 10/18/2018
Page No : 2

Start Time	Eastern Point Road From North					Chester Street From East					Eastern Point Road From South					From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:00 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	43	25	2	70	14	0	34	9	57	16	22	0	0	38	0	0	0	0	0	165
07:15 AM	0	22	5	3	30	10	0	50	3	63	6	11	0	0	17	0	0	0	0	0	110
07:30 AM	0	20	2	0	22	5	0	55	2	62	12	9	0	0	21	0	0	0	0	0	105
07:45 AM	0	28	2	1	31	3	0	79	3	85	10	8	0	0	18	0	0	0	0	0	134
Total Volume	0	113	34	6	153	32	0	218	17	267	44	50	0	0	94	0	0	0	0	0	514
% App. Total	0	73.9	22.2	3.9		12	0	81.6	6.4		46.8	53.2	0	0		0	0	0	0		
PHF	.000	.657	.340	.500	.546	.571	.000	.690	.472	.785	.688	.568	.000	.000	.618	.000	.000	.000	.000	.000	.779



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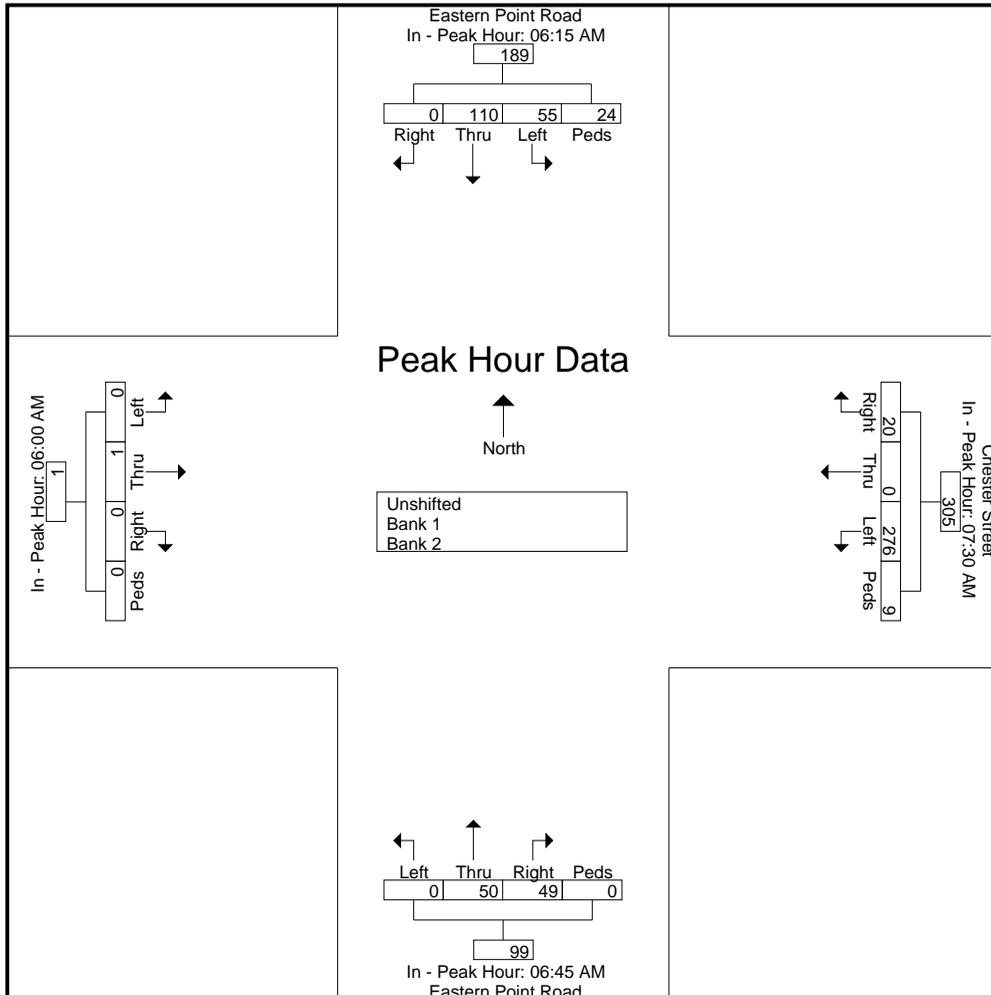
File Name : 18033
Site Code : 18033
Start Date : 10/18/2018
Page No : 3

Start Time	Eastern Point Road From North					Chester Street From East					Eastern Point Road From South					From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 06:00 AM to 08:30 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:15 AM					07:30 AM					06:45 AM					06:00 AM				
+0 mins.	0	20	11	6	37	5	0	55	2	62	15	8	0	0	23	0	0	0	0	0
+15 mins.	0	18	7	6	31	3	0	79	3	85	16	22	0	0	38	0	0	0	0	0
+30 mins.	0	29	12	10	51	5	0	61	2	68	6	11	0	0	17	0	1	0	0	1
+45 mins.	0	43	25	2	70	7	0	81	2	90	12	9	0	0	21	0	0	0	0	0
Total Volume	0	110	55	24	189	20	0	276	9	305	49	50	0	0	99	0	1	0	0	1
% App. Total	0	58.2	29.1	12.7		6.6	0	90.5	3		49.5	50.5	0	0		0	100	0	0	
PHF	.000	.640	.550	.600	.675	.714	.000	.852	.750	.847	.766	.568	.000	.000	.651	.000	.250	.000	.000	.250



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Eastern Point Road at Chester Street
Groton, Connecticut

File Name : 18034
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Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

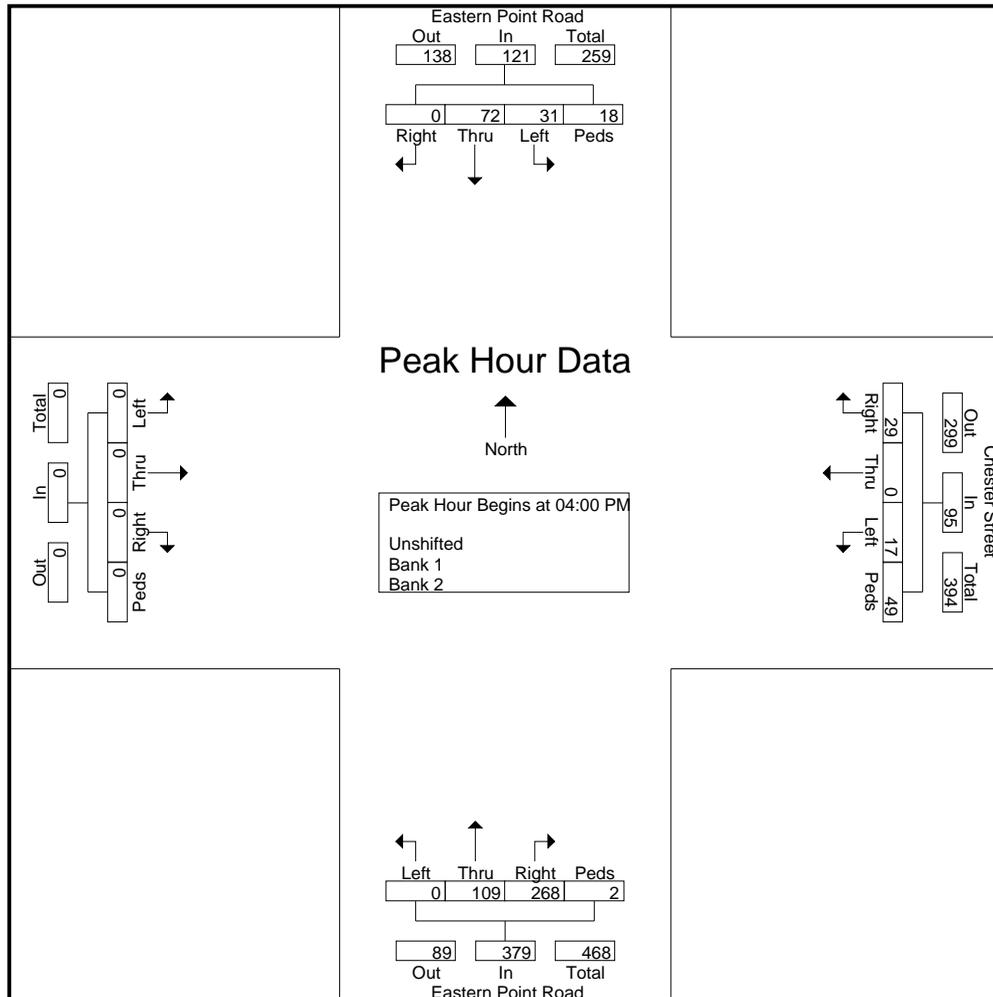
Start Time	Eastern Point Road From North					Chester Street From East					Eastern Point Road From South					From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
03:00 PM	0	29	16	10	55	11	0	5	39	55	23	16	0	5	44	0	0	0	0	0	154
03:15 PM	0	13	10	3	26	6	0	4	14	24	27	24	0	3	54	0	0	0	0	0	104
03:30 PM	0	17	9	5	31	6	0	4	22	32	39	19	0	0	58	0	0	0	0	0	121
03:45 PM	0	13	12	2	27	2	0	8	8	18	39	21	0	0	60	0	0	0	0	0	105
Total	0	72	47	20	139	25	0	21	83	129	128	80	0	8	216	0	0	0	0	0	484
04:00 PM	0	30	13	10	53	11	0	2	29	42	90	48	0	2	140	0	0	0	0	0	235
04:15 PM	0	6	3	1	10	5	0	2	3	10	49	18	0	0	67	0	0	0	0	0	87
04:30 PM	0	19	7	3	29	8	0	6	6	20	69	19	0	0	88	0	0	0	0	0	137
04:45 PM	0	17	8	4	29	5	0	7	11	23	60	24	0	0	84	0	0	0	0	0	136
Total	0	72	31	18	121	29	0	17	49	95	268	109	0	2	379	0	0	0	0	0	595
05:00 PM	0	22	5	0	27	3	0	3	7	13	70	29	0	0	99	0	0	0	0	0	139
05:15 PM	0	15	8	3	26	4	0	4	5	13	67	27	0	0	94	0	0	0	0	0	133
05:30 PM	0	15	2	1	18	5	0	4	4	13	7	17	0	0	24	0	0	0	0	0	55
05:45 PM	0	16	9	0	25	4	0	3	3	10	4	12	0	0	16	0	0	0	0	0	51
Total	0	68	24	4	96	16	0	14	19	49	148	85	0	0	233	0	0	0	0	0	378
Grand Total	0	212	102	42	356	70	0	52	151	273	544	274	0	10	828	0	0	0	0	0	1457
Apprch %	0	59.6	28.7	11.8		25.6	0	19	55.3		65.7	33.1	0	1.2		0	0	0	0		
Total %	0	14.6	7	2.9	24.4	4.8	0	3.6	10.4	18.7	37.3	18.8	0	0.7	56.8	0	0	0	0	0	
Unshifted	0	209	101	42	352	69	0	47	151	267	541	272	0	10	823	0	0	0	0	0	1442
% Unshifted																					
Bank 1	0	3	1	0	4	0	0	3	0	3	3	2	0	0	5	0	0	0	0	0	12
% Bank 1	0	1.4	1	0	1.1	0	0	5.8	0	1.1	0.6	0.7	0	0	0.6	0	0	0	0	0	0.8
Bank 2	0	0	0	0	0	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	3
% Bank 2	0	0	0	0	0	1.4	0	3.8	0	1.1	0	0	0	0	0	0	0	0	0	0	0.2

Connecticut Counts LLC

Kensington, Connecticut 06037
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File Name : 18034
Site Code : 18034
Start Date : 10/18/2018
Page No : 2

Start Time	Eastern Point Road From North					Chester Street From East					Eastern Point Road From South					From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	30	13	10	53	11	0	2	29	42	90	48	0	2	140	0	0	0	0	0	235
04:15 PM	0	6	3	1	10	5	0	2	3	10	49	18	0	0	67	0	0	0	0	0	87
04:30 PM	0	19	7	3	29	8	0	6	6	20	69	19	0	0	88	0	0	0	0	0	137
04:45 PM	0	17	8	4	29	5	0	7	11	23	60	24	0	0	84	0	0	0	0	0	136
Total Volume	0	72	31	18	121	29	0	17	49	95	268	109	0	2	379	0	0	0	0	0	595
% App. Total	0	59.5	25.6	14.9		30.5	0	17.9	51.6		70.7	28.8	0	0.5		0	0	0	0	0	
PHF	.000	.600	.596	.450	.571	.659	.000	.607	.422	.565	.744	.568	.000	.250	.677	.000	.000	.000	.000	.000	.633



Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

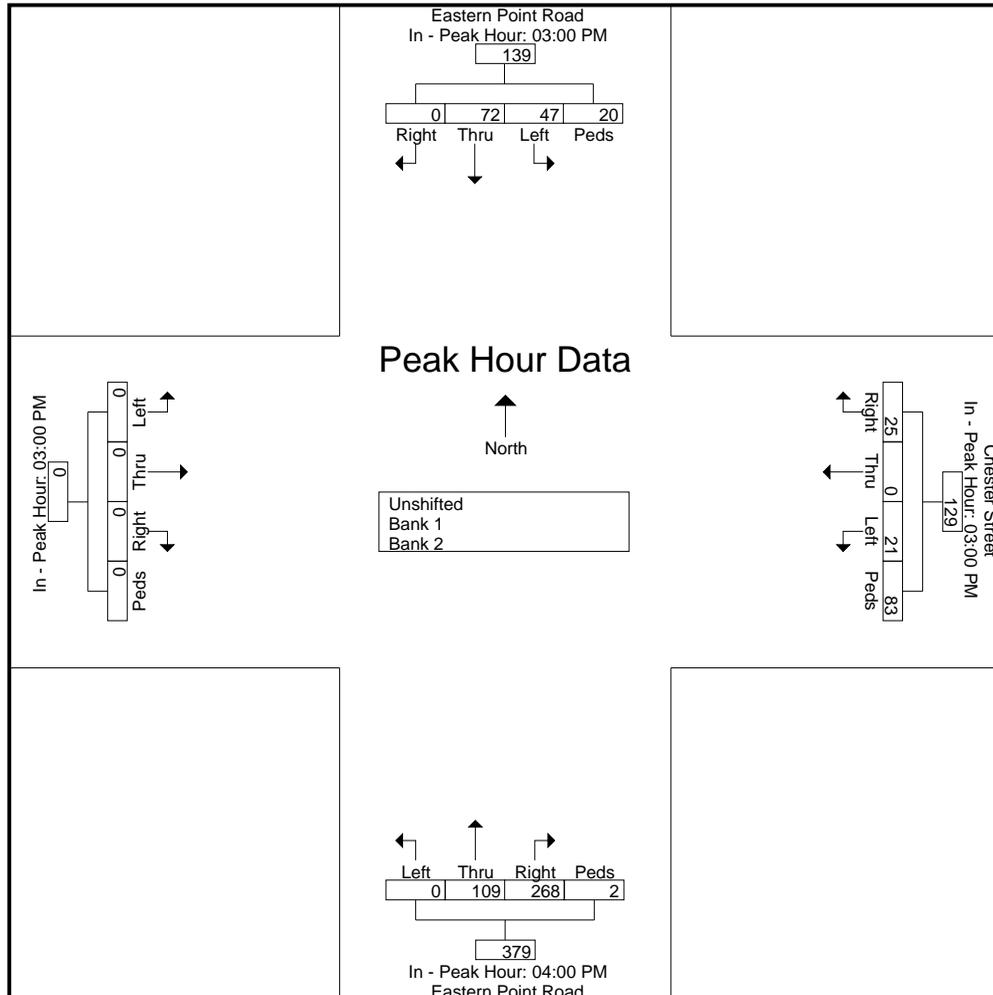
File Name : 18034
Site Code : 18034
Start Date : 10/18/2018
Page No : 3

Start Time	Eastern Point Road From North					Chester Street From East					Eastern Point Road From South					From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM					03:00 PM					04:00 PM					03:00 PM				
+0 mins.	0	29	16	10	55	11	0	5	39	55	90	48	0	2	140	0	0	0	0	0
+15 mins.	0	13	10	3	26	6	0	4	14	24	49	18	0	0	67	0	0	0	0	0
+30 mins.	0	17	9	5	31	6	0	4	22	32	69	19	0	0	88	0	0	0	0	0
+45 mins.	0	13	12	2	27	2	0	8	8	18	60	24	0	0	84	0	0	0	0	0
Total Volume	0	72	47	20	139	25	0	21	83	129	268	109	0	2	379	0	0	0	0	0
% App. Total	0	51.8	33.8	14.4		19.4	0	16.3	64.3		70.7	28.8	0	0.5		0	0	0	0	
PHF	.000	.621	.734	.500	.632	.568	.000	.656	.532	.586	.744	.568	.000	.250	.677	.000	.000	.000	.000	.000



Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

Chester Street at Forrest/Mumford
Groton, Connecticut

File Name : 18039
Site Code : 18039
Start Date : 10/18/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	Forrest Street From North					Mumford Ave From East					Mumford Ave From South					Chester Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	4	15	6	52	77	4	19	37	79	139	3	0	0	0	3	2	16	1	6	25	244
06:15 AM	10	15	6	160	191	9	12	12	183	216	4	0	0	1	5	0	21	4	6	31	443
06:30 AM	7	4	11	48	70	4	12	2	91	109	2	1	2	5	10	0	17	4	2	23	212
06:45 AM	6	2	5	105	118	2	28	2	103	135	11	2	0	1	14	0	21	4	1	26	293
Total	27	36	28	365	456	19	71	53	456	599	20	3	2	7	32	2	75	13	15	105	1192
07:00 AM	8	5	12	67	92	4	31	3	62	100	14	5	0	6	25	0	21	6	5	32	249
07:15 AM	8	2	0	19	29	7	24	3	30	64	4	0	0	3	7	0	8	5	2	15	115
07:30 AM	10	1	3	8	22	7	59	4	8	78	3	0	0	1	4	0	8	2	4	14	118
07:45 AM	11	3	4	2	20	16	76	4	6	102	8	4	1	0	13	1	11	2	3	17	152
Total	37	11	19	96	163	34	190	14	106	344	29	9	1	10	49	1	48	15	14	78	634
08:00 AM	11	5	2	3	21	4	56	12	5	77	4	1	0	0	5	0	8	3	1	12	115
08:15 AM	11	4	10	2	27	8	54	4	1	67	2	4	1	1	8	1	12	5	0	18	120
08:30 AM	19	5	4	4	32	3	76	3	4	86	7	4	2	1	14	0	8	4	2	14	146
08:45 AM	11	7	5	1	24	5	49	3	3	60	5	4	2	1	12	0	11	4	2	17	113
Total	52	21	21	10	104	20	235	22	13	290	18	13	5	3	39	1	39	16	5	61	494
Grand Total	116	68	68	471	723	73	496	89	575	1233	67	25	8	20	120	4	162	44	34	244	2320
Apprch %	16	9.4	9.4	65.1		5.9	40.2	7.2	46.6		55.8	20.8	6.7	16.7		1.6	66.4	18	13.9		
Total %	5	2.9	2.9	20.3	31.2	3.1	21.4	3.8	24.8	53.1	2.9	1.1	0.3	0.9	5.2	0.2	7	1.9	1.5	10.5	
Unshifted	113	67	59	471	710	72	465	89	575	1201	67	25	7	20	119	4	140	43	34	221	2251
% Unshifted																					
Bank 1	2	0	0	0	2	0	16	0	0	16	0	0	0	0	0	0	9	1	0	10	28
% Bank 1	1.7	0	0	0	0.3	0	3.2	0	0	1.3	0	0	0	0	0	0	5.6	2.3	0	4.1	1.2
Bank 2	1	1	9	0	11	1	15	0	0	16	0	0	1	1	0	0	13	0	0	13	41
% Bank 2	0.9	1.5	13.2	0	1.5	1.4	3	0	0	1.3	0	0	12.5	0	0.8	0	8	0	0	5.3	1.8

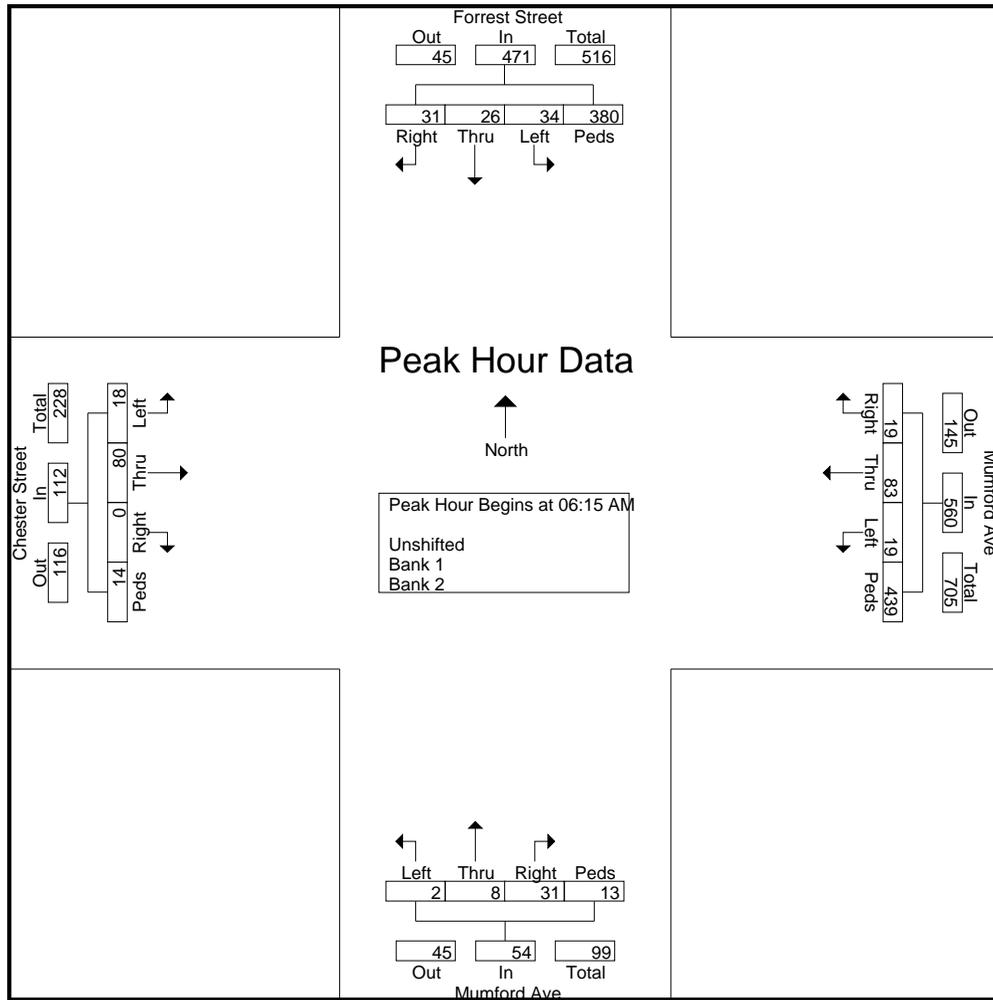
Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18039
Site Code : 18039
Start Date : 10/18/2018
Page No : 2

Start Time	Forrest Street From North					Mumford Ave From East					Mumford Ave From South					Chester Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:15 AM	10	15	6	160	191	9	12	12	183	216	4	0	0	1	5	0	21	4	6	31	443
06:30 AM	7	4	11	48	70	4	12	2	91	109	2	1	2	5	10	0	17	4	2	23	212
06:45 AM	6	2	5	105	118	2	28	2	103	135	11	2	0	1	14	0	21	4	1	26	293
07:00 AM	8	5	12	67	92	4	31	3	62	100	14	5	0	6	25	0	21	6	5	32	249
Total Volume	31	26	34	380	471	19	83	19	439	560	31	8	2	13	54	0	80	18	14	112	1197
% App. Total	6.6	5.5	7.2	80.7		3.4	14.8	3.4	78.4		57.4	14.8	3.7	24.1		0	71.4	16.1	12.5		
PHF	.775	.433	.708	.594	.616	.528	.669	.396	.600	.648	.554	.400	.250	.542	.540	.000	.952	.750	.583	.875	.676

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 06:15 AM



Connecticut Counts LLC

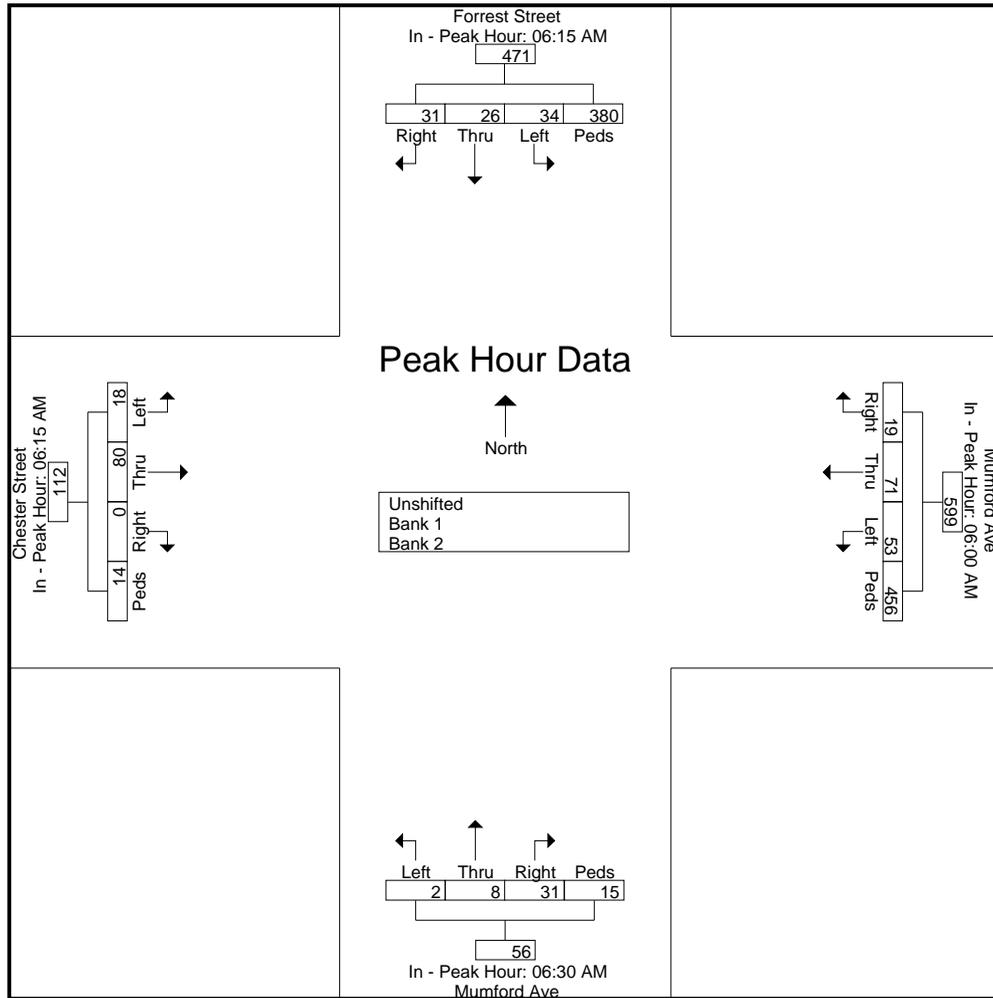
Kensington, Connecticut 06037
(860) 828-1693

File Name : 18039
Site Code : 18039
Start Date : 10/18/2018
Page No : 3

Start Time	Forrest Street From North					Mumford Ave From East					Mumford Ave From South					Chester Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:15 AM					06:00 AM					06:30 AM					06:15 AM				
+0 mins.	10	15	6	160	191	4	19	37	79	139	2	1	2	5	10	0	21	4	6	31
+15 mins.	7	4	11	48	70	9	12	12	183	216	11	2	0	1	14	0	17	4	2	23
+30 mins.	6	2	5	105	118	4	12	2	91	109	14	5	0	6	25	0	21	4	1	26
+45 mins.	8	5	12	67	92	2	28	2	103	135	4	0	0	3	7	0	21	6	5	32
Total Volume	31	26	34	380	471	19	71	53	456	599	31	8	2	15	56	0	80	18	14	112
% App. Total	6.6	5.5	7.2	80.7		3.2	11.9	8.8	76.1		55.4	14.3	3.6	26.8		0	71.4	16.1	12.5	
PHF	.775	.433	.708	.594	.616	.528	.634	.358	.623	.693	.554	.400	.250	.625	.560	.000	.952	.750	.583	.875



Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

Chester Street at Forrest/Mumford Ave
Groton, Connecticut

File Name : 18040
Site Code : 18040
Start Date : 10/18/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	Forrest Street From North					Mumford Ave From East					Mumford Ave From South					Chester Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
03:00 PM	5	2	18	6	31	20	19	10	49	98	38	6	1	18	63	5	35	11	6	57	249
03:15 PM	5	3	8	1	17	2	11	1	27	41	14	6	0	12	32	1	30	6	8	45	135
03:30 PM	5	2	16	17	40	4	8	5	53	70	19	6	1	12	38	3	54	12	11	80	228
03:45 PM	4	2	18	12	36	4	6	3	47	60	29	4	0	12	45	1	64	10	13	88	229
Total	19	9	60	36	124	30	44	19	176	269	100	22	2	54	178	10	183	39	38	270	841
04:00 PM	2	2	23	9	36	4	11	2	25	42	29	5	0	10	44	0	59	18	9	86	208
04:15 PM	3	1	9	2	15	5	6	5	22	38	14	1	1	11	27	1	65	16	9	91	171
04:30 PM	4	2	21	7	34	4	8	1	18	31	14	8	2	9	33	2	58	15	8	83	181
04:45 PM	5	1	11	1	18	5	7	1	11	24	7	2	0	4	13	0	57	10	5	72	127
Total	14	6	64	19	103	18	32	9	76	135	64	16	3	34	117	3	239	59	31	332	687
05:00 PM	2	2	17	4	25	1	5	0	10	16	16	6	0	6	28	0	63	10	7	80	149
05:15 PM	3	4	20	3	30	1	5	5	10	21	15	4	0	5	24	1	71	6	4	82	157
05:30 PM	5	4	14	2	25	2	3	2	5	12	11	1	2	4	18	0	8	1	6	15	70
05:45 PM	1	2	13	0	16	4	8	3	4	19	7	2	1	3	13	1	12	0	2	15	63
Total	11	12	64	9	96	8	21	10	29	68	49	13	3	18	83	2	154	17	19	192	439
Grand Total	44	27	188	64	323	56	97	38	281	472	213	51	8	106	378	15	576	115	88	794	1967
Apprch %	13.6	8.4	58.2	19.8		11.9	20.6	8.1	59.5		56.3	13.5	2.1	28		1.9	72.5	14.5	11.1		
Total %	2.2	1.4	9.6	3.3	16.4	2.8	4.9	1.9	14.3	24	10.8	2.6	0.4	5.4	19.2	0.8	29.3	5.8	4.5	40.4	
Unshifted	44	26	173	64	307	49	79	38	281	447	213	51	7	106	377	15	566	115	88	784	1915
% Unshifted																					
Bank 1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
% Bank 1	0	0	0	0	0	0	2.1	0	0	0.4	0	0	0	0	0	0	0.5	0	0	0.4	0.3
Bank 2	0	1	15	0	16	7	16	0	0	23	0	0	1	0	1	0	7	0	0	7	47
% Bank 2	0	3.7	8	0	5	12.5	16.5	0	0	4.9	0	0	12.5	0	0.3	0	1.2	0	0	0.9	2.4

