

Transportation Impact Assessment



THE MARINA
— AT AMESBURY POINT —

14 Merrimac Street
Amesbury, Massachusetts

Prepared for:

14 Merrimac St. LLC
Amesbury, Massachusetts

July 2023

Prepared by:

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Dear Reviewer:

This letter shall certify that this *Transportation Impact Assessment* has been prepared under my direct supervision and responsible charge. I am a Registered Professional Engineer (P.E.) in the Commonwealth of Massachusetts (Massachusetts P.E. No. 38871, Civil) and hold Certification as a Professional Traffic Operations Engineer (PTOE) from the Transportation Professional Certification Board, Inc. (TPCB), an independent affiliate of the Institute of Transportation Engineers (ITE) (PTOE Certificate No. 993). I am also a Fellow of the Institute of Transportation Engineers (FITE).

Sincerely,

VANASSE & ASSOCIATES, INC.



Jeffrey S. Dirk, P.E., PTOE, FITE
Managing Partner

CONTENTS

PREFACE

EXECUTIVE SUMMARY	1
-------------------------	---

INTRODUCTION	5
--------------------	---

Project Description	5
Study Methodology	6

EXISTING CONDITIONS	7
---------------------------	---

Roadways	7
Intersections.....	8
Existing Traffic Volumes	9
Pedestrian and Bicycle Facilities.....	11
Public Transportation	11
Spot Speed Measurements.....	12
Motor Vehicle Crash Data.....	12

FUTURE CONDITIONS	15
-------------------------	----

Future Traffic Growth	15
Project-Generated Traffic.....	17
Trip Distribution and Assignment.....	18
Future Traffic Volumes – Build Condition	18

TRAFFIC OPERATIONS ANALYSIS	20
-----------------------------------	----

Methodology	20
Analysis Results	23

CONTENTS (Continued)

SIGHT DISTANCE EVALUATION.....28

CONCLUSIONS AND RECOMMENDATIONS30

 Conclusions30

 Recommendations31

FIGURES

No.	Title
1	Site Location Map
2	Existing Intersection Lane Use, Travel Lane Width, and Pedestrian Facilities
3	2022 Existing Weekday Morning Peak-Hour Traffic Volumes
4	2022 Existing Weekday Evening Peak-Hour Traffic Volumes
5	2022 Existing Saturday Midday Peak-Hour Traffic Volumes
6	2030 No-Build Weekday Morning Peak-Hour Traffic Volumes
7	2030 No-Build Weekday Evening Peak-Hour Traffic Volumes
8	2030 No-Build Saturday Midday Peak-Hour Traffic Volumes
9	Trip-Distribution Map
10	Project-Generated Weekday Morning Peak-Hour Traffic Volumes
11	Project-Generated Weekday Evening Peak-Hour Traffic Volumes
12	Project-Generated Saturday Midday Peak-Hour Traffic Volumes
13	2030 Build Weekday Morning Peak-Hour Traffic Volumes
14	2030 Build Weekday Evening Peak-Hour Traffic Volumes
15	2030 Build Saturday Midday Peak-Hour Traffic Volumes

TABLES

No.	Title
1	Study Area Intersection Description
2	2022 Existing Traffic Volumes
3	Vehicle Travel Speed Measurements
4	Motor Vehicle Crash Data Summary
5	Trip-Generation Summary
6	Peak-Hour Traffic-Volume Increases
7	Level-of-Service Criteria for Signalized Intersections
8	Level-of-Service Criteria for Unsignalized Intersections
9	Signalized Intersection Level-of-Service and Vehicle Queue Summary
10	Unsignalized Intersection Level-of-Service and Vehicle Queue Summary
11	Sight Distance Measurements

PREFACE

Vanasse & Associates, Inc. (VAI) has completed a Transportation Impact Assessment (TIA) in order to determine the potential impacts on the transportation infrastructure associated with the proposed improvements and enhancements to The Marina at Amesbury Point located at 14 Merrimac Street in Amesbury, Massachusetts (hereafter referred to as the “Project”). As proposed, the Project will include the construction of a new marina operations building, the addition of a 180 seat restaurant, and associated waterfront, parking and landscape improvements.

Based on this assessment, we have determined the Project will result in a modest increase in peak-hour traffic on a weekday, ranging from 4 to 50 additional (over the current use) vehicle trips, with a peak-hour traffic volume increase of 59 additional vehicle trips expected during the Saturday midday peak-hour. When dispersed over the respective peak hours and to the roadways that serve the Project site, these increases are not expected to result in a significant impact (increase) on motorist delays or vehicle queuing over anticipated future conditions without the Project (No-Build conditions). That being said, operational constraints were identified for specific movements at individual intersections that occur independent of the Project. In consideration of these findings and with the advancement of specific recommendations that have been defined as a part of this assessment, it has been concluded that the additional traffic associated with the Project can be accommodated by the transportation infrastructure in a safe and efficient manner.

EXECUTIVE SUMMARY

Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Assessment (TIA) in order to determine the potential impacts on the transportation infrastructure associated with the proposed improvements and enhancements to The Marina at Amesbury Point located at 14 Merrimac Street in Amesbury, Massachusetts (hereafter referred to as the “Project”). As proposed the Project includes the construction of a new Marina Operations Building, the addition of a 180 seat restaurant, and associated waterfront, parking and landscape improvements. This assessment was prepared in consultation with the City of Amesbury and the Massachusetts Department of Transportation (MassDOT); was performed in accordance with MassDOT’s *Transportation Impact Assessment (TIA) Guidelines*; and was conducted pursuant to the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports.

This assessment presents the impact of the Project during the portion of the year when the marina is operational, or approximately five to six months. During the remainder of the year, the overall impact of the Project will be reduced over the conditions that have been assessed herein.

Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the Institute of Transportation Engineers (ITE),¹ the Project is expected to generate approximately 468 additional (over the current 96 slip marina) vehicle trips on an average weekday and 464 additional vehicle trips on a Saturday (both two-way volumes over the operational day of the Project), with 4 additional vehicle trips expected during the weekday morning peak-hour, 50 additional vehicle trips expected during the weekday evening peak-hour and 59 additional vehicle trips expected during the Saturday midday peak-hour;
2. The Project will not have a significant impact (increase) on motorist delays or vehicle queuing over anticipated future conditions without the Project (No-Build conditions), acknowledging that one or more movements at the Route 110/Main Street and Main Street/Rocky Hill Road intersections are currently or are predicted to operate at or over capacity (i.e., level-of-service (LOS) “E” or LOS “F”, respectively) independent of the Project.

¹*Trip Generation*, 11th Edition; Institute of Transportation Engineers; Washington, DC; 2021.

3. With the exception of the Route 110/Main Street intersection, the study area intersections were found to have motor vehicle crash rates that are below the MassDOT average crash rates for similar intersections. The Route 110/Main Street intersection was found to have a motor vehicle crash rate that is above the MassDOT average crash rates for a signalized intersection. As such, recommendations have been provided as a part of this assessment to advance safety-related improvements at this intersection (discussion follows); and
4. Lines of sight at the Project site driveway intersection with Merrimac Street were found to exceed the recommended minimum sight distance to function in a safe manner.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations defined herein such that there will not be an adverse impact on traffic or traffic circulation.

RECOMMENDATIONS

A detailed transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified at off-site locations evaluated in conjunction with this study. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

Project Access

Access to the Project is and will continue to be provided by way of the existing driveway that intersects the east side of Merrimac Street approximately 230 feet south of Main Street. The driveway will be reconstructed as a part of the Project to reduce the width of the opening of the drive along Merrimac Street and provide definition and separation between the driveway and the access to the adjacent City of Amesbury boat ramp. Access to the new gravel parking lot to be constructed as a part of the Project at 13 Merrimac Street will be provided by way of the existing driveway that serves the property, which will be reconstructed as a part of the parking lot construction. The following recommendations are offered with respect to the design and operation of the Project site access and internal circulation:

- The Project site driveways should be a minimum of 24 feet in width or as required to accommodate the turning and maneuvering requirements of service and delivery vehicles, and the largest anticipated responding emergency vehicle where such vehicles are to be accommodated.
- Vehicles exiting the Project site driveways should be placed under STOP-sign control with a marked STOP-line provided (to the extent that the driveways are paved).
- The driveway that will serve the new gravel parking lot at 13 Merrimac Street will be restricted to right-turn only operation (i.e., right turns entering and exiting the driveway only). In order to regulate and reinforce the turn restrictions at the Project site driveway intersection, a “Right Turn Only” sign should be installed facing traffic exiting the parking lot and “No Left Turn” signs (graphic symbol) should be installed on Merrimac Street: i) opposite the driveway facing motorists; and ii) facing motorists traveling northbound on Merrimac Street approaching the driveway.

- Where perpendicular parking is proposed, the drive aisle behind the parking should be a minimum of 23 feet in order to facilitate parking maneuvers.
- All signs and pavement markings to be installed within the Project site should conform to the applicable standards of the *Manual on Uniform Traffic Control Devices* (MUTCD).²
- Marked crosswalks and Americans with Disabilities Act (ADA) compliant wheelchair ramps should be provided at all pedestrian crossings internal to the Project site that are constructed or modified in conjunction with the Project and for the crosswalk that is proposed across Merrimac Street that will link the new parking lot to the Project site.
- Pedestrian crossing warning signs should be installed at and approaching the proposed crosswalk across Merrimac Street.
- Work with the City to implement traffic calming measures along Merrimac Street at and approaching the Project site.
- Signs and landscaping to be installed as a part of the Project within intersection sight triangle areas should be designed and maintained so as not to restrict lines of sight.
- Accumulated snow (windrows) within sight triangle areas should be promptly removed where such accumulations would impede sight lines.

Off-Site

Macy Street and Haverhill Road (Route 110) at Main Street

Independent of the Project, one or more movements at the Route 110/Main Street intersection are currently or are predicted to operate at or over capacity (i.e., LOS “E” or “F”, respectively) during the peak hours. In addition, and also independent of the Project, the Route 110/Main Street intersection was identified to have a motor vehicle crash rate that exceeds the MassDOT crash rates for similar intersections. Project-related impacts at this intersection were defined as an increase in average motorist delay that resulted in a corresponding increase in vehicle queuing of up to one (1) vehicle. Recognizing these pre-existing conditions and acknowledging the limited impact of the Project at the intersection, if so desired by the City, the Project proponent will consult with the City to define specific improvements that could be advanced at the intersection to improve traffic operations and safety as a part of a future improvement project by others.

Main Street at Rocky Hill Road

The addition of Project-related traffic to the Main Street/Rocky Hill Road intersection was shown to result in an increase in average motorist delay of up to 4.4 seconds that resulted in an increase in vehicle queuing of up to one (1) vehicle. That being said and independent of the Project, it was noted that the Rocky Hill Road approach is predicted to operate over capacity during the weekday evening peak-hour. Given the limited impact of the Project at this intersection with no evidence of a specific safety deficiency based on a review of the MassDOT motor vehicle crash data, no improvements are recommended or appear to be required at this intersection to accommodate the Project

²*Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, D.C.; 2009.

Transportation Demand Management

Public transportation services are not currently provided within the study area, but are provided elsewhere within the City by the MVRTA. The MVRTA provides fixed-route bus services to the north of the study area by way of Route 51, *Haverhill-Amesbury*, which provides service between the Washington Square Transit Center in Haverhill and the Nicholas J. Costello Transportation Center in Amesbury, traveling along Haverhill Street (Route 110) and Main Street to the north of the Project site. The closest bus stop to the Project site is located at the Highland Street/Wells Avenue intersection (approximately 0.8 miles to the northwest). To the east of the Project site, MVRTA bus Route 54 provides service between the Nicholas J. Costello Transportation Center, Newburyport and Salisbury Beach, with the closest regular stop to the Project site located within the Carriagetown Marketplace (approximately 1.0 miles to the northeast). In addition to fixed-route bus services, the MVRTA also provides paratransit services to eligible persons who cannot use fixed-route transit all or some of the time due to a physical, cognitive, or mental disability in compliance with the ADA, as well as other special transit services for medical appointments.

In an effort to encourage the use of alternative modes of transportation to single-occupant vehicles (SOVs), the following Transportation Demand Management (TDM) measures will be implemented as a part of the Project:

- A transportation coordinator will be designated for the Project to coordinate the elements of the TDM program;
- Information regarding commuting options will be posted in a central location and/or otherwise made available to employees of the Project;
- The transportation coordinator will facilitate a rideshare matching program for employees to encourage carpooling;
- A “welcome packet” will be provided to employees detailing available commuter options and will include the contact information for the transportation coordinator and information to enroll in the employee rideshare program;
- Specific amenities to discourage off-site trips will be provided, including a breakroom equipped with a microwave and refrigerator; offering direct deposit of paychecks; and other such measures to reduce overall traffic volumes and travel during peak traffic-volume periods;
- Pedestrian accommodations will be incorporated into the Project and consist of sidewalks and ADA-compliant wheelchair ramps at all pedestrian crossings constructed or modified in conjunction with the Project; and
- Secure bicycle parking will be provided at an appropriate location within the Project site.

With implementation of the above recommendations, safe and efficient access will continue to be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system such that there will not be an adverse impact on traffic or traffic circulation.

INTRODUCTION

Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Assessment (TIA) in order to determine the potential impacts on the transportation infrastructure associated with the proposed improvements and enhancements to The Marina at Amesbury Point located at 14 Merrimac Street in Amesbury, Massachusetts (hereafter referred to as the “Project”). This study evaluates the following specific areas as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; and identifies and analyzes existing traffic conditions and future traffic conditions, both with and without the Project, along Merrimac Street and Main Street, and at major intersections located along these roadways through which Project-related traffic will travel.

This assessment presents the impact of the Project during the portion of the year when the marina is operational, or approximately five to six months. During the remainder of the year, the overall impact of the Project will be reduced over the conditions that have been assessed herein.

PROJECT DESCRIPTION

The Project will entail the reconstruction of the facilities that serve the land-side operations and amenities that are offered at The Marina at Amesbury Point. Specifically, the Project will include the following components: the removal of the existing metal buildings that front along Merrimac Street and Main Street, and the wood framed structure that serves as the members club and marina operations building; the construction of a new 2,265± square foot (sf) marina operations building; the construction of a 4,663± square foot (sf) restaurant that will include 180 restaurant/bar seats; reconfiguration and expansion of the parking area to accommodate 94 parking spaces; and associated pedestrian circulation areas and landscaping. In addition, a new gravel parking lot will be constructed along the west side of Merrimac Street at 13 Merrimac Street that will provide 25 parking spaces for use by employees and the marina. The existing 96 slip marina will be retained as a part of the Project.

The Project site is situated on the southeast corner of the intersection of Main Street at Merrimac Street, and is bounded by Main Street to the north; the Merrimack River to the south; the Powwow River to the east; and Merrimac Street to the west. Figure 1 depicts the Project site location in relation to the existing roadway network.

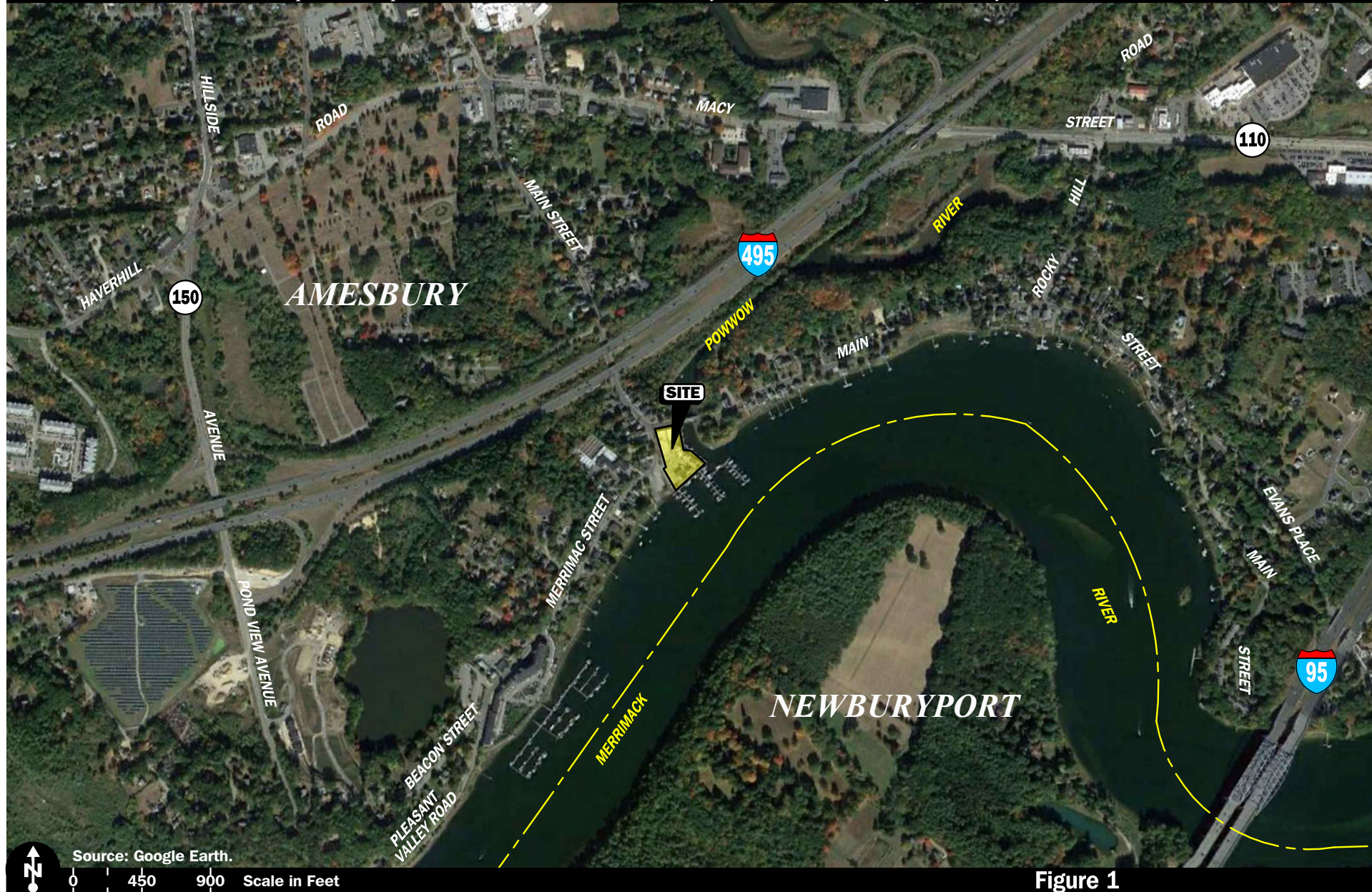


Figure 1

Site Location Map

Access to the Project is and will continue to be provided by way the existing driveway that intersects the east side of Merrimac Street approximately 230 feet south of Main Street. The driveway will be reconstructed as a part of the Project to reduce the width of the opening of the drive along Merrimac Street and provide definition and separation between the driveway and the access to the adjacent City of Amesbury boat ramp. Access to the new parking lot will be provided by way of the existing driveway that intersects the west side of Merrimac Street at the location of the existing driveway that serves 13 Merrimac Street. The existing driveway will be improved to accommodate access to the new parking lot. A crosswalk will be installed across Merrimac Street to the south of the driveway to provide a pedestrian connection between the new parking lot to the Project site.

STUDY METHODOLOGY

This study was prepared in consultation with the City of Amesbury and MassDOT; was performed in accordance with MassDOT's *Transportation Impact Assessment (TIA) Guidelines* and the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports; and was conducted in three distinct stages.

The first stage involved an assessment of existing conditions in the study area and included an inventory of roadway geometrics; pedestrian and bicycle facilities; public transportation services; observations of traffic flow; and collection of daily and peak-period traffic counts.

In the second stage of the study, future traffic conditions were projected and analyzed. Specific travel demand forecasts for the Project were assessed along with future traffic demands due to expected traffic growth independent of the Project. A seven-year time horizon from the date of publication of this assessment was selected for analyses consistent with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*. The traffic analysis conducted in stage two identifies existing or projected future roadway capacity, traffic safety, and site access issues.

The third stage of the study presents and evaluates measures to address traffic and safety issues, if any, identified in stage two of the study.

EXISTING CONDITIONS

A comprehensive field inventory of existing conditions within the study area was conducted in January and March 2022. The field investigation consisted of an inventory of existing roadway geometrics; pedestrian and bicycle facilities; public transportation services; traffic volumes; and operating characteristics; as well as posted speed limits and land use information within the study area. The study area for the Project was selected to contain the major roadways providing access to the Project site, including Merrimac Street and Main Street, and the following specific intersections:

- Macy Street and Haverhill Road (Route 110) at Main Street
- Main Street at Rocky Hill Road
- Main Street at Merrimac Street
- Merrimac Street at Pleasant Valley Road and Beacon Street

The following describes the study area roadways and intersections.

ROADWAYS

Merrimac Street

- Two-lane urban minor arterial roadway under City jurisdiction
- Traverses study area in a general northeast-southwest direction between Beacon Street/Pleasant Valley Road and Main Street
- Provides two 10 to 11-foot wide travel lanes that are separated by a double-yellow centerline with variable width marked shoulders provided
- Posted speed limit is 30 miles per hour (mph)
- A sidewalk is provided along the west side of the roadway between Main Street and Swetts Hill Road, and along the east side between Swetts Hill Road and Pleasant Valley Road
- Land use within the study area consists of the Project site and residential and commercial properties

Main Street

- Two-lane urban minor arterial roadway under City jurisdiction, with the exception of the Bailey Memorial Bridge over the Powwow River and the segment beneath Interstate 495 (I-495) extending from a point just north of Merrimac Street to Lombard Avenue, which is under MassDOT jurisdiction
- Traverses study area in a circuitous northwest-southeast direction between Elm Street/High Street/Market Street and the Newburyport city line
- Provides two 11 to 12-foot wide travel lanes that are separated by a double-yellow centerline with variable width marked shoulders provided
- A posted speed limit is not provided along Main Street and, as such, the statutory speed limit pursuant to M.G.L c. 90 § 17C is 25 mph³
- A sidewalk is provided along the north side of the roadway between Evans Plans and Merrimac Street, and along both sides of the roadway to the north of Merrimac Street
- Land use within the study area consists of the Project site, residential and commercial properties, and areas of open and wooded space

INTERSECTIONS

Table 1 and Figure 2 summarize lane use, traffic control, and pedestrian and bicycle accommodations at the study area intersections as observed in March 2022.

Table 1
STUDY AREA INTERSECTION DESCRIPTION

Intersection	Traffic Control Type ^a	No. of Travel Lanes Provided	Shoulder Provided? (Yes/No/Width)	Pedestrian Accommodations? (Yes/No/Description)	Bicycle Accommodations? (Yes/No/Description)
Rte. 110/Main St.	TS	1 general purpose travel lane on all approaches	Yes; 1 to 6 feet on all approaches	Yes – both sides of Macy St., Haverhill Rd., and Main St.; crosswalks provided across all legs; pedestrian traffic signal equipment and phasing (exclusive) provided as a part of traffic signal system	Yes - Shared traveled-way ^b
Main St./Rocky Hill Rd.	S	1 general purpose travel lane on all approaches	Yes; 4 to 6 feet on Main St.	Yes – along the north side of Main St. and both sides of Rocky Hill Rd.; crosswalks provided across Main St. west leg and Rocky Hill Rd.	Yes - Shared traveled-way

See notes at end of table.

³On May 12, 2020¹, the City of Amesbury adopted a citywide speed limit of 25 mph on roadways located within a thickly settled or business district where a special speed regulation (posted speed limit) is not provided.



Existing Intersection Lane Use, Travel Lane Width, and Pedestrian Facilities

Table 1 (Continued)
STUDY AREA INTERSECTION DESCRIPTION

Intersection	Traffic Control Type^a	No. of Travel Lanes Provided	Shoulder Provided? (Yes/No/Width)	Pedestrian Accommodations? (Yes/No/Description)	Bicycle Accommodations? (Yes/No/Description)
Main St./ Merrimac St.	S	1 general purpose travel lane on all approaches	Yes; 1 to 4 feet on all approaches	Yes – west side of Merrimac St., north side of Main St. east of Merrimac St., and both sides of Main St. north of Merrimac St.; crosswalk provided across Main St. north leg	Yes - Shared traveled-way along Main St.
Merrimac St./ Pleasant Valley Rd./ Beacon St.	S	1 general purpose travel lane on all approaches	Yes; 1 foot on Merrimac St. and Beacon St. approaches	Yes – along both sides of Merrimac St., the east side of Pleasant Valley Rd., and the north side of Beacon St.; crosswalk provided along the Merrimac St. leg	Yes - Shared traveled-way along Merrimac St. and Pleasant Valley Rd.

^aTS = traffic signal control; S = STOP-sign control.

^bCombined shoulder and travel lane width equal to or exceed 14 feet.

EXISTING TRAFFIC VOLUMES

In order to determine existing traffic-volume demands and flow patterns within the study area, automatic traffic recorder (ATR) counts, turning movement counts (TMCs) and vehicle classification counts were conducted in January 2022, while public schools were in regular session. The ATR counts were conducted on January 20th through 22nd, 2022 (Thursday through Saturday, inclusive) on Merrimac Street and Main Street in the vicinity of the Project site in order to record weekday and Saturday traffic conditions over an extended period, with peak-period TMCs performed on Thursday, January 20, 2022, during the weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak periods, and on Saturday, January 22, 2022, during the midday peak period (11:00 AM to 2:00 PM). These time periods were selected for analysis purposes as they are representative of the peak-traffic-volume hours for both the Project and the adjacent roadway network.

Traffic volumes associated with the existing marina operations were assumed to be negligible during the count period (January).

Traffic-Volume Adjustments

In order to evaluate the potential for seasonal fluctuation of traffic volumes within the study area, MassDOT weekday seasonal factors for Urban Group 4 (minor arterial roadways, the functional classification of Merrimac Street, Main Street and Route 110) were reviewed.⁴ Based on a review of this data, it was determined that traffic volumes for the month of January are 1.0 percent *below* average-month conditions. As such, the January traffic volumes were adjusted upward by 1.0 percent in order to be representative of average-month conditions in accordance with MassDOT standards.

⁴MassDOT statewide Traffic Data Collection; 2019 Weekday Seasonal Factors, Group U4.

In order to account for the impact on traffic volumes and trip patterns resulting from the COVID-19 pandemic, traffic-volume data collected at MassDOT Continuous Count Station No. 5234 located on Interstate 495 (I-495) in Amesbury in January 2022 were compared to January 2019 traffic volumes that were collected at the same location. Based on this pre- and post-COVID-19 traffic-volume comparison, the 2022 traffic-volume data that was collected as a part of this assessment was adjusted upward by an additional 14.0 percent in order to account for the reduced traffic volumes resulting the COVID-19 pandemic.

The 2022 Existing traffic volumes are summarized in Table 2, with the weekday morning, weekday evening and Saturday midday peak-hour traffic volumes graphically depicted on Figures 3, 4, and 5, respectively. Note that the peak-hour traffic volumes presented in Table 2 were obtained from the aforementioned figures.

Table 2
2022 EXISTING TRAFFIC VOLUMES

Location/Peak Hour	AWT ^a	Saturday ^b	VPH ^c	K Factor ^d	Directional Distribution ^e
<i>Merrimac Street, south of Main Street:</i>	3,360	2,850	--	--	--
Weekday Morning (7:30 – 8:30 AM)	--	--	227	6.8	53.7% SB
Weekday Evening (4:15 – 5:15 PM)	--	--	310	9.2	61.3% SB
Saturday Midday (11:45 AM – 12:45 PM)	--	--	310	10.9	51.3% SB
<i>Main Street, east of Merrimac Street:</i>	8,320	7,060	--	--	--
Weekday Morning (7:30 – 8:30 AM)	--	--	602	7.3	58.6% EB
Weekday Evening (4:15 – 5:15 PM)	--	--	758	9.1	64.9% WB
Saturday Midday (11:45 AM – 12:45 PM)	--	--	603	8.5	52.2% WB

^aWeekday traffic in vehicles per day.

^bSaturday traffic volume in vehicles.

^cVehicles per hour.

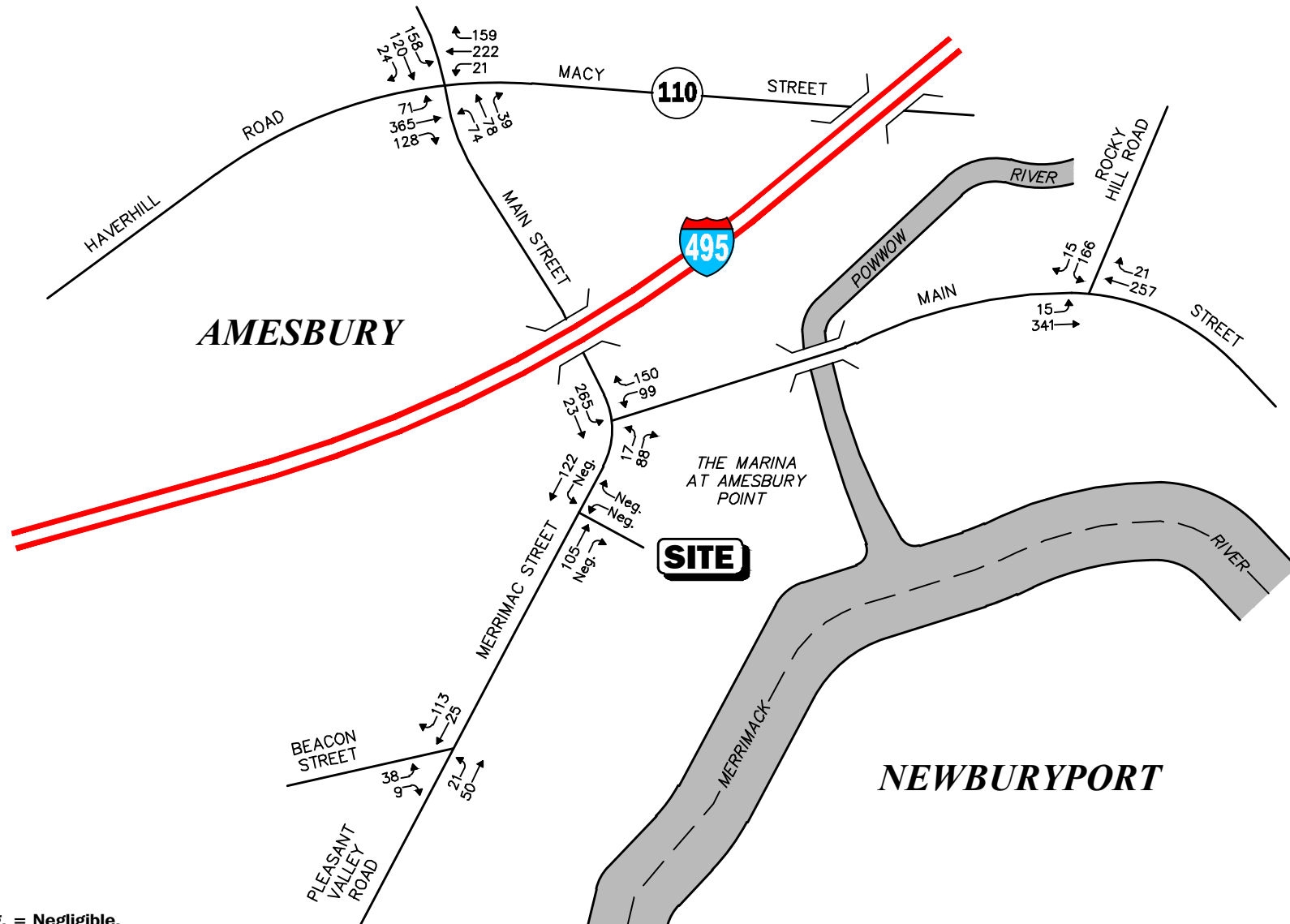
^dPercent of daily traffic occurring during the peak hour.

^ePercent traveling in peak direction.

NB = northbound; SB = southbound; EB = eastbound; WB = westbound.

As can be seen in Table 2, Merrimac Street in the vicinity of the Project site was found to accommodate approximately 3,360 vehicles on an average weekday and 2,850 vehicles on a Saturday (both two-way, 24-hour volumes), with approximately 227 vehicles per hour (vph) during the weekday morning peak-hour and 310 vph during the weekday evening and Saturday midday peak hours.

Main Street in the vicinity of the Project site was found to accommodate approximately 8,320 vehicles on an average weekday and 7,060 vehicles on a Saturday, with approximately 602 vph during the weekday morning peak-hour, 758 vph during the weekday evening peak-hour and 603 vph during the Saturday midday peak-hour.



Neg. = Negligible.

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 3

2022 Existing
Weekday Morning
Peak-Hour Traffic Volumes

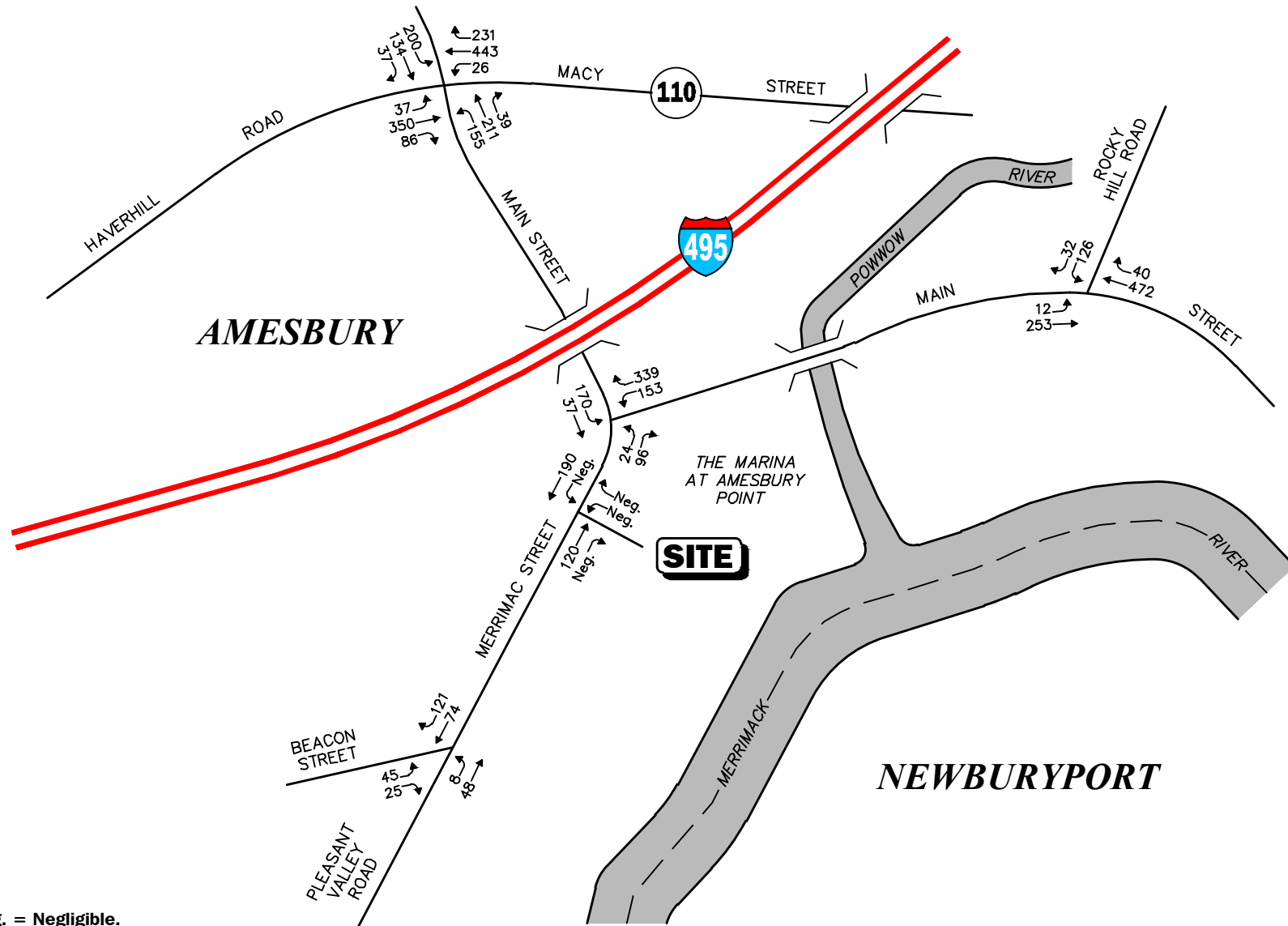
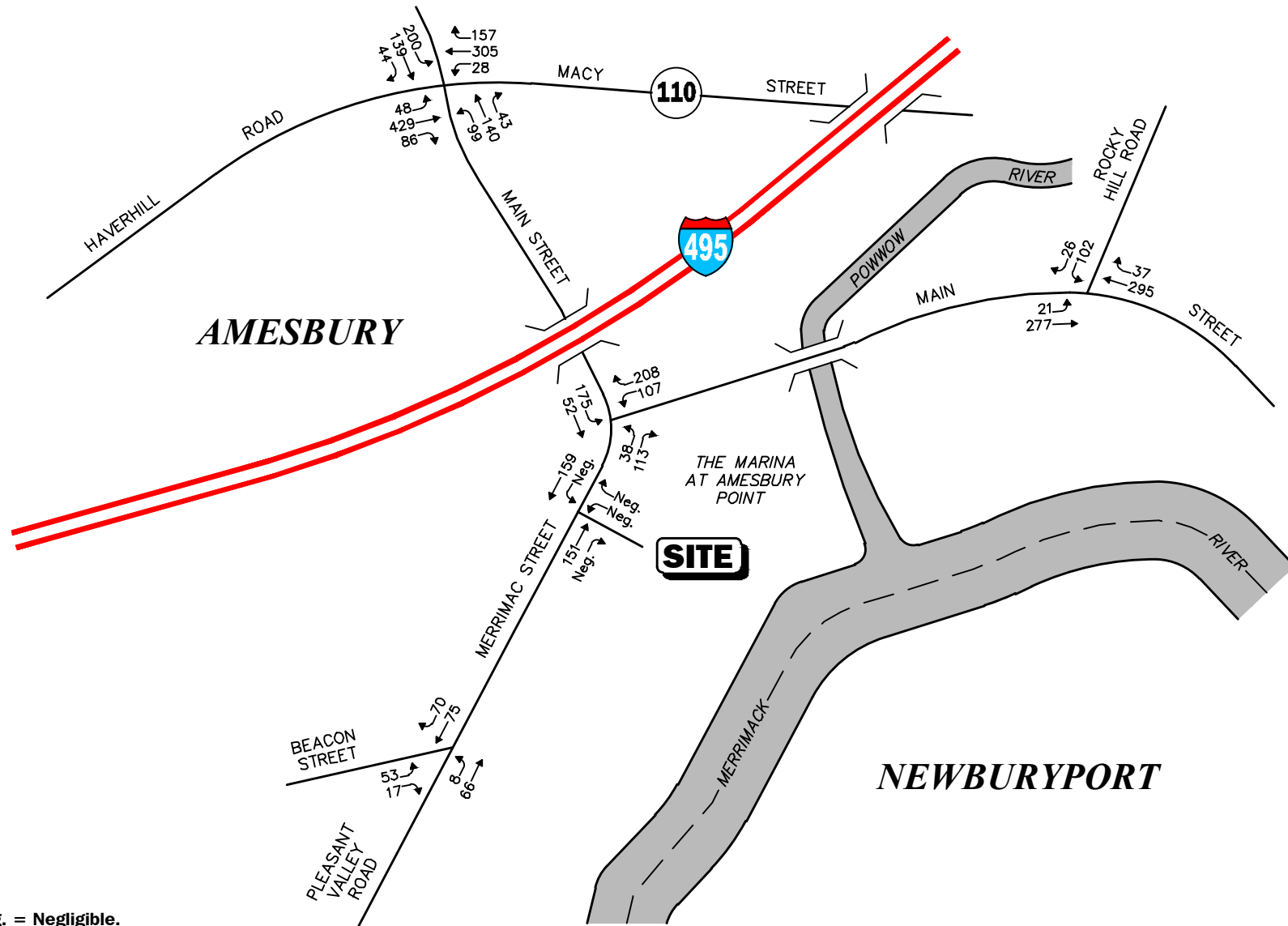


Figure 4

2022 Existing
Weekday Evening
Peak-Hour Traffic Volumes



Neg. = Negligible.

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 5

2022 Existing
Saturday Midday
Peak-Hour Traffic Volumes

PEDESTRIAN AND BICYCLE FACILITIES

A comprehensive field inventory of pedestrian and bicycle facilities within the study area was undertaken in March 2022. The field inventory consisted of a review of the location of sidewalks and pedestrian crossing locations along the study roadways and at the study intersections, as well as the location of existing and planned future bicycle facilities. As detailed on Figure 2, sidewalks are provided along one or both sides of the study area roadways, with marked crosswalks provided for crossing all legs of the Route 110/Main Street intersection; the Main Street north leg of the Main Street/Merrimac Street intersection; the Merrimac Street leg of the Merrimac Street/Pleasant Valley Road/Beacon Street intersection; and the Main Street west leg and Rocky Hill Road leg of the Main Street/Rocky Hill Road intersection. The crossings at the Macy Street/Main Street intersection are incorporated into the traffic signal system at the intersection and include pedestrian pushbuttons, signal indications and phasing (exclusive).

Formal bicycle facilities were not identified within the immediate study area; however, the study area roadways generally provide sufficient width (combined travel lane and paved shoulder) to support bicycle travel in a shared traveled-way configuration.⁵

Outside of the immediate study area, the Amesbury River Walk, a 1.3 mile, paved, shared-use path following the alignment of the former Salisbury-Amesbury railroad from the Lower Millyard in downtown Amesbury to the Carriagetown Marketplace (Stop & Shop), is accessible from Rocky Hill Road and a trailhead within the Carriagetown Marketplace. Planning is underway to continue the trail eastward to connect to the Salisbury Ghost Trail and thereafter to the Eastern Marsh Trail, eventually connecting Amesbury, Salisbury, and Newburyport.

PUBLIC TRANSPORTATION

Public transportation services are not currently provided within the study area, but are provided elsewhere within the City by the Merrimack Valley Regional Transit Authority (MVRTA). The MVRTA provides fixed-route bus services to the north of the study area by way of Route 51, *Haverhill-Amesbury*, which provides service between the Washington Square Transit Center in Haverhill and the Nicholas J. Costello Transportation Center in Amesbury, traveling along Haverhill Street (Route 110) and Main Street to the north of the Project site. The closest bus stop to the Project site is located at the Highland Street/Wells Avenue intersection (approximately 0.8 miles to the northwest). To the east of the Project site, MVRTA bus Route 54 provides service between the Nicholas J. Costello Transportation Center, Newburyport and Salisbury Beach, with the closest regular stop to the Project site located within the Carriagetown Marketplace (approximately 1.0 miles to the northeast). In addition to fixed-route bus services, the MVRTA also provides paratransit services to eligible persons who cannot use fixed-route transit all or some of the time due to a physical, cognitive, or mental disability in compliance with the ADA, as well as other special transit services for medical appointments.

The public transportation schedules and fare information are provided in the Appendix.

⁵A minimum combined travel lane and paved shoulder width of 14 feet is required to support bicycle travel in a shared traveled-way condition.

SPOT SPEED MEASUREMENTS

Vehicle travel speed measurements were performed on Merrimac Street and Main Street in the vicinity of the Project site in conjunction with the ATR counts. Table 3 summarizes the vehicle travel speed measurements.

Table 3
VEHICLE TRAVEL SPEED MEASUREMENTS

	Merrimac Street		Main Street	
	Northbound	Southbound	Eastbound	Westbound
Mean Travel Speed (mph)	24	25	21	17
85 th Percentile Speed (mph)	27	29	24	21
Speed or Statutory Limit (mph)	30	30	25	25

mph = miles per hour.

As can be seen in Table 3, the mean vehicle travel speed along Merrimac Street in the vicinity of the Project site was found to be 24 mph in the northbound direction and 25 mph southbound. The measured 85th percentile vehicle travel speed, or the speed at which 85 percent of the observed vehicles traveled at or below, was found to be 27 mph northbound and 29 mph southbound, which approximates the posted speed limit (30 mph). The 85th percentile speed is used as the basis of engineering design and in the evaluation of sight distances and is often used in establishing posted speed limits.

The mean vehicle travel speed along Main Street in the vicinity of the Project site was found to be 21 mph eastbound and 17 mph westbound, with the measured 85th percentile vehicle travel speed found to be 24 mph eastbound and 21 mph westbound, which also approximates the statutory speed limit pursuant to M.G.L c. 90 § 17C (25 mph).

MOTOR VEHICLE CRASH DATA

Motor vehicle crash information for the study area intersections was provided by the MassDOT Highway Division Safety Management/Traffic Operations Unit for the most recent five-year period available (2016 through 2020, inclusive) in order to examine motor vehicle crash trends occurring within the study area. The data is summarized by intersection, type, severity, and day of occurrence, and presented in Table 4.

As can be seen in Table 4, with the exception of the Route 110/Main Street intersection, the study area intersections were found to have experienced an average of 2.0 or fewer reported motor vehicle crashes per year over the five-year review period and were identified to have motor vehicle crash rates that are *below* both the MassDOT statewide and District average crash rates for similar intersections for the MassDOT Highway Division District in which the intersections are located (District 4). The majority of the crashes occurred on a weekday; during daylight; under clear weather conditions; and involved angle or rear-end type collisions that resulted in property damage only.

Table 4
MOTOR VEHICLE CRASH DATA SUMMARY^a

	Macy St./ Haverhill Rd. (Route 110)/ Main St.	Main St./ Merrimac St.	Merrimac St./ Pleasant Valley Rd./ Beacon St.	Main St./ Rocky Hill Rd.	Merrimac St./ Project Site Driveway
Traffic Control Type ^b	S	U	U	U	U
<i>Year:</i>					
2016	13	2	0	1	0
2017	17	1	0	1	0
2018	6	0	0	3	0
2019	14	0	0	4	0
2020	12	4	0	1	0
Total	62	7	0	10	0
Average	12.4	1.40	0.00	2.00	0.00
Rate ^c	1.57	0.42	0.00	0.53	0.00
MassDOT Crash Rate: ^d	0.73/0.78	0.57/0.57	0.57/0.57	0.57/0.57	0.57/0.57
Significant? ^e	Yes	No	No	No	No
<i>Type:</i>					
Angle	17	2	0	4	0
Rear-End	31	3	0	3	0
Head-On	1	0	0	0	0
Sideswipe	7	0	0	1	0
Fixed Object	3	2	0	1	0
Pedestrian/Bicycle	1	0	0	1	0
Unknown/Other	2	0	0	0	0
Total	62	7	0	10	0
<i>Conditions:</i>					
Clear	43	3	0	3	0
Cloudy	8	1	0	2	0
Rain	7	0	0	0	0
Snow/Ice	2	3	0	5	0
Unknown	2	0	0	0	0
Total	62	7	0	10	0
<i>Lighting:</i>					
Daylight	42	4	0	9	0
Dawn/Dusk	0	0	0	0	0
Dark (Road Lit)	15	3	0	1	0
Dark (Road Unlit)	2	0	0	0	0
Unknown	3	0	0	0	0
Total	62	7	0	10	0
<i>Day of Week:</i>					
Monday through Friday	51	6	0	9	0
Saturday	6	1	0	0	0
Sunday	5	0	0	1	0
Total	62	7	0	10	0
<i>Severity:</i>					
Property Damage Only	50	7	0	9	0
Personal Injury	8	0	0	1	0
Fatality	0	0	0	0	0
Unknown	4	0	0	0	0
Total	62	7	0	10	0

^aSource: MassDOT Safety Management/Traffic Operations Unit records, 2016 through 2020.

^bTraffic Control Type: S = signalized; U = unsignalized.

^cCrash rate per million vehicles entering the intersection.

^dDistrictwide/Statewide crash rate.

^eThe intersection crash rate is significant if it is found to exceed the MassDOT crash rate for the MassDOT Highway Division District in which the Project is located (District 4).

The Route 110/Main Street intersection was found to experienced 62 reported motor vehicle crashes over the five-year review period, or an average of 12.4 crashes per year, the majority of which occurred on a weekday; during daylight; under clear weather conditions; and involved rear-end type collisions that resulted in property damage only. The intersection was identified to have a motor vehicle crash rate that is *above* the MassDOT statewide and District average crash rates for similar intersections. As such, recommendations have been provided to advance safety-related improvements at this intersection (discussed in the *Recommendations* section of this assessment).

A review of the MassDOT statewide High Crash Location List indicated that there are no Highway Safety Improvement Program (HSIP) eligible high crash locations within the study area. In addition, no fatal motor vehicle crashes were reported to have occurred at the study area intersections over the five-year review period.

The detailed MassDOT Crash Rate Worksheets are provided in the Appendix.

FUTURE CONDITIONS

Traffic volumes in the study area were projected to the year 2030, which reflects a seven-year planning horizon from the date of publication of this assessment consistent with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*. Independent of the Project, traffic volumes on the roadway network in the year 2030 under No-Build conditions include all existing traffic and new traffic resulting from background traffic growth. Anticipated Project-generated traffic volumes superimposed upon the 2030 No-Build traffic volumes reflect 2030 Build traffic-volume conditions with the Project.

FUTURE TRAFFIC GROWTH

Future traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic; however, potential population growth and development external to the study area would not be accounted for in the resulting traffic projections.

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

Specific Development by Others

The Director of Planning for the City of Amesbury was contacted in order to determine if there were any projects planned within the study area that would have an impact on future traffic volumes at the study intersections. Based on this consultation, the following projects were identified for inclusion in this assessment:

- ***Proposed Mixed-Used Development, 39 & 41 Hillside Avenue, Amesbury, Massachusetts.*** This project entails the construction of a three-story building that will include eight (8) multifamily residential units and 2,000± sf of commercial space that is

envisioned to include a 1,000± sf restaurant (without a drive through window) and 1,000± sf of retail space to be located at 39 & 41 Hillside Avenue. Traffic volumes associated with this project within the study area of this assessment would be relatively minor and reflected in the general background traffic growth rate (discussion follows).

- ***Eagle's Point Residential Community, 29 Clarks Road, Amesbury, Massachusetts.*** This project entails the construction of a three building, 140-unit multifamily residential community to be located at 29 Clarks Road. Traffic volumes associated with this project were obtained from the traffic study prepared in support of the Project.⁶
- ***Bailey's Pond Residential Community, Amesbury, Massachusetts.*** This project entails the construction of approximately 148 residential condominiums to be located south of Summit Avenue and north of Beacon Street. Traffic volumes associated with this project within the study area of this assessment would be relatively minor and reflected in the general background traffic growth rate.
- ***Atlantic Sports Center, South Hunt Road, Amesbury, Massachusetts.*** This project entails the construction of a sports center that will contain 5.5 sheets of ice, 2,500 event seats, auxiliary uses, and complementary businesses and services. Traffic volumes associated with this project within the study area of this assessment would be relatively minor and reflected in the background traffic growth rate.

In addition to the aforementioned developments by others, trips associated with the existing 96 slip marina that occupies the Project site were also added to the future condition traffic volumes and were developed using trip-generation statistics published by the Institute of Transportation Engineers (ITE)⁷ for the appropriate land use and were added to the study area roadway network based on a review of existing traffic patterns.

No other developments were identified at this time that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate.

General Background Traffic Growth

Traffic-volume data compiled by MassDOT from permanent count stations located in Amesbury were reviewed in order to determine general traffic growth trends in the area. This data indicates that traffic volumes have fluctuated over the past several years, with the average growth rate found to be approximately 1.25 percent. In order to provide a prudent planning condition for the Project, a slightly higher 1.5 percent per year compounded annual background traffic growth rate was used in order to account for future traffic growth and presently unforeseen development within the study area.

Roadway Improvement Projects

The City of Amesbury Department of Public Works and MassDOT were contacted in order to determine if there were any planned future roadway improvement projects expected to be complete by 2030 within the study area. Based on these discussions, no roadway improvement projects aside from routine maintenance activities were identified to be planned within the study area at this time.

⁶*Transportation Impact Assessment*, Proposed Multifamily Residential Development, Amesbury, Massachusetts; VAI; 2020.

⁷Institute of Transportation Engineers, op. cit. 1.

No-Build Traffic Volumes

The 2030 No-Build condition peak-hour traffic volumes were developed by applying the 1.5 percent per year compounded annual background traffic growth rate to the 2022 Existing peak-hour traffic volumes, adding the trips generated by the peak-hour traffic volumes associated with the identified specific development projects by others, including trips associated with the existing 90 slip marina that occupies the Project site. The resulting 2030 No-Build weekday morning, weekday evening and Saturday midday peak-hour traffic volumes are shown on Figures 6, 7, and 8, respectively.

PROJECT-GENERATED TRAFFIC

Design year (2030) Build traffic volumes for the study area roadways were determined by estimating Project-generated traffic volumes and assigning those volumes on the study roadways. The following sections describe the methodology used to develop the anticipated traffic characteristics of the Project.

As proposed, the Project will entail the construction of a new 2,265± sf marina operations building and a 4,663± sf restaurant that will include 180 restaurant/bar seats. In order to develop the traffic characteristics of the Project, trip-generation statistics published by the ITE⁸ for similar land uses as that proposed were used.

It is envisioned that the restaurant portion of the Project will serve lunch and dinner only, and reservations will be required. As such, ITE LUC 931, *Fine Dining Restaurant*, was used to develop the base trip-generation characteristics for the restaurant/bar component of the Project. The trips associated with the marina operations building are reflected in the 2030 No-Build traffic volumes as they are associated with the existing 96-slip marina.

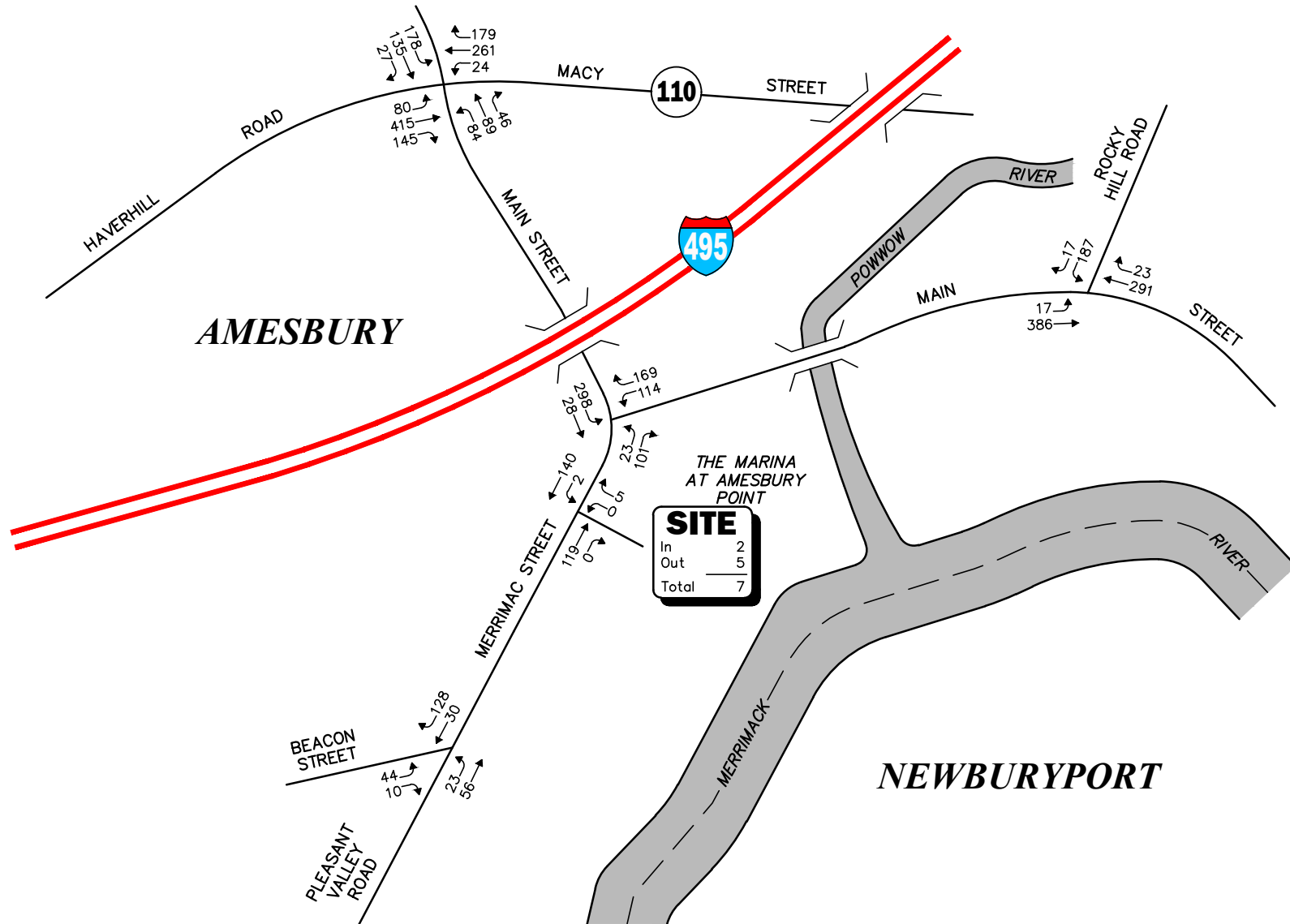
Internal Trips

A portion of the trips expected to be generated by the Project may consist of internal or dual-purpose trips. An internal trip consists of a customer and/or employee that patronizes more than one of the uses within a development and is common in mixed-use projects with appropriate accommodations to facilitate trips between uses. By way of example, a member of the marina may patronize the restaurant/bar component of the Project. In order to provide conservative (high) traffic volumes from which to assess the potential impact of the Project on the transportation infrastructure, a reduction to the base ITE trip-generation calculations was not applied to account for this interaction.

Pass-By Trips

Given that reservations are expected to be required (or strongly encouraged) for the restaurant, pass-by trips were not applied to the base trip-generation calculations for these components of the Project.

⁸Institute of Transportation Engineers, op. cit. 1.



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 6

2030 No-Build
Weekday Morning
Peak-Hour Traffic Volumes

Not To Scale



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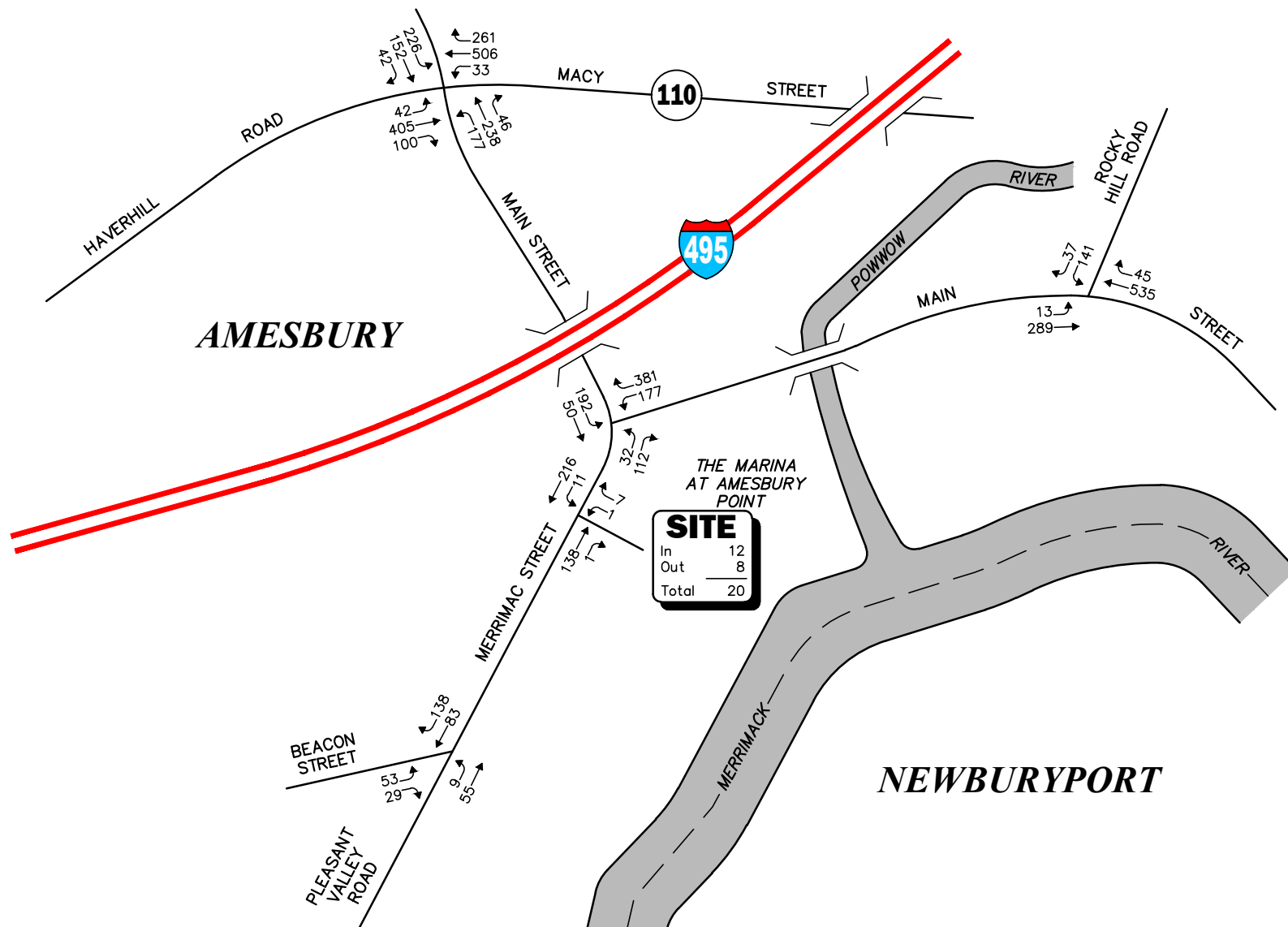
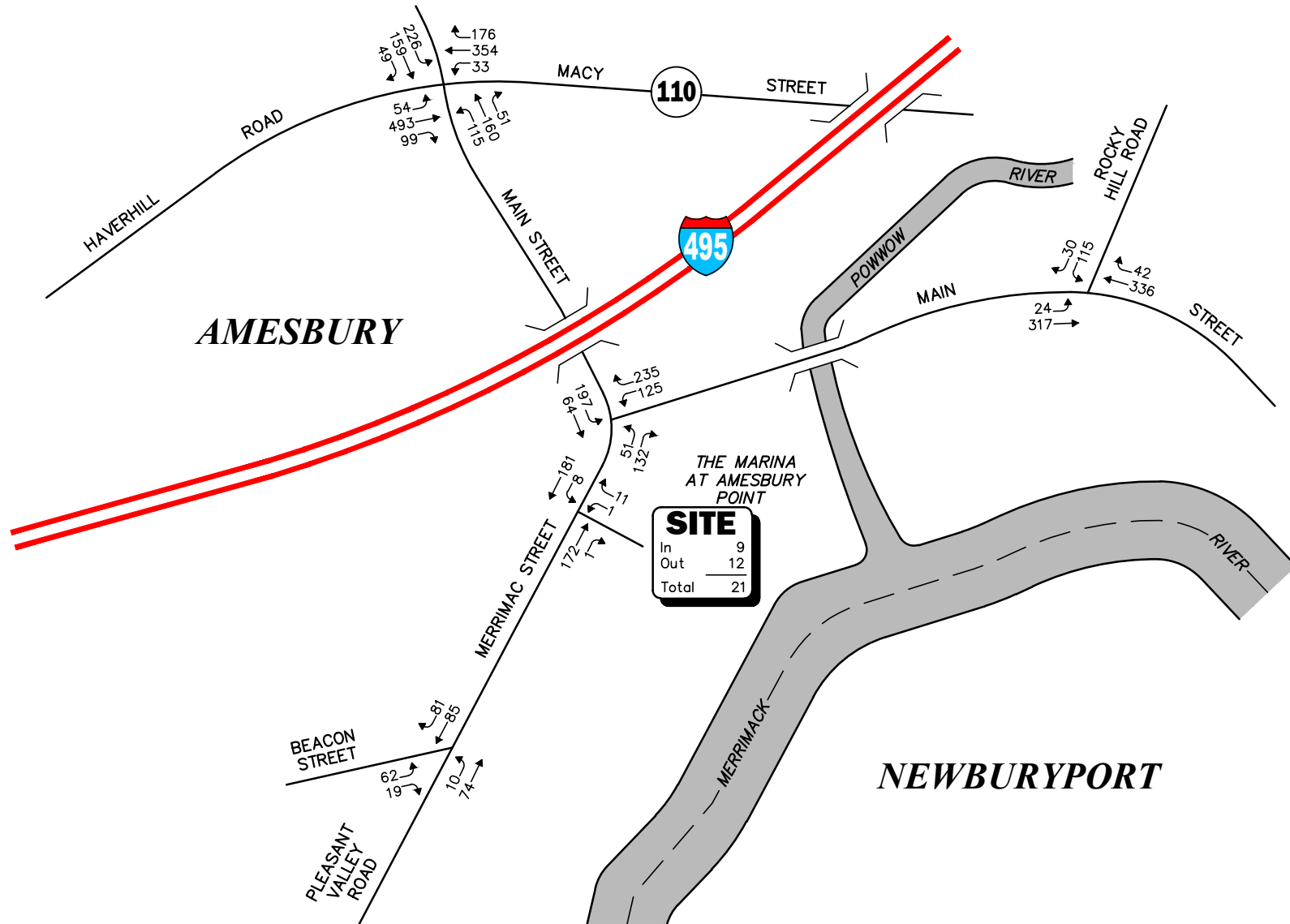


Figure 7

2030 No-Build Weekday Evening Peak-Hour Traffic Volumes



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 8

**2030 No-Build
Saturday Midday
Peak-Hour Traffic Volumes**

Table 5 summarizes the anticipated trip characteristics of the Project site using the aforementioned methodology, with the detailed trip-generation calculations for the Project site are summarized in the Appendix.

Table 5
TRIP GENERATION SUMMARY

Time Period	Vehicle Trips ^a		
	Entering	Exiting	Total
<i>Average Weekday:</i>	234	234	468
<i>Weekday Morning Peak-Hour:</i>	4	0	4
<i>Weekday Evening Peak-Hour:</i>	34	16	50
<i>Saturday Daily:</i>	232	232	464
<i>Saturday Midday Peak-Hour:</i>	35	24	59

^aBased on ITE LUC 931, *Fine Dining Restaurant* (180 seats).

Project-Generated Traffic-Volume Summary

As can be seen in Table 5, using the aforementioned methodology, the addition of the restaurant to the Project site is expected to result in approximately 468 additional vehicle trips on an average weekday and 464 additional vehicle trips on a Saturday (both two-way volumes over the operational day of the restaurant), with 4 additional vehicle trips (4 vehicles entering and 0 exiting) expected during the weekday morning peak-hour, 50 additional vehicle trips (34 vehicles entering and 16 exiting) expected during the weekday evening peak-hour and 59 additional vehicle trips (35 vehicles entering and 24 exiting) expected during the Saturday midday peak-hour.

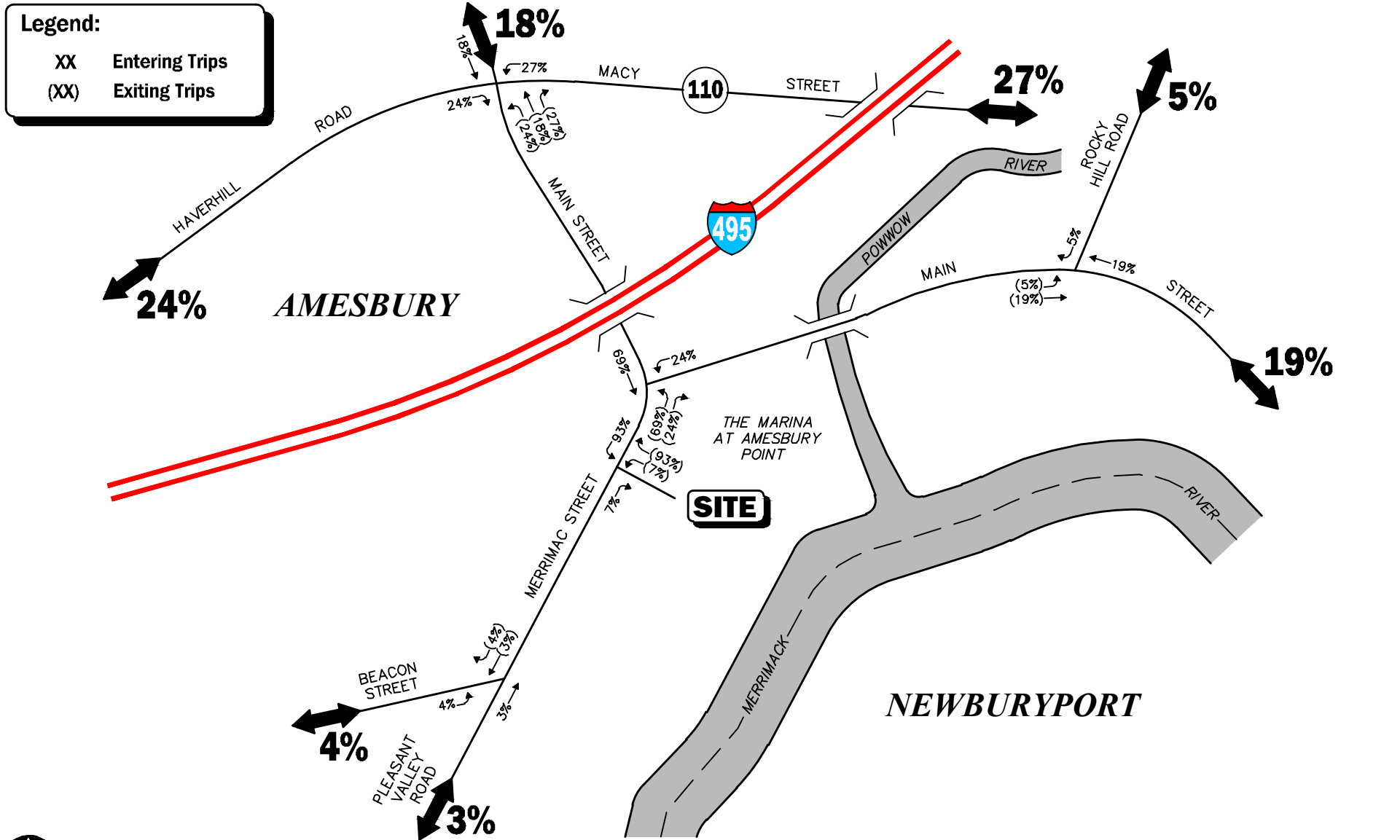
TRIP DISTRIBUTION AND ASSIGNMENT

The directional distribution of generated trips to and from the Project site was determined based on a review of existing traffic patterns within the study area. The general trip distribution for the Project is graphically depicted on Figure 9. The additional traffic expected to be generated by the Project was assigned on the study area roadway network as shown on Figures 10, 11 and 12 for the weekday morning, weekday evening and Saturday midday peak hours, respectively

FUTURE TRAFFIC VOLUMES – BUILD CONDITION

The 2030 Build condition traffic volumes consist of the 2030 No-Build traffic volumes with the additional traffic expected to be generated by the Project added to them. The resulting 2030 Build weekday morning, weekday evening and Saturday midday peak-hour traffic volumes are graphically depicted on Figures 13, 14, and 15, respectively.

A summary of peak-hour projected traffic-volume increases outside of the study area that is the subject of this assessment is shown in Table 6. These volumes are based on the expected increases from the Project.

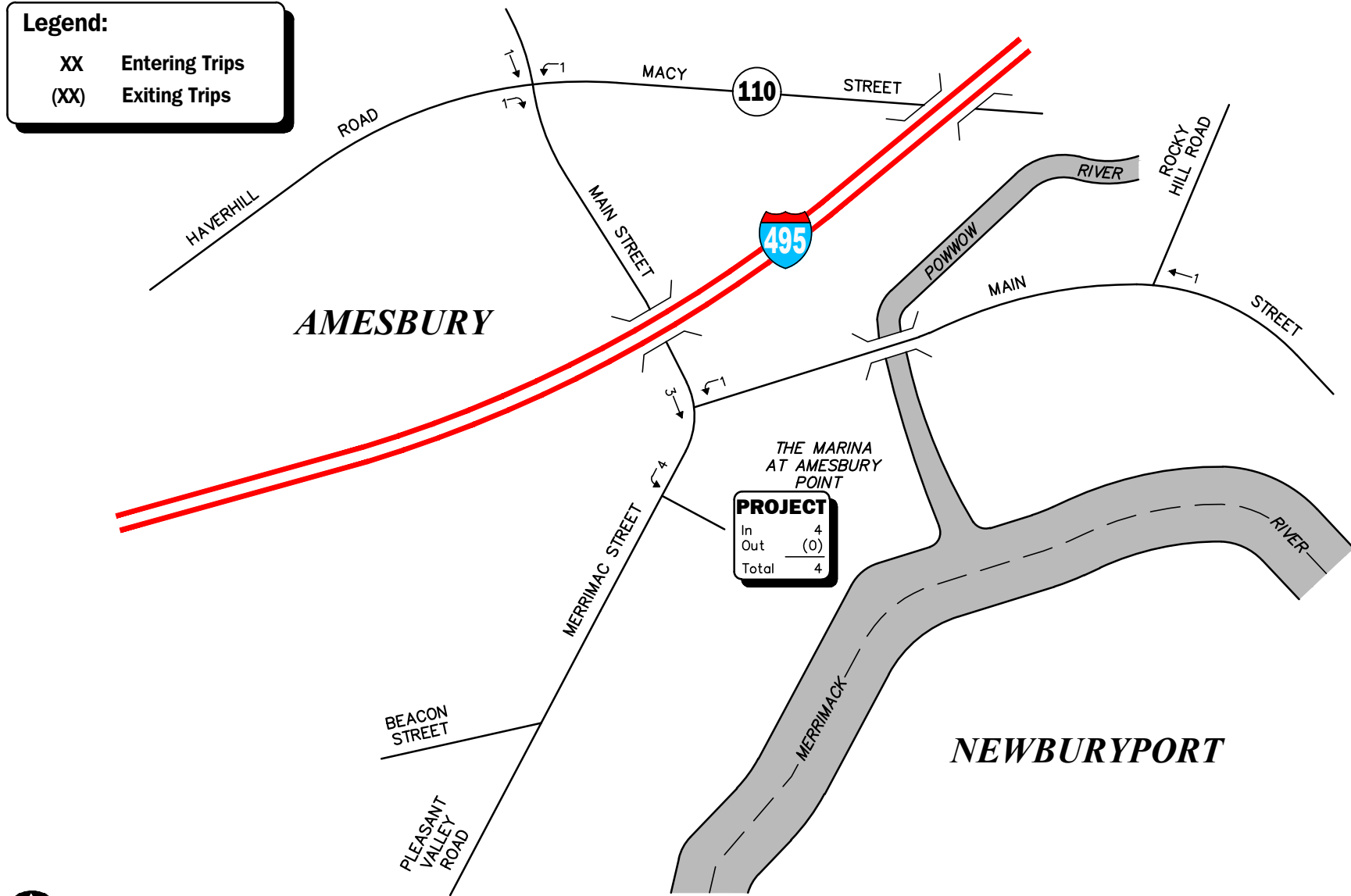


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Figure 9

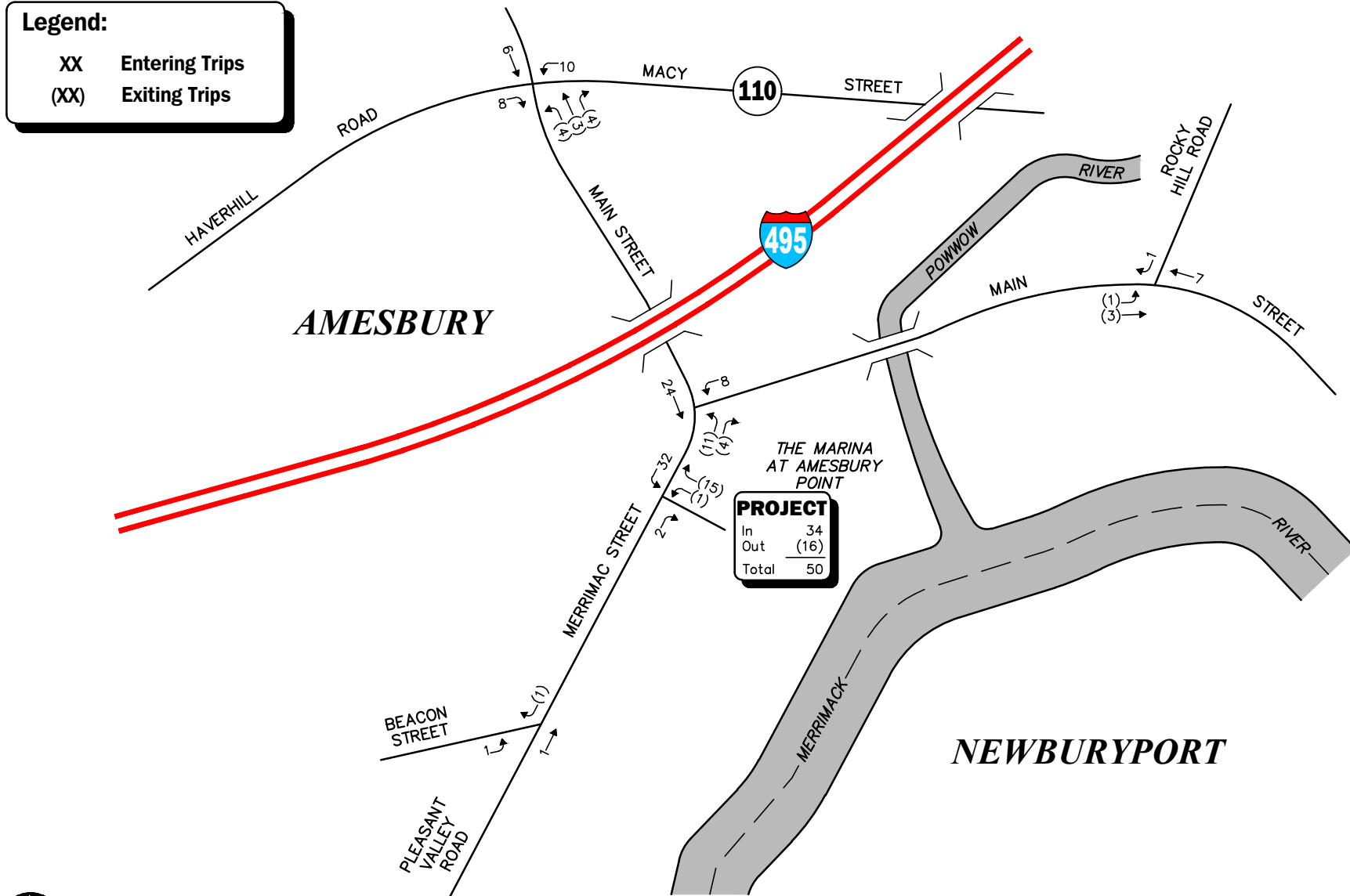
Trip Distribution Map



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Figure 10

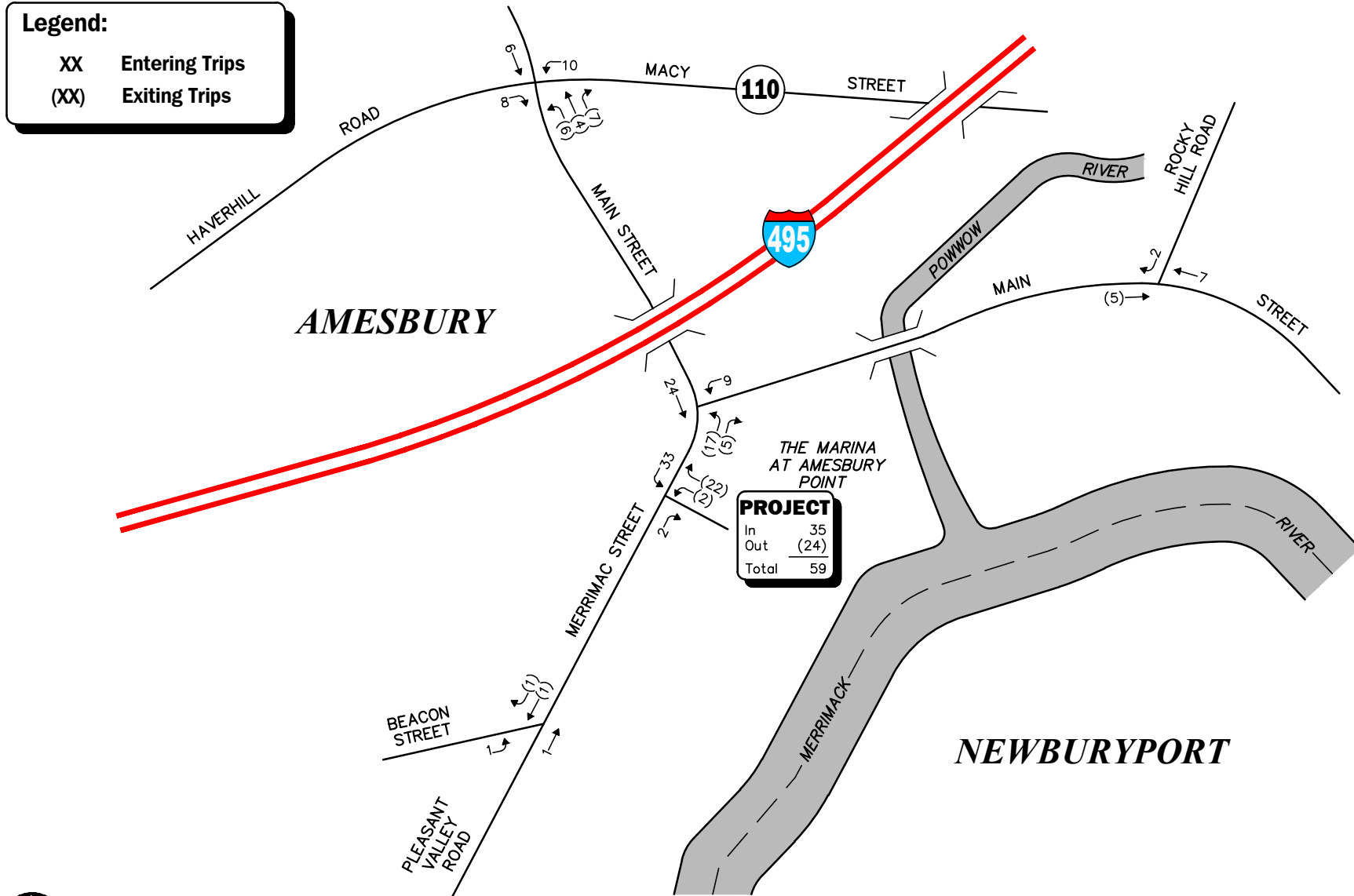
Project-Generated
Weekday Morning
Peak-Hour Traffic Volumes



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Figure 11

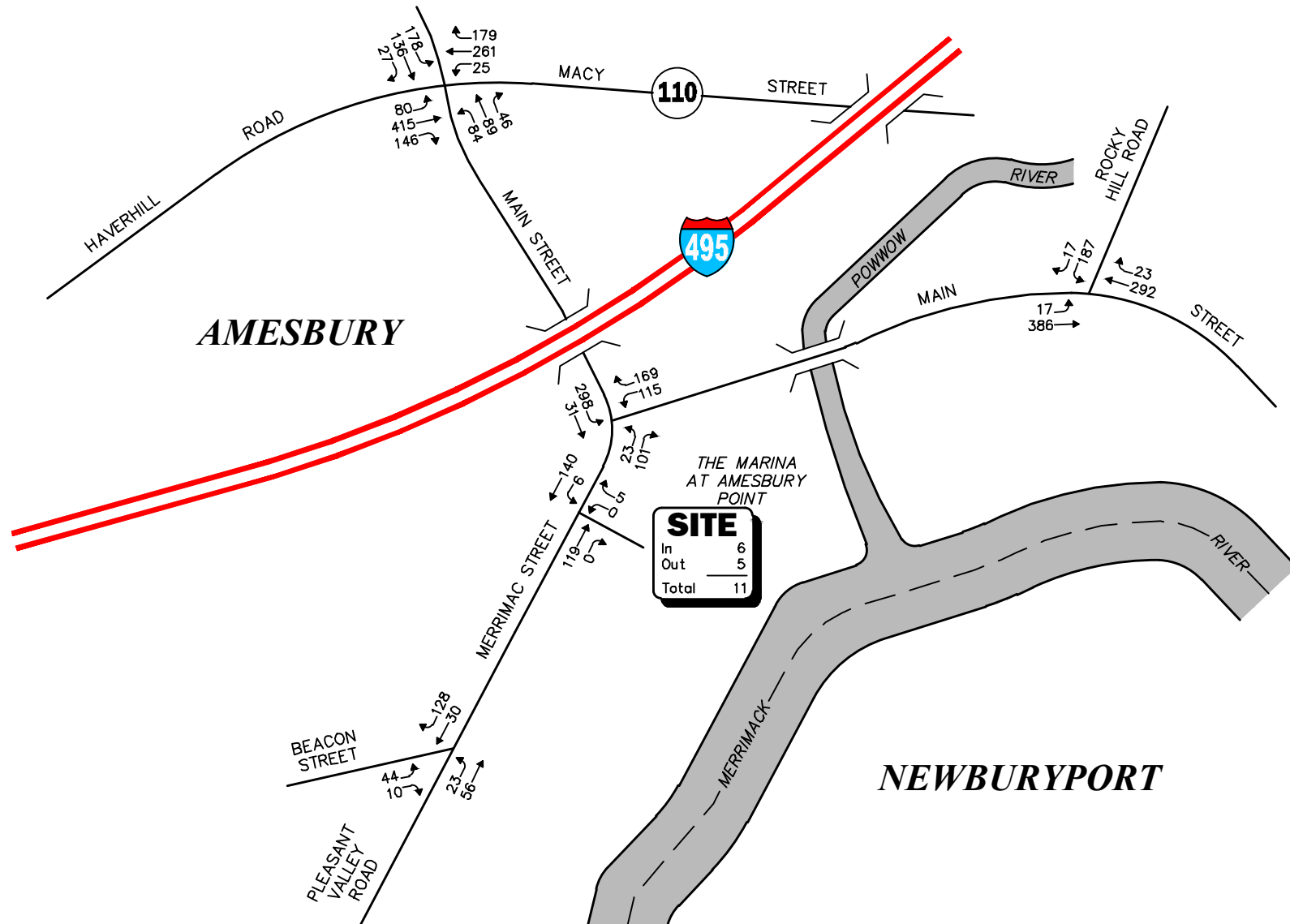
**Project-Generated
Weekday Evening
Peak-Hour Traffic Volumes**



Not To Scale

Figure 12

**Project-Generated
Saturday Midday
Peak-Hour Traffic Volumes**

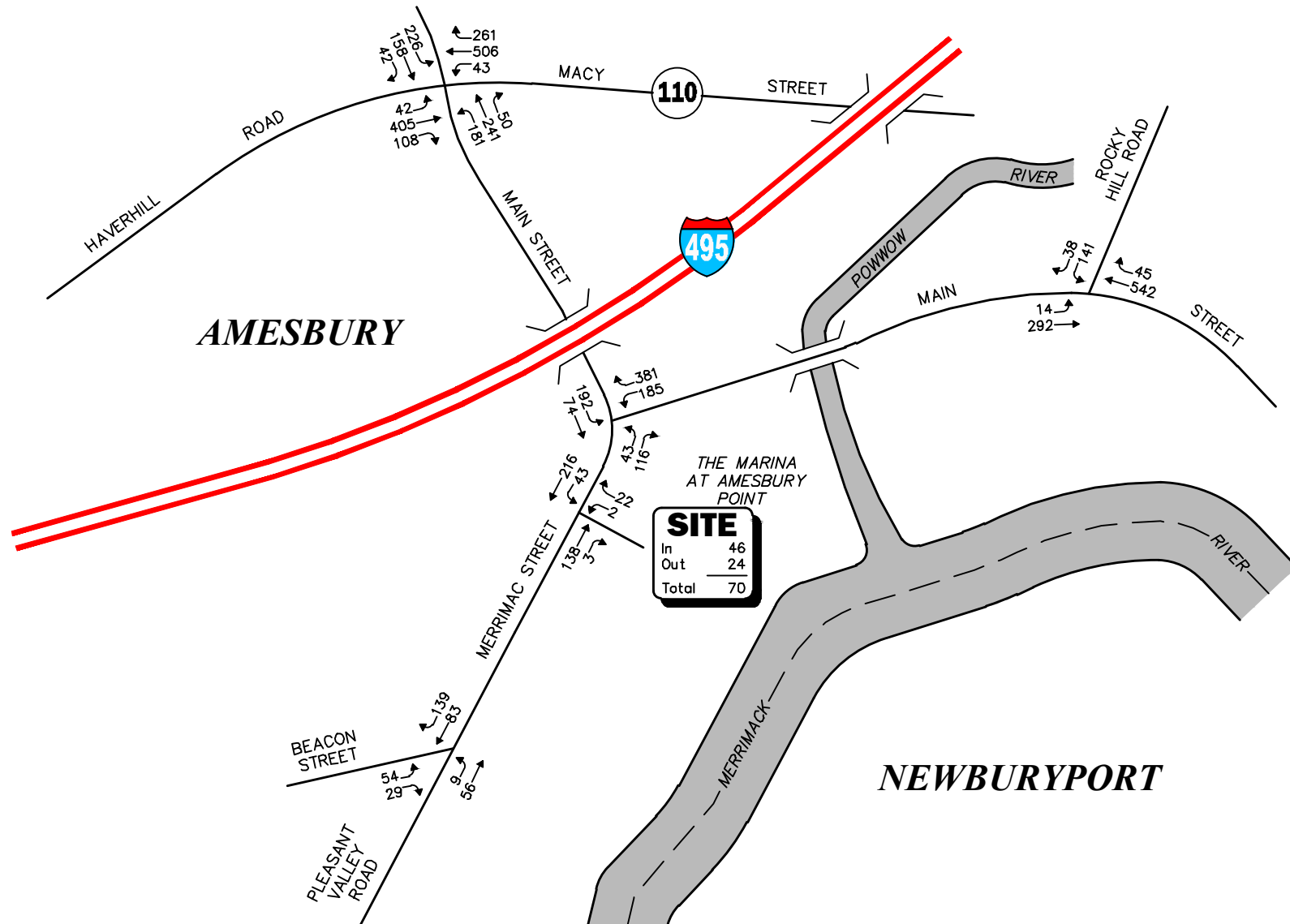


Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 13

**2030 Build
Weekday Morning
Peak-Hour Traffic Volumes**

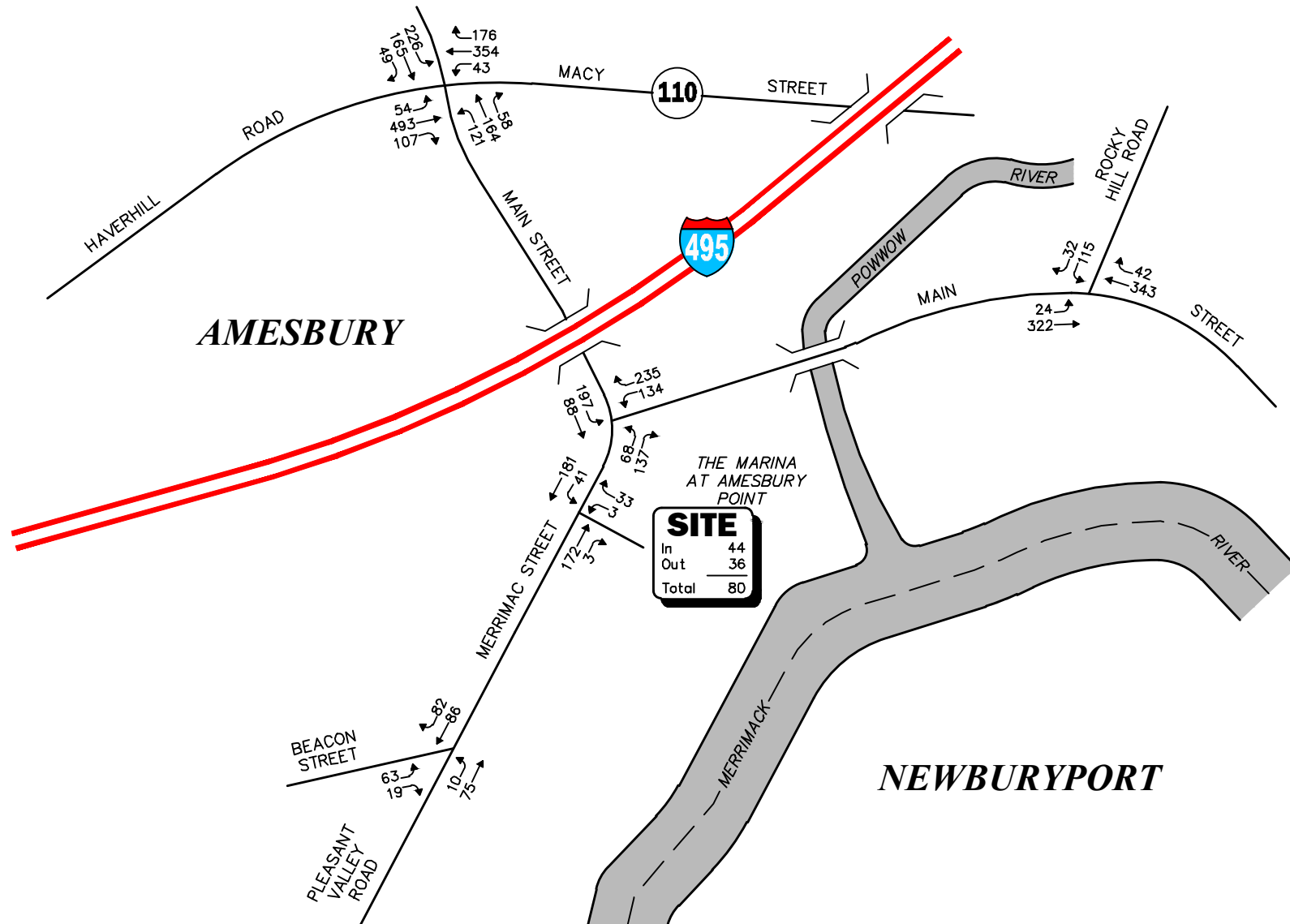


Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 14

**2030 Build
Weekday Evening
Peak-Hour Traffic Volumes**



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 15

**2030 Build
Saturday MIDDAY
Peak-Hour Traffic Volumes**

Table 6
PEAK-HOUR TRAFFIC-VOLUME INCREASES

Location/Peak Hour	2022 Existing	2030 No-Build	2030 Build	Traffic- Volume Increase Over No-Build	Percent Increase Over No-Build
<i>Main Street, north of Route 110:</i>					
Weekday Morning	610	688	689	1	0.1
Weekday Evening	850	961	970	9	0.9
Saturday MIDDAY	728	824	834	10	1.2
<i>Main Street, east of Rocky Hill Road:</i>					
Weekday Morning	785	887	888	1	0.1
Weekday Evening	891	1,010	1,020	10	1.0
Saturday MIDDAY	711	810	822	12	1.5
<i>Route 110, west of Main Street:</i>					
Weekday Morning	884	1,012	1,013	1	0.1
Weekday Evening	1,108	1,272	1,284	12	0.9
Saturday MIDDAY	1,011	1,164	1,178	14	1.5
<i>Route 110, east of Main Street:</i>					
Weekday Morning	964	1,103	1,104	1	0.1
Weekday Evening	1,289	1,477	1,491	14	0.9
Saturday MIDDAY	1,162	1,333	1,350	17	1.3
<i>Rocky Hill Road, north of Main Street:</i>					
Weekday Morning	217	244	244	0	0.0
Weekday Evening	210	236	238	2	0.8
Saturday MIDDAY	186	211	213	2	0.9
<i>Pleasant Valley Road, south of Merrimac Street:</i>					
Weekday Morning	105	119	119	0	0.0
Weekday Evening	155	176	196	1	0.5
Saturday MIDDAY	166	188	190	2	1.1
<i>Beacon Street, west of Merrimac Street:</i>					
Weekday Morning	181	205	205	0	0.0
Weekday Evening	199	229	231	2	0.9
Saturday MIDDAY	148	172	174	2	1.1

As shown in Table 6, Project-related traffic-volume increases outside of the study area relative to 2030 No-Build conditions are anticipated to range from 0.0 to 1.5 percent during the peak periods, with vehicle increases shown to range from 0 to 17 vehicles. ***When dispersed over the respective peak-hour, such increases would not result in a material impact (increase) on motorist delays or vehicle queuing outside of the immediate study area that is the subject of this assessment.***

TRAFFIC OPERATIONS ANALYSIS

Measuring existing and future traffic volumes quantifies traffic flow within the study area. To assess quality of flow, roadway capacity and vehicle queue analyses were conducted under Existing, No-Build, and Build traffic-volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study.

METHODOLOGY

Levels of Service

A primary result of capacity analyses is the assignment of level of service to traffic facilities under various traffic-flow conditions.⁹ The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with level-of-service (LOS) A representing the best operating conditions and LOS F representing congested or constrained operating conditions.

Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year.

⁹The capacity analysis methodology is based on the concepts and procedures presented in the *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010.

Signalized Intersections

The six levels of service for signalized intersections may be described as follows:

- *LOS A* describes operations with very low control delay; most vehicles do not stop at all.
- *LOS B* describes operations with relatively low control delay. However, more vehicles stop than LOS A.
- *LOS C* describes operations with higher control delays. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
- *LOS D* describes operations with control delay in the range where the influence of congestion becomes more noticeable. Many vehicles stop and individual cycle failures are noticeable.
- *LOS E* describes operations with high control delay values. Individual cycle failures are frequent occurrences.
- *LOS F* describes operations with high control delay values that often occur with over-saturation. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Levels of service for signalized intersections are calculated using the operational analysis methodology of the 2000 *Highway Capacity Manual*¹⁰ and implemented as a part of the Synchro® 11 software as recommended by MassDOT. This method assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on delay. Level-of-service designations are based on the criterion of control or signal delay per vehicle. Control or signal delay is a measure of driver discomfort, frustration, and fuel consumption, and includes initial deceleration delay approaching the traffic signal, queue move-up time, stopped delay and final acceleration delay. Table 7 summarizes the relationship between level of service and control delay. The tabulated control delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to entire intersections.

Table 7
LEVEL-OF-SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS^a

Level of Service	Control (Signal) Delay Per Vehicle (Seconds)
A	≤10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

^aSource: *Highway Capacity Manual*, Transportation Research Board; Washington, DC; 2000; page 16-2.

¹⁰*Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2000.

Unsignalized Intersections

The six levels of service for unsignalized intersections may be described as follows:

- *LOS A* represents a condition with little or no control delay to minor street traffic.
- *LOS B* represents a condition with short control delays to minor street traffic.
- *LOS C* represents a condition with average control delays to minor street traffic.
- *LOS D* represents a condition with long control delays to minor street traffic.
- *LOS E* represents operating conditions at or near capacity level, with very long control delays to minor street traffic.
- *LOS F* represents a condition where minor street demand volume exceeds the capacity of an approach lane, with extreme control delays resulting.

The levels of service of unsignalized intersections are determined by application of a procedure described in the *Highway Capacity Manual 6th Edition*.¹¹ Level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the effects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level of service at unsignalized intersections are also given in the *Highway Capacity Manual 6th Edition*. Table 8 summarizes the relationship between level of service and average control delay for two-way STOP-controlled and all-way STOP-controlled intersections.

Table 8
LEVEL-OF-SERVICE CRITERIA FOR
UNSIGNALIZED INTERSECTIONS^a

Level-Of-Service by Volume-to-Capacity Ratio		Average Control Delay (Seconds Per Vehicle)
$v/c \leq 1.0$	$v/c > 1.0$	
A	F	≤ 10.0
B	F	10.1 to 15.0
C	F	15.1 to 25.0
D	F	25.1 to 35.0
E	F	35.1 to 50.0
F	F	> 50.0

^aSource: *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2016; page 20-6.

¹¹*Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2016.

Vehicle Queue Analysis

Vehicle queue analyses are a direct measurement of an intersection's ability to process vehicles under various traffic control and volume scenarios and lane use arrangements. The vehicle queue analysis was performed using the Synchro® intersection capacity analysis software which is based upon the methodology and procedures presented in the *Highway Capacity Manual 6th Edition*. The Synchro® vehicle queue analysis methodology is a simulation-based model which reports the number of vehicles that experience a delay of 6 seconds or more at an intersection. For signalized intersections, Synchro® reports both the average (50th percentile) and the 95th percentile vehicle queue. For unsignalized intersections, Synchro® reports the 95th percentile vehicle queue. Vehicle queue lengths are a function of the capacity of the movement under study and the volume of traffic being processed by the intersection during the analysis period. The 95th percentile vehicle queue is the vehicle queue length that will be exceeded only 5 percent of the time, or approximately 3 minutes out of 60 minutes during the peak one hour of the day (during the remaining 57 minutes, the vehicle queue length will be less than the 95th percentile queue length).

ANALYSIS RESULTS

Level-of-service and vehicle queue analyses were conducted for 2022 Existing, 2030 No-Build, and 2030 Build conditions for the intersections within the study area. The results of the intersection capacity and vehicle queue analyses are summarized in Tables 9 and 10, with the detailed analysis results presented in the Appendix.

The following is a summary of the level-of-service and vehicle queue analyses for the intersections within the study area during the five to six months when the marina is in operation. For context, we note that an LOS of "D" or better is generally defined as "acceptable" operating conditions. Project-related impacts at the study area intersections are defined as follows:

Signalized Intersections

Route 110 at Main Street

No change in level-of-service is predicted to occur for any movement over No-Build conditions with the addition of Project-related traffic, with Project-related impacts generally defined as a predicted increase in average motorist delay that resulted in an increase in vehicle queuing of up to one (1) vehicle. Independent of the Project, overall intersection operations are predicted to be over capacity (i.e., LOS "E" or "F", respectively) during the weekday evening and Saturday midday peak hours under No-Build conditions, with the following movements also currently or predicted to operate at or over capacity independent of the Project: *weekday morning peak-hour* – Route 110 eastbound approach; *weekday evening peak-hour* – Route 110 westbound approach, Main Street northbound approach and Main Street southbound approach; and *Saturday midday peak-hour* – Main Street southbound approach.

Unsignalized Intersections

Main Street at Rocky Hill Road

No change in level-of-service is predicted to occur for any movement over No-Build conditions with the addition of Project-related traffic, with Project-related impacts generally defined as a predicted increase in average motorist delay of up to 4.4 seconds that resulted in an increase in vehicle queuing of up to one (1) vehicle. Independent of the Project, the Rocky Hill Road southbound approach is predicted to operate over capacity during the weekday evening peak-hour under No-Build conditions.

Main Street at Merrimac Street

The addition of Project-related traffic was shown to result in an increase in average motorist delay of 0.5 seconds on the Merrimac Street northbound approach during the Saturday midday peak-hour that resulted in a change in level-of-service from LOS A to LOS B. No change in vehicle queuing was shown to occur as a result of the addition of Project-related traffic.

Merrimac Street at Pleasant Valley Road and Beacon Street

No change in level-of-service or vehicle queuing is predicted to occur for any movement over No-Build conditions with the addition of Project-related traffic, with Project-related impacts generally defined as an increase in average motorist delay of less than 1.0 seconds.

Merrimac Street at the Project Site Driveway

All movements exiting the Project site driveway to Merrimac Street were shown to operate at LOS B or better during the peak hours, with negligible vehicle queuing predicted. All movements along Merrimac Street approaching the driveway were shown to operate at LOS A, also with negligible vehicle queuing predicted.

Table 9
SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Signalized Intersection/Peak Hour/Movement	2022 Existing				2030 No-Build				2030 Build			
	V/C ^a	Delay ^b	LOS ^c	Queue ^d 50 th /95 th	V/C	Delay	LOS	Queue 50 th /95 th	V/C	Delay	LOS	Queue 50 th /95 th
Route 110 at Main Street												
<i>Weekday Morning:</i>												
Route 110 EB LT/TH/RT	0.84	28.8	C	12/27	1.06	77.5	E	17/34	1.06	77.9	E	17/34
Route 110 WB LT/TH/RT	0.52	16.9	B	6/14	0.64	21.5	C	8/17	0.64	21.6	C	8/18
Main Street NB LT/TH/RT	0.46	22.6	C	4/7	0.50	22.4	C	4/9	0.50	22.4	C	4/9
Main Street SB LT/TH/RT	0.81	35.9	D	7/14	0.87	41.8	D	9/17	0.87	42.0	D	9/17
Overall	--	26.4	C	--	--	47.5	D	--	--	47.8	D	--
<i>Weekday Evening:</i>												
Route 110 EB LT/TH/RT	0.65	22.0	C	8/18	0.80	28.1	C	10/25	0.81	28.9	C	11/26
Route 110 WB LT/TH/RT	1.00	58.4	E	17/35	1.16	>80.0	F	24/42	1.20	>80.0	F	25/43
Main Street NB LT/TH/RT	0.85	38.1	D	9/21	0.98	63.2	E	11/26	1.01	70.3	E	11/27
Main Street SB LT/TH/RT	1.05	>80.0	F	10/21	1.23	>80.0	F	14/25	1.24	>80.0	F	15/25
Overall	--	51.5	D	--	--	>80.0	F	--	--	>80.0	F	--
<i>Saturday Midday:</i>												
Route 110 EB LT/TH/RT	0.80	29.2	C	10/23	0.86	32.4	C	12/29	0.87	33.8	C	13/30
Route 110 WB LT/TH/RT	0.71	24.7	C	8/18	0.76	25.6	C	10/25	0.80	27.9	C	11/26
Main Street NB LT/TH/RT	0.55	19.9	B	5/12	0.70	28.3	C	7/15	0.75	30.4	C	7/17
Main Street SB LT/TH/RT	0.92	46.0	D	9/21	1.20	>80.0	F	15/25	1.22	>80.0	F	15/26
Overall	--	30.6	C	--	--	55.8	E	--	--	59.9	E	--

^aVolume-to-capacity ratio.

^bControl (signal) delay per vehicle in seconds.

^cLevel of service.

^dQueue length in vehicles based on 25 feet per vehicle.

NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

Table 10
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Unsignalized Intersection/Peak Hour/Movement	2022 Existing				2030 No-Build				2030 Build			
	Demand ^a	Delay ^b	LOS ^c	Queue ^d 95 th	Demand	Delay	LOS	Queue 95 th	Demand	Delay	LOS	Queue 95 th
Main Street at Rocky Hill Road												
<i>Weekday Morning:</i>												
Main Street EB LT/TH	356	0.3	A	0	403	0.3	A	0	403	0.3	A	0
Main Street WB TH/RT	278	0.0	A	0	314	0.0	A	0	315	0.0	A	0
Rocky Hill Road SB LT/RT	181	23.0	C	3	204	33.2	D	5	204	33.4	D	5
<i>Weekday Evening:</i>												
Main Street EB LT/TH	265	0.4	A	0	302	0.4	A	0	306	0.4	A	0
Main Street WB TH/RT	512	0.0	A	0	580	0.0	A	0	587	0.0	A	0
Rocky Hill Road SB LT/RT	158	32.2	D	4	178	>50.0	F	6	179	>50.0	F	7
<i>Saturday Midday</i>												
Main Street EB LT/TH	298	0.6	A	0	341	0.6	A	0	346	0.6	A	0
Main Street WB TH/RT	332	0.0	A	0	378	0.0	A	0	385	0.0	A	0
Rocky Hill Road SB LT/RT	128	17.4	C	2	145	21.4	C	3	147	22.0	C	3
Main Street at Merrimac Street												
<i>Weekday Morning:</i>												
Main Street WB LT/RT	249	0.0	A	0	283	0.0	A	0	284	0.0	A	0
Merrimac Street NB TH/RT	105	8.9	A	1	124	9.0	A	1	124	9.1	A	1
Main Street SB LT/TH	288	0.0	A	0	326	0.0	A	0	329	0.0	A	0
<i>Weekday Evening:</i>												
Main Street WB LT/RT	492	0.0	A	0	558	0.0	A	0	566	0.0	A	0
Merrimac Street NB TH/RT	120	9.1	A	1	144	9.4	A	1	159	9.7	A	1
Main Street SB LT/TH	207	0.0	A	0	242	0.0	A	0	266	0.0	A	0
<i>Saturday Midday</i>												
Main Street WB LT/RT	315	0.0	A	0	360	0.0	A	0	369	0.0	A	0
Merrimac Street NB TH/RT	151	9.5	A	1	183	9.8	A	1	205	10.3	B	1
Main Street SB LT/TH	227	0.0	A	0	261	0.0	A	0	2	0.0	A	0

See notes at end of table.

Table 10 (Continued)

UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Unsignalized Intersection/Peak Hour/Movement	2022 Existing				2030 No-Build				2030 Build			
	Demand ^a	Delay ^b	LOS ^c	Queue ^d 95 th	Demand	Delay	LOS	Queue 95 th	Demand	Delay	LOS	Queue 95 th
<i>Merrimac Street at Pleasant Valley Road and Beacon Street</i>												
<i>Weekday Morning:</i>												
Beacon Street EB LT/RT	47	10.1	B	1	54	10.4	B	1	54	10.4	B	1
Pleasant Valley Road NB LT/TH	71	2.3	A	0	79	2.2	A	0	79	2.2	A	0
Merrimac Street SB TH/RT	138	0.0	A	0	158	0.0	A	0	158	0.0	A	0
<i>Weekday Evening:</i>												
Beacon Street EB LT/RT	70	10.4	B	1	82	10.9	B	1	83	10.9	B	1
Pleasant Valley Road NB LT/TH	56	1.1	A	0	64	1.1	A	0	65	1.1	A	0
Merrimac Street SB TH/RT	195	0.0	A	0	221	0.0	A	0	222	0.0	A	0
<i>Saturday Midday</i>												
Beacon Street EB LT/RT	70	10.0	B	1	81	10.3	B	1	82	10.4	B	1
Pleasant Valley Road NB LT/TH	74	0.8	A	0	84	0.9	A	0	85	0.9	A	0
Merrimac Street SB TH/RT	145	0.0	A	0	166	0.0	A	0	168	0.0	A	0
<i>Merrimac Street at the Project Site Driveway</i>												
<i>Weekday Morning:</i>												
Project Site Driveway WB LT/RT	--	--	--	--	5	9.0	A	0	5	9.0	A	0
Merrimac Street NB TH/RT	--	--	--	--	119	0.0	A	0	119	0.0	A	0
Merrimac Street SB LT/TH	--	--	--	--	142	0.1	A	0	146	0.3	A	0
<i>Weekday Evening:</i>												
Project Site Driveway WB LT/RT	--	--	--	--	8	9.5	A	0	24	9.6	A	0
Merrimac Street NB TH/RT	--	--	--	--	139	0.0	A	0	141	0.0	A	0
Merrimac Street SB LT/TH	--	--	--	--	227	0.3	A	0	259	1.1	A	0
<i>Saturday Midday:</i>												
Project Site Driveway WB LT/RT	--	--	--	--	12	9.7	A	0	36	10.0	B	0
Merrimac Street NB TH/RT	--	--	--	--	173	0.0	A	0	175	0.0	A	0
Merrimac Street SB LT/TH	--	--	--	--	189	0.3	A	0	222	1.4	A	0

^aDemand in vehicles per hour.

^bAverage control delay per vehicle (in seconds).

^cLevel of service.

^dQueue length in vehicles.

NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements

SIGHT DISTANCE EVALUATION

Sight distance measurements were performed at the Project site driveway intersections with Merrimac Street in accordance with American Association of State Highway and Transportation Officials (AASHTO)¹² standards. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD or corner sight distance (CSD) is the sight distance required by a driver entering or crossing an intersecting roadway to perceive an on-coming vehicle and safely complete a turning or crossing maneuver with on-coming traffic. In accordance with AASHTO standards, at a minimum, sufficient SSD should be provided at an intersection. ISD, while desirable to maintain efficient traffic flow, is not required for an intersection to function in a safe manner. Table 11 presents the measured SSD and ISD at the subject intersection.

¹²*A Policy on Geometric Design of Highway and Streets*, 6th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2011.

Table 11
SIGHT DISTANCE MEASUREMENTS^a

Intersection/Sight Distance Measurement	Feet		
	Recommended Minimum (SSD)	Desirable (ISD) ^b	Measured
<i>Merrimac Street at the Project Site Driveway</i>			
<i>Stopping Sight Distance:</i>			
Merrimac Street approaching from the north	200	--	313
Merrimac Street approaching from the south	200	--	317
<i>Intersection Sight Distance:</i>			
Looking to the north from the Project Site Driveway	200	335	310
Looking to the south from the Project Site Driveway	200	290	291
<i>Merrimac Street at the 13 Merrimac Street Driveway</i>			
<i>Stopping Sight Distance:</i>			
Merrimac Street approaching from the north	155	--	155
Merrimac Street approaching from the south	200	--	200
<i>Intersection Sight Distance:</i>			
Looking to the north from the Driveway	155	240	155

^aRecommended minimum values obtained from: *A Policy on Geometric Design of Highways and Streets*, 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); 2018; and based on a 30 mph approach speed on Merrimac Street and a 25 mph approach speed on Main Street.

^bValue shown is the intersection sight distance for a vehicle turning right/left exiting a roadway or driveway under STOP control such that motorists approaching the intersection on the major street should not need to adjust their travel speed to less than 70 percent of their initial approach speed.

As can be seen in Table 11, lines of sight at the Project site driveway intersections with Merrimac Street (two locations) were found to meet or exceed the recommended minimum sight distance for the driveway to function in a safe manner (SSD) based a 30 mph approach speed along Merrimac Street, which is consistent with the posted speed limit (30 mph) and the measured 85th percentile vehicle travel speed in the vicinity of the Project site (27/29 mph).

Relative to the driveway to 13 Merrimac Street, the Project proponent should work with the City to trim/maintain vegetation along the west side of Merrimac Street and Main Street and to implement traffic calming measures at and approaching the Merrimac Street/Main Street intersection. These measures may include the following:

- Sidewalk installation to reduce the traveled-way
- Installation of radar speed feedback signs
- Installation of intersection ahead warning signs (for the Merrimac Street/Main Street intersection)
- Installation of a “Stop Ahead” sign on the Merrimac Street approach to Main Street
- Implementing all-way stop control at the Main Street/Merrimac Street intersection

These measures are intended to reduce travel speeds approaching the driveway to 13 Merrimac Street and the Merrimac Street/Main Street intersection to be consistent with the travel speed that is supported by the roadway and intersection geometry (20-25 mph).

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

VAI has completed a detailed assessment of the potential impacts on the transportation infrastructure associated with the proposed improvements and enhancements to The Marina at Amesbury Point located at 14 Merrimac Street in Amesbury, Massachusetts. The following specific areas have been evaluated as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; under existing and future conditions, both with and without the Project. Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the ITE,¹³ the Project is expected to generate approximately 468 additional (over the current 96 slip marina) vehicle trips on an average weekday and 464 additional vehicle trips on a Saturday (both two-way volumes over the operational day of the Project), with 4 additional vehicle trips expected during the weekday morning peak-hour, 50 additional vehicle trips expected during the weekday evening peak-hour and 59 additional vehicle trips expected during the Saturday midday peak-hour;
2. The Project will not have a significant impact (increase) on motorist delays or vehicle queuing over anticipated future conditions without the Project (No-Build conditions), acknowledging that one or more movements at the Route 110/Main Street and Main Street/Rocky Hill Road intersections are currently or are predicted to operate at or over capacity (i.e., LOS “E” or LOS “F”, respectively) independent of the Project.
3. With the exception of the Route 110/Main Street intersection, the study area intersections were found to have motor vehicle crash rates that are below the MassDOT average crash rates for similar intersections. The Route 110/Main Street intersection was found to have a motor vehicle crash rate that is above the MassDOT average crash rate for a signalized intersection. As such, recommendations have been provided as a part of this assessment to advance safety-related improvements at this intersection (discussion follows); and
4. Lines of sight at the Project site driveway intersection with Merrimac Street were found to exceed the recommended minimum sight distance to function in a safe manner.

¹³Institute of Transportation Engineers, op. cit. 1.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations defined herein such that there will not be an adverse impact on traffic or traffic circulation.

RECOMMENDATIONS

A detailed transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified at off-site locations evaluated in conjunction with this study. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

Project Access

Access to the Project is and will continue to be provided by way of the existing driveway that intersects the east side of Merrimac Street approximately 230 feet south of Main Street. The driveway will be reconstructed as a part of the Project to reduce the width of the opening of the drive along Merrimac Street and provide definition and separation between the driveway and the access to the adjacent City of Amesbury boat ramp. Access to the new gravel parking lot to be constructed as a part of the Project at 13 Merrimac Street will be provided by way of the existing driveway that serves the property, which will be reconstructed as a part of the parking lot construction. The following recommendations are offered with respect to the design and operation of the Project site access and internal circulation:

- The Project site driveways should be a minimum of 24 feet in width or as required to accommodate the turning and maneuvering requirements of service and delivery vehicles, and the largest anticipated responding emergency vehicle where such vehicles are to be accommodated.
- Vehicles exiting the Project site driveways should be placed under STOP-sign control with a marked STOP-line provided (to the extent that the driveways are paved).
- The driveway that will serve the new gravel parking lot at 13 Merrimac Street will be restricted to right-turn only operation (i.e., right turns entering and exiting the driveway only). In order to regulate and reinforce the turn restrictions at the Project site driveway intersection, a “Right Turn Only” sign should be installed facing traffic exiting the parking lot and “No Left Turn” signs (graphic symbol) should be installed on Merrimac Street: i) opposite the driveway facing motorists; and ii) facing motorists traveling northbound on Merrimac Street approaching the driveway.
- Where perpendicular parking is proposed, the drive aisle behind the parking should be a minimum of 23 feet in order to facilitate parking maneuvers.
- All signs and pavement markings to be installed within the Project site should conform to the applicable standards of the *Manual on Uniform Traffic Control Devices* (MUTCD).¹⁴

¹⁴Federal Highway Administration, op. cit. 3.

- Marked crosswalks and Americans with Disabilities Act (ADA) compliant wheelchair ramps should be provided at all pedestrian crossings internal to the Project site that are constructed or modified in conjunction with the Project and for the crosswalk that is proposed across Merrimac Street that will link the new parking lot to the Project site.
- Pedestrian crossing warning signs should be installed at and approaching the proposed crosswalk across Merrimac Street.
- Work with the City to implement traffic calming measures along Merrimac Street at and approaching the Project site.
- Signs and landscaping to be installed as a part of the Project within intersection sight triangle areas should be designed and maintained so as not to restrict lines of sight.
- Accumulated snow (windrows) within sight triangle areas should be promptly removed where such accumulations would impede sight lines.

Off-Site

Macy Street and Haverhill Road (Route 110) at Main Street

Independent of the Project, one or more movements at the Route 110/Main Street intersection are currently or are predicted to operate at or over capacity (i.e., LOS “E” or “F”, respectively) during the peak hours. In addition, and also independent of the Project, the Route 110/Main Street intersection was identified to have a motor vehicle crash rate that exceeds the MassDOT crash rates for similar intersections. Project-related impacts at this intersection were defined as an increase in average motorist delay that resulted in a corresponding increase in vehicle queuing of up to one (1) vehicle. Recognizing these pre-existing conditions and acknowledging the limited impact of the Project at the intersection, if so desired by the City, the Project proponent will consult with the City to define specific improvements that could be advanced at the intersection to improve traffic operations and safety as a part of a future improvement project by others.

Main Street at Rocky Hill Road

The addition of Project-related traffic to the Main Street/Rocky Hill Road intersection was shown to result in an increase in average motorist delay of up to 4.4 seconds that resulted in an increase in vehicle queuing of up to one (1) vehicle. That being said and independent of the Project, it was noted that the Rocky Hill Road approach is predicted to operate over capacity during the weekday evening peak-hour. Given the limited impact of the Project at this intersection with no evidence of a specific safety deficiency based on a review of the MassDOT motor vehicle crash data, no improvements are recommended or appear to be required at this intersection to accommodate the Project.

Transportation Demand Management

Public transportation services are not currently provided within the study area, but are provided elsewhere within the City by the MVRTA. The MVRTA provides fixed-route bus services to the north of the study area by way of Route 51, *Haverhill-Amesbury*, which provides service between the Washington Square Transit Center in Haverhill and the Nicholas J. Costello Transportation Center in Amesbury, traveling along Haverhill Street (Route 110) and Main Street to the north of the Project site. The closest bus stop to the Project site is located at the Highland Street/

Wells Avenue intersection (approximately 0.8 miles to the northwest). To the east of the Project site, MVRTA bus Route 54 provides service between the Nicholas J. Costello Transportation Center, Newburyport and Salisbury Beach, with the closest regular stop to the Project site located within the Carriagetown Marketplace (approximately 1.0 miles to the northeast). In addition to fixed-route bus services, the MVRTA also provides paratransit services to eligible persons who cannot use fixed-route transit all or some of the time due to a physical, cognitive, or mental disability in compliance with the ADA, as well as other special transit services for medical appointments.

In an effort to encourage the use of alternative modes of transportation to single-occupant vehicles (SOVs), the following Transportation Demand Management (TDM) measures will be implemented as a part of the Project:

- A transportation coordinator will be designated for the Project to coordinate the elements of the TDM program;
- Information regarding commuting options will be posted in a central location and/or otherwise made available to employees of the Project;
- The transportation coordinator will facilitate a rideshare matching program for employees to encourage carpooling;
- A “welcome packet” will be provided to employees detailing available commuter options and will include the contact information for the transportation coordinator and information to enroll in the employee rideshare program;
- Specific amenities to discourage off-site trips will be provided, including a breakroom equipped with a microwave and refrigerator; offering direct deposit of paychecks; and other such measures to reduce overall traffic volumes and travel during peak traffic-volume periods;
- Pedestrian accommodations will be incorporated into the Project and consist of sidewalks and ADA-compliant wheelchair ramps at all pedestrian crossings constructed or modified in conjunction with the Project; and
- Secure bicycle parking will be provided at an appropriate location within the Project site.

With implementation of the above recommendations, safe and efficient access will continue to be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system such that there will not be an adverse impact on traffic or traffic circulation.

APPENDIX

PROJECT SITE PLAN

AUTOMATIC TRAFFIC RECORDER COUNT DATA

TURNING MOVEMENT COUNT DATA

SEASONAL ADJUSTMENT DATA

COVID ADJUSTMENT

PUBLIC TRANSPORTATION SCHEDULES

VEHICLE TRAVEL SPEED DATA

MASSDOT CRASH RATE WORKSHEETS AND HIGH CRASH LOCATION
MAPPING

GENERAL BACKGROUND TRAFFIC GROWTH

BACKGROUND DEVELOPMENT NETWORKS

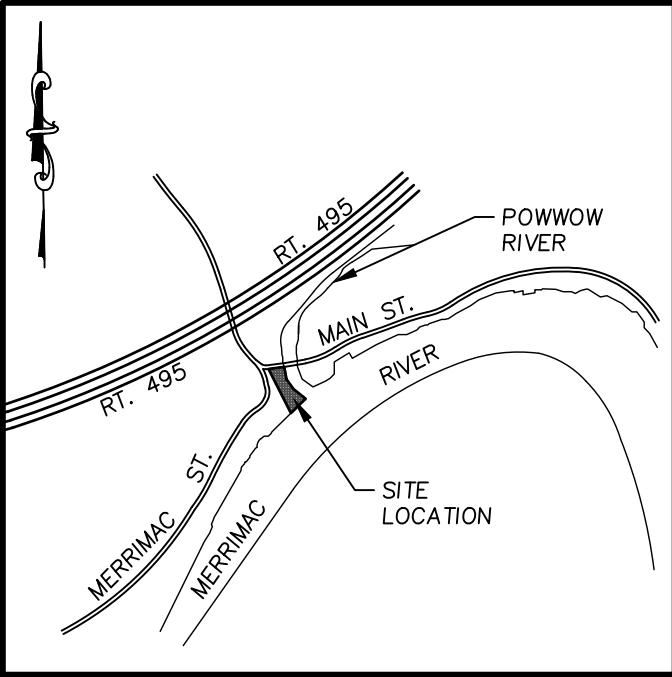
TRIP-GENERATION CALCULATIONS

CAPACITY ANALYSIS WORKSHEETS



PROJECT SITE PLAN





LOCUS MAP
N.T.S.

ZONING TABLE

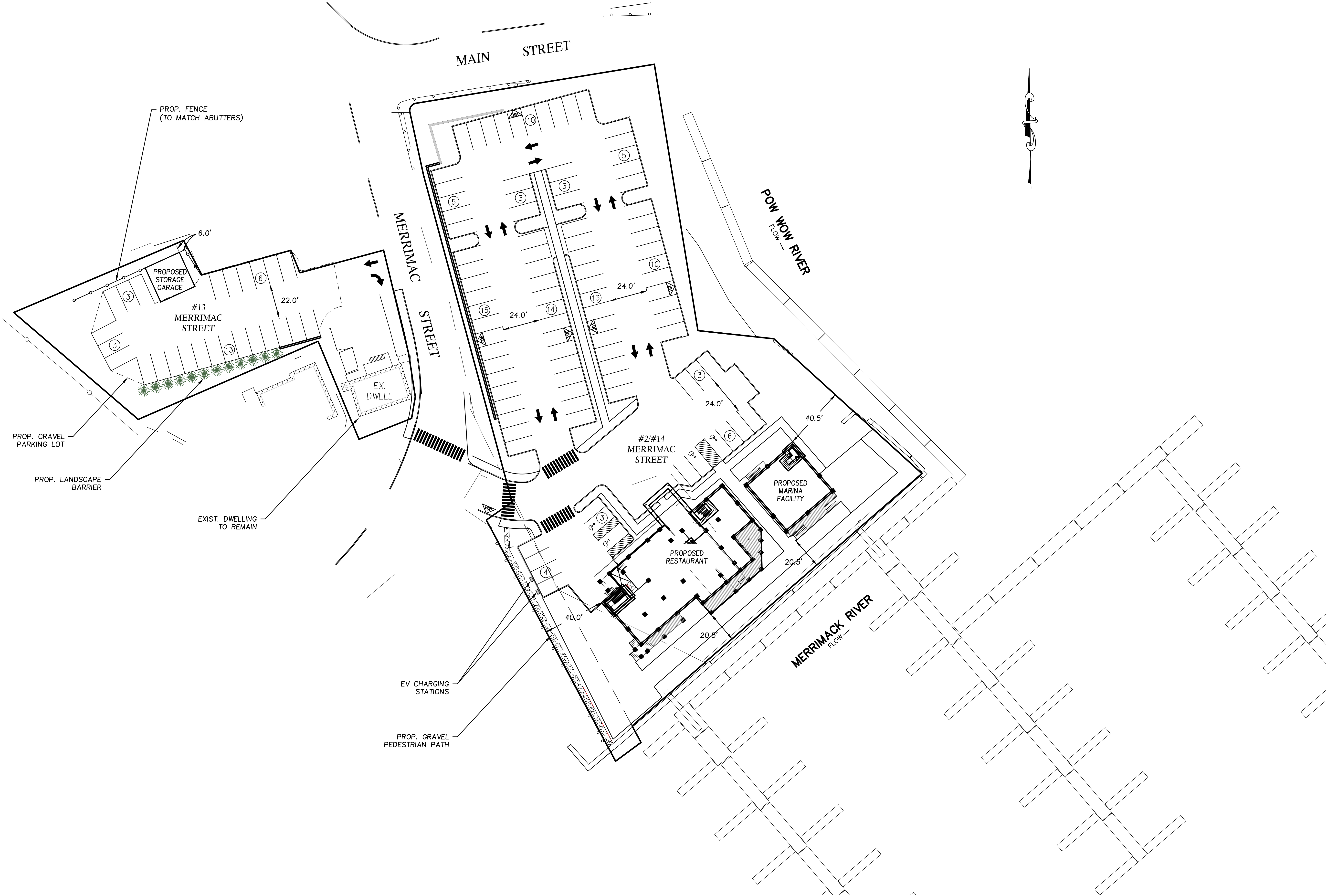
ADDRESS - ASSESSORS MAP 88 LOT 1 ZONING DISTRICT R20	
	REQUIRED
LOT AREA:	20,000 S.F.
LOT FRONTAGE:	125 FT.
FRONT SETBACK:	40
SIDE SETBACK:	20
REAR SETBACK:	40
MAX. BLDG. HEIGHT	35
MAX. STORIES	2.5
MAX BLDG. AREA:	20%
MIN OPEN SPACE:	50%

PARKING SPACE CALCS.

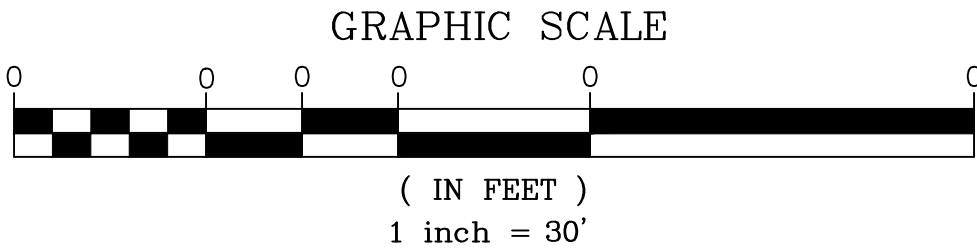
USE	# OF SPACES REQUIRED
MARINA	0.9 SPACES PER SLIP
RESTAURANT	1 SPACE PER 4 SEATS
MARINA	
95 SLIPS	
# OF SPACES REQUIRED =	86
RESTAURANT	
180 SEATS	
# OF SPACES REQUIRED =	45
TOTAL # OF SPACES REQUIRED =	131
# OF SPACES PROVIDED =	119

OPEN SPACE CALCS.

EXISTING OPEN SPACE = 17,300 S.F.
PROPOSED OPEN SPACE = 18,882 S.F.
*ADDITIONAL 1,582 S.F. OPEN SPACE

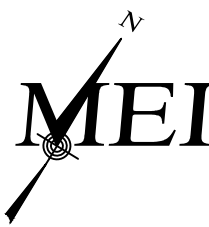


PROGRESS
PRINT



PREPARED FOR
14 MERRIMAC STREET, LLC
14 MERRIMAC STREET
AMESBURY, MA 01913

NO.	DATE	DESCRIPTION	BY



MILLENNIUM ENGINEERING, INC.
ENGINEERING AND LAND SURVEYING
62 ELM ST. SALISBURY, MA 01952 (978) 463-8980
13 HAMPTON RD. EXETER, NH 03833 (603) 778-0528

SCALE: 1"=30'	CALC. BY: S.R.C.	PROJECT: M214054
DATE: MAY 2, 2023	CHKD. BY: J.T.M.	