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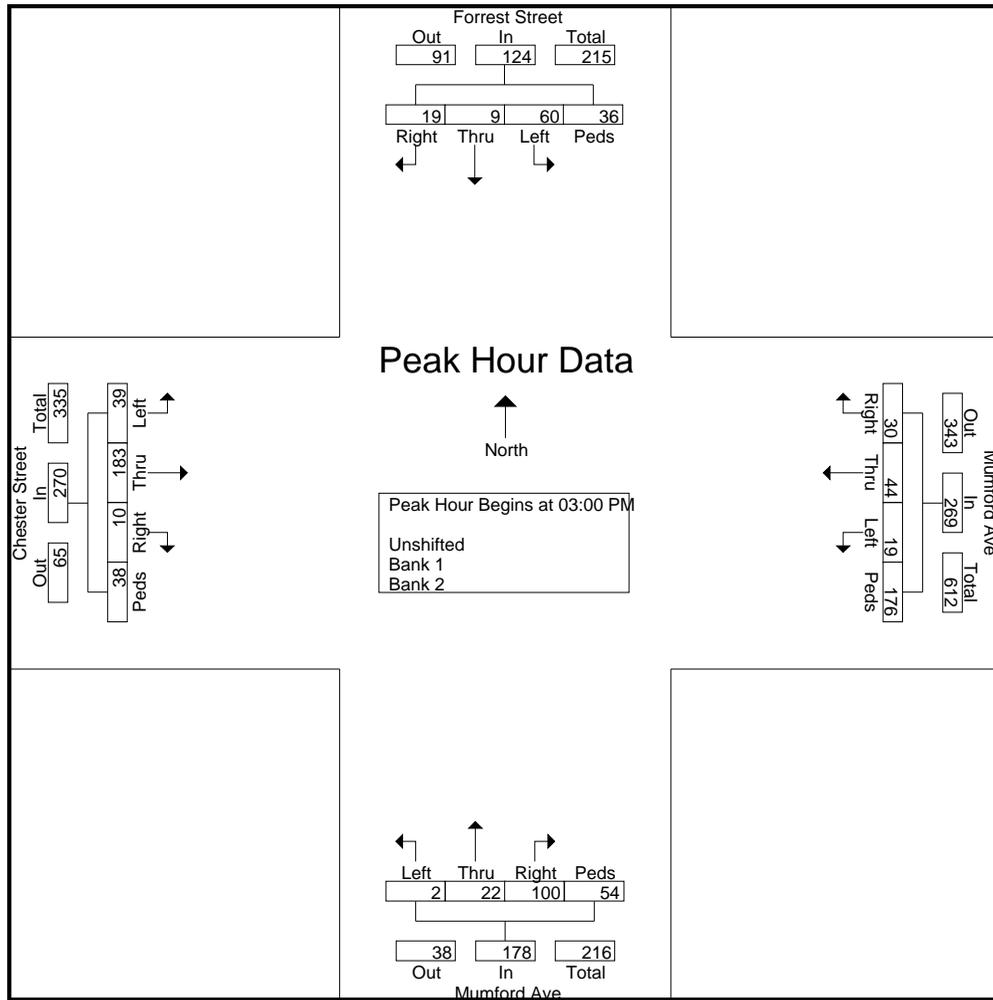
File Name : 18040
Site Code : 18040
Start Date : 10/18/2018
Page No : 2

Start Time	Forrest Street From North					Mumford Ave From East					Mumford Ave From South					Chester Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 03:00 PM

03:00 PM	5	2	18	6	31	20	19	10	49	98	38	6	1	18	63	5	35	11	6	57	249
03:15 PM	5	3	8	1	17	2	11	1	27	41	14	6	0	12	32	1	30	6	8	45	135
03:30 PM	5	2	16	17	40	4	8	5	53	70	19	6	1	12	38	3	54	12	11	80	228
03:45 PM	4	2	18	12	36	4	6	3	47	60	29	4	0	12	45	1	64	10	13	88	229
Total Volume	19	9	60	36	124	30	44	19	176	269	100	22	2	54	178	10	183	39	38	270	841
% App. Total	15.3	7.3	48.4	29		11.2	16.4	7.1	65.4		56.2	12.4	1.1	30.3		3.7	67.8	14.4	14.1		
PHF	.950	.750	.833	.529	.775	.375	.579	.475	.830	.686	.658	.917	.500	.750	.706	.500	.715	.813	.731	.767	.844



Connecticut Counts LLC

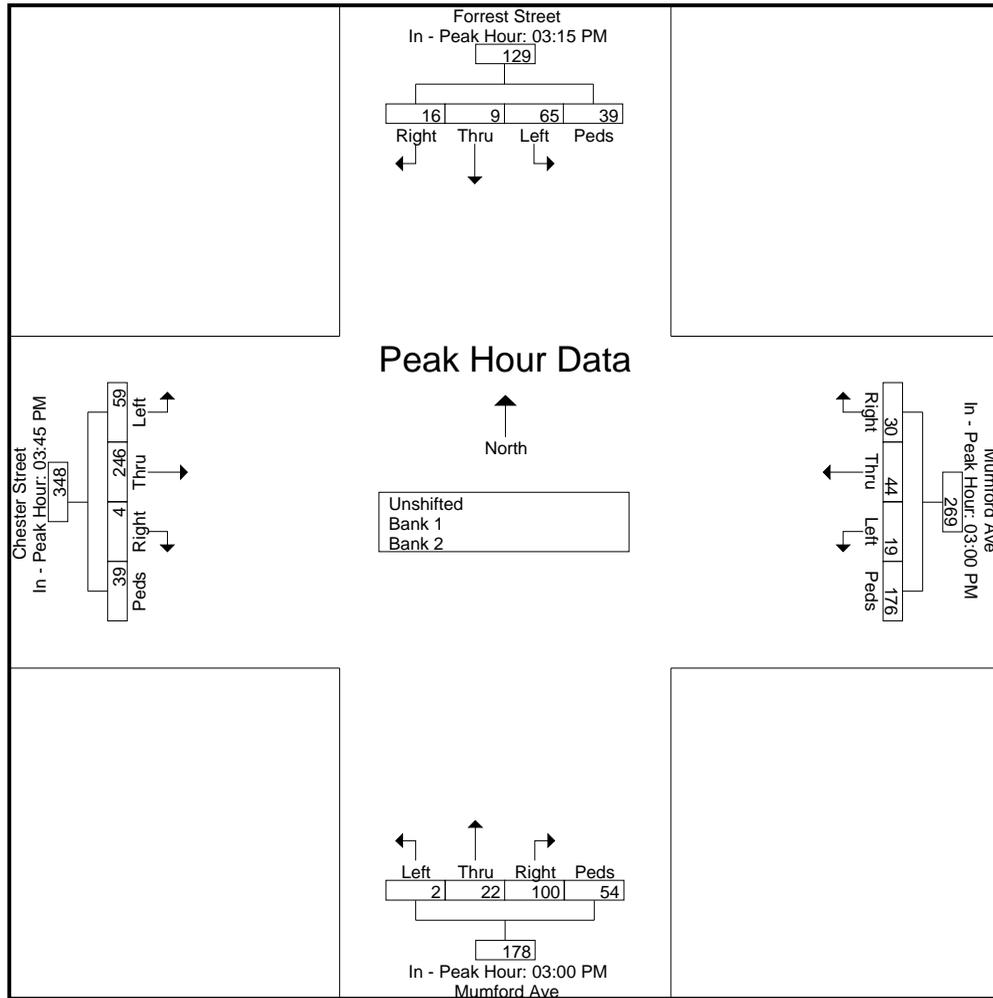
Kensington, Connecticut 06037
(860) 828-1693

File Name : 18040
Site Code : 18040
Start Date : 10/18/2018
Page No : 3

Start Time	Forrest Street From North					Mumford Ave From East					Mumford Ave From South					Chester Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:15 PM					03:00 PM					03:45 PM									
+0 mins.	5	3	8	1	17	20	19	10	49	98	38	6	1	18	63	1	64	10	13	88
+15 mins.	5	2	16	17	40	2	11	1	27	41	14	6	0	12	32	0	59	18	9	86
+30 mins.	4	2	18	12	36	4	8	5	53	70	19	6	1	12	38	1	65	16	9	91
+45 mins.	2	2	23	9	36	4	6	3	47	60	29	4	0	12	45	2	58	15	8	83
Total Volume	16	9	65	39	129	30	44	19	176	269	100	22	2	54	178	4	246	59	39	348
% App. Total	12.4	7	50.4	30.2		11.2	16.4	7.1	65.4		56.2	12.4	1.1	30.3		1.1	70.7	17	11.2	
PHF	.800	.750	.707	.574	.806	.375	.579	.475	.830	.686	.658	.917	.500	.750	.706	.500	.946	.819	.750	.956



Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

Mumford Ave at Benham Road
Groton, Connecticut

File Name : 18043
Site Code : 18043
Start Date : 10/18/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	Benham Road From North					Rainville Ave From East					Benham Road From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	25	23	6	0	54	29	118	36	0	183	9	7	1	1	18	0	13	0	0	13	268
06:15 AM	33	13	6	0	52	38	104	31	0	173	17	16	3	0	36	2	11	0	0	13	274
06:30 AM	26	17	16	0	59	31	79	39	0	149	15	16	0	0	31	2	13	4	0	19	258
06:45 AM	22	16	8	0	46	39	79	46	0	164	23	10	1	0	34	0	15	1	0	16	260
Total	106	69	36	0	211	137	380	152	0	669	64	49	5	1	119	4	52	5	0	61	1060
07:00 AM	4	32	14	0	50	27	69	53	0	149	25	21	1	1	48	1	22	1	0	24	271
07:15 AM	4	30	9	0	43	30	35	70	0	135	18	20	1	1	40	0	6	1	0	7	225
07:30 AM	3	34	6	0	43	31	60	51	0	142	23	16	1	0	40	1	19	0	0	20	245
07:45 AM	2	27	8	1	38	30	72	40	0	142	17	17	1	1	36	1	10	2	1	14	230
Total	13	123	37	1	174	118	236	214	0	568	83	74	4	3	164	3	57	4	1	65	971
08:00 AM	5	19	10	0	34	18	72	32	0	122	25	16	2	0	43	1	10	0	1	12	211
08:15 AM	1	30	9	0	40	15	55	53	0	123	19	20	1	1	41	1	17	1	2	21	225
08:30 AM	0	20	17	0	37	15	56	30	0	101	20	23	1	0	44	1	15	1	0	17	199
08:45 AM	3	17	4	0	24	14	38	42	1	95	20	12	0	0	32	2	11	1	0	14	165
Total	9	86	40	0	135	62	221	157	1	441	84	71	4	1	160	5	53	3	3	64	800
Grand Total	128	278	113	1	520	317	837	523	1	1678	231	194	13	5	443	12	162	12	4	190	2831
Apprch %	24.6	53.5	21.7	0.2		18.9	49.9	31.2	0.1		52.1	43.8	2.9	1.1		6.3	85.3	6.3	2.1		
Total %	4.5	9.8	4	0	18.4	11.2	29.6	18.5	0	59.3	8.2	6.9	0.5	0.2	15.6	0.4	5.7	0.4	0.1	6.7	
Unshifted	128	270	113	1	512	312	805	512	1	1630	224	188	13	5	430	12	140	10	4	166	2738
% Unshifted																					
Bank 1	0	5	0	0	5	2	18	4	0	24	4	3	0	0	7	0	12	0	0	12	48
% Bank 1	0	1.8	0	0	1	0.6	2.2	0.8	0	1.4	1.7	1.5	0	0	1.6	0	7.4	0	0	6.3	1.7
Bank 2	0	3	0	0	3	3	14	7	0	24	3	3	0	0	6	0	10	2	0	12	45
% Bank 2	0	1.1	0	0	0.6	0.9	1.7	1.3	0	1.4	1.3	1.5	0	0	1.4	0	6.2	16.7	0	6.3	1.6

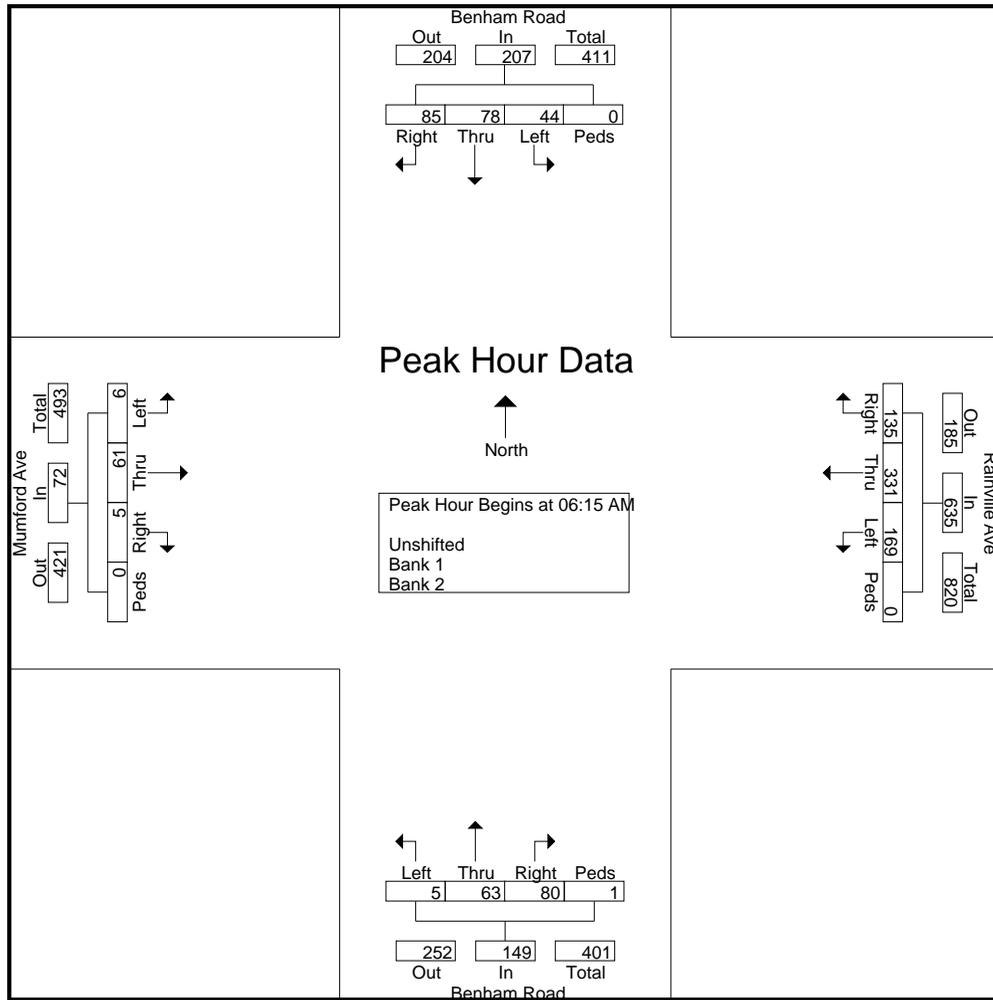
Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18043
Site Code : 18043
Start Date : 10/18/2018
Page No : 2

Start Time	Benham Road From North					Rainville Ave From East					Benham Road From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:15 AM	33	13	6	0	52	38	104	31	0	173	17	16	3	0	36	2	11	0	0	13	274
06:30 AM	26	17	16	0	59	31	79	39	0	149	15	16	0	0	31	2	13	4	0	19	258
06:45 AM	22	16	8	0	46	39	79	46	0	164	23	10	1	0	34	0	15	1	0	16	260
07:00 AM	4	32	14	0	50	27	69	53	0	149	25	21	1	1	48	1	22	1	0	24	271
Total Volume	85	78	44	0	207	135	331	169	0	635	80	63	5	1	149	5	61	6	0	72	1063
% App. Total	41.1	37.7	21.3	0		21.3	52.1	26.6	0		53.7	42.3	3.4	0.7		6.9	84.7	8.3	0		
PHF	.644	.609	.688	.000	.877	.865	.796	.797	.000	.918	.800	.750	.417	.250	.776	.625	.693	.375	.000	.750	.970

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 06:15 AM



Connecticut Counts LLC

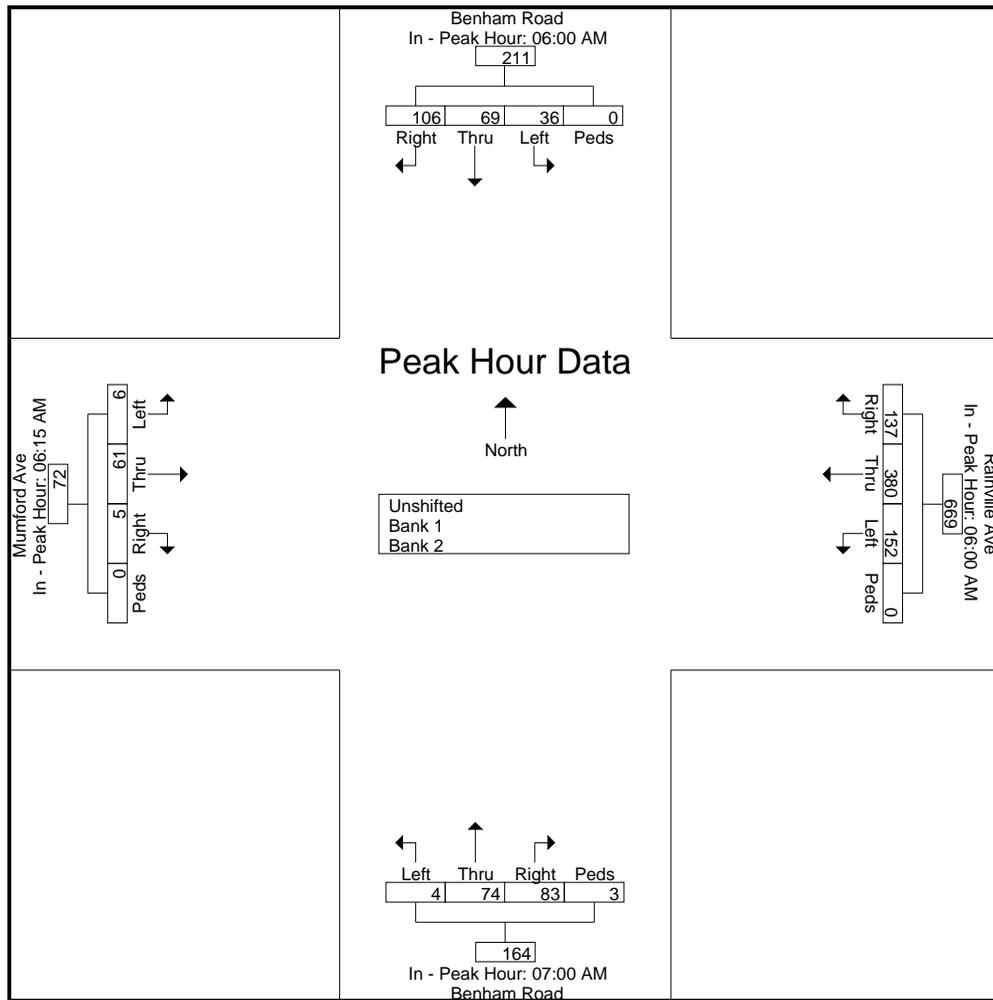
Kensington, Connecticut 06037
(860) 828-1693

File Name : 18043
Site Code : 18043
Start Date : 10/18/2018
Page No : 3

Start Time	Benham Road From North					Rainville Ave From East					Benham Road From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:00 AM					06:00 AM					07:00 AM					06:15 AM				
+0 mins.	25	23	6	0	54	29	118	36	0	183	25	21	1	1	48	2	11	0	0	13
+15 mins.	33	13	6	0	52	38	104	31	0	173	18	20	1	1	40	2	13	4	0	19
+30 mins.	26	17	16	0	59	31	79	39	0	149	23	16	1	0	40	0	15	1	0	16
+45 mins.	22	16	8	0	46	39	79	46	0	164	17	17	1	1	36	1	22	1	0	24
Total Volume	106	69	36	0	211	137	380	152	0	669	83	74	4	3	164	5	61	6	0	72
% App. Total	50.2	32.7	17.1	0		20.5	56.8	22.7	0		50.6	45.1	2.4	1.8		6.9	84.7	8.3	0	
PHF	.803	.750	.563	.000	.894	.878	.805	.826	.000	.914	.830	.881	1.000	.750	.854	.625	.693	.375	.000	.750



Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

Mumford Ave at Benham Road
Groton, Connecticut

File Name : 18044
Site Code : 18044
Start Date : 10/18/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	Benham Road From North					Rainville Ave From East					Benham Road From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
03:00 PM	0	20	25	0	45	18	28	35	2	83	43	44	3	2	92	5	102	17	0	124	344
03:15 PM	0	20	16	0	36	16	6	19	2	43	64	27	0	0	91	2	80	9	0	91	261
03:30 PM	0	25	23	0	48	11	9	14	0	34	50	34	0	0	84	1	91	11	0	103	269
03:45 PM	0	19	13	0	32	11	7	28	1	47	35	24	1	1	61	4	80	12	0	96	236
Total	0	84	77	0	161	56	50	96	5	207	192	129	4	3	328	12	353	49	0	414	1110
04:00 PM	0	33	49	0	82	12	12	16	0	40	48	40	1	2	91	6	134	25	0	165	378
04:15 PM	0	33	24	0	57	6	15	28	0	49	31	17	1	0	49	4	117	19	0	140	295
04:30 PM	0	35	23	0	58	10	7	22	1	40	42	22	0	0	64	0	111	13	0	124	286
04:45 PM	0	17	24	0	41	13	10	25	1	49	36	27	1	1	65	1	89	10	0	100	255
Total	0	118	120	0	238	41	44	91	2	178	157	106	3	3	269	11	451	67	0	529	1214
05:00 PM	0	26	21	0	47	5	5	27	1	38	49	24	0	1	74	3	88	8	0	99	258
05:15 PM	0	35	17	0	52	6	8	33	1	48	43	22	0	1	66	0	84	6	0	90	256
05:30 PM	1	49	10	0	60	6	9	37	0	52	46	31	0	1	78	0	48	5	1	54	244
05:45 PM	0	36	9	0	45	10	7	30	2	49	56	21	0	0	77	4	25	0	0	29	200
Total	1	146	57	0	204	27	29	127	4	187	194	98	0	3	295	7	245	19	1	272	958
Grand Total	1	348	254	0	603	124	123	314	11	572	543	333	7	9	892	30	1049	135	1	1215	3282
Apprch %	0.2	57.7	42.1	0		21.7	21.5	54.9	1.9		60.9	37.3	0.8	1		2.5	86.3	11.1	0.1		
Total %	0	10.6	7.7	0	18.4	3.8	3.7	9.6	0.3	17.4	16.5	10.1	0.2	0.3	27.2	0.9	32	4.1	0	37	
Unshifted	1	342	252	0	595	123	99	309	11	542	532	330	7	9	878	30	1025				
% Unshifted	100	98.3	99.2	0	98.7	99.2	80.5	98.4	100	94.8	98	99.1	100	100	98.4	100	97.7	99.3	100	97.9	97.7
Bank 1	0	4	1	0	5	0	5	2	0	7	7	0	0	0	7	0	7	0	0	7	26
% Bank 1	0	1.1	0.4	0	0.8	0	4.1	0.6	0	1.2	1.3	0	0	0	0.8	0	0.7	0	0	0.6	0.8
Bank 2	0	2	1	0	3	1	19	3	0	23	4	3	0	0	7	0	17	1	0	18	51
% Bank 2	0	0.6	0.4	0	0.5	0.8	15.4	1	0	4	0.7	0.9	0	0	0.8	0	1.6	0.7	0	1.5	1.6

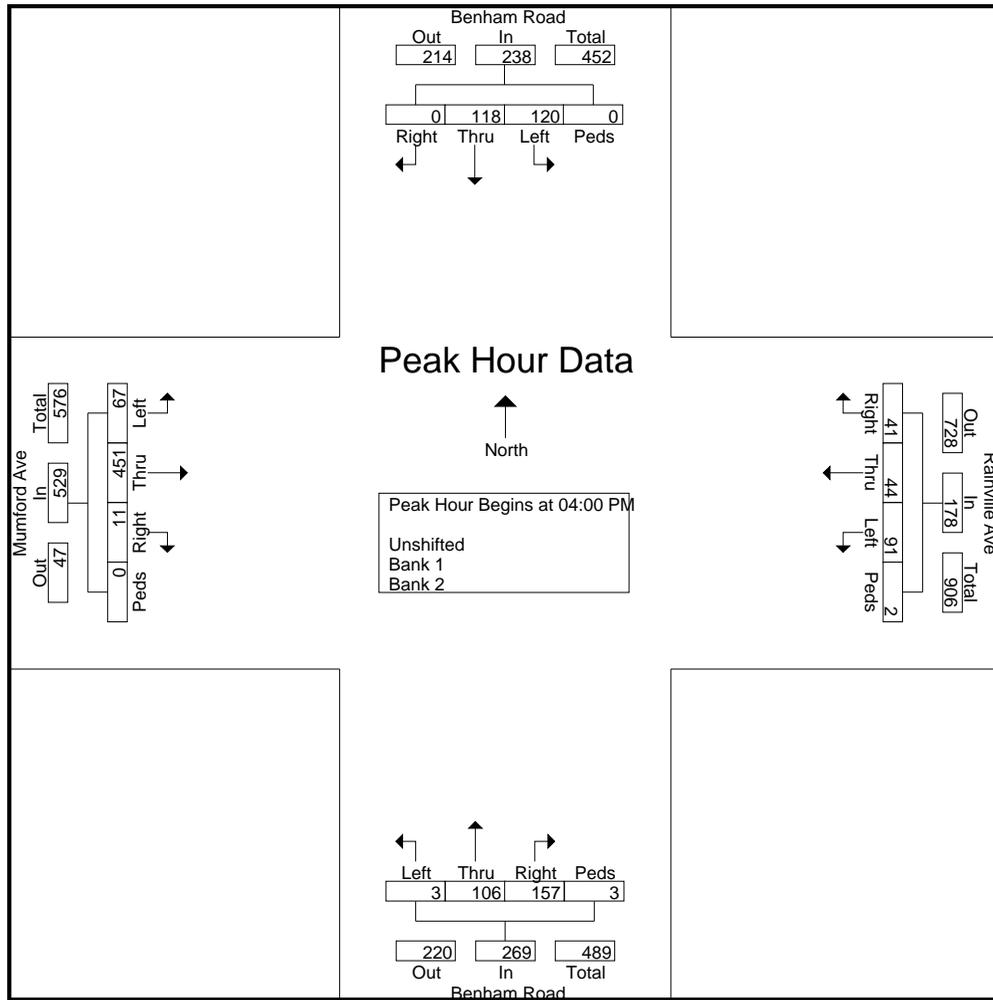
Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18044
Site Code : 18044
Start Date : 10/18/2018
Page No : 2

Start Time	Benham Road From North					Rainville Ave From East					Benham Road From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	0	33	49	0	82	12	12	16	0	40	48	40	1	2	91	6	134	25	0	165	378
04:15 PM	0	33	24	0	57	6	15	28	0	49	31	17	1	0	49	4	117	19	0	140	295
04:30 PM	0	35	23	0	58	10	7	22	1	40	42	22	0	0	64	0	111	13	0	124	286
04:45 PM	0	17	24	0	41	13	10	25	1	49	36	27	1	1	65	1	89	10	0	100	255
Total Volume	0	118	120	0	238	41	44	91	2	178	157	106	3	3	269	11	451	67	0	529	1214
% App. Total	0	49.6	50.4	0		23	24.7	51.1	1.1		58.4	39.4	1.1	1.1		2.1	85.3	12.7	0		
PHF	.000	.843	.612	.000	.726	.788	.733	.813	.500	.908	.818	.663	.750	.375	.739	.458	.841	.670	.000	.802	.803

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM



Connecticut Counts LLC

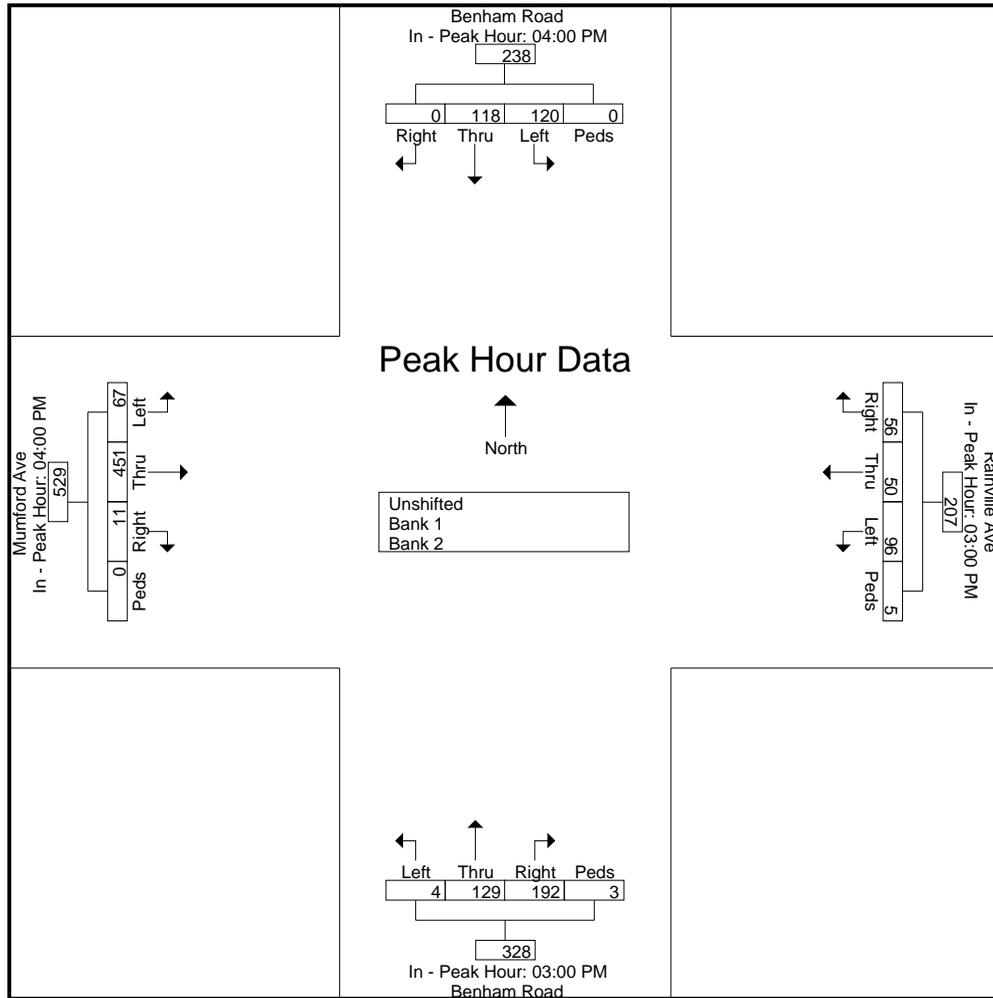
Kensington, Connecticut 06037
(860) 828-1693

File Name : 18044
Site Code : 18044
Start Date : 10/18/2018
Page No : 3

Start Time	Benham Road From North					Rainville Ave From East					Benham Road From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM					03:00 PM					03:00 PM					04:00 PM				
+0 mins.	0	33	49	0	82	18	28	35	2	83	43	44	3	2	92	6	134	25	0	165
+15 mins.	0	33	24	0	57	16	6	19	2	43	64	27	0	0	91	4	117	19	0	140
+30 mins.	0	35	23	0	58	11	9	14	0	34	50	34	0	0	84	0	111	13	0	124
+45 mins.	0	17	24	0	41	11	7	28	1	47	35	24	1	1	61	1	89	10	0	100
Total Volume	0	118	120	0	238	56	50	96	5	207	192	129	4	3	328	11	451	67	0	529
% App. Total	0	49.6	50.4	0		27.1	24.2	46.4	2.4		58.5	39.3	1.2	0.9		2.1	85.3	12.7	0	
PHF	.000	.843	.612	.000	.726	.778	.446	.686	.625	.623	.750	.733	.333	.375	.891	.458	.841	.670	.000	.802



Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

Mumford Ave at Brandegee Ave
Groton, Connecticut

File Name : 18041
Site Code : 18041
Start Date : 10/18/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	randegee Ave From North					Mumford Ave From East					randegee Ave From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	158	30	17	14	219	8	26	1	0	35	3	20	3	0	26	0	11	16	0	27	307
06:15 AM	214	48	23	2	287	12	41	1	0	54	3	35	10	0	48	5	17	40	0	62	451
06:30 AM	90	38	17	0	145	6	23	2	0	31	0	26	1	0	27	0	9	25	0	34	237
06:45 AM	135	86	16	0	237	14	26	10	0	50	7	40	5	2	54	0	29	26	0	55	396
Total	597	202	73	16	888	40	116	14	0	170	13	121	19	2	155	5	66	107	0	178	1391
07:00 AM	83	95	36	0	214	9	22	12	0	43	7	62	5	0	74	5	21	45	0	71	402
07:15 AM	125	103	38	0	266	12	21	14	0	47	4	75	2	4	85	3	13	35	0	51	449
07:30 AM	125	122	37	0	284	23	17	26	0	66	4	69	2	2	77	1	22	30	0	53	480
07:45 AM	130	129	20	0	279	19	12	13	0	44	5	58	4	3	70	4	15	41	0	60	453
Total	463	449	131	0	1043	63	72	65	0	200	20	264	13	9	306	13	71	151	0	235	1784
08:00 AM	99	146	35	0	280	20	19	15	0	54	2	55	7	1	65	4	19	36	0	59	458
08:15 AM	123	117	29	0	269	20	16	10	0	46	5	53	0	0	58	5	17	29	0	51	424
08:30 AM	116	112	27	0	255	18	20	11	0	49	3	59	6	2	70	3	20	45	0	68	442
08:45 AM	87	120	24	0	231	17	24	10	0	51	5	43	6	0	54	6	12	34	0	52	388
Total	425	495	115	0	1035	75	79	46	0	200	15	210	19	3	247	18	68	144	0	230	1712
Grand Total	1485	1146	319	16	2966	178	267	125	0	570	48	595	51	14	708	36	205	402	0	643	4887
Apprch %	50.1	38.6	10.8	0.5		31.2	46.8	21.9	0		6.8	84	7.2	2		5.6	31.9	62.5	0		
Total %	30.4	23.4	6.5	0.3	60.7	3.6	5.5	2.6	0	11.7	1	12.2	1	0.3	14.5	0.7	4.2	8.2	0	13.2	
Unshifted	1457	1125																			
% Unshifted	98.1	98.2	98.7	93.8	98.2	92.1	92.5	88.8	0	91.6	95.8	96.3	94.1	100	96.2	91.7	89.3	95	0	93	96.4
Bank 1	20	0	3	0	23	1	2	3	0	6	0	2	0	0	2	0	2	16	0	18	49
% Bank 1	1.3	0	0.9	0	0.8	0.6	0.7	2.4	0	1.1	0	0.3	0	0	0.3	0	1	4	0	2.8	1
Bank 2	8	21	1	1	31	13	18	11	0	42	2	20	3	0	25	3	20	4	0	27	125
% Bank 2	0.5	1.8	0.3	6.2	1	7.3	6.7	8.8	0	7.4	4.2	3.4	5.9	0	3.5	8.3	9.8	1	0	4.2	2.6

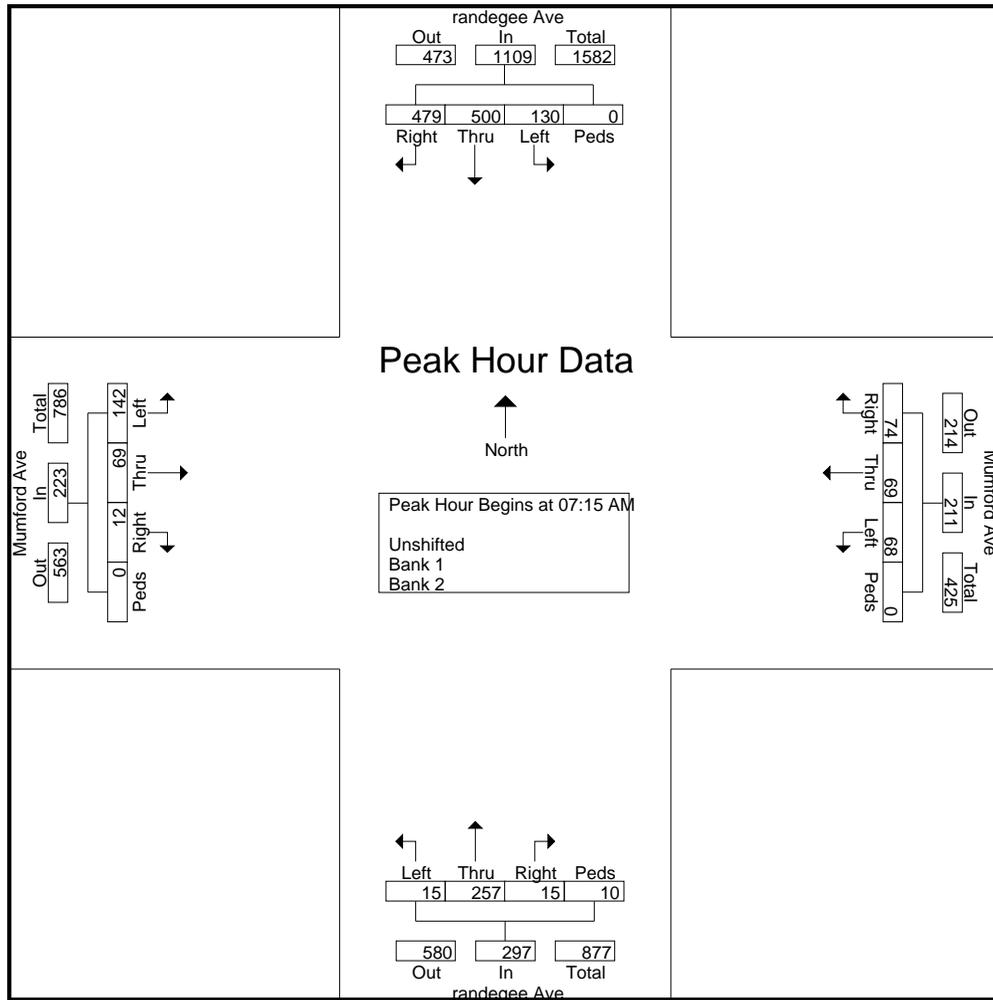
Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18041
Site Code : 18041
Start Date : 10/18/2018
Page No : 2

Start Time	randegee Ave From North					Mumford Ave From East					randegee Ave From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:15 AM	125	103	38	0	266	12	21	14	0	47	4	75	2	4	85	3	13	35	0	51	449
07:30 AM	125	122	37	0	284	23	17	26	0	66	4	69	2	2	77	1	22	30	0	53	480
07:45 AM	130	129	20	0	279	19	12	13	0	44	5	58	4	3	70	4	15	41	0	60	453
08:00 AM	99	146	35	0	280	20	19	15	0	54	2	55	7	1	65	4	19	36	0	59	458
Total Volume	479	500	130	0	1109	74	69	68	0	211	15	257	15	10	297	12	69	142	0	223	1840
% App. Total	43.2	45.1	11.7	0		35.1	32.7	32.2	0		5.1	86.5	5.1	3.4		5.4	30.9	63.7	0		
PHF	.921	.856	.855	.000	.976	.804	.821	.654	.000	.799	.750	.857	.536	.625	.874	.750	.784	.866	.000	.929	.958

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM



Connecticut Counts LLC

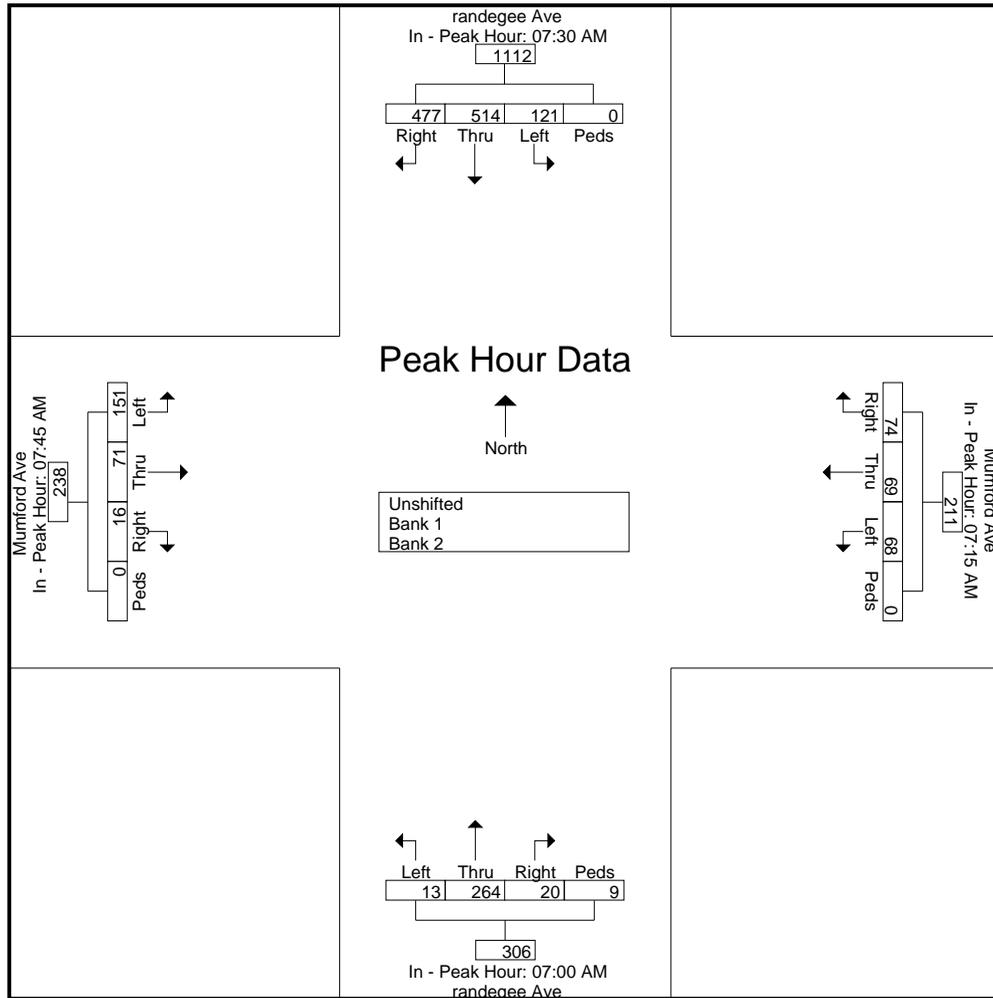
Kensington, Connecticut 06037
(860) 828-1693

File Name : 18041
Site Code : 18041
Start Date : 10/18/2018
Page No : 3

Start Time	randegeee Ave From North					Mumford Ave From East					randegeee Ave From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:15 AM					07:00 AM					07:45 AM				
+0 mins.	125	122	37	0	284	12	21	14	0	47	7	62	5	0	74	4	15	41	0	60
+15 mins.	130	129	20	0	279	23	17	26	0	66	4	75	2	4	85	4	19	36	0	59
+30 mins.	99	146	35	0	280	19	12	13	0	44	4	69	2	2	77	5	17	29	0	51
+45 mins.	123	117	29	0	269	20	19	15	0	54	5	58	4	3	70	3	20	45	0	68
Total Volume	477	514	121	0	1112	74	69	68	0	211	20	264	13	9	306	16	71	151	0	238
% App. Total	42.9	46.2	10.9	0		35.1	32.7	32.2	0		6.5	86.3	4.2	2.9		6.7	29.8	63.4	0	
PHF	.917	.880	.818	.000	.979	.804	.821	.654	.000	.799	.714	.880	.650	.563	.900	.800	.888	.839	.000	.875



Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

Mumford Ave at Brandegee Ave
Groton, Connecticut

File Name : 18042
Site Code : 18042
Start Date : 10/18/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	Brandegee Ave From North					Mumford Ave From East					Brandegee Ave From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
03:00 PM	80	55	25	0	160	38	23	12	2	75	15	131	6	0	152	7	53	208	0	268	655
03:15 PM	27	53	23	0	103	22	20	14	1	57	8	97	4	0	109	4	24	131	0	159	428
03:30 PM	17	59	12	0	88	29	16	15	1	61	11	94	6	0	111	2	24	163	0	189	449
03:45 PM	30	57	19	0	106	34	17	6	0	57	9	111	8	0	128	6	31	117	0	154	445
Total	154	224	79	0	457	123	76	47	4	250	43	433	24	0	500	19	132	619	0	770	1977
04:00 PM	25	37	17	0	79	28	8	13	0	49	7	120	4	1	132	2	44	191	0	237	497
04:15 PM	25	60	29	0	114	45	12	9	0	66	10	118	3	0	131	8	30	143	0	181	492
04:30 PM	33	59	14	0	106	57	19	10	0	86	19	138	8	0	165	4	35	162	0	201	558
04:45 PM	28	39	15	0	82	19	7	13	0	39	14	110	5	1	130	6	19	126	0	151	402
Total	111	195	75	0	381	149	46	45	0	240	50	486	20	2	558	20	128	622	0	770	1949
05:00 PM	30	43	13	0	86	30	19	9	0	58	11	140	1	1	153	8	33	150	0	191	488
05:15 PM	34	52	26	0	112	31	20	7	0	58	20	124	2	2	148	1	33	159	0	193	511
05:30 PM	31	36	12	0	79	40	18	9	0	67	9	60	2	0	71	2	23	82	0	107	324
05:45 PM	29	52	14	0	95	21	17	13	0	51	4	89	4	0	97	4	18	86	0	108	351
Total	124	183	65	0	372	122	74	38	0	234	44	413	9	3	469	15	107	477	0	599	1674
Grand Total	389	602	219	0	1210	394	196	130	4	724	137	1332	53	5	1527	54	367	1718	0	2139	5600
Apprch %	32.1	49.8	18.1	0		54.4	27.1	18	0.6		9	87.2	3.5	0.3		2.5	17.2	80.3	0		
Total %	6.9	10.8	3.9	0	21.6	7	3.5	2.3	0.1	12.9	2.4	23.8	0.9	0.1	27.3	1	6.6	30.7	0	38.2	
Unshifted	385	594	199	0	1178	387	170	119	4	680	136	1322						1696			
% Unshifted	99	98.7	90.9	0	97.4	98.2	86.7	91.5	100	93.9	99.3	99.2	90.6	100	99	96.3	95.1	98.7	0	98	97.6
Bank 1	2	3	10	0	15	6	4	0	0	10	0	1	0	0	1	1	2	13	0	16	42
% Bank 1	0.5	0.5	4.6	0	1.2	1.5	2	0	0	1.4	0	0.1	0	0	0.1	1.9	0.5	0.8	0	0.7	0.8
Bank 2	2	5	10	0	17	1	22	11	0	34	1	9	5	0	15	1	16	9	0	26	92
% Bank 2	0.5	0.8	4.6	0	1.4	0.3	11.2	8.5	0	4.7	0.7	0.7	9.4	0	1	1.9	4.4	0.5	0	1.2	1.6

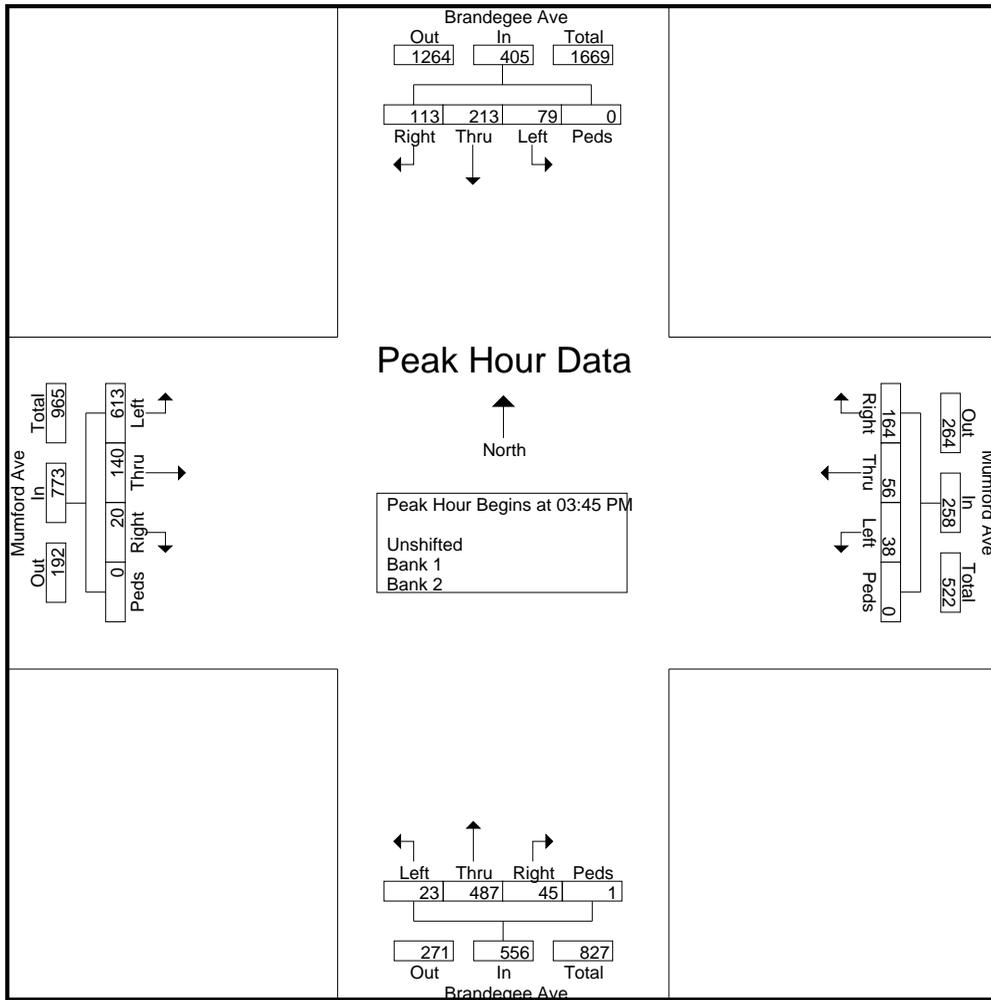
Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18042
Site Code : 18042
Start Date : 10/18/2018
Page No : 2

Start Time	Brandegee Ave From North					Mumford Ave From East					Brandegee Ave From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
03:45 PM	30	57	19	0	106	34	17	6	0	57	9	111	8	0	128	6	31	117	0	154	445
04:00 PM	25	37	17	0	79	28	8	13	0	49	7	120	4	1	132	2	44	191	0	237	497
04:15 PM	25	60	29	0	114	45	12	9	0	66	10	118	3	0	131	8	30	143	0	181	492
04:30 PM	33	59	14	0	106	57	19	10	0	86	19	138	8	0	165	4	35	162	0	201	558
Total Volume	113	213	79	0	405	164	56	38	0	258	45	487	23	1	556	20	140	613	0	773	1992
% App. Total	27.9	52.6	19.5	0		63.6	21.7	14.7	0		8.1	87.6	4.1	0.2		2.6	18.1	79.3	0		
PHF	.856	.888	.681	.000	.888	.719	.737	.731	.000	.750	.592	.882	.719	.250	.842	.625	.795	.802	.000	.815	.892

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:45 PM



Connecticut Counts LLC

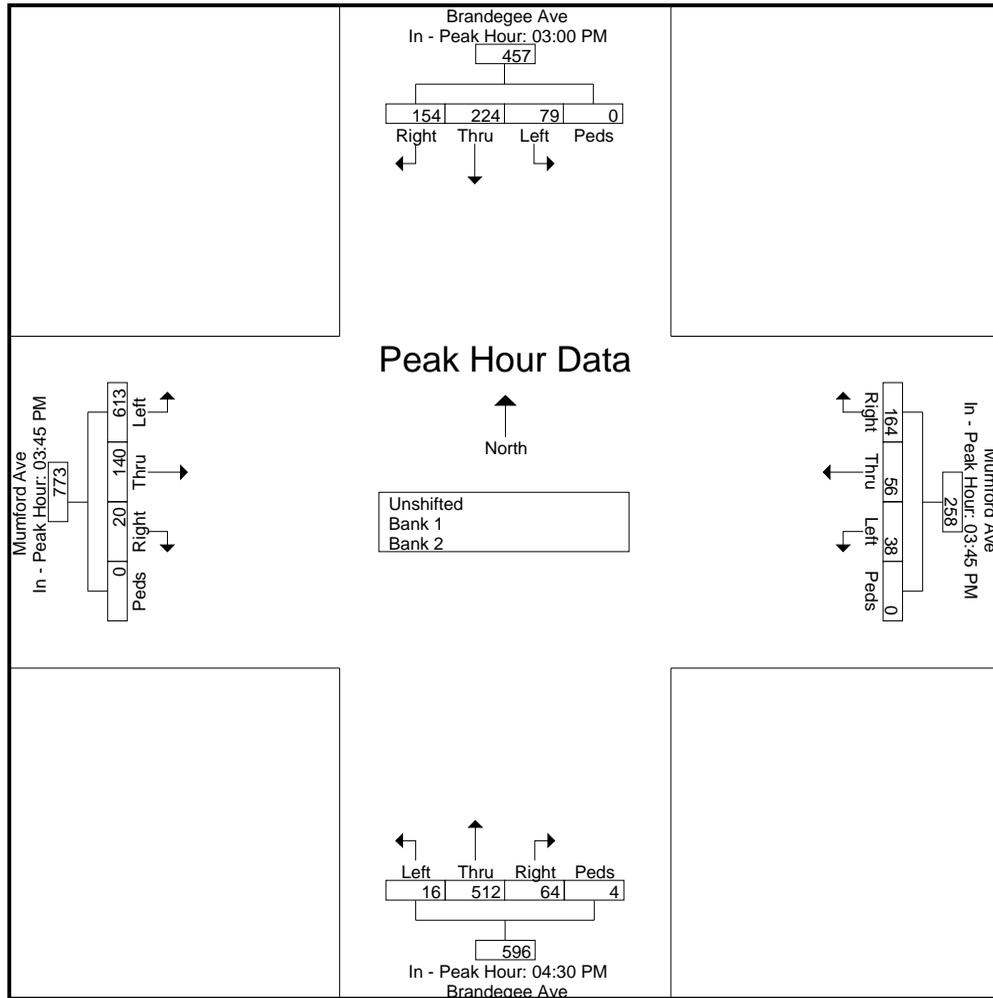
Kensington, Connecticut 06037
(860) 828-1693

File Name : 18042
Site Code : 18042
Start Date : 10/18/2018
Page No : 3

Start Time	Brandegee Ave From North					Mumford Ave From East					Brandegee Ave From South					Mumford Ave From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM					03:45 PM					04:30 PM					03:45 PM				
+0 mins.	80	55	25	0	160	34	17	6	0	57	19	138	8	0	165	6	31	117	0	154
+15 mins.	27	53	23	0	103	28	8	13	0	49	14	110	5	1	130	2	44	191	0	237
+30 mins.	17	59	12	0	88	45	12	9	0	66	11	140	1	1	153	8	30	143	0	181
+45 mins.	30	57	19	0	106	57	19	10	0	86	20	124	2	2	148	4	35	162	0	201
Total Volume	154	224	79	0	457	164	56	38	0	258	64	512	16	4	596	20	140	613	0	773
% App. Total	33.7	49	17.3	0		63.6	21.7	14.7	0		10.7	85.9	2.7	0.7		2.6	18.1	79.3	0	
PHF	.481	.949	.790	.000	.714	.719	.737	.731	.000	.750	.800	.914	.500	.500	.903	.625	.795	.802	.000	.815



Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

Eastern Point Rd at Poquonock/Thames St
Groton, Connecticut

File Name : 18035
Site Code : 18035
Start Date : 10/18/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

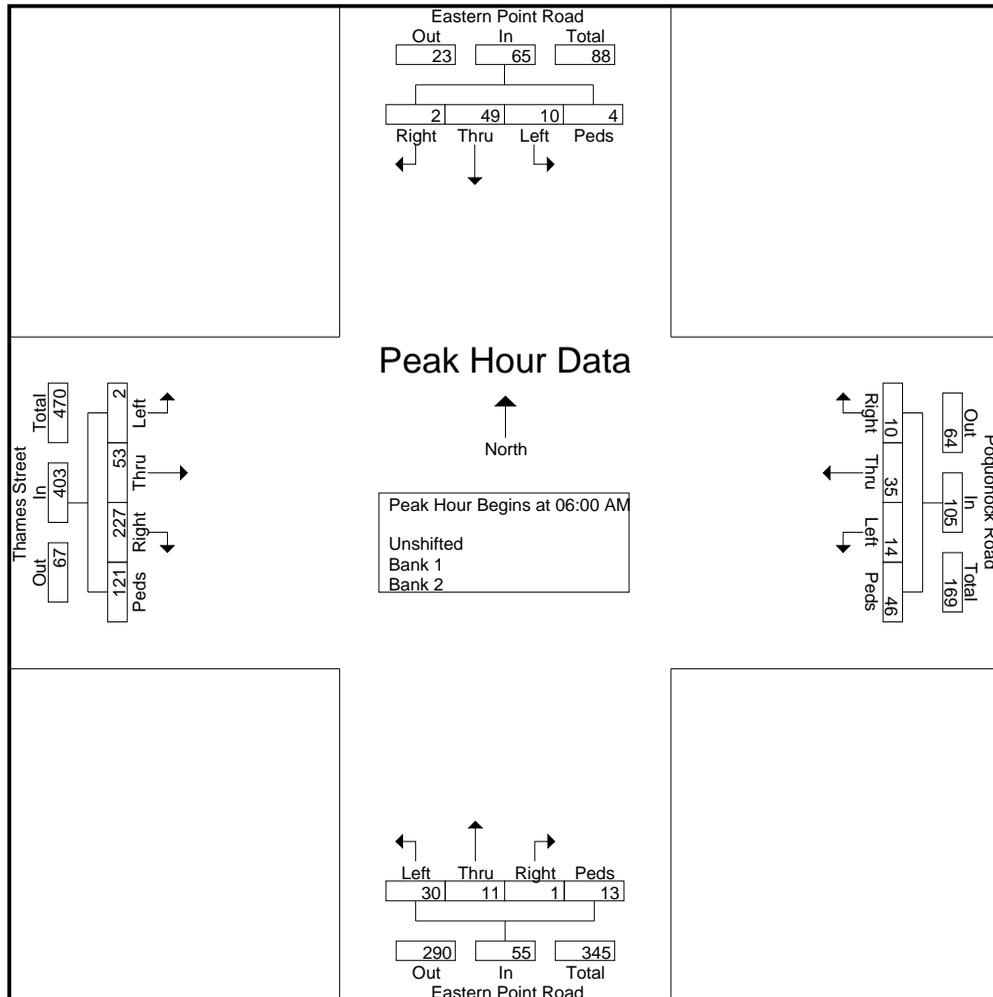
Start Time	Eastern Point Road From North					Poquonock Road From East					Eastern Point Road From South					Thames Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	1	25	4	4	34	3	7	5	18	33	0	2	5	1	8	100	24	2	71	197	272
06:15 AM	0	4	0	0	4	2	10	3	19	34	0	5	2	11	18	42	11	0	31	84	140
06:30 AM	0	8	2	0	10	0	9	3	3	15	0	1	12	1	14	51	7	0	6	64	103
06:45 AM	1	12	4	0	17	5	9	3	6	23	1	3	11	0	15	34	11	0	13	58	113
Total	2	49	10	4	65	10	35	14	46	105	1	11	30	13	55	227	53	2	121	403	628
07:00 AM	0	12	0	0	12	0	15	5	2	22	0	4	15	1	20	60	11	0	14	85	139
07:15 AM	0	8	2	0	10	1	13	7	5	26	0	7	14	0	21	35	16	1	14	66	123
07:30 AM	0	7	3	0	10	0	9	3	3	15	0	2	6	0	8	33	11	0	9	53	86
07:45 AM	0	11	2	0	13	1	9	2	2	14	0	4	15	0	19	30	7	0	2	39	85
Total	0	38	7	0	45	2	46	17	12	77	0	17	50	1	68	158	45	1	39	243	433
08:00 AM	0	9	0	2	11	1	7	3	3	14	0	2	9	0	11	37	17	1	9	64	100
08:15 AM	1	3	2	0	6	1	10	1	1	13	0	6	9	0	15	33	6	0	6	45	79
08:30 AM	1	6	0	0	7	0	10	8	2	20	0	0	10	0	10	23	10	0	3	36	73
08:45 AM	2	8	1	1	12	5	15	1	2	23	0	3	14	1	18	20	9	0	14	43	96
Total	4	26	3	3	36	7	42	13	8	70	0	11	42	1	54	113	42	1	32	188	348
Grand Total	6	113	20	7	146	19	123	44	66	252	1	39	122	15	177	498	140	4	192	834	1409
Apprch %	4.1	77.4	13.7	4.8		7.5	48.8	17.5	26.2		0.6	22	68.9	8.5		59.7	16.8	0.5	23		
Total %	0.4	8	1.4	0.5	10.4	1.3	8.7	3.1	4.7	17.9	0.1	2.8	8.7	1.1	12.6	35.3	9.9	0.3	13.6	59.2	
Unshifted	6	112	17	7	142	19	114	42	66	241	1	39	118	15	173	491	137	4	192	824	1380
% Unshifted																					
Bank 1	0	1	1	0	2	0	1	2	0	3	0	0	4	0	4	6	2	0	0	8	17
% Bank 1	0	0.9	5	0	1.4	0	0.8	4.5	0	1.2	0	0	3.3	0	2.3	1.2	1.4	0	0	1	1.2
Bank 2	0	0	2	0	2	0	8	0	0	8	0	0	0	0	0	1	1	0	0	2	12
% Bank 2	0	0	10	0	1.4	0	6.5	0	0	3.2	0	0	0	0	0	0.2	0.7	0	0	0.2	0.9

Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18035
Site Code : 18035
Start Date : 10/18/2018
Page No : 2

Start Time	Eastern Point Road From North					Poquonock Road From East					Eastern Point Road From South					Thames Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:00 AM																					
06:00 AM	1	25	4	4	34	3	7	5	18	33	0	2	5	1	8	100	24	2	71	197	272
06:15 AM	0	4	0	0	4	2	10	3	19	34	0	5	2	11	18	42	11	0	31	84	140
06:30 AM	0	8	2	0	10	0	9	3	3	15	0	1	12	1	14	51	7	0	6	64	103
06:45 AM	1	12	4	0	17	5	9	3	6	23	1	3	11	0	15	34	11	0	13	58	113
Total Volume	2	49	10	4	65	10	35	14	46	105	1	11	30	13	55	227	53	2	121	403	628
% App. Total	3.1	75.4	15.4	6.2		9.5	33.3	13.3	43.8		1.8	20	54.5	23.6		56.3	13.2	0.5	30		
PHF	.500	.490	.625	.250	.478	.500	.875	.700	.605	.772	.250	.550	.625	.295	.764	.568	.552	.250	.426	.511	.577