SITE PLAN
IN
AMESBURY, MA
AT
14 MERRIMAC STREET

SITE PLAN

SHEET: C-3

AUTOMATIC TRAFFIC RECORDER COUNT DATA



Location : Main Street

92210001

Location : East of Merrimac Street

City/State: Amesbury, MA

1/20/2022	EB,		Hour Totals		WB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		1		70		4		79		
12:15		2		55		2		90		
12:30		1		41		0		69		
12:45		1	5	41	4	73	10	311	15	518
1:00		0		47	3	88				
1:15		0		49	2	78				
1:30		0		45	3	64				
1:45		1	1	50	0	102	8	332	9	523
2:00		0		61	0	86				
2:15		0		49	1	92				
2:30		1		56	0	93				
2:45		0	1	66	0	100	1	371	2	603
3:00		1		53	1	129				
3:15		1		47	0	143				
3:30		0		57	1	134				
3:45		0	2	41	0	115	2	521	4	719
4:00		0		52	4	143				
4:15		2		49	1	122				
4:30		7		62	7	118				
4:45		9	18	41	4	91	16	474	34	678
5:00		5		62	2	147				
5:15		10		35	7	130				
5:30		17		51	17	93				
5:45		13	45	39	14	87	40	457	85	644
6:00		13		30	22	65				
6:15		28		29	18	62				
6:30		37		26	29	55				
6:45		53	131	25	52	56	121	238	252	348
7:00		51		30	38	55				
7:15		55		22	46	46				
7:30		62		12	60	37				
7:45		80	248	10	58	35	202	173	450	247
8:00		70		14	67	23				
8:15		70		12	83	17				
8:30		56		4	80	18				
8:45		59	255	7	52	23	282	81	537	118
9:00		42		7	58	32				
9:15		40		9	43	24				
9:30		50		12	38	21				
9:45		48	180	13	62	13	201	90	381	131
10:00		35		5	55	14				
10:15		35		1	43	12				
10:30		53		4	47	10				
10:45		45	168	4	55	6	200	42	368	56
11:00		45		2	64	10				
11:15		34		1	65	13				
11:30		45		4	74	2				
11:45		60	184	3	77	5	280	30	464	40
Total	1238	1505			1363	3120			2601	4625
Percent	45.1%	54.9%			30.4%	69.6%			36.0%	64.0%

Location : Main Street

92210001

Location : East of Merrimac Street

City/State: Amesbury, MA

1/21/2022	EB,		Hour Totals		WB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		1		67		4		81		
12:15		3		51		4		74		
12:30		1		46		1		105		
12:45		0	5	45	1	96	10	356	15	565
1:00		1		53	3	93				
1:15		1		45	2	90				
1:30		0		57	1	78				
1:45		3	5	40	2	109	8	370	13	565
2:00		0		58	0	87				
2:15		0		63	2	81				
2:30		0		62	2	121				
2:45		0	0	65	2	111	6	400	6	648
3:00		3		58	3	122				
3:15		0		48	0	121				
3:30		2		51	1	135				
3:45		0	5	61	0	156	4	534	9	752
4:00		2		52	8	114				
4:15		3		48	1	108				
4:30		4		55	3	134				
4:45		7	16	61	1	102	13	458	29	674
5:00		14		46	4	118				
5:15		11		41	5	124				
5:30		21		39	6	85				
5:45		11	57	42	14	99	29	426	86	594
6:00		20		36	24	79				
6:15		32		38	16	54				
6:30		38		38	29	58				
6:45		49	139	32	53	60	122	251	261	395
7:00		55		25	49	51				
7:15		67		17	76	58				
7:30		64		17	49	41				
7:45		83	269	18	73	38	247	188	516	265
8:00		73		16	65	41				
8:15		63		8	79	35				
8:30		77		16	70	30				
8:45		52	265	10	77	30	291	136	556	186
9:00		50		6	64	39				
9:15		48		9	65	39				
9:30		59		3	56	13				
9:45		38	195	10	68	20	253	111	448	139
10:00		58		8	66	16				
10:15		45		7	79	14				
10:30		49		7	74	30				
10:45		60	212	6	68	17	287	77	499	105
11:00		45		8	64	18				
11:15		36		10	76	19				
11:30		54		3	78	6				
11:45		73	208	9	74	11	292	54	500	84
Total	1376	1611			1562	3361			2938	4972
Percent	46.1%	53.9%			31.7%	68.3%			37.1%	62.9%

Location : Main Street

92210001

Location : East of Merrimac Street

City/State: Amesbury, MA

1/22/2022	EB,		Hour Totals		WB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	3	50			9	95				
12:15	2	68			5	74				
12:30	3	68			5	102				
12:45	1	47	9	233	4	72	23	343	32	576
1:00	3	58			3	90				
1:15	0	49			0	84				
1:30	0	49			2	84				
1:45	0	46	3	202	0	101	5	359	8	561
2:00	2	33			1	91				
2:15	1	50			1	78				
2:30	0	46			3	70				
2:45	0	52	3	181	1	88	6	327	9	508
3:00	0	51			1	72				
3:15	0	48			0	92				
3:30	1	51			1	87				
3:45	0	44	1	194	0	78	2	329	3	523
4:00	1	49			0	83				
4:15	0	36			2	86				
4:30	2	38			1	63				
4:45	2	41	5	164	2	60	5	292	10	456
5:00	5	30			2	56				
5:15	5	31			2	59				
5:30	10	35			3	42				
5:45	5	29	25	125	3	84	10	241	35	366
6:00	4	34			3	44				
6:15	12	31			2	38				
6:30	20	19			8	35				
6:45	13	22	49	106	14	38	27	155	76	261
7:00	19	24			16	42				
7:15	21	25			7	52				
7:30	32	17			30	30				
7:45	27	16	99	82	33	30	86	154	185	236
8:00	33	8			24	22				
8:15	21	14			48	27				
8:30	32	14			41	18				
8:45	36	10	122	46	57	21	170	88	292	134
9:00	32	10			74	31				
9:15	39	9			51	26				
9:30	39	9			56	25				
9:45	42	12	152	40	71	34	252	116	404	156
10:00	55	4			74	23				
10:15	43	6			73	9				
10:30	64	3			77	19				
10:45	50	5	212	18	90	20	314	71	526	89
11:00	56	10			108	25				
11:15	42	5			81	16				
11:30	71	3			90	18				
11:45	65	6	234	24	83	7	362	66	596	90
Total	914	1415			1262	2541			2176	3956
Percent	39.2%	60.8%			33.2%	66.8%			35.5%	64.5%
Grand Total	3528	4531			4187	9022			7715	13553
Percent	43.8%	56.2%			31.7%	68.3%			36.3%	63.7%
ADT	ADT: 7,568		AADT: 7,568							

Location : Merrimac Street
 Location : South of Main Street
 City/State: Amesbury, MA

9221

1/20/2022	NB,		Hour Totals		SB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		1		19		0		37		
12:15		0		15		1		36		
12:30		0		20		0		30		
12:45		0		15	1	69	2	34	3	137
1:00		0		21		1		36	4	206
1:15		0		20		1		32		
1:30		0		18		0		28		
1:45		0		24	0	83	0	30	2	126
2:00		0		33		0		30	2	209
2:15		0		24		1		31		
2:30		1		16		0		26		
2:45		0		22	1	95	0	33	1	120
3:00		0		22		1		54	2	215
3:15		1		17		1		49		
3:30		1		18		0		55		
3:45		0		32	2	89	1	42	3	200
4:00		0		15		1		50	5	289
4:15		1		25		0		38		
4:30		1		34		4		30		
4:45		2		14	4	88	4	35	9	153
5:00		0		23		1		54	13	241
5:15		0		16		4		54		
5:30		6		33		7		37		
5:45		4		22	10	94	5	46	17	191
6:00		6		10		13		32	27	285
6:15		8		11		9		29		
6:30		14		18		14		22		
6:45		17		16	45	55	27	18	63	101
7:00		21		15		19		12	108	61
7:15		18		10		24		23	187	97
7:30		21		4		26		11		
7:45		19		7	79	36	39	15	108	61
8:00		26		2		25		15		
8:15		28		6		29		14		
8:30		25		3		28		10		
8:45		17		2	96	13	24	9	106	48
9:00		16		3		24		12	202	61
9:15		17		4		25		10		
9:30		16		5		21		7		
9:45		21		3	70	15	32	3	102	32
10:00		16		1		14		5	172	47
10:15		13		0		21		2		
10:30		18		1		23		6		
10:45		20		0	67	2	26	3	84	16
11:00		30		0		18		2	151	18
11:15		24		0		28		5		
11:30		17		1		29		2		
11:45		31		0	102	1	28	1	103	10
Total		477		640		601		1195	1078	1835
Percent		42.7%		57.3%		33.5%		66.5%	37.0%	63.0%

9221

1/21/2022	NB,		Hour Totals		SB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	1	27			0	37				
12:15	1	22			1	34				
12:30	0	22			0	33				
12:45	0	23	2	94	1	38	2	142	4	236
1:00	0	19			2	35				
1:15	0	19			1	23				
1:30	0	17			1	30				
1:45	0	21	0	76	0	37	4	125	4	201
2:00	0	21			0	37				
2:15	0	26			2	28				
2:30	0	24			0	23				
2:45	0	31	0	102	1	40	3	128	3	230
3:00	2	26			1	39				
3:15	1	12			0	60				
3:30	0	20			0	43				
3:45	0	22	3	80	0	46	1	188	4	268
4:00	1	24			1	40				
4:15	1	28			0	39				
4:30	1	23			2	41				
4:45	0	27	3	102	2	35	5	155	8	257
5:00	1	28			2	42				
5:15	3	15			1	40				
5:30	7	12			6	36				
5:45	5	21	16	76	9	29	18	147	34	223
6:00	7	15			16	40				
6:15	5	16			11	14				
6:30	19	19			10	19				
6:45	17	6	48	56	24	24	61	97	109	153
7:00	21	12			23	15				
7:15	24	8			24	19				
7:30	18	4			19	10				
7:45	26	11	89	35	32	18	98	62	187	97
8:00	26	1			28	14				
8:15	19	3			21	8				
8:30	23	4			24	7				
8:45	21	6	89	14	23	12	96	41	185	55
9:00	16	0			25	10				
9:15	20	2			35	14				
9:30	22	1			16	10				
9:45	14	1	72	4	24	7	100	41	172	45
10:00	28	0			26	8				
10:15	19	0			18	5				
10:30	18	2			22	7				
10:45	24	5	89	7	32	6	98	26	187	33
11:00	19	4			31	11				
11:15	21	3			21	4				
11:30	24	0			20	3				
11:45	33	6	97	13	29	6	101	24	198	37
Total	508	659			587	1176			1095	1835
Percent	43.5%	56.5%			33.3%	66.7%			37.4%	62.6%

Location : Merrimac Street
 Location : South of Main Street
 City/State: Amesbury, MA

9221

1/22/2022	NB,		Hour Totals		SB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	1	32			7	34				
12:15	1	35			3	30				
12:30	2	35			3	26				
12:45	1	14	5	116	3	41	16	131	21	247
1:00	0	33			1	37				
1:15	0	28			2	30				
1:30	0	30			0	29				
1:45	0	22	0	113	0	33	3	129	3	242
2:00	1	22			0	32				
2:15	0	22			0	36				
2:30	0	20			2	24				
2:45	0	28	1	92	1	40	3	132	4	224
3:00	1	20			0	39				
3:15	0	28			0	35				
3:30	0	18			0	41				
3:45	0	22	1	88	0	43	0	158	1	246
4:00	0	25			0	28				
4:15	0	16			0	33				
4:30	1	23			1	23				
4:45	1	24	2	88	2	38	3	122	5	210
5:00	0	13			0	30				
5:15	1	13			1	17				
5:30	2	20			1	23				
5:45	1	16	4	62	1	19	3	89	7	151
6:00	1	11			2	32				
6:15	4	16			1	22				
6:30	4	6			4	8				
6:45	6	13	15	46	8	12	15	74	30	120
7:00	5	11			5	13				
7:15	4	5			5	18				
7:30	13	9			9	12				
7:45	7	7	29	32	9	17	28	60	57	92
8:00	12	1			9	6				
8:15	5	3			22	7				
8:30	15	5			14	8				
8:45	20	1	52	10	20	4	65	25	117	35
9:00	13	5			24	9				
9:15	19	2			18	10				
9:30	14	2			25	5				
9:45	19	5	65	14	22	7	89	31	154	45
10:00	19	0			22	3				
10:15	16	3			29	6				
10:30	25	1			33	7				
10:45	27	2	87	6	25	8	109	24	196	30
11:00	28	5			32	10				
11:15	18	2			31	3				
11:30	27	3			23	8				
11:45	26	0	99	10	21	1	107	22	206	32
Total	360	677			441	997			801	1674
Percent	34.7%	65.3%			30.7%	69.3%			32.4%	67.6%
Grand Total	1345	1976			1629	3368			2974	5344
Percent	40.5%	59.5%			32.6%	67.4%			35.8%	64.2%
ADT	ADT: 2,773		AADT: 2,773							

9221

[illegible]

TURNING MOVEMENT COUNT DATA



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 1

Groups Printed- Cars - Trucks

	Main St From North		Main St From South		Merrimac St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	34	2	16	23	2	18	95
07:15 AM	48	4	19	21	6	13	111
07:30 AM	55	4	22	28	6	14	129
07:45 AM	74	10	28	28	2	17	159
Total	211	20	85	100	16	62	494
08:00 AM	51	4	21	34	3	22	135
08:15 AM	50	2	27	40	4	23	146
08:30 AM	36	7	25	36	5	20	129
08:45 AM	52	5	18	31	3	15	124
Total	189	18	91	141	15	80	534
Grand Total	400	38	176	241	31	142	1028
Apprch %	91.3	8.7	42.2	57.8	17.9	82.1	
Total %	38.9	3.7	17.1	23.4	3	13.8	
Cars	398	33	176	241	26	142	1016
% Cars	99.5	86.8	100	100	83.9	100	98.8
Trucks	2	5	0	0	5	0	12
% Trucks	0.5	13.2	0	0	16.1	0	1.2

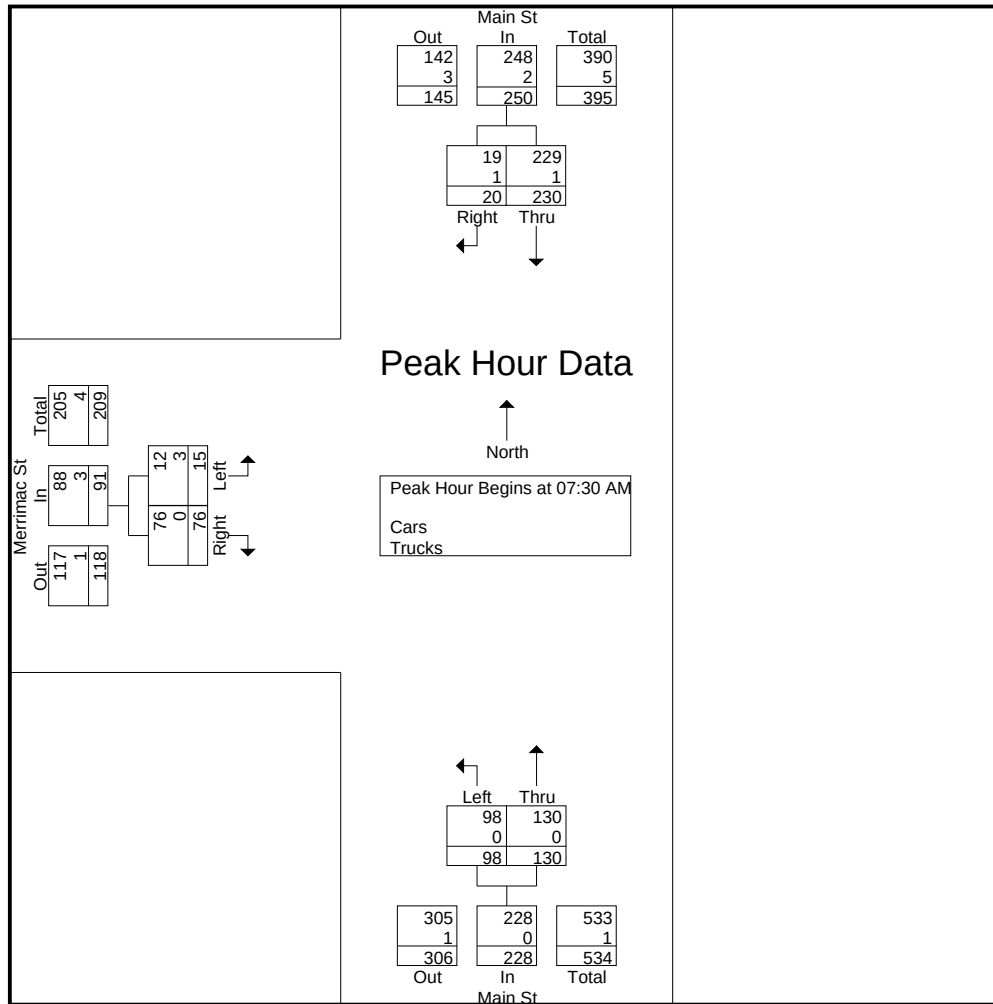
	Main St From North			Main St From South			Merrimac St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	55	4	59	22	28	50	6	14	20	129
07:45 AM	74	10	84	28	28	56	2	17	19	159
08:00 AM	51	4	55	21	34	55	3	22	25	135
08:15 AM	50	2	52	27	40	67	4	23	27	146
Total Volume	230	20	250	98	130	228	15	76	91	569
% App. Total	92	8		43	57		16.5	83.5		
PHF	.777	.500	.744	.875	.813	.851	.625	.826	.843	.895
Cars	229	19	248	98	130	228	12	76	88	564
% Cars	99.6	95.0	99.2	100	100	100	80.0	100	96.7	99.1
Trucks	1	1	2	0	0	0	3	0	3	5
% Trucks	0.4	5.0	0.8	0	0	0	20.0	0	3.3	0.9

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 2



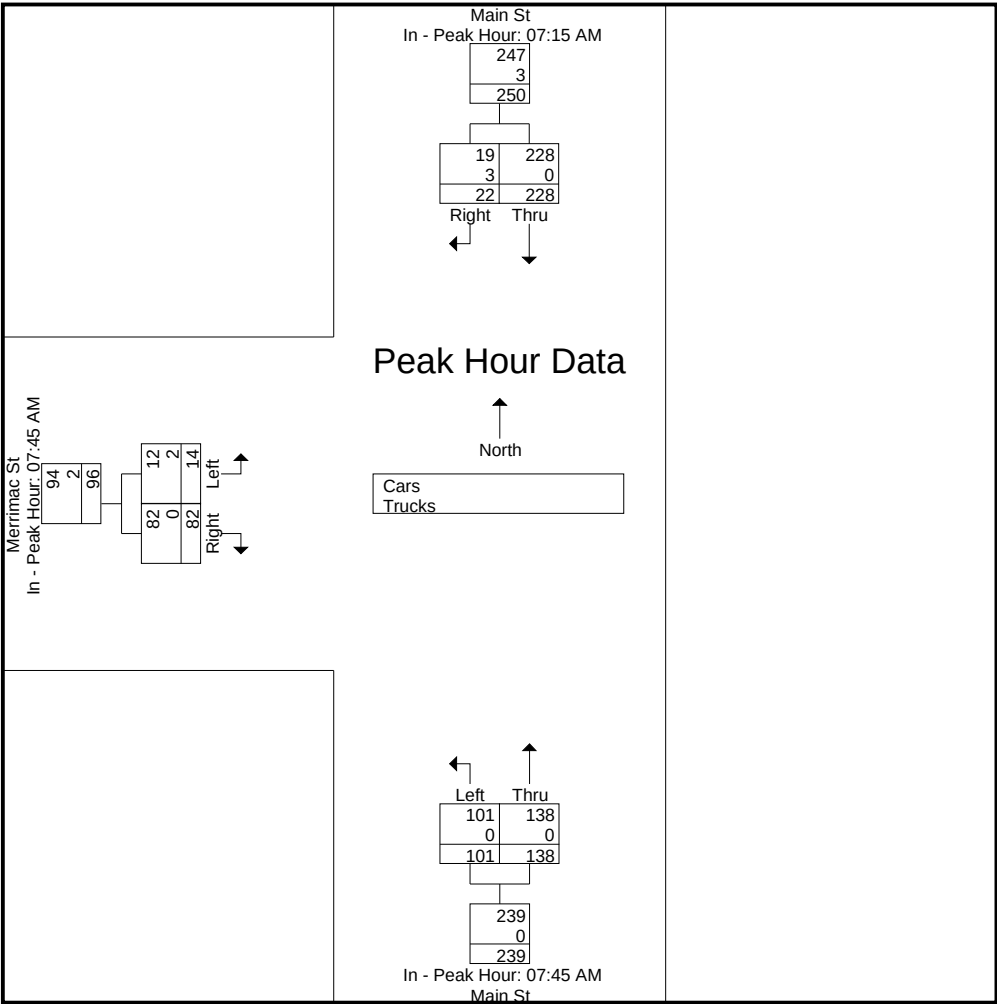
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:15 AM			07:45 AM			07:45 AM		
+0 mins.	48	4	52	28	28	56	2	17	19
+15 mins.	55	4	59	21	34	55	3	22	25
+30 mins.	74	10	84	27	40	67	4	23	27
+45 mins.	51	4	55	25	36	61	5	20	25
Total Volume	228	22	250	101	138	239	14	82	96
% App. Total	91.2	8.8		42.3	57.7		14.6	85.4	
PHF	.770	.550	.744	.902	.863	.892	.700	.891	.889
Cars	228	19	247	101	138	239	12	82	94
% Cars	100	86.4	98.8	100	100	100	85.7	100	97.9
Trucks	0	3	3	0	0	0	2	0	2
% Trucks	0	13.6	1.2	0	0	0	14.3	0	2.1

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 4

Groups Printed- Cars

	Main St From North		Main St From South		Merrimac St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	34	1	16	23	2	18	94
07:15 AM	48	2	19	21	5	13	108
07:30 AM	55	3	22	28	4	14	126
07:45 AM	74	10	28	28	2	17	159
Total	211	16	85	100	13	62	487
08:00 AM	51	4	21	34	3	22	135
08:15 AM	49	2	27	40	3	23	144
08:30 AM	36	6	25	36	4	20	127
08:45 AM	51	5	18	31	3	15	123
Total	187	17	91	141	13	80	529
Grand Total	398	33	176	241	26	142	1016
Apprch %	92.3	7.7	42.2	57.8	15.5	84.5	
Total %	39.2	3.2	17.3	23.7	2.6	14	

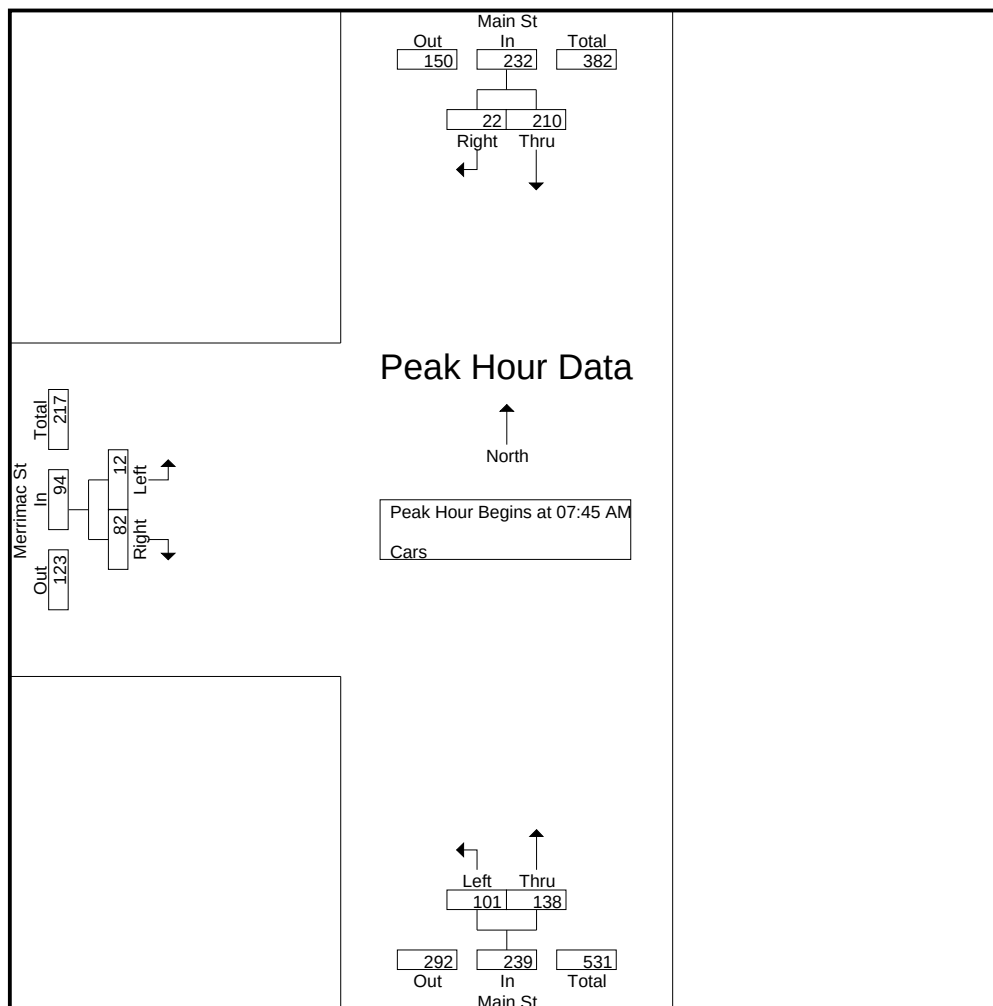
	Main St From North			Main St From South			Merrimac St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	74	10	84	28	28	56	2	17	19	159
08:00 AM	51	4	55	21	34	55	3	22	25	135
08:15 AM	49	2	51	27	40	67	3	23	26	144
08:30 AM	36	6	42	25	36	61	4	20	24	127
Total Volume	210	22	232	101	138	239	12	82	94	565
% App. Total	90.5	9.5		42.3	57.7		12.8	87.2		
PHF	.709	.550	.690	.902	.863	.892	.750	.891	.904	.888

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 5



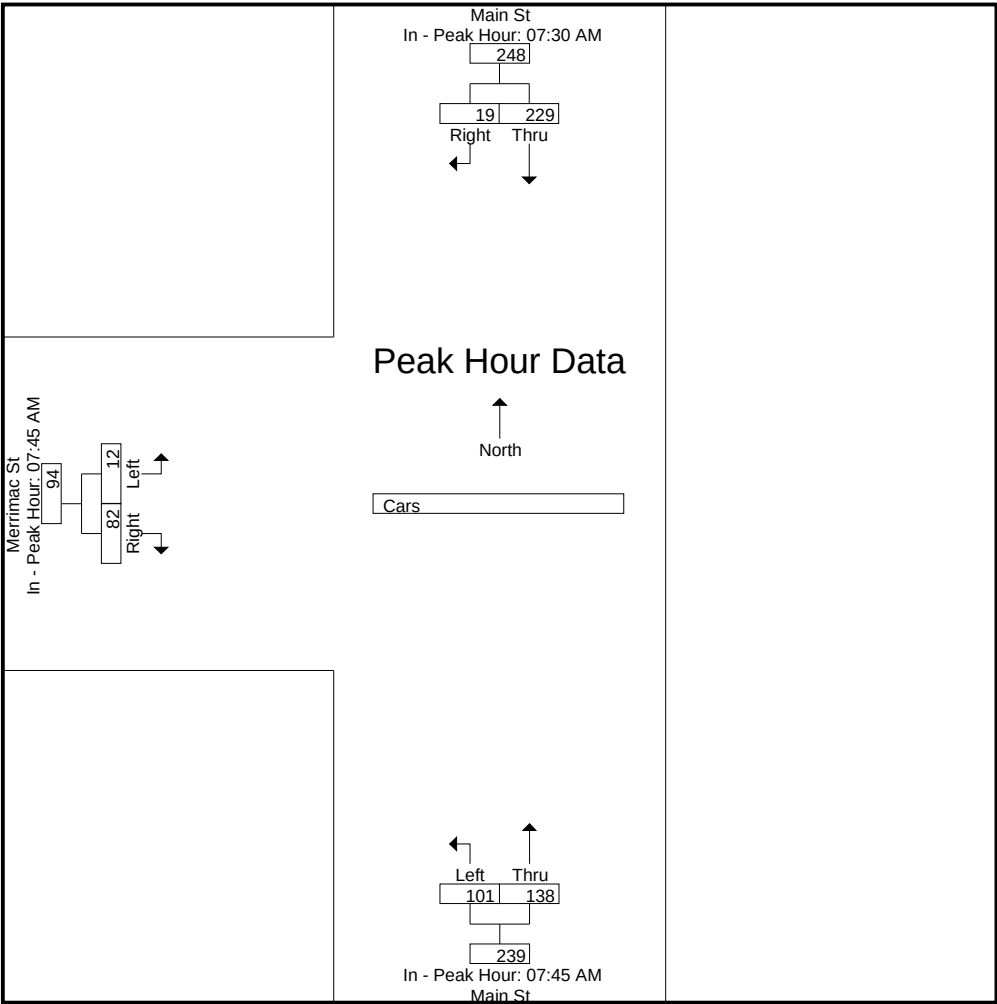
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM			07:45 AM			07:45 AM		
+0 mins.	55	3	58	28	28	56	2	17	19
+15 mins.	74	10	84	21	34	55	3	22	25
+30 mins.	51	4	55	27	40	67	3	23	26
+45 mins.	49	2	51	25	36	61	4	20	24
Total Volume	229	19	248	101	138	239	12	82	94
% App. Total	92.3	7.7		42.3	57.7		12.8	87.2	
PHF	.774	.475	.738	.902	.863	.892	.750	.891	.904

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 7

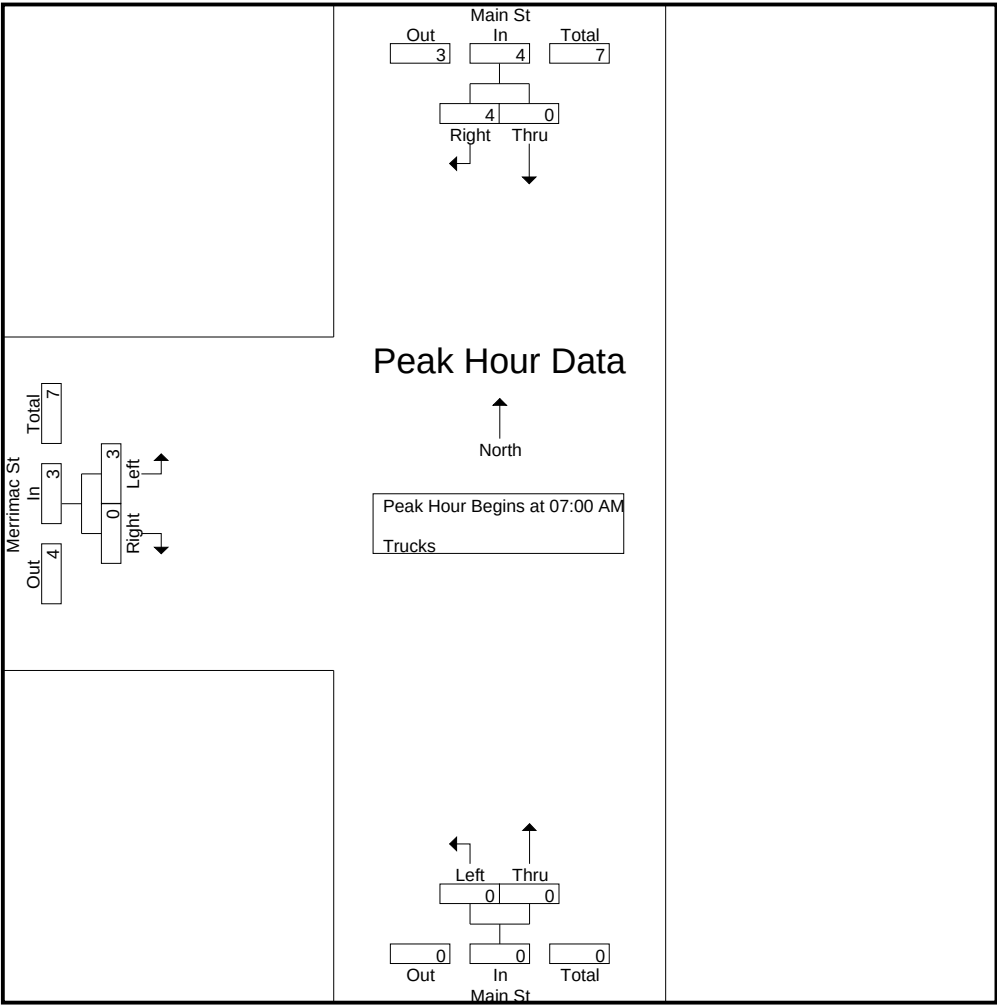
Groups Printed- Trucks

	Main St From North		Main St From South		Merrimac St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	0	1	0	0	0	0	1
07:15 AM	0	2	0	0	1	0	3
07:30 AM	0	1	0	0	2	0	3
07:45 AM	0	0	0	0	0	0	0
Total	0	4	0	0	3	0	7
08:00 AM	0	0	0	0	0	0	0
08:15 AM	1	0	0	0	1	0	2
08:30 AM	0	1	0	0	1	0	2
08:45 AM	1	0	0	0	0	0	1
Total	2	1	0	0	2	0	5
Grand Total	2	5	0	0	5	0	12
Apprch %	28.6	71.4	0	0	100	0	
Total %	16.7	41.7	0	0	41.7	0	

	Main St From North			Main St From South			Merrimac St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	1	1	0	0	0	0	0	0	1
07:15 AM	0	2	2	0	0	0	1	0	1	3
07:30 AM	0	1	1	0	0	0	2	0	2	3
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	4	4	0	0	0	3	0	3	7
% App. Total	0	100		0	0		100	0		
PHF	.000	.500	.500	.000	.000	.000	.375	.000	.375	.583

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 8

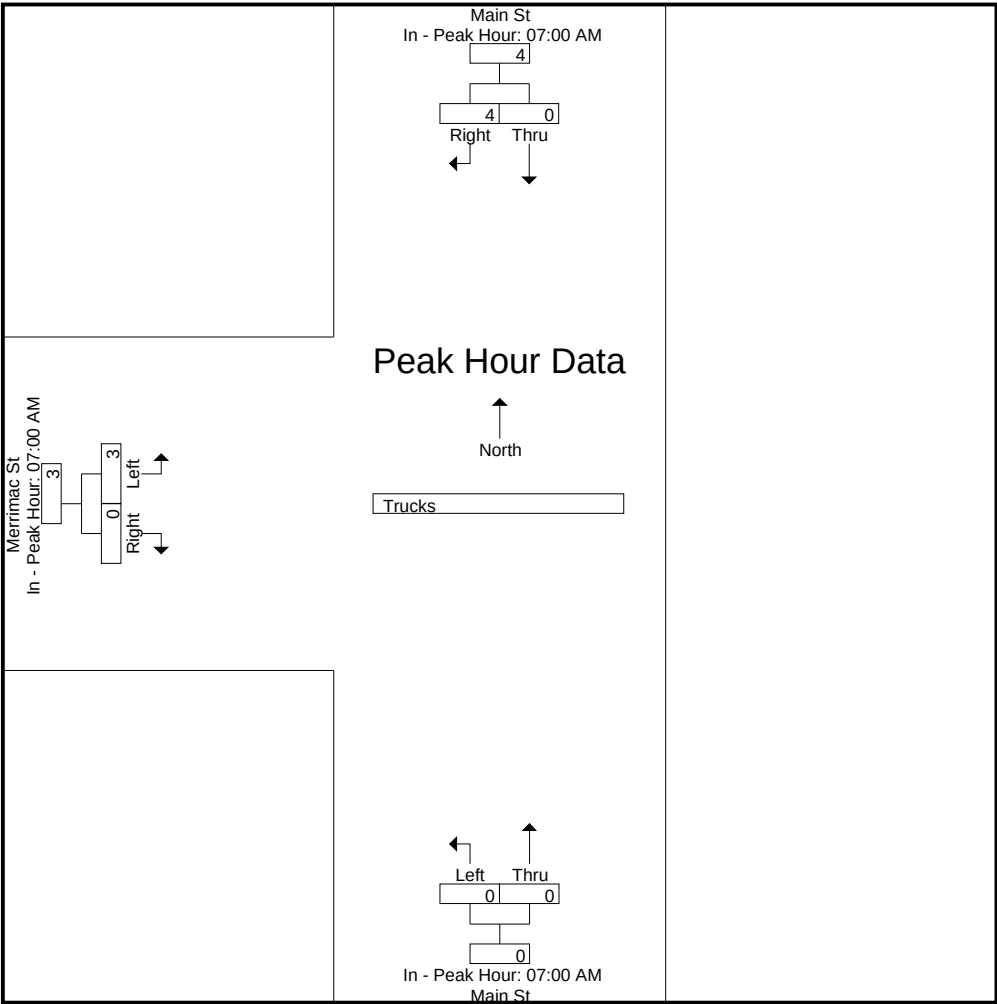


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	1	1	0	0	0	0	0	0
+15 mins.	0	2	2	0	0	0	1	0	1
+30 mins.	0	1	1	0	0	0	2	0	2
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	4	4	0	0	0	3	0	3
% App. Total	0	100		0	0		100	0	
PHF	.000	.500	.500	.000	.000	.000	.375	.000	.375

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 9



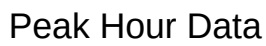
978-664-2565

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 10

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978-664-2565

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 11



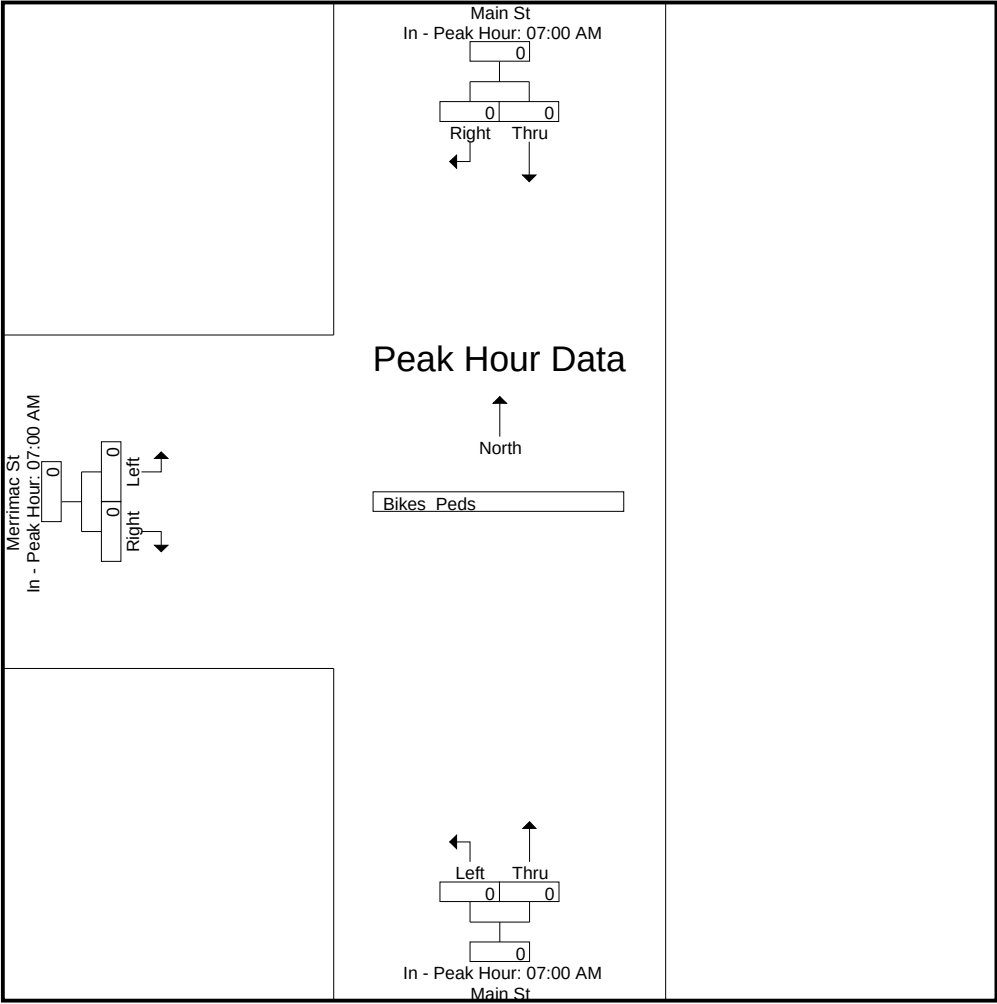
Bikes	Peds
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
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83	83
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87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Peak Hour for Each Approach Begins at:

[illegible]

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 12



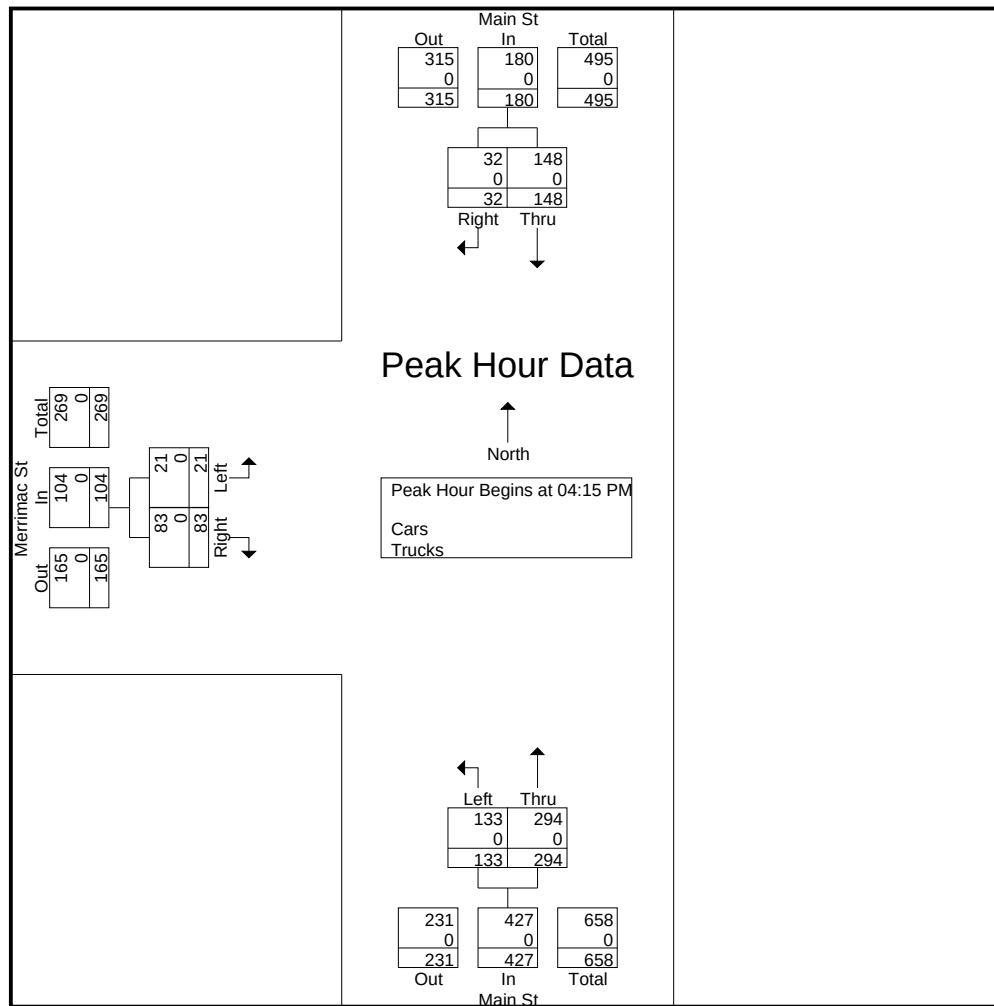
978-664-2565

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 1

978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 2



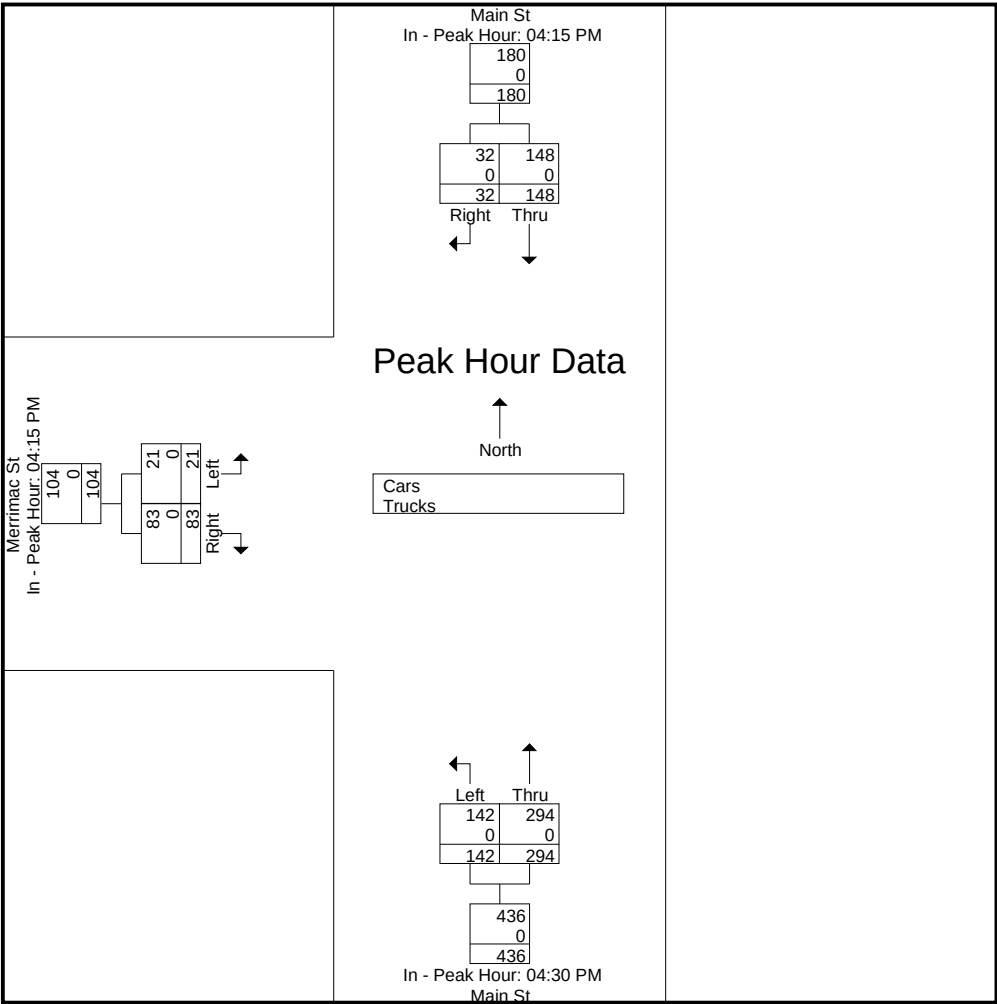
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

[illegible]

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 4

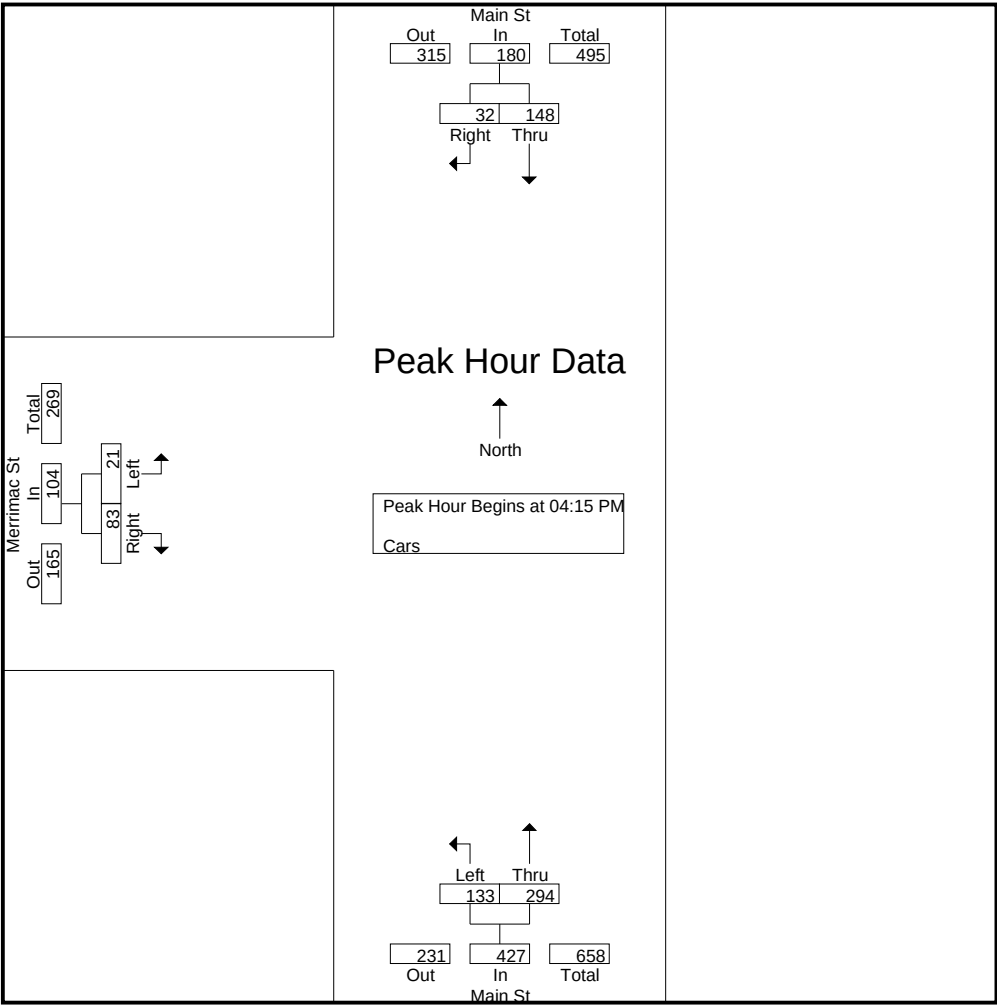
Groups Printed- Cars

	Main St From North		Main St From South		Merrimac St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
04:00 PM	42	7	40	76	6	11	182
04:15 PM	34	6	37	68	10	17	172
04:30 PM	40	8	23	79	6	28	184
04:45 PM	27	9	26	62	2	15	141
Total	143	30	126	285	24	71	679
05:00 PM	47	9	47	85	3	23	214
05:15 PM	24	10	46	68	6	12	166
05:30 PM	31	8	29	47	8	23	146
05:45 PM	27	12	35	48	8	13	143
Total	129	39	157	248	25	71	669
Grand Total	272	69	283	533	49	142	1348
Apprch %	79.8	20.2	34.7	65.3	25.7	74.3	
Total %	20.2	5.1	21	39.5	3.6	10.5	

	Main St From North			Main St From South			Merrimac St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	34	6	40	37	68	105	10	17	27	172
04:30 PM	40	8	48	23	79	102	6	28	34	184
04:45 PM	27	9	36	26	62	88	2	15	17	141
05:00 PM	47	9	56	47	85	132	3	23	26	214
Total Volume	148	32	180	133	294	427	21	83	104	711
% App. Total	82.2	17.8		31.1	68.9		20.2	79.8		
PHF	.787	.889	.804	.707	.865	.809	.525	.741	.765	.831

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 5

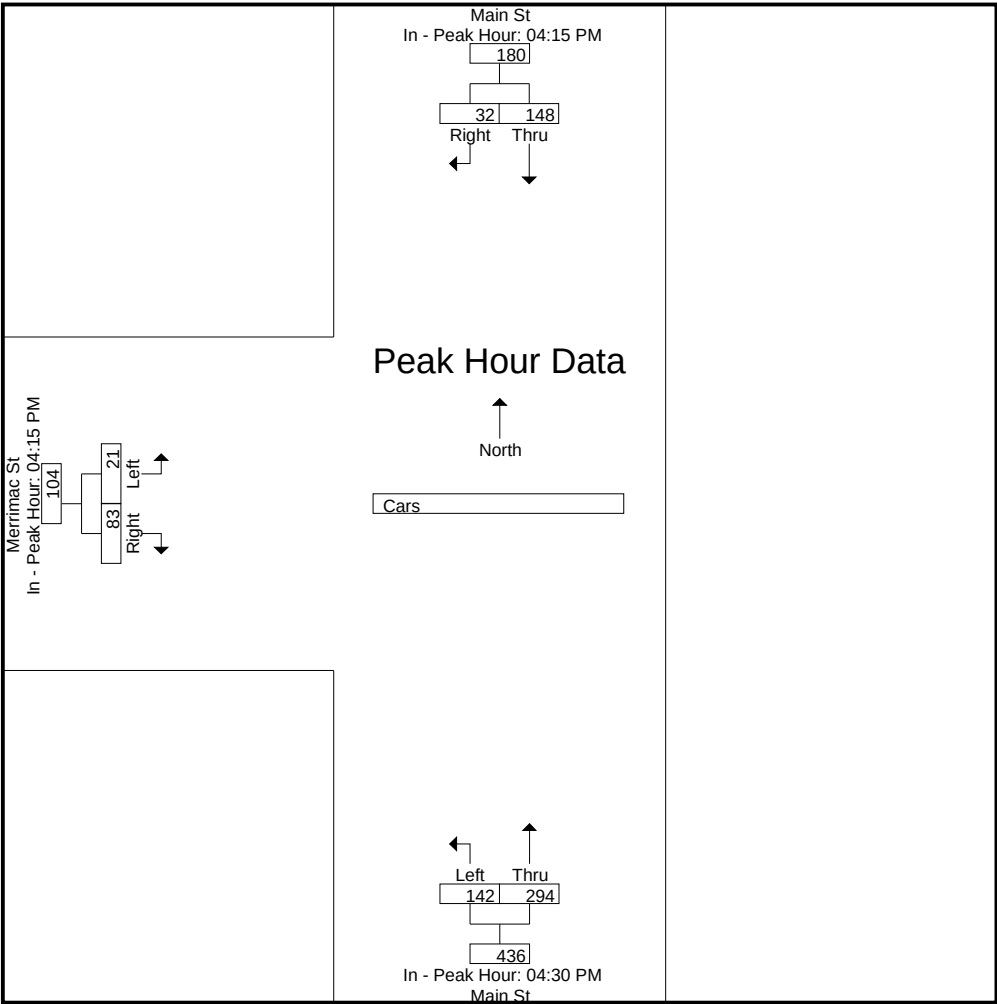


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:30 PM			04:15 PM		
+0 mins.	34	6	40	23	79	102	10	17	27
+15 mins.	40	8	48	26	62	88	6	28	34
+30 mins.	27	9	36	47	85	132	2	15	17
+45 mins.	47	9	56	46	68	114	3	23	26
Total Volume	148	32	180	142	294	436	21	83	104
% App. Total	82.2	17.8		32.6	67.4		20.2	79.8	
PHF	.787	.889	.804	.755	.865	.826	.525	.741	.765

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 6



978-664-2565

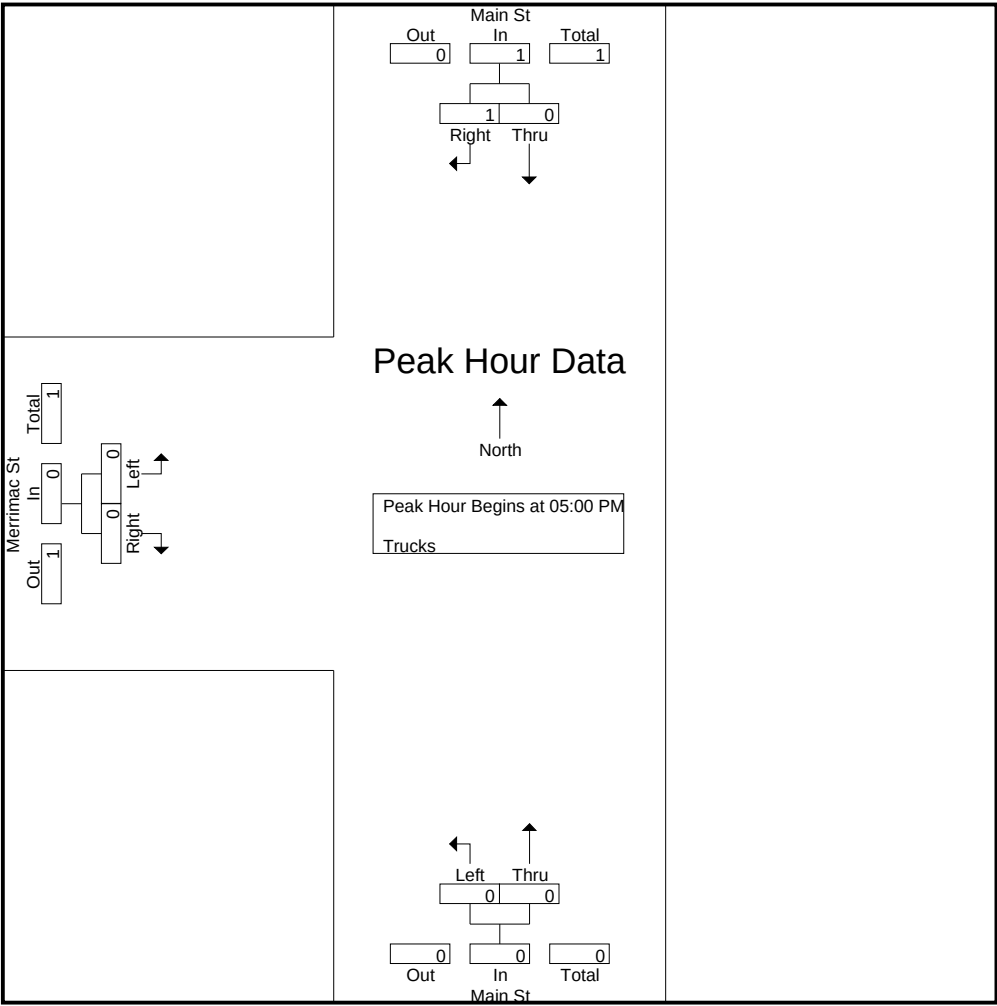
File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 7

		Group 1 - Main St - 1 Lane						
		Main St From North		Main St From South		Merrimac St From West		
	Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
	04:00 PM	0	0	0	0	0	0	0
	04:15 PM	0	0	0	0	0	0	0
	04:30 PM	0	0	0	0	0	0	0
	04:45 PM	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0
	05:00 PM	0	0	0	0	0	0	0
	05:15 PM	0	0	0	0	0	0	0
	05:30 PM	0	0	0	0	0	0	0
	05:45 PM	0	1	0	0	0	0	1
	Total	0	1	0	0	0	0	1
	Grand Total	0	1	0	0	0	0	1
	Apprch %	0	100	0	0	0	0	
	Total %	0	100	0	0	0	0	

[illegible]

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 8

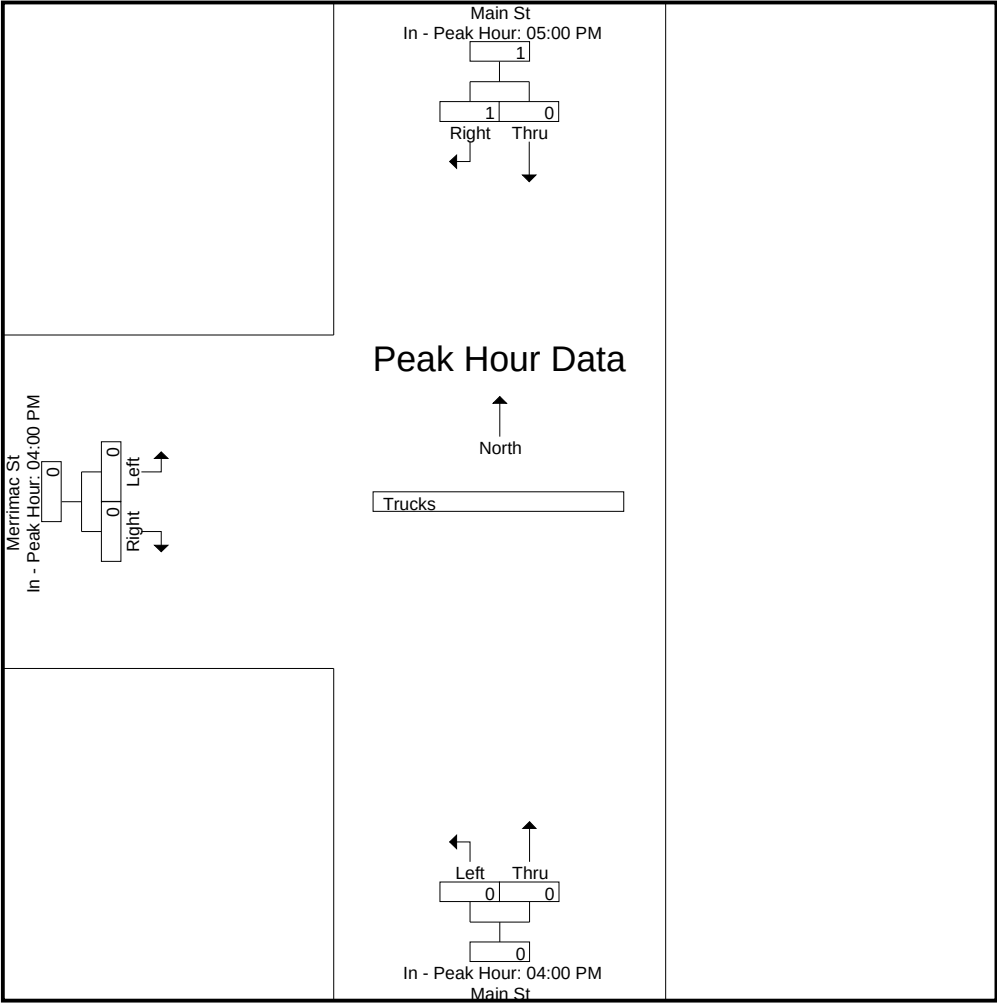


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	1	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	0	0	0
% App. Total	0	100		0	0		0	0	
PHF	.000	.250	.250	.000	.000	.000	.000	.000	.000

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 9



978-664-2565

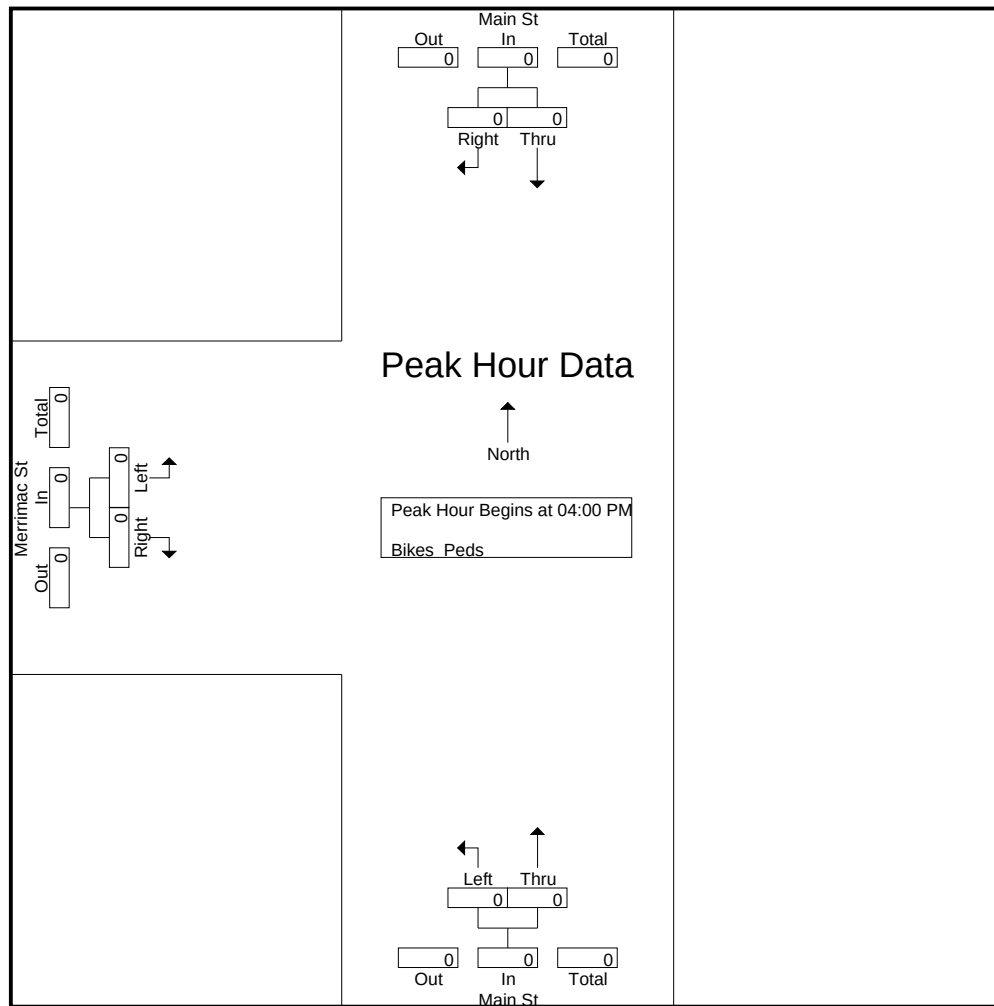
File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 10

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978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 11



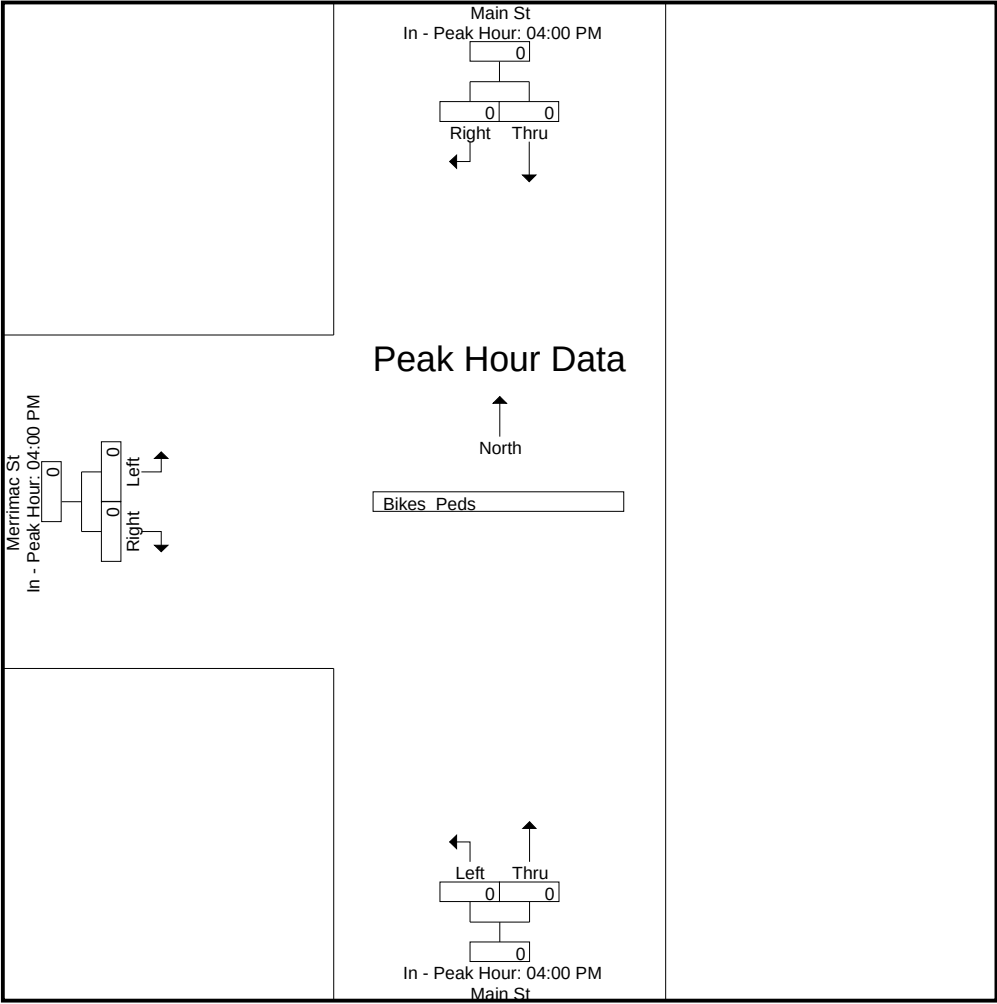
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

[illegible]

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210001
Site Code : 92210001
Start Date : 1/20/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 1