Connecticut Counts LLC

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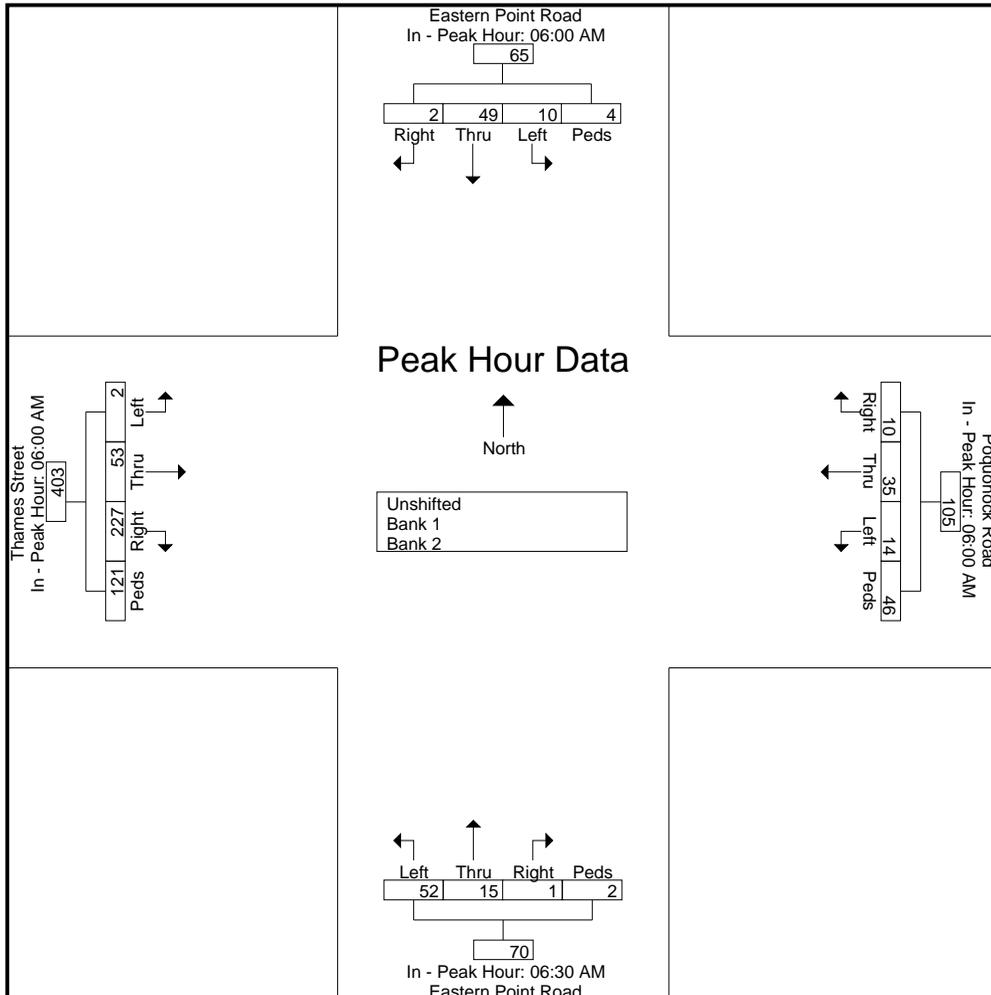
File Name : 18035
Site Code : 18035
Start Date : 10/18/2018
Page No : 3

	Eastern Point Road From North					Poquonock Road From East					Eastern Point Road From South					Thames Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	06:00 AM					06:00 AM					06:30 AM					06:00 AM				
+0 mins.	1	25	4	4	34	3	7	5	18	33	0	1	12	1	14	100	24	2	71	197
+15 mins.	0	4	0	0	4	2	10	3	19	34	1	3	11	0	15	42	11	0	31	84
+30 mins.	0	8	2	0	10	0	9	3	3	15	0	4	15	1	20	51	7	0	6	64
+45 mins.	1	12	4	0	17	5	9	3	6	23	0	7	14	0	21	34	11	0	13	58
Total Volume	2	49	10	4	65	10	35	14	46	105	1	15	52	2	70	227	53	2	121	403
% App. Total	3.1	75.4	15.4	6.2		9.5	33.3	13.3	43.8		1.4	21.4	74.3	2.9		56.8	13.2	0.5	30	
PHF	.500	.490	.625	.250	.478	.500	.875	.700	.605	.772	.250	.536	.867	.500	.833	.568	.552	.250	.426	.511



Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

Eastern Point Rd at Poquonock Rd/Thames
Groton, Connecticut

File Name : 18036
Site Code : 18036
Start Date : 10/18/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

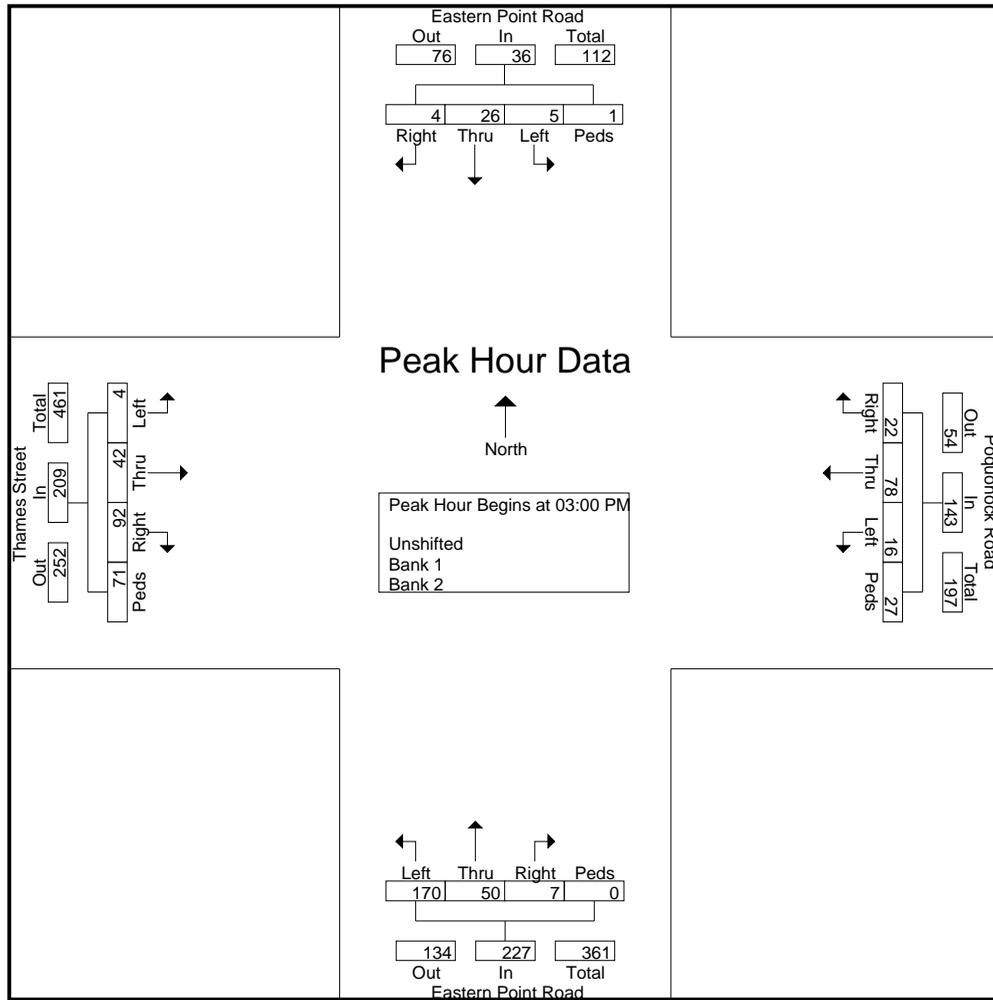
Start Time	Eastern Point Road From North					Poquonock Road From East					Eastern Point Road From South					Thames Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
03:00 PM	2	11	2	0	15	10	22	7	6	45	2	16	38	0	56	37	13	3	27	80	196
03:15 PM	0	10	1	1	12	4	18	5	9	36	3	9	46	0	58	20	9	0	16	45	151
03:30 PM	2	0	0	0	2	7	21	3	7	38	1	13	55	0	69	22	8	0	14	44	153
03:45 PM	0	5	2	0	7	1	17	1	5	24	1	12	31	0	44	13	12	1	14	40	115
Total	4	26	5	1	36	22	78	16	27	143	7	50	170	0	227	92	42	4	71	209	615
04:00 PM	0	6	2	0	8	6	21	1	3	31	3	23	56	0	82	25	11	0	7	43	164
04:15 PM	0	3	1	0	4	2	24	3	9	38	1	15	43	0	59	21	11	0	7	39	140
04:30 PM	2	4	0	0	6	1	6	3	1	11	3	10	23	0	36	13	12	1	7	33	86
04:45 PM	0	2	0	0	2	3	13	1	0	17	1	13	27	1	42	14	7	1	8	30	91
Total	2	15	3	0	20	12	64	8	13	97	8	61	149	1	219	73	41	2	29	145	481
05:00 PM	0	3	3	2	8	5	18	4	2	29	0	14	36	0	50	18	14	1	5	38	125
05:15 PM	0	3	0	1	4	3	13	2	2	20	2	8	27	0	37	11	3	0	7	21	82
05:30 PM	1	1	0	1	3	1	9	1	3	14	1	9	21	0	31	17	3	0	3	23	71
05:45 PM	1	4	1	1	7	2	7	0	3	12	0	7	17	0	24	12	5	0	1	18	61
Total	2	11	4	5	22	11	47	7	10	75	3	38	101	0	142	58	25	1	16	100	339
Grand Total	8	52	12	6	78	45	189	31	50	315	18	149	420	1	588	223	108	7	116	454	1435
Apprch %	10.3	66.7	15.4	7.7		14.3	60	9.8	15.9		3.1	25.3	71.4	0.2		49.1	23.8	1.5	25.6		
Total %	0.6	3.6	0.8	0.4	5.4	3.1	13.2	2.2	3.5	22	1.3	10.4	29.3	0.1	41	15.5	7.5	0.5	8.1	31.6	
Unshifted	8	52	11	6	77	44	186	31	50	311	18	149	415	1	583	219	101	7	116	443	1414
% Unshifted																					
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4	0	0	0	4	8
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.7	1.8	0	0	0	0.9	0.6
Bank 2	0	0	1	0	1	1	3	0	0	4	0	0	1	0	1	0	7	0	0	7	13
% Bank 2	0	0	8.3	0	1.3	2.2	1.6	0	0	1.3	0	0	0.2	0	0.2	0	6.5	0	0	1.5	0.9

Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18036
Site Code : 18036
Start Date : 10/18/2018
Page No : 2

Start Time	Eastern Point Road From North					Poquonock Road From East					Eastern Point Road From South					Thames Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	2	11	2	0	15	10	22	7	6	45	2	16	38	0	56	37	13	3	27	80	196
03:15 PM	0	10	1	1	12	4	18	5	9	36	3	9	46	0	58	20	9	0	16	45	151
03:30 PM	2	0	0	0	2	7	21	3	7	38	1	13	55	0	69	22	8	0	14	44	153
03:45 PM	0	5	2	0	7	1	17	1	5	24	1	12	31	0	44	13	12	1	14	40	115
Total Volume	4	26	5	1	36	22	78	16	27	143	7	50	170	0	227	92	42	4	71	209	615
% App. Total	11.1	72.2	13.9	2.8		15.4	54.5	11.2	18.9		3.1	22	74.9	0		44	20.1	1.9	34		
PHF	.500	.591	.625	.250	.600	.550	.886	.571	.750	.794	.583	.781	.773	.000	.822	.622	.808	.333	.657	.653	.784



Connecticut Counts LLC

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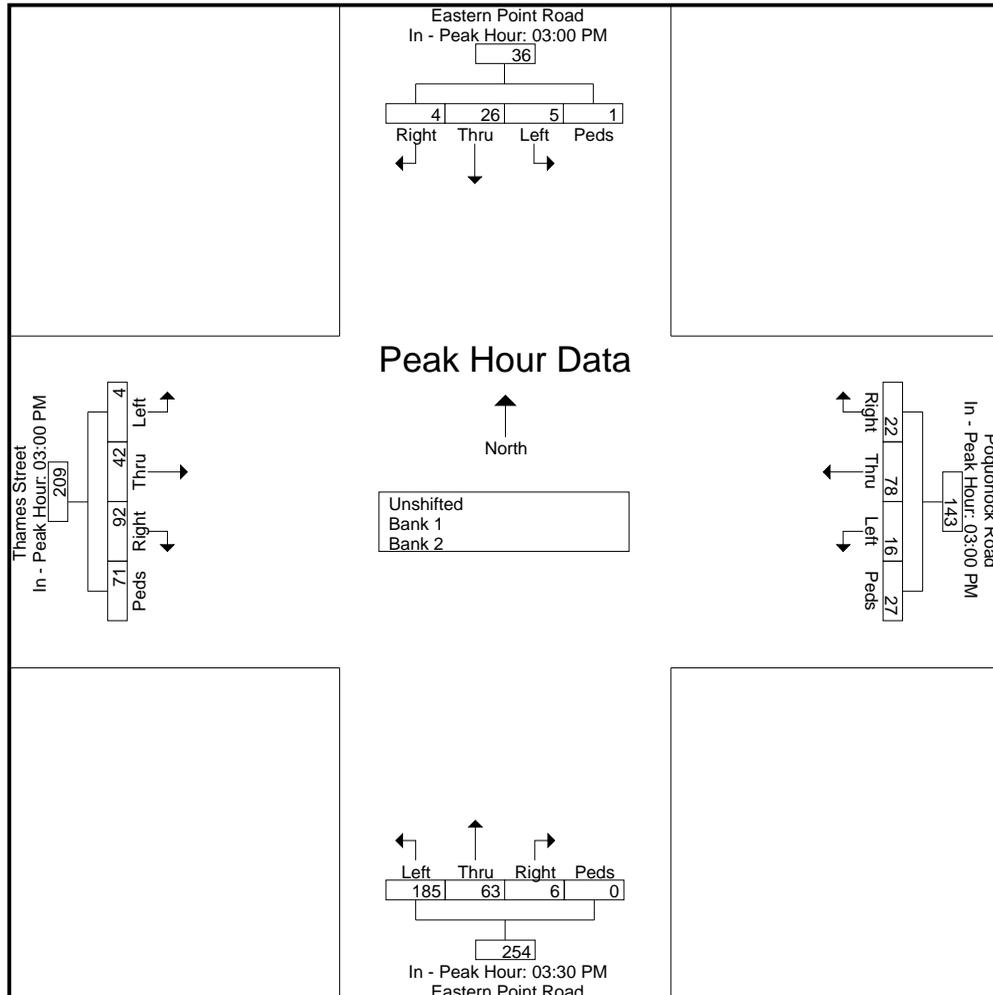
File Name : 18036
Site Code : 18036
Start Date : 10/18/2018
Page No : 3

	Eastern Point Road From North					Poquonock Road From East					Eastern Point Road From South					Thames Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	03:00 PM					03:00 PM					03:30 PM					03:00 PM				
+0 mins.	2	11	2	0	15	10	22	7	6	45	1	13	55	0	69	37	13	3	27	80
+15 mins.	0	10	1	1	12	4	18	5	9	36	1	12	31	0	44	20	9	0	16	45
+30 mins.	2	0	0	0	2	7	21	3	7	38	3	23	56	0	82	22	8	0	14	44
+45 mins.	0	5	2	0	7	1	17	1	5	24	1	15	43	0	59	13	12	1	14	40
Total Volume	4	26	5	1	36	22	78	16	27	143	6	63	185	0	254	92	42	4	71	209
% App. Total	11.1	72.2	13.9	2.8		15.4	54.5	11.2	18.9		2.4	24.8	72.8	0		44	20.1	1.9	34	
PHF	.500	.591	.625	.250	.600	.550	.886	.571	.750	.794	.500	.685	.826	.000	.774	.622	.808	.333	.657	.653



Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

Poquonock Rd at Chicago/Benham/Mitchell
Groton, Connecticut

File Name : 18037
Site Code : 18037
Start Date : 10/18/2018
Page No : 1

Groups Printed- Poquonock at Benham

Start Time	Mitchell Street From North					Poquonock Road From East					Chicago/Benham From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	0	54	0	0	54	0	0	0	0	0	1	12	3	0	16	6	0	0	0	6	76
06:15 AM	0	72	0	0	72	0	0	0	0	0	0	19	2	1	22	2	0	0	0	2	96
06:30 AM	0	47	0	0	47	0	0	2	0	2	0	15	6	3	24	4	0	0	0	4	77
06:45 AM	8	41	0	0	49	0	0	3	0	3	2	29	5	2	38	7	0	0	0	7	97
Total	8	214	0	0	222	0	0	5	0	5	3	75	16	6	100	19	0	0	0	19	346
07:00 AM	0	53	0	0	53	0	0	0	0	0	3	24	3	1	31	2	0	0	0	2	86
07:15 AM	0	49	0	0	49	0	0	0	0	0	1	39	7	0	47	5	0	0	0	5	101
07:30 AM	0	43	0	0	43	0	0	3	0	3	2	24	2	1	29	2	0	0	0	2	77
07:45 AM	0	44	0	0	44	0	0	0	0	0	2	26	3	0	31	2	0	0	0	2	77
Total	0	189	0	0	189	0	0	3	0	3	8	113	15	2	138	11	0	0	0	11	341
08:00 AM	0	36	0	0	36	0	0	2	0	2	2	36	3	0	41	5	0	0	0	5	84
08:15 AM	0	40	0	0	40	0	0	0	0	0	1	25	2	0	28	3	0	0	0	3	71
08:30 AM	0	28	1	0	29	0	0	2	0	2	2	31	4	0	37	2	0	0	0	2	70
08:45 AM	0	35	2	0	37	0	0	0	0	0	3	23	2	2	30	4	0	0	0	4	71
Total	0	139	3	0	142	0	0	4	0	4	8	115	11	2	136	14	0	0	0	14	296
Grand Total	8	542	3	0	553	0	0	12	0	12	19	303	42	10	374	44	0	0	0	44	983
Apprch %	1.4	98	0.5	0		0	0	100	0		5.1	81	11.2	2.7		100	0	0	0		
Total %	0.8	55.1	0.3	0	56.3	0	0	1.2	0	1.2	1.9	30.8	4.3	1	38	4.5	0	0	0	4.5	

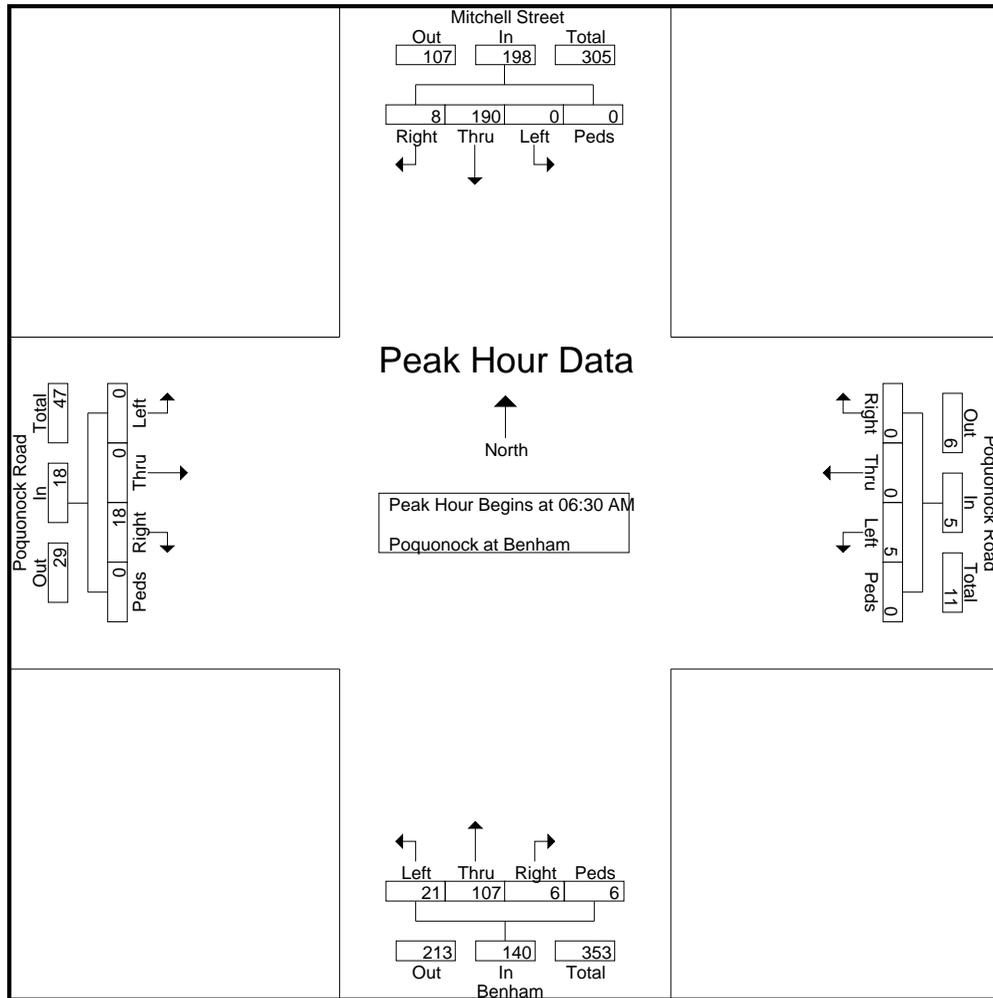
Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18037
Site Code : 18037
Start Date : 10/18/2018
Page No : 2

Start Time	Mitchell Street From North					Poquonock Road From East					Chicago/Benham From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:30 AM	0	47	0	0	47	0	0	2	0	2	0	15	6	3	24	4	0	0	0	4	77
06:45 AM	8	41	0	0	49	0	0	3	0	3	2	29	5	2	38	7	0	0	0	7	97
07:00 AM	0	53	0	0	53	0	0	0	0	0	3	24	3	1	31	2	0	0	0	2	86
07:15 AM	0	49	0	0	49	0	0	0	0	0	1	39	7	0	47	5	0	0	0	5	101
Total Volume	8	190	0	0	198	0	0	5	0	5	6	107	21	6	140	18	0	0	0	18	361
% App. Total	4	96	0	0		0	0	100	0		4.3	76.4	15	4.3		100	0	0	0		
PHF	.250	.896	.000	.000	.934	.000	.000	.417	.000	.417	.500	.686	.750	.500	.745	.643	.000	.000	.000	.643	.894

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 06:30 AM



Connecticut Counts LLC

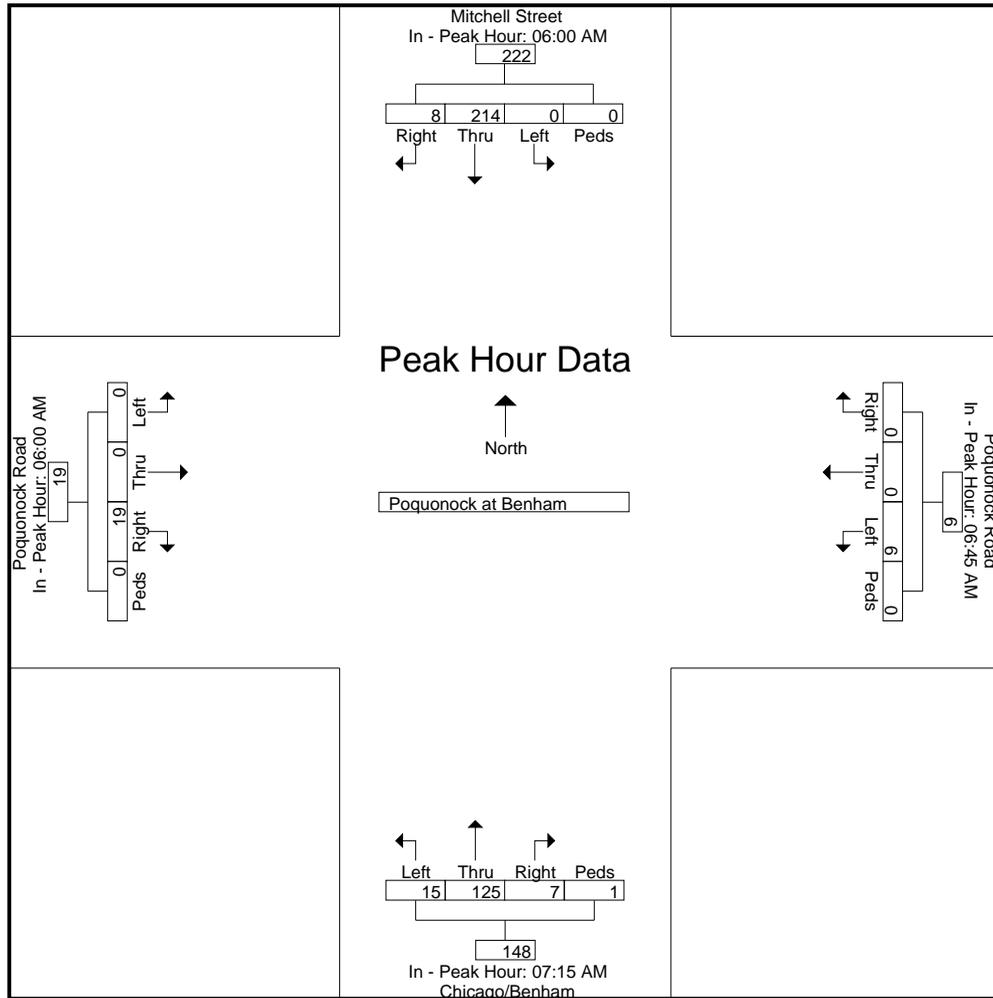
Kensington, Connecticut 06037
(860) 828-1693

File Name : 18037
Site Code : 18037
Start Date : 10/18/2018
Page No : 3

Start Time	Mitchell Street From North					Poquonock Road From East					Chicago/Benham From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:00 AM					06:45 AM					07:15 AM					06:00 AM				
+0 mins.	0	54	0	0	54	0	0	3	0	3	1	39	7	0	47	6	0	0	0	6
+15 mins.	0	72	0	0	72	0	0	0	0	0	2	24	2	1	29	2	0	0	0	2
+30 mins.	0	47	0	0	47	0	0	0	0	0	2	26	3	0	31	4	0	0	0	4
+45 mins.	8	41	0	0	49	0	0	3	0	3	2	36	3	0	41	7	0	0	0	7
Total Volume	8	214	0	0	222	0	0	6	0	6	7	125	15	1	148	19	0	0	0	19
% App. Total	3.6	96.4	0	0		0	0	100	0		4.7	84.5	10.1	0.7		100	0	0	0	
PHF	.250	.743	.000	.000	.771	.000	.000	.500	.000	.500	.875	.801	.536	.250	.787	.679	.000	.000	.000	.679



Connecticut Counts LLC

Kensington, Connecticut 06037

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Poquonock Rd at Chicago/Benham/Mitchell
Groton, Connecticut

File Name : 18038
Site Code : 18038
Start Date : 10/18/2018
Page No : 1

Groups Printed- Poquonock at Benham

Start Time	Mitchell Street From North					Poquonock ROad From East					Chicago/ Benham From South					Poquonock ROad From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
03:00 PM	0	28	0	0	28	0	0	2	0	2	1	82	3	1	87	4	0	0	0	4	121
03:15 PM	0	25	0	0	25	0	0	2	0	2	1	63	5	2	71	9	0	0	0	9	107
03:30 PM	0	41	0	0	41	0	0	3	0	3	0	67	6	0	73	5	0	0	0	5	122
03:45 PM	0	33	2	0	35	0	0	4	0	4	6	64	1	3	74	4	0	2	0	6	119
Total	0	127	2	0	129	0	0	11	0	11	8	276	15	6	305	22	0	2	0	24	469
04:00 PM	6	42	1	0	49	0	0	5	0	5	4	108	6	0	118	10	2	0	0	12	184
04:15 PM	0	35	0	0	35	0	0	3	0	3	6	55	2	0	63	1	0	0	0	1	102
04:30 PM	0	31	0	0	31	0	0	1	0	1	1	56	1	0	58	4	0	0	0	4	94
04:45 PM	0	32	1	0	33	0	0	2	0	2	3	62	4	0	69	5	0	0	0	5	109
Total	6	140	2	0	148	0	0	11	0	11	14	281	13	0	308	20	2	0	0	22	489
05:00 PM	0	35	0	0	35	0	0	3	0	3	2	62	2	0	66	4	0	0	0	4	108
05:15 PM	0	44	1	0	45	0	0	3	0	3	4	59	0	1	64	4	0	0	0	4	116
05:30 PM	0	57	0	0	57	0	0	3	0	3	1	45	3	4	53	2	0	0	0	2	115
05:45 PM	0	40	1	0	41	0	0	2	0	2	2	34	1	0	37	5	0	0	0	5	85
Total	0	176	2	0	178	0	0	11	0	11	9	200	6	5	220	15	0	0	0	15	424
Grand Total	6	443	6	0	455	0	0	33	0	33	31	757	34	11	833	57	2	2	0	61	1382
Apprch %	1.3	97.4	1.3	0		0	0	100	0		3.7	90.9	4.1	1.3		93.4	3.3	3.3	0		
Total %	0.4	32.1	0.4	0	32.9	0	0	2.4	0	2.4	2.2	54.8	2.5	0.8	60.3	4.1	0.1	0.1	0	4.4	

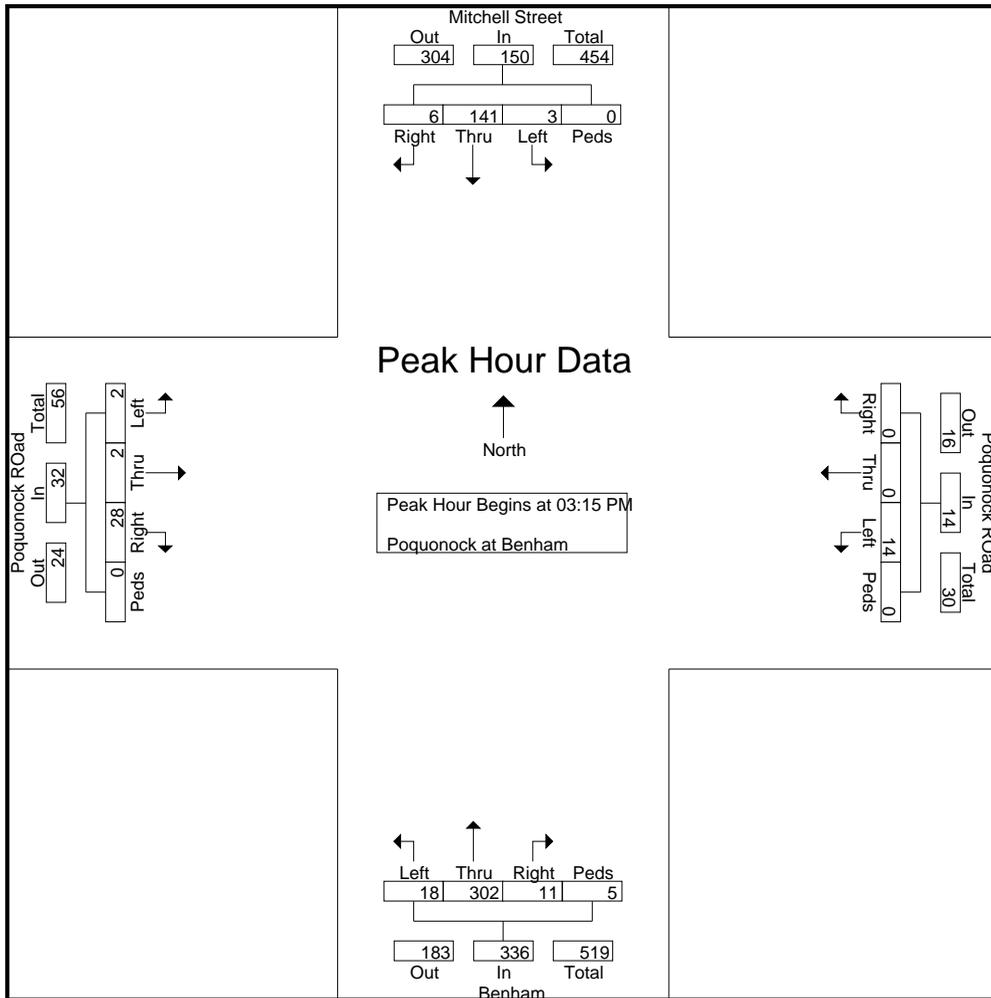
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Kensington, Connecticut 06037
(860) 828-1693

File Name : 18038
Site Code : 18038
Start Date : 10/18/2018
Page No : 2

Start Time	Mitchell Street From North					Poquonock ROad From East					Chicago/ Benham From South					Poquonock ROad From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
03:15 PM	0	25	0	0	25	0	0	2	0	2	1	63	5	2	71	9	0	0	0	9	107
03:30 PM	0	41	0	0	41	0	0	3	0	3	0	67	6	0	73	5	0	0	0	5	122
03:45 PM	0	33	2	0	35	0	0	4	0	4	6	64	1	3	74	4	0	2	0	6	119
04:00 PM	6	42	1	0	49	0	0	5	0	5	4	108	6	0	118	10	2	0	0	12	184
Total Volume	6	141	3	0	150	0	0	14	0	14	11	302	18	5	336	28	2	2	0	32	532
% App. Total	4	94	2	0		0	0	100	0		3.3	89.9	5.4	1.5		87.5	6.2	6.2	0		
PHF	.250	.839	.375	.000	.765	.000	.000	.700	.000	.700	.458	.699	.750	.417	.712	.700	.250	.250	.000	.667	.723

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:15 PM



Connecticut Counts LLC

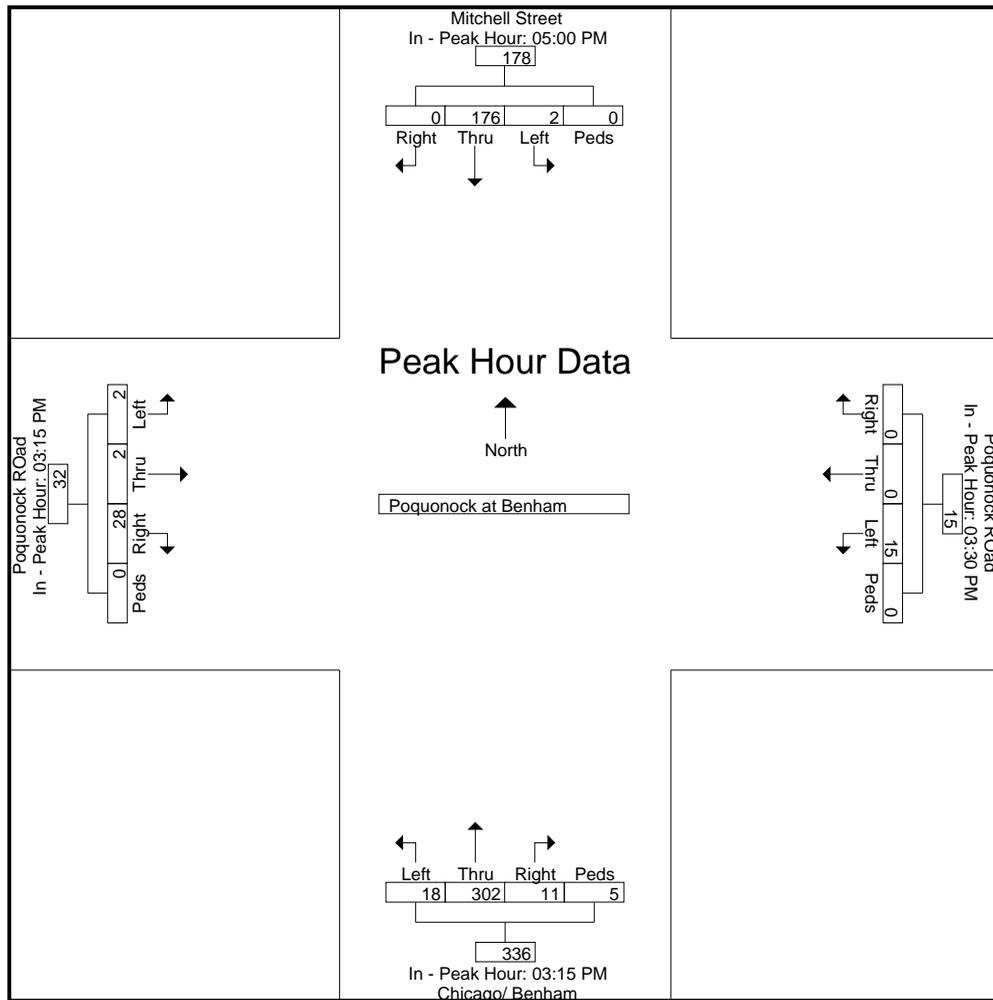
Kensington, Connecticut 06037
(860) 828-1693

File Name : 18038
Site Code : 18038
Start Date : 10/18/2018
Page No : 3

Start Time	Mitchell Street From North					Poquonock ROad From East					Chicago/ Benham From South					Poquonock ROad From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM					03:30 PM					03:15 PM					03:15 PM				
+0 mins.	0	35	0	0	35	0	0	3	0	3	1	63	5	2	71	9	0	0	0	9
+15 mins.	0	44	1	0	45	0	0	4	0	4	0	67	6	0	73	5	0	0	0	5
+30 mins.	0	57	0	0	57	0	0	5	0	5	6	64	1	3	74	4	0	2	0	6
+45 mins.	0	40	1	0	41	0	0	3	0	3	4	108	6	0	118	10	2	0	0	12
Total Volume	0	176	2	0	178	0	0	15	0	15	11	302	18	5	336	28	2	2	0	32
% App. Total	0	98.9	1.1	0		0	0	100	0		3.3	89.9	5.4	1.5		87.5	6.2	6.2	0	
PHF	.000	.772	.500	.000	.781	.000	.000	.750	.000	.750	.458	.699	.750	.417	.712	.700	.250	.250	.000	.667



Connecticut Counts LLC

Kensington, Connecticut 06037

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Poquonock Rd at Chicago/Benham/Mitchell
Groton, Connecticut

File Name : 18037
Site Code : 18037
Start Date : 10/18/2018
Page No : 1

Groups Printed- Poquonock at Mitchell/Chicago

Start Time	Mitchell Street From North					Poquonock Road From East					Chicago/Benham From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	32	49	13	0	94	13	10	0	0	23	0	7	0	1	8	0	3	5	0	8	133
06:15 AM	32	59	13	4	108	11	8	2	1	22	0	11	1	6	18	3	3	6	0	12	160
06:30 AM	27	37	7	0	71	11	5	5	0	21	1	16	0	5	22	2	4	6	0	12	126
06:45 AM	24	44	9	2	79	16	6	3	1	26	1	5	0	2	8	4	4	3	0	11	124
Total	115	189	42	6	352	51	29	10	2	92	2	39	1	14	56	9	14	20	0	43	543
07:00 AM	34	25	12	0	71	16	8	3	0	27	2	20	1	0	23	1	3	14	1	19	140
07:15 AM	34	33	19	0	86	12	14	4	0	30	0	11	3	0	14	1	7	10	1	19	149
07:30 AM	37	48	15	0	100	22	8	4	0	34	1	5	0	0	6	0	7	5	0	12	152
07:45 AM	35	35	20	0	90	15	8	2	1	26	0	6	2	0	8	1	2	3	0	6	130
Total	140	141	66	0	347	65	38	13	1	117	3	42	6	0	51	3	19	32	2	56	571
08:00 AM	21	47	21	0	89	13	6	1	0	20	0	5	2	1	8	1	5	6	1	13	130
08:15 AM	15	34	12	0	61	16	7	1	1	25	1	10	0	1	12	0	6	5	0	11	109
08:30 AM	19	32	20	0	71	12	9	1	1	23	1	13	2	0	16	0	6	2	0	8	118
08:45 AM	14	32	17	0	63	26	10	1	1	38	1	9	4	2	16	2	3	2	0	7	124
Total	69	145	70	0	284	67	32	4	3	106	3	37	8	4	52	3	20	15	1	39	481
Grand Total	324	475	178	6	983	183	99	27	6	315	8	118	15	18	159	15	53	67	3	138	1595
Apprch %	33	48.3	18.1	0.6		58.1	31.4	8.6	1.9		5	74.2	9.4	11.3		10.9	38.4	48.6	2.2		
Total %	20.3	29.8	11.2	0.4	61.6	11.5	6.2	1.7	0.4	19.7	0.5	7.4	0.9	1.1	10	0.9	3.3	4.2	0.2	8.7	

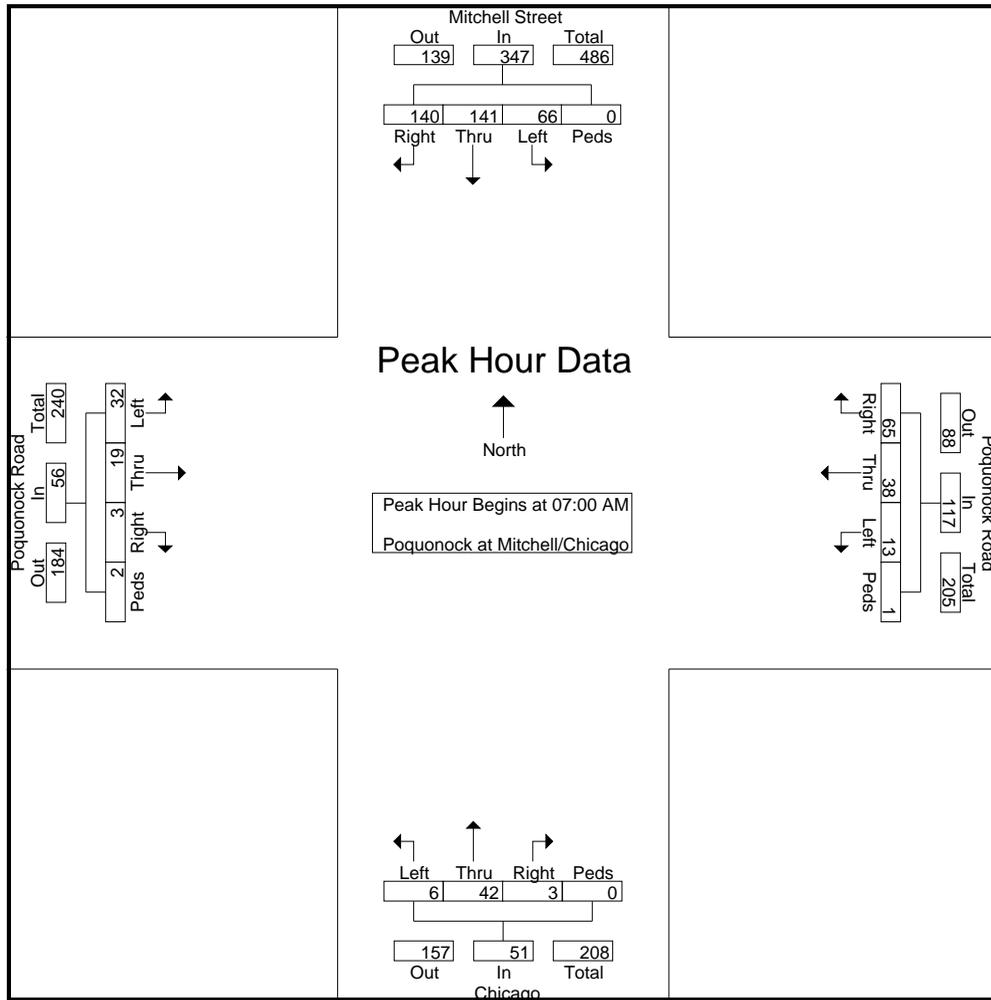
Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18037
Site Code : 18037
Start Date : 10/18/2018
Page No : 2

Start Time	Mitchell Street From North					Poquonock Road From East					Chicago/Benham From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	34	25	12	0	71	16	8	3	0	27	2	20	1	0	23	1	3	14	1	19	140
07:15 AM	34	33	19	0	86	12	14	4	0	30	0	11	3	0	14	1	7	10	1	19	149
07:30 AM	37	48	15	0	100	22	8	4	0	34	1	5	0	0	6	0	7	5	0	12	152
07:45 AM	35	35	20	0	90	15	8	2	1	26	0	6	2	0	8	1	2	3	0	6	130
Total Volume	140	141	66	0	347	65	38	13	1	117	3	42	6	0	51	3	19	32	2	56	571
% App. Total	40.3	40.6	19	0		55.6	32.5	11.1	0.9		5.9	82.4	11.8	0		5.4	33.9	57.1	3.6		
PHF	.946	.734	.825	.000	.868	.739	.679	.813	.250	.860	.375	.525	.500	.000	.554	.750	.679	.571	.500	.737	.939

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM



Connecticut Counts LLC

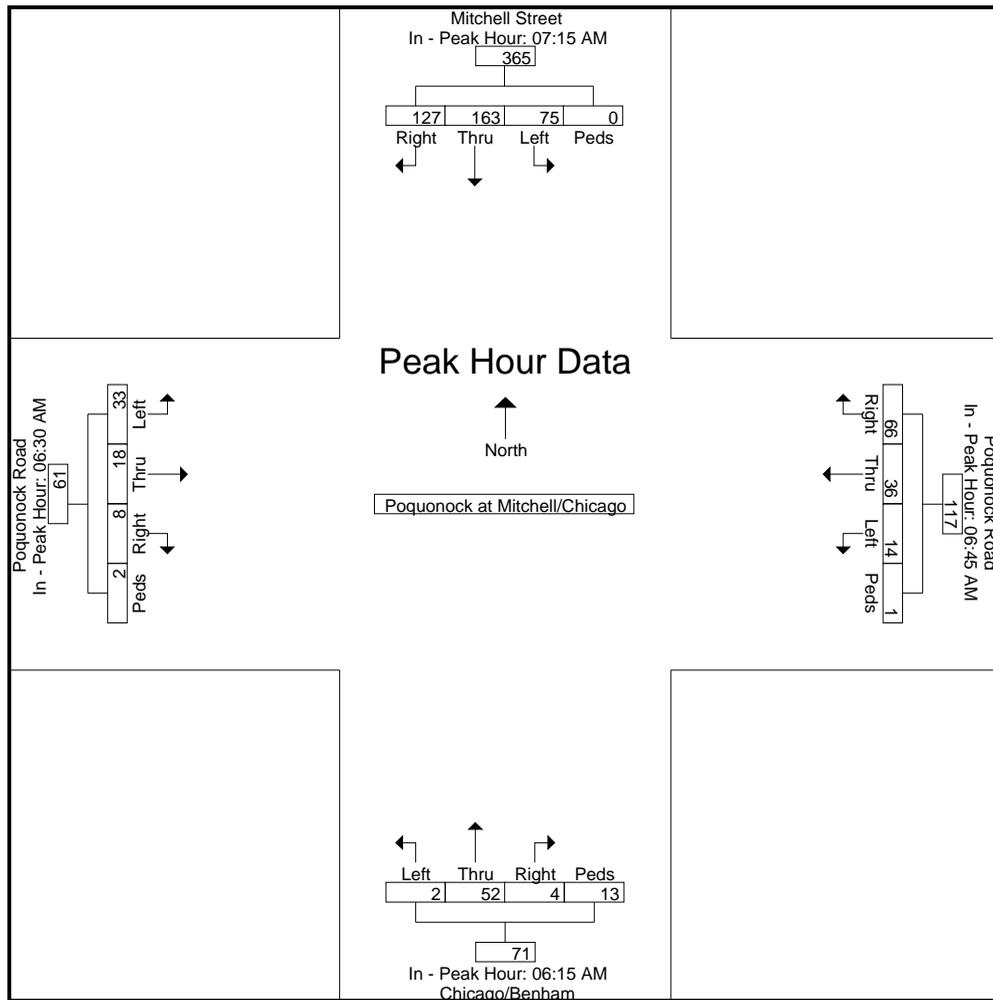
Kensington, Connecticut 06037
(860) 828-1693

File Name : 18037
Site Code : 18037
Start Date : 10/18/2018
Page No : 3

Start Time	Mitchell Street From North					Poquonock Road From East					Chicago/Benham From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM					06:45 AM					06:15 AM					06:30 AM				
+0 mins.	34	33	19	0	86	16	6	3	1	26	0	11	1	6	18	2	4	6	0	12
+15 mins.	37	48	15	0	100	16	8	3	0	27	1	16	0	5	22	4	4	3	0	11
+30 mins.	35	35	20	0	90	12	14	4	0	30	1	5	0	2	8	1	3	14	1	19
+45 mins.	21	47	21	0	89	22	8	4	0	34	2	20	1	0	23	1	7	10	1	19
Total Volume	127	163	75	0	365	66	36	14	1	117	4	52	2	13	71	8	18	33	2	61
% App. Total	34.8	44.7	20.5	0		56.4	30.8	12	0.9		5.6	73.2	2.8	18.3		13.1	29.5	54.1	3.3	
PHF	.858	.849	.893	.000	.913	.750	.643	.875	.250	.860	.500	.650	.500	.542	.772	.500	.643	.589	.500	.803



Connecticut Counts LLC

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Poquonock Rd at Chicago/Benham/Mitchell
Groton, Connecticut

File Name : 18038
Site Code : 18038
Start Date : 10/18/2018
Page No : 1

Groups Printed- Poquonock at Chicago/Mitchell

Start Time	Mitchell Street From North					Poquonock ROad From East					Chicago/ Benham From South					Poquonock ROad From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
03:00 PM	10	26	27	1	64	42	13	5	2	62	2	50	4	1	57	2	10	31	4	47	230
03:15 PM	16	28	17	0	61	26	12	4	1	43	2	39	0	0	41	4	13	30	0	47	192
03:30 PM	5	8	21	0	34	32	7	2	4	45	4	51	5	1	61	1	11	32	0	44	184
03:45 PM	3	19	11	0	33	30	8	4	0	42	3	44	1	2	50	0	14	29	0	43	168
Total	34	81	76	1	192	130	40	15	7	192	11	184	10	4	209	7	48	122	4	181	774
04:00 PM	6	24	38	0	68	38	8	1	0	47	2	62	3	0	67	2	14	26	0	42	224
04:15 PM	7	7	21	0	35	26	8	2	1	37	2	43	3	1	49	3	15	33	1	52	173
04:30 PM	5	12	30	0	47	31	4	3	1	39	2	51	0	0	53	5	10	30	0	45	184
04:45 PM	2	22	29	1	54	37	7	0	0	44	2	46	3	0	51	2	10	27	0	39	188
Total	20	65	118	1	204	132	27	6	2	167	8	202	9	1	220	12	49	116	1	178	769
05:00 PM	5	16	20	0	41	36	9	1	7	53	0	44	1	0	45	1	15	35	0	51	190
05:15 PM	3	11	28	0	42	24	10	1	1	36	2	32	3	2	39	2	6	29	0	37	154
05:30 PM	1	7	19	0	27	36	5	3	1	45	1	26	0	1	28	0	5	17	0	22	122
05:45 PM	1	7	24	0	32	23	5	1	4	33	1	17	0	0	18	0	5	13	0	18	101
Total	10	41	91	0	142	119	29	6	13	167	4	119	4	3	130	3	31	94	0	128	567
Grand Total	64	187	285	2	538	381	96	27	22	526	23	505	23	8	559	22	128	332	5	487	2110
Apprch %	11.9	34.8	53	0.4		72.4	18.3	5.1	4.2		4.1	90.3	4.1	1.4		4.5	26.3	68.2	1		
Total %	3	8.9	13.5	0.1	25.5	18.1	4.5	1.3	1	24.9	1.1	23.9	1.1	0.4	26.5	1	6.1	15.7	0.2	23.1	

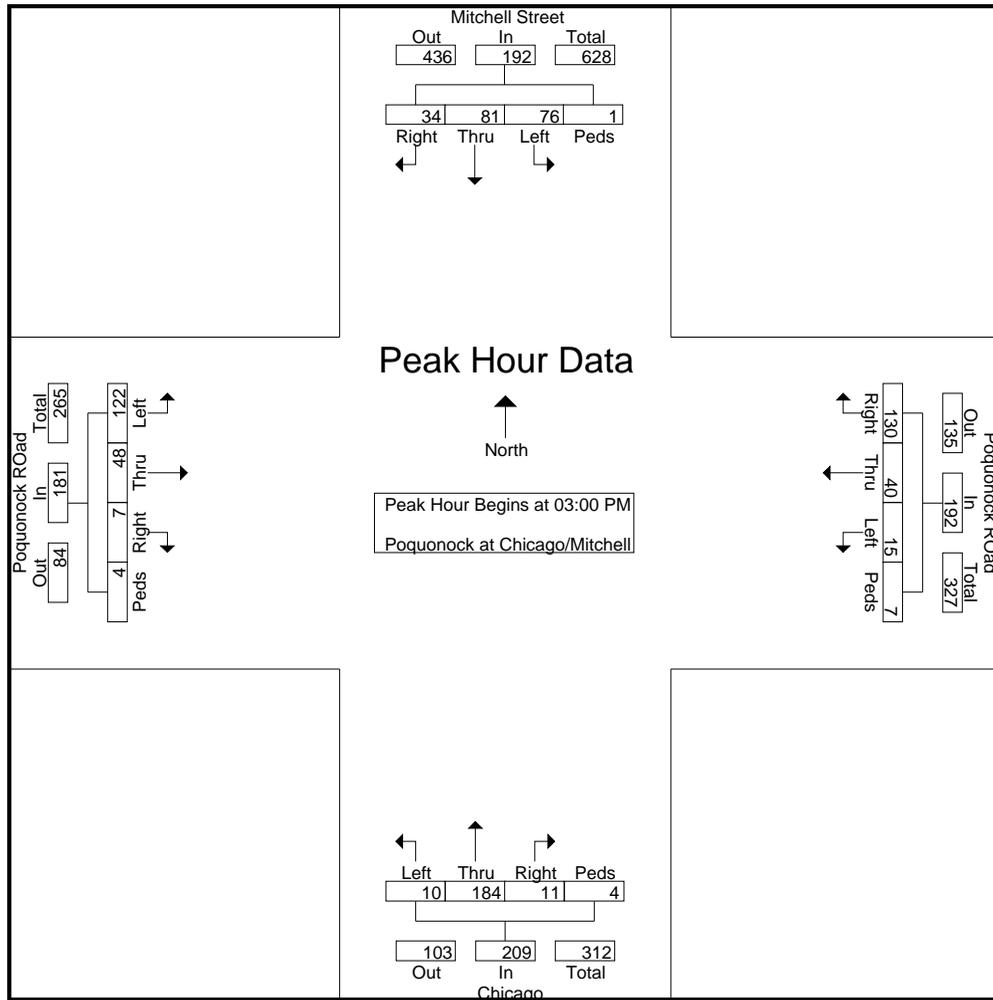
Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18038
Site Code : 18038
Start Date : 10/18/2018
Page No : 2

Start Time	Mitchell Street From North					Poquonock ROad From East					Chicago/ Benham From South					Poquonock ROad From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
03:00 PM	10	26	27	1	64	42	13	5	2	62	2	50	4	1	57	2	10	31	4	47	230
03:15 PM	16	28	17	0	61	26	12	4	1	43	2	39	0	0	41	4	13	30	0	47	192
03:30 PM	5	8	21	0	34	32	7	2	4	45	4	51	5	1	61	1	11	32	0	44	184
03:45 PM	3	19	11	0	33	30	8	4	0	42	3	44	1	2	50	0	14	29	0	43	168
Total Volume	34	81	76	1	192	130	40	15	7	192	11	184	10	4	209	7	48	122	4	181	774
% App. Total	17.7	42.2	39.6	0.5		67.7	20.8	7.8	3.6		5.3	88	4.8	1.9		3.9	26.5	67.4	2.2		
PHF	.531	.723	.704	.250	.750	.774	.769	.750	.438	.774	.688	.902	.500	.500	.857	.438	.857	.953	.250	.963	.841

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 03:00 PM



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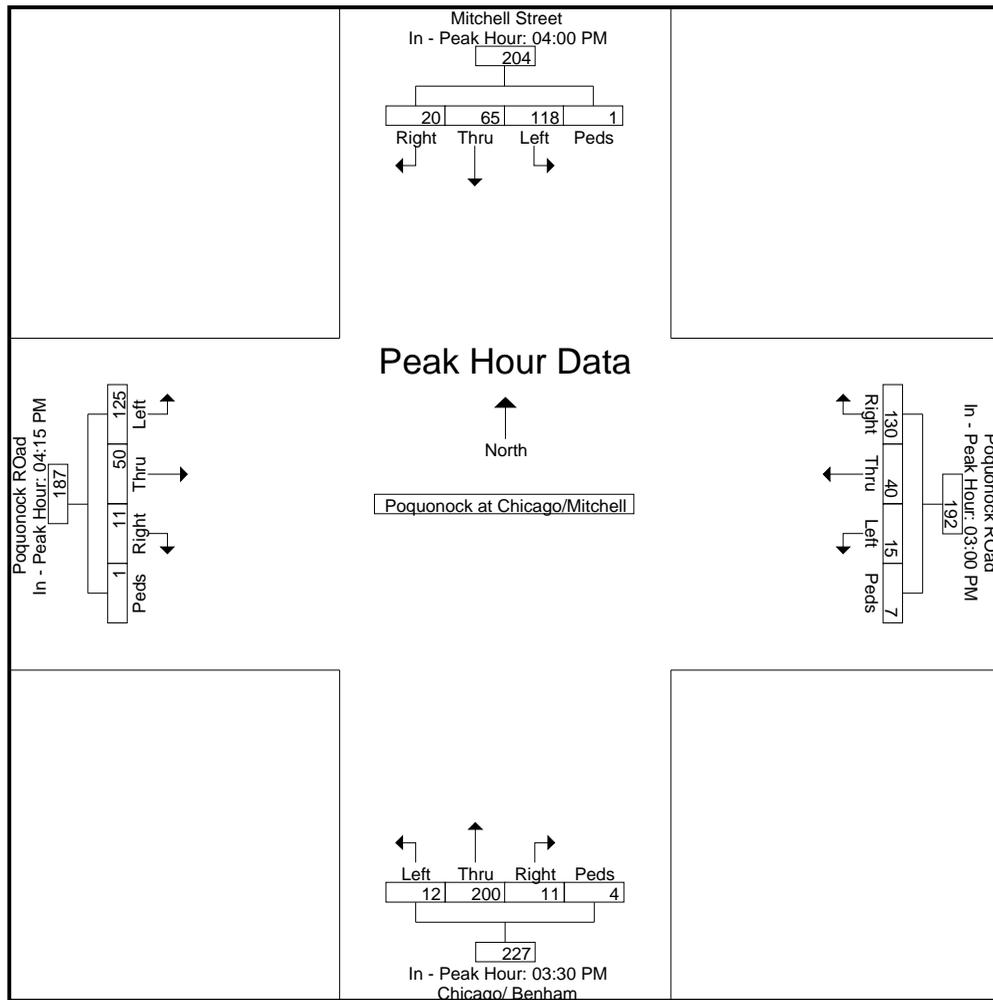
Kensington, Connecticut 06037
(860) 828-1693

File Name : 18038
Site Code : 18038
Start Date : 10/18/2018
Page No : 3

Start Time	Mitchell Street From North					Poquonock ROad From East					Chicago/ Benham From South					Poquonock ROad From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM					03:00 PM					03:30 PM					04:15 PM				
+0 mins.	6	24	38	0	68	42	13	5	2	62	4	51	5	1	61	3	15	33	1	52
+15 mins.	7	7	21	0	35	26	12	4	1	43	3	44	1	2	50	5	10	30	0	45
+30 mins.	5	12	30	0	47	32	7	2	4	45	2	62	3	0	67	2	10	27	0	39
+45 mins.	2	22	29	1	54	30	8	4	0	42	2	43	3	1	49	1	15	35	0	51
Total Volume	20	65	118	1	204	130	40	15	7	192	11	200	12	4	227	11	50	125	1	187
% App. Total	9.8	31.9	57.8	0.5		67.7	20.8	7.8	3.6		4.8	88.1	5.3	1.8		5.9	26.7	66.8	0.5	
PHF	.714	.677	.776	.250	.750	.774	.769	.750	.438	.774	.688	.806	.600	.500	.847	.550	.833	.893	.250	.899



Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

Poquonock Road at E.B. Parking Lot Dr
Groton, Connecticut

File Name : 18045
Site Code : 18045
Start Date : 10/18/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	From North					Poquonock Road From East					E.B. Parking Lot Dr From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:00 AM	0	0	0	0	0	0	55	4	0	59	0	1	2	0	3	8	54	0	0	62	124
06:15 AM	0	0	1	0	1	0	51	6	0	57	5	0	2	0	7	9	49	0	0	58	123
06:30 AM	0	0	0	0	0	0	52	7	0	59	0	0	4	0	4	15	34	0	0	49	112
06:45 AM	0	0	1	0	1	0	59	14	0	73	4	0	5	0	9	21	56	1	0	78	161
Total	0	0	2	0	2	0	217	31	0	248	9	1	13	0	23	53	193	1	0	247	520
07:00 AM	0	0	0	0	0	1	65	17	0	83	1	1	5	0	7	45	49	0	0	94	184
07:15 AM	0	3	0	0	3	0	57	12	0	69	1	0	6	0	7	36	41	0	0	77	156
07:30 AM	0	1	0	0	1	0	69	15	0	84	0	0	6	0	6	38	55	0	1	94	185
07:45 AM	0	0	0	0	0	0	51	7	0	58	1	0	3	0	4	24	52	0	0	76	138
Total	0	4	0	0	4	1	242	51	0	294	3	1	20	0	24	143	197	0	1	341	663
08:00 AM	0	1	0	0	1	0	57	4	0	61	0	1	2	0	3	22	65	0	0	87	152
08:15 AM	0	0	0	0	0	0	60	6	0	66	1	0	5	0	6	15	54	0	0	69	141
08:30 AM	0	0	0	0	0	0	60	6	0	66	0	0	0	0	0	14	88	0	0	102	168
08:45 AM	0	1	0	0	1	0	97	6	0	103	0	0	1	0	1	11	74	0	0	85	190
Total	0	2	0	0	2	0	274	22	0	296	1	1	8	0	10	62	281	0	0	343	651
Grand Total	0	6	2	0	8	1	733	104	0	838	13	3	41	0	57	258	671	1	1	931	1834
Apprch %	0	75	25	0		0.1	87.5	12.4	0		22.8	5.3	71.9	0		27.7	72.1	0.1	0.1		
Total %	0	0.3	0.1	0	0.4	0.1	40	5.7	0	45.7	0.7	0.2	2.2	0	3.1	14.1	36.6	0.1	0.1	50.8	
Unshifted	0	0	0	0	0	0	709	99	0	808	2	0	41	0	43	258	647	0	1	906	1757
% Unshifted																					
Bank 1	0	4	1	0	5	0	5	2	0	7	7	0	0	0	7	0	7	0	0	7	26
% Bank 1	0	66.7	50	0	62.5	0	0.7	1.9	0	0.8	53.8	0	0	0	12.3	0	1	0	0	0.8	1.4
Bank 2	0	2	1	0	3	1	19	3	0	23	4	3	0	0	7	0	17	1	0	18	51
% Bank 2	0	33.3	50	0	37.5	100	2.6	2.9	0	2.7	30.8	100	0	0	12.3	0	2.5	100	0	1.9	2.8