Groups Printed- Cars - Trucks

	Main St From North		Main St From South		Merrimac St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
11:00 AM	38	9	25	54	6	21	153
11:15 AM	29	8	23	40	5	14	119
11:30 AM	49	7	15	46	9	20	146
11:45 AM	45	5	15	49	6	22	142
Total	161	29	78	189	26	77	560
12:00 PM	29	7	31	42	9	19	137
12:15 PM	38	10	21	43	10	34	156
12:30 PM	41	8	19	58	7	30	163
12:45 PM	40	17	27	38	5	10	137
Total	148	42	98	181	31	93	593
01:00 PM	33	10	26	42	11	24	146
01:15 PM	32	6	26	46	9	21	140
01:30 PM	26	10	22	44	7	25	134
01:45 PM	26	8	27	48	1	22	132
Total	117	34	101	180	28	92	552
Grand Total	426	105	277	550	85	262	1705
Apprch %	80.2	19.8	33.5	66.5	24.5	75.5	
Total %	25	6.2	16.2	32.3	5	15.4	
Cars	426	101	276	550	83	262	1698
% Cars	100	96.2	99.6	100	97.6	100	99.6
Trucks	0	4	1	0	2	0	7
% Trucks	0	3.8	0.4	0	2.4	0	0.4

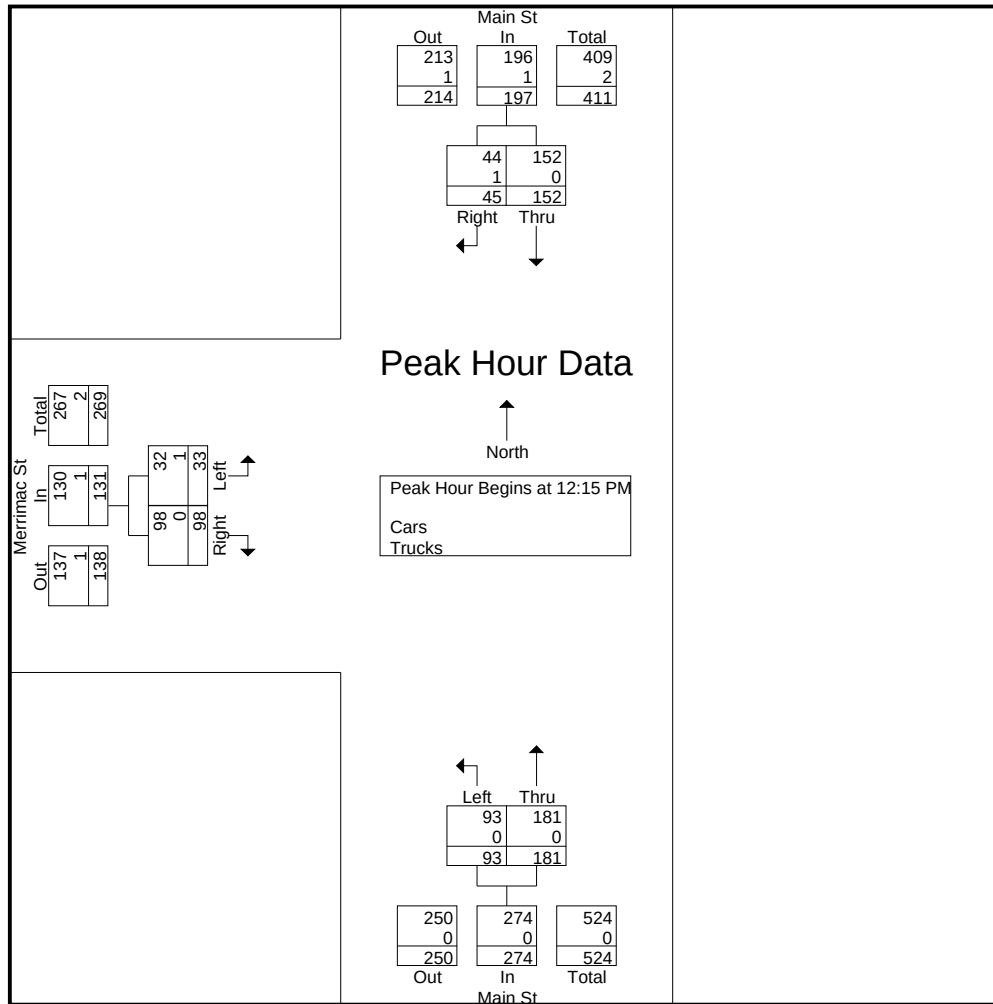
	Main St From North			Main St From South			Merrimac St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:15 PM										
12:15 PM	38	10	48	21	43	64	10	34	44	156
12:30 PM	41	8	49	19	58	77	7	30	37	163
12:45 PM	40	17	57	27	38	65	5	10	15	137
01:00 PM	33	10	43	26	42	68	11	24	35	146
Total Volume	152	45	197	93	181	274	33	98	131	602
% App. Total	77.2	22.8		33.9	66.1		25.2	74.8		
PHF	.927	.662	.864	.861	.780	.890	.750	.721	.744	.923
Cars	152	44	196	93	181	274	32	98	130	600
% Cars	100	97.8	99.5	100	100	100	97.0	100	99.2	99.7
Trucks	0	1	1	0	0	0	1	0	1	2
% Trucks	0	2.2	0.5	0	0	0	3.0	0	0.8	0.3

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 2



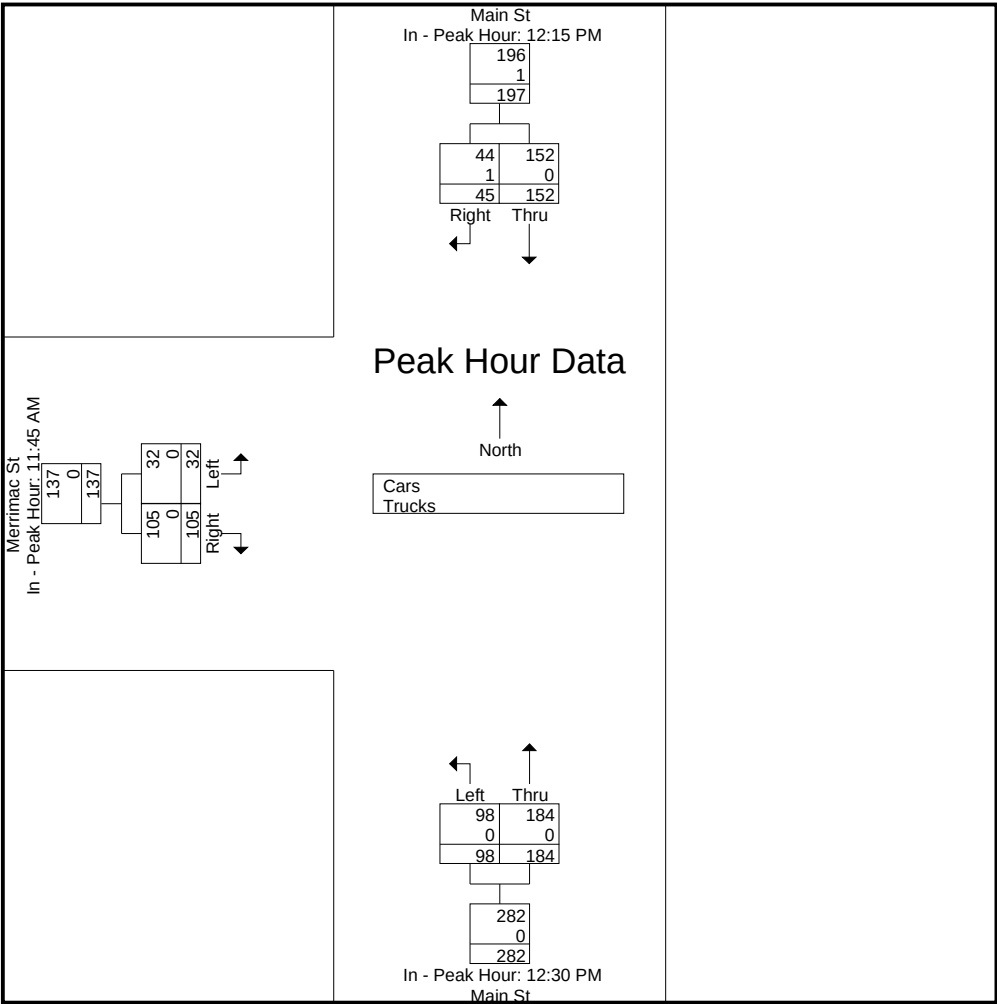
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	12:15 PM			12:30 PM			11:45 AM		
+0 mins.	38	10	48	19	58	77	6	22	28
+15 mins.	41	8	49	27	38	65	9	19	28
+30 mins.	40	17	57	26	42	68	10	34	44
+45 mins.	33	10	43	26	46	72	7	30	37
Total Volume	152	45	197	98	184	282	32	105	137
% App. Total	77.2	22.8		34.8	65.2		23.4	76.6	
PHF	.927	.662	.864	.907	.793	.916	.800	.772	.778
Cars	152	44	196	98	184	282	32	105	137
% Cars	100	97.8	99.5	100	100	100	100	100	100
Trucks	0	1	1	0	0	0	0	0	0
% Trucks	0	2.2	0.5	0	0	0	0	0	0

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 4

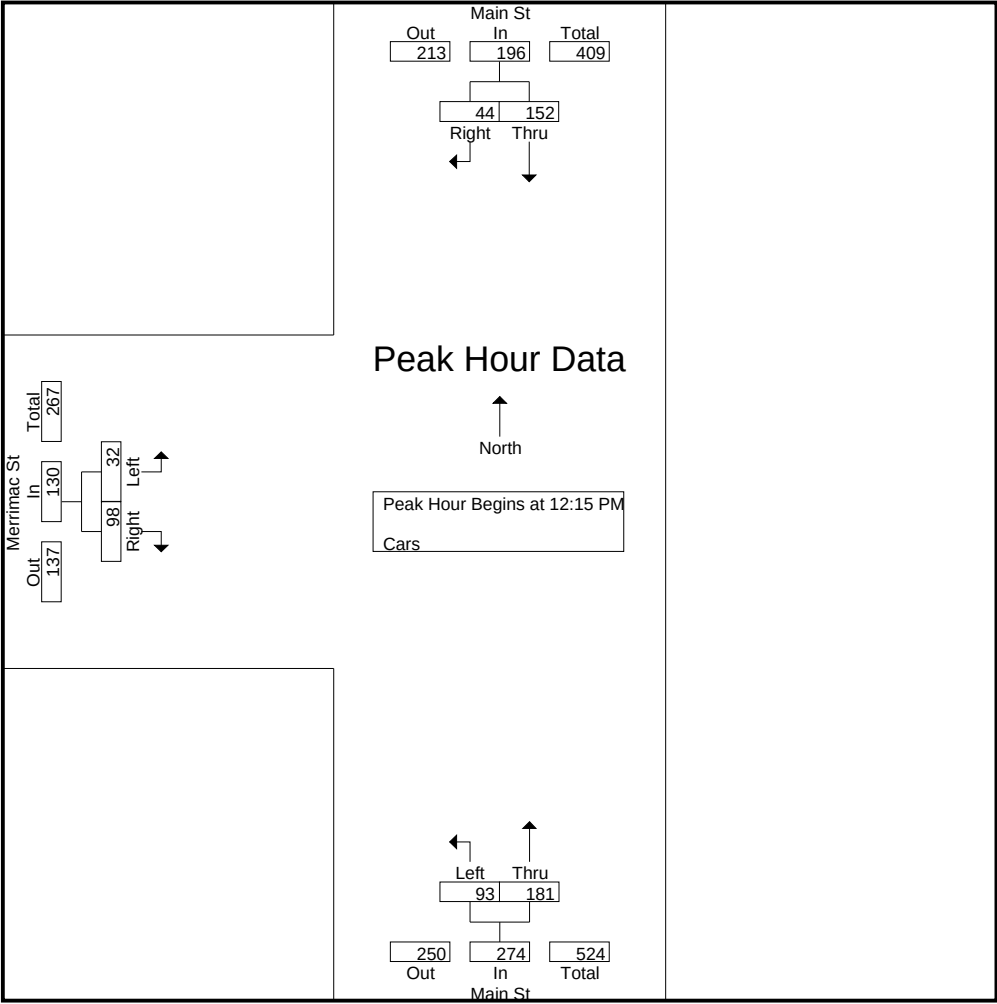
Groups Printed- Cars

Start Time	Main St From North		Main St From South		Merrimac St From West		Int. Total
	Thru	Right	Left	Thru	Left	Right	
11:00 AM	38	9	25	54	6	21	153
11:15 AM	29	7	22	40	5	14	117
11:30 AM	49	7	15	46	9	20	146
11:45 AM	45	4	15	49	6	22	141
Total	161	27	77	189	26	77	557
12:00 PM	29	7	31	42	9	19	137
12:15 PM	38	10	21	43	10	34	156
12:30 PM	41	8	19	58	7	30	163
12:45 PM	40	17	27	38	5	10	137
Total	148	42	98	181	31	93	593
01:00 PM	33	9	26	42	10	24	144
01:15 PM	32	6	26	46	9	21	140
01:30 PM	26	9	22	44	6	25	132
01:45 PM	26	8	27	48	1	22	132
Total	117	32	101	180	26	92	548
Grand Total	426	101	276	550	83	262	1698
Apprch %	80.8	19.2	33.4	66.6	24.1	75.9	
Total %	25.1	5.9	16.3	32.4	4.9	15.4	

	Main St From North			Main St From South			Merrimac St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:15 PM										
12:15 PM	38	10	48	21	43	64	10	34	44	156
12:30 PM	41	8	49	19	58	77	7	30	37	163
12:45 PM	40	17	57	27	38	65	5	10	15	137
01:00 PM	33	9	42	26	42	68	10	24	34	144
Total Volume	152	44	196	93	181	274	32	98	130	600
% App. Total	77.6	22.4		33.9	66.1		24.6	75.4		
PHF	.927	.647	.860	.861	.780	.890	.800	.721	.739	.920

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 5

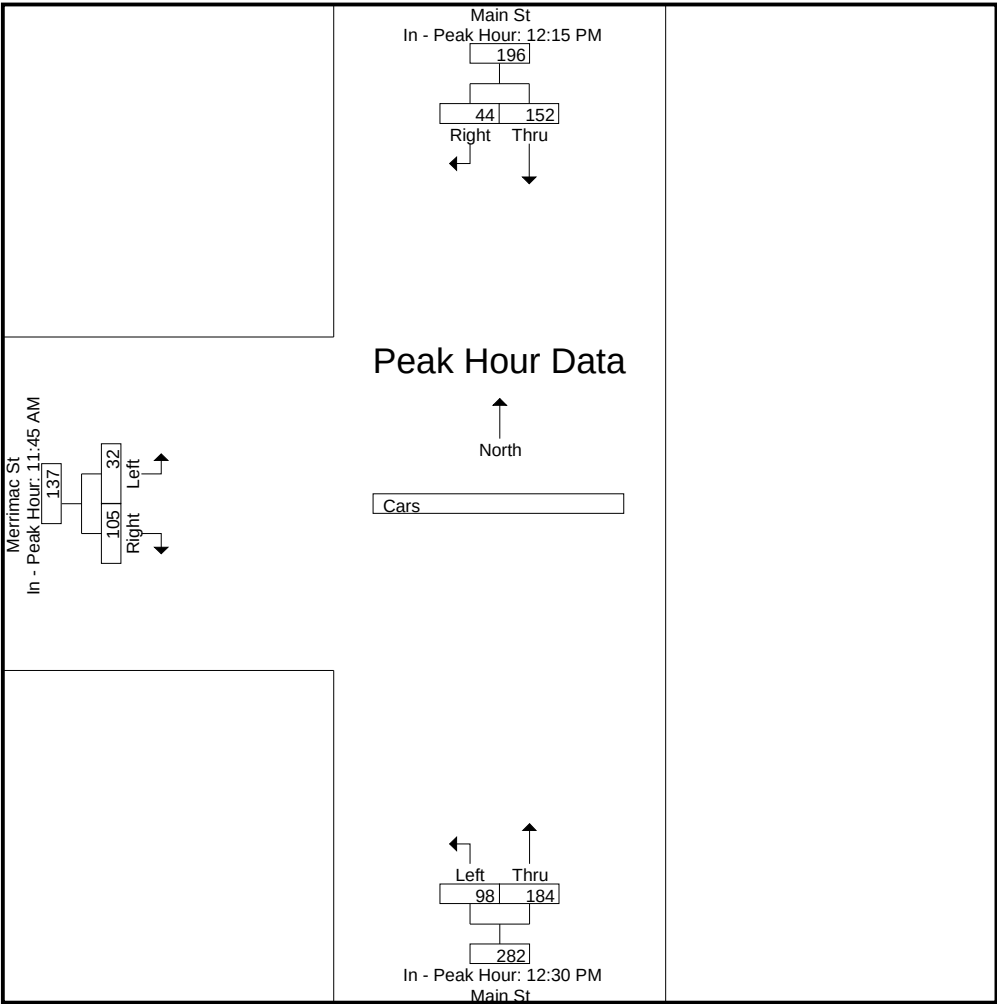


Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:15 PM			12:30 PM			11:45 AM		
+0 mins.	38	10	48	19	58	77	6	22	28
+15 mins.	41	8	49	27	38	65	9	19	28
+30 mins.	40	17	57	26	42	68	10	34	44
+45 mins.	33	9	42	26	46	72	7	30	37
Total Volume	152	44	196	98	184	282	32	105	137
% App. Total	77.6	22.4		34.8	65.2		23.4	76.6	
PHF	.927	.647	.860	.907	.793	.916	.800	.772	.778

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 7

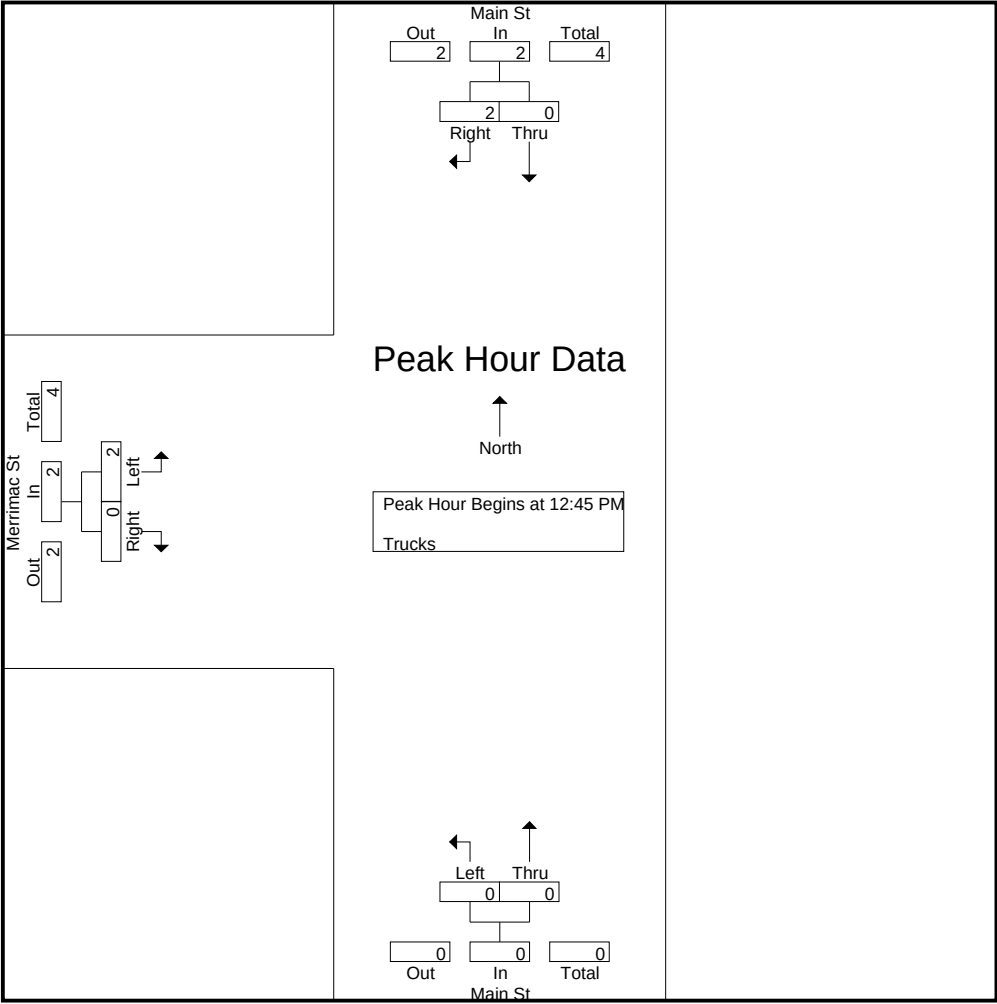
Groups Printed- Trucks

	Main St From North		Main St From South		Merrimac St From West		Int. Total
	Thru	Right	Left	Thru	Left	Right	
Start Time							
11:00 AM	0	0	0	0	0	0	0
11:15 AM	0	1	1	0	0	0	2
11:30 AM	0	0	0	0	0	0	0
11:45 AM	0	1	0	0	0	0	1
Total	0	2	1	0	0	0	3
12:00 PM	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
01:00 PM	0	1	0	0	1	0	2
01:15 PM	0	0	0	0	0	0	0
01:30 PM	0	1	0	0	1	0	2
01:45 PM	0	0	0	0	0	0	0
Total	0	2	0	0	2	0	4
Grand Total	0	4	1	0	2	0	7
Apprch %	0	100	100	0	100	0	
Total %	0	57.1	14.3	0	28.6	0	

	Main St From North			Main St From South			Merrimac St From West			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
Start Time										
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:45 PM										
12:45 PM	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	1	1	0	0	0	1	0	1	2
01:15 PM	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	1	1	0	0	0	1	0	1	2
Total Volume	0	2	2	0	0	0	2	0	2	4
% App. Total	0	100		0	0		100	0		
PHF	.000	.500	.500	.000	.000	.000	.500	.000	.500	.500

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 8

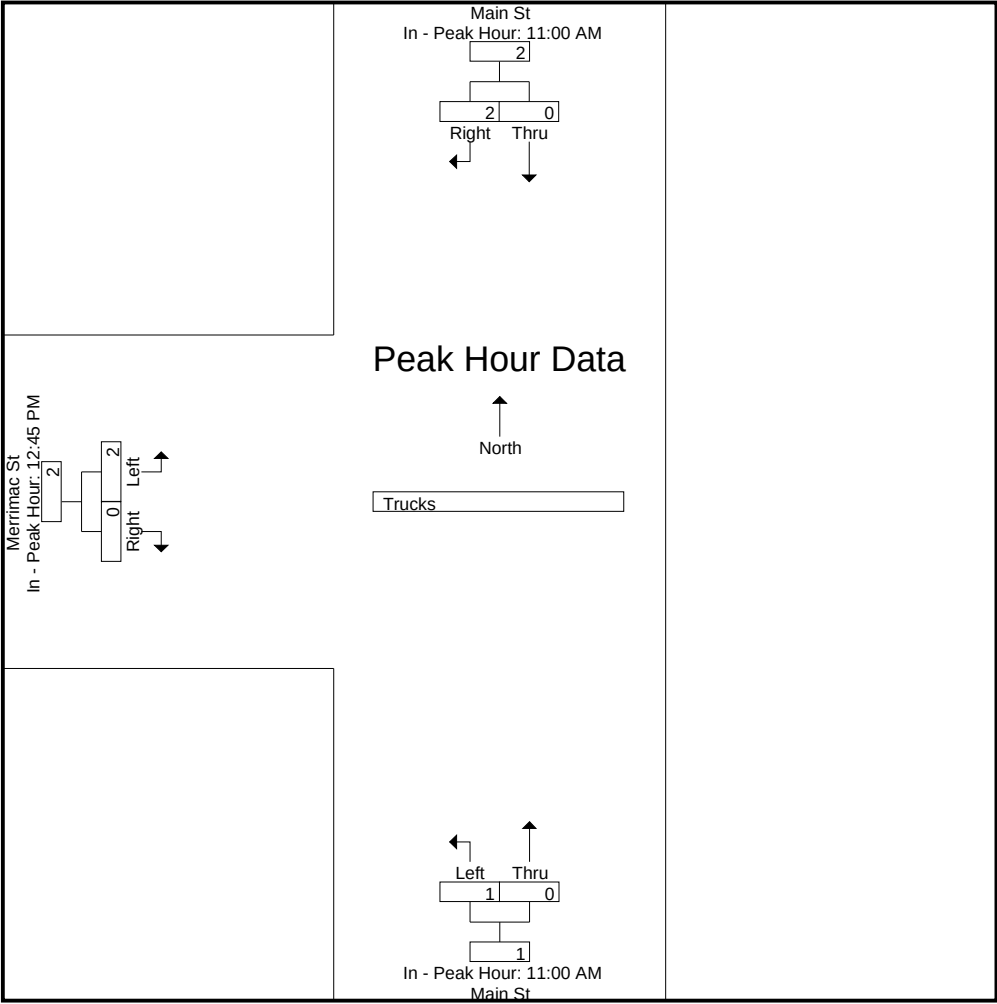


Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM			11:00 AM			12:45 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	1	1	0	1	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	1	0	0	0	1	0	1
Total Volume	0	2	2	1	0	1	2	0	2
% App. Total	0	100		100	0		100	0	
PHF	.000	.500	.500	.250	.000	.250	.500	.000	.500

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 9



978-664-2565

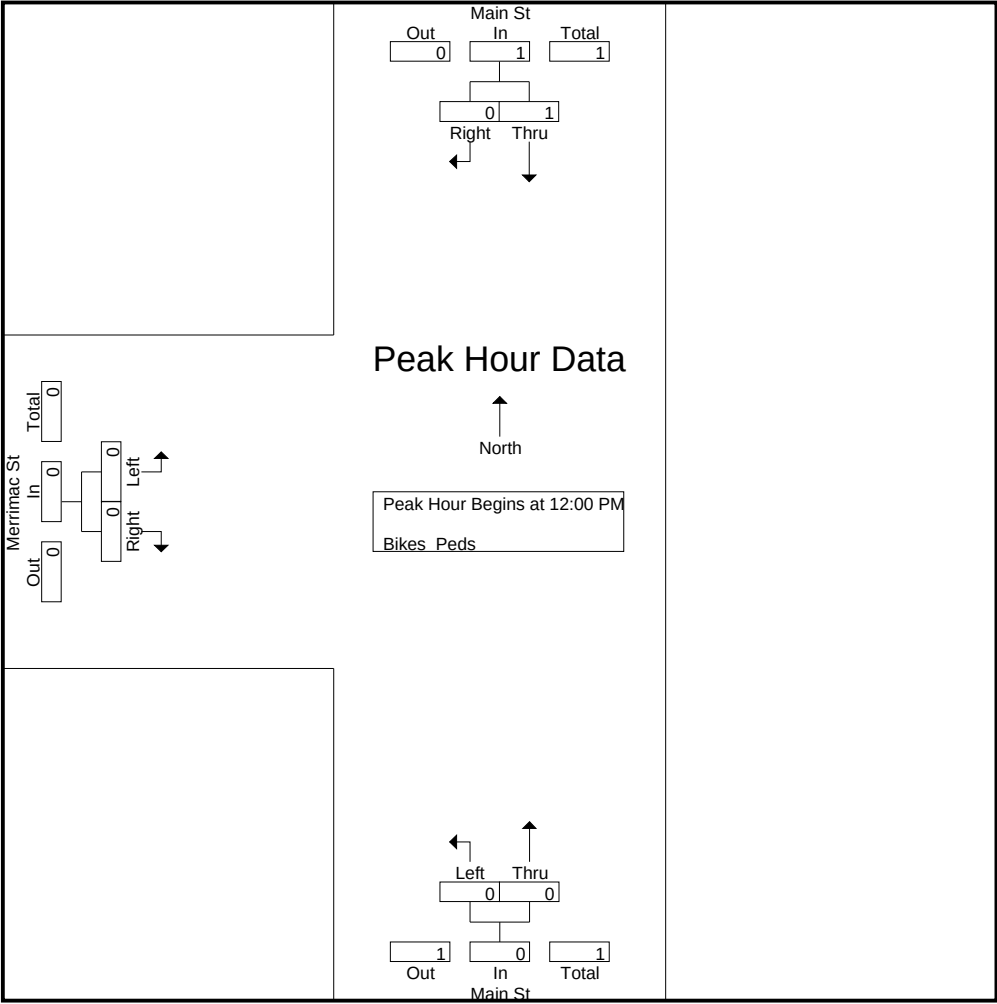
File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 10

	Main St From North			Main St From South			Merrimac St From West					
Start Time	Thru	Right	Peds	Left	Thru	Peds	Left	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	2	0	0	0	0	0	0	2	0	2
12:30 PM	0	0	1	0	0	0	0	0	0	1	0	1
12:45 PM	1	0	0	0	0	0	0	0	0	0	1	1
Total	1	0	3	0	0	0	0	0	0	3	1	4
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	3	0	0	0	0	0	0	3	1	4
Apprch %	100	0		0	0		0	0				
Total %	100	0		0	0		0	0		75	25	

[illegible]

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 11

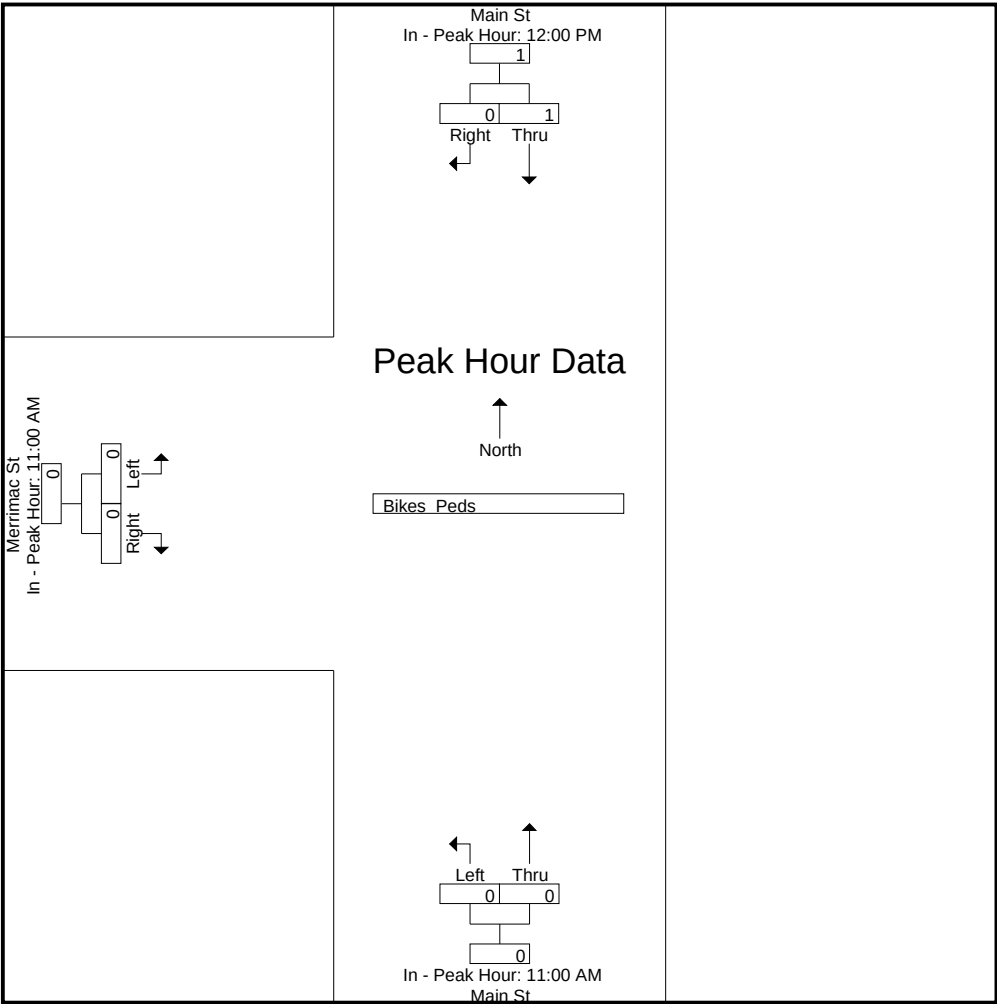


Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:00 PM			11:00 AM			11:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	1	0	1	0	0	0	0	0	0
Total Volume	1	0	1	0	0	0	0	0	0
% App. Total	100	0		0	0		0	0	
PHF	.250	.000	.250	.000	.000	.000	.000	.000	.000

N/S Street : Main Street
E/W Street : Merrimac Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S1
Site Code : 92210001
Start Date : 1/22/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 1

Groups Printed- Cars - Trucks

	Main St From North			Macy St (Route110) From East			Main St From South			Macy St (Route110) From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	35	25	4	2	32	23	12	11	9	4	74	14	245
07:15 AM	33	18	5	4	48	33	9	13	10	25	92	27	317
07:30 AM	48	21	6	2	44	33	19	20	7	19	91	28	338
07:45 AM	34	42	6	6	56	27	17	9	10	10	73	31	321
Total	150	106	21	14	180	116	57	53	36	58	330	100	1221
08:00 AM	22	23	4	6	45	45	19	26	7	8	61	25	291
08:15 AM	28	27	6	3	36	35	19	21	7	5	70	22	279
08:30 AM	40	23	6	5	54	37	22	27	7	6	92	17	336
08:45 AM	31	36	1	8	53	29	18	24	8	6	61	21	296
Total	121	109	17	22	188	146	78	98	29	25	284	85	1202
Grand Total	271	215	38	36	368	262	135	151	65	83	614	185	2423
Apprch %	51.7	41	7.3	5.4	55.3	39.3	38.5	43	18.5	9.4	69.6	21	
Total %	11.2	8.9	1.6	1.5	15.2	10.8	5.6	6.2	2.7	3.4	25.3	7.6	
Cars	264	214	35	32	361	258	135	150	61	81	600	183	2374
% Cars	97.4	99.5	92.1	88.9	98.1	98.5	100	99.3	93.8	97.6	97.7	98.9	98
Trucks	7	1	3	4	7	4	0	1	4	2	14	2	49
% Trucks	2.6	0.5	7.9	11.1	1.9	1.5	0	0.7	6.2	2.4	2.3	1.1	2

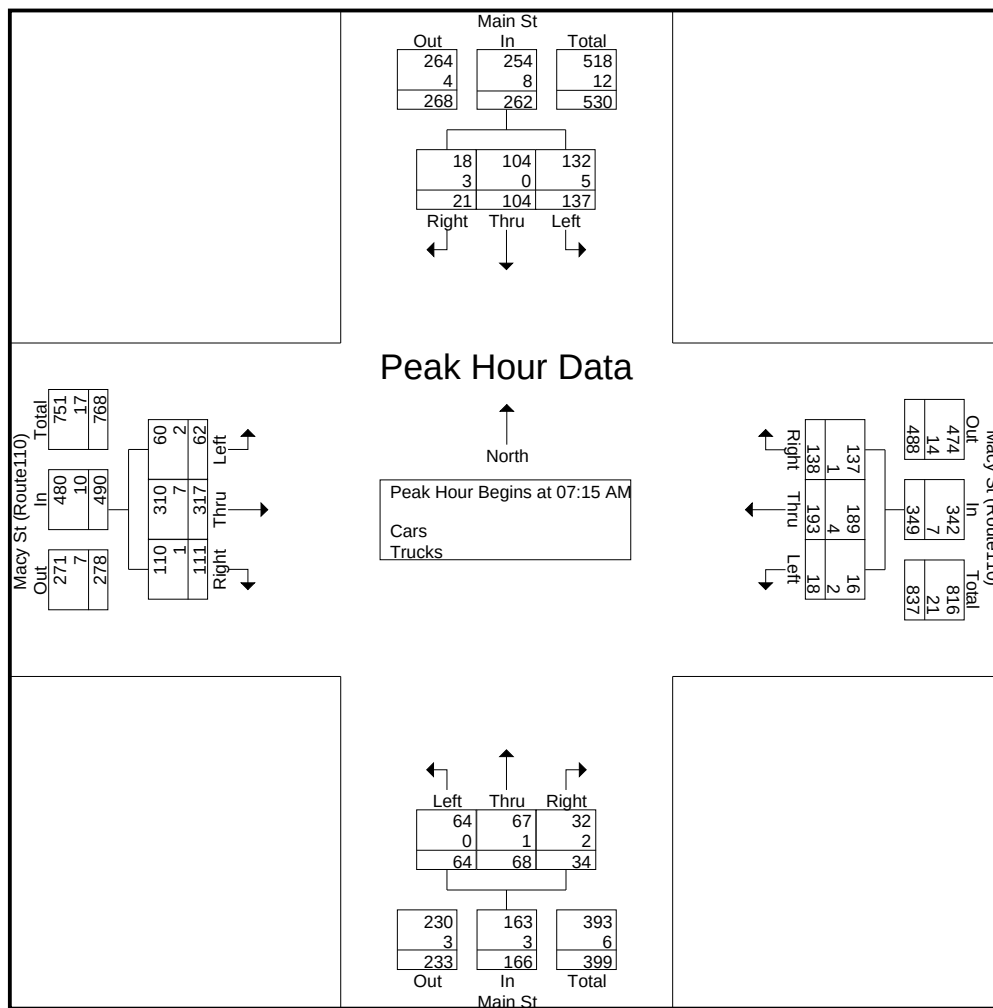
	Main St From North				Macy St (Route110) From East				Main St From South				Macy St (Route110) From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	33	18	5	56	4	48	33	85	9	13	10	32	25	92	27	144	317
07:30 AM	48	21	6	75	2	44	33	79	19	20	7	46	19	91	28	138	338
07:45 AM	34	42	6	82	6	56	27	89	17	9	10	36	10	73	31	114	321
08:00 AM	22	23	4	49	6	45	45	96	19	26	7	52	8	61	25	94	291
Total Volume	137	104	21	262	18	193	138	349	64	68	34	166	62	317	111	490	1267
% App. Total	52.3	39.7	8		5.2	55.3	39.5		38.6	41	20.5		12.7	64.7	22.7		
PHF	.714	.619	.875	.799	.750	.862	.767	.909	.842	.654	.850	.798	.620	.861	.895	.851	.937
Cars	132	104	18	254	16	189	137	342	64	67	32	163	60	310	110	480	1239
% Cars	96.4	100	85.7	96.9	88.9	97.9	99.3	98.0	100	98.5	94.1	98.2	96.8	97.8	99.1	98.0	97.8
Trucks	5	0	3	8	2	4	1	7	0	1	2	3	2	7	1	10	28
% Trucks	3.6	0	14.3	3.1	11.1	2.1	0.7	2.0	0	1.5	5.9	1.8	3.2	2.2	0.9	2.0	2.2

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 2



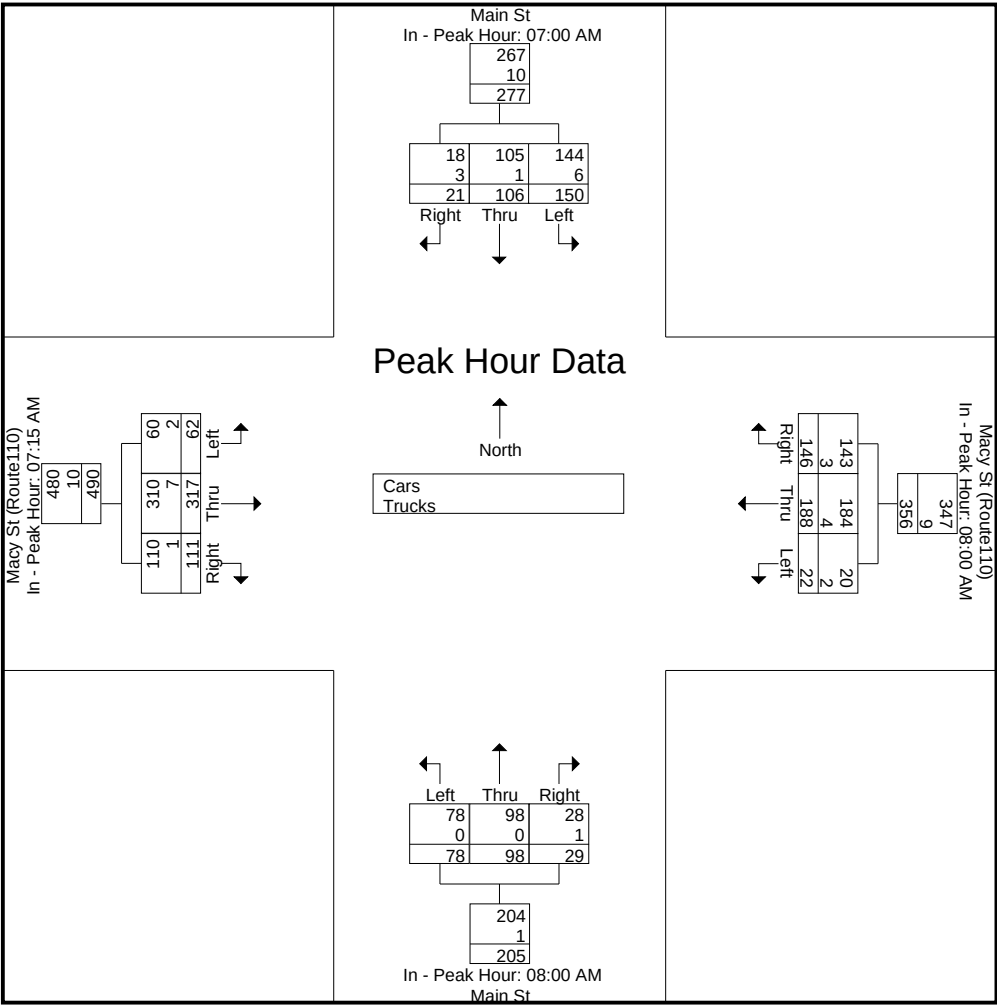
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				08:00 AM				08:00 AM				07:15 AM			
+0 mins.	35	25	4	64	6	45	45	96	19	26	7	52	25	92	27	144
+15 mins.	33	18	5	56	3	36	35	74	19	21	7	47	19	91	28	138
+30 mins.	48	21	6	75	5	54	37	96	22	27	7	56	10	73	31	114
+45 mins.	34	42	6	82	8	53	29	90	18	24	8	50	8	61	25	94
Total Volume	150	106	21	277	22	188	146	356	78	98	29	205	62	317	111	490
% App. Total	54.2	38.3	7.6		6.2	52.8	41		38	47.8	14.1		12.7	64.7	22.7	
PHF	.781	.631	.875	.845	.688	.870	.811	.927	.886	.907	.906	.915	.620	.861	.895	.851
Cars	144	105	18	267	20	184	143	347	78	98	28	204	60	310	110	480
% Cars	96	99.1	85.7	96.4	90.9	97.9	97.9	97.5	100	100	96.6	99.5	96.8	97.8	99.1	98
Trucks	6	1	3	10	2	4	3	9	0	0	1	1	2	7	1	10
% Trucks	4	0.9	14.3	3.6	9.1	2.1	2.1	2.5	0	0	3.4	0.5	3.2	2.2	0.9	2

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 4

Groups Printed- Cars

	Main St From North			Macy St (Route110) From East			Main St From South			Macy St (Route110) From West			Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	33	24	4	2	31	22	12	11	8	4	72	14	237
07:15 AM	33	18	4	2	47	33	9	13	9	24	92	27	311
07:30 AM	45	21	5	2	44	33	19	19	6	19	91	27	331
07:45 AM	33	42	5	6	55	27	17	9	10	9	71	31	315
Total	144	105	18	12	177	115	57	52	33	56	326	99	1194
08:00 AM	21	23	4	6	43	44	19	26	7	8	56	25	282
08:15 AM	28	27	6	3	34	34	19	21	7	5	68	22	274
08:30 AM	40	23	6	3	54	37	22	27	7	6	89	17	331
08:45 AM	31	36	1	8	53	28	18	24	7	6	61	20	293
Total	120	109	17	20	184	143	78	98	28	25	274	84	1180
Grand Total	264	214	35	32	361	258	135	150	61	81	600	183	2374
Apprch %	51.5	41.7	6.8	4.9	55.5	39.6	39	43.4	17.6	9.4	69.4	21.2	
Total %	11.1	9	1.5	1.3	15.2	10.9	5.7	6.3	2.6	3.4	25.3	7.7	

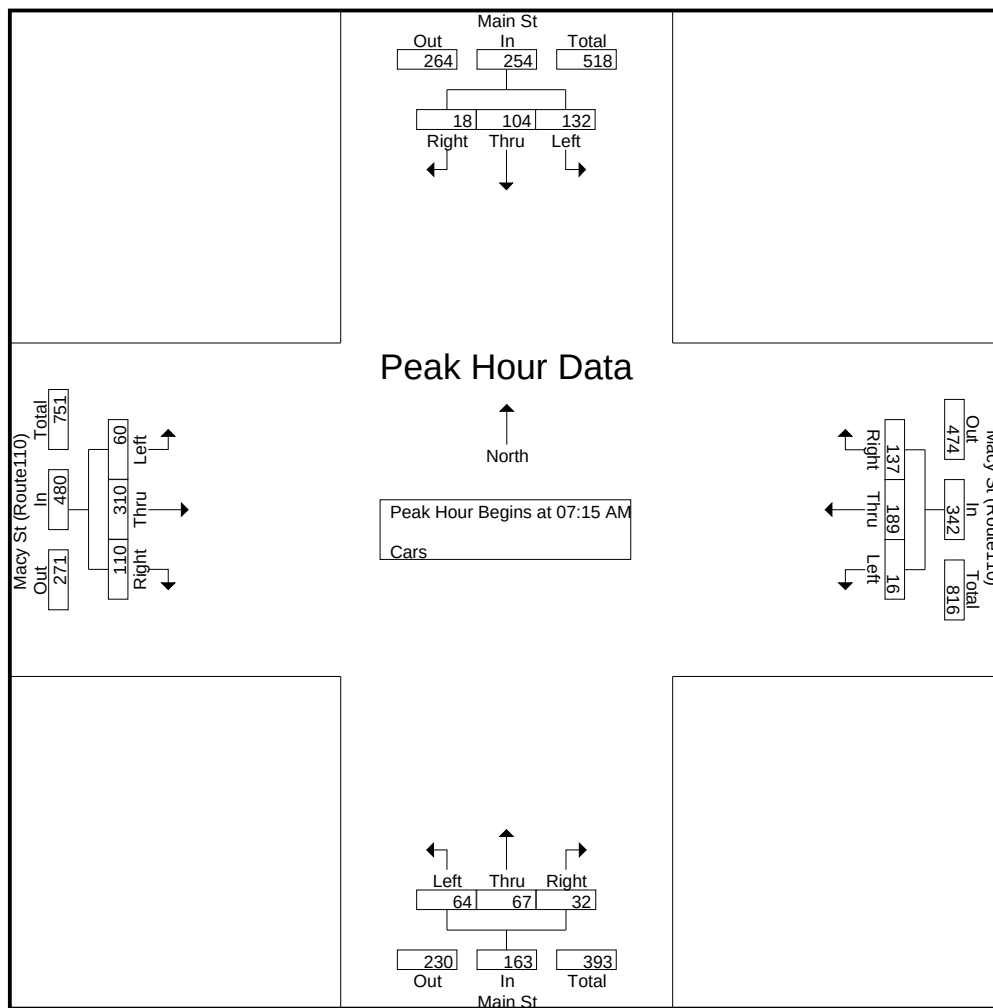
	Main St From North				Macy St (Route110) From East				Main St From South				Macy St (Route110) From West				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	33	18	4	55	2	47	33	82	9	13	9	31	24	92	27	143	311
07:30 AM	45	21	5	71	2	44	33	79	19	19	6	44	19	91	27	137	331
07:45 AM	33	42	5	80	6	55	27	88	17	9	10	36	9	71	31	111	315
08:00 AM	21	23	4	48	6	43	44	93	19	26	7	52	8	56	25	89	282
Total Volume	132	104	18	254	16	189	137	342	64	67	32	163	60	310	110	480	1239
% App. Total	52	40.9	7.1		4.7	55.3	40.1		39.3	41.1	19.6		12.5	64.6	22.9		
PHF	.733	.619	.900	.794	.667	.859	.778	.919	.842	.644	.800	.784	.625	.842	.887	.839	.936

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 5



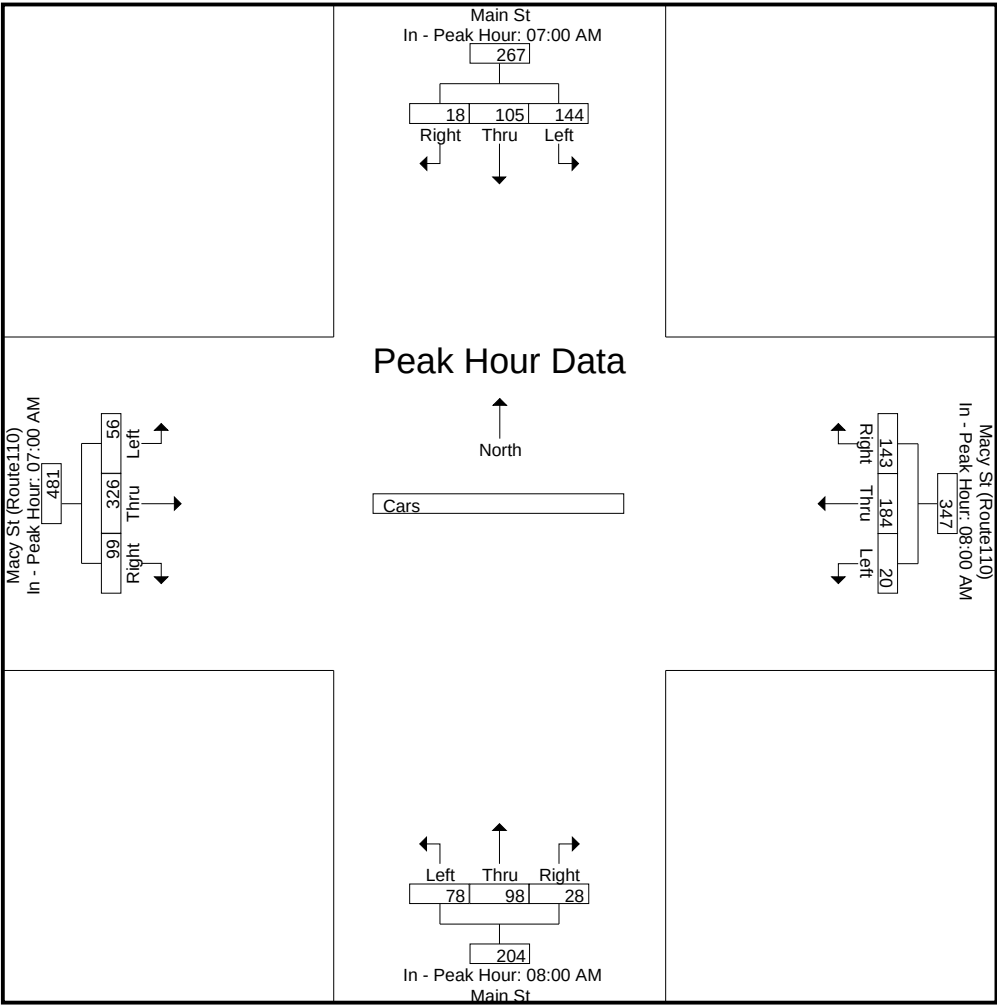
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				08:00 AM				08:00 AM				07:00 AM			
+0 mins.	33	24	4	61	6	43	44	93	19	26	7	52	4	72	14	90
+15 mins.	33	18	4	55	3	34	34	71	19	21	7	47	24	92	27	143
+30 mins.	45	21	5	71	3	54	37	94	22	27	7	56	19	91	27	137
+45 mins.	33	42	5	80	8	53	28	89	18	24	7	49	9	71	31	111
Total Volume	144	105	18	267	20	184	143	347	78	98	28	204	56	326	99	481
% App. Total	53.9	39.3	6.7		5.8	53	41.2		38.2	48	13.7		11.6	67.8	20.6	
PHF	.800	.625	.900	.834	.625	.852	.813	.923	.886	.907	1.000	.911	.583	.886	.798	.841

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 7

Groups Printed- Trucks

	Main St From North			Macy St (Route110) From East			Main St From South			Macy St (Route110) From West			Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	2	1	0	0	1	1	0	0	1	0	2	0	8
07:15 AM	0	0	1	2	1	0	0	0	1	1	0	0	6
07:30 AM	3	0	1	0	0	0	0	1	1	0	0	1	7
07:45 AM	1	0	1	0	1	0	0	0	0	1	2	0	6
Total	6	1	3	2	3	1	0	1	3	2	4	1	27
08:00 AM	1	0	0	0	2	1	0	0	0	0	5	0	9
08:15 AM	0	0	0	0	2	1	0	0	0	0	2	0	5
08:30 AM	0	0	0	2	0	0	0	0	0	0	3	0	5
08:45 AM	0	0	0	0	0	1	0	0	1	0	0	1	3
Total	1	0	0	2	4	3	0	0	1	0	10	1	22
Grand Total	7	1	3	4	7	4	0	1	4	2	14	2	49
Apprch %	63.6	9.1	27.3	26.7	46.7	26.7	0	20	80	11.1	77.8	11.1	
Total %	14.3	2	6.1	8.2	14.3	8.2	0	2	8.2	4.1	28.6	4.1	

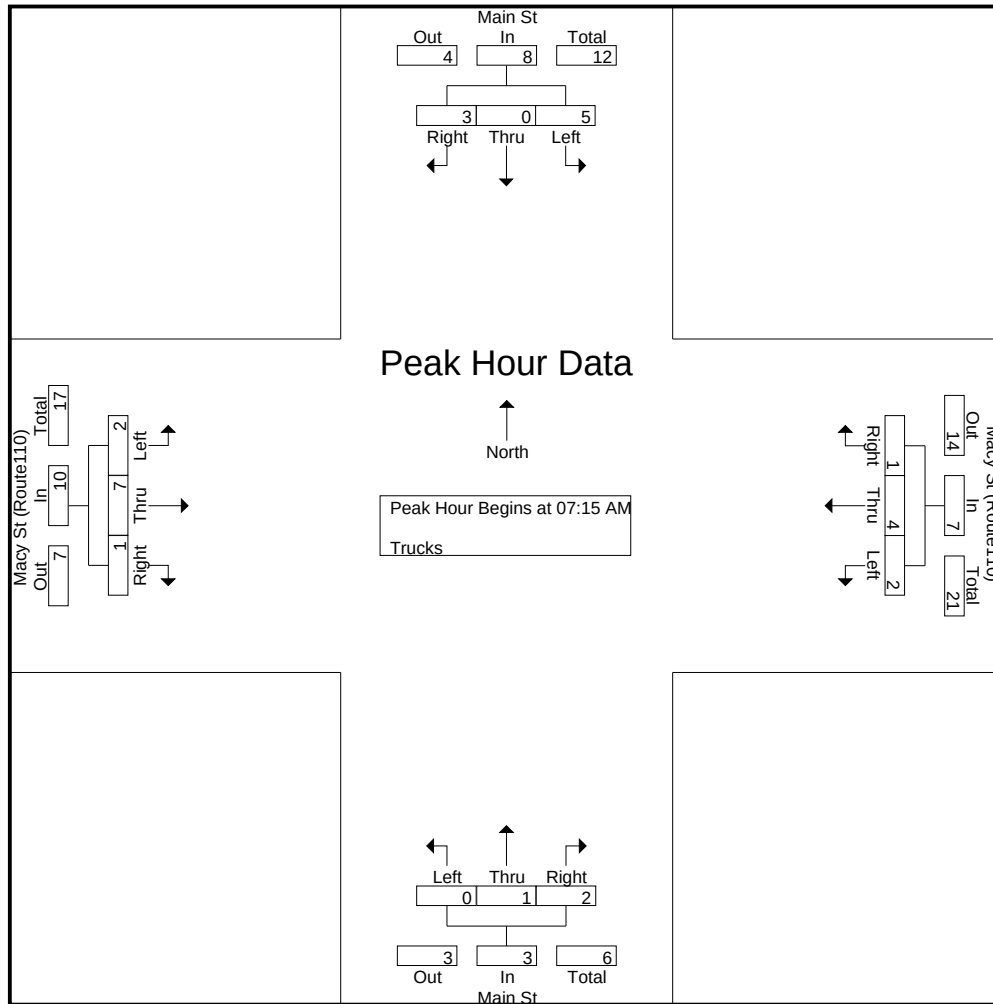
	Main St From North				Macy St (Route110) From East				Main St From South				Macy St (Route110) From West				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	1	1	2	1	0	3	0	0	1	1	1	0	0	1	6
07:30 AM	3	0	1	4	0	0	0	0	0	1	1	2	0	0	1	1	7
07:45 AM	1	0	1	2	0	1	0	1	0	0	0	0	1	2	0	3	6
08:00 AM	1	0	0	1	0	2	1	3	0	0	0	0	0	5	0	5	9
Total Volume	5	0	3	8	2	4	1	7	0	1	2	3	2	7	1	10	28
% App. Total	62.5	0	37.5		28.6	57.1	14.3		0	33.3	66.7		20	70	10		
PHF	.417	.000	.750	.500	.250	.500	.250	.583	.000	.250	.500	.375	.500	.350	.250	.500	.778

Accurate Counts

978-664-2565

N/S Street : Main Street
 E/W Street : Macy Street (Route 110)
 City/State : Amesbury, MA
 Weather : Cloudy

File Name : 92210002
 Site Code : 92210002
 Start Date : 1/20/2022
 Page No : 8

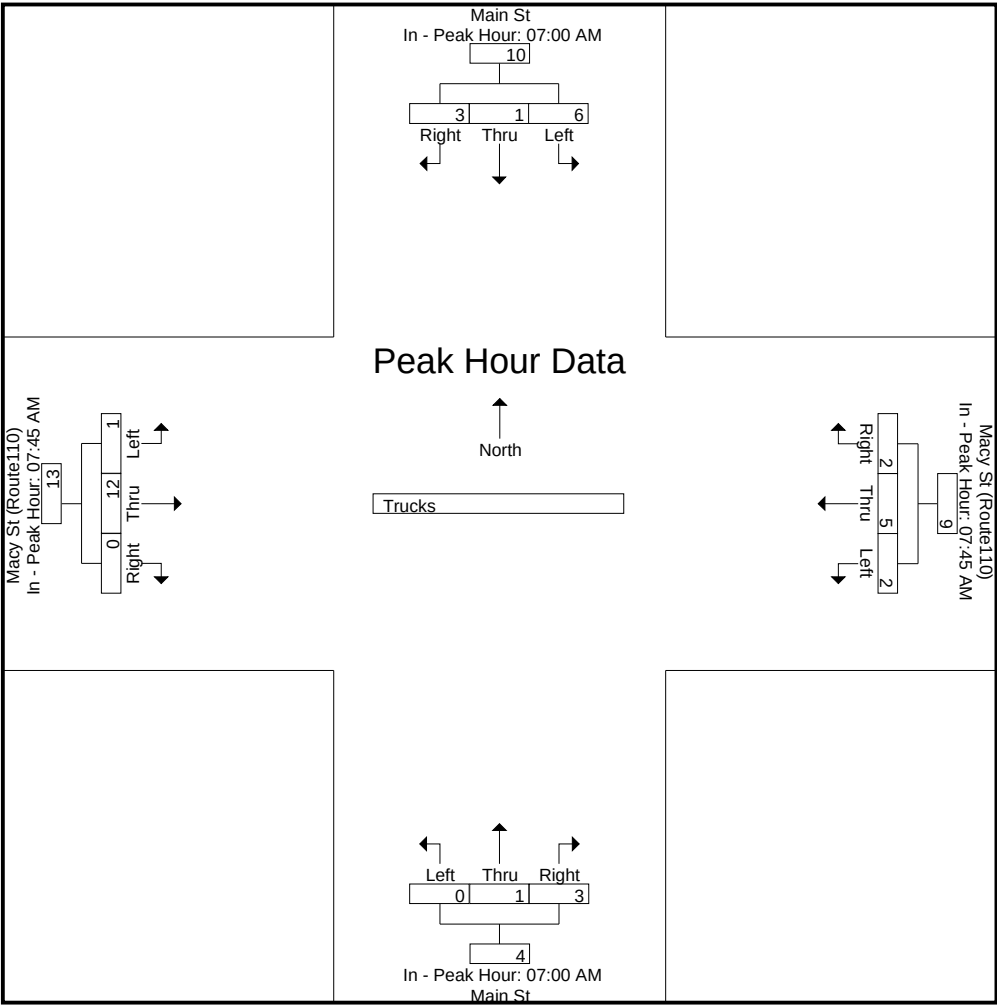


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:00 AM				07:45 AM				07:00 AM				07:45 AM			
+0 mins.	2	1	0	3	0	1	0	1	0	0	1	1	1	2	0	3
+15 mins.	0	0	1	1	0	2	1	3	0	0	1	1	0	5	0	5
+30 mins.	3	0	1	4	0	2	1	3	0	1	1	2	0	2	0	2
+45 mins.	1	0	1	2	2	0	0	2	0	0	0	0	0	3	0	3
Total Volume	6	1	3	10	2	5	2	9	0	1	3	4	1	12	0	13
% App. Total	60	10	30		22.2	55.6	22.2		0	25	75		7.7	92.3	0	
PHF	.500	.250	.750	.625	.250	.625	.500	.750	.000	.250	.750	.500	.250	.600	.000	.650

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 9



978-664-2565

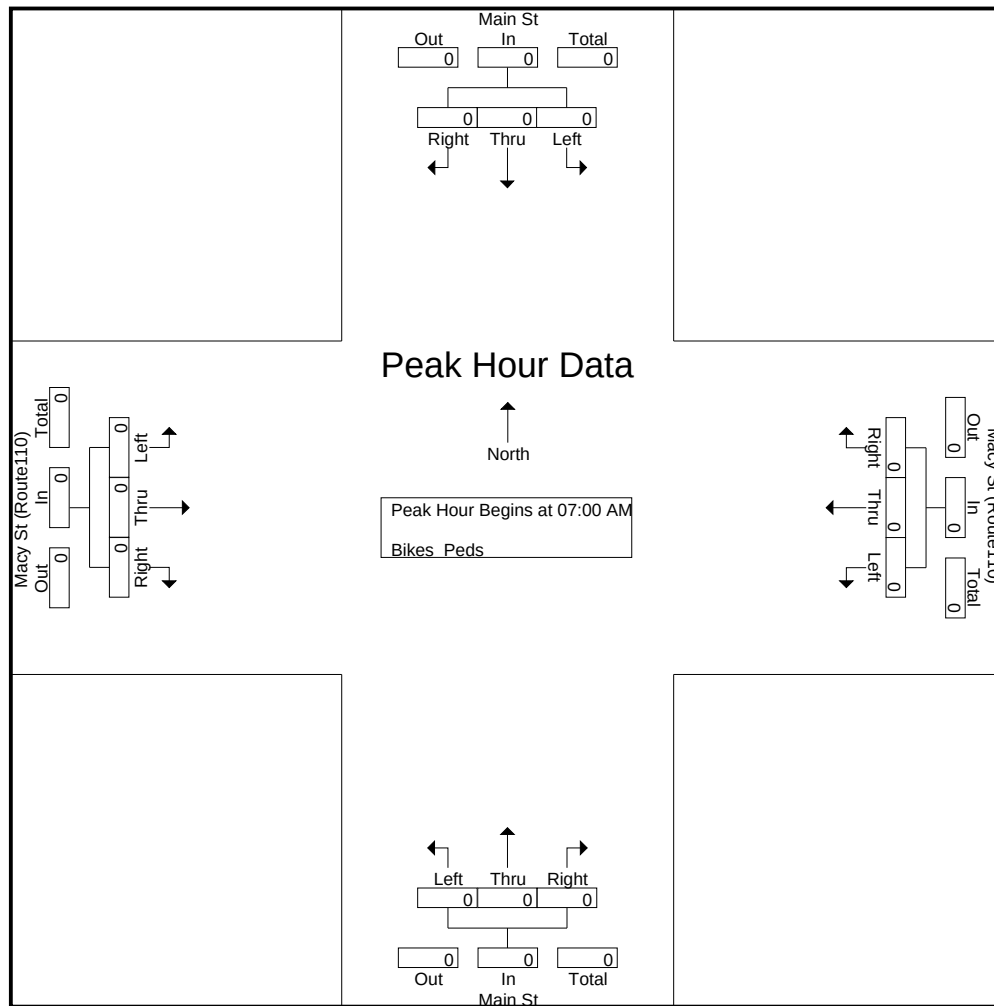
File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 10

[illegible][illegible]

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 11

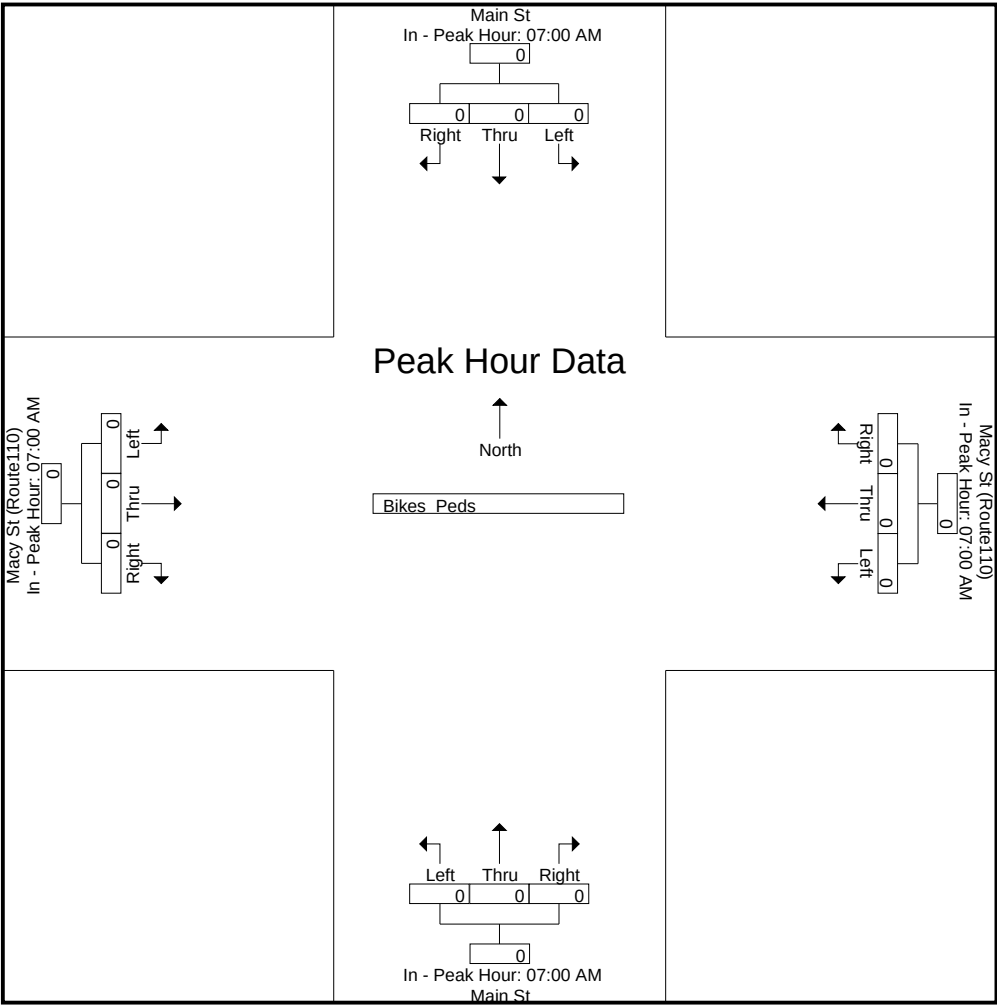


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

[illegible]