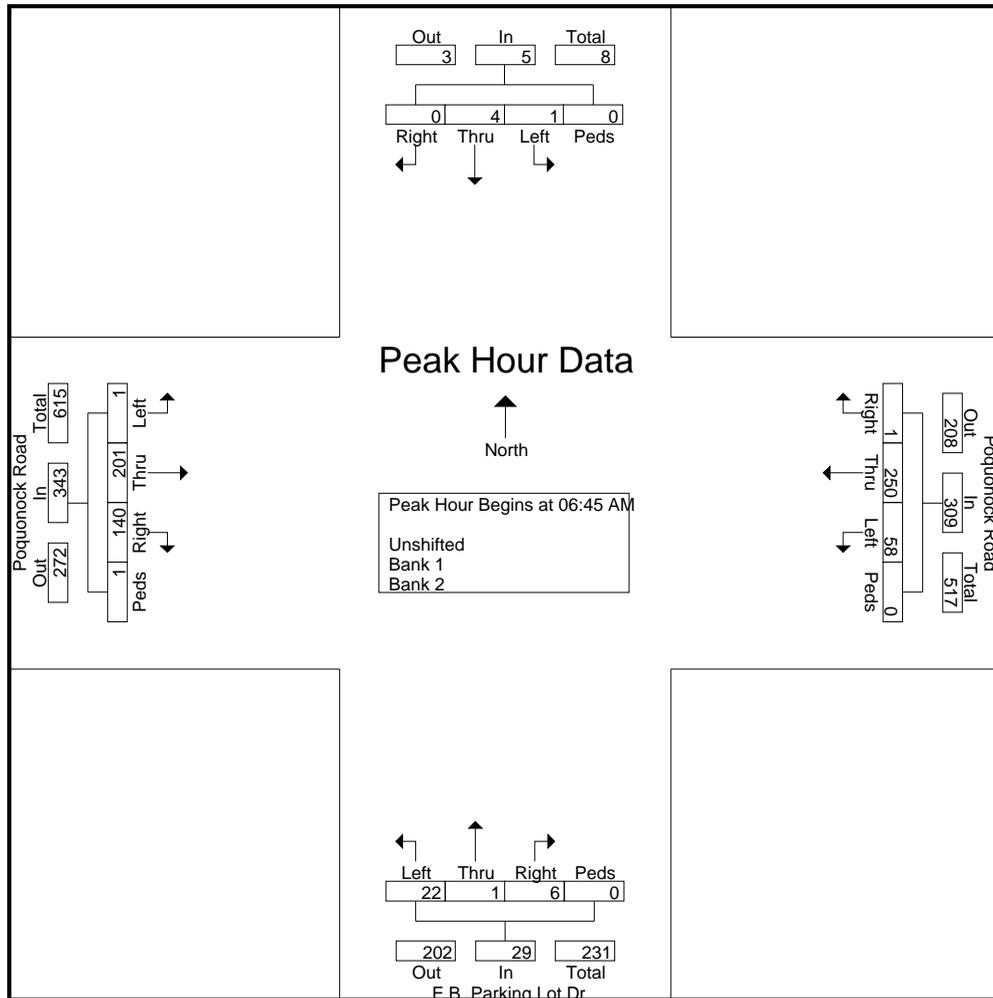
Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18045
Site Code : 18045
Start Date : 10/18/2018
Page No : 2

Start Time	From North					Poquonock Road From East					E.B. Parking Lot Dr From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
06:45 AM	0	0	1	0	1	0	59	14	0	73	4	0	5	0	9	21	56	1	0	78	161
07:00 AM	0	0	0	0	0	1	65	17	0	83	1	1	5	0	7	45	49	0	0	94	184
07:15 AM	0	3	0	0	3	0	57	12	0	69	1	0	6	0	7	36	41	0	0	77	156
07:30 AM	0	1	0	0	1	0	69	15	0	84	0	0	6	0	6	38	55	0	1	94	185
Total Volume	0	4	1	0	5	1	250	58	0	309	6	1	22	0	29	140	201	1	1	343	686
% App. Total	0	.80	.20	0		0.3	80.9	18.8	0		20.7	3.4	75.9	0		40.8	58.6	0.3	0.3		
PHF	.000	.333	.250	.000	.417	.250	.906	.853	.000	.920	.375	.250	.917	.000	.806	.778	.897	.250	.250	.912	.927

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 06:45 AM



Connecticut Counts LLC

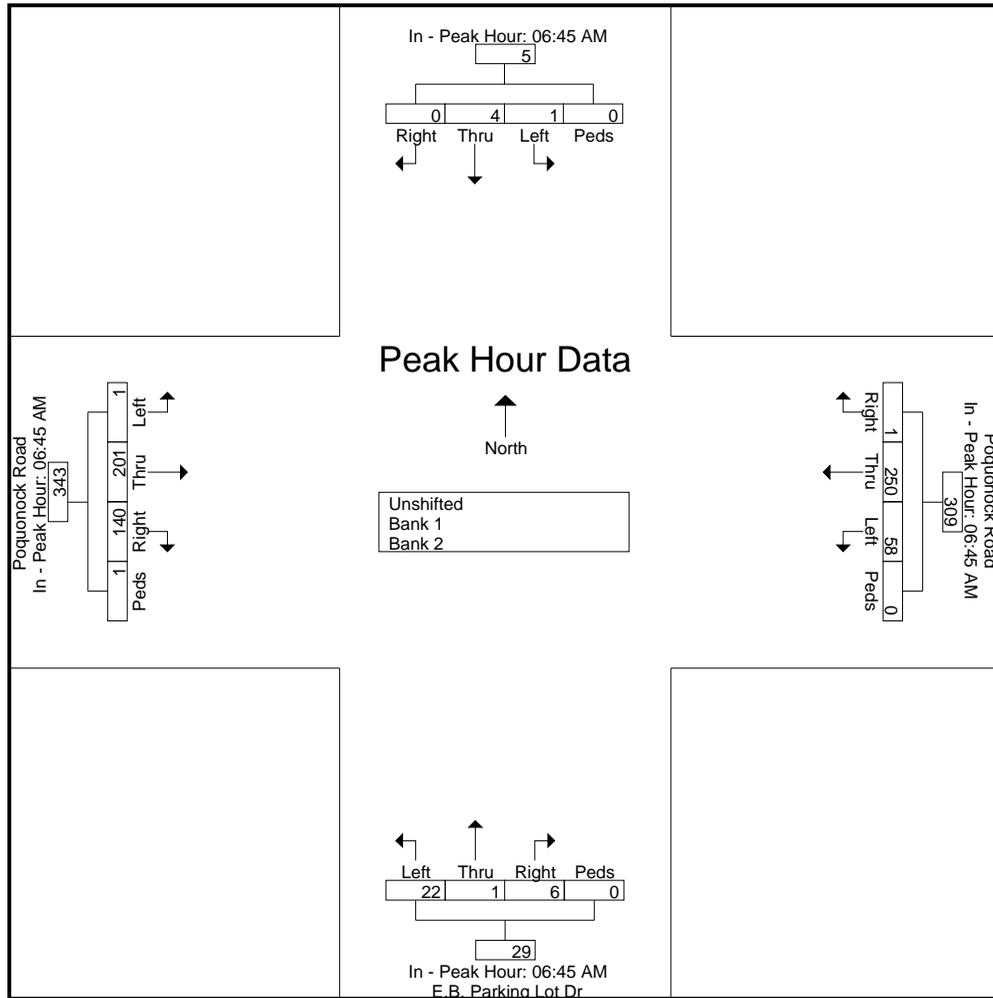
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(860) 828-1693

File Name : 18045
Site Code : 18045
Start Date : 10/18/2018
Page No : 3

Start Time	From North					Poquonock Road From East					E.B. Parking Lot Dr From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	06:45 AM					06:45 AM					06:45 AM					06:45 AM				
+0 mins.	0	0	1	0	1	0	59	14	0	73	4	0	5	0	9	21	56	1	0	78
+15 mins.	0	0	0	0	0	1	65	17	0	83	1	1	5	0	7	45	49	0	0	94
+30 mins.	0	3	0	0	3	0	57	12	0	69	1	0	6	0	7	36	41	0	0	77
+45 mins.	0	1	0	0	1	0	69	15	0	84	0	0	6	0	6	38	55	0	1	94
Total Volume	0	4	1	0	5	1	250	58	0	309	6	1	22	0	29	140	201	1	1	343
% App. Total	0	80	20	0		0.3	80.9	18.8	0		20.7	3.4	75.9	0		40.8	58.6	0.3	0.3	
PHF	.000	.333	.250	.000	.417	.250	.906	.853	.000	.920	.375	.250	.917	.000	.806	.778	.897	.250	.250	.912



Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

Poquonock Road at E.B. Parking Lot Dr
Groton, Connecticut

File Name : 18046
Site Code : 18046
Start Date : 10/18/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	From North					Poquonock Road From East					E.B. Parking Lot Dr From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
03:00 PM	0	0	0	0	0	0	119	0	0	119	12	0	18	1	31	6	113	0	0	119	269
03:15 PM	0	0	0	0	0	0	112	1	0	113	9	0	15	0	24	7	95	0	0	102	239
03:30 PM	0	0	0	0	0	0	92	0	0	92	7	0	16	0	23	7	74	0	0	81	196
03:45 PM	0	0	0	0	0	0	91	0	0	91	9	0	24	0	33	5	87	0	0	92	216
Total	0	0	0	0	0	0	414	1	0	415	37	0	73	1	111	25	369	0	0	394	920
04:00 PM	0	0	0	0	0	0	88	0	0	88	3	0	21	0	24	5	97	0	0	102	214
04:15 PM	0	0	0	0	0	1	86	2	1	90	14	1	22	0	37	7	98	1	0	106	233
04:30 PM	0	0	0	0	0	0	108	2	0	110	21	0	33	1	55	6	100	0	0	106	271
04:45 PM	0	0	0	0	0	0	74	0	0	74	11	0	22	3	36	3	109	0	0	112	222
Total	0	0	0	0	0	1	356	4	1	362	49	1	98	4	152	21	404	1	0	426	940
05:00 PM	0	0	0	0	0	0	91	0	1	92	2	0	18	0	20	5	100	0	0	105	217
05:15 PM	0	0	0	0	0	0	75	0	0	75	11	0	21	0	32	5	93	0	1	99	206
05:30 PM	0	0	0	0	0	0	85	0	0	85	8	0	27	0	35	2	67	0	0	69	189
05:45 PM	0	0	0	0	0	0	60	0	0	60	0	0	8	0	8	1	69	0	0	70	138
Total	0	0	0	0	0	0	311	0	1	312	21	0	74	0	95	13	329	0	1	343	750
Grand Total	0	0	0	0	0	1	1081	5	2	1089	107	1	245	5	358	59	1102	1	1	1163	2610
Apprch %	0	0	0	0		0.1	99.3	0.5	0.2		29.9	0.3	68.4	1.4		5.1	94.8	0.1	0.1		
Total %	0	0	0	0	0	0	41.4	0.2	0.1	41.7	4.1	0	9.4	0.2	13.7	2.3	42.2	0	0	44.6	
Unshifted	0	0	0	0	0	1	1056										1065				
% Unshifted	0	0	0	0	0	100	97.7	100	100	97.7	100	100	91.4	100	94.1	66.1	96.6	100	100	95.1	96.1
Bank 1	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	12	0	0	12	18
% Bank 1	0	0	0	0	0	0	0.6	0	0	0.6	0	0	0	0	0	0	1.1	0	0	1	0.7
Bank 2	0	0	0	0	0	0	19	0	0	19	0	0	21	0	21	20	25	0	0	45	85
% Bank 2	0	0	0	0	0	0	1.8	0	0	1.7	0	0	8.6	0	5.9	33.9	2.3	0	0	3.9	3.3

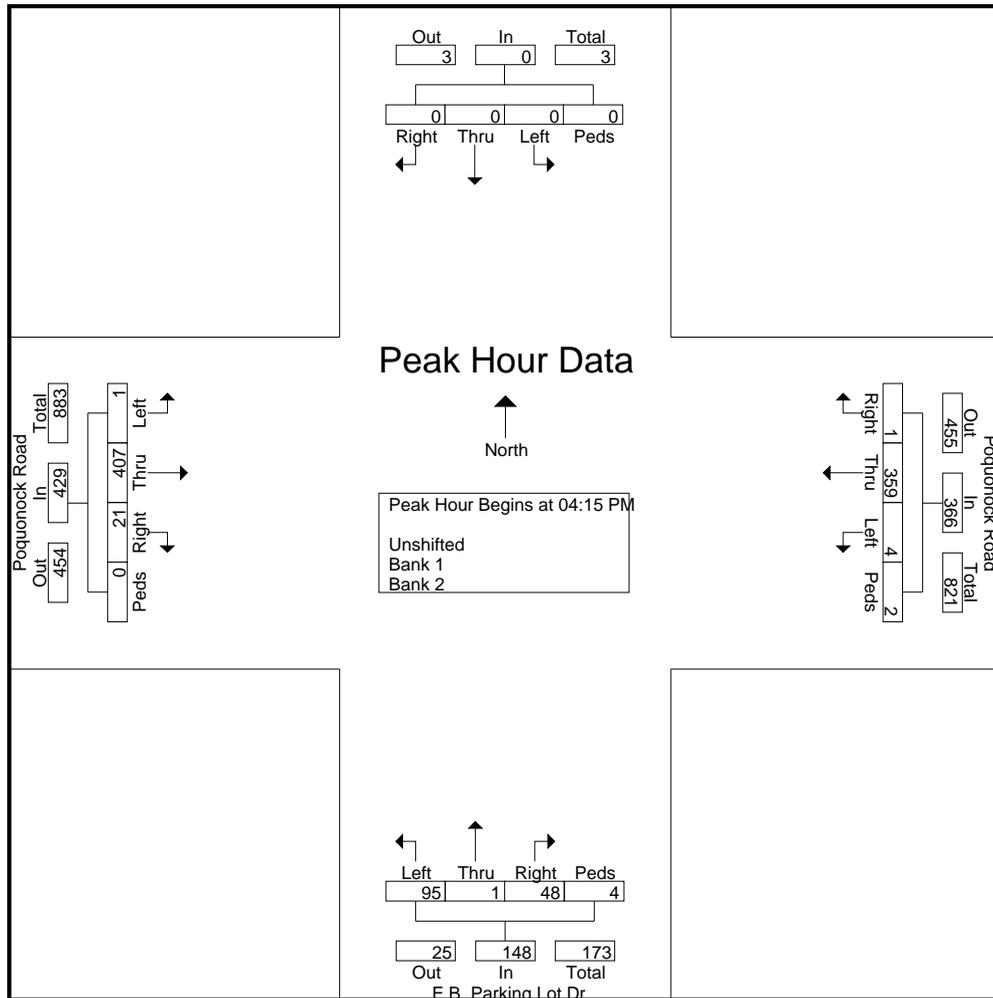
Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18046
Site Code : 18046
Start Date : 10/18/2018
Page No : 2

Start Time	From North					Poquonock Road From East					E.B. Parking Lot Dr From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:15 PM	0	0	0	0	0	1	86	2	1	90	14	1	22	0	37	7	98	1	0	106	233
04:30 PM	0	0	0	0	0	0	108	2	0	110	21	0	33	1	55	6	100	0	0	106	271
04:45 PM	0	0	0	0	0	0	74	0	0	74	11	0	22	3	36	3	109	0	0	112	222
05:00 PM	0	0	0	0	0	0	91	0	1	92	2	0	18	0	20	5	100	0	0	105	217
Total Volume	0	0	0	0	0	1	359	4	2	366	48	1	95	4	148	21	407	1	0	429	943
% App. Total	0	0	0	0	0	0.3	98.1	1.1	0.5		32.4	0.7	64.2	2.7		4.9	94.9	0.2	0		
PHF	.000	.000	.000	.000	.000	.250	.831	.500	.500	.832	.571	.250	.720	.333	.673	.750	.933	.250	.000	.958	.870

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM



Connecticut Counts LLC

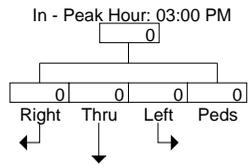
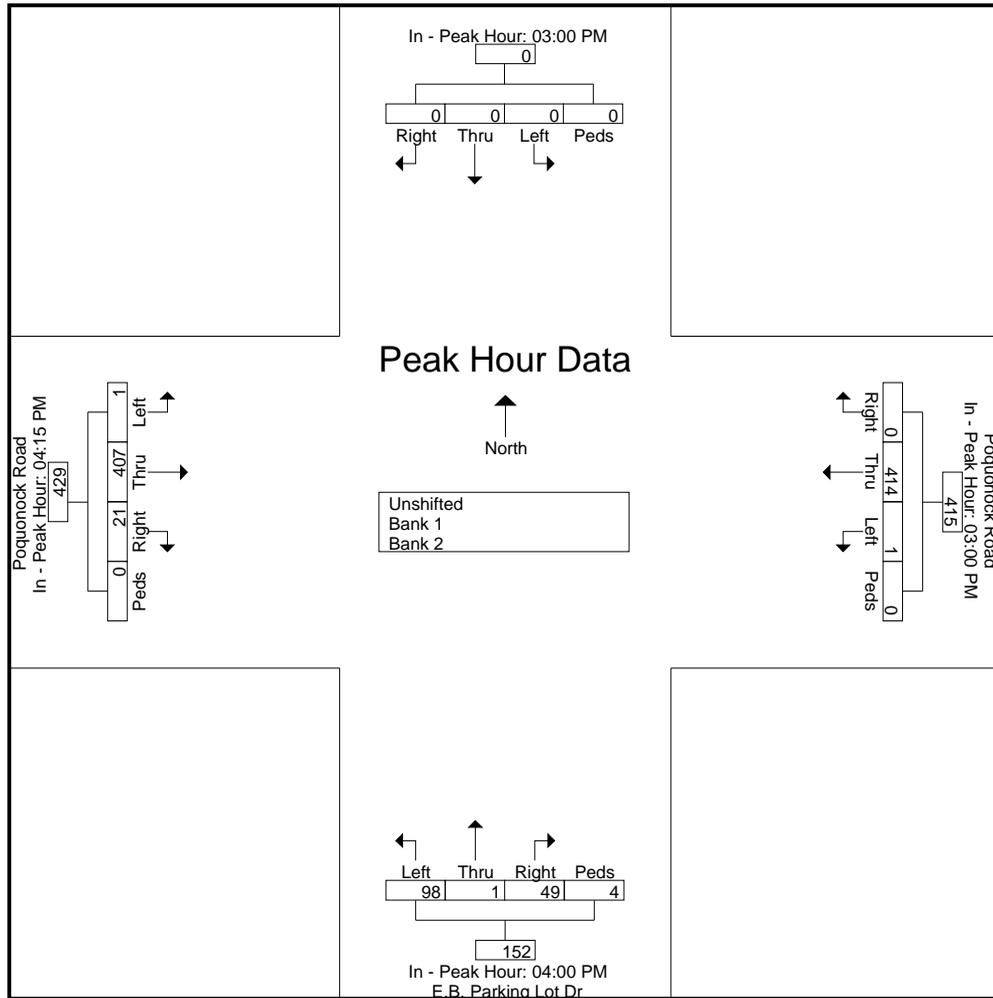
Kensington, Connecticut 06037
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File Name : 18046
Site Code : 18046
Start Date : 10/18/2018
Page No : 3

Start Time	From North					Poquonock Road From East					E.B. Parking Lot Dr From South					Poquonock Road From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM					03:00 PM					04:00 PM					04:15 PM				
+0 mins.	0	0	0	0	0	0	119	0	0	119	3	0	21	0	24	7	98	1	0	106
+15 mins.	0	0	0	0	0	0	112	1	0	113	14	1	22	0	37	6	100	0	0	106
+30 mins.	0	0	0	0	0	0	92	0	0	92	21	0	33	1	55	3	109	0	0	112
+45 mins.	0	0	0	0	0	0	91	0	0	91	11	0	22	3	36	5	100	0	0	105
Total Volume	0	0	0	0	0	0	414	1	0	415	49	1	98	4	152	21	407	1	0	429
% App. Total	0	0	0	0	0	0	99.8	0.2	0		32.2	0.7	64.5	2.6		4.9	94.9	0.2	0	
PHF	.000	.000	.000	.000	.000	.000	.870	.250	.000	.872	.583	.250	.742	.333	.691	.750	.933	.250	.000	.958



Lanes, Volumes, Timings
 1: Route 349 (Eastern Point Rd.) & Route 349 (Chester St.)

Electric Boat - Groton, CT
 2029 AM Background

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 					
Traffic Volume (vph)	230	34	53	46	36	119
Future Volume (vph)	230	34	53	46	36	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		175	125	
Storage Lanes	2	0		1	1	
Taper Length (ft)	25				60	
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00
Frt	0.981			0.850		
Flt Protected	0.958				0.950	
Satd. Flow (prot)	3396	0	1863	1583	1770	1863
Flt Permitted	0.958				0.719	
Satd. Flow (perm)	3396	0	1863	1583	1339	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	20			50		
Link Speed (mph)	30		30			30
Link Distance (ft)	450		522			429
Travel Time (s)	10.2		11.9			9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	37	58	50	39	129
Shared Lane Traffic (%)						
Lane Group Flow (vph)	287	0	58	50	39	129
Turn Type	Prot		NA	Perm	D.P+P	NA
Protected Phases	4		2		1	1 2
Permitted Phases				2	2	
Detector Phase	4		2	2	1	1 2
Switch Phase						
Minimum Initial (s)	9.0		15.0	15.0	4.0	
Minimum Split (s)	14.2		20.6	20.6	7.1	
Total Split (s)	50.2		40.6	40.6	13.1	
Total Split (%)	48.3%		39.1%	39.1%	12.6%	
Maximum Green (s)	45.0		35.0	35.0	10.0	
Yellow Time (s)	3.8		3.8	3.8	3.0	
All-Red Time (s)	1.4		1.8	1.8	0.1	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	5.2		5.6	5.6	3.1	
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	2.0		2.5	2.5	1.0	
Recall Mode	None		Min	Min	None	
Act Effct Green (s)	9.2		15.1	15.1	21.6	24.0
Actuated g/C Ratio	0.22		0.36	0.36	0.52	0.58
v/c Ratio	0.37		0.09	0.08	0.05	0.12
Control Delay	15.1		10.3	4.4	4.0	4.2
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	15.1		10.3	4.4	4.0	4.2
LOS	B		B	A	A	A
Approach Delay	15.1		7.6			4.2
Approach LOS	B		A			A

Lanes, Volumes, Timings
 1: Route 349 (Eastern Point Rd.) & Route 349 (Chester St.)

Electric Boat - Groton, CT
 2029 AM Background

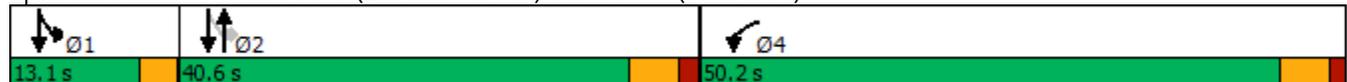


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	28		9	0	3	11
Queue Length 95th (ft)	55		28	16	11	26
Internal Link Dist (ft)	370		442			349
Turn Bay Length (ft)				175	125	
Base Capacity (vph)	3396		1578	1348	876	1863
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.08		0.04	0.04	0.04	0.07

Intersection Summary

Area Type:	Other
Cycle Length:	103.9
Actuated Cycle Length:	41.6
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.37
Intersection Signal Delay:	10.4
Intersection LOS:	B
Intersection Capacity Utilization	29.1%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 1: Route 349 (Eastern Point Rd.) & Route 349 (Chester St.)



HCM Signalized Intersection Capacity Analysis
 1: Route 349 (Eastern Point Rd.) & Route 349 (Chester St.)

Electric Boat - Groton, CT
 2029 AM Background



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WT		T	T	T	T
Traffic Volume (vph)	230	34	53	46	36	119
Future Volume (vph)	230	34	53	46	36	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2		5.6	5.6	3.1	3.1
Lane Util. Factor	0.97		1.00	1.00	1.00	1.00
Frt	0.98		1.00	0.85	1.00	1.00
Flt Protected	0.96		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3396		1863	1583	1770	1863
Flt Permitted	0.96		1.00	1.00	0.72	1.00
Satd. Flow (perm)	3396		1863	1583	1340	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	250	37	58	50	39	129
RTOR Reduction (vph)	16	0	0	32	0	0
Lane Group Flow (vph)	271	0	58	18	39	129
Turn Type	Prot		NA	Perm	D.P+P	NA
Protected Phases	4		2		1	1 2
Permitted Phases				2	2	
Actuated Green, G (s)	9.2		15.1	15.1	19.1	22.2
Effective Green, g (s)	9.2		15.1	15.1	19.1	22.2
Actuated g/C Ratio	0.22		0.36	0.36	0.45	0.53
Clearance Time (s)	5.2		5.6	5.6	3.1	
Vehicle Extension (s)	2.0		2.5	2.5	1.0	
Lane Grp Cap (vph)	740		666	566	647	980
v/s Ratio Prot	c0.08		0.03		0.01	c0.07
v/s Ratio Perm				0.01	0.02	
v/c Ratio	0.37		0.09	0.03	0.06	0.13
Uniform Delay, d1	14.0		9.0	8.8	6.5	5.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1		0.0	0.0	0.0	0.0
Delay (s)	14.1		9.0	8.8	6.5	5.1
Level of Service	B		A	A	A	A
Approach Delay (s)	14.1		8.9			5.4
Approach LOS	B		A			A

Intersection Summary

HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	42.2	Sum of lost time (s)	13.9
Intersection Capacity Utilization	29.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



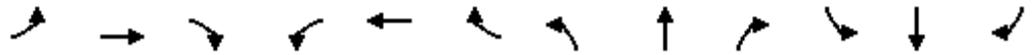
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕				↕
Traffic Volume (vph)	19	85	0	20	88	20	2	8	33	36	27	33
Future Volume (vph)	19	85	0	20	88	20	2	8	33	36	27	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.976			0.897				0.953
Flt Protected		0.991			0.992			0.998				0.982
Satd. Flow (prot)	0	3507	0	0	3427	0	0	1668	0	0	1743	0
Flt Permitted		0.991			0.992			0.998				0.982
Satd. Flow (perm)	0	3507	0	0	3427	0	0	1668	0	0	1743	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		450			1140			266				576
Travel Time (s)		10.2			25.9			6.0				13.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	92	0	22	96	22	2	9	36	39	29	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	140	0	0	47	0	0	104	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 2: Mumford Ave. & Route 349 (Chester St.)/Route 349 (Mumford Ave.)

Electric Boat - Groton, CT
 2029 AM Background



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	19	85	0	20	88	20	2	8	33	36	27	33
Future Volume (Veh/h)	19	85	0	20	88	20	2	8	33	36	27	33
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	92	0	22	96	22	2	9	36	39	29	36
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		450			1140							
pX, platoon unblocked												
vC, conflicting volume	118			92			276	296	46	280	285	59
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	118			92			276	296	46	280	285	59
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			100	98	96	94	95	96
cM capacity (veh/h)	1468			1501			594	597	1014	607	605	994
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	67	46	70	70	47	104						
Volume Left	21	0	22	0	2	39						
Volume Right	0	0	0	22	36	36						
cSH	1468	1700	1501	1700	871	701						
Volume to Capacity	0.01	0.03	0.01	0.04	0.05	0.15						
Queue Length 95th (ft)	1	0	1	0	4	13						
Control Delay (s)	2.4	0.0	2.4	0.0	9.4	11.0						
Lane LOS	A		A		A	B						
Approach Delay (s)	1.4		1.2		9.4	11.0						
Approach LOS					A	B						
Intersection Summary												
Average Delay			4.7									
Intersection Capacity Utilization			26.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings

Electric Boat - Groton, CT

3: Benham Rd. & Route 349 (Mumford Ave.)/Route 349 (Rainville Ave.)

2029 AM Background



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↕	↕	↕	
Traffic Volume (vph)	6	78	5	179	350	143	5	67	100	57	82	90
Future Volume (vph)	6	78	5	179	350	143	5	67	100	57	82	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		250	0		0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.968				0.850		0.921	
Flt Protected		0.996			0.987			0.997		0.950		
Satd. Flow (prot)	0	3497	0	0	3381	0	0	1857	1583	1770	1716	0
Flt Permitted		0.899			0.709			0.972		0.706		
Satd. Flow (perm)	0	3156	0	0	2429	0	0	1811	1583	1315	1716	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			85				109		74	
Link Speed (mph)		30			30			30		30		
Link Distance (ft)		1140			1126			448		267		
Travel Time (s)		25.9			25.6			10.2		6.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	85	5	195	380	155	5	73	109	62	89	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	97	0	0	730	0	0	78	109	62	187	0
Turn Type	Perm	NA		D.Pm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			1 2			4			4	
Permitted Phases	2			2			4		4	4		
Detector Phase	2	2		2	1 2		4	4	4	4	4	
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0			9.0	9.0	9.0	9.0	9.0	
Minimum Split (s)	17.2	17.2		17.2			14.5	14.5	14.5	14.5	14.5	
Total Split (s)	39.3	39.3		39.3			25.5	25.5	25.5	25.5	25.5	
Total Split (%)	53.2%	53.2%		53.2%			34.5%	34.5%	34.5%	34.5%	34.5%	
Maximum Green (s)	34.1	34.1		34.1			20.0	20.0	20.0	20.0	20.0	
Yellow Time (s)	4.2	4.2		4.2			3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.0	1.0		1.0			2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)		0.0						0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.2						5.5	5.5	5.5	5.5	
Lead/Lag	Lag	Lag		Lag								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0			2.5	2.5	2.5	2.5	2.5	
Recall Mode	Min	Min		Min			None	None	None	None	None	
Act Effct Green (s)		14.7			26.1			10.4	10.4	10.4	10.4	
Actuated g/C Ratio		0.32			0.58			0.23	0.23	0.23	0.23	
v/c Ratio		0.09			0.51			0.19	0.24	0.21	0.42	
Control Delay		10.4			6.6			16.4	6.0	17.2	13.4	
Queue Delay		0.0			0.0			0.0	0.0	0.0	0.0	
Total Delay		10.4			6.6			16.4	6.0	17.2	13.4	
LOS		B			A			B	A	B	B	
Approach Delay		10.4			6.6			10.3			14.3	
Approach LOS		B			A			B			B	

Lane Group	Ø1
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	6.0
Minimum Split (s)	9.1
Total Split (s)	9.1
Total Split (%)	12%
Maximum Green (s)	6.0
Yellow Time (s)	3.0
All-Red Time (s)	0.1
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	0.2
Recall Mode	Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		7			37			15	0	12	22	
Queue Length 95th (ft)		22			91			50	31	43	78	
Internal Link Dist (ft)		1060			1046			368			187	
Turn Bay Length (ft)									250			
Base Capacity (vph)		2423			2320			815	772	591	813	
Starvation Cap Reductn		0			0			0	0	0	0	
Spillback Cap Reductn		0			0			0	0	0	0	
Storage Cap Reductn		0			0			0	0	0	0	
Reduced v/c Ratio		0.04			0.31			0.10	0.14	0.10	0.23	

Intersection Summary

Area Type:	Other
Cycle Length:	73.9
Actuated Cycle Length:	45.3
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.51
Intersection Signal Delay:	8.9
Intersection LOS:	A
Intersection Capacity Utilization	40.8%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Benham Rd. & Route 349 (Mumford Ave.)/Route 349 (Rainville Ave.)



Lane Group	Ø1
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

Electric Boat - Groton, CT

3: Benham Rd. & Route 349 (Mumford Ave.)/Route 349 (Rainville Ave.)