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 12



978-664-2565

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 1

	Main St From North			Macy St (Route110) From East			Main St From South			Macy St (Route110) From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	51	35	13	7	98	49	33	42	8	10	77	22	445
04:15 PM	39	22	5	2	87	51	34	53	8	7	83	18	409
04:30 PM	42	35	10	8	113	58	39	47	13	7	79	18	469
04:45 PM	42	24	4	6	87	43	29	41	5	8	65	17	371
Total	174	116	32	23	385	201	135	183	34	32	304	75	1694
05:00 PM	48	34	7	14	91	40	43	38	5	7	72	17	416
05:15 PM	34	19	8	7	91	44	40	46	9	4	88	12	402
05:30 PM	27	23	9	11	102	43	33	28	12	6	55	17	366
05:45 PM	27	30	7	6	91	49	22	36	8	5	53	10	344
Total	136	106	31	38	375	176	138	148	34	22	268	56	1528
Grand Total	310	222	63	61	760	377	273	331	68	54	572	131	3222
Apprch %	52.1	37.3	10.6	5.1	63.4	31.5	40.6	49.3	10.1	7.1	75.6	17.3	
Total %	9.6	6.9	2	1.9	23.6	11.7	8.5	10.3	2.1	1.7	17.8	4.1	
Cars	310	222	62	61	757	377	273	331	68	54	570	131	3216
% Cars	100	100	98.4	100	99.6	100	100	100	100	100	99.7	100	99.8
Trucks	0	0	1	0	3	0	0	0	0	0	2	0	6
% Trucks	0	0	1.6	0	0.4	0	0	0	0	0	0.3	0	0.2

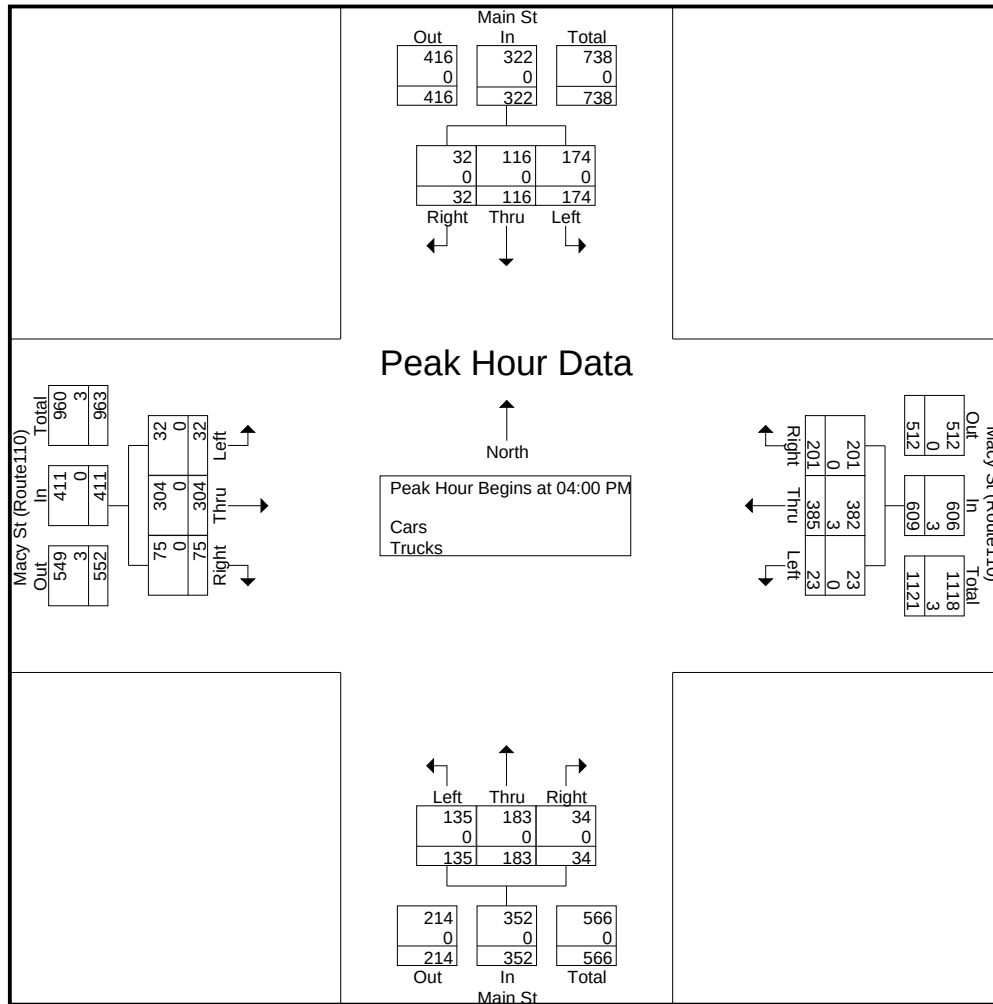
[illegible]

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 2



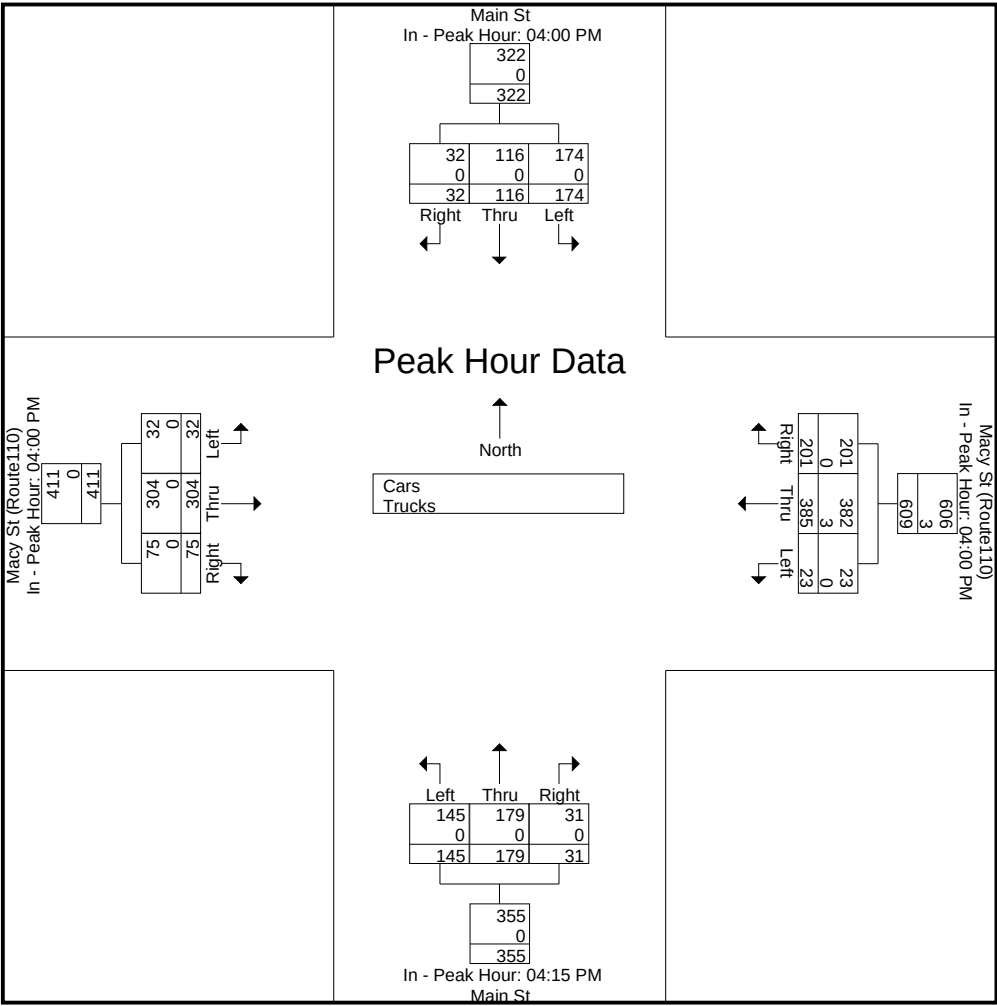
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:15 PM				04:00 PM			
+0 mins.	51	35	13	99	7	98	49	154	34	53	8	95	10	77	22	109
+15 mins.	39	22	5	66	2	87	51	140	39	47	13	99	7	83	18	108
+30 mins.	42	35	10	87	8	113	58	179	29	41	5	75	7	79	18	104
+45 mins.	42	24	4	70	6	87	43	136	43	38	5	86	8	65	17	90
Total Volume	174	116	32	322	23	385	201	609	145	179	31	355	32	304	75	411
% App. Total	54	36	9.9		3.8	63.2	33		40.8	50.4	8.7		7.8	74	18.2	
PHF	.853	.829	.615	.813	.719	.852	.866	.851	.843	.844	.596	.896	.800	.916	.852	.943
Cars	174	116	32	322	23	382	201	606	145	179	31	355	32	304	75	411
% Cars	100	100	100	100	100	99.2	100	99.5	100	100	100	100	100	100	100	100
Trucks	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0
% Trucks	0	0	0	0	0	0.8	0	0.5	0	0	0	0	0	0	0	0

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 4

Groups Printed- Cars

	Main St From North			Macy St (Route110) From East			Main St From South			Macy St (Route110) From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	51	35	13	7	98	49	33	42	8	10	77	22	445
04:15 PM	39	22	5	2	87	51	34	53	8	7	83	18	409
04:30 PM	42	35	10	8	110	58	39	47	13	7	79	18	466
04:45 PM	42	24	4	6	87	43	29	41	5	8	65	17	371
Total	174	116	32	23	382	201	135	183	34	32	304	75	1691
05:00 PM	48	34	7	14	91	40	43	38	5	7	71	17	415
05:15 PM	34	19	8	7	91	44	40	46	9	4	87	12	401
05:30 PM	27	23	8	11	102	43	33	28	12	6	55	17	365
05:45 PM	27	30	7	6	91	49	22	36	8	5	53	10	344
Total	136	106	30	38	375	176	138	148	34	22	266	56	1525
Grand Total	310	222	62	61	757	377	273	331	68	54	570	131	3216
Apprch %	52.2	37.4	10.4	5.1	63.3	31.5	40.6	49.3	10.1	7.2	75.5	17.4	
Total %	9.6	6.9	1.9	1.9	23.5	11.7	8.5	10.3	2.1	1.7	17.7	4.1	

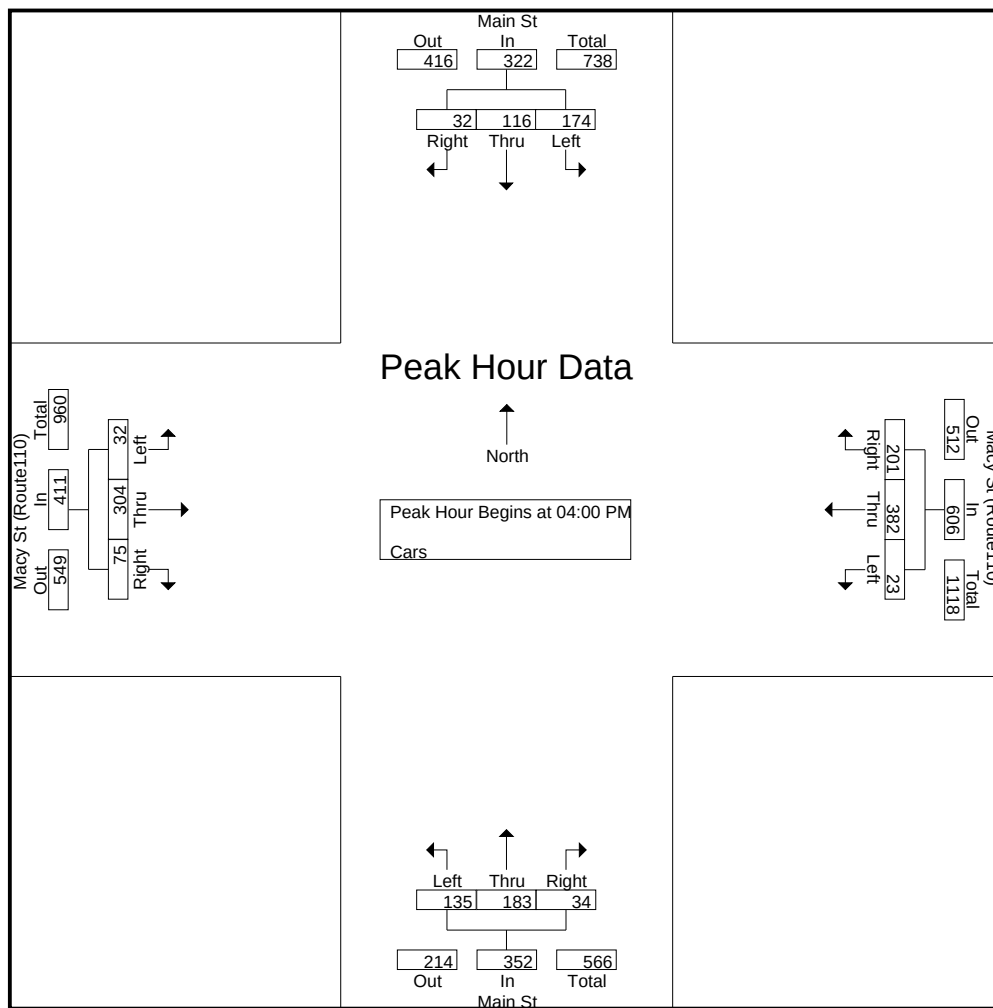
	Main St From North				Macy St (Route110) From East				Main St From South				Macy St (Route110) From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	51	35	13	99	7	98	49	154	33	42	8	83	10	77	22	109	445
04:15 PM	39	22	5	66	2	87	51	140	34	53	8	95	7	83	18	108	409
04:30 PM	42	35	10	87	8	110	58	176	39	47	13	99	7	79	18	104	466
04:45 PM	42	24	4	70	6	87	43	136	29	41	5	75	8	65	17	90	371
Total Volume	174	116	32	322	23	382	201	606	135	183	34	352	32	304	75	411	1691
% App. Total	54	36	9.9		3.8	63	33.2		38.4	52	9.7		7.8	74	18.2		
PHF	.853	.829	.615	.813	.719	.868	.866	.861	.865	.863	.654	.889	.800	.916	.852	.943	.907

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 5



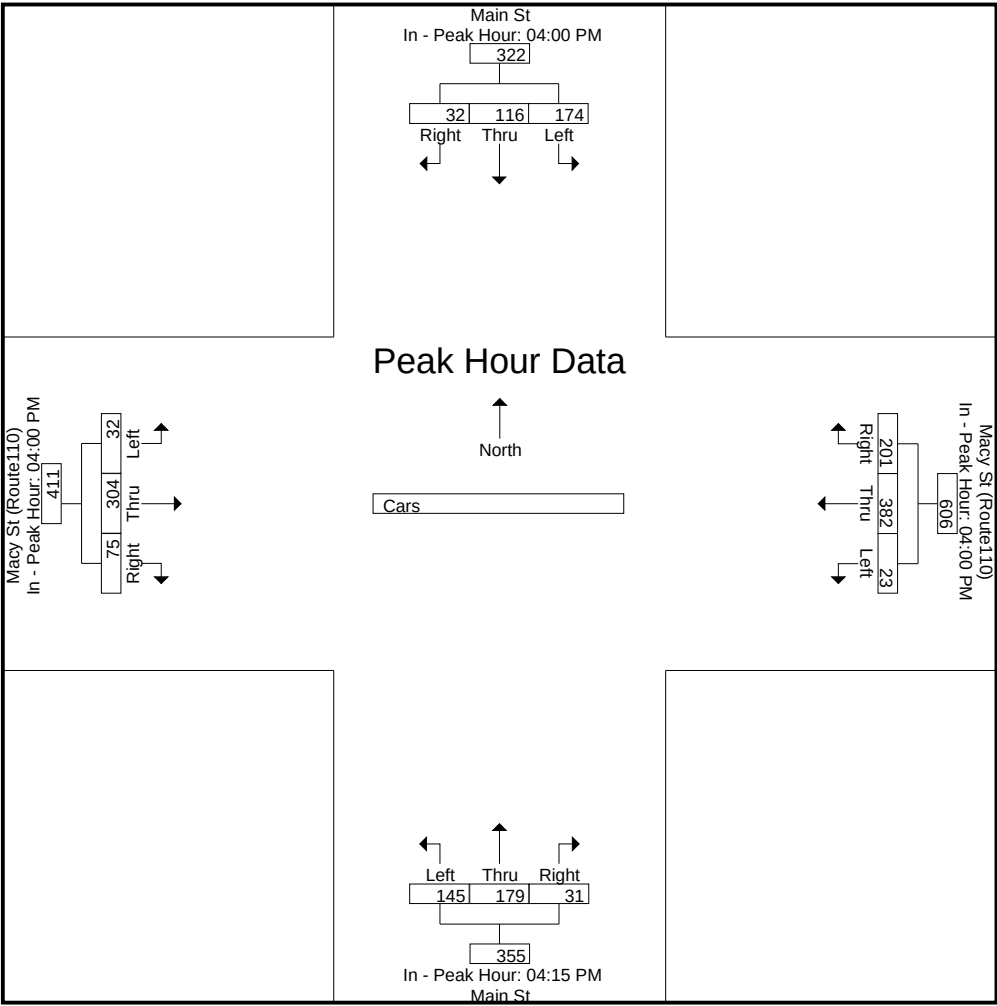
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:15 PM				04:00 PM			
+0 mins.	51	35	13	99	7	98	49	154	34	53	8	95	10	77	22	109
+15 mins.	39	22	5	66	2	87	51	140	39	47	13	99	7	83	18	108
+30 mins.	42	35	10	87	8	110	58	176	29	41	5	75	7	79	18	104
+45 mins.	42	24	4	70	6	87	43	136	43	38	5	86	8	65	17	90
Total Volume	174	116	32	322	23	382	201	606	145	179	31	355	32	304	75	411
% App. Total	54	36	9.9		3.8	63	33.2		40.8	50.4	8.7		7.8	74	18.2	
PHF	.853	.829	.615	.813	.719	.868	.866	.861	.843	.844	.596	.896	.800	.916	.852	.943

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 7

Groups Printed- Trucks

	Main St From North			Macy St (Route110) From East			Main St From South			Macy St (Route110) From West			Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	3	0	0	0	0	0	0	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
05:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	0	0	0	0	2	0	3
Grand Total	0	0	1	0	3	0	0	0	0	0	2	0	6
Apprch %	0	0	100	0	100	0	0	0	0	0	100	0	
Total %	0	0	16.7	0	50	0	0	0	0	0	33.3	0	

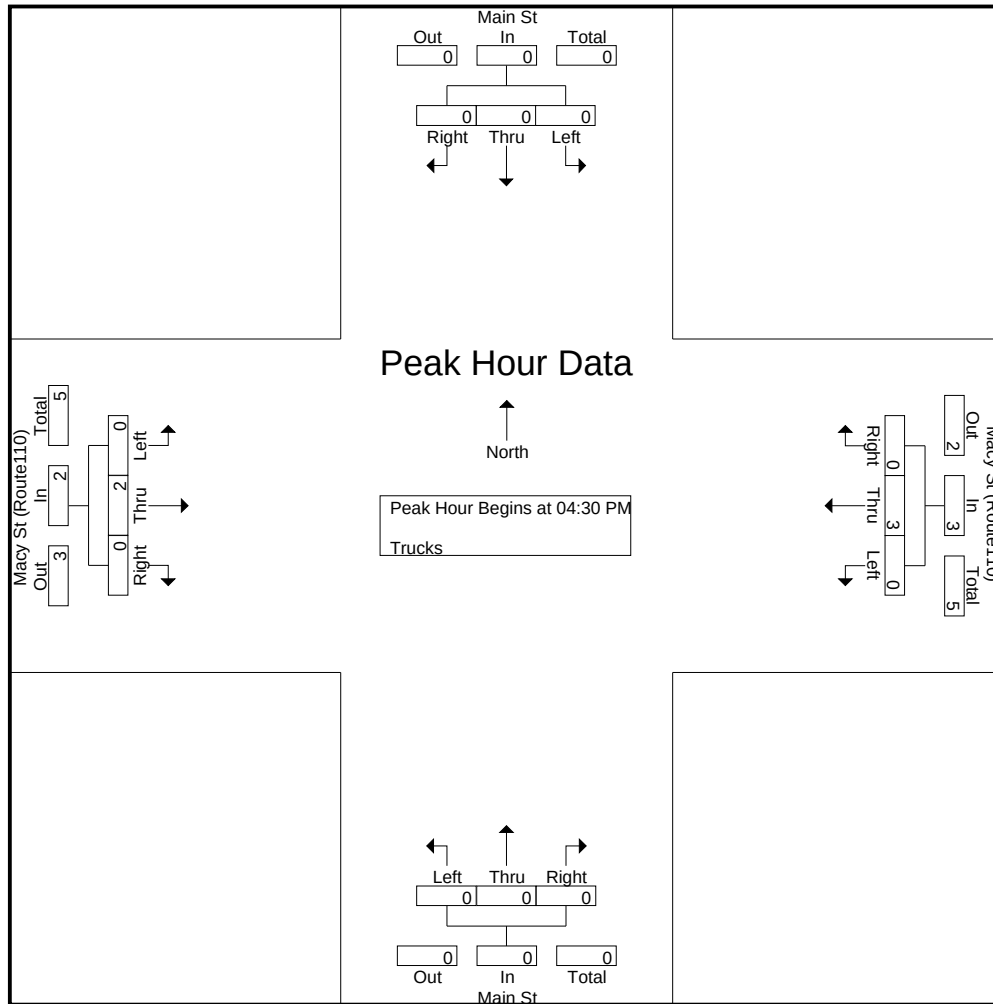
	Main St From North				Macy St (Route110) From East				Main St From South				Macy St (Route110) From West				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	5
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	.000	.500	.417

Accurate Counts

978-664-2565

N/S Street : Main Street
 E/W Street : Macy Street (Route 110)
 City/State : Amesbury, MA
 Weather : Cloudy

File Name : 92210002
 Site Code : 92210002
 Start Date : 1/20/2022
 Page No : 8

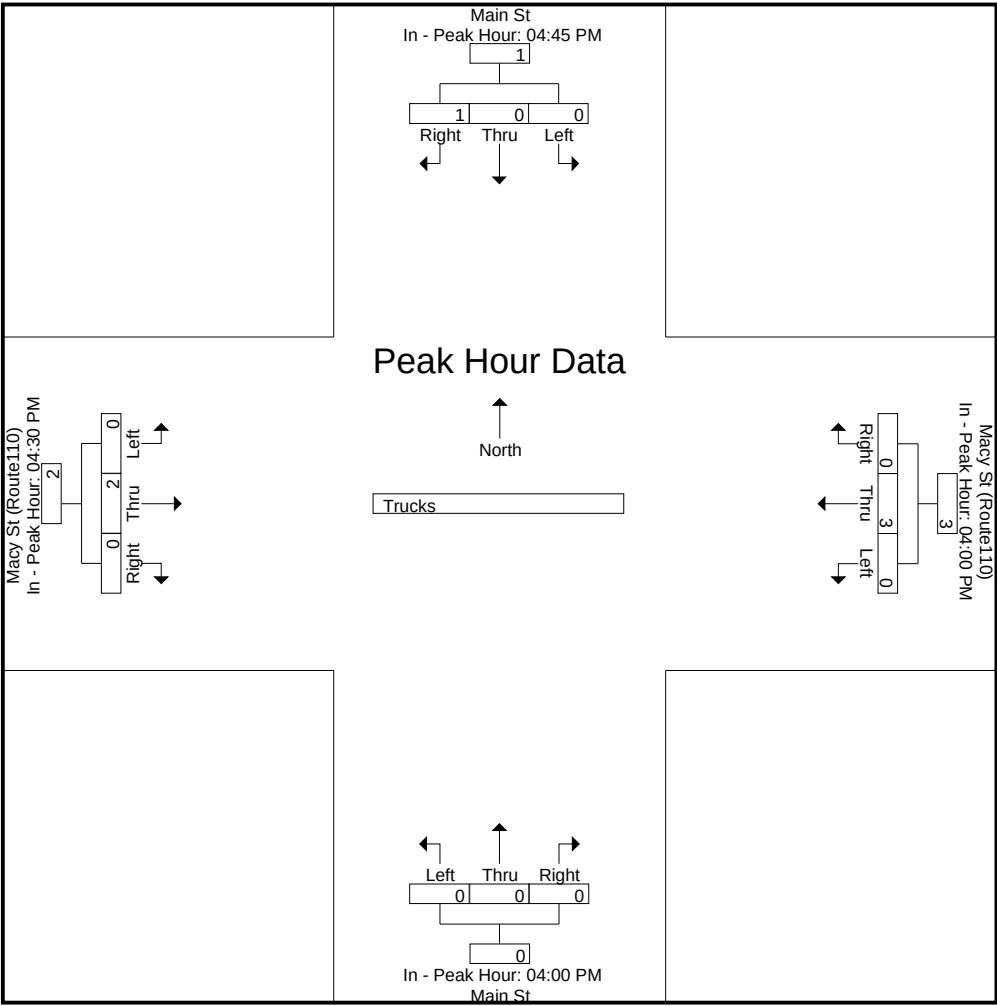


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM				04:00 PM				04:00 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	3	0	3	0	0	0	0	0	1	0	1
+45 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1
Total Volume	0	0	1	1	0	3	0	3	0	0	0	0	0	2	0	2
% App. Total	0	0	100		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.250	.250	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	.000	.500

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 10

Groups Printed- Bikes Peds

	Main St From North				Macy St (Route110) From East				Main St From South				Macy St (Route110) From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
04:30 PM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	2	1	3
05:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	0	2
Grand Total	0	0	0	0	0	1	0	2	0	0	0	1	0	0	0	1	4	1	5
Apprch %	0	0	0	0	0	100	0		0	0	0		0	0	0				
Total %	0	0	0		0	100	0		0	0	0		0	0	0		80	20	

[illegible]

978-664-2565

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 11



Peak Hour Begins at 04:00 PM

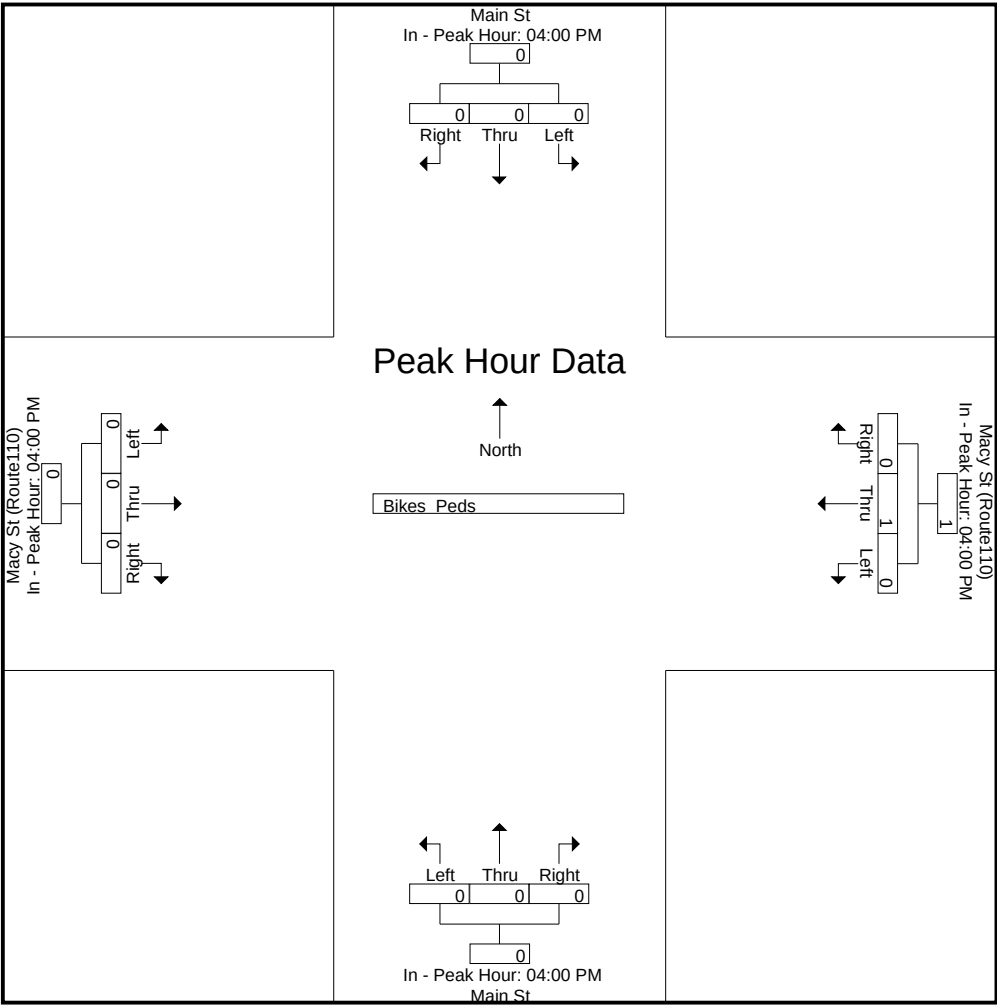
Bikes	Peds
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
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88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Peak Load for Each Approach Begins at:

Peak Hour for Each Approach Begins at:																
	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210002
Site Code : 92210002
Start Date : 1/20/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S2
Site Code : 92210002
Start Date : 1/22/2022
Page No : 1

Groups Printed- Cars - Trucks

	Main St From North			Macy St (Route 110) From East			Main St From South			Macy St (Route 110) From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
11:00 AM	45	20	7	11	51	39	22	34	10	6	74	22	341
11:15 AM	38	25	7	7	53	22	21	34	12	11	68	16	314
11:30 AM	42	31	11	2	56	40	25	37	18	14	84	25	385
11:45 AM	59	37	9	5	55	26	23	31	6	15	92	19	377
Total	184	113	34	25	215	127	91	136	46	46	318	82	1417
12:00 PM	42	17	3	4	74	36	13	28	12	6	95	17	347
12:15 PM	38	35	13	6	69	34	25	24	12	9	92	18	375
12:30 PM	35	32	13	9	67	40	25	39	7	12	94	21	394
12:45 PM	31	37	11	12	61	29	22	33	12	6	88	13	355
Total	146	121	40	31	271	139	85	124	43	33	369	69	1471
01:00 PM	37	22	7	9	77	41	23	33	10	2	76	19	356
01:15 PM	41	24	10	3	72	29	24	31	15	3	58	20	330
01:30 PM	33	22	6	5	72	31	39	24	10	6	86	10	344
01:45 PM	31	19	6	9	84	29	27	18	9	6	73	15	326
Total	142	87	29	26	305	130	113	106	44	17	293	64	1356
Grand Total	472	321	103	82	791	396	289	366	133	96	980	215	4244
Apprch %	52.7	35.8	11.5	6.5	62.3	31.2	36.7	46.4	16.9	7.4	75.9	16.7	
Total %	11.1	7.6	2.4	1.9	18.6	9.3	6.8	8.6	3.1	2.3	23.1	5.1	
Cars	472	320	102	82	783	396	289	366	131	95	979	214	4229
% Cars	100	99.7	99	100	99	100	100	100	98.5	99	99.9	99.5	99.6
Trucks	0	1	1	0	8	0	0	0	2	1	1	1	15
% Trucks	0	0.3	1	0	1	0	0	0	1.5	1	0.1	0.5	0.4

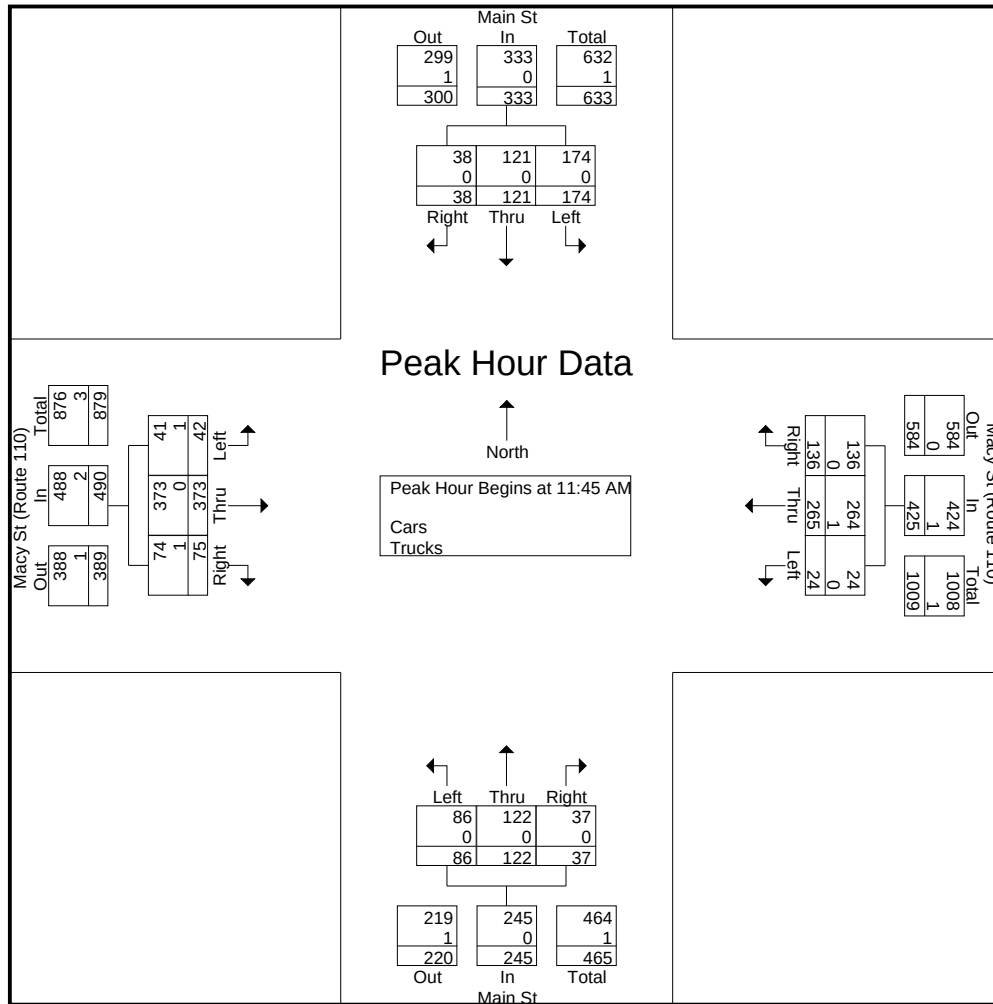
	Main St From North				Macy St (Route 110) From East				Main St From South				Macy St (Route 110) From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	59	37	9	105	5	55	26	86	23	31	6	60	15	92	19	126	377
12:00 PM	42	17	3	62	4	74	36	114	13	28	12	53	6	95	17	118	347
12:15 PM	38	35	13	86	6	69	34	109	25	24	12	61	9	92	18	119	375
12:30 PM	35	32	13	80	9	67	40	116	25	39	7	71	12	94	21	127	394
Total Volume	174	121	38	333	24	265	136	425	86	122	37	245	42	373	75	490	1493
% App. Total	52.3	36.3	11.4		5.6	62.4	32		35.1	49.8	15.1		8.6	76.1	15.3		
PHF	.737	.818	.731	.793	.667	.895	.850	.916	.860	.782	.771	.863	.700	.982	.893	.965	.947
Cars	174	121	38	333	24	264	136	424	86	122	37	245	41	373	74	488	1490
% Cars	100	100	100	100	100	99.6	100	99.8	100	100	100	100	97.6	100	98.7	99.6	99.8
Trucks	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1	2	3
% Trucks	0	0	0	0	0	0.4	0	0.2	0	0	0	0	2.4	0	1.3	0.4	0.2

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S2
Site Code : 92210002
Start Date : 1/22/2022
Page No : 2



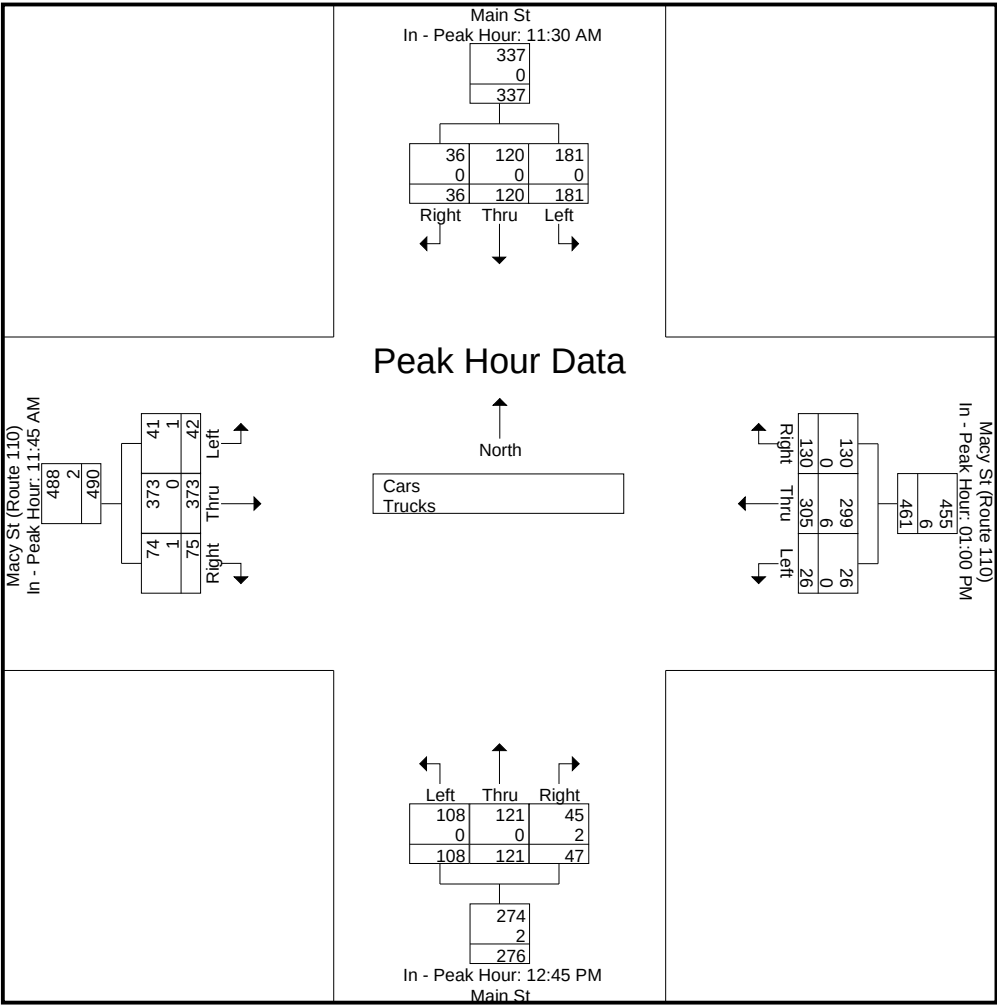
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	11:30 AM				01:00 PM				12:45 PM				11:45 AM			
+0 mins.	42	31	11	84	9	77	41	127	22	33	12	67	15	92	19	126
+15 mins.	59	37	9	105	3	72	29	104	23	33	10	66	6	95	17	118
+30 mins.	42	17	3	62	5	72	31	108	24	31	15	70	9	92	18	119
+45 mins.	38	35	13	86	9	84	29	122	39	24	10	73	12	94	21	127
Total Volume	181	120	36	337	26	305	130	461	108	121	47	276	42	373	75	490
% App. Total	53.7	35.6	10.7		5.6	66.2	28.2		39.1	43.8	17		8.6	76.1	15.3	
PHF	.767	.811	.692	.802	.722	.908	.793	.907	.692	.917	.783	.945	.700	.982	.893	.965
Cars	181	120	36	337	26	299	130	455	108	121	45	274	41	373	74	488
% Cars	100	100	100	100	100	98	100	98.7	100	100	95.7	99.3	97.6	100	98.7	99.6
Trucks	0	0	0	0	0	6	0	6	0	0	2	2	1	0	1	2
% Trucks	0	0	0	0	0	2	0	1.3	0	0	4.3	0.7	2.4	0	1.3	0.4

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S2
Site Code : 92210002
Start Date : 1/22/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S2
Site Code : 92210002
Start Date : 1/22/2022
Page No : 4

Groups Printed- Cars

	Main St From North			Macy St (Route 110) From East			Main St From South			Macy St (Route 110) From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
11:00 AM	45	20	6	11	50	39	22	34	10	6	74	22	339
11:15 AM	38	25	7	7	53	22	21	34	12	11	68	16	314
11:30 AM	42	31	11	2	56	40	25	37	18	14	84	25	385
11:45 AM	59	37	9	5	54	26	23	31	6	15	92	18	375
Total	184	113	33	25	213	127	91	136	46	46	318	81	1413
12:00 PM	42	17	3	4	74	36	13	28	12	6	95	17	347
12:15 PM	38	35	13	6	69	34	25	24	12	9	92	18	375
12:30 PM	35	32	13	9	67	40	25	39	7	11	94	21	393
12:45 PM	31	37	11	12	61	29	22	33	12	6	87	13	354
Total	146	121	40	31	271	139	85	124	43	32	368	69	1469
01:00 PM	37	22	7	9	75	41	23	33	10	2	76	19	354
01:15 PM	41	24	10	3	72	29	24	31	14	3	58	20	329
01:30 PM	33	21	6	5	72	31	39	24	9	6	86	10	342
01:45 PM	31	19	6	9	80	29	27	18	9	6	73	15	322
Total	142	86	29	26	299	130	113	106	42	17	293	64	1347
Grand Total	472	320	102	82	783	396	289	366	131	95	979	214	4229
Apprch %	52.8	35.8	11.4	6.5	62.1	31.4	36.8	46.6	16.7	7.4	76	16.6	
Total %	11.2	7.6	2.4	1.9	18.5	9.4	6.8	8.7	3.1	2.2	23.1	5.1	

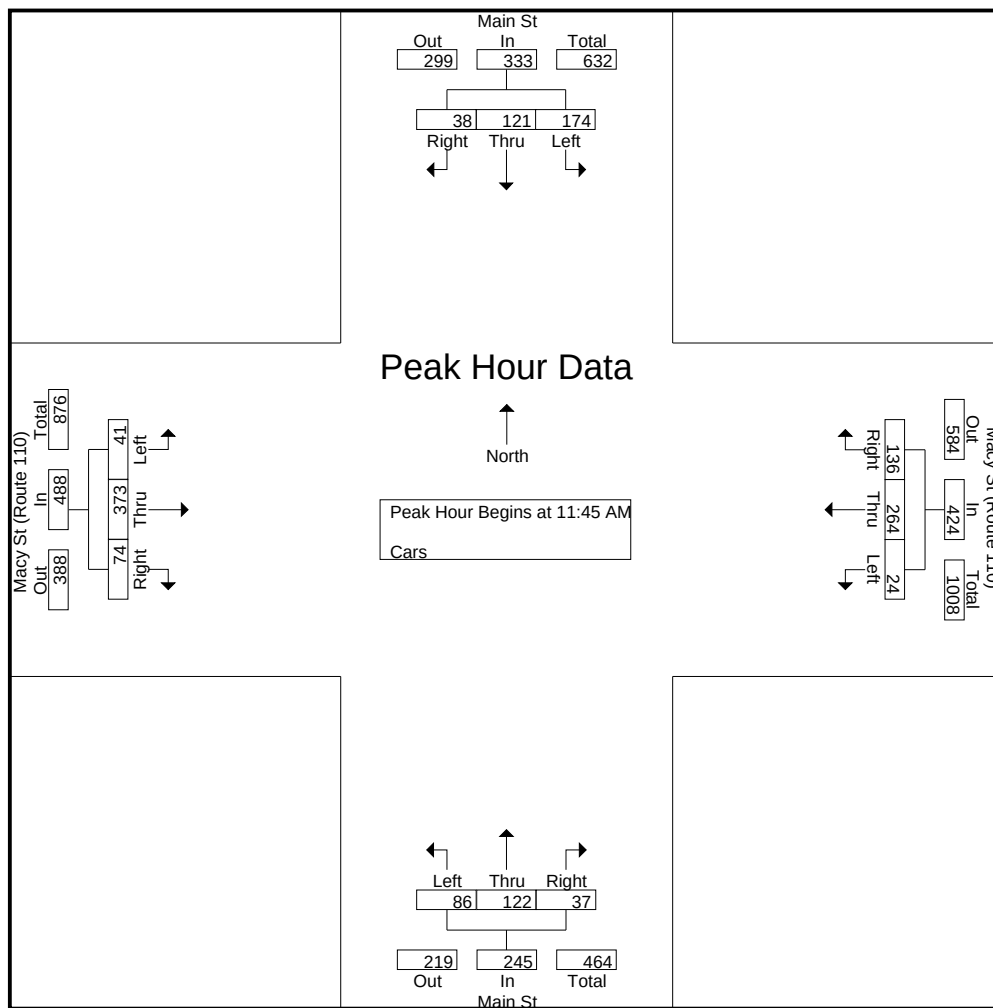
	Main St From North				Macy St (Route 110) From East				Main St From South				Macy St (Route 110) From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	59	37	9	105	5	54	26	85	23	31	6	60	15	92	18	125	375
12:00 PM	42	17	3	62	4	74	36	114	13	28	12	53	6	95	17	118	347
12:15 PM	38	35	13	86	6	69	34	109	25	24	12	61	9	92	18	119	375
12:30 PM	35	32	13	80	9	67	40	116	25	39	7	71	11	94	21	126	393
Total Volume	174	121	38	333	24	264	136	424	86	122	37	245	41	373	74	488	1490
% App. Total	52.3	36.3	11.4		5.7	62.3	32.1		35.1	49.8	15.1		8.4	76.4	15.2		
PHF	.737	.818	.731	.793	.667	.892	.850	.914	.860	.782	.771	.863	.683	.982	.881	.968	.948

Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S2
Site Code : 92210002
Start Date : 1/22/2022
Page No : 5



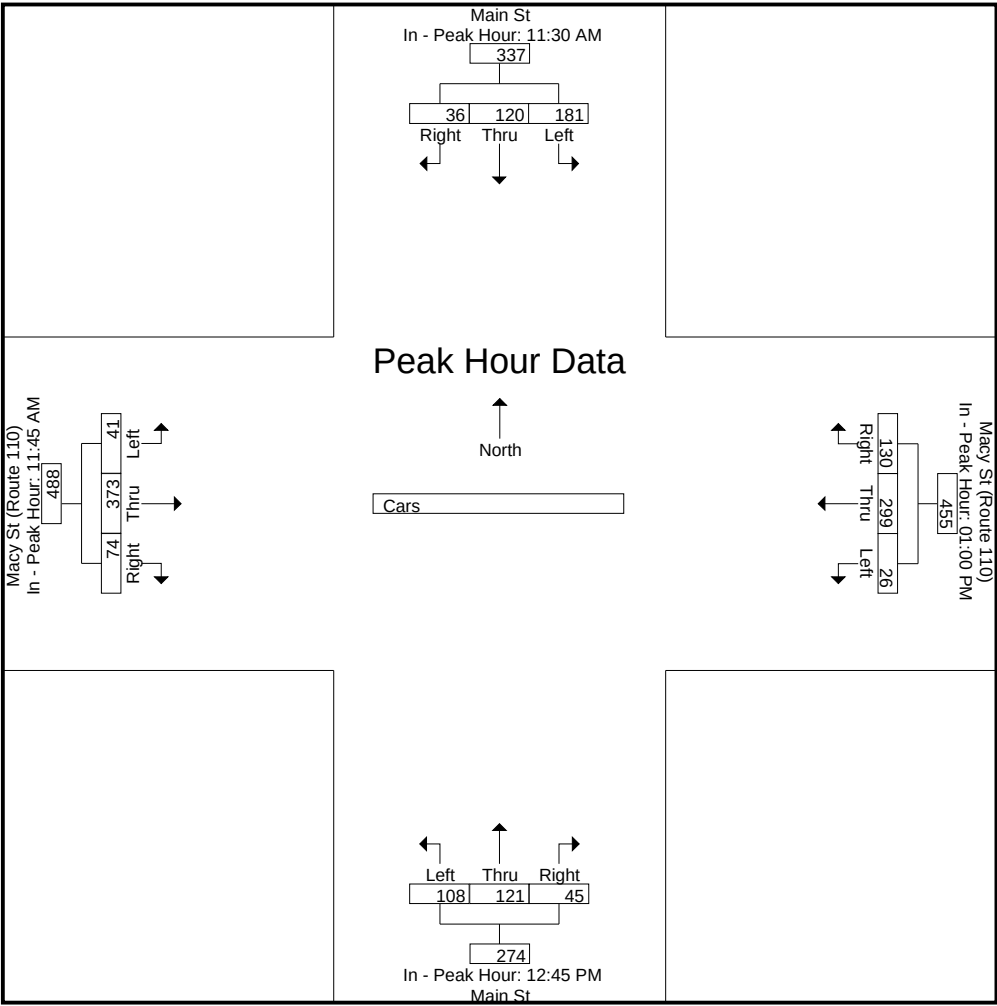
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	11:30 AM				01:00 PM				12:45 PM				11:45 AM			
+0 mins.	42	31	11	84	9	75	41	125	22	33	12	67	15	92	18	125
+15 mins.	59	37	9	105	3	72	29	104	23	33	10	66	6	95	17	118
+30 mins.	42	17	3	62	5	72	31	108	24	31	14	69	9	92	18	119
+45 mins.	38	35	13	86	9	80	29	118	39	24	9	72	11	94	21	126
Total Volume	181	120	36	337	26	299	130	455	108	121	45	274	41	373	74	488
% App. Total	53.7	35.6	10.7		5.7	65.7	28.6		39.4	44.2	16.4		8.4	76.4	15.2	
PHF	.767	.811	.692	.802	.722	.934	.793	.910	.692	.917	.804	.951	.683	.982	.881	.968

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S2
Site Code : 92210002
Start Date : 1/22/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S2
Site Code : 92210002
Start Date : 1/22/2022
Page No : 7

Groups Printed- Trucks

	Main St From North			Macy St (Route 110) From East			Main St From South			Macy St (Route 110) From West			Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	2
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	1	0	0	0	0	0	0	1	2
Total	0	0	1	0	2	0	0	0	0	0	0	1	4
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	0	0	1	1	0	2
01:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
01:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
01:30 PM	0	1	0	0	0	0	0	0	1	0	0	0	2
01:45 PM	0	0	0	0	4	0	0	0	0	0	0	0	4
Total	0	1	0	0	6	0	0	0	2	0	0	0	9
Grand Total	0	1	1	0	8	0	0	0	2	1	1	1	15
Apprch %	0	50	50	0	100	0	0	0	100	33.3	33.3	33.3	
Total %	0	6.7	6.7	0	53.3	0	0	0	13.3	6.7	6.7	6.7	

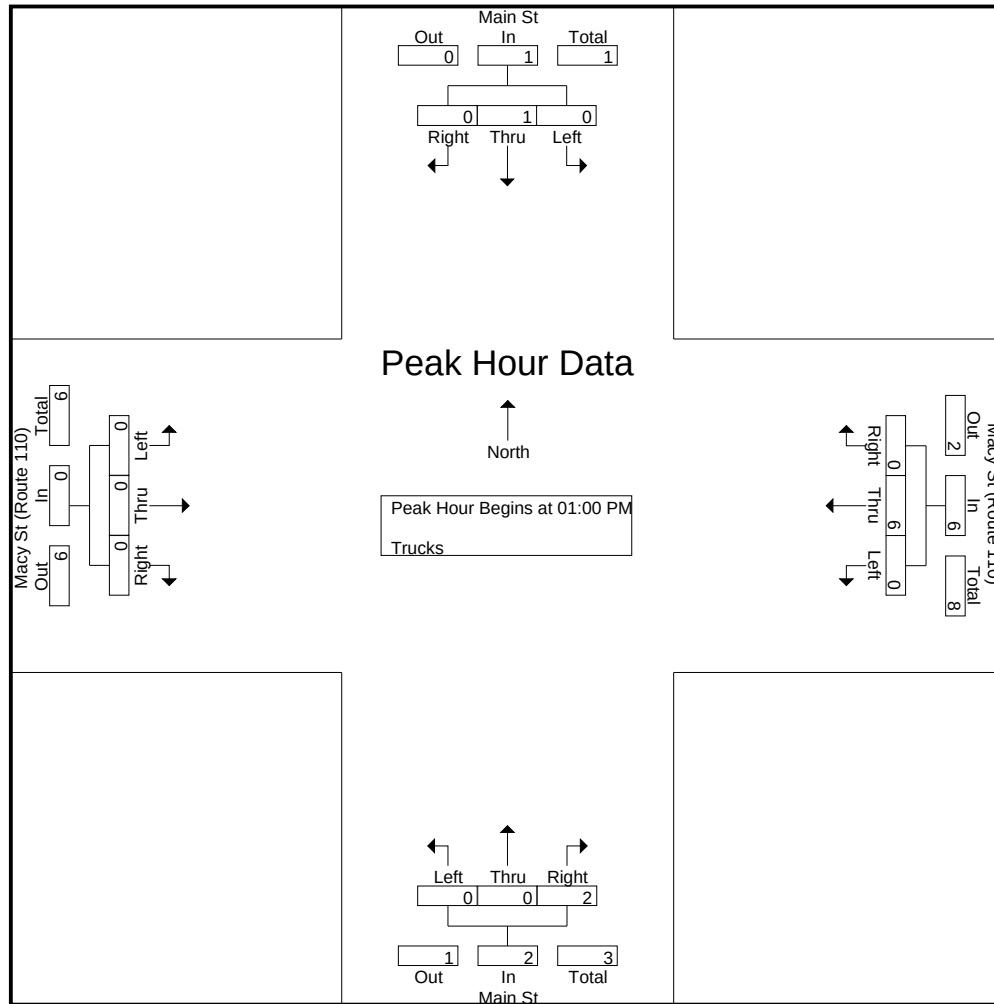
	Main St From North				Macy St (Route 110) From East				Main St From South				Macy St (Route 110) From West				Int. Total
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
01:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
01:30 PM	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
01:45 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	4
Total Volume	0	1	0	1	0	6	0	6	0	0	2	2	0	0	0	0	9
% App. Total	0	100	0		0	100	0		0	0	100		0	0	0		
PHF	.000	.250	.000	.250	.000	.375	.000	.375	.000	.000	.500	.500	.000	.000	.000	.000	.563

Accurate Counts

978-664-2565

N/S Street : Main Street
 E/W Street : Macy Street (Route 110)
 City/State : Amesbury, MA
 Weather : Clear

File Name : 922100S2
 Site Code : 92210002
 Start Date : 1/22/2022
 Page No : 8

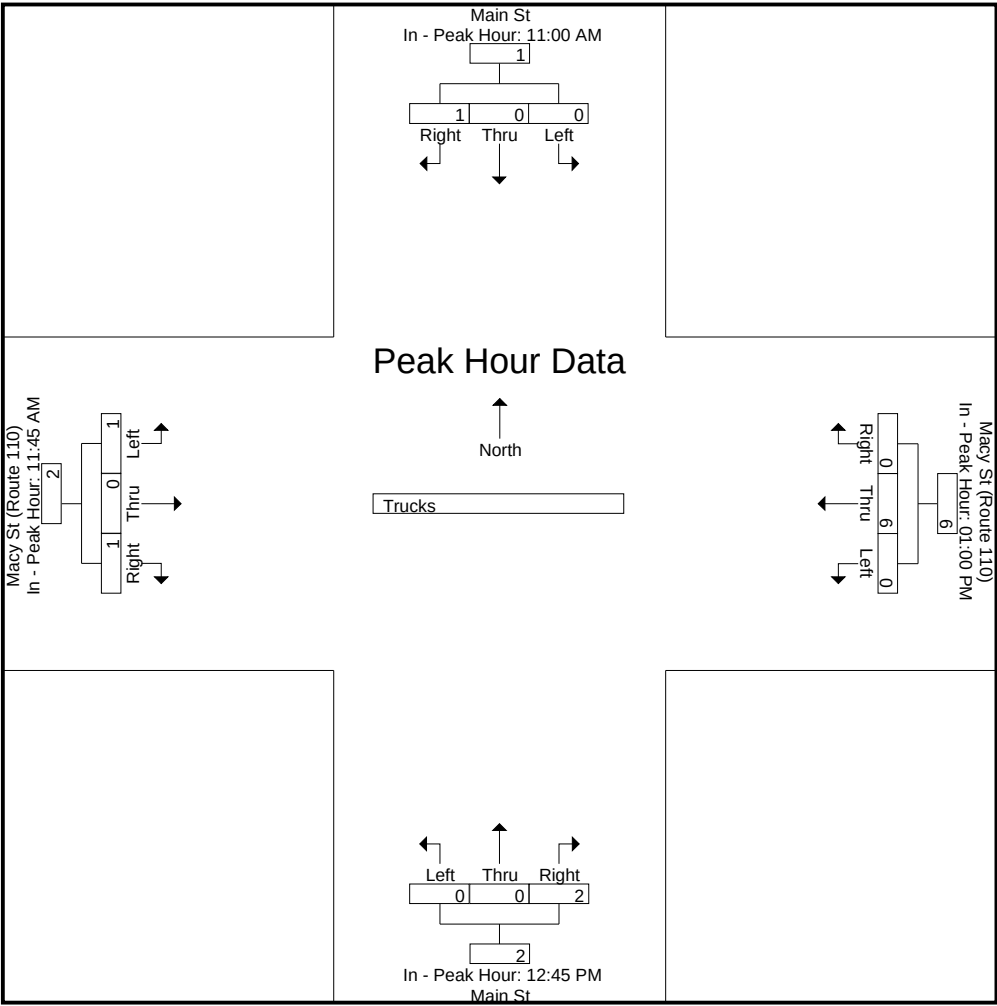


Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	11:00 AM				01:00 PM				12:45 PM				11:45 AM			
+0 mins.	0	0	1	1	0	2	0	2	0	0	0	0	0	0	1	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
+45 mins.	0	0	0	0	0	4	0	4	0	0	1	1	1	0	0	1
Total Volume	0	0	1	1	0	6	0	6	0	0	2	2	1	0	1	2
% App. Total	0	0	100		0	100	0		0	0	100		50	0	50	
PHF	.000	.000	.250	.250	.000	.375	.000	.375	.000	.000	.500	.500	.250	.000	.250	.500

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S2
Site Code : 92210002
Start Date : 1/22/2022
Page No : 9



978-664-2565

File Name : 922100S2
Site Code : 92210002
Start Date : 1/22/2022
Page No : 10

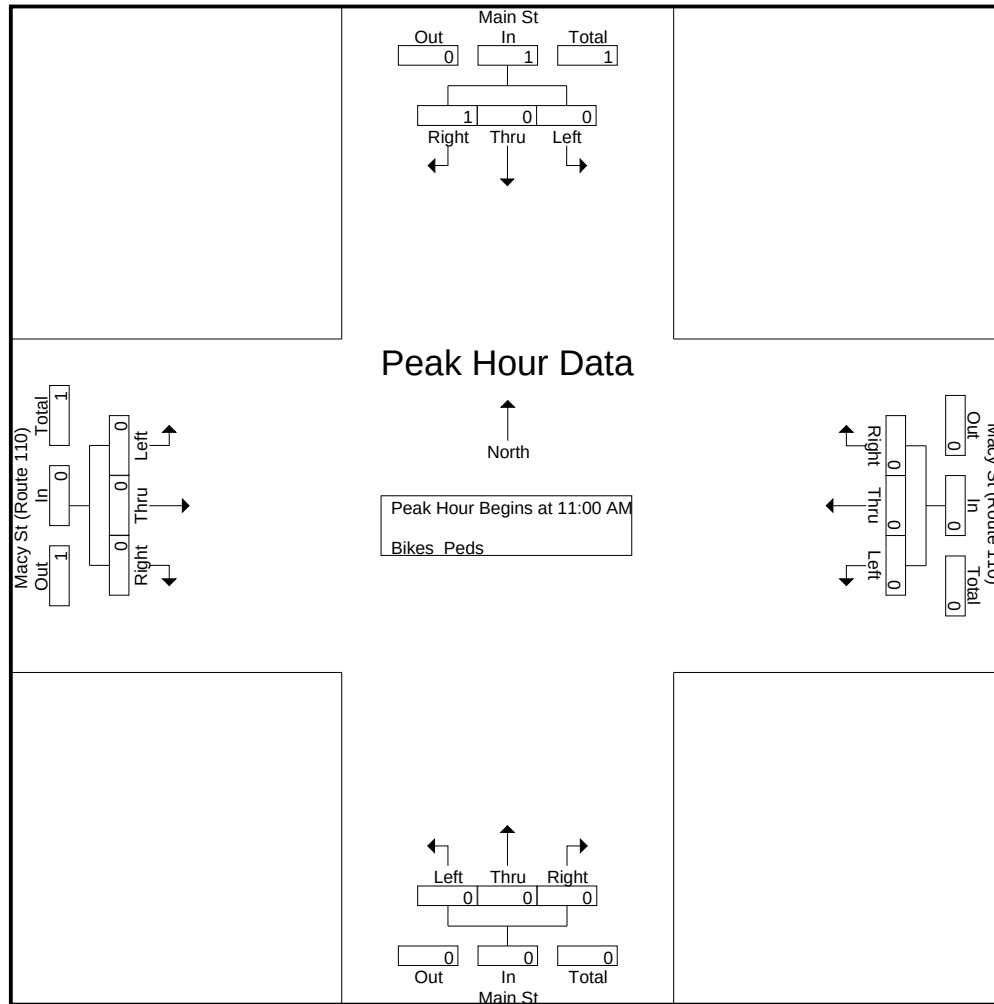
	Main St From North				Macy St (Route 110) From East				Main St From South				Macy St (Route 110) From West							
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2	
11:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	1	3	1	4
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
01:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	0	2	
01:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	3	0	3	
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2	
Total	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	5	7	0	7	
Grand Total	0	0	1	0	0	0	0	2	0	0	0	2	0	0	0	7	11	1	12	
Apprch %	0	0	100		0	0	0		0	0	0		0	0	0					
Total %	0	0	100		0	0	0		0	0	0		0	0	0		91.7	8.3		

[illegible]

978-664-2565

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S2
Site Code : 92210002
Start Date : 1/22/2022
Page No : 11

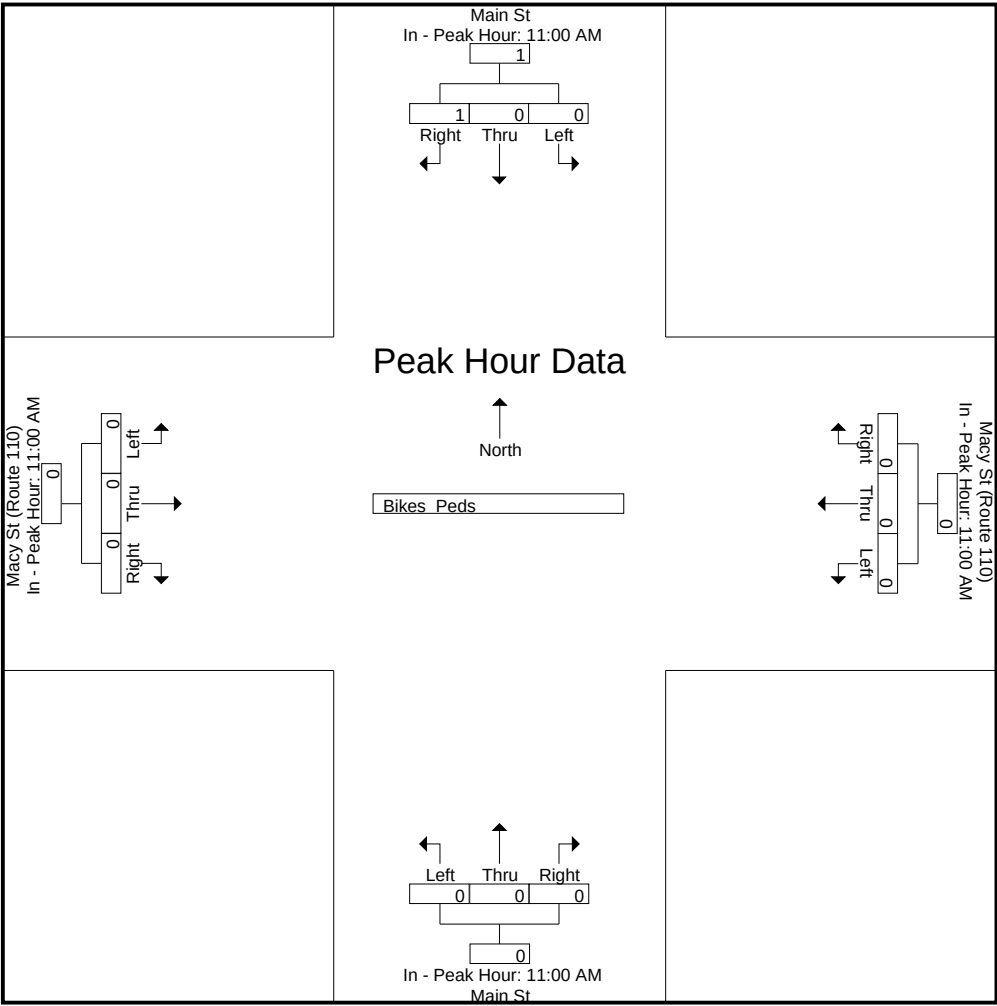


Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

[illegible]

N/S Street : Main Street
E/W Street : Macy Street (Route 110)
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S2
Site Code : 92210002
Start Date : 1/22/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 1