2029 AM Background



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↑	↗	↘	↖	↗
Traffic Volume (vph)	6	78	5	179	350	143	5	67	100	57	82	90
Future Volume (vph)	6	78	5	179	350	143	5	67	100	57	82	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2			3.1			5.5	5.5	5.5	5.5	
Lane Util. Factor		0.95			0.95			1.00	1.00	1.00	1.00	
Frt		0.99			0.97			1.00	0.85	1.00	0.92	
Flt Protected		1.00			0.99			1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3499			3381			1857	1583	1770	1716	
Flt Permitted		0.90			0.71			0.97	1.00	0.71	1.00	
Satd. Flow (perm)		3156			2430			1811	1583	1316	1716	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	85	5	195	380	155	5	73	109	62	89	98
RTOR Reduction (vph)	0	3	0	0	40	0	0	0	84	0	57	0
Lane Group Flow (vph)	0	94	0	0	690	0	0	78	25	62	130	0
Turn Type	Perm	NA		D.Pm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			1 2			4			4	
Permitted Phases	2			2			4		4	4		
Actuated Green, G (s)		14.7			23.9			10.4	10.4	10.4	10.4	
Effective Green, g (s)		14.7			23.9			10.4	10.4	10.4	10.4	
Actuated g/C Ratio		0.33			0.53			0.23	0.23	0.23	0.23	
Clearance Time (s)		5.2						5.5	5.5	5.5	5.5	
Vehicle Extension (s)		3.0						2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)		1030			1290			418	365	304	396	
v/s Ratio Prot												c0.08
v/s Ratio Perm		0.03			c0.28			0.04	0.02	0.05		
v/c Ratio		0.09			0.53			0.19	0.07	0.20	0.33	
Uniform Delay, d1		10.5			6.9			13.9	13.5	14.0	14.4	
Progression Factor		1.00			1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0			0.4			0.2	0.1	0.2	0.4	
Delay (s)		10.6			7.3			14.1	13.6	14.2	14.8	
Level of Service		B			A			B	B	B	B	
Approach Delay (s)		10.6			7.3			13.8			14.6	
Approach LOS		B			A			B			B	

Intersection Summary

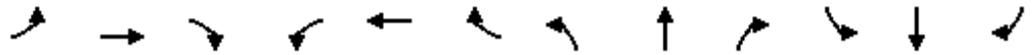
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	13.8
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings

Electric Boat - Groton, CT

4: Brandegee Ave./Route 349 (Clarence B. Sharp Hwy.) & Route 349 (Rainville Ave.)/Rainville Ave.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	73	13	72	85	78	26	271	16	137	528	560
Future Volume (vph)	150	73	13	72	85	78	26	271	16	137	528	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	1		0	0		1	0		0	1		1
Taper Length (ft)	25			25			25			80		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Frt		0.984					0.850	0.992				0.850
Flt Protected	0.950	0.986			0.978			0.996		0.950		
Satd. Flow (prot)	1681	1717	0	0	1822	1583	0	3497	0	1770	1863	1583
Flt Permitted	0.950	0.986			0.978			0.881		0.529		
Satd. Flow (perm)	1681	1717	0	0	1822	1583	0	3093	0	985	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				91		6				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1126			427			507			1053	
Travel Time (s)		25.6			9.7			11.5			23.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	79	14	78	92	85	28	295	17	149	574	609
Shared Lane Traffic (%)	22%											
Lane Group Flow (vph)	127	129	0	0	170	85	0	340	0	149	574	609
Turn Type	Split	NA		Split	NA	Prot	Perm	NA		pm+pt	NA	custom
Protected Phases	4	4		5	5	5		2		1	1 2	1 2 4
Permitted Phases							2			1 2		5
Detector Phase	4	4		5	5	5	2	2		1	1 2	1 2 4
Switch Phase												
Minimum Initial (s)	8.0	8.0		6.0	6.0	6.0	15.0	15.0		6.0		
Minimum Split (s)	12.5	12.5		10.5	10.5	10.5	22.5	22.5		10.5		
Total Split (s)	26.3	26.3		18.8	18.8	18.8	66.3	66.3		15.1		
Total Split (%)	20.8%	20.8%		14.9%	14.9%	14.9%	52.4%	52.4%		11.9%		
Maximum Green (s)	21.8	21.8		14.3	14.3	14.3	61.8	61.8		10.6		
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5		
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0		
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0		0.0		
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5		4.5		
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0		
Recall Mode	None	None		None	None	None	Max	Max		None		
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							11.0	11.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)	16.7	16.7			13.7	13.7		61.9		72.6	77.1	121.0
Actuated g/C Ratio	0.14	0.14			0.11	0.11		0.51		0.60	0.64	1.00
v/c Ratio	0.55	0.54			0.83	0.33		0.21		0.23	0.48	0.38
Control Delay	57.8	55.5			83.3	12.7		17.1		10.6	14.0	0.7
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Total Delay	57.8	55.5			83.3	12.7		17.1		10.6	14.0	0.7

4: Brandegee Ave./Route 349 (Clarence B. Sharp Hwy.) & Route 349 (Rainville Ave.)/Rainville Ave.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	E			F	B		B		B	B	A
Approach Delay		56.6			59.8			17.1			7.6	
Approach LOS		E			E			B			A	
Queue Length 50th (ft)	98	96			132	0		74		44	225	0
Queue Length 95th (ft)	166	165			#260	44		112		80	344	0
Internal Link Dist (ft)		1046			347			427			973	
Turn Bay Length (ft)										100		
Base Capacity (vph)	303	313			215	267		1586		659	1186	1572
Starvation Cap Reductn	0	0			0	0		0		0	0	0
Spillback Cap Reductn	0	0			0	0		0		0	0	0
Storage Cap Reductn	0	0			0	0		0		0	0	0
Reduced v/c Ratio	0.42	0.41			0.79	0.32		0.21		0.23	0.48	0.39

Intersection Summary

Area Type: Other
 Cycle Length: 126.5
 Actuated Cycle Length: 121
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 20.9
 Intersection LOS: C
 Intersection Capacity Utilization 66.9%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

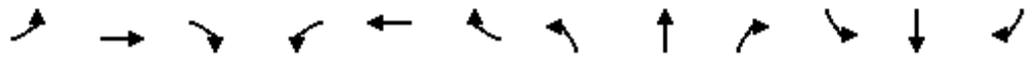
Splits and Phases: 4: Brandegee Ave./Route 349 (Clarence B. Sharp Hwy.) & Route 349 (Rainville Ave.)/Rainville Ave.

15.1 s	66.3 s	18.8 s	26.3 s

HCM Signalized Intersection Capacity Analysis

Electric Boat - Groton, CT

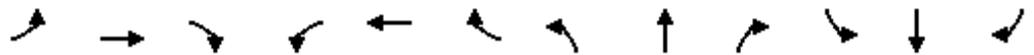
4: Brandegee Ave./Route 349 (Clarence B. Sharp Hwy.) & Route 349 (Rainville Ave.)/Rainville Ave.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↔			↙	↗		↕		↘	↗	↗
Traffic Volume (vph)	150	73	13	72	85	78	26	271	16	137	528	560
Future Volume (vph)	150	73	13	72	85	78	26	271	16	137	528	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95			1.00	1.00		0.95		1.00	1.00	1.00
Frt	1.00	0.98			1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	0.99			0.98	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1717			1821	1583		3498		1770	1863	1583
Flt Permitted	0.95	0.99			0.98	1.00		0.88		0.53	1.00	1.00
Satd. Flow (perm)	1681	1717			1821	1583		3095		986	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	79	14	78	92	85	28	295	17	149	574	609
RTOR Reduction (vph)	0	3	0	0	0	75	0	3	0	0	0	0
Lane Group Flow (vph)	127	126	0	0	170	10	0	337	0	149	574	609
Turn Type	Split	NA		Split	NA	Prot	Perm	NA		pm+pt	NA	custom
Protected Phases	4	4		5	5	5		2		1	12	12 4
Permitted Phases							2			1 2		5
Actuated Green, G (s)	16.7	16.7			13.7	13.7		61.9		72.5	77.0	111.9
Effective Green, g (s)	16.7	16.7			13.7	13.7		61.9		72.5	77.0	111.9
Actuated g/C Ratio	0.14	0.14			0.11	0.11		0.51		0.60	0.64	0.93
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5		4.5		
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)	232	237			206	179		1584		660	1186	1583
v/s Ratio Prot	c0.08	0.07			c0.09	0.01				0.02	c0.31	0.31
v/s Ratio Perm								0.11		0.12		0.07
v/c Ratio	0.55	0.53			0.83	0.05		0.21		0.23	0.48	0.38
Uniform Delay, d1	48.6	48.4			52.4	47.8		16.2		10.6	11.5	0.5
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	2.6	2.1			22.8	0.1		0.3		0.2	0.3	0.2
Delay (s)	51.2	50.6			75.2	47.9		16.5		10.8	11.8	0.7
Level of Service	D	D			E	D		B		B	B	A
Approach Delay (s)		50.9			66.1			16.5			6.6	
Approach LOS		D			E			B			A	

Intersection Summary		
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.56	
Actuated Cycle Length (s)	120.9	Sum of lost time (s) 18.0
Intersection Capacity Utilization	66.9%	ICU Level of Service C
Analysis Period (min)	15	

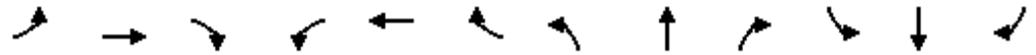
c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (vph)	2	56	240	15	37	11	32	12	1	11	52	2
Future Volume (vph)	2	56	240	15	37	11	32	12	1	11	52	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t			0.850		0.976			0.997			0.996	
Fl _t Protected		0.998			0.988			0.966			0.992	
Satd. Flow (prot)	0	1859	1583	0	1796	0	0	1794	0	0	1840	0
Fl _t Permitted		0.990			0.916			0.842			0.978	
Satd. Flow (perm)	0	1844	1583	0	1665	0	0	1564	0	0	1814	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			261		12			1			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		678			844			704			713	
Travel Time (s)		15.4			19.2			16.0			16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	61	261	16	40	12	35	13	1	12	57	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	63	261	0	68	0	0	49	0	0	71	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	12	
Permitted Phases	4		4	4			2			2		
Detector Phase	4	4	4	4	4		2	2		1	12	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0		
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5		22.5		
Total Split (s)	23.0	23.0	23.0	23.0	23.0		24.0	24.0		23.0		
Total Split (%)	32.9%	32.9%	32.9%	32.9%	32.9%		34.3%	34.3%		32.9%		
Maximum Green (s)	18.5	18.5	18.5	18.5	18.5		19.5	19.5		18.5		
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5		
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0		
Lost Time Adjust (s)		0.0	0.0		0.0			0.0				
Total Lost Time (s)		4.5	4.5		4.5			4.5				
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0		
Recall Mode	None	None	None	None	None		Max	Max		None		
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0		
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0		
Act Effct Green (s)		7.9	7.9		7.9			22.0			25.6	
Actuated g/C Ratio		0.17	0.17		0.17			0.49			0.57	
v/c Ratio		0.20	0.53		0.23			0.06			0.07	
Control Delay		17.9	7.4		16.2			9.8			4.2	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		17.9	7.4		16.2			9.8			4.2	
LOS		B	A		B			A			A	
Approach Delay		9.4			16.2			9.8			4.2	
Approach LOS		A			B			A			A	

Lanes, Volumes, Timings
 5: Eastern Point Rd./Smith St. & Thames St./Poquonnock Rd.

Electric Boat - Groton, CT
 2029 AM Background

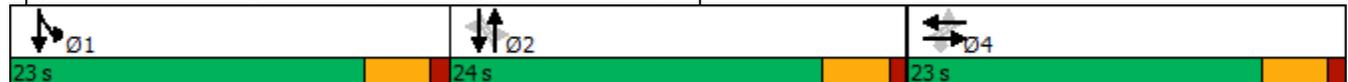


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		15	0		13			7			5	
Queue Length 95th (ft)		40	46		39			27			20	
Internal Link Dist (ft)		598			764			624			633	
Turn Bay Length (ft)												
Base Capacity (vph)		769	812		702			760			1140	
Starvation Cap Reductn		0	0		0			0			0	
Spillback Cap Reductn		0	0		0			0			0	
Storage Cap Reductn		0	0		0			0			0	
Reduced v/c Ratio		0.08	0.32		0.10			0.06			0.06	

Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	45.2
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.53
Intersection Signal Delay:	9.6
Intersection LOS:	A
Intersection Capacity Utilization	34.4%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 5: Eastern Point Rd./Smith St. & Thames St./Poquonnock Rd.



HCM Signalized Intersection Capacity Analysis
 5: Eastern Point Rd./Smith St. & Thames St./Poquonnock Rd.

Electric Boat - Groton, CT
 2029 AM Background



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (vph)	2	56	240	15	37	11	32	12	1	11	52	2
Future Volume (vph)	2	56	240	15	37	11	32	12	1	11	52	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.98			1.00			1.00	
Flt Protected		1.00	1.00		0.99			0.97			0.99	
Satd. Flow (prot)		1860	1583		1797			1794			1840	
Flt Permitted		0.99	1.00		0.92			0.84			0.98	
Satd. Flow (perm)		1845	1583		1665			1565			1815	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	61	261	16	40	12	35	13	1	12	57	2
RTOR Reduction (vph)	0	0	217	0	10	0	0	1	0	0	1	0
Lane Group Flow (vph)	0	63	44	0	58	0	0	48	0	0	70	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		4			4			2			1	12
Permitted Phases	4		4	4			2			2		
Actuated Green, G (s)		7.9	7.9		7.9			22.0			25.7	
Effective Green, g (s)		7.9	7.9		7.9			22.0			25.7	
Actuated g/C Ratio		0.17	0.17		0.17			0.47			0.55	
Clearance Time (s)		4.5	4.5		4.5			4.5				
Vehicle Extension (s)		3.0	3.0		3.0			3.0				
Lane Grp Cap (vph)		309	265		279			730			992	
v/s Ratio Prot											c0.01	
v/s Ratio Perm		0.03	0.03		c0.03			0.03			c0.03	
v/c Ratio		0.20	0.17		0.21			0.07			0.07	
Uniform Delay, d1		16.9	16.8		16.9			6.9			5.1	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		0.3	0.3		0.4			0.2			0.0	
Delay (s)		17.2	17.1		17.3			7.1			5.1	
Level of Service		B	B		B			A			A	
Approach Delay (s)		17.1			17.3			7.1			5.1	
Approach LOS		B			B			A			A	

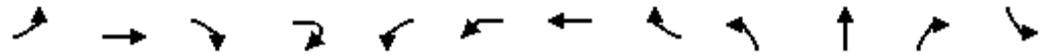
Intersection Summary

HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.10		
Actuated Cycle Length (s)	47.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
 6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.

Electric Boat - Groton, CT
 2029 AM Background



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↕					↕			↕		
Traffic Volume (vph)	34	20	19	3	5	14	40	69	22	113	6	70
Future Volume (vph)	34	20	19	3	5	14	40	69	22	113	6	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.961					0.927			0.994		
Flt Protected		0.978					0.993			0.992		
Satd. Flow (prot)	0	1751	0	0	0	0	1715	0	0	1837	0	0
Flt Permitted		0.778					0.951			0.928		
Satd. Flow (perm)	0	1393	0	0	0	0	1642	0	0	1718	0	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)		3					75			3		
Link Speed (mph)		30					30			30		
Link Distance (ft)		844					602			696		
Travel Time (s)		19.2					13.7			15.8		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	22	21	3	5	15	43	75	24	123	7	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	83	0	0	0	0	138	0	0	154	0	0
Turn Type	Perm	NA			Perm	Perm	NA		Perm	NA		Perm
Protected Phases		4					4			2		
Permitted Phases	4				4	4			2			6
Detector Phase	4	4			4	4	4		2	2		6
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0		5.0	5.0		5.0
Minimum Split (s)	22.5	22.5			22.5	22.5	22.5		22.5	22.5		22.5
Total Split (s)	22.5	22.5			22.5	22.5	22.5		25.0	25.0		25.0
Total Split (%)	32.1%	32.1%			32.1%	32.1%	32.1%		35.7%	35.7%		35.7%
Maximum Green (s)	18.0	18.0			18.0	18.0	18.0		20.5	20.5		20.5
Yellow Time (s)	3.5	3.5			3.5	3.5	3.5		3.5	3.5		3.5
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0	1.0		1.0
Lost Time Adjust (s)		0.0					0.0			0.0		
Total Lost Time (s)		4.5					4.5			4.5		
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None			None	None	None		Max	Max		Max
Walk Time (s)	7.0	7.0			7.0	7.0	7.0		7.0	7.0		7.0
Flash Dont Walk (s)	11.0	11.0			11.0	11.0	11.0		11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0			0	0	0		0	0		0
Act Effct Green (s)		8.5					8.5			20.7		
Actuated g/C Ratio		0.15					0.15			0.35		
v/c Ratio		0.40					0.46			0.25		
Control Delay		29.0					17.7			16.4		
Queue Delay		0.0					0.0			0.0		
Total Delay		29.0					17.7			16.4		
LOS		C					B			B		
Approach Delay		29.0					17.7			16.4		
Approach LOS		C					B			B		

Lanes, Volumes, Timings
 6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.

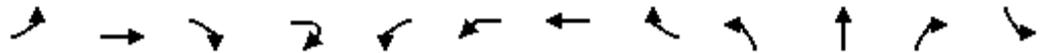
Electric Boat - Groton, CT
 2029 AM Background



Lane Group	SBT	SBR	SBR2	NEL2	NEL	NER
Lane Configurations	↕	↕			↕	
Traffic Volume (vph)	201	149	148	6	44	3
Future Volume (vph)	201	149	148	6	44	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		0.850			0.993	
Fl _t Protected	0.987				0.955	
Satd. Flow (prot)	1839	1583	0	0	1766	0
Fl _t Permitted	0.883				0.955	
Satd. Flow (perm)	1645	1583	0	0	1766	0
Right Turn on Red			Yes			
Satd. Flow (RTOR)		94				
Link Speed (mph)	30				30	
Link Distance (ft)	1056				667	
Travel Time (s)	24.0				15.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	218	162	161	7	48	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	294	323	0	0	58	0
Turn Type	NA	Prot		Perm	Prot	
Protected Phases	6	6			8	
Permitted Phases				8		
Detector Phase	6	6		8	8	
Switch Phase						
Minimum Initial (s)	5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5	
Total Split (s)	25.0	25.0		22.5	22.5	
Total Split (%)	35.7%	35.7%		32.1%	32.1%	
Maximum Green (s)	20.5	20.5		18.0	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0	
Total Lost Time (s)	4.5	4.5			4.5	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	20.7	20.7			18.2	
Actuated g/C Ratio	0.35	0.35			0.31	
v/c Ratio	0.51	0.52			0.11	
Control Delay	20.3	15.3			17.1	
Queue Delay	0.0	0.0			0.0	
Total Delay	20.3	15.3			17.1	
LOS	C	B			B	
Approach Delay	17.7				17.1	
Approach LOS	B				B	

Lanes, Volumes, Timings
 6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.

Electric Boat - Groton, CT
 2029 AM Background

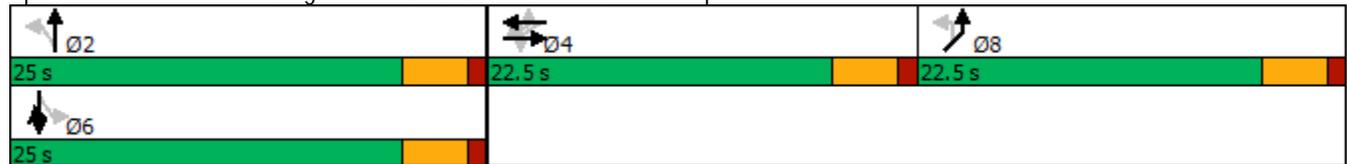


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Queue Length 50th (ft)		27					21			39		
Queue Length 95th (ft)		63					65			85		
Internal Link Dist (ft)		764					522			616		
Turn Bay Length (ft)												
Base Capacity (vph)		434					561			609		
Starvation Cap Reductn		0					0			0		
Spillback Cap Reductn		0					0			0		
Storage Cap Reductn		0					0			0		
Reduced v/c Ratio		0.19					0.25			0.25		

Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	58.6
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.52
Intersection Signal Delay:	18.3
Intersection LOS:	B
Intersection Capacity Utilization	50.7%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.



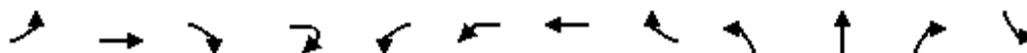


Lane Group	SBT	SBR	SBR2	NEL2	NEL	NER
Queue Length 50th (ft)	85	63			15	
Queue Length 95th (ft)	164	145			41	
Internal Link Dist (ft)	976				587	
Turn Bay Length (ft)						
Base Capacity (vph)	581	620			548	
Starvation Cap Reductn	0	0			0	
Spillback Cap Reductn	0	0			0	
Storage Cap Reductn	0	0			0	
Reduced v/c Ratio	0.51	0.52			0.11	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.

Electric Boat - Groton, CT
 2029 AM Background



Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↕					↕			↕		
Traffic Volume (vph)	34	20	19	3	5	14	40	69	22	113	6	70
Future Volume (vph)	34	20	19	3	5	14	40	69	22	113	6	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5					4.5			4.5		
Lane Util. Factor		1.00					1.00			1.00		
Frt		0.96					0.93			0.99		
Flt Protected		0.98					0.99			0.99		
Satd. Flow (prot)		1751					1714			1837		
Flt Permitted		0.78					0.95			0.93		
Satd. Flow (perm)		1392					1641			1719		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	22	21	3	5	15	43	75	24	123	7	76
RTOR Reduction (vph)	0	3	0	0	0	0	66	0	0	2	0	0
Lane Group Flow (vph)	0	80	0	0	0	0	72	0	0	152	0	0
Turn Type	Perm	NA			Perm	Perm	NA		Perm	NA		Perm
Protected Phases		4					4			2		
Permitted Phases	4				4	4			2			6
Actuated Green, G (s)		7.2					7.2			20.7		
Effective Green, g (s)		7.2					7.2			20.7		
Actuated g/C Ratio		0.12					0.12			0.35		
Clearance Time (s)		4.5					4.5			4.5		
Vehicle Extension (s)		3.0					3.0			3.0		
Lane Grp Cap (vph)		168					198			597		
v/s Ratio Prot												
v/s Ratio Perm		c0.06					0.04			0.09		
v/c Ratio		0.48					0.36			0.25		
Uniform Delay, d1		24.4					24.1			13.9		
Progression Factor		1.00					1.00			1.00		
Incremental Delay, d2		2.1					1.1			1.0		
Delay (s)		26.6					25.2			15.0		
Level of Service		C					C			B		
Approach Delay (s)		26.6					25.2			15.0		
Approach LOS		C					C			B		

Intersection Summary

HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	59.6	Sum of lost time (s)	13.5
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.

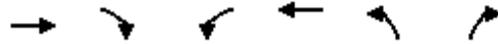
Electric Boat - Groton, CT
 2029 AM Background



Movement	SBT	SBR	SBR2	NEL2	NEL	NER
Lane Configurations	↕	↗			↖	
Traffic Volume (vph)	201	149	148	6	44	3
Future Volume (vph)	201	149	148	6	44	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00			1.00	
Frt	1.00	0.85			0.99	
Flt Protected	0.99	1.00			0.95	
Satd. Flow (prot)	1839	1583			1766	
Flt Permitted	0.88	1.00			0.96	
Satd. Flow (perm)	1645	1583			1767	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	218	162	161	7	48	3
RTOR Reduction (vph)	0	61	0	0	0	0
Lane Group Flow (vph)	294	262	0	0	58	0
Turn Type	NA	Prot		Perm	Prot	
Protected Phases	6	6			8	
Permitted Phases				8		
Actuated Green, G (s)	20.7	20.7			18.2	
Effective Green, g (s)	20.7	20.7			18.2	
Actuated g/C Ratio	0.35	0.35			0.31	
Clearance Time (s)	4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0			3.0	
Lane Grp Cap (vph)	571	549			539	
v/s Ratio Prot		0.17				
v/s Ratio Perm	c0.18				c0.03	
v/c Ratio	0.51	0.48			0.11	
Uniform Delay, d1	15.5	15.2			14.9	
Progression Factor	1.00	1.00			1.00	
Incremental Delay, d2	3.3	2.9			0.4	
Delay (s)	18.8	18.2			15.3	
Level of Service	B	B			B	
Approach Delay (s)	18.4				15.3	
Approach LOS	B				B	
Intersection Summary						

Lanes, Volumes, Timings
7: M-Lot Driveway & Poquonnock Rd.

Electric Boat - Groton, CT
2029 AM Background



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Volume (vph)	212	148	61	264	23	6
Future Volume (vph)	212	148	61	264	23	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt	0.938			0.970		
Flt Protected				0.991	0.962	
Satd. Flow (prot)	3320	0	0	3507	1738	0
Flt Permitted				0.991	0.962	
Satd. Flow (perm)	3320	0	0	3507	1738	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	508			552	258	
Travel Time (s)	11.5			12.5	5.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	230	161	66	287	25	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	391	0	0	353	32	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.0% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
7: M-Lot Driveway & Poquonnock Rd.

Electric Boat - Groton, CT
2029 AM Background



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Volume (veh/h)	212	148	61	264	23	6
Future Volume (Veh/h)	212	148	61	264	23	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	230	161	66	287	25	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			391		586	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			391		586	196
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		94	99
cM capacity (veh/h)			1164		416	813
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	153	238	162	191	32	
Volume Left	0	0	66	0	25	
Volume Right	0	161	0	0	7	
cSH	1700	1700	1164	1700	466	
Volume to Capacity	0.09	0.14	0.06	0.11	0.07	
Queue Length 95th (ft)	0	0	5	0	6	
Control Delay (s)	0.0	0.0	3.7	0.0	13.3	
Lane LOS	A			B		
Approach Delay (s)	0.0		1.7		13.3	
Approach LOS						B
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			33.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings
 1: Route 349 (Eastern Point Rd.) & Route 349 (Chester St.)

Electric Boat - Groton, CT
 2029 PM Background

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	18	31	115	283	33	76
Future Volume (vph)	18	31	115	283	33	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		175	125	
Storage Lanes	2	0		1	1	
Taper Length (ft)	25				60	
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00
Frt	0.906			0.850		
Flt Protected	0.982				0.950	
Satd. Flow (prot)	3215	0	1863	1583	1770	1863
Flt Permitted	0.982				0.677	
Satd. Flow (perm)	3215	0	1863	1583	1261	1863
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	34			308		
Link Speed (mph)	30		30			30
Link Distance (ft)	450		522			429
Travel Time (s)	10.2		11.9			9.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	34	125	308	36	83
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	125	308	36	83
Turn Type	Prot		NA	Perm	D.P+P	NA
Protected Phases	4		2		1	1 2
Permitted Phases				2	2	
Detector Phase	4		2	2	1	1 2
Switch Phase						
Minimum Initial (s)	9.0		15.0	15.0	4.0	
Minimum Split (s)	14.2		20.6	20.6	7.1	
Total Split (s)	20.2		50.6	50.6	13.1	
Total Split (%)	24.1%		60.3%	60.3%	15.6%	
Maximum Green (s)	15.0		45.0	45.0	10.0	
Yellow Time (s)	3.8		3.8	3.8	3.0	
All-Red Time (s)	1.4		1.8	1.8	0.1	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	5.2		5.6	5.6	3.1	
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	2.0		2.5	2.5	1.0	
Recall Mode	None		Min	Min	None	
Act Effct Green (s)	9.3		23.2	23.2	26.0	30.0
Actuated g/C Ratio	0.26		0.65	0.65	0.73	0.84
v/c Ratio	0.06		0.10	0.27	0.04	0.05
Control Delay	8.0		7.9	2.6	3.2	2.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	8.0		7.9	2.6	3.2	2.8
LOS	A		A	A	A	A
Approach Delay	8.0		4.1			2.9
Approach LOS	A		A			A

Lanes, Volumes, Timings
 1: Route 349 (Eastern Point Rd.) & Route 349 (Chester St.)

Electric Boat - Groton, CT
 2029 PM Background



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	1		7	0	1	0
Queue Length 95th (ft)	11		47	37	10	17
Internal Link Dist (ft)	370		442			349
Turn Bay Length (ft)				175	125	
Base Capacity (vph)	1407		1863	1583	1127	1863
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	0.04		0.07	0.19	0.03	0.04

Intersection Summary

Area Type:	Other
Cycle Length:	83.9
Actuated Cycle Length:	35.8
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.27
Intersection Signal Delay:	4.2
Intersection LOS:	A
Intersection Capacity Utilization	29.0%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 1: Route 349 (Eastern Point Rd.) & Route 349 (Chester St.)

Ø1	Ø2	Ø4
13.1 s	50.6 s	20.2 s

HCM Signalized Intersection Capacity Analysis
 1: Route 349 (Eastern Point Rd.) & Route 349 (Chester St.)

Electric Boat - Groton, CT
 2029 PM Background



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WT		T	T	T	T
Traffic Volume (vph)	18	31	115	283	33	76
Future Volume (vph)	18	31	115	283	33	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2		5.6	5.6	3.1	3.1
Lane Util. Factor	0.97		1.00	1.00	1.00	1.00
Frt	0.91		1.00	0.85	1.00	1.00
Flt Protected	0.98		1.00	1.00	0.95	1.00
Satd. Flow (prot)	3213		1863	1583	1770	1863
Flt Permitted	0.98		1.00	1.00	0.68	1.00
Satd. Flow (perm)	3213		1863	1583	1261	1863
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	34	125	308	36	83
RTOR Reduction (vph)	31	0	0	150	0	0
Lane Group Flow (vph)	23	0	125	158	36	83
Turn Type	Prot		NA	Perm	D.P+P	NA
Protected Phases	4		2		1	1 2
Permitted Phases				2	2	
Actuated Green, G (s)	3.0		20.7	20.7	23.4	26.5
Effective Green, g (s)	3.0		20.7	20.7	23.4	26.5
Actuated g/C Ratio	0.07		0.51	0.51	0.58	0.66
Clearance Time (s)	5.2		5.6	5.6	3.1	
Vehicle Extension (s)	2.0		2.5	2.5	1.0	
Lane Grp Cap (vph)	239		956	813	766	1225
v/s Ratio Prot	c0.01		0.07		0.00	c0.04
v/s Ratio Perm				c0.10	0.02	
v/c Ratio	0.09		0.13	0.19	0.05	0.07
Uniform Delay, d1	17.4		5.1	5.3	3.6	2.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1		0.0	0.1	0.0	0.0
Delay (s)	17.4		5.2	5.4	3.6	2.5
Level of Service	B		A	A	A	A
Approach Delay (s)	17.4		5.3			2.8
Approach LOS	B		A			A

Intersection Summary

HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	40.3	Sum of lost time (s)	13.9
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	41	193	11	20	46	32	2	23	106	63	10	20
Future Volume (vph)	41	193	11	20	46	32	2	23	106	63	10	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.951			0.891			0.971	
Flt Protected		0.992			0.990			0.999			0.967	
Satd. Flow (prot)	0	3486	0	0	3332	0	0	1658	0	0	1749	0
Flt Permitted		0.992			0.990			0.999			0.967	
Satd. Flow (perm)	0	3486	0	0	3332	0	0	1658	0	0	1749	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		450			1140			266			576	
Travel Time (s)		10.2			25.9			6.0			13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	210	12	22	50	35	2	25	115	68	11	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	267	0	0	107	0	0	142	0	0	101	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 2: Mumford Ave. & Route 349 (Chester St.)/Route 349 (Mumford Ave.)