Groups Printed- Cars - Trucks

	Rocky Hill Rd From North		Main St From East		Main St From West		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
07:00 AM	28	4	33	5	2	53	125
07:15 AM	34	3	37	1	1	61	137
07:30 AM	43	3	43	7	1	68	165
07:45 AM	34	4	56	2	8	80	184
Total	139	14	169	15	12	262	611
08:00 AM	30	3	53	3	1	77	167
08:15 AM	37	3	71	6	3	71	191
08:30 AM	37	4	49	5	1	58	154
08:45 AM	31	2	54	7	5	63	162
Total	135	12	227	21	10	269	674
Grand Total	274	26	396	36	22	531	1285
Apprch %	91.3	8.7	91.7	8.3	4	96	
Total %	21.3	2	30.8	2.8	1.7	41.3	
Cars	267	26	395	36	21	530	1275
% Cars	97.4	100	99.7	100	95.5	99.8	99.2
Trucks	7	0	1	0	1	1	10
% Trucks	2.6	0	0.3	0	4.5	0.2	0.8

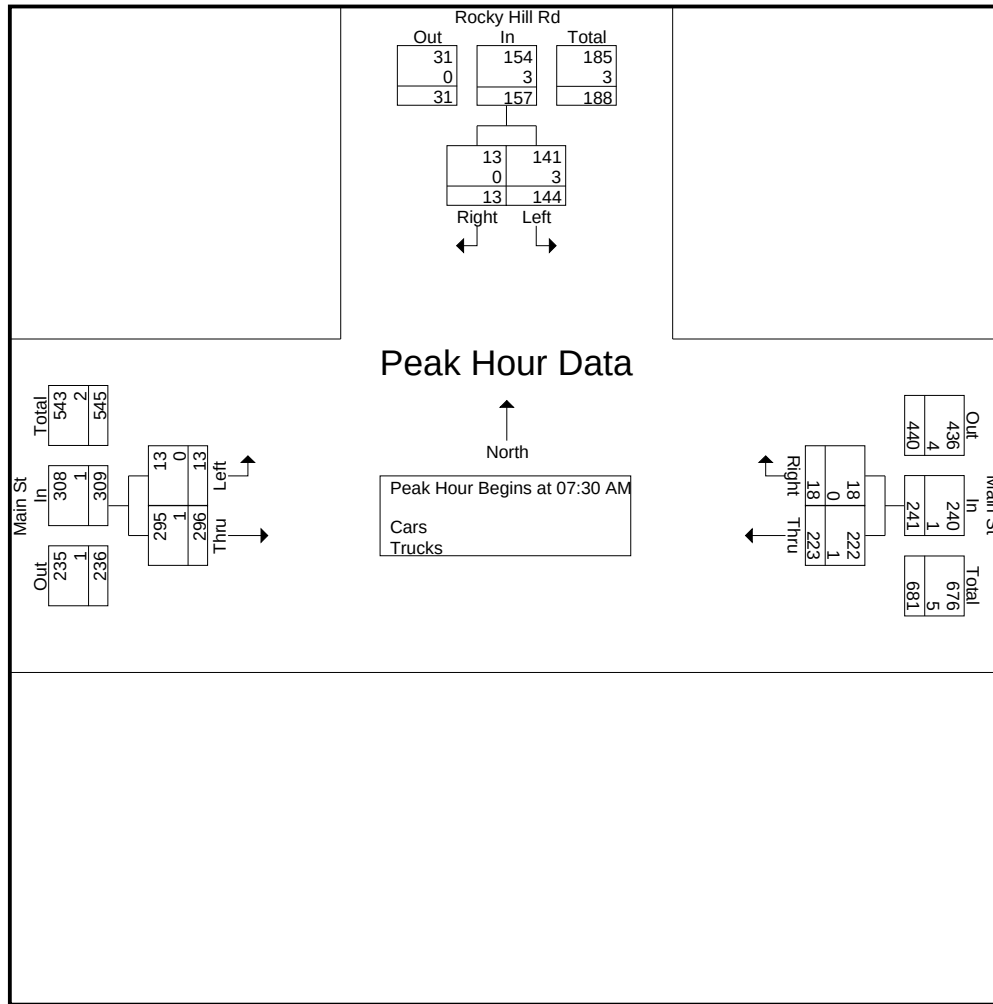
	Rocky Hill Rd From North			Main St From East			Main St From West			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	43	3	46	43	7	50	1	68	69	165
07:45 AM	34	4	38	56	2	58	8	80	88	184
08:00 AM	30	3	33	53	3	56	1	77	78	167
08:15 AM	37	3	40	71	6	77	3	71	74	191
Total Volume	144	13	157	223	18	241	13	296	309	707
% App. Total	91.7	8.3		92.5	7.5		4.2	95.8		
PHF	.837	.813	.853	.785	.643	.782	.406	.925	.878	.925
Cars	141	13	154	222	18	240	13	295	308	702
% Cars	97.9	100	98.1	99.6	100	99.6	100	99.7	99.7	99.3
Trucks	3	0	3	1	0	1	0	1	1	5
% Trucks	2.1	0	1.9	0.4	0	0.4	0	0.3	0.3	0.7

Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 2



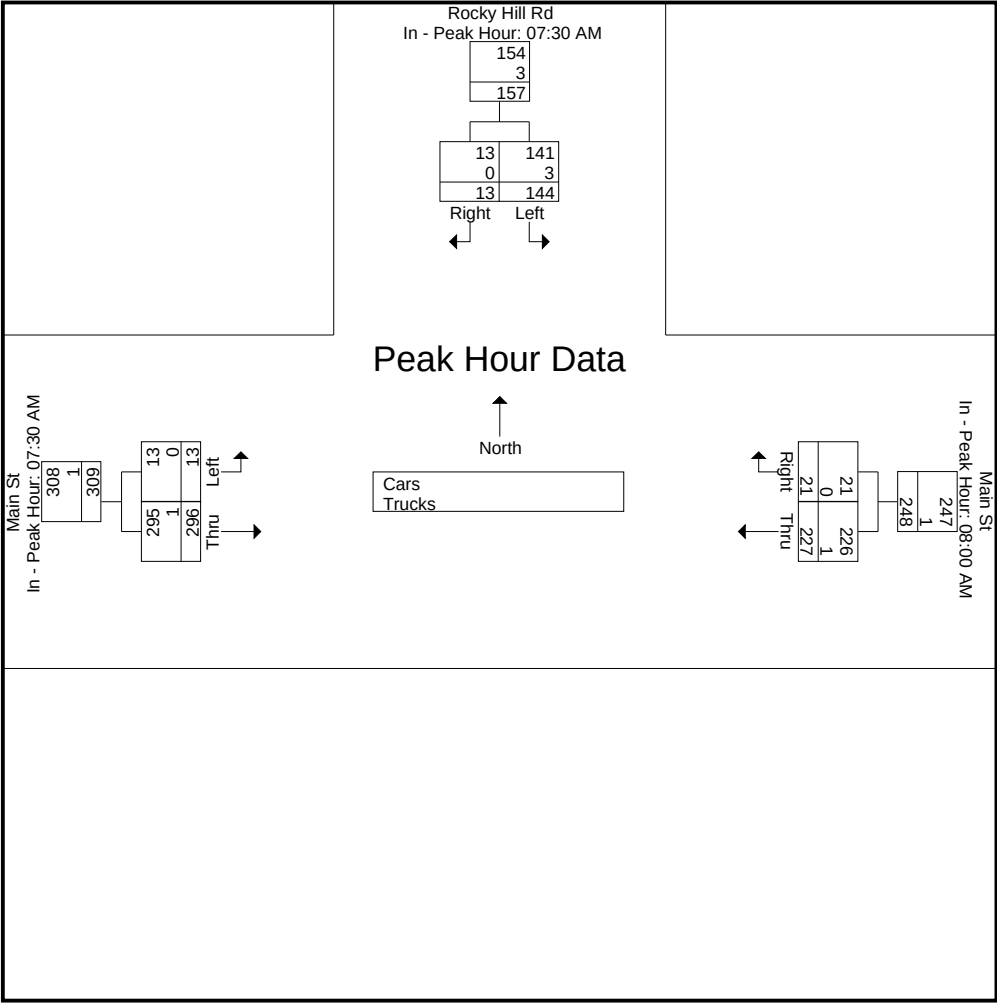
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM			08:00 AM			07:30 AM		
+0 mins.	43	3	46	53	3	56	1	68	69
+15 mins.	34	4	38	71	6	77	8	80	88
+30 mins.	30	3	33	49	5	54	1	77	78
+45 mins.	37	3	40	54	7	61	3	71	74
Total Volume	144	13	157	227	21	248	13	296	309
% App. Total	91.7	8.3		91.5	8.5		4.2	95.8	
PHF	.837	.813	.853	.799	.750	.805	.406	.925	.878
Cars	141	13	154	226	21	247	13	295	308
% Cars	97.9	100	98.1	99.6	100	99.6	100	99.7	99.7
Trucks	3	0	3	1	0	1	0	1	1
% Trucks	2.1	0	1.9	0.4	0	0.4	0	0.3	0.3

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 4

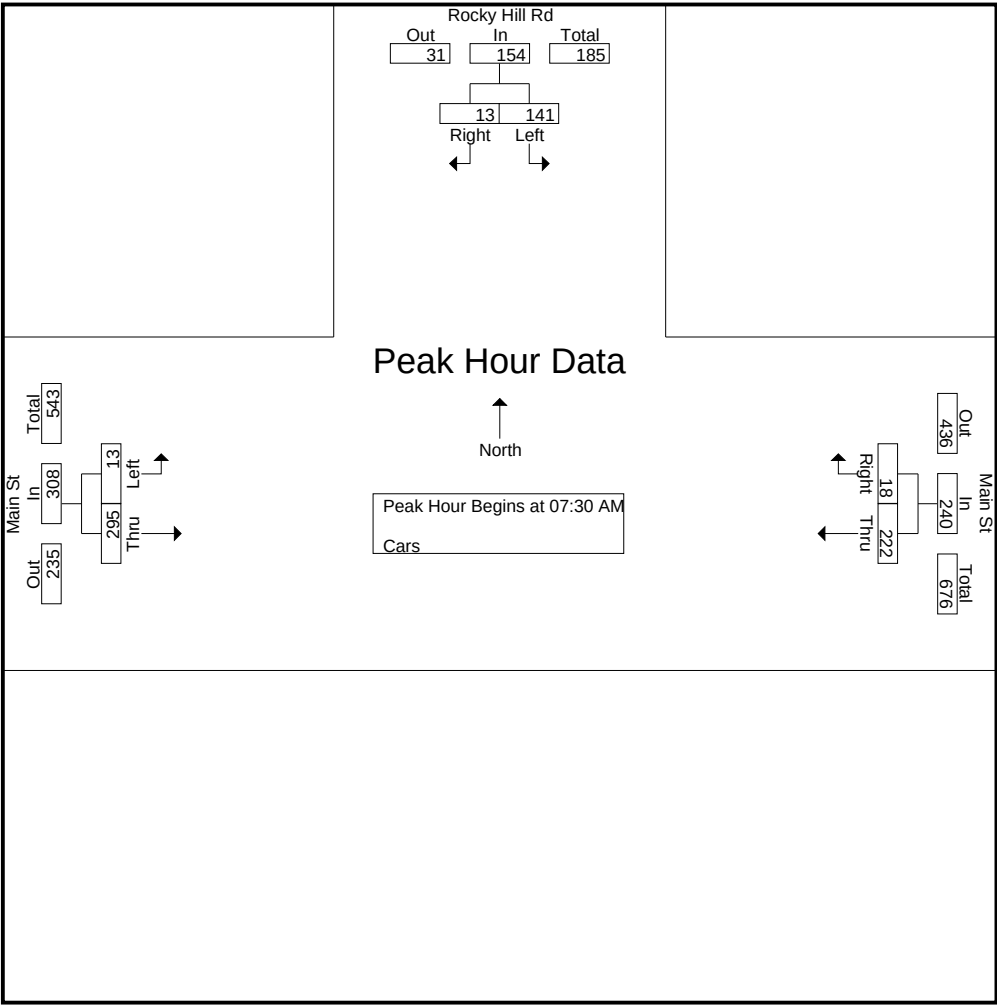
Groups Printed- Cars

	Rocky Hill Rd From North		Main St From East		Main St From West		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
07:00 AM	26	4	33	5	2	53	123
07:15 AM	33	3	37	1	1	61	136
07:30 AM	43	3	43	7	1	68	165
07:45 AM	33	4	56	2	8	80	183
Total	135	14	169	15	12	262	607
08:00 AM	29	3	52	3	1	77	165
08:15 AM	36	3	71	6	3	70	189
08:30 AM	36	4	49	5	1	58	153
08:45 AM	31	2	54	7	4	63	161
Total	132	12	226	21	9	268	668
Grand Total	267	26	395	36	21	530	1275
Apprch %	91.1	8.9	91.6	8.4	3.8	96.2	
Total %	20.9	2	31	2.8	1.6	41.6	

	Rocky Hill Rd From North			Main St From East			Main St From West			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	43	3	46	43	7	50	1	68	69	165
07:45 AM	33	4	37	56	2	58	8	80	88	183
08:00 AM	29	3	32	52	3	55	1	77	78	165
08:15 AM	36	3	39	71	6	77	3	70	73	189
Total Volume	141	13	154	222	18	240	13	295	308	702
% App. Total	91.6	8.4		92.5	7.5		4.2	95.8		
PHF	.820	.813	.837	.782	.643	.779	.406	.922	.875	.929

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 5

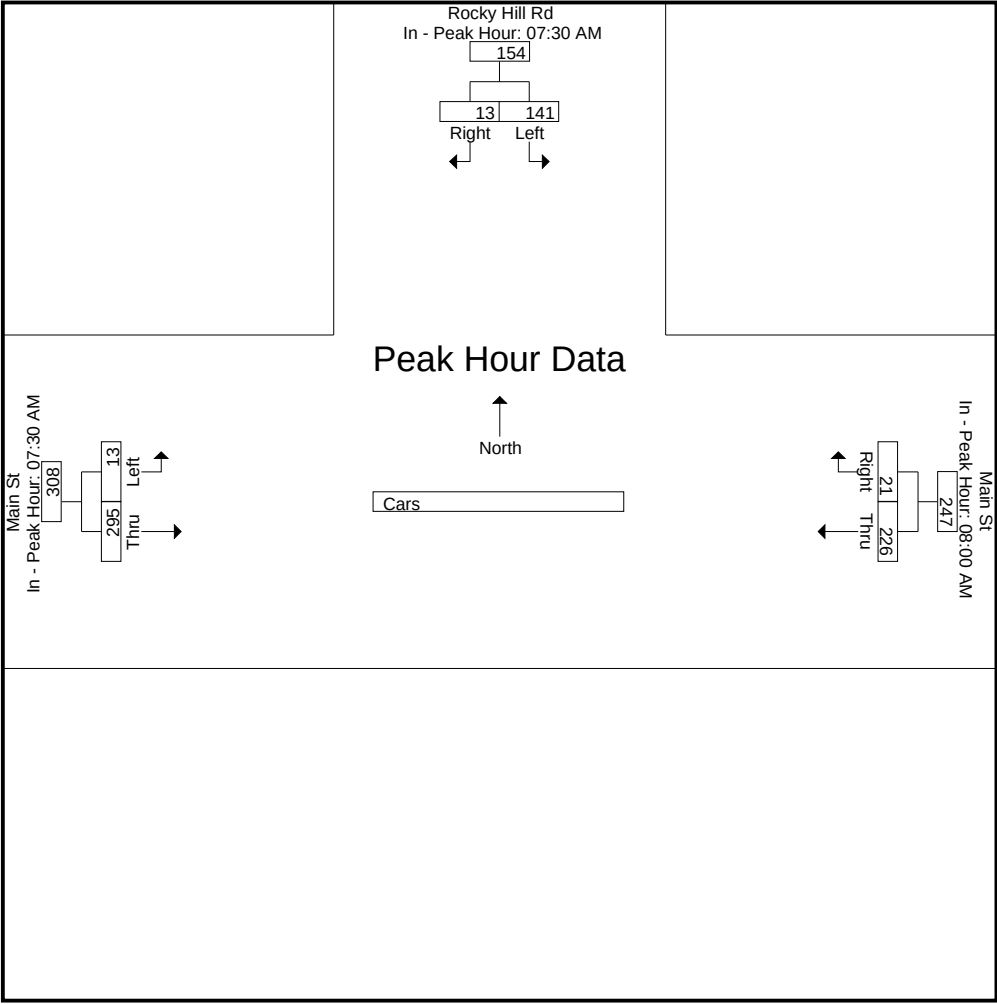


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			08:00 AM			07:30 AM		
+0 mins.	43	3	46	52	3	55	1	68	69
+15 mins.	33	4	37	71	6	77	8	80	88
+30 mins.	29	3	32	49	5	54	1	77	78
+45 mins.	36	3	39	54	7	61	3	70	73
Total Volume	141	13	154	226	21	247	13	295	308
% App. Total	91.6	8.4		91.5	8.5		4.2	95.8	
PHF	.820	.813	.837	.796	.750	.802	.406	.922	.875

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 7

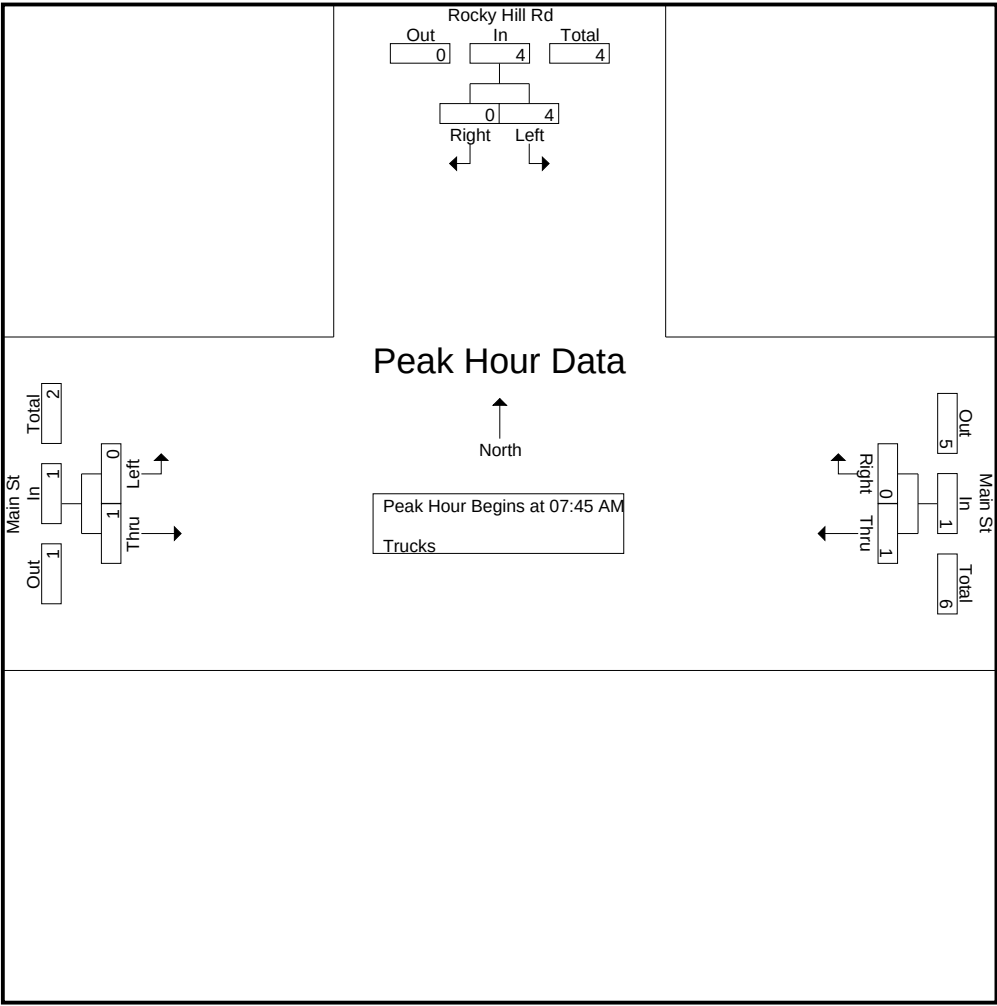
Groups Printed- Trucks

	Rocky Hill Rd From North		Main St From East		Main St From West		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
07:00 AM	2	0	0	0	0	0	2
07:15 AM	1	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0
07:45 AM	1	0	0	0	0	0	1
Total	4	0	0	0	0	0	4
08:00 AM	1	0	1	0	0	0	2
08:15 AM	1	0	0	0	0	1	2
08:30 AM	1	0	0	0	0	0	1
08:45 AM	0	0	0	0	1	0	1
Total	3	0	1	0	1	1	6
Grand Total	7	0	1	0	1	1	10
Apprch %	100	0	100	0	50	50	
Total %	70	0	10	0	10	10	

	Rocky Hill Rd From North			Main St From East			Main St From West			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	1	0	1	0	0	0	0	0	0	1
08:00 AM	1	0	1	1	0	1	0	0	0	2
08:15 AM	1	0	1	0	0	0	0	1	1	2
08:30 AM	1	0	1	0	0	0	0	0	0	1
Total Volume	4	0	4	1	0	1	0	1	1	6
% App. Total	100	0		100	0		0	100		
PHF	1.00	.000	1.00	.250	.000	.250	.000	.250	.250	.750

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 8

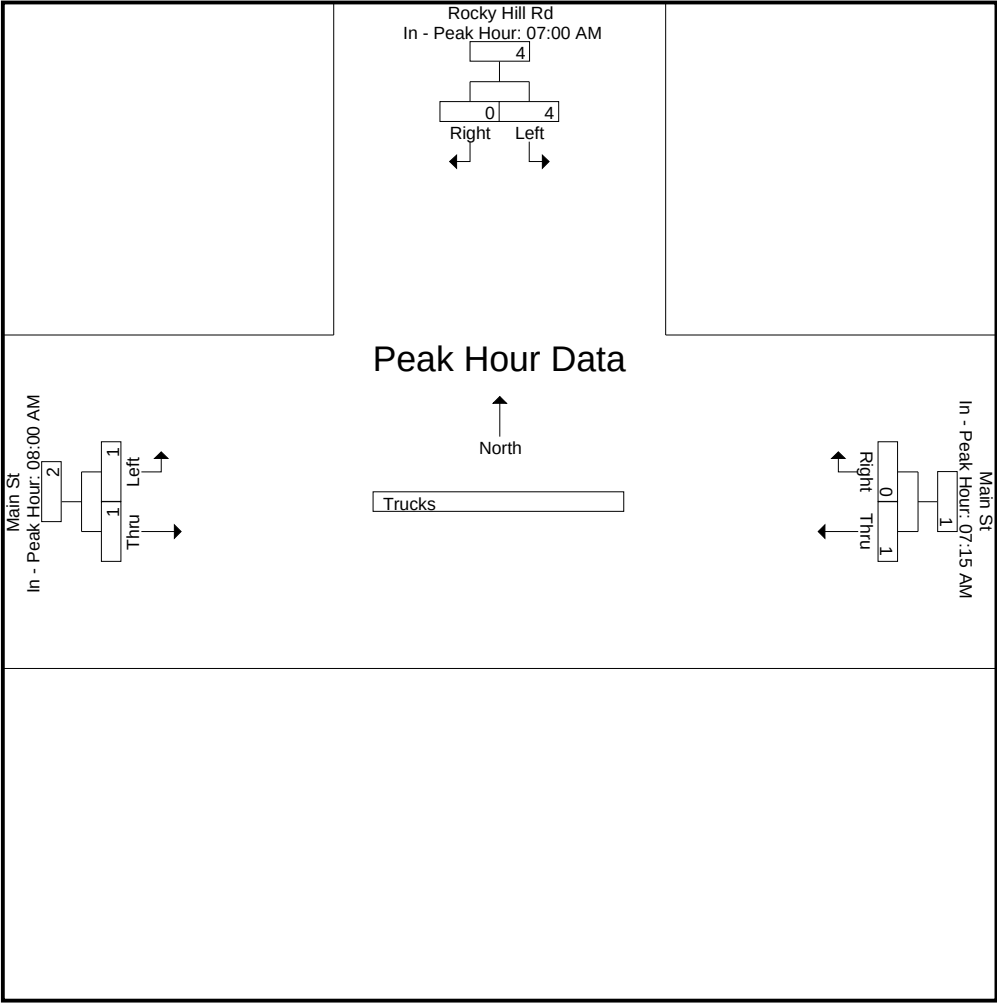


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:15 AM			08:00 AM		
+0 mins.	2	0	2	0	0	0	0	0	0
+15 mins.	1	0	1	0	0	0	0	1	1
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	1	0	1	1	0	1	1	0	1
Total Volume	4	0	4	1	0	1	1	1	2
% App. Total	100	0		100	0		50	50	
PHF	.500	.000	.500	.250	.000	.250	.250	.250	.500

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 9



978-664-2565

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 10

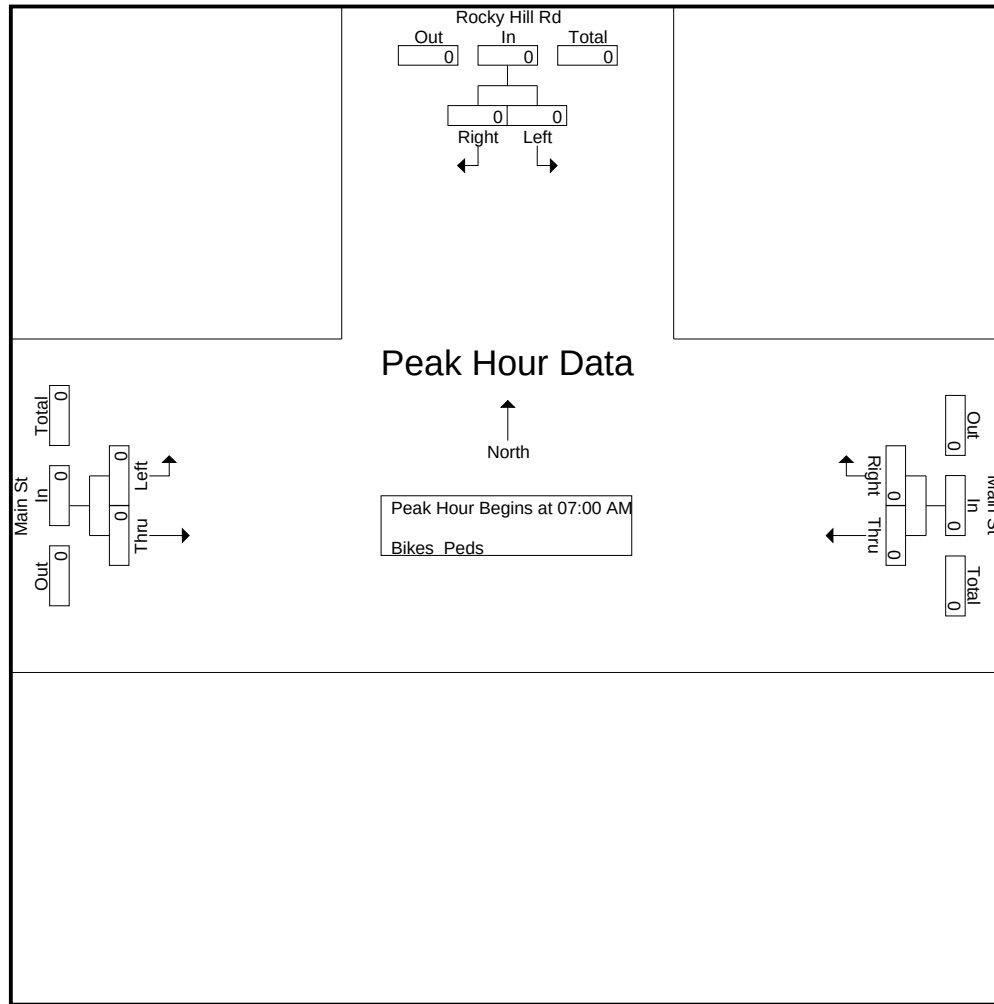
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978-664-2565

978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 11



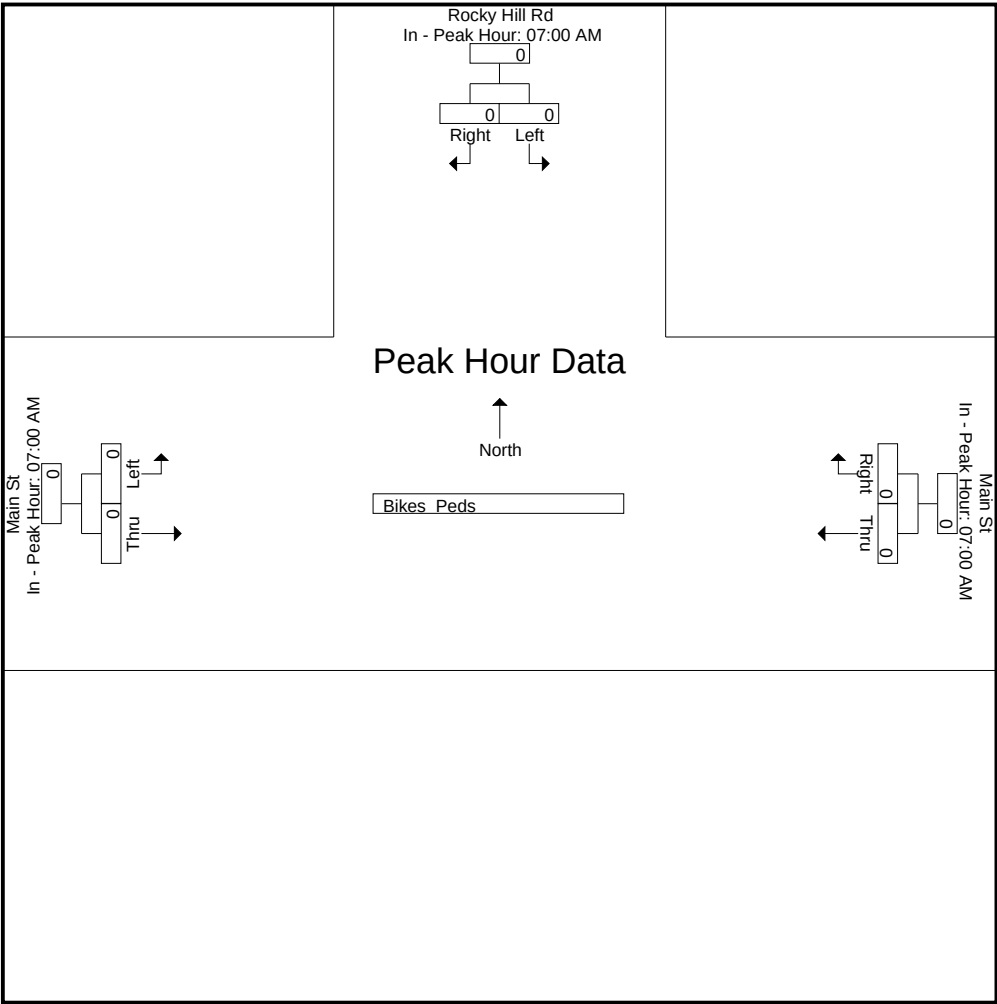
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

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N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 12



978-664-2565

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 1

	Groups: Trucks						
	Rocky Hill Rd From North		Main St From East		Main St From West		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
04:00 PM	30	5	112	11	2	51	211
04:15 PM	22	6	108	6	6	47	195
04:30 PM	32	8	84	11	1	65	201
04:45 PM	28	8	88	7	1	41	173
Total	112	27	392	35	10	204	780
05:00 PM	27	6	130	11	2	67	243
05:15 PM	26	5	105	11	4	35	186
05:30 PM	24	10	74	15	5	52	180
05:45 PM	22	3	73	4	3	40	145
Total	99	24	382	41	14	194	754
Grand Total	211	51	774	76	24	398	1534
Apprch %	80.5	19.5	91.1	8.9	5.7	94.3	
Total %	13.8	3.3	50.5	5	1.6	25.9	
Cars	211	51	773	76	24	398	1533
% Cars	100	100	99.9	100	100	100	99.9
Trucks	0	0	1	0	0	0	1
% Trucks	0	0	0.1	0	0	0	0.1

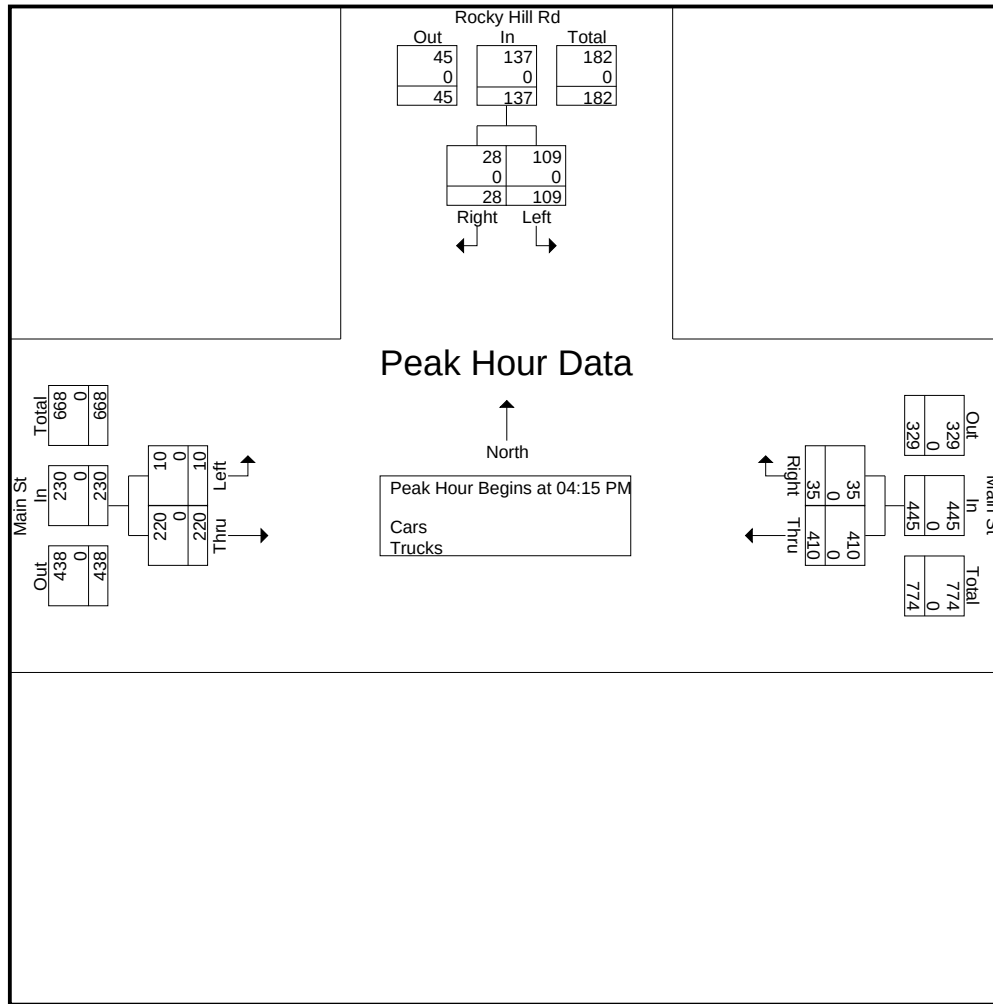
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Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
 E/W Street : Main Street
 City/State : Amesbury, MA
 Weather : Cloudy

File Name : 92210003
 Site Code : 92210003
 Start Date : 1/20/2022
 Page No : 2

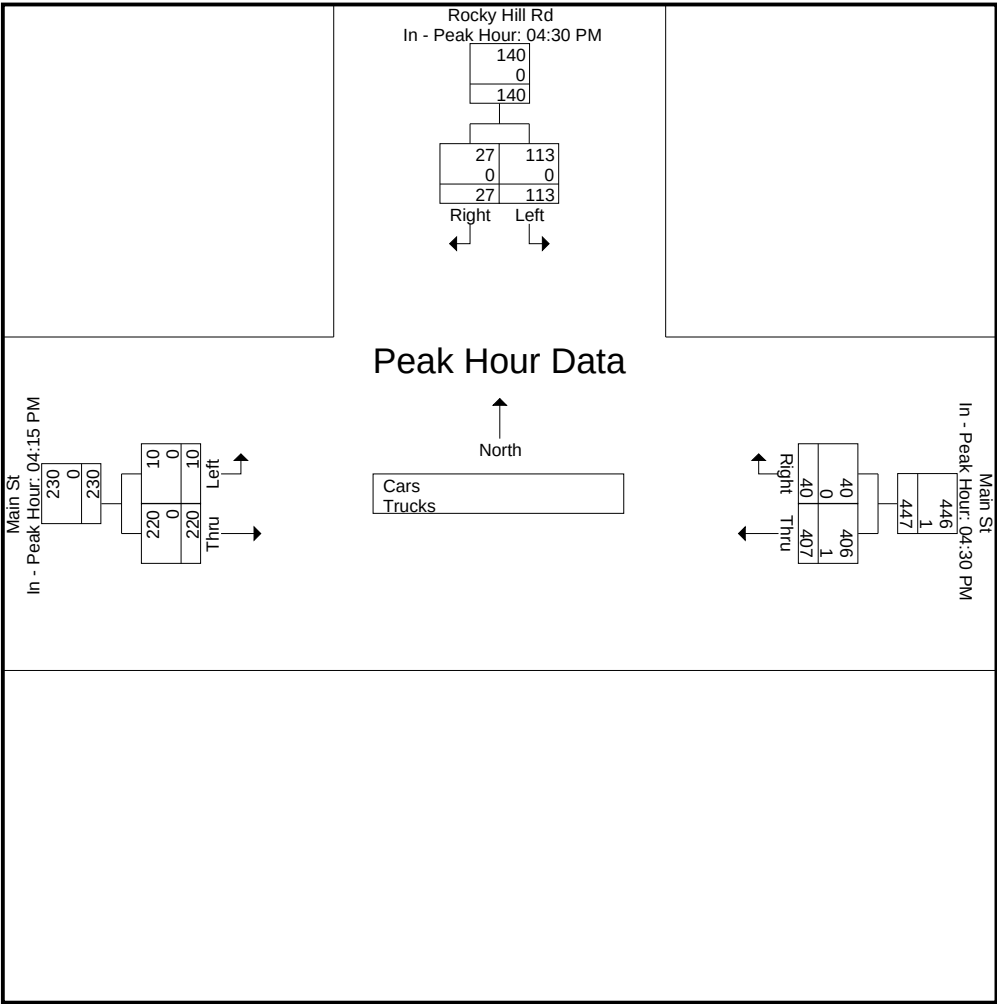


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:15 PM		
+0 mins.	32	8	40	84	11	95	6	47	53
+15 mins.	28	8	36	88	7	95	1	65	66
+30 mins.	27	6	33	130	11	141	1	41	42
+45 mins.	26	5	31	105	11	116	2	67	69
Total Volume	113	27	140	407	40	447	10	220	230
% App. Total	80.7	19.3		91.1	8.9		4.3	95.7	
PHF	.883	.844	.875	.783	.909	.793	.417	.821	.833
Cars	113	27	140	406	40	446	10	220	230
% Cars	100	100	100	99.8	100	99.8	100	100	100
Trucks	0	0	0	1	0	1	0	0	0
% Trucks	0	0	0	0.2	0	0.2	0	0	0

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 4

Groups Printed- Cars

	Rocky Hill Rd From North		Main St From East		Main St From West		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
04:00 PM	30	5	112	11	2	51	211
04:15 PM	22	6	108	6	6	47	195
04:30 PM	32	8	84	11	1	65	201
04:45 PM	28	8	88	7	1	41	173
Total	112	27	392	35	10	204	780
05:00 PM	27	6	130	11	2	67	243
05:15 PM	26	5	104	11	4	35	185
05:30 PM	24	10	74	15	5	52	180
05:45 PM	22	3	73	4	3	40	145
Total	99	24	381	41	14	194	753
Grand Total	211	51	773	76	24	398	1533
Apprch %	80.5	19.5	91	9	5.7	94.3	
Total %	13.8	3.3	50.4	5	1.6	26	

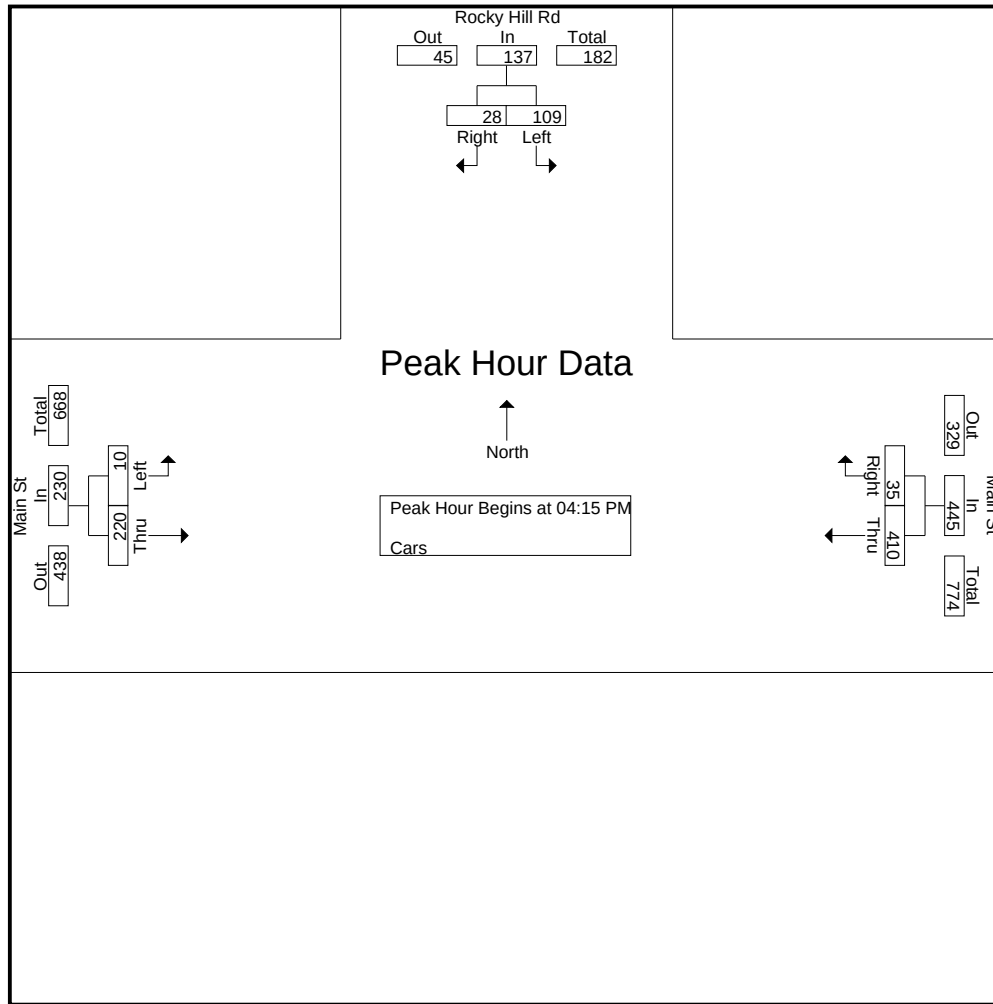
	Rocky Hill Rd From North			Main St From East			Main St From West			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	22	6	28	108	6	114	6	47	53	195
04:30 PM	32	8	40	84	11	95	1	65	66	201
04:45 PM	28	8	36	88	7	95	1	41	42	173
05:00 PM	27	6	33	130	11	141	2	67	69	243
Total Volume	109	28	137	410	35	445	10	220	230	812
% App. Total	79.6	20.4		92.1	7.9		4.3	95.7		
PHF	.852	.875	.856	.788	.795	.789	.417	.821	.833	.835

Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
 E/W Street : Main Street
 City/State : Amesbury, MA
 Weather : Cloudy

File Name : 92210003
 Site Code : 92210003
 Start Date : 1/20/2022
 Page No : 5

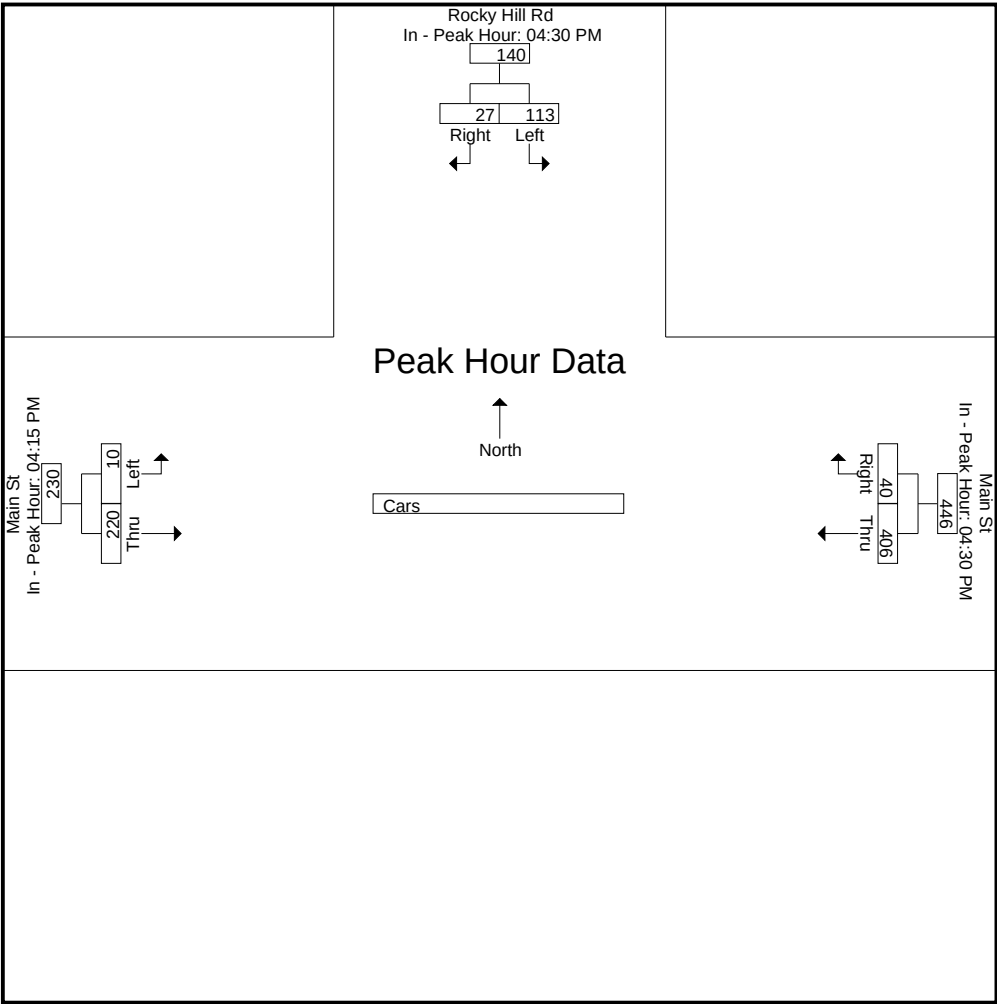


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			04:15 PM		
+0 mins.	32	8	40	84	11	95	6	47	53
+15 mins.	28	8	36	88	7	95	1	65	66
+30 mins.	27	6	33	130	11	141	1	41	42
+45 mins.	26	5	31	104	11	115	2	67	69
Total Volume	113	27	140	406	40	446	10	220	230
% App. Total	80.7	19.3		91	9		4.3	95.7	
PHF	.883	.844	.875	.781	.909	.791	.417	.821	.833

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 7

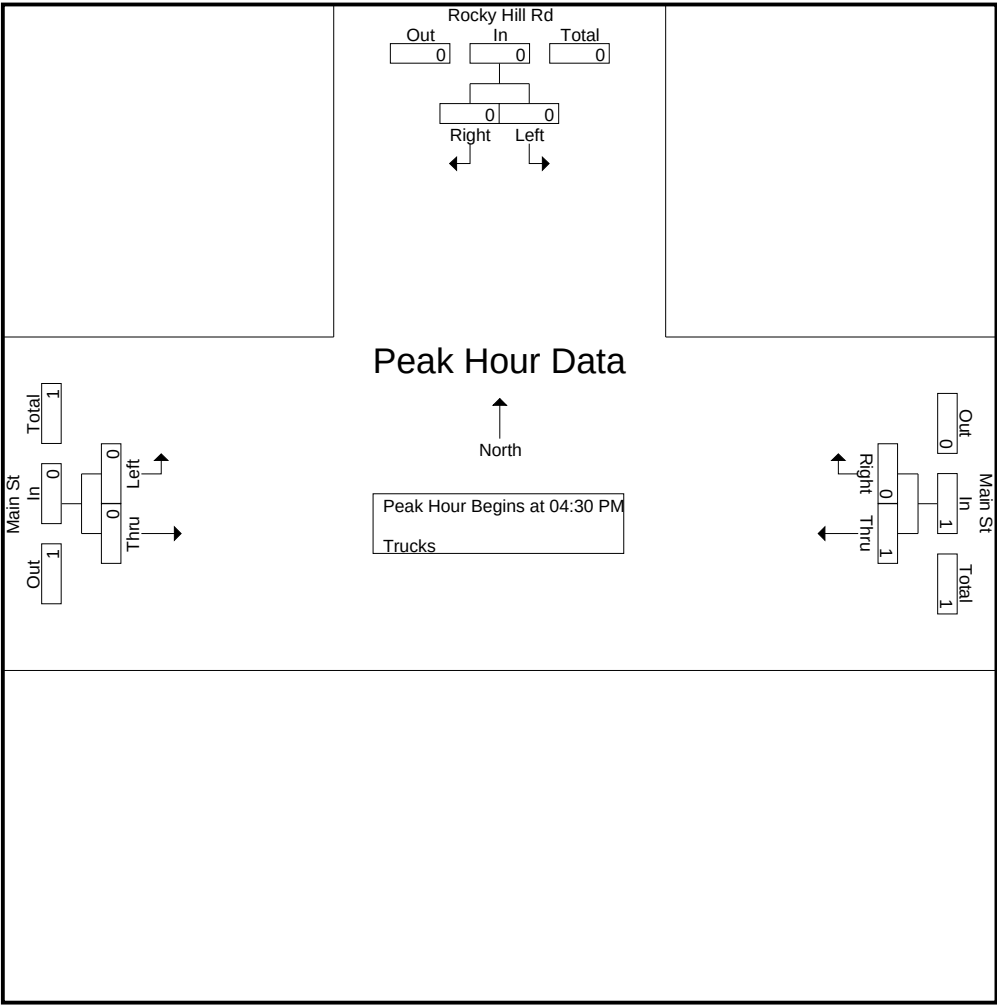
Groups Printed- Trucks

	Rocky Hill Rd From North		Main St From East		Main St From West		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
04:00 PM	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0
05:15 PM	0	0	1	0	0	0	1
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	1
Grand Total	0	0	1	0	0	0	1
Apprch %	0	0	100	0	0	0	
Total %	0	0	100	0	0	0	

	Rocky Hill Rd From North			Main St From East			Main St From West			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	1	0	1	0	0	0	1
Total Volume	0	0	0	1	0	1	0	0	0	1
% App. Total	0	0		100	0		0	0		
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 8

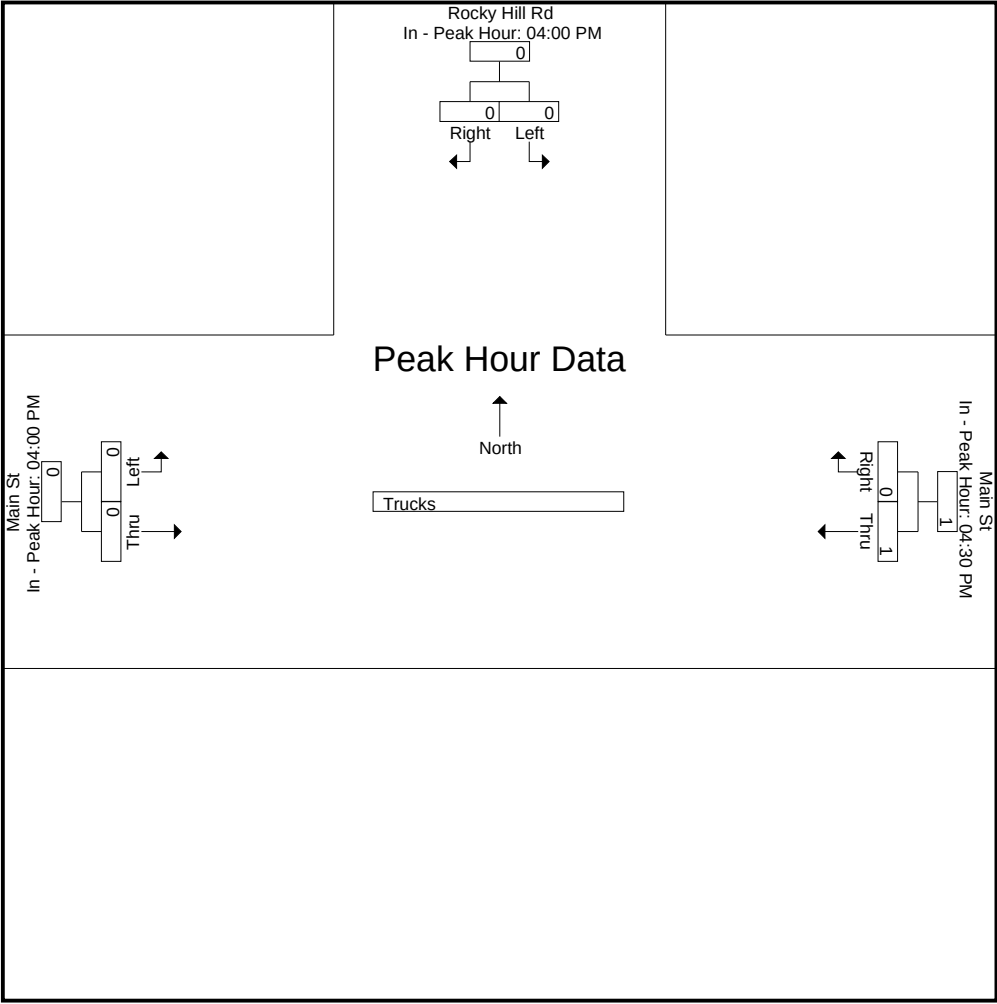


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:30 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	1	0	1	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0
% App. Total	0	0		100	0		0	0	
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 9



978-664-2565

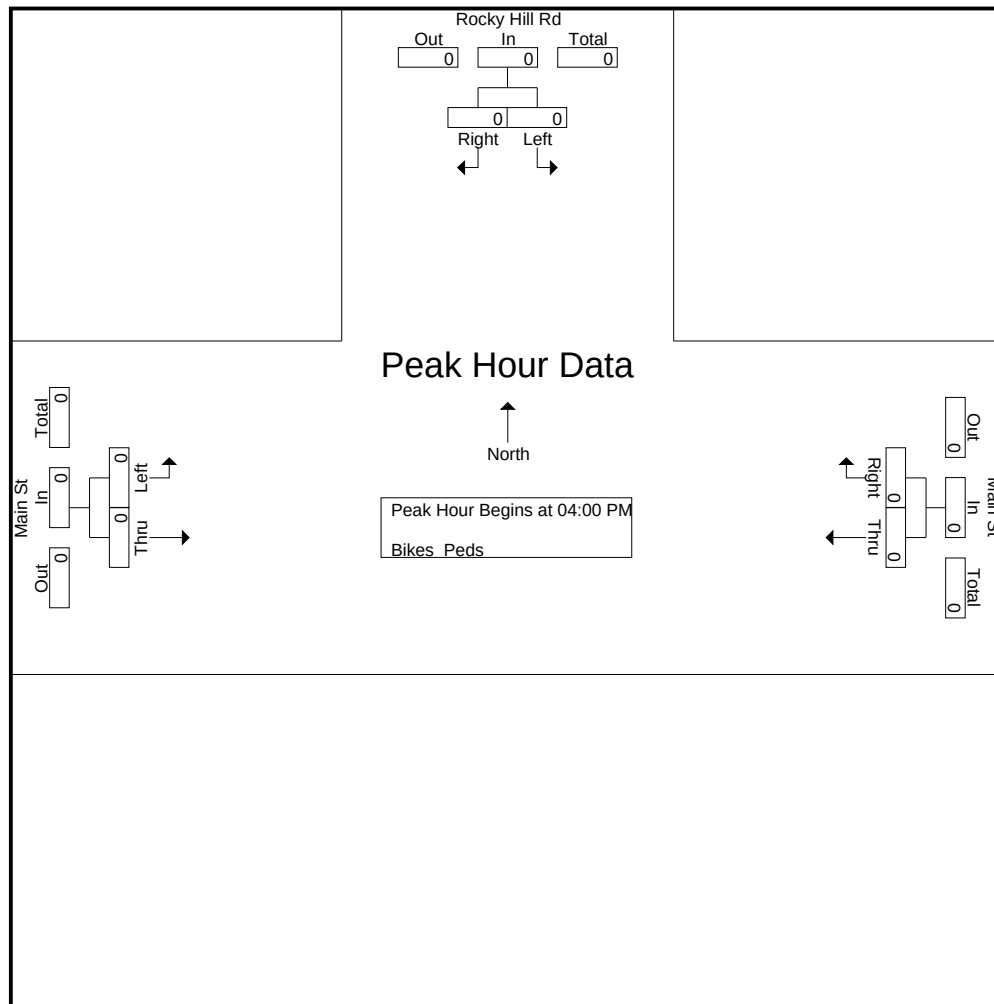
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Site Code : 92210003
Start Date : 1/20/2022
Page No : 10

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978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 11



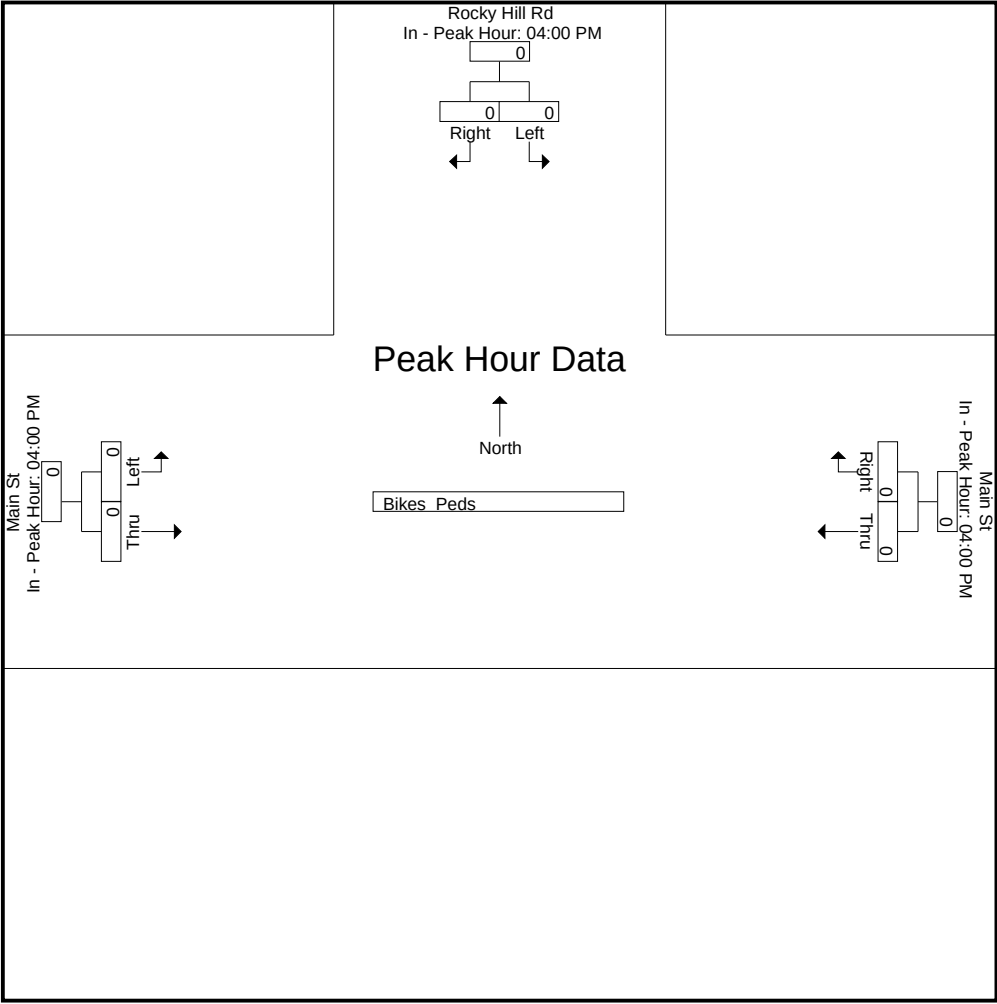
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

[illegible]

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210003
Site Code : 92210003
Start Date : 1/20/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 1

Groups Printed- Cars - Trucks

	Rocky Hill Rd From North		Main St From East		Main St From West		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
11:00 AM	28	5	74	6	3	54	170
11:15 AM	22	5	57	9	1	43	137
11:30 AM	28	4	60	8	1	69	170
11:45 AM	24	0	63	10	2	65	164
Total	102	14	254	33	7	231	641
12:00 PM	24	6	66	8	5	47	156
12:15 PM	18	4	60	7	3	66	158
12:30 PM	23	13	67	7	8	63	181
12:45 PM	21	5	60	9	1	47	143
Total	86	28	253	31	17	223	638
01:00 PM	21	6	61	9	3	53	153
01:15 PM	31	4	69	8	1	47	160
01:30 PM	20	3	66	6	0	54	149
01:45 PM	23	9	67	7	2	47	155
Total	95	22	263	30	6	201	617
Grand Total	283	64	770	94	30	655	1896
Apprch %	81.6	18.4	89.1	10.9	4.4	95.6	
Total %	14.9	3.4	40.6	5	1.6	34.5	
Cars	280	64	768	94	30	654	1890
% Cars	98.9	100	99.7	100	100	99.8	99.7
Trucks	3	0	2	0	0	1	6
% Trucks	1.1	0	0.3	0	0	0.2	0.3

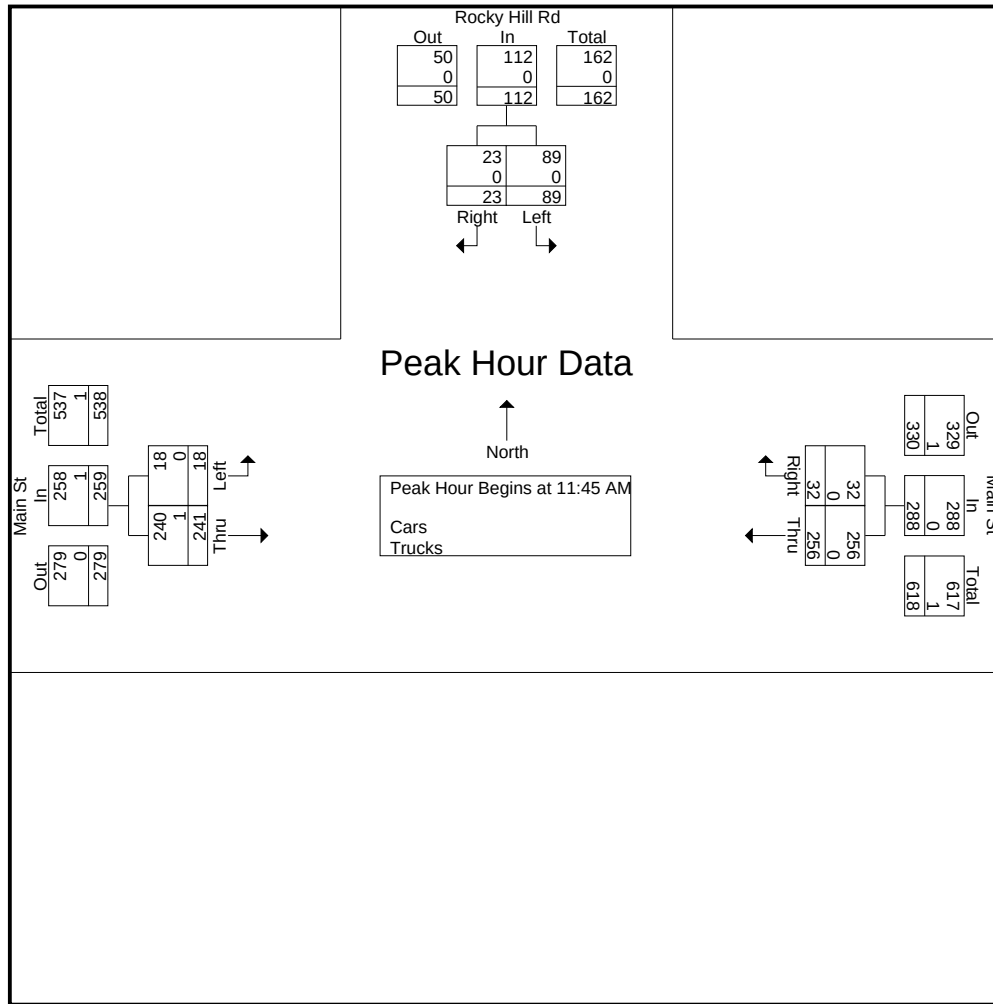
	Rocky Hill Rd From North			Main St From East			Main St From West			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:45 AM										
11:45 AM	24	0	24	63	10	73	2	65	67	164
12:00 PM	24	6	30	66	8	74	5	47	52	156
12:15 PM	18	4	22	60	7	67	3	66	69	158
12:30 PM	23	13	36	67	7	74	8	63	71	181
Total Volume	89	23	112	256	32	288	18	241	259	659
% App. Total	79.5	20.5		88.9	11.1		6.9	93.1		
PHF	.927	.442	.778	.955	.800	.973	.563	.913	.912	.910
Cars	89	23	112	256	32	288	18	240	258	658
% Cars	100	100	100	100	100	100	100	99.6	99.6	99.8
Trucks	0	0	0	0	0	0	0	1	1	1
% Trucks	0	0	0	0	0	0	0	0.4	0.4	0.2

Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 2



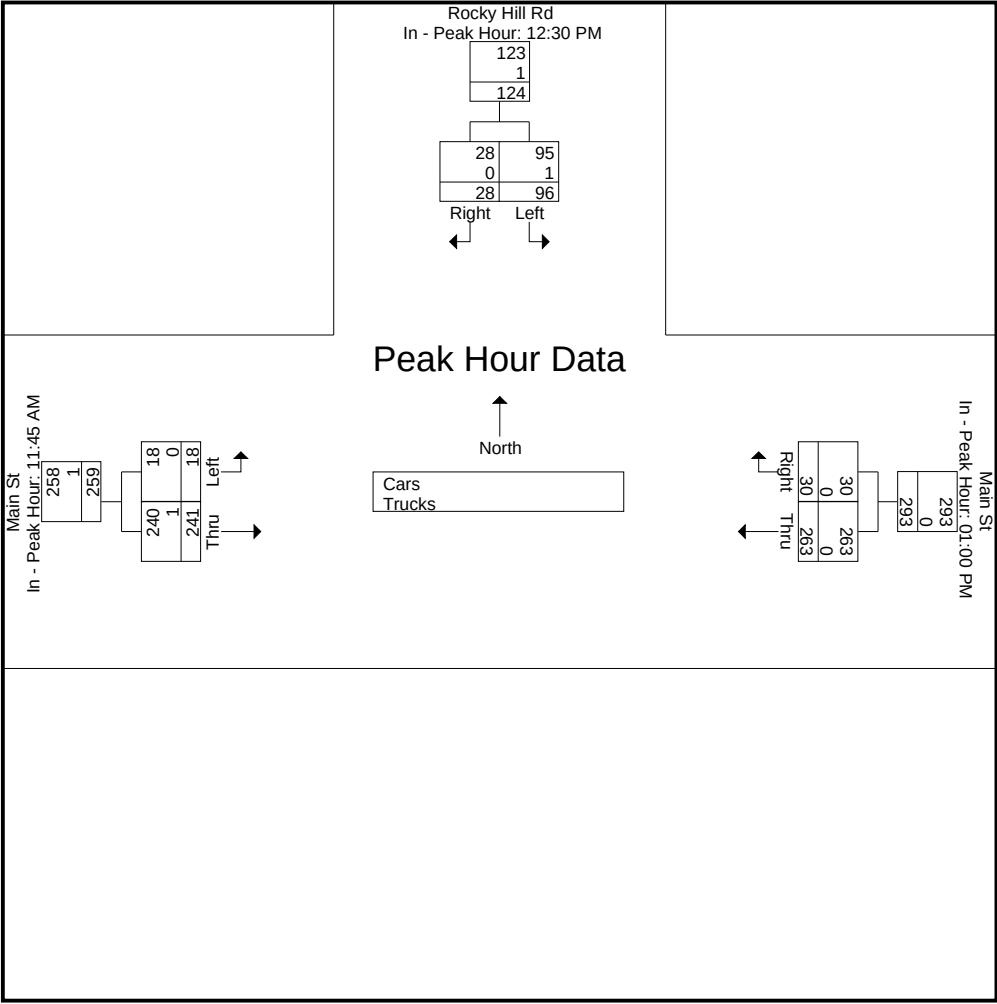
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	12:30 PM			01:00 PM			11:45 AM		
+0 mins.	23	13	36	61	9	70	2	65	67
+15 mins.	21	5	26	69	8	77	5	47	52
+30 mins.	21	6	27	66	6	72	3	66	69
+45 mins.	31	4	35	67	7	74	8	63	71
Total Volume	96	28	124	263	30	293	18	241	259
% App. Total	77.4	22.6		89.8	10.2		6.9	93.1	
PHF	.774	.538	.861	.953	.833	.951	.563	.913	.912
Cars	95	28	123	263	30	293	18	240	258
% Cars	99	100	99.2	100	100	100	100	99.6	99.6
Trucks	1	0	1	0	0	0	0	1	1
% Trucks	1	0	0.8	0	0	0	0	0.4	0.4

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 4

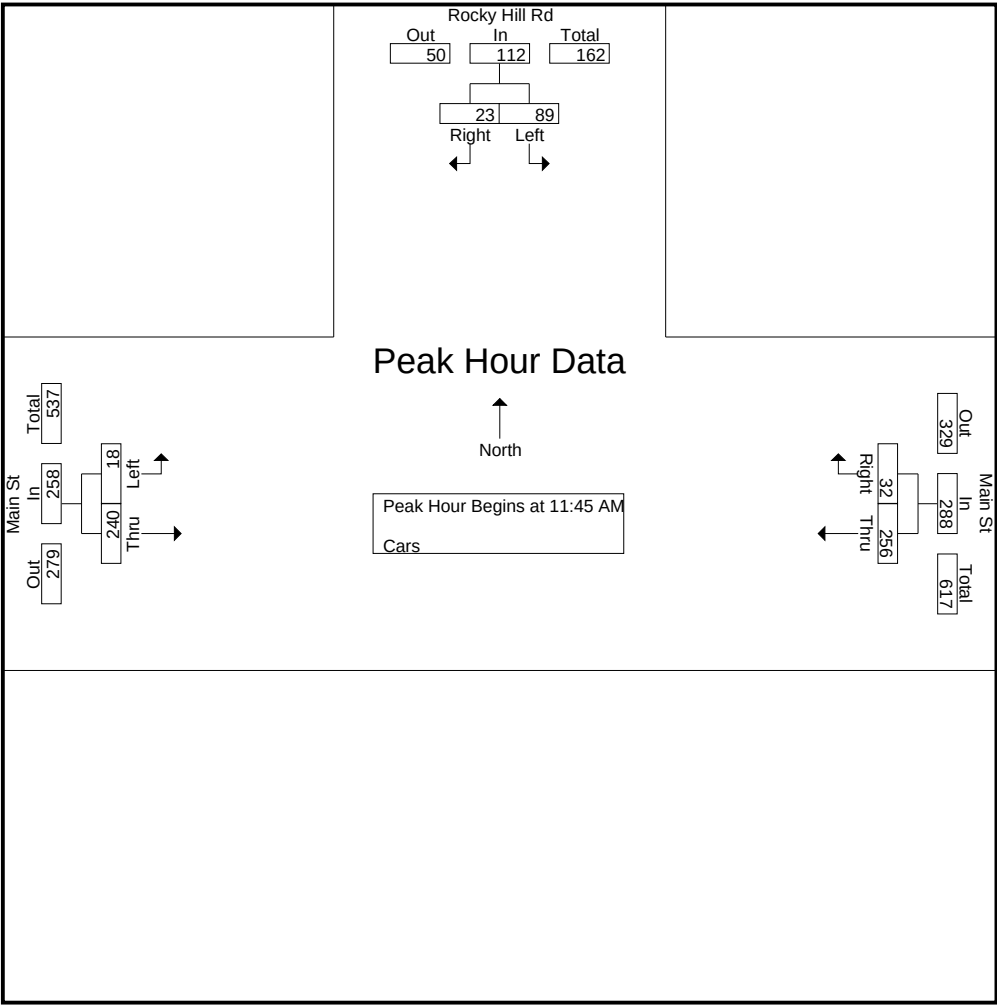
Groups Printed- Cars

	Rocky Hill Rd From North		Main St From East		Main St From West		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
11:00 AM	27	5	74	6	3	54	169
11:15 AM	22	5	56	9	1	43	136
11:30 AM	28	4	59	8	1	69	169
11:45 AM	24	0	63	10	2	64	163
Total	101	14	252	33	7	230	637
12:00 PM	24	6	66	8	5	47	156
12:15 PM	18	4	60	7	3	66	158
12:30 PM	23	13	67	7	8	63	181
12:45 PM	21	5	60	9	1	47	143
Total	86	28	253	31	17	223	638
01:00 PM	21	6	61	9	3	53	153
01:15 PM	30	4	69	8	1	47	159
01:30 PM	20	3	66	6	0	54	149
01:45 PM	22	9	67	7	2	47	154
Total	93	22	263	30	6	201	615
Grand Total	280	64	768	94	30	654	1890
Apprch %	81.4	18.6	89.1	10.9	4.4	95.6	
Total %	14.8	3.4	40.6	5	1.6	34.6	

	Rocky Hill Rd From North			Main St From East			Main St From West			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:45 AM										
11:45 AM	24	0	24	63	10	73	2	64	66	163
12:00 PM	24	6	30	66	8	74	5	47	52	156
12:15 PM	18	4	22	60	7	67	3	66	69	158
12:30 PM	23	13	36	67	7	74	8	63	71	181
Total Volume	89	23	112	256	32	288	18	240	258	658
% App. Total	79.5	20.5		88.9	11.1		7	93		
PHF	.927	.442	.778	.955	.800	.973	.563	.909	.908	.909

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 5

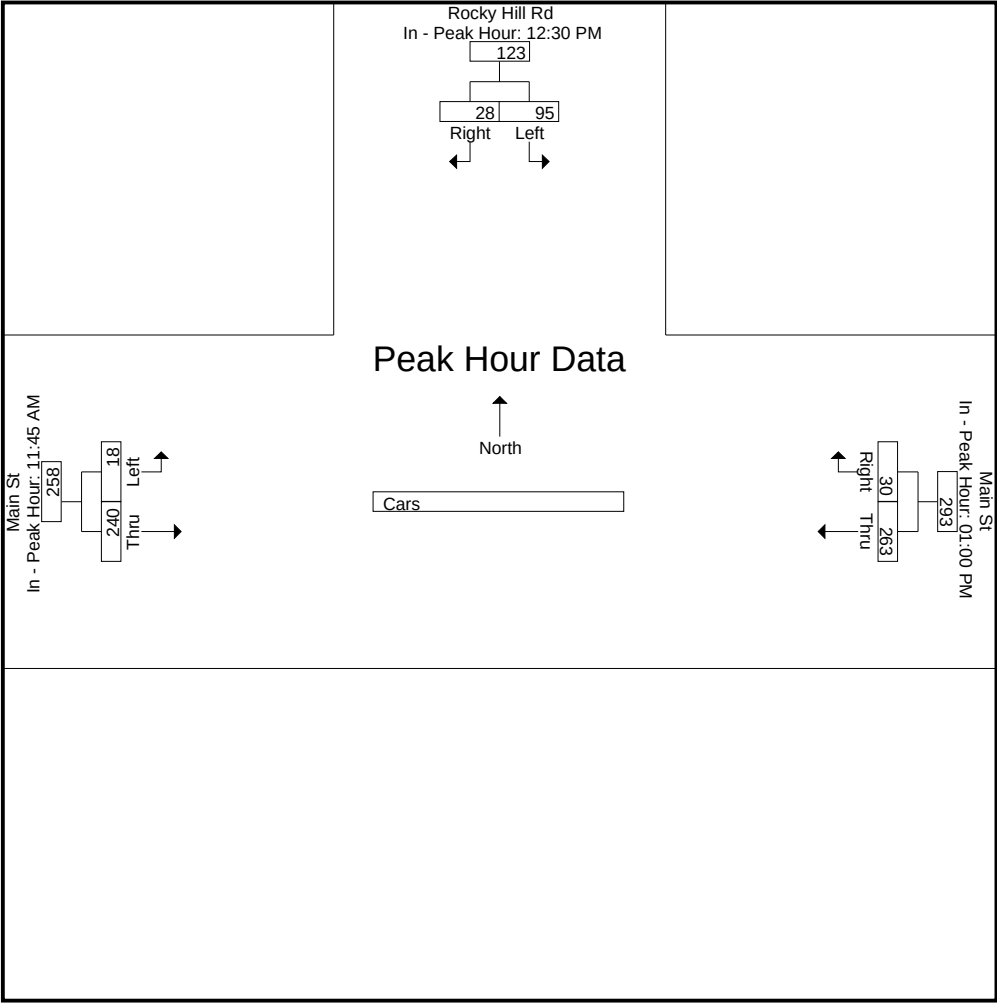


Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:30 PM			01:00 PM			11:45 AM		
+0 mins.	23	13	36	61	9	70	2	64	66
+15 mins.	21	5	26	69	8	77	5	47	52
+30 mins.	21	6	27	66	6	72	3	66	69
+45 mins.	30	4	34	67	7	74	8	63	71
Total Volume	95	28	123	263	30	293	18	240	258
% App. Total	77.2	22.8		89.8	10.2		7	93	
PHF	.792	.538	.854	.953	.833	.951	.563	.909	.908

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 7

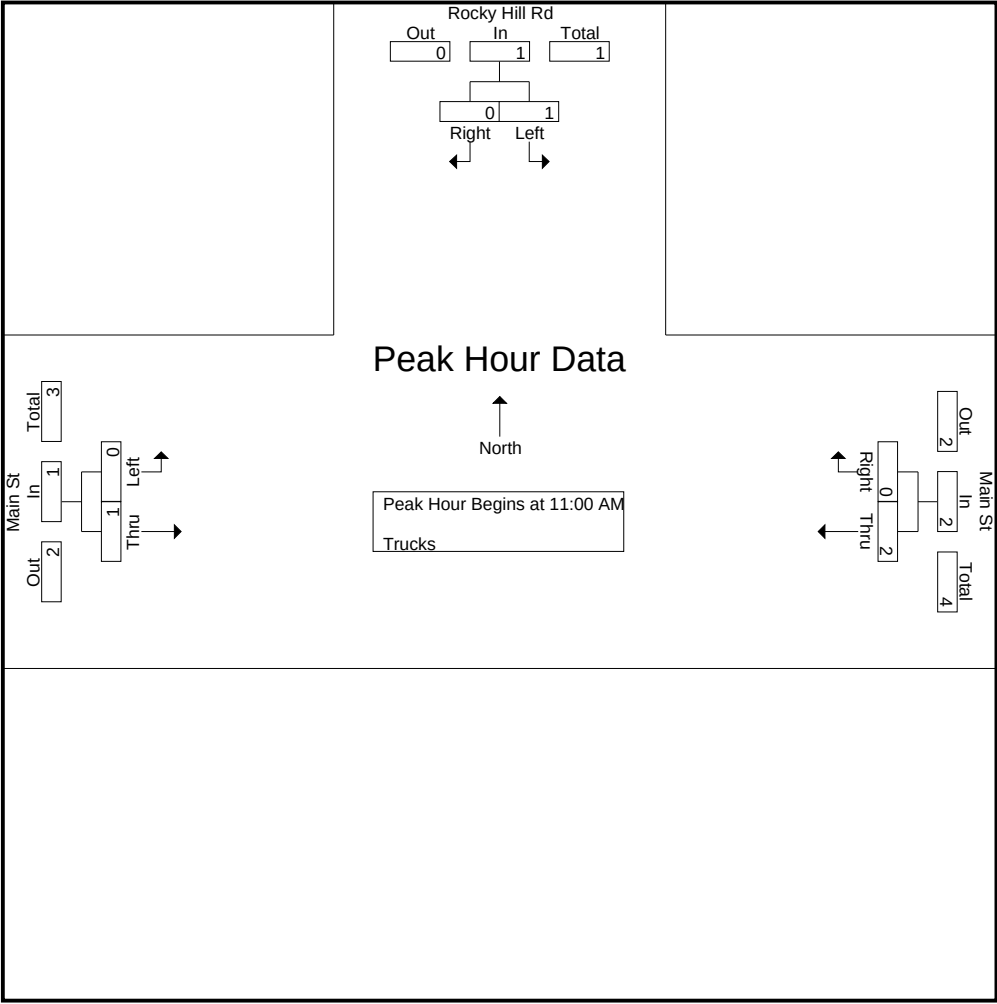
Groups Printed- Trucks

	Rocky Hill Rd From North		Main St From East		Main St From West		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
11:00 AM	1	0	0	0	0	0	1
11:15 AM	0	0	1	0	0	0	1
11:30 AM	0	0	1	0	0	0	1
11:45 AM	0	0	0	0	0	1	1
Total	1	0	2	0	0	1	4
12:00 PM	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0
01:15 PM	1	0	0	0	0	0	1
01:30 PM	0	0	0	0	0	0	0
01:45 PM	1	0	0	0	0	0	1
Total	2	0	0	0	0	0	2
Grand Total	3	0	2	0	0	1	6
Apprch %	100	0	100	0	0	100	
Total %	50	0	33.3	0	0	16.7	

	Rocky Hill Rd From North			Main St From East			Main St From West			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:00 AM										
11:00 AM	1	0	1	0	0	0	0	0	0	1
11:15 AM	0	0	0	1	0	1	0	0	0	1
11:30 AM	0	0	0	1	0	1	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	1	1	1
Total Volume	1	0	1	2	0	2	0	1	1	4
% App. Total	100	0		100	0		0	100		
PHF	.250	.000	.250	.500	.000	.500	.000	.250	.250	1.00

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 8

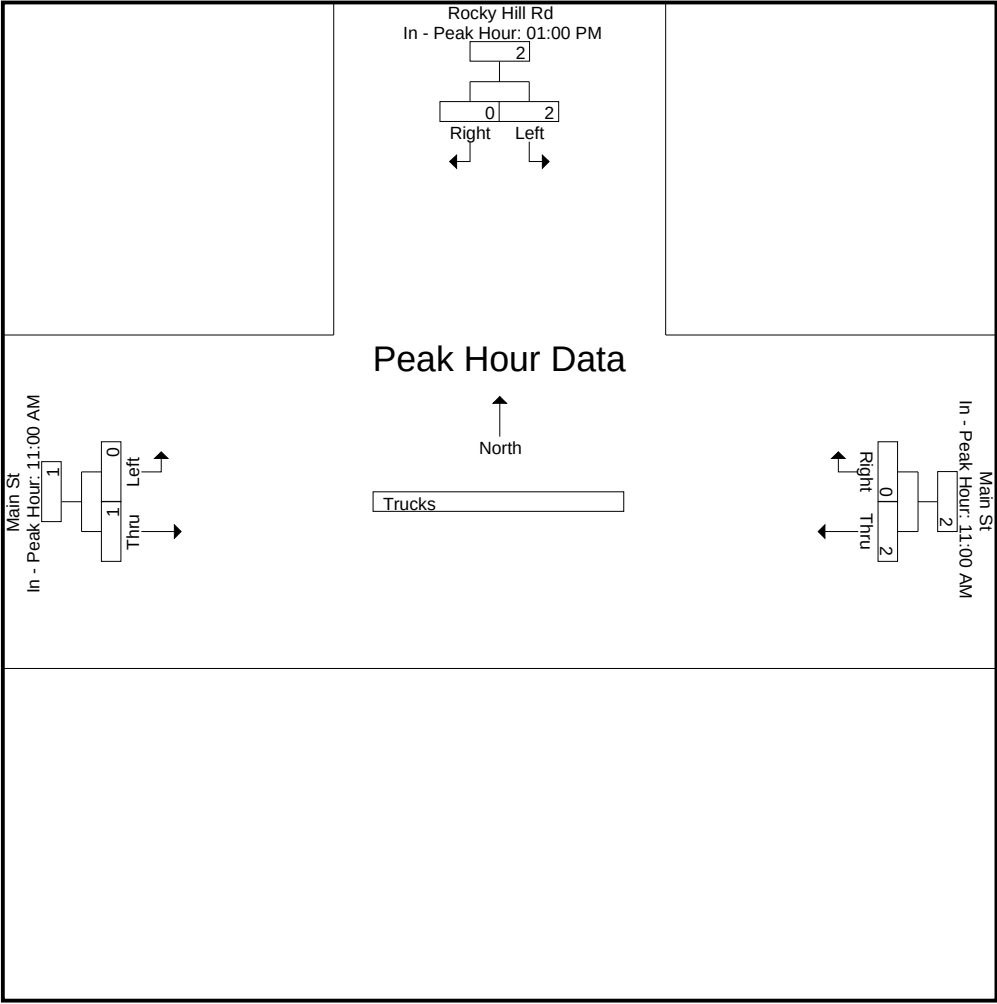


Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	01:00 PM			11:00 AM			11:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	1	0	1	1	0	1	0	0	0
+30 mins.	0	0	0	1	0	1	0	0	0
+45 mins.	1	0	1	0	0	0	0	1	1
Total Volume	2	0	2	2	0	2	0	1	1
% App. Total	100	0		100	0		0	100	
PHF	.500	.000	.500	.500	.000	.500	.000	.250	.250

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 9



978-664-2565

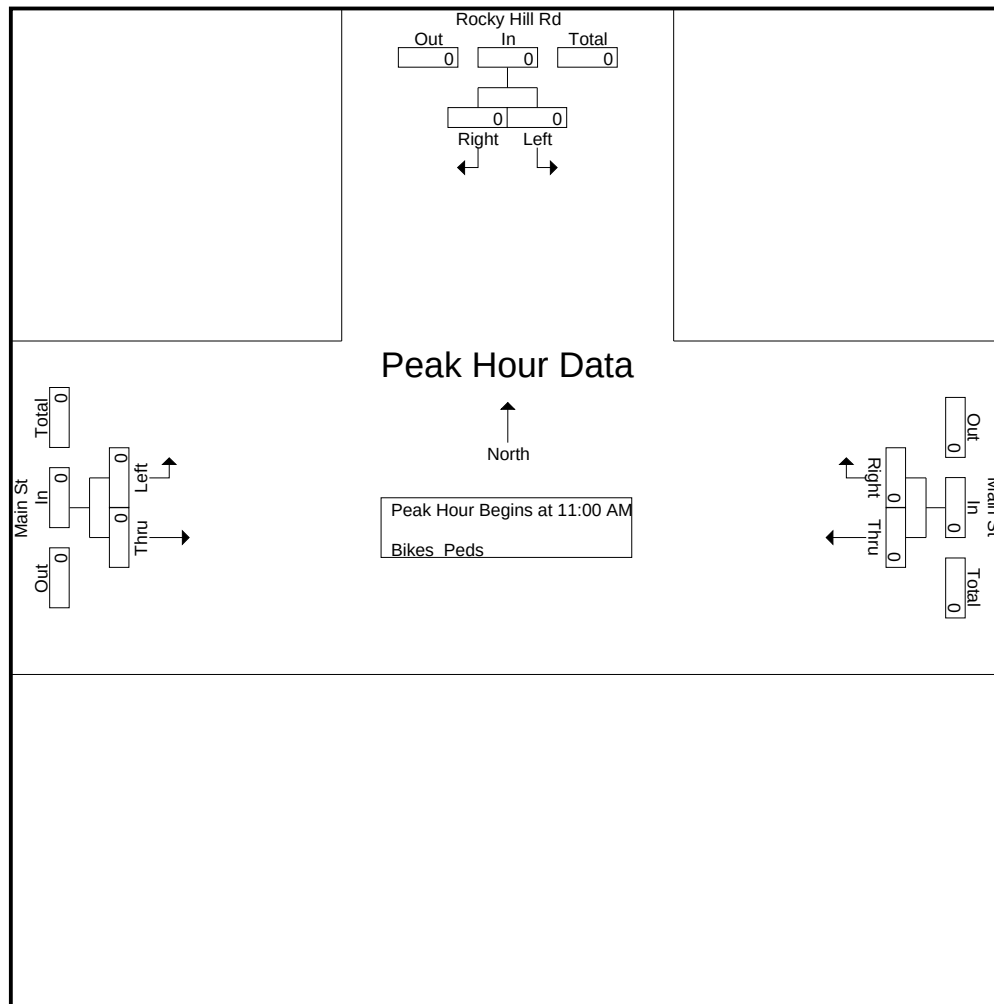
File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 10

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978-664-2565

N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 11

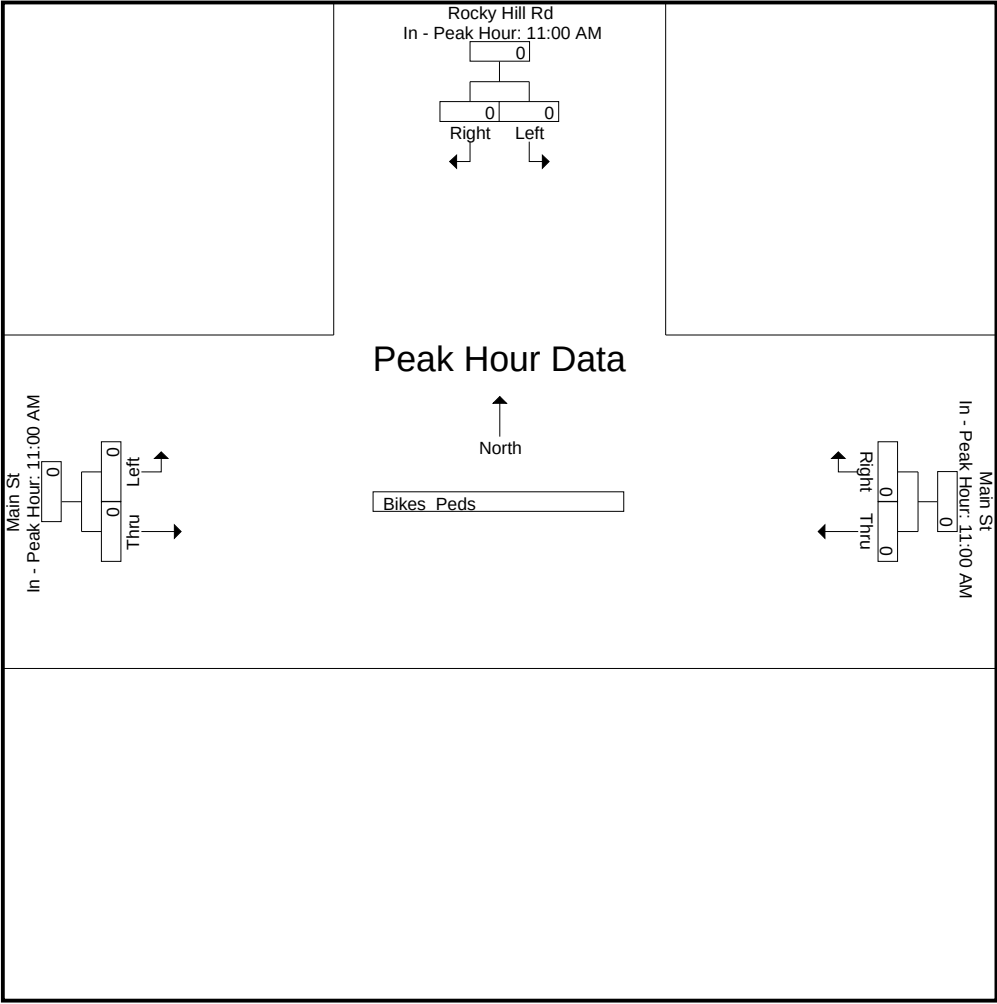


Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

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N/S Street : Rocky Hill Road
E/W Street : Main Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S3
Site Code : 92210003
Start Date : 1/22/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Merrimac St / Pleasant Valley Rd

E/W Street : Beacon Street

City/State : Amesbury, MA

Weather : Cloudy

File Name : 92210004

Site Code : 92210004

Start Date : 1/20/2022

Page No : 1

Groups Printed- Cars - Trucks

	Merrimac St From North		Pleasant Valley Rd From South		Beacon St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	3	17	5	12	6	0	43
07:15 AM	3	18	13	10	6	3	53
07:30 AM	5	19	4	9	11	2	50
07:45 AM	4	37	4	11	7	1	64
Total	15	91	26	42	30	6	210
08:00 AM	9	14	3	12	4	1	43
08:15 AM	4	28	7	11	11	4	65
08:30 AM	4	20	3	16	5	2	50
08:45 AM	10	12	5	9	6	0	42
Total	27	74	18	48	26	7	200
Grand Total	42	165	44	90	56	13	410
Apprch %	20.3	79.7	32.8	67.2	81.2	18.8	
Total %	10.2	40.2	10.7	22	13.7	3.2	
Cars	39	164	44	87	55	12	401
% Cars	92.9	99.4	100	96.7	98.2	92.3	97.8
Trucks	3	1	0	3	1	1	9
% Trucks	7.1	0.6	0	3.3	1.8	7.7	2.2

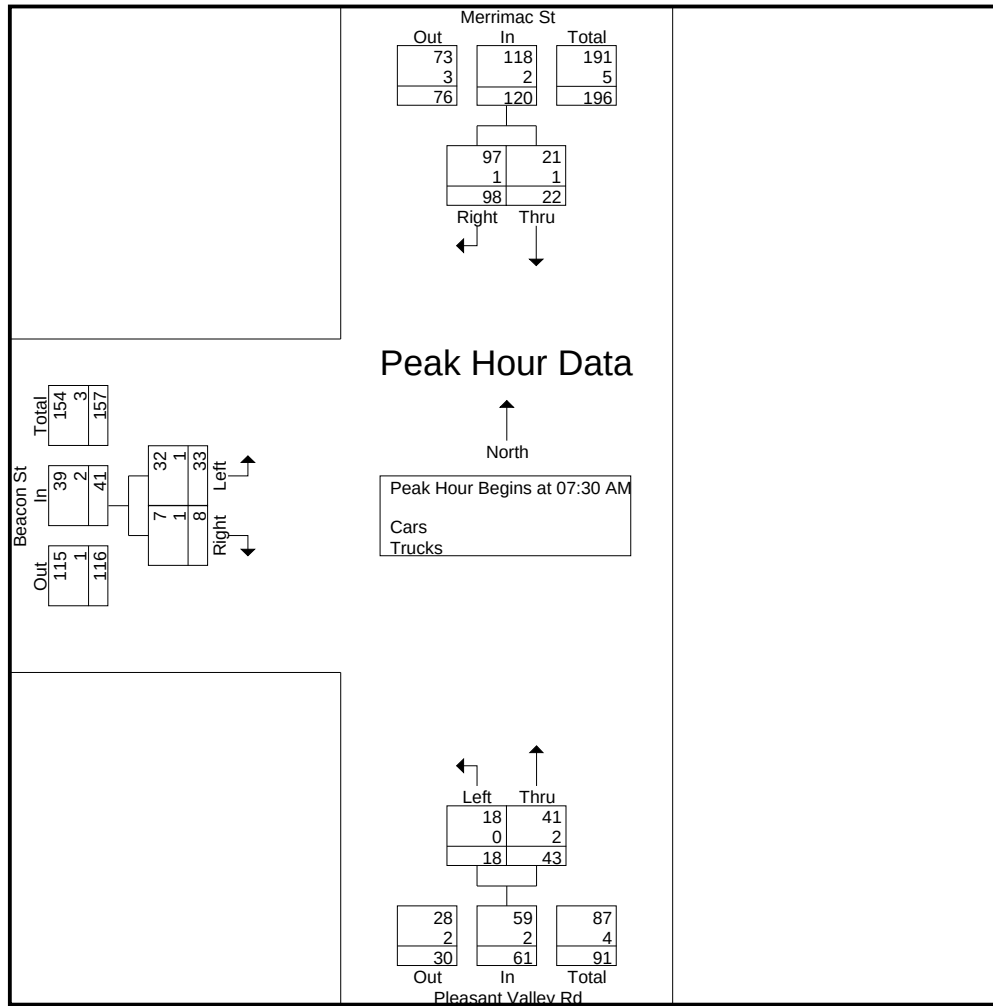
	Merrimac St From North			Pleasant Valley Rd From South			Beacon St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	5	19	24	4	9	13	11	2	13	50
07:45 AM	4	37	41	4	11	15	7	1	8	64
08:00 AM	9	14	23	3	12	15	4	1	5	43
08:15 AM	4	28	32	7	11	18	11	4	15	65
Total Volume	22	98	120	18	43	61	33	8	41	222
% App. Total	18.3	81.7		29.5	70.5		80.5	19.5		
PHF	.611	.662	.732	.643	.896	.847	.750	.500	.683	.854
Cars	21	97	118	18	41	59	32	7	39	216
% Cars	95.5	99.0	98.3	100	95.3	96.7	97.0	87.5	95.1	97.3
Trucks	1	1	2	0	2	2	1	1	2	6
% Trucks	4.5	1.0	1.7	0	4.7	3.3	3.0	12.5	4.9	2.7

Accurate Counts

978-664-2565

N/S Street : Merrimac St / Pleasant Valley Rd
 E/W Street : Beacon Street
 City/State : Amesbury, MA
 Weather : Cloudy

File Name : 92210004
 Site Code : 92210004
 Start Date : 1/20/2022
 Page No : 2

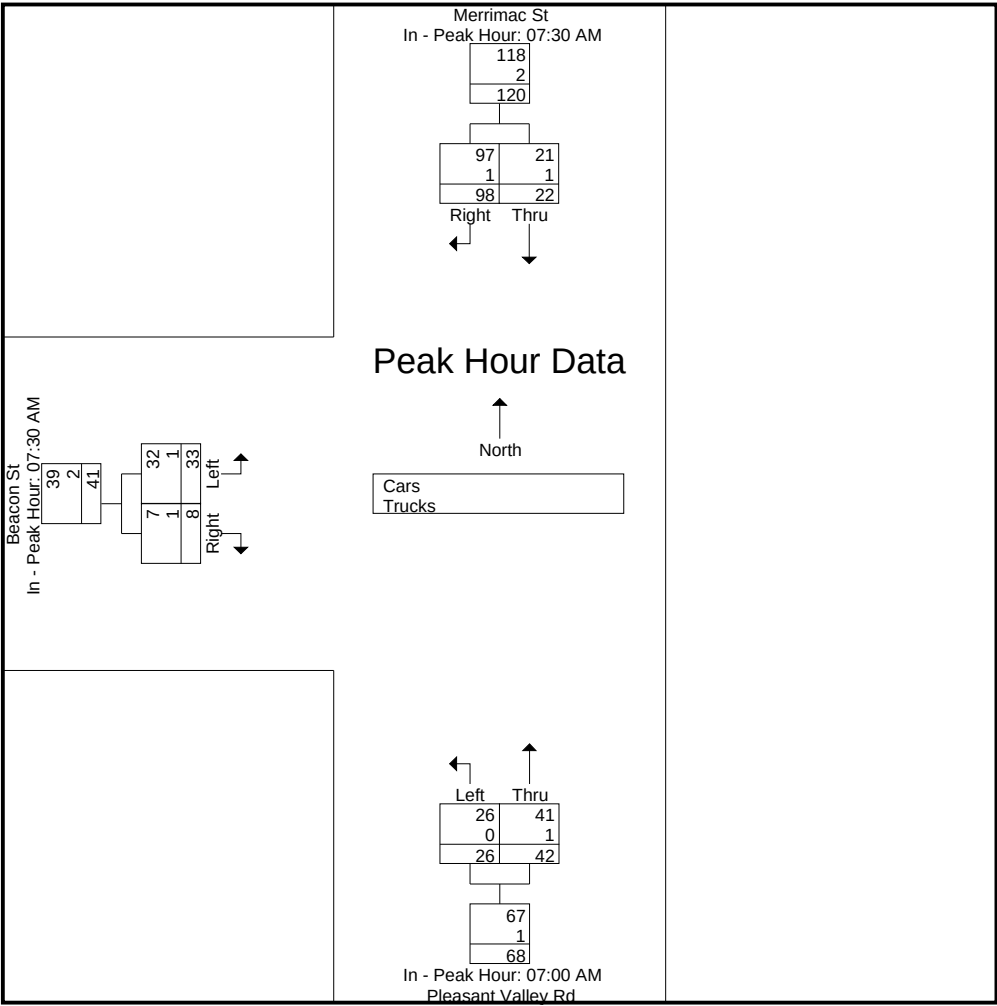


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM			07:00 AM			07:30 AM		
+0 mins.	5	19	24	5	12	17	11	2	13
+15 mins.	4	37	41	13	10	23	7	1	8
+30 mins.	9	14	23	4	9	13	4	1	5
+45 mins.	4	28	32	4	11	15	11	4	15
Total Volume	22	98	120	26	42	68	33	8	41
% App. Total	18.3	81.7		38.2	61.8		80.5	19.5	
PHF	.611	.662	.732	.500	.875	.739	.750	.500	.683
Cars	21	97	118	26	41	67	32	7	39
% Cars	95.5	99	98.3	100	97.6	98.5	97	87.5	95.1
Trucks	1	1	2	0	1	1	1	1	2
% Trucks	4.5	1	1.7	0	2.4	1.5	3	12.5	4.9

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Merrimac St / Pleasant Valley Rd

E/W Street : Beacon Street

City/State : Amesbury, MA

Weather : Cloudy

File Name : 92210004

Site Code : 92210004

Start Date : 1/20/2022

Page No : 4

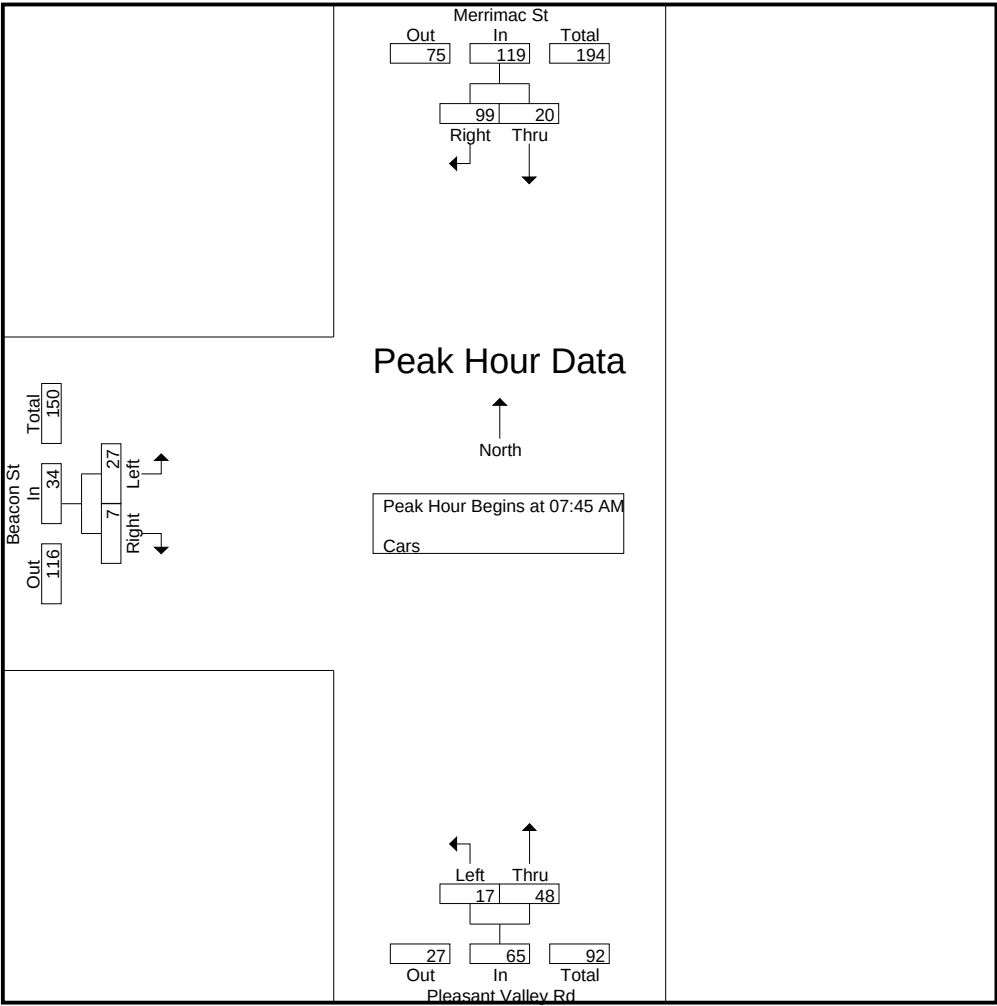
Groups Printed- Cars

	Merrimac St From North		Pleasant Valley Rd From South		Beacon St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	2	17	5	12	6	0	42
07:15 AM	3	18	13	10	6	3	53
07:30 AM	4	18	4	8	10	2	46
07:45 AM	4	37	4	11	7	0	63
Total	13	90	26	41	29	5	204
08:00 AM	9	14	3	12	4	1	43
08:15 AM	4	28	7	10	11	4	64
08:30 AM	3	20	3	15	5	2	48
08:45 AM	10	12	5	9	6	0	42
Total	26	74	18	46	26	7	197
Grand Total	39	164	44	87	55	12	401
Apprch %	19.2	80.8	33.6	66.4	82.1	17.9	
Total %	9.7	40.9	11	21.7	13.7	3	

	Merrimac St From North			Pleasant Valley Rd From South			Beacon St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	4	37	41	4	11	15	7	0	7	63
08:00 AM	9	14	23	3	12	15	4	1	5	43
08:15 AM	4	28	32	7	10	17	11	4	15	64
08:30 AM	3	20	23	3	15	18	5	2	7	48
Total Volume	20	99	119	17	48	65	27	7	34	218
% App. Total	16.8	83.2		26.2	73.8		79.4	20.6		
PHF	.556	.669	.726	.607	.800	.903	.614	.438	.567	.852

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 5

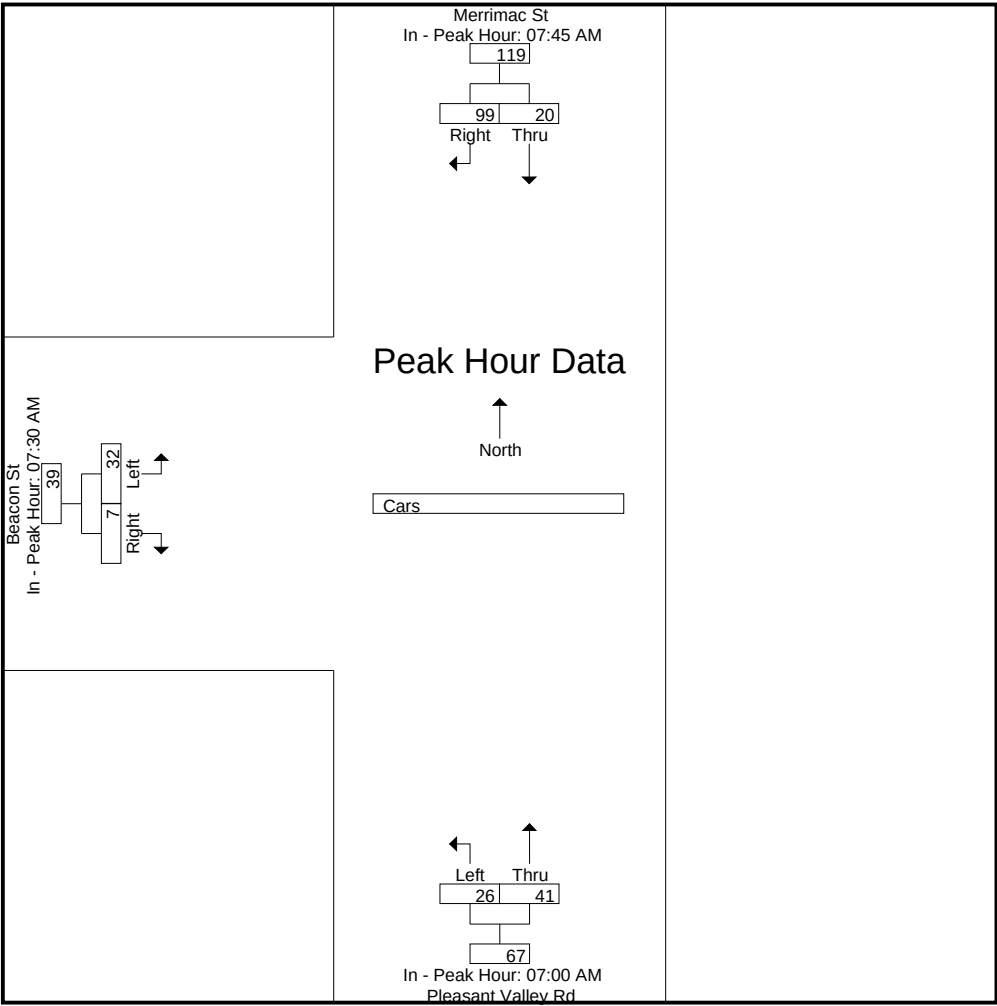


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:00 AM			07:30 AM		
+0 mins.	4	37	41	5	12	17	10	2	12
+15 mins.	9	14	23	13	10	23	7	0	7
+30 mins.	4	28	32	4	8	12	4	1	5
+45 mins.	3	20	23	4	11	15	11	4	15
Total Volume	20	99	119	26	41	67	32	7	39
% App. Total	16.8	83.2		38.8	61.2		82.1	17.9	
PHF	.556	.669	.726	.500	.854	.728	.727	.438	.650

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 7

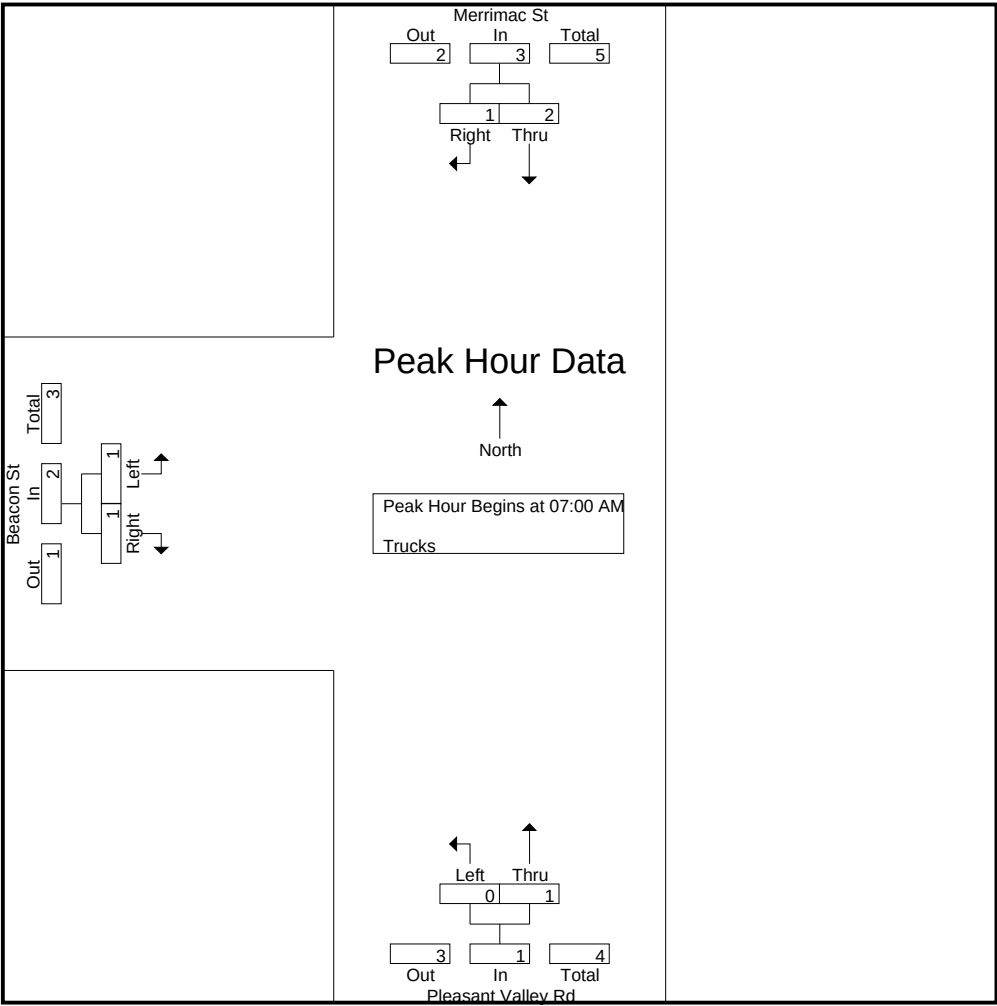
Groups Printed- Trucks

	Merrimac St From North		Pleasant Valley Rd From South		Beacon St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	1	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0
07:30 AM	1	1	0	1	1	0	4
07:45 AM	0	0	0	0	0	1	1
Total	2	1	0	1	1	1	6
08:00 AM	0	0	0	0	0	0	0
08:15 AM	0	0	0	1	0	0	1
08:30 AM	1	0	0	1	0	0	2
08:45 AM	0	0	0	0	0	0	0
Total	1	0	0	2	0	0	3
Grand Total	3	1	0	3	1	1	9
Apprch %	75	25	0	100	50	50	
Total %	33.3	11.1	0	33.3	11.1	11.1	

	Merrimac St From North			Pleasant Valley Rd From South			Beacon St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	1	0	1	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	1	1	2	0	1	1	1	0	1	4
07:45 AM	0	0	0	0	0	0	0	1	1	1
Total Volume	2	1	3	0	1	1	1	1	2	6
% App. Total	66.7	33.3		0	100		50	50		
PHF	.500	.250	.375	.000	.250	.250	.250	.250	.500	.375

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 8

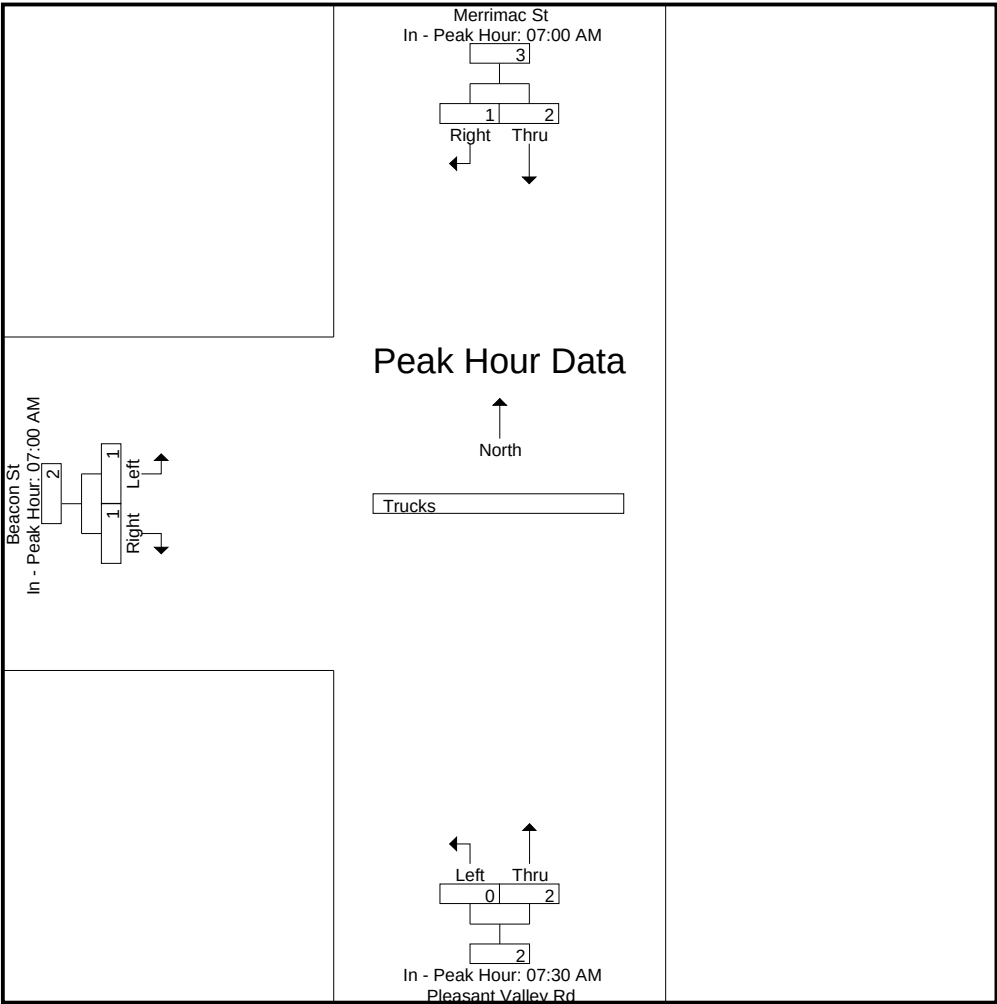


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:30 AM			07:00 AM		
+0 mins.	1	0	1	0	1	1	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	1	1	2	0	0	0	1	0	1
+45 mins.	0	0	0	0	1	1	0	1	1
Total Volume	2	1	3	0	2	2	1	1	2
% App. Total	66.7	33.3		0	100		50	50	
PHF	.500	.250	.375	.000	.500	.500	.250	.250	.500

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 9



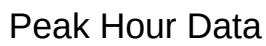
978-664-2565

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 10

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978-664-2565

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 11



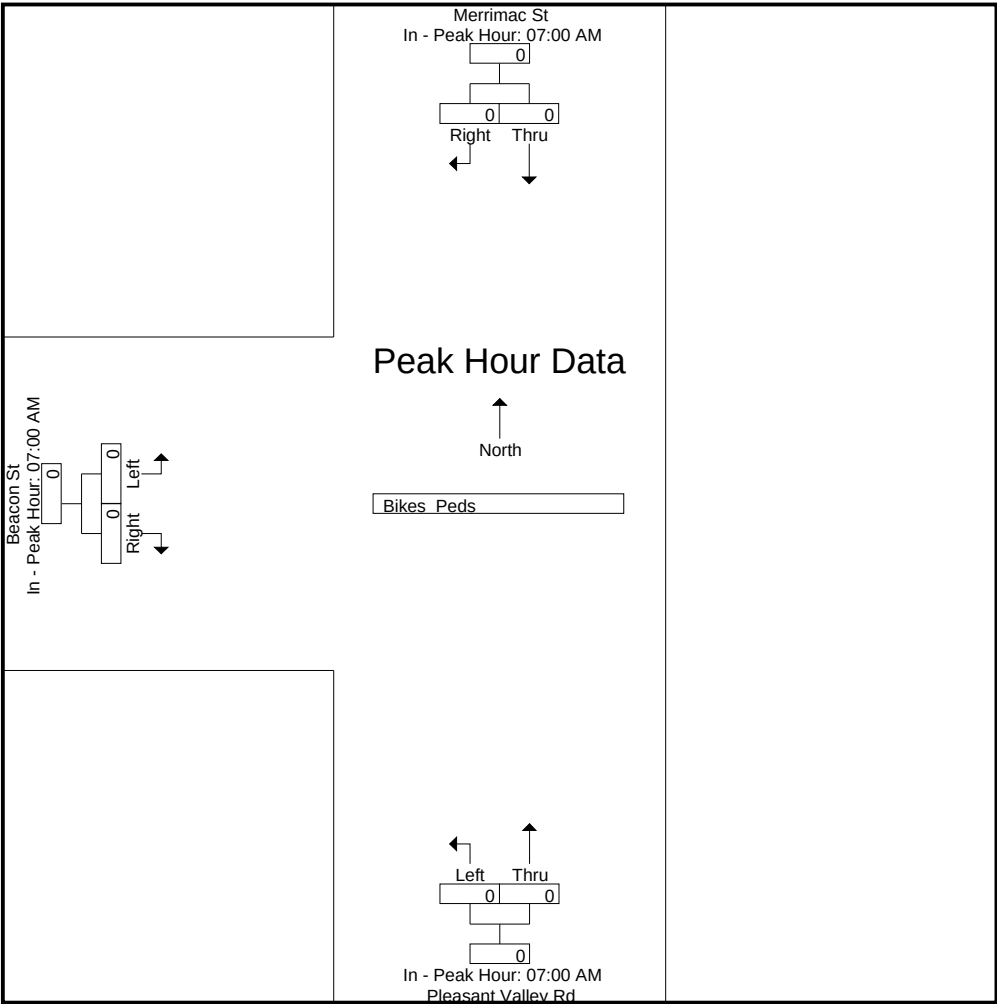
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12	12
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88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Peak Hour for Each Approach Begins at:

[illegible]

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 12



978-664-2565

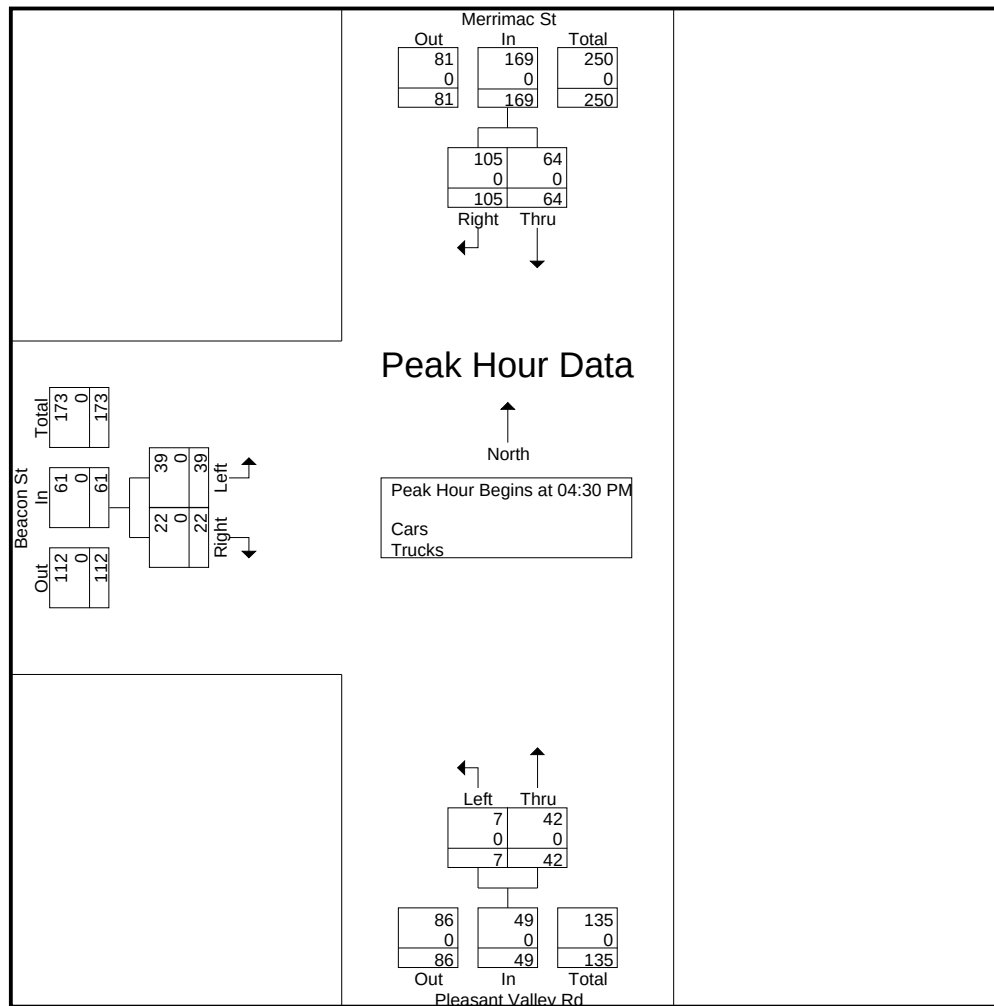
File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 1

[illegible]

978-664-2565

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 2



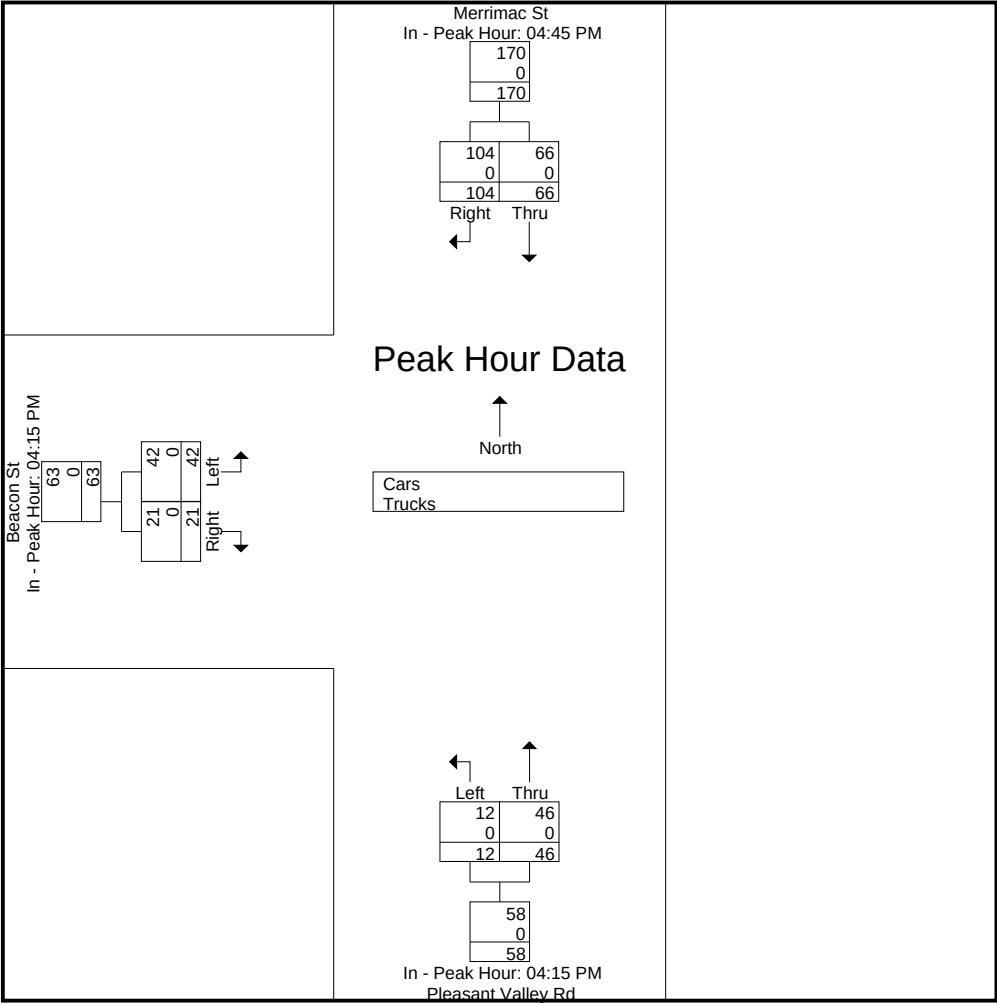
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

[illegible]

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Merrimac St / Pleasant Valley Rd

E/W Street : Beacon Street

City/State : Amesbury, MA

Weather : Cloudy

File Name : 92210004

Site Code : 92210004

Start Date : 1/20/2022

Page No : 4

Groups Printed- Cars

	Merrimac St From North		Pleasant Valley Rd From South		Beacon St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
04:00 PM	20	23	2	8	4	6	63
04:15 PM	14	24	5	9	10	2	64
04:30 PM	15	18	1	20	14	8	76
04:45 PM	22	18	5	5	10	8	68
Total	71	83	13	42	38	24	271
05:00 PM	13	32	1	12	8	3	69
05:15 PM	14	37	0	5	7	3	66
05:30 PM	17	17	1	9	13	1	58
05:45 PM	18	20	2	8	8	6	62
Total	62	106	4	34	36	13	255
Grand Total	133	189	17	76	74	37	526
Apprch %	41.3	58.7	18.3	81.7	66.7	33.3	
Total %	25.3	35.9	3.2	14.4	14.1	7	

	Merrimac St From North			Pleasant Valley Rd From South			Beacon St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	15	18	33	1	20	21	14	8	22	76
04:45 PM	22	18	40	5	5	10	10	8	18	68
05:00 PM	13	32	45	1	12	13	8	3	11	69
05:15 PM	14	37	51	0	5	5	7	3	10	66
Total Volume	64	105	169	7	42	49	39	22	61	279
% App. Total	37.9	62.1		14.3	85.7		63.9	36.1		
PHF	.727	.709	.828	.350	.525	.583	.696	.688	.693	.918

Accurate Counts

978-664-2565

N/S Street : Merrimac St / Pleasant Valley Rd

E/W Street : Beacon Street

City/State : Amesbury, MA

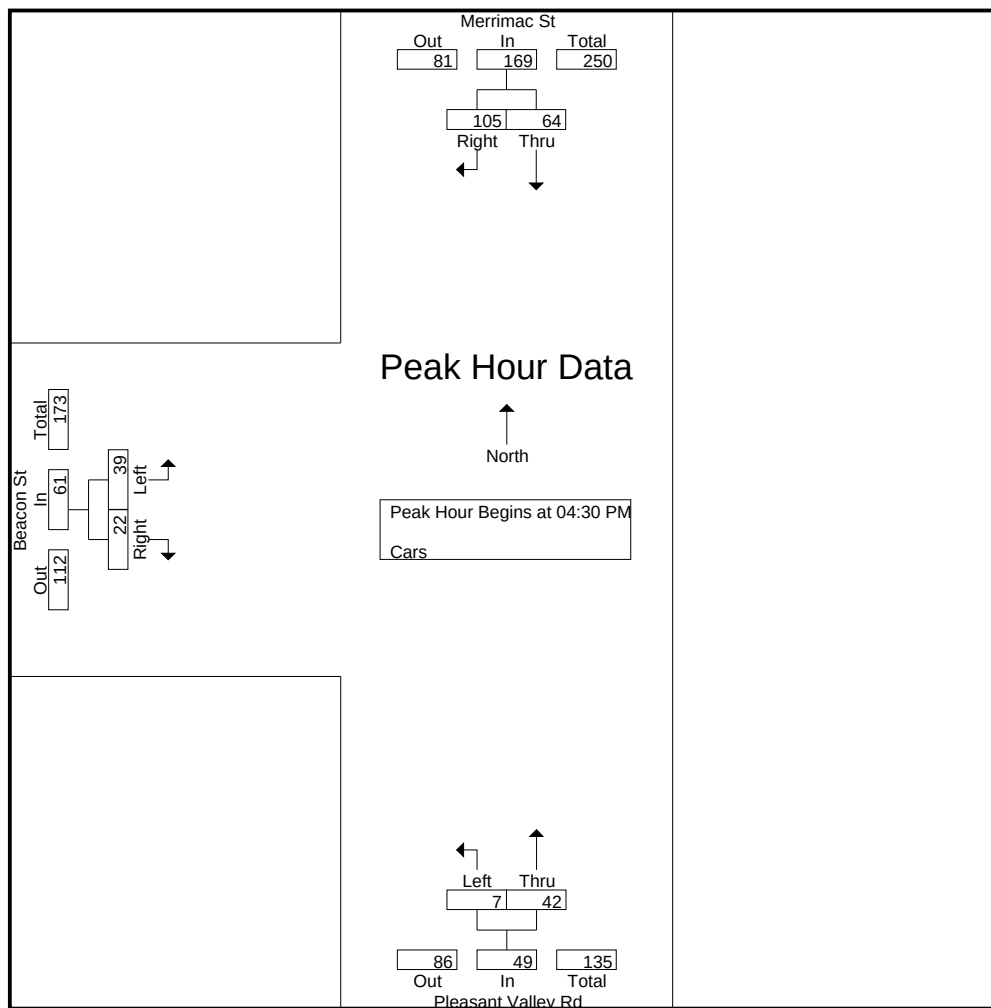
Weather : Cloudy

File Name : 92210004

Site Code : 92210004

Start Date : 1/20/2022

Page No : 5



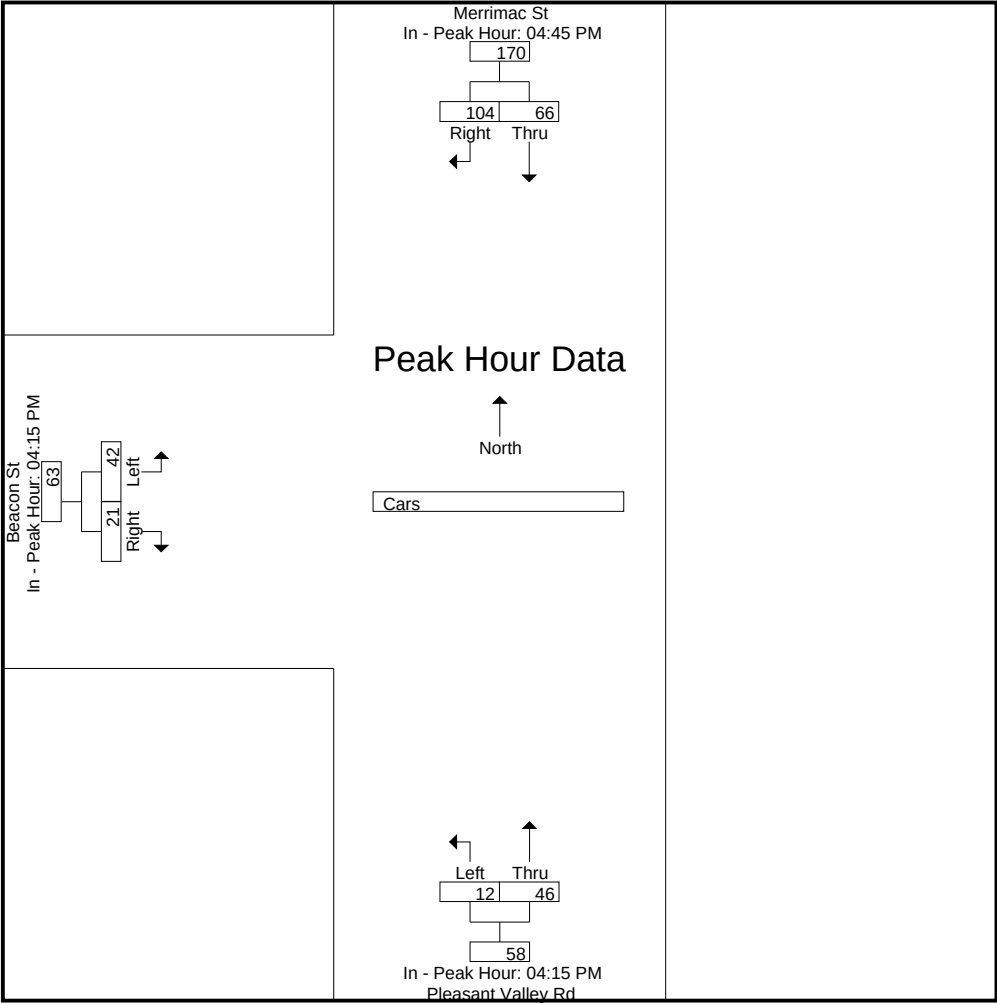
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:45 PM			04:15 PM			04:15 PM		
+0 mins.	22	18	40	5	9	14	10	2	12
+15 mins.	13	32	45	1	20	21	14	8	22
+30 mins.	14	37	51	5	5	10	10	8	18
+45 mins.	17	17	34	1	12	13	8	3	11
Total Volume	66	104	170	12	46	58	42	21	63
% App. Total	38.8	61.2		20.7	79.3		66.7	33.3	
PHF	.750	.703	.833	.600	.575	.690	.750	.656	.716