Electric Boat - Groton, CT
 2029 PM Background



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (veh/h)	41	193	11	20	46	32	2	23	106	63	10	20
Future Volume (Veh/h)	41	193	11	20	46	32	2	23	106	63	10	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	210	12	22	50	35	2	25	115	68	11	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		450			1140							
pX, platoon unblocked												
vC, conflicting volume	85			222			402	435	111	434	424	42
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	85			222			402	435	111	434	424	42
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			98			100	95	88	83	98	98
cM capacity (veh/h)	1509			1344			494	490	921	411	497	1019
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	150	117	47	60	142	101						
Volume Left	45	0	22	0	2	68						
Volume Right	0	12	0	35	115	22						
cSH	1509	1700	1344	1700	789	482						
Volume to Capacity	0.03	0.07	0.02	0.04	0.18	0.21						
Queue Length 95th (ft)	2	0	1	0	16	20						
Control Delay (s)	2.4	0.0	3.7	0.0	10.6	14.4						
Lane LOS	A		A		B	B						
Approach Delay (s)	1.4		1.6		10.6	14.4						
Approach LOS					B	B						
Intersection Summary												
Average Delay			5.7									
Intersection Capacity Utilization			36.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings

Electric Boat - Groton, CT

3: Benham Rd. & Route 349 (Mumford Ave.)/Route 349 (Rainville Ave.)

2029 PM Background



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕	↕	↕	↕	
Traffic Volume (vph)	71	502	12	100	53	50	3	112	180	135	125	0
Future Volume (vph)	71	502	12	100	53	50	3	112	180	135	125	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		250	0		0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.963				0.850			
Flt Protected		0.994			0.976			0.999		0.950		
Satd. Flow (prot)	0	3507	0	0	3326	0	0	1861	1583	1770	1863	0
Flt Permitted		0.879			0.614			0.992		0.677		
Satd. Flow (perm)	0	3102	0	0	2093	0	0	1848	1583	1261	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			54				196			
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1140			1126			448				267
Travel Time (s)		25.9			25.6			10.2				6.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	546	13	109	58	54	3	122	196	147	136	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	636	0	0	221	0	0	125	196	147	136	0
Turn Type	Perm	NA		D.Pm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			1 2			4				4
Permitted Phases	2			2			4		4	4		
Detector Phase	2	2		2	1 2		4	4	4	4		4
Switch Phase												
Minimum Initial (s)	12.0	12.0		12.0			9.0	9.0	9.0	9.0		9.0
Minimum Split (s)	17.2	17.2		17.2			14.5	14.5	14.5	14.5		14.5
Total Split (s)	39.3	39.3		39.3			25.5	25.5	25.5	25.5		25.5
Total Split (%)	50.4%	50.4%		50.4%			32.7%	32.7%	32.7%	32.7%		32.7%
Maximum Green (s)	34.1	34.1		34.1			20.0	20.0	20.0	20.0		20.0
Yellow Time (s)	4.2	4.2		4.2			3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	1.0	1.0		1.0			2.5	2.5	2.5	2.5		2.5
Lost Time Adjust (s)		0.0						0.0	0.0	0.0		0.0
Total Lost Time (s)		5.2						5.5	5.5	5.5		5.5
Lead/Lag	Lag	Lag		Lag								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0			2.5	2.5	2.5	2.5		2.5
Recall Mode	Min	Min		Min			None	None	None	None		None
Act Effct Green (s)		19.5			35.2			12.9	12.9	12.9		12.9
Actuated g/C Ratio		0.34			0.62			0.23	0.23	0.23		0.23
v/c Ratio		0.60			0.17			0.30	0.39	0.52		0.32
Control Delay		18.0			4.2			21.7	6.2	27.9		22.0
Queue Delay		0.0			0.0			0.0	0.0	0.0		0.0
Total Delay		18.0			4.2			21.7	6.2	27.9		22.0
LOS		B			A			C	A	C		C
Approach Delay		18.0			4.2			12.2				25.0
Approach LOS		B			A			B				C

Lane Group	Ø1
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	1
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	6.0
Minimum Split (s)	9.1
Total Split (s)	13.1
Total Split (%)	17%
Maximum Green (s)	10.0
Yellow Time (s)	3.0
All-Red Time (s)	0.1
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	0.2
Recall Mode	Max
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

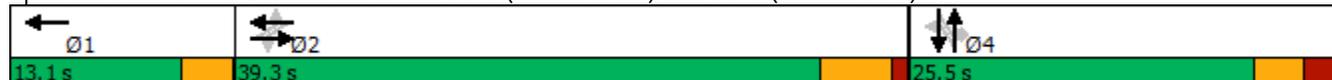


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		87			9			34	0	42	37	
Queue Length 95th (ft)		156			28			87	45	107	93	
Internal Link Dist (ft)		1060			1046			368			187	
Turn Bay Length (ft)									250			
Base Capacity (vph)		1918			1825			670	698	457	675	
Starvation Cap Reductn		0			0			0	0	0	0	
Spillback Cap Reductn		0			0			0	0	0	0	
Storage Cap Reductn		0			0			0	0	0	0	
Reduced v/c Ratio		0.33			0.12			0.19	0.28	0.32	0.20	

Intersection Summary

Area Type:	Other
Cycle Length:	77.9
Actuated Cycle Length:	57
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.60
Intersection Signal Delay:	16.0
Intersection LOS:	B
Intersection Capacity Utilization:	48.7%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 3: Benham Rd. & Route 349 (Mumford Ave.)/Route 349 (Rainville Ave.)



Lane Group	Ø1
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

Electric Boat - Groton, CT

3: Benham Rd. & Route 349 (Mumford Ave.)/Route 349 (Rainville Ave.)

2029 PM Background



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↑	↗	↘	↖	↗
Traffic Volume (vph)	71	502	12	100	53	50	3	112	180	135	125	0
Future Volume (vph)	71	502	12	100	53	50	3	112	180	135	125	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2			3.1			5.5	5.5	5.5	5.5	
Lane Util. Factor		0.95			0.95			1.00	1.00	1.00	1.00	
Frt		1.00			0.96			1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.98			1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3507			3327			1861	1583	1770	1863	
Flt Permitted		0.88			0.61			0.99	1.00	0.68	1.00	
Satd. Flow (perm)		3102			2093			1849	1583	1261	1863	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	546	13	109	58	54	3	122	196	147	136	0
RTOR Reduction (vph)	0	2	0	0	23	0	0	0	151	0	0	0
Lane Group Flow (vph)	0	634	0	0	198	0	0	125	45	147	136	0
Turn Type	Perm	NA		D.Pm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			1 2			4			4	
Permitted Phases	2			2			4		4	4		
Actuated Green, G (s)		19.5			32.9			12.9	12.9	12.9	12.9	
Effective Green, g (s)		19.5			32.9			12.9	12.9	12.9	12.9	
Actuated g/C Ratio		0.35			0.58			0.23	0.23	0.23	0.23	
Clearance Time (s)		5.2						5.5	5.5	5.5	5.5	
Vehicle Extension (s)		3.0						2.5	2.5	2.5	2.5	
Lane Grp Cap (vph)		1070			1218			422	361	287	425	
v/s Ratio Prot												0.07
v/s Ratio Perm		c0.20			c0.09			0.07	0.03	c0.12		
v/c Ratio		0.59			0.16			0.30	0.12	0.51	0.32	
Uniform Delay, d1		15.2			5.4			18.0	17.3	19.1	18.1	
Progression Factor		1.00			1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.9			0.1			0.3	0.1	1.2	0.3	
Delay (s)		16.1			5.5			18.3	17.4	20.2	18.5	
Level of Service		B			A			B	B	C	B	
Approach Delay (s)		16.1			5.5			17.8			19.4	
Approach LOS		B			A			B			B	

Intersection Summary

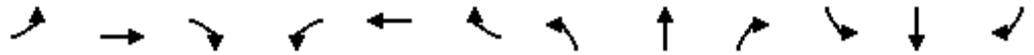
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	56.5	Sum of lost time (s)	13.8
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings

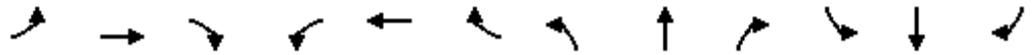
Electric Boat - Groton, CT

4: Brandegee Ave./Route 349 (Clarence B. Sharp Hwy.) & Route 349 (Rainville Ave.)/Rainville Ave.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	648	148	21	40	59	173	24	514	48	83	225	119
Future Volume (vph)	648	148	21	40	59	173	24	514	48	83	225	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	1		0	0		1	0		0	1		1
Taper Length (ft)	25			25			25			80		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Frt		0.992					0.850		0.988			0.850
Flt Protected	0.950	0.972			0.980			0.998		0.950		
Satd. Flow (prot)	1681	1706	0	0	1825	1583	0	3490	0	1770	1863	1583
Flt Permitted	0.950	0.972			0.980			0.934		0.295		
Satd. Flow (perm)	1681	1706	0	0	1825	1583	0	3266	0	550	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				148		8				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1126			427			507			1053	
Travel Time (s)		25.6			9.7			11.5			23.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	704	161	23	43	64	188	26	559	52	90	245	129
Shared Lane Traffic (%)	37%											
Lane Group Flow (vph)	444	444	0	0	107	188	0	637	0	90	245	129
Turn Type	Split	NA		Split	NA	Prot	Perm	NA		pm+pt	NA	custom
Protected Phases	4	4		5	5	5		2		1	1 2	1 2 4
Permitted Phases							2			1 2		5
Detector Phase	4	4		5	5	5	2	2		1	1 2	1 2 4
Switch Phase												
Minimum Initial (s)	8.0	8.0		6.0	6.0	6.0	15.0	15.0		6.0		
Minimum Split (s)	12.5	12.5		10.5	10.5	10.5	22.5	22.5		10.5		
Total Split (s)	52.3	52.3		20.8	20.8	20.8	46.3	46.3		9.1		
Total Split (%)	40.7%	40.7%		16.2%	16.2%	16.2%	36.0%	36.0%		7.1%		
Maximum Green (s)	47.8	47.8		16.3	16.3	16.3	41.8	41.8		4.6		
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5		
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0		
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0		0.0		
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5		4.5		
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0		
Recall Mode	None	None		None	None	None	Max	Max		None		
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							11.0	11.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)	37.1	37.1			11.8	11.8		42.3		47.0	51.5	114.1
Actuated g/C Ratio	0.33	0.33			0.10	0.10		0.37		0.41	0.45	1.00
v/c Ratio	0.81	0.80			0.57	0.63		0.52		0.33	0.29	0.08
Control Delay	48.0	46.6			62.6	24.2		31.6		25.9	23.5	0.1
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0	0.0	0.0
Total Delay	48.0	46.6			62.6	24.2		31.6		25.9	23.5	0.1

4: Brandegee Ave./Route 349 (Clarence B. Sharp Hwy.) & Route 349 (Rainville Ave.)/Rainville Ave.

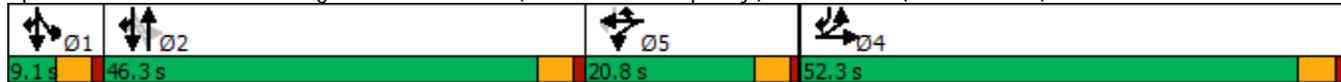


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	D	D			E	C		C		C	C	A
Approach Delay		47.3			38.1			31.6			17.5	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	311	307			77	28		193		39	115	0
Queue Length 95th (ft)	463	458			145	107		294		85	209	0
Internal Link Dist (ft)		1046			347			427			973	
Turn Bay Length (ft)										100		
Base Capacity (vph)	712	724			263	355		1215		276	840	1575
Starvation Cap Reductn	0	0			0	0		0		0	0	0
Spillback Cap Reductn	0	0			0	0		0		0	0	0
Storage Cap Reductn	0	0			0	0		0		0	0	0
Reduced v/c Ratio	0.62	0.61			0.41	0.53		0.52		0.33	0.29	0.08

Intersection Summary

Area Type:	Other
Cycle Length:	128.5
Actuated Cycle Length:	114.1
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	35.7
Intersection LOS:	D
Intersection Capacity Utilization:	71.1%
ICU Level of Service:	C
Analysis Period (min):	15

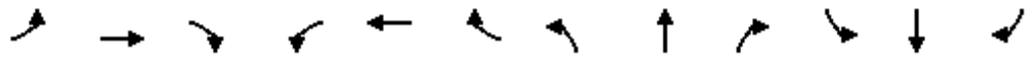
Splits and Phases: 4: Brandegee Ave./Route 349 (Clarence B. Sharp Hwy.) & Route 349 (Rainville Ave.)/Rainville Ave.



HCM Signalized Intersection Capacity Analysis

Electric Boat - Groton, CT

4: Brandegee Ave./Route 349 (Clarence B. Sharp Hwy.) & Route 349 (Rainville Ave.)/Rainville Ave.



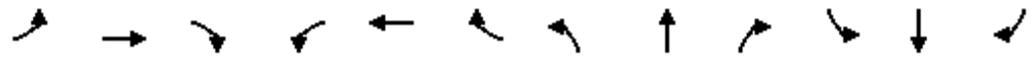
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	648	148	21	40	59	173	24	514	48	83	225	119
Future Volume (vph)	648	148	21	40	59	173	24	514	48	83	225	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95			1.00	1.00		0.95		1.00	1.00	1.00
Frt	1.00	0.99			1.00	0.85		0.99		1.00	1.00	0.85
Flt Protected	0.95	0.97			0.98	1.00		1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1706			1826	1583		3489		1770	1863	1583
Flt Permitted	0.95	0.97			0.98	1.00		0.93		0.29	1.00	1.00
Satd. Flow (perm)	1681	1706			1826	1583		3265		549	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	704	161	23	43	64	188	26	559	52	90	245	129
RTOR Reduction (vph)	0	1	0	0	0	133	0	5	0	0	0	0
Lane Group Flow (vph)	444	443	0	0	107	55	0	632	0	90	245	129
Turn Type	Split	NA		Split	NA	Prot	Perm	NA		pm+pt	NA	custom
Protected Phases	4	4		5	5	5		2		1	1 2	1 2 4
Permitted Phases							2			1 2		5
Actuated Green, G (s)	37.1	37.1			11.8	11.8		42.3		47.0	51.5	104.9
Effective Green, g (s)	37.1	37.1			11.8	11.8		42.3		47.0	51.5	104.9
Actuated g/C Ratio	0.33	0.33			0.10	0.10		0.37		0.41	0.45	0.92
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5		4.5		
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)	547	555			189	163		1212		276	842	1583
v/s Ratio Prot	c0.26	0.26			c0.06	0.03				0.01	c0.13	0.07
v/s Ratio Perm								c0.19		0.12		0.01
v/c Ratio	0.81	0.80			0.57	0.34		0.52		0.33	0.29	0.08
Uniform Delay, d1	35.2	35.0			48.6	47.4		27.9		21.4	19.7	0.4
Progression Factor	1.00	1.00			1.00	1.00		1.00		1.00	1.00	1.00
Incremental Delay, d2	8.9	7.8			3.9	1.2		1.6		0.7	0.2	0.0
Delay (s)	44.1	42.8			52.5	48.7		29.5		22.1	19.9	0.4
Level of Service	D	D			D	D		C		C	B	A
Approach Delay (s)		43.5			50.0			29.5			14.9	
Approach LOS		D			D			C			B	

Intersection Summary		
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.63	
Actuated Cycle Length (s)	113.9	Sum of lost time (s) 18.0
Intersection Capacity Utilization	71.1%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

Lanes, Volumes, Timings
 5: Eastern Point Rd./Smith St. & Thames St./Poquonnock Rd.

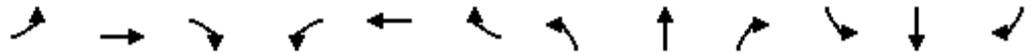
Electric Boat - Groton, CT
 2029 PM Background



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (vph)	4	44	97	17	82	23	180	53	7	5	27	4
Future Volume (vph)	4	44	97	17	82	23	180	53	7	5	27	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t			0.850		0.974			0.996			0.986	
Fl _t Protected		0.996			0.993			0.964			0.993	
Satd. Flow (prot)	0	1855	1583	0	1802	0	0	1789	0	0	1824	0
Fl _t Permitted		0.968			0.947			0.762			0.975	
Satd. Flow (perm)	0	1803	1583	0	1718	0	0	1414	0	0	1791	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105		16			2			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		678			844			704			713	
Travel Time (s)		15.4			19.2			16.0			16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	48	105	18	89	25	196	58	8	5	29	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	52	105	0	132	0	0	262	0	0	38	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		4			4			2		1	1 2	
Permitted Phases	4		4	4			2			2		
Detector Phase	4	4	4	4	4		2	2		1	1 2	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0		
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5		22.5	22.5		22.5		
Total Split (s)	22.6	22.6	22.6	22.6	22.6		24.9	24.9		22.5		
Total Split (%)	32.3%	32.3%	32.3%	32.3%	32.3%		35.6%	35.6%		32.1%		
Maximum Green (s)	18.1	18.1	18.1	18.1	18.1		20.4	20.4		18.0		
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5		3.5		
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0		
Lost Time Adjust (s)		0.0	0.0		0.0			0.0				
Total Lost Time (s)		4.5	4.5		4.5			4.5				
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0		
Recall Mode	None	None	None	None	None		Max	Max		None		
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0		
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0		
Act Effct Green (s)		8.5	8.5		8.5			25.1			26.3	
Actuated g/C Ratio		0.20	0.20		0.20			0.58			0.61	
v/c Ratio		0.15	0.27		0.38			0.32			0.03	
Control Delay		16.4	6.6		17.7			10.4			4.1	
Queue Delay		0.0	0.0		0.0			0.0			0.0	
Total Delay		16.4	6.6		17.7			10.4			4.1	
LOS		B	A		B			B			A	
Approach Delay		9.8			17.7			10.4			4.1	
Approach LOS		A			B			B			A	

Lanes, Volumes, Timings
 5: Eastern Point Rd./Smith St. & Thames St./Poquonnock Rd.

Electric Boat - Groton, CT
 2029 PM Background



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		9	0		20			24			3	
Queue Length 95th (ft)		35	30		68			116			12	
Internal Link Dist (ft)		598			764			624			633	
Turn Bay Length (ft)												
Base Capacity (vph)		772	738		745			822			1166	
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		0.07	0.14		0.18			0.32			0.03	

Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	43.3
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.38
Intersection Signal Delay:	11.5
Intersection LOS:	B
Intersection Capacity Utilization:	40.7%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 5: Eastern Point Rd./Smith St. & Thames St./Poquonnock Rd.

22.5 s	24.9 s	22.6 s

HCM Signalized Intersection Capacity Analysis
 5: Eastern Point Rd./Smith St. & Thames St./Poquonnock Rd.

Electric Boat - Groton, CT
 2029 PM Background



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Traffic Volume (vph)	4	44	97	17	82	23	180	53	7	5	27	4
Future Volume (vph)	4	44	97	17	82	23	180	53	7	5	27	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		1.00	1.00		1.00			1.00			1.00	
Frt		1.00	0.85		0.97			1.00			0.99	
Flt Protected		1.00	1.00		0.99			0.96			0.99	
Satd. Flow (prot)		1856	1583		1803			1788			1824	
Flt Permitted		0.97	1.00		0.95			0.76			0.98	
Satd. Flow (perm)		1803	1583		1718			1413			1791	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	48	105	18	89	25	196	58	8	5	29	4
RTOR Reduction (vph)	0	0	89	0	14	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	52	16	0	118	0	0	261	0	0	36	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		D.P+P	NA	
Protected Phases		4			4			2			1	12
Permitted Phases	4		4	4			2			2		
Actuated Green, G (s)		7.2	7.2		7.2			24.2			26.3	
Effective Green, g (s)		7.2	7.2		7.2			24.2			26.3	
Actuated g/C Ratio		0.15	0.15		0.15			0.51			0.56	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		276	242		263			727			1003	
v/s Ratio Prot											c0.00	
v/s Ratio Perm		0.03	0.01		c0.07			c0.18			0.02	
v/c Ratio		0.19	0.07		0.45			0.36			0.04	
Uniform Delay, d1		17.4	17.0		18.1			6.8			4.7	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		0.3	0.1		1.2			1.4			0.0	
Delay (s)		17.7	17.1		19.3			8.2			4.7	
Level of Service		B	B		B			A			A	
Approach Delay (s)		17.3			19.3			8.2			4.7	
Approach LOS		B			B			A			A	

Intersection Summary		
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.36	B
Actuated Cycle Length (s)	47.0	Sum of lost time (s)
Intersection Capacity Utilization	40.7%	13.5
Analysis Period (min)	15	ICU Level of Service
		A

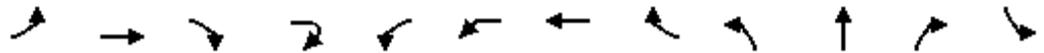
c Critical Lane Group

Lanes, Volumes, Timings

Electric Boat - Groton, CT

6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.

2029 PM Background



Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↕					↕			↕		
Traffic Volume (vph)	129	51	30	4	15	16	42	137	19	319	12	80
Future Volume (vph)	129	51	30	4	15	16	42	137	19	319	12	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.978					0.912			0.995		
Flt Protected		0.971					0.993			0.997		
Satd. Flow (prot)	0	1769	0	0	0	0	1687	0	0	1848	0	0
Flt Permitted		0.605					0.939			0.975		
Satd. Flow (perm)	0	1102	0	0	0	0	1595	0	0	1807	0	0
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)		1					132			3		
Link Speed (mph)		30					30			30		
Link Distance (ft)		844					602			696		
Travel Time (s)		19.2					13.7			15.8		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	140	55	33	4	16	17	46	149	21	347	13	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	232	0	0	0	0	228	0	0	381	0	0
Turn Type	Perm	NA			Perm	Perm	NA		Perm	NA		Perm
Protected Phases		4					4			2		
Permitted Phases	4				4	4			2			6
Detector Phase	4	4			4	4	4		2	2		6
Switch Phase												
Minimum Initial (s)	5.0	5.0			5.0	5.0	5.0		5.0	5.0		5.0
Minimum Split (s)	22.5	22.5			22.5	22.5	22.5		22.5	22.5		22.5
Total Split (s)	23.0	23.0			23.0	23.0	23.0		24.5	24.5		24.5
Total Split (%)	32.9%	32.9%			32.9%	32.9%	32.9%		35.0%	35.0%		35.0%
Maximum Green (s)	18.5	18.5			18.5	18.5	18.5		20.0	20.0		20.0
Yellow Time (s)	3.5	3.5			3.5	3.5	3.5		3.5	3.5		3.5
All-Red Time (s)	1.0	1.0			1.0	1.0	1.0		1.0	1.0		1.0
Lost Time Adjust (s)		0.0					0.0			0.0		
Total Lost Time (s)		4.5					4.5			4.5		
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None			None	None	None		Max	Max		Max
Act Effct Green (s)		16.8					16.8			20.0		
Actuated g/C Ratio		0.25					0.25			0.29		
v/c Ratio		0.86					0.46			0.72		
Control Delay		54.8					13.1			31.4		
Queue Delay		0.0					0.0			0.0		
Total Delay		54.8					13.1			31.4		
LOS		D					B			C		
Approach Delay		54.8					13.1			31.4		
Approach LOS		D					B			C		
Queue Length 50th (ft)		92					32			146		
Queue Length 95th (ft)		#208					89			#267		
Internal Link Dist (ft)		764					522			616		

Lanes, Volumes, Timings
 6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.

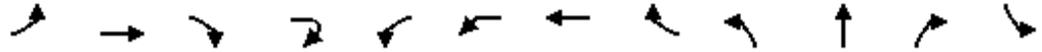
Electric Boat - Groton, CT
 2029 PM Background



Lane Group	SBT	SBR	SBR2	NEL2	NEL	NER
Lane Configurations						
Traffic Volume (vph)	149	86	36	11	194	12
Future Volume (vph)	149	86	36	11	194	12
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			0.993	
Fl _t Protected	0.983				0.955	
Satd. Flow (prot)	1831	1583	0	0	1766	0
Fl _t Permitted	0.634				0.985	
Satd. Flow (perm)	1181	1583	0	0	1822	0
Right Turn on Red			Yes			
Satd. Flow (RTOR)		94				
Link Speed (mph)	30				30	
Link Distance (ft)	1056				667	
Travel Time (s)	24.0				15.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	93	39	12	211	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	249	132	0	0	236	0
Turn Type	NA	Prot		Perm	Prot	
Protected Phases	6	6			8	
Permitted Phases				8		
Detector Phase	6	6		8	8	
Switch Phase						
Minimum Initial (s)	5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5	
Total Split (s)	24.5	24.5		22.5	22.5	
Total Split (%)	35.0%	35.0%		32.1%	32.1%	
Maximum Green (s)	20.0	20.0		18.0	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0			0.0	
Total Lost Time (s)	4.5	4.5			4.5	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max	
Act Effct Green (s)	20.0	20.0			18.0	
Actuated g/C Ratio	0.29	0.29			0.26	
v/c Ratio	0.72	0.25			0.49	
Control Delay	36.8	8.9			26.0	
Queue Delay	0.0	0.0			0.0	
Total Delay	36.8	8.9			26.0	
LOS	D	A			C	
Approach Delay	27.1				26.0	
Approach LOS	C				C	
Queue Length 50th (ft)	96	12			87	
Queue Length 95th (ft)	#205	50			151	
Internal Link Dist (ft)	976				587	

Lanes, Volumes, Timings
 6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.

Electric Boat - Groton, CT
 2029 PM Background

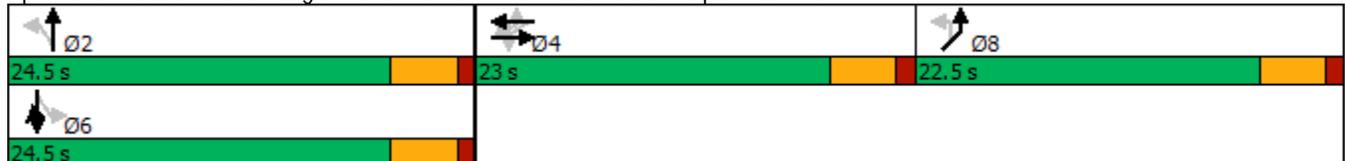


Lane Group	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Turn Bay Length (ft)												
Base Capacity (vph)		298					528			531		
Starvation Cap Reductn		0					0			0		
Spillback Cap Reductn		0					0			0		
Storage Cap Reductn		0					0			0		
Reduced v/c Ratio		0.78					0.43			0.72		

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 68.4
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 30.3
 Intersection LOS: C
 Intersection Capacity Utilization 85.9%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.

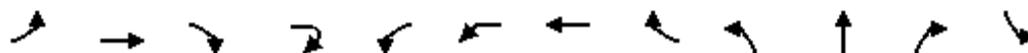




Lane Group	SBT	SBR	SBR2	NEL2	NEL	NER
Turn Bay Length (ft)						
Base Capacity (vph)	346	530			480	
Starvation Cap Reductn	0	0			0	
Spillback Cap Reductn	0	0			0	
Storage Cap Reductn	0	0			0	
Reduced v/c Ratio	0.72	0.25			0.49	
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
 6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.

Electric Boat - Groton, CT
 2029 PM Background



Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		↕					↕			↕		
Traffic Volume (vph)	129	51	30	4	15	16	42	137	19	319	12	80
Future Volume (vph)	129	51	30	4	15	16	42	137	19	319	12	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5					4.5			4.5		
Lane Util. Factor		1.00					1.00			1.00		
Frt		0.98					0.91			1.00		
Flt Protected		0.97					0.99			1.00		
Satd. Flow (prot)		1769					1686			1849		
Flt Permitted		0.60					0.94			0.97		
Satd. Flow (perm)		1103					1594			1807		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	140	55	33	4	16	17	46	149	21	347	13	87
RTOR Reduction (vph)	0	1	0	0	0	0	100	0	0	2	0	0
Lane Group Flow (vph)	0	231	0	0	0	0	128	0	0	379	0	0
Turn Type	Perm	NA			Perm	Perm	NA		Perm	NA		Perm
Protected Phases		4					4			2		
Permitted Phases	4				4	4			2			6
Actuated Green, G (s)		16.8					16.8			20.0		
Effective Green, g (s)		16.8					16.8			20.0		
Actuated g/C Ratio		0.25					0.25			0.29		
Clearance Time (s)		4.5					4.5			4.5		
Vehicle Extension (s)		3.0					3.0			3.0		
Lane Grp Cap (vph)		271					392			529		
v/s Ratio Prot												
v/s Ratio Perm		c0.21					0.08			0.21		
v/c Ratio		0.85					0.33			0.72		
Uniform Delay, d1		24.6					21.1			21.6		
Progression Factor		1.00					1.00			1.00		
Incremental Delay, d2		22.0					0.5			8.1		
Delay (s)		46.6					21.6			29.7		
Level of Service		D					C			C		
Approach Delay (s)		46.6					21.6			29.7		
Approach LOS		D					C			C		

Intersection Summary

HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	13.5
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 6: Chicago Ave. & Benham Rd./Mitchell St. & Poquonnock Rd.

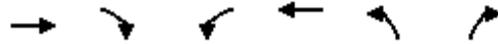
Electric Boat - Groton, CT
 2029 PM Background



Movement	SBT	SBR	SBR2	NEL2	NEL	NER
Lane Configurations	↕	↙			↘	
Traffic Volume (vph)	149	86	36	11	194	12
Future Volume (vph)	149	86	36	11	194	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00			1.00	
Frt	1.00	0.85			0.99	
Flt Protected	0.98	1.00			0.95	
Satd. Flow (prot)	1831	1583			1765	
Flt Permitted	0.63	1.00			0.98	
Satd. Flow (perm)	1181	1583			1820	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	162	93	39	12	211	13
RTOR Reduction (vph)	0	66	0	0	0	0
Lane Group Flow (vph)	249	66	0	0	236	0
Turn Type	NA	Prot		Perm	Prot	
Protected Phases	6	6			8	
Permitted Phases				8		
Actuated Green, G (s)	20.0	20.0			18.0	
Effective Green, g (s)	20.0	20.0			18.0	
Actuated g/C Ratio	0.29	0.29			0.26	
Clearance Time (s)	4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0			3.0	
Lane Grp Cap (vph)	345	463			479	
v/s Ratio Prot		0.04				
v/s Ratio Perm	c0.21				c0.13	
v/c Ratio	0.72	0.14			0.49	
Uniform Delay, d1	21.7	17.8			21.3	
Progression Factor	1.00	1.00			1.00	
Incremental Delay, d2	12.3	0.6			3.6	
Delay (s)	34.0	18.5			24.9	
Level of Service	C	B			C	
Approach Delay (s)	28.6				24.9	
Approach LOS	C				C	
Intersection Summary						

Lanes, Volumes, Timings
7: M-Lot Driveway & Poquonnock Rd.

Electric Boat - Groton, CT
2029 PM Background



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Volume (vph)	430	22	4	379	100	51
Future Volume (vph)	430	22	4	379	100	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	1.00
Frt	0.993			0.955		
Flt Protected				0.968		
Satd. Flow (prot)	3514	0	0	3539	1722	0
Flt Permitted				0.968		
Satd. Flow (perm)	3514	0	0	3539	1722	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	508			552	258	
Travel Time (s)	11.5			12.5	5.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	467	24	4	412	109	55
Shared Lane Traffic (%)						
Lane Group Flow (vph)	491	0	0	416	164	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
7: M-Lot Driveway & Poquonnock Rd.

Electric Boat - Groton, CT
2029 PM Background



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Volume (veh/h)	430	22	4	379	100	51
Future Volume (Veh/h)	430	22	4	379	100	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	467	24	4	412	109	55
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			491		693	246
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			491		693	246
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		71	93
cM capacity (veh/h)			1069		376	755
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	311	180	141	275	164	
Volume Left	0	0	4	0	109	
Volume Right	0	24	0	0	55	
cSH	1700	1700	1069	1700	452	
Volume to Capacity	0.18	0.11	0.00	0.16	0.36	
Queue Length 95th (ft)	0	0	0	0	41	
Control Delay (s)	0.0	0.0	0.3	0.0	17.4	
Lane LOS	A			C		
Approach Delay (s)	0.0		0.1		17.4	
Approach LOS				C		
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utilization			28.6%	ICU Level of Service	A	
Analysis Period (min)			15			