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 6



978-664-2565

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 7

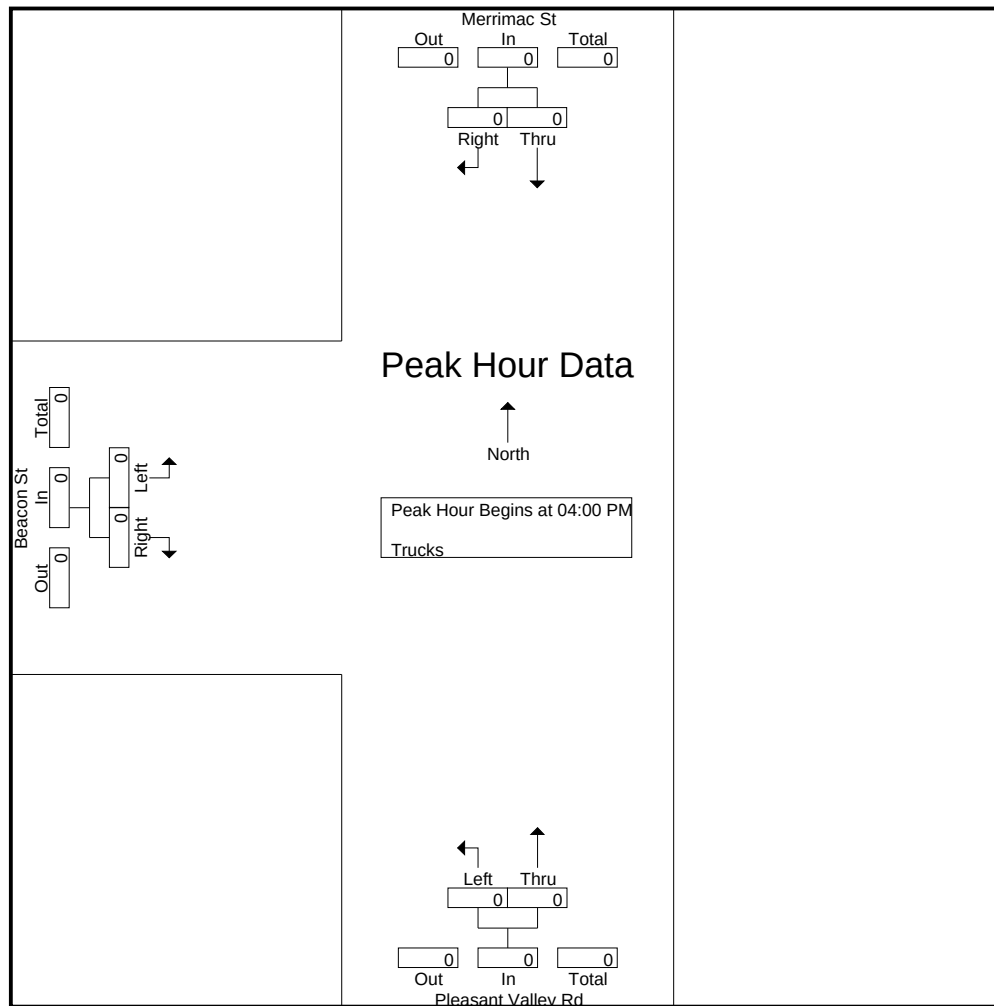
	Merrimac St From North		Pleasant Valley Rd From South		Beacon St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
04:00 PM	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	
Total %							

[illegible]

978-664-2565

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 8

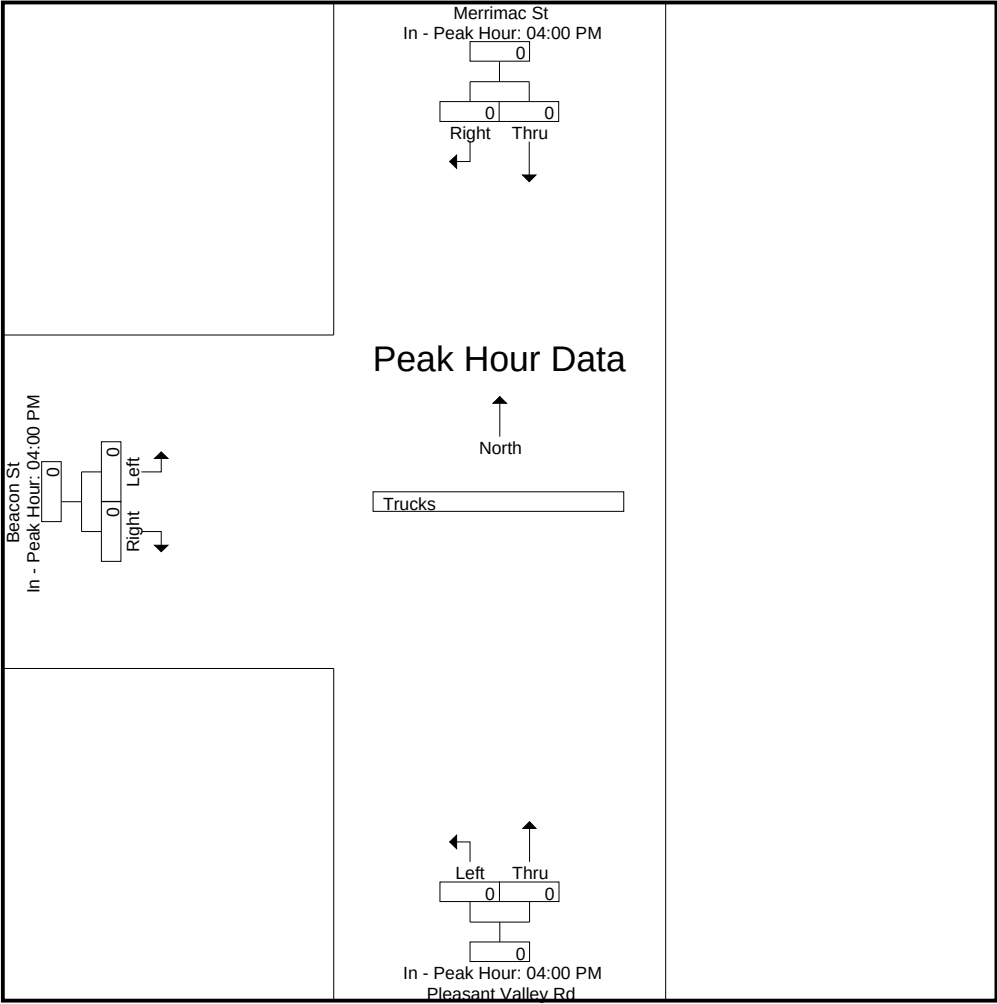


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

[illegible]

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 9



978-664-2565

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 10

[illegible][illegible]

978-664-2565

File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 11



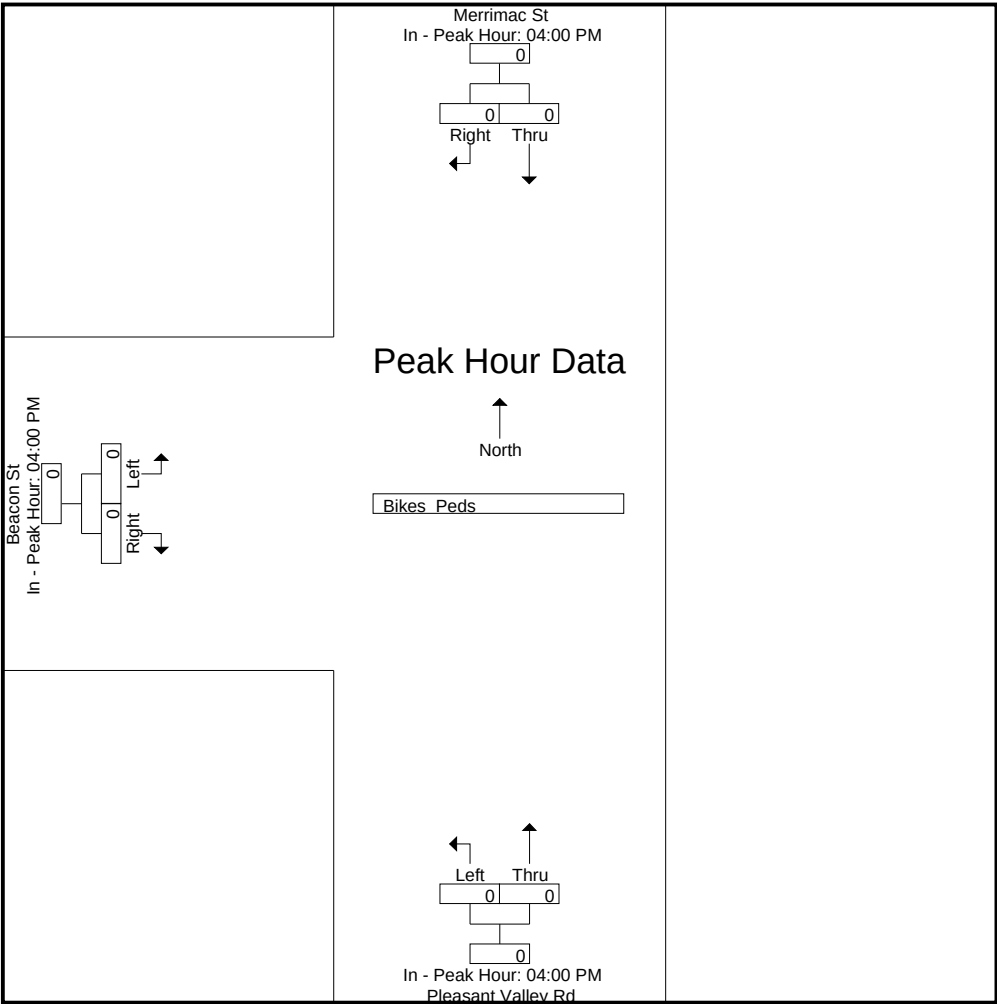
Bikes	Peds
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
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90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

Peak Load for Each Approach Begins at:

[illegible]

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Cloudy

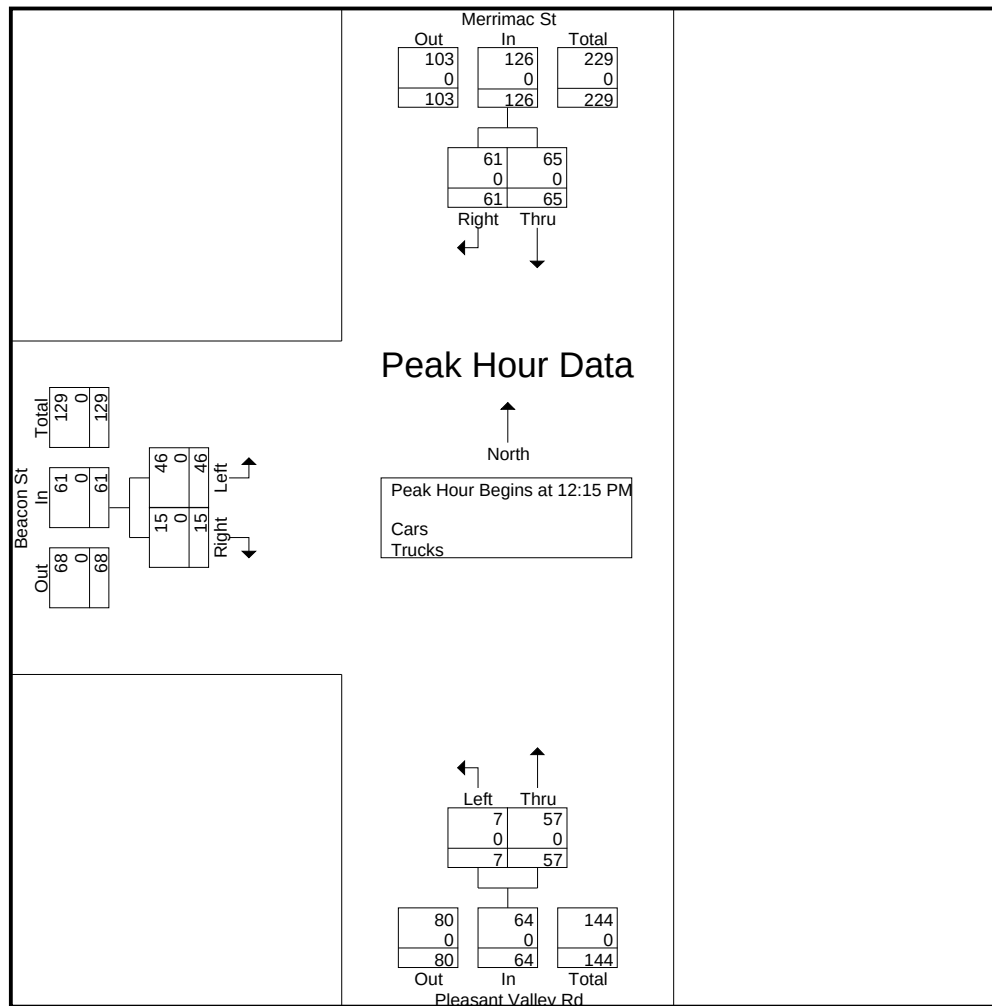
File Name : 92210004
Site Code : 92210004
Start Date : 1/20/2022
Page No : 12



978-664-2565

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S4
Site Code : 92210004
Start Date : 1/22/2022
Page No : 2



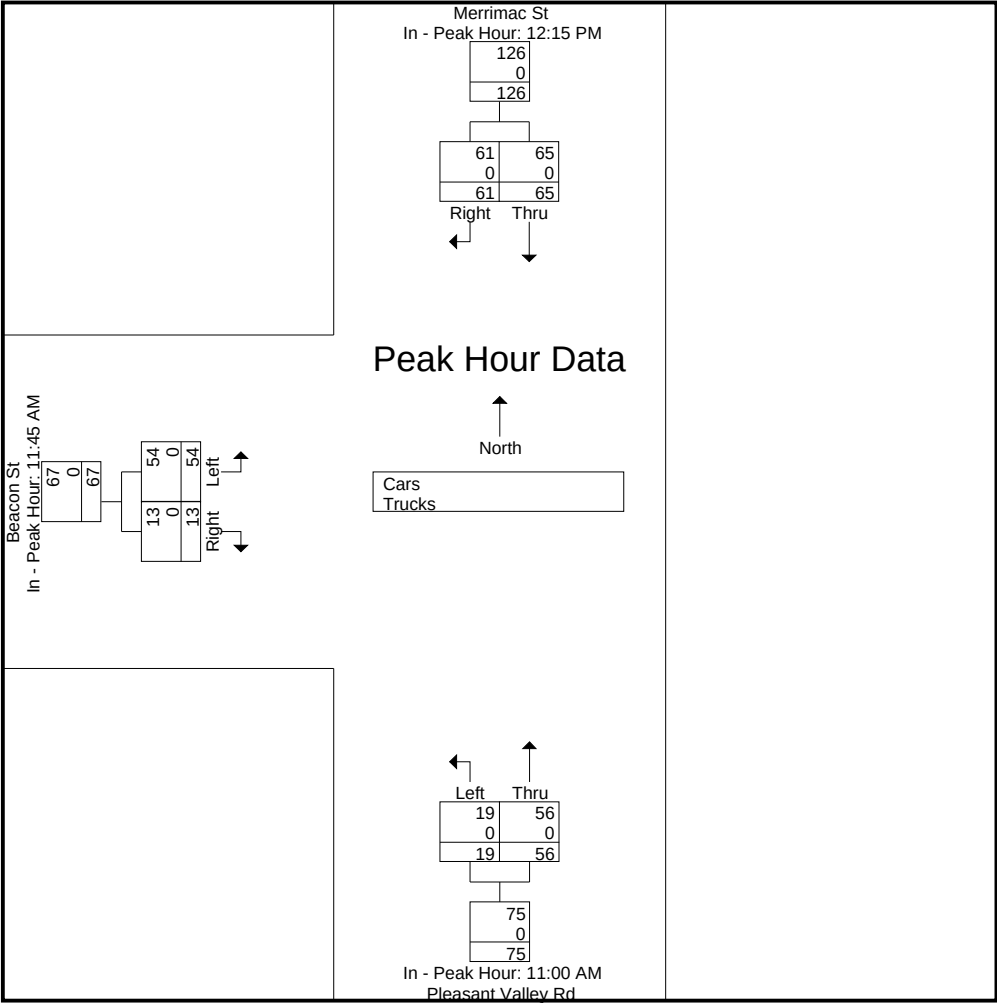
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

[illegible]

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S4
Site Code : 92210004
Start Date : 1/22/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Merrimac St / Pleasant Valley Rd

E/W Street : Beacon Street

City/State : Amesbury, MA

Weather : Clear

File Name : 922100S4

Site Code : 92210004

Start Date : 1/22/2022

Page No : 4

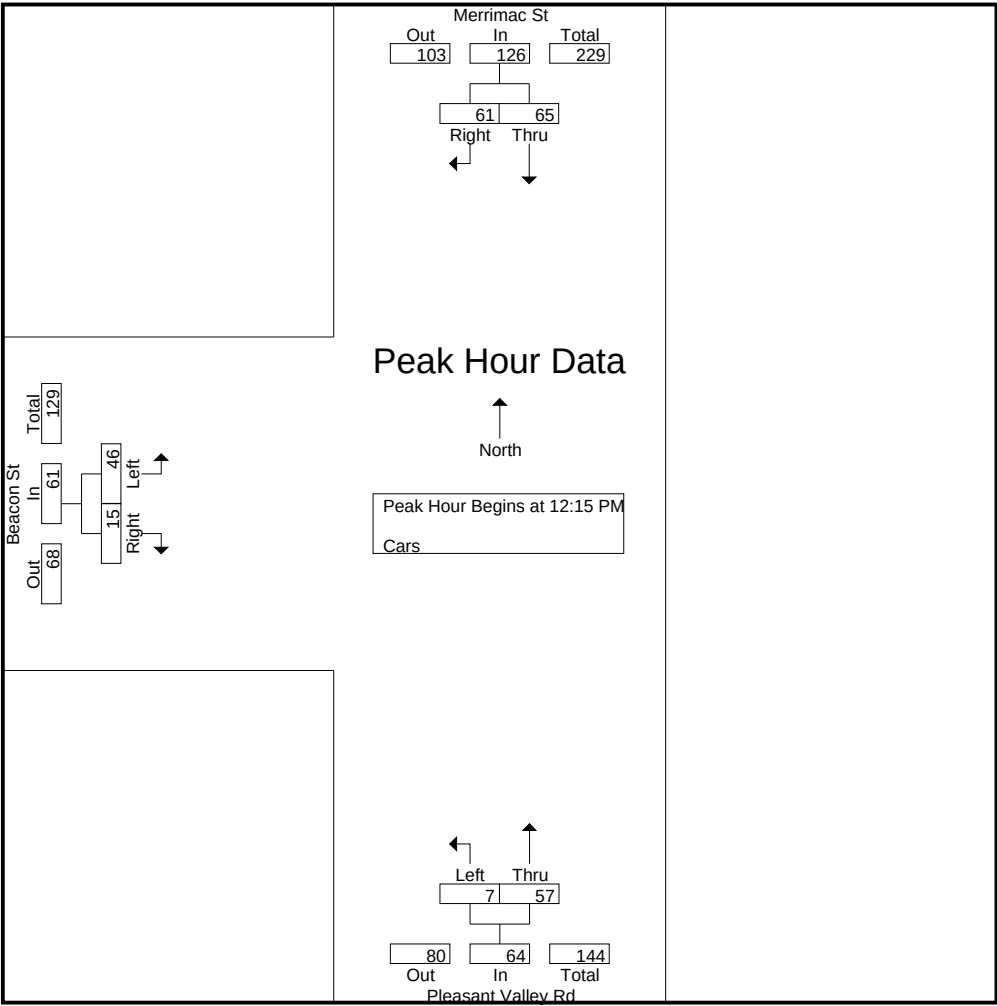
Groups Printed- Cars

	Merrimac St From North		Pleasant Valley Rd From South		Beacon St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
11:00 AM	11	19	7	12	11	6	66
11:15 AM	10	15	7	11	5	7	55
11:30 AM	9	4	2	18	10	3	46
11:45 AM	8	7	3	15	11	4	48
Total	38	45	19	56	37	20	215
12:00 PM	16	12	2	15	14	1	60
12:15 PM	18	16	2	16	12	4	68
12:30 PM	10	12	3	16	17	4	62
12:45 PM	22	15	1	8	4	3	53
Total	66	55	8	55	47	12	243
01:00 PM	15	18	1	17	13	4	68
01:15 PM	10	17	3	16	7	8	61
01:30 PM	11	10	4	16	11	6	58
01:45 PM	15	17	0	11	8	3	54
Total	51	62	8	60	39	21	241
Grand Total	155	162	35	171	123	53	699
Apprch %	48.9	51.1	17	83	69.9	30.1	
Total %	22.2	23.2	5	24.5	17.6	7.6	

	Merrimac St From North			Pleasant Valley Rd From South			Beacon St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:15 PM										
12:15 PM	18	16	34	2	16	18	12	4	16	68
12:30 PM	10	12	22	3	16	19	17	4	21	62
12:45 PM	22	15	37	1	8	9	4	3	7	53
01:00 PM	15	18	33	1	17	18	13	4	17	68
Total Volume	65	61	126	7	57	64	46	15	61	251
% App. Total	51.6	48.4		10.9	89.1		75.4	24.6		
PHF	.739	.847	.851	.583	.838	.842	.676	.938	.726	.923

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S4
Site Code : 92210004
Start Date : 1/22/2022
Page No : 5

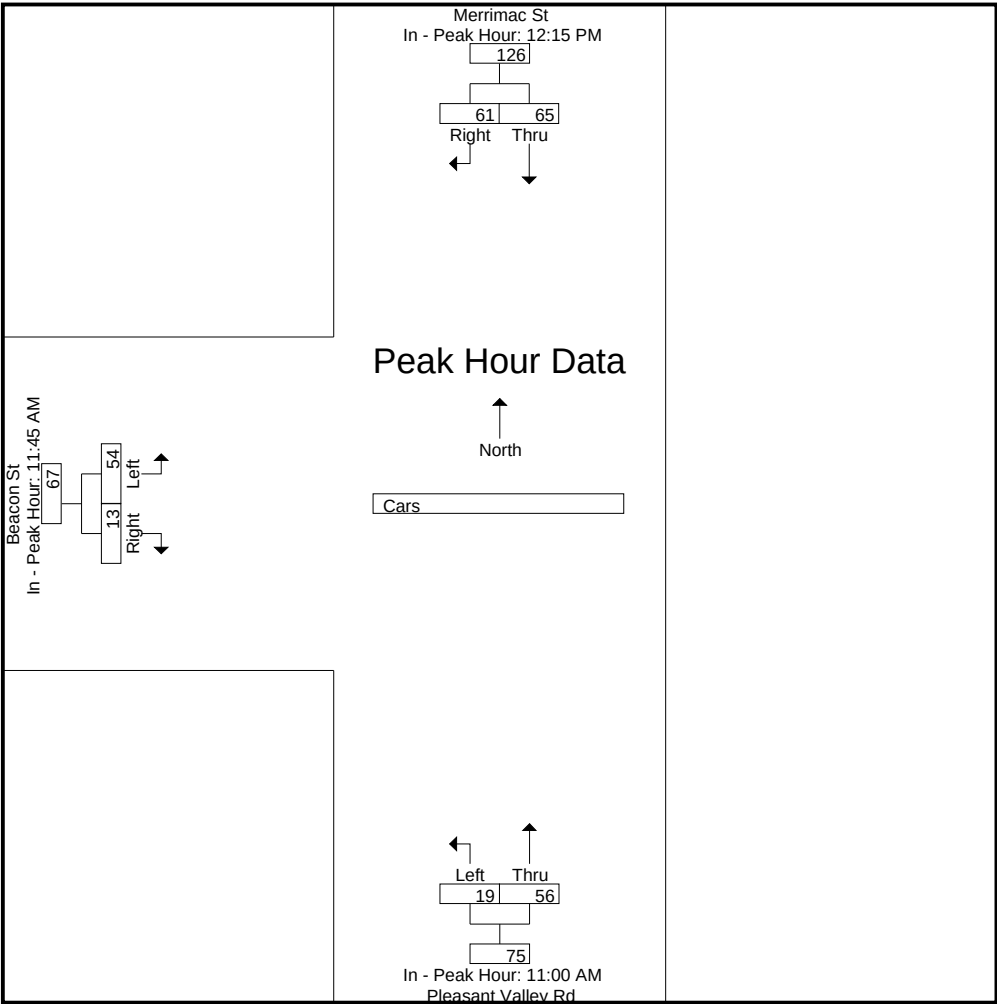


Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	12:15 PM			11:00 AM			11:45 AM		
+0 mins.	18	16	34	7	12	19	11	4	15
+15 mins.	10	12	22	7	11	18	14	1	15
+30 mins.	22	15	37	2	18	20	12	4	16
+45 mins.	15	18	33	3	15	18	17	4	21
Total Volume	65	61	126	19	56	75	54	13	67
% App. Total	51.6	48.4		25.3	74.7		80.6	19.4	
PHF	.739	.847	.851	.679	.778	.938	.794	.813	.798

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S4
Site Code : 92210004
Start Date : 1/22/2022
Page No : 6



978-664-2565

Weather : Clear

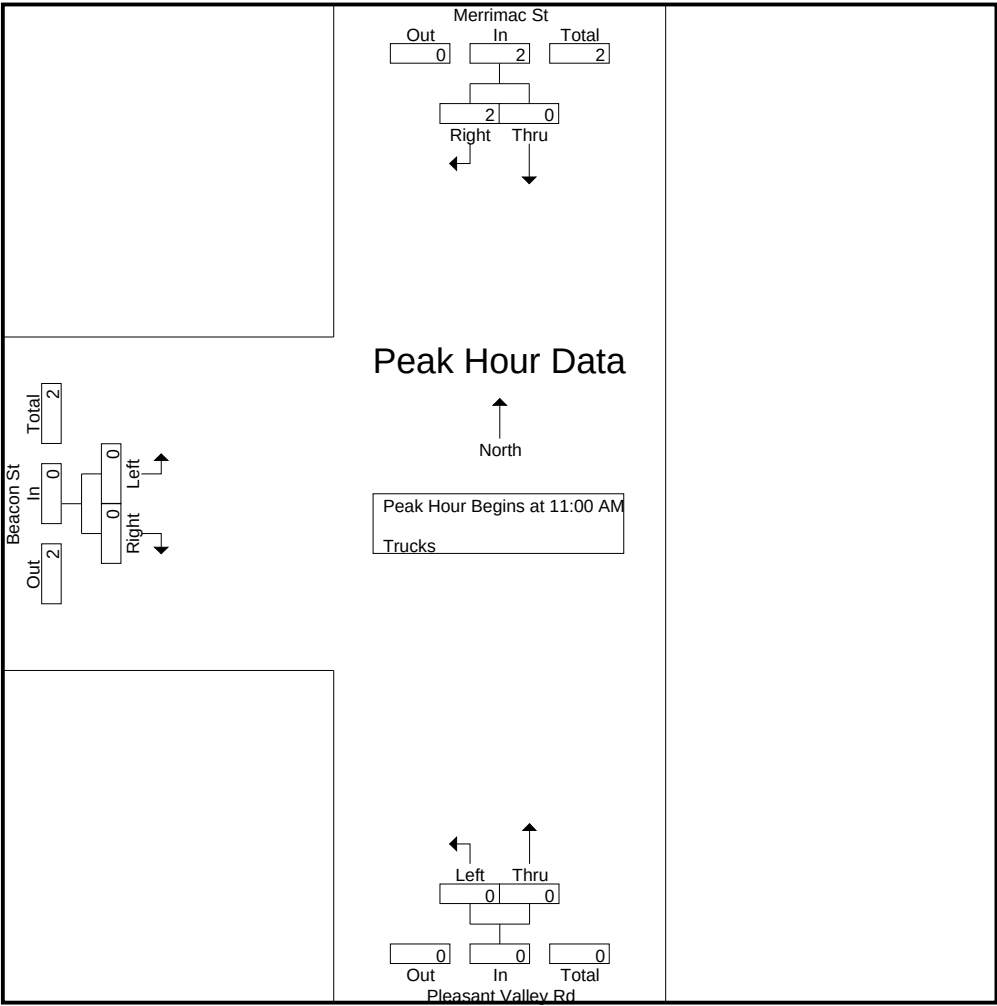
Page No : 7

	Groups Plotted - Trucks						
	Merrimac St From North		Pleasant Valley Rd From South		Beacon St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
11:00 AM	0	0	0	0	0	0	0
11:15 AM	0	1	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0
11:45 AM	0	1	0	0	0	0	1
Total	0	2	0	0	0	0	2
12:00 PM	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Grand Total	0	2	0	0	0	0	2
Apprch %	0	100	0	0	0	0	
Total %	0	100	0	0	0	0	

[illegible]

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S4
Site Code : 92210004
Start Date : 1/22/2022
Page No : 8

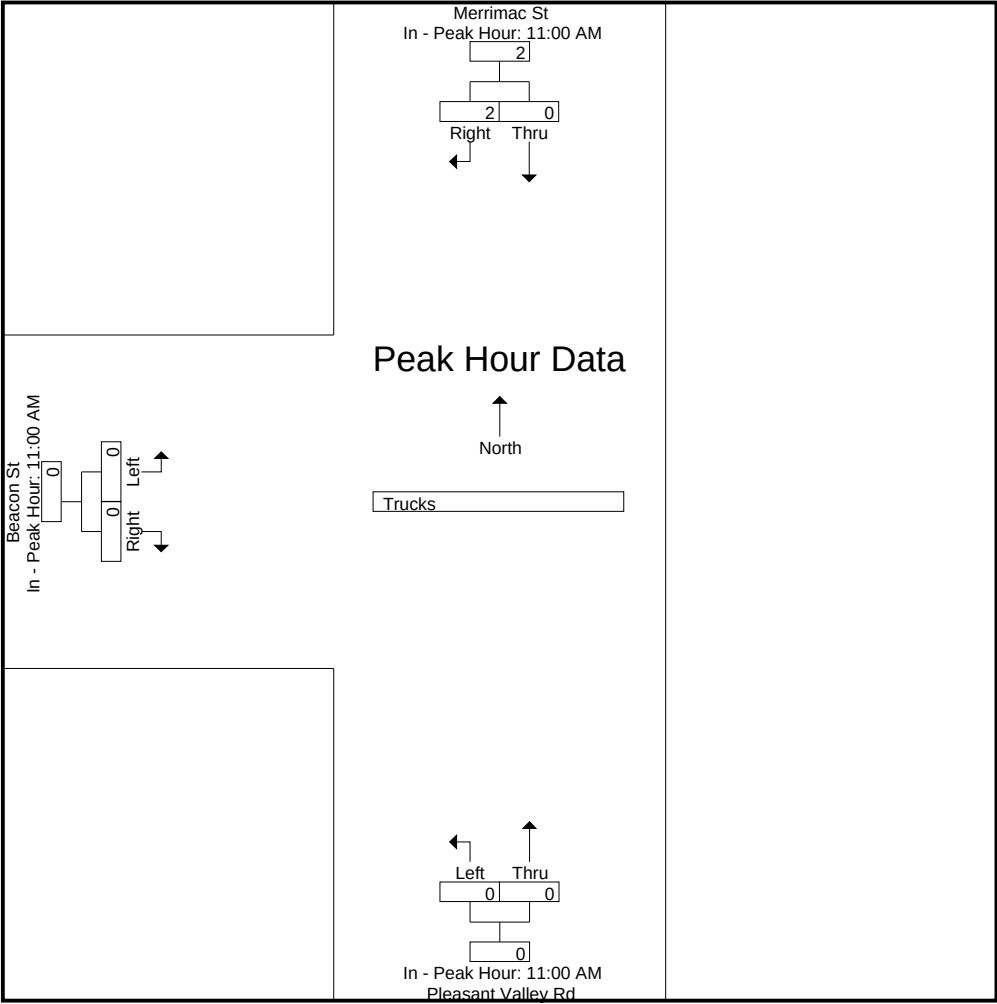


Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM			11:00 AM			11:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	1	0	0	0	0	0	0
Total Volume	0	2	2	0	0	0	0	0	0
% App. Total	0	100		0	0		0	0	
PHF	.000	.500	.500	.000	.000	.000	.000	.000	.000

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S4
Site Code : 92210004
Start Date : 1/22/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Merrimac St / Pleasant Valley Rd

E/W Street : Beacon Street

City/State : Amesbury, MA

Weather : Clear

File Name : 922100S4

Site Code : 92210004

Start Date : 1/22/2022

Page No : 10

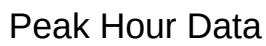
Groups Printed- Bikes Peds

	Merrimac St From North			Pleasant Valley Rd From South			Beacon St From West					
Start Time	Thru	Right	Peds	Left	Thru	Peds	Left	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	1	0	0	0	1	0	1
Total	0	0	0	0	0	1	0	0	0	1	0	1
12:00 PM	0	0	0	0	0	1	0	0	0	1	0	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	0	1	0	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	2	0	0	0	0	0	0	2	0	2
01:30 PM	0	0	2	0	0	0	0	1	2	4	1	5
01:45 PM	0	0	0	0	0	2	0	0	0	2	0	2
Total	0	0	4	0	0	2	0	1	2	8	1	9
Grand Total	0	0	4	0	0	4	0	1	2	10	1	11
Apprch %	0	0		0	0		0	100				
Total %	0	0		0	0		0	100		90.9	9.1	

	Merrimac St From North			Pleasant Valley Rd From South			Beacon St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:45 PM										
12:45 PM	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	1	1	1
Total Volume	0	0	0	0	0	0	0	1	1	1
% App. Total	0	0		0	0		0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.250	.250

978-664-2565

File Name : 922100S4
Site Code : 92210004
Start Date : 1/22/2022
Page No : 11



Peak Hour Begins at 12:45 PM

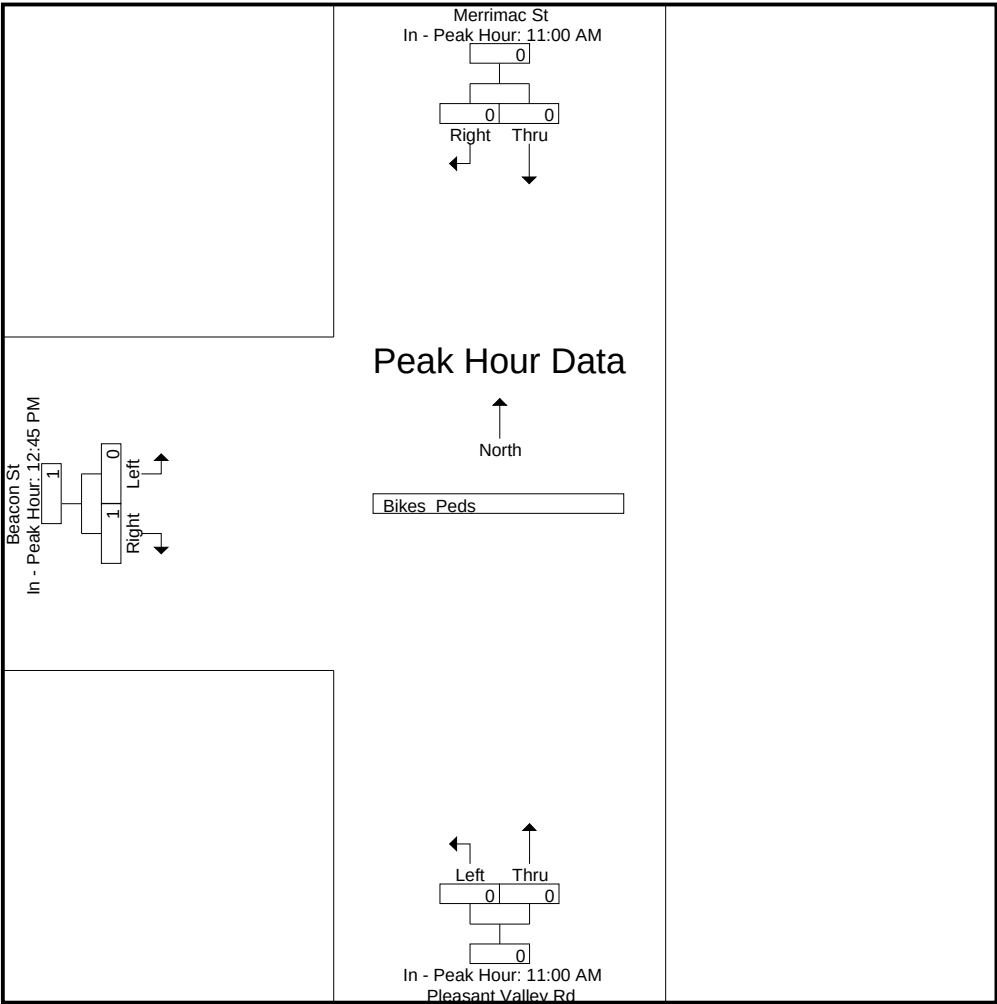
Bikes	Peds
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
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95	95
96	96
97	97
98	98
99	99
100	100

Peak Hour for Each Approach Begins at:

[illegible]

N/S Street : Merrimac St / Pleasant Valley Rd
E/W Street : Beacon Street
City/State : Amesbury, MA
Weather : Clear

File Name : 922100S4
Site Code : 92210004
Start Date : 1/22/2022
Page No : 12



SEASONAL ADJUSTMENT DATA



Massachusetts Highway Department
Statewide Traffic Data Collection
2019 Weekday Seasonal Factors

Factor Group	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Axle Factor
R1	1.22	1.14	1.12	1.06	1.00	0.96	0.87	0.85	0.96	0.99	1.04	1.12	0.85
R2	0.95	0.96	0.98	0.97	0.97	0.93	0.97	0.94	0.96	0.90	0.92	0.93	0.96
R3	1.15	1.06	1.07	1.00	0.89	0.88	0.89	0.89	0.95	0.92	1.02	1.01	0.97
R4-R7	1.09	1.09	1.11	1.02	0.96	0.92	0.89	0.89	0.99	0.98	1.09	1.13	0.98
U1-Boston	1.03	1.01	0.98	0.94	0.94	0.92	0.95	0.93	0.94	0.94	0.97	1.04	0.96
U1-Essex	1.09	1.06	1.03	0.99	0.94	0.90	0.88	0.86	0.93	0.94	0.99	1.06	0.93
U1-Southeast	1.06	1.05	1.01	0.97	0.95	0.93	0.93	0.90	0.94	0.94	0.98	1.04	0.98
U1-West	1.19	1.14	1.09	0.95	0.92	0.89	0.89	0.86	0.91	0.95	0.97	1.07	0.84
U1-Worcester	1.02	1.04	0.97	0.94	0.93	0.91	0.95	0.91	0.93	0.92	0.95	1.10	0.88
U2	1.01	1.00	0.94	0.93	0.91	0.89	0.93	0.90	0.90	0.91	0.94	1.02	0.99
U3	1.06	1.03	0.98	0.94	0.93	0.91	0.95	0.91	0.92	0.93	0.97	1.00	0.98
U4-U7	1.01	1.00	0.95	0.92	0.88	0.86	0.92	0.91	0.92	0.94	0.99	1.04	0.99
Rec - East	1.04	1.16	1.12	0.98	0.92	0.88	0.77	0.81	0.94	1.02	1.08	1.12	0.99
Rec - West	1.30	1.23	1.32	1.18	0.95	0.82	0.70	0.69	0.97	0.96	1.16	1.15	0.98

Round off:

0-999 = 10

>1000 = 100

U = Urban

R = Rural

1 - Interstate

2 - Freeway and Expressway

3 - Other Principal Arterial

4 - Minor Arterial

5 - Major Collector

6 - Minor Collector

7 - Local Road and Street

Recreational - East Group - Cape Cod (all towns) including the town of Plymouth south of Route 3A (stations 7014,7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108 and 7178), Martha's Vineyard and Nantucket.

Recreational - West Group - Continuous Stations 2 and 189 including stations 1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1113,1114, 1116,2196,2197 and 2198.

COVID ADJUSTMENT



2019 Average Count Data – Sta. 5234

January ADT: 57,463

2022 Average Count Data – Sta. 5234

January ADT: 50,419

COVID Adjustment

$$1 - \frac{57,463}{50,419} = 0.1397$$

Massachusetts Highway Department

5234: Monthly Hourly Volume for January 2019

Location ID: 5234
County: Essex
Functional Class: 1
Location: INTERSTATE 495

Seasonal Factor Group: U1-Essex
Daily Factor Group:
Axle Factor Group: U1-Essex
Growth Factor Group:

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL	QC Status
1																										
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11	394	300	259	348	571	1,569	3,404	4,659	4,276	3,317	3,225	3,577	3,778	4,130	4,791	5,498	5,209	5,374	3,848	2,536	1,852	1,466	1,119	858	66,358	Accepted
12	487	357	247	216	332	722	1,289	1,751	2,394	2,997	3,528	4,059	4,124	4,002	3,870	4,087	3,903	3,391	2,795	1,941	1,567	1,415	1,110	836	51,420	Accepted
13	423	310	176	117	147	314	642	1,039	1,663	2,302	3,018	3,825	4,198	3,211	2,921	2,765	3,206	3,440	2,730	2,053	1,462	953	606	440	41,961	Accepted
14	256	168	244	287	572	1,706	3,747	4,698	4,436	3,271	3,050	2,972	3,056	3,227	3,793	4,599	4,899	4,752	3,049	1,934	1,366	1,065	785	600	58,532	Accepted
15	343	259	272	350	652	1,689	3,635	4,952	4,456	3,565	3,052	3,084	3,127	3,455	4,049	4,824	4,934	5,043	3,336	2,024	1,510	1,212	857	647	61,327	Accepted
16	380	262	236	279	649	1,649	3,699	4,789	4,646	3,399	3,098	3,231	3,125	3,500	4,102	4,722	5,074	5,009	3,378	2,138	1,587	1,325	902	666	61,845	Accepted
17	395	268	240	355	622	1,725	3,683	4,818	4,562	3,441	3,293	3,309	3,408	3,638	4,334	4,870	5,507	5,109	3,833	2,353	1,883	1,441	1,059	825	64,971	Accepted
18	421	318	293	333	583	1,487	3,181	4,377	4,082	3,249	3,112	3,410	3,746	4,099	4,748	5,377	5,386	5,245	3,879	2,513	1,773	1,528	1,312	907	65,359	Accepted
19	472	356	253	215	321	606	1,209	1,847	2,427	3,247	3,812	4,354	4,464	4,090	4,261	4,368	3,724	2,951	2,221	1,460	991	805	612	405	49,471	Accepted
20																										
21	185	136	154	197	359	1,019	2,247	3,168	3,250	2,806	2,895	3,399	3,538	3,755	3,954	4,344	4,440	4,437	2,981	2,112	1,562	1,180	869	661	53,648	Accepted
22	437	263	921	368	733	1,815	3,845	5,149	4,944	3,682	2,909	2,912	2,871	3,160	3,718	4,419	4,878	4,872	3,237	2,118	1,426	1,213	784	658	61,332	Accepted
23	373	261	262	302	654	1,621	3,577	4,859	4,482	3,104	3,054	3,049	3,021	3,272	3,796	4,670	4,871	4,986	3,287	2,171	1,662	1,314	865	586	60,099	Accepted
24	398	265	252	296	625	1,583	3,455	4,542	4,258	3,208	3,017	2,958	2,994	3,182	3,874	4,439	4,598	4,674	3,466	2,205	1,646	1,291	1,026	688	58,940	Accepted
25	399	291	298	364	637	1,519	3,294	4,619	4,306	3,477	3,471	3,552	3,709	4,117	4,826	5,370	5,683	5,410	4,013	2,759	1,991	1,497	1,146	928	67,676	Accepted
26	515	332	198	209	293	616	1,186	1,731	2,443	3,165	3,739	4,156	4,406	4,180	4,028	4,186	4,019	3,654	2,800	2,076	1,642	1,378	1,148	810	52,910	Accepted
27	456	331	164	137	156	332	688	1,071	1,623	2,397	3,277	4,016	4,494	4,494	4,560	4,539	4,301	3,654	2,804	1,990	1,510	956	654	436	49,040	Accepted
28	239	206	212	285	631	1,748	3,763	4,852	4,367	3,279	2,897	2,989	3,016	3,119	3,875	4,659	4,539	5,122	3,289	1,882	1,486	1,154	793	555	58,957	Accepted
29	313	250	231	340	677	1,682	3,650	4,976	4,414	3,259	3,116	2,938	3,155	3,115	3,875	4,484	4,618	4,687	2,832	1,620	1,224	955	690	625	57,726	Accepted
30	419	264	227	298	579	1,230	2,494	3,310	3,406	2,097	2,095	2,119	2,877	3,031	3,530	4,258	4,717	4,642	2,966	1,511	1,567	1,158	1,036	394	50,225	Accepted
31																										

57,463 January 2019 ADT

Massachusetts Highway Department

5234: Monthly Hourly Volume for January 2022

Location ID: 5234
 County: Essex
 Functional Class: 1
 Location: INTERSTATE 495

Seasonal Factor Group:
 Daily Factor Group:
 Axle Factor Group:
 Growth Factor Group:

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL	QC Status
1																										
2																										
3																										
4																										
5																										
6																										
7	357	318	310	357	510	861	1,330	1,305	1,215	1,024	1,032	984	1,369	1,568	2,048	2,191	2,543	2,350	1,767	1,374	975	770	576	458	27,592	Accepted
8	332	252	157	192	296	602	1,031	1,455	1,984	2,612	3,342	3,794	4,102	3,742	3,730	3,782	3,490	3,060	2,316	1,722	1,252	975	841	552	45,613	Accepted
9	352	250	140	122	164	322	625	869	1,261	1,693	2,222	2,674	2,936	2,893	3,071	2,882	2,571	2,128	1,748	1,310	1,083	729	561	362	32,968	Accepted
10	244	158	219	305	605	1,628	2,939	4,006	3,634	2,893	2,849	3,065	3,078	3,246	3,862	4,392	4,355	3,970	2,509	1,592	1,144	872	713	472	52,750	Accepted
11	313	222	256	356	570	1,410	2,856	3,875	3,376	2,730	2,665	2,568	2,742	2,919	3,487	4,098	4,020	3,800	2,400	1,493	1,199	903	691	523	49,472	Accepted
12	344	253	249	315	566	1,490	3,000	3,932	3,720	2,826	2,805	2,973	3,119	3,270	3,849	4,555	4,472	4,059	2,518	1,714	1,340	1,041	803	566	53,779	Accepted
13	366	272	283	349	624	1,540	3,077	4,061	3,636	3,107	2,845	3,267	3,151	3,453	4,004	4,668	4,792	4,347	2,874	1,933	1,435	1,113	869	614	56,680	Accepted
14	371	280	289	390	607	1,472	2,957	3,695	3,322	3,128	3,301	3,573	3,657	4,017	4,851	5,053	5,238	4,812	3,542	2,413	1,727	1,360	1,060	724	61,839	Accepted
15	494	344	203	227	320	555	1,003	1,463	1,982	2,659	3,404	3,995	3,985	3,811	3,699	3,591	3,339	2,836	2,174	1,633	1,271	913	826	605	45,332	Accepted
16	361	264	139	153	172	336	683	969	1,335	2,127	2,910	3,659	3,697	3,731	3,959	3,890	3,580	3,173	2,559	1,884	1,355	1,047	699	422	43,104	Accepted
17	220	171	170	203	350	892	1,564	2,041	1,848	1,782	2,063	2,405	2,790	3,089	3,549	3,628	3,644	3,431	2,226	1,552	1,119	845	684	470	40,736	Accepted
18	301	226	224	324	637	1,607	3,190	4,357	3,884	3,211	3,124	3,186	3,245	3,503	4,114	4,474	4,487	4,244	2,736	1,754	1,301	1,004	767	569	56,469	Accepted
19	357	275	262	363	653	1,596	3,122	4,166	3,914	3,024	3,012	3,018	3,254	3,234	4,006	4,719	4,821	4,261	2,830	1,803	1,496	1,111	845	568	56,710	Accepted
20	390	282	292	375	649	1,559	3,061	4,153	3,611	2,984	2,903	3,067	3,057	3,322	3,961	4,551	4,527	4,467	2,870	1,943	1,444	1,166	826	616	56,076	Accepted
21	423	322	260	337	584	1,426	2,880	3,933	3,618	3,067	3,173	3,406	3,605	3,884	4,705	5,083	5,239	4,790	3,522	2,329	1,648	1,309	1,017	787	61,347	Accepted
22	455	307	215	220	324	636	1,108	1,624	2,043	2,752	3,471	4,031	4,237	4,051	4,068	3,980	3,676	3,260	2,567	1,786	1,346	1,189	921	615	48,882	Accepted
23	340	264	165	134	158	326	664	1,071	1,499	2,271	2,995	4,087	4,505	4,762	4,840	4,125	3,657	3,059	2,456	1,841	1,289	896	639	415	46,458	Accepted
24	239	197	242	267	624	1,686	3,059	4,298	3,821	3,101	2,941	2,975	3,104	3,225	3,973	4,519	4,419	4,089	2,674	1,601	1,172	972	738	520	54,456	Accepted
25	297	261	246	387	631	1,607	3,077	4,269	3,809	2,884	2,739	2,908	2,918	3,115	3,788	4,253	4,358	4,188	2,638	1,732	1,314	1,004	775	551	53,749	Accepted
26	347	301	267	319	663	1,602	3,196	4,376	3,858	3,205	2,817	2,970	2,931	3,328	4,001	4,679	4,729	4,427	2,993	1,972	1,497	1,055	830	560	56,923	Accepted
27	364	264	323	339	644	1,583	3,245	4,313	3,921	3,263	3,068	3,127	3,208	3,495	4,182	4,825	4,997	4,756	3,386	2,125	1,611	1,308	996	635	59,978	Accepted
28	407	282	264	332	676	1,555	2,947	4,124	3,723	3,387	3,395	3,643	3,755	4,216	4,960	5,302	5,135	4,628	3,644	2,453	1,819	1,387	1,128	801	63,963	Accepted
29																										
30	115	102	69	93	117	282	462	671	846	1,333	1,897	2,643	3,090	3,230	3,108	2,886	2,657	2,274	1,894	1,569	1,142	828	561	365	32,234	Accepted
31	241	221	207	259	569	1,574	2,825	4,166	3,820	3,001	2,794	2,824	2,925	3,184	3,821	4,200	4,264	4,038	2,656	1,774	1,287	959	786	543	52,938	Accepted

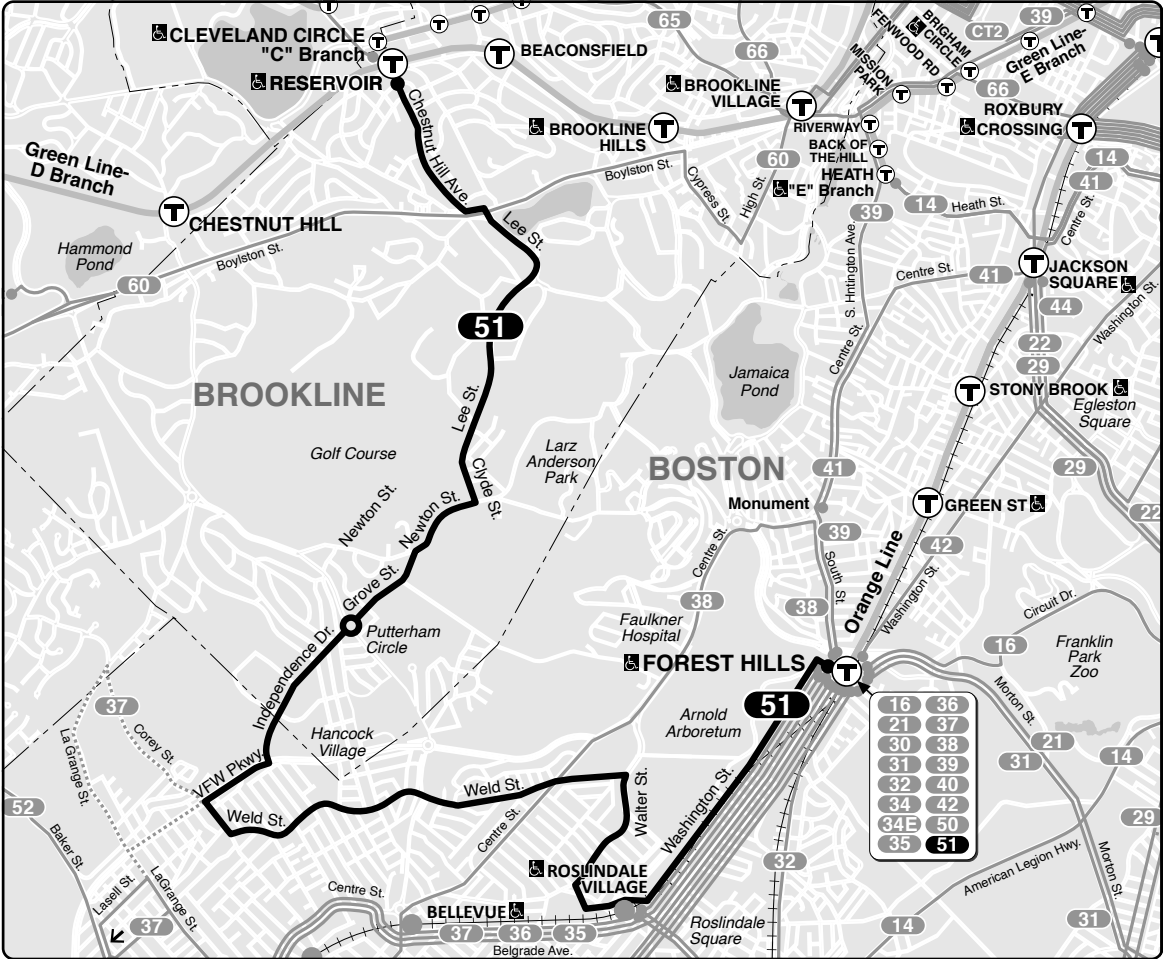
50,419 January 2022 ADT

PUBLIC TRANSPORTATION SCHEDULES



Effective **March 13, 2022**

51 Reservoir Sta – Forest Hills Sta



- Transfer to bus/subway available on CharlieCard—good for 2 hours, pay fare difference.
- Children 11 & under ride free with a paying customer.
- ♿ All MBTA buses are accessible to people with disabilities.

	CharlieCard	Cash on board	Reduced fare
Bus	\$1.70	\$1.70	\$0.85
Bus + Subway	\$2.40	\$4.10	\$1.10

Complete fare/pass rules and free/reduced fare eligibility:
[mbta.com/fares](https://www.mbta.com/fares) or call **617-222-3200**

Connections

ORANGE LINE **GREEN LINE** **C** **D**
NEEDHAM LINE



Information **617-222-3200**
Lost and Found **617-222-2399**
TTY **617-222-5146**

Realtime arrival information, maps, and more

mbta.com

Weekday 51
Inbound

	Reservoir Station	Putterham Circle	Rosindale Square	Forest Hills Upper Busway
	6:35	6:43	6:59	7:05
	7:00	7:08	7:26	7:32
A	7:25	7:33	7:51	7:57
	7:43	7:51	8:09	8:15
	7:55	8:03	8:21	8:27
	8:25	8:33	8:51	8:57
	8:55	9:03	9:17	9:23
	9:20	9:27	9:41	9:47
	9:50	9:57	10:11	10:17
	10:45	10:52	11:06	11:12
	11:45	11:52	12:06	12:12
	12:45	12:52	1:06	1:12
	1:45	1:55	2:13	2:18
	2:24	2:34	2:52	2:57
	2:54	3:04	3:25	3:31
	3:29	3:40	4:01	4:07
B	-	3:42	4:12	4:18
C	3:35	3:45	4:06	4:12
	4:05	4:15	4:33	4:39
	4:40	4:50	5:08	5:14
	5:15	5:25	5:43	5:49
	6:00	6:10	6:28	6:33
	6:30	6:37	6:53	6:58
	7:00	7:07	7:23	7:28
	7:20	7:27	7:40	7:44
	8:00	8:08	8:20	8:24
	9:00	9:08	9:20	9:24
	10:00	10:08	10:20	10:24

Outbound

	Forest Hills Upper Busway	Rosindale Square	Putterham Circle	Reservoir Station
	5:55	5:58	6:12	6:23
	6:20	6:25	6:39	6:50
C	6:35	6:39	6:51	7:00
	6:45	6:49	7:01	7:10
	6:45	6:50	7:04	7:14
	7:15	7:22	7:39	7:49
	7:45	7:52	8:09	8:19
	8:15	8:22	8:39	8:49
	8:45	8:52	9:07	9:15
	9:15	9:22	9:36	9:44
	10:10	10:17	10:31	10:39
	11:10	11:17	11:31	11:39
	12:10	12:17	12:31	12:39
	1:10	1:17	1:31	1:39
	1:45	1:53	2:08	2:16
	2:15	2:23	2:38	2:46
	2:50	2:58	3:15	3:24
	3:20	3:34	3:51	4:00
	3:55	4:07	4:23	4:31
	4:35	4:46	5:02	5:10
	5:20	5:31	5:47	5:55
	5:45	5:56	6:12	6:20
	6:15	6:26	6:43	6:52
	6:45	6:50	7:06	7:15
	7:25	7:30	7:46	7:55
	8:25	8:30	8:46	8:55
	9:25	9:30	9:46	9:55

Saturday 51
Inbound

	Reservoir Station	Putterham Circle	Rosindale Square	Forest Hills Upper Busway
	6:45	6:51	7:04	7:08
	7:45	7:52	8:05	8:09
	8:47	8:54	9:08	9:12
	9:52	9:58	10:14	10:19
	10:57	11:04	11:20	11:25
	12:02	12:09	12:25	12:30
	1:07	1:14	1:30	1:35
	2:12	2:19	2:34	2:39
	3:17	3:24	3:39	3:44
	4:22	4:29	4:44	4:49
	5:26	5:33	5:48	5:53
	6:30	6:37	6:52	6:57
	7:35	7:42	7:57	8:00
	8:40	8:47	8:59	9:04
	9:45	9:52	10:04	10:09

Outbound

	Forest Hills Upper Busway	Rosindale Square	Putterham Circle	Reservoir Station
	6:15	6:18	6:29	6:38
	7:15	7:18	7:31	7:40
	8:15	8:18	8:31	8:41
	9:20	9:24	9:38	9:46
	10:25	10:30	10:44	10:53
	11:30	11:35	11:49	11:58
	12:35	12:40	12:54	1:04
	1:40	1:44	1:59	2:07
	2:45	2:49	3:04	3:12
	3:50	3:54	4:09	4:17
	4:55	4:59	5:13	5:21
	6:00	6:04	6:17	6:26
	7:05	7:09	7:22	7:31
	8:10	8:14	8:27	8:35
	9:15	9:19	9:32	9:40

A school days only

B school days only from Greenough St & Tappan St via Newton St & Arlington Rd

C school days only to/from Union Square, Allston via Route 86

PM times are **bold**

Information in this timetable is subject to change without notice. Traffic and weather may affect running times.

Always check bus destination signs before boarding. Some buses may only serve a part, or skip portions of this route.

2022 Holidays

SUN Memorial Day

SUN Independence Day

SUN Labor Day

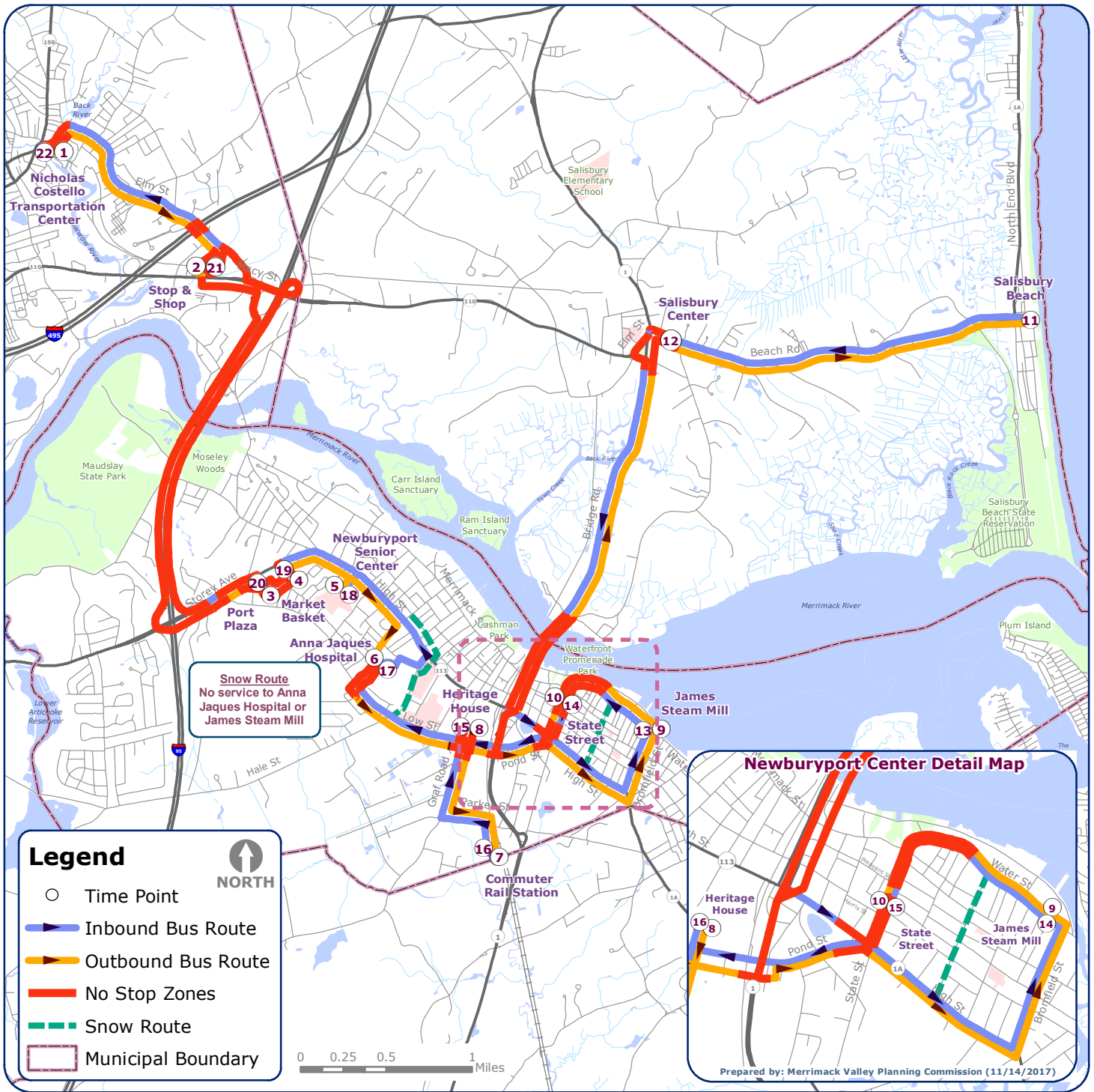
SUN Thanksgiving Day

SUN Christmas Day

SUN Christmas Day Observed

SAT New Year's Eve

SUN New Year's Day



VEHICLE TRAVEL SPEED DATA



Location : Main Street
 Location : East of Merrimac Street
 City/State: Amesbury, MA
 Direction: EB,

92210001

1/20/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	1	3	1	0	0	0	0	0	0	5
1:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
2:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
3:00	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2
4:00	0	0	0	0	1	1	2	10	4	0	0	0	0	0	18
5:00	0	0	0	0	2	2	18	17	6	0	0	0	0	0	45
6:00	0	0	0	0	14	22	45	46	4	0	0	0	0	0	131
7:00	0	0	0	0	19	40	53	104	31	1	0	0	0	0	248
8:00	0	0	0	1	23	50	75	79	23	3	1	0	0	0	255
9:00	0	0	0	0	10	38	52	61	19	0	0	0	0	0	180
10:00	0	0	0	1	9	22	40	72	22	2	0	0	0	0	168
11:00	0	0	0	1	18	34	50	58	23	0	0	0	0	0	184
12:00 PM	0	0	0	1	13	23	57	73	38	2	0	0	0	0	207
1:00	0	0	0	0	16	28	50	69	23	5	0	0	0	0	191
2:00	0	0	1	1	13	36	52	91	35	3	0	0	0	0	232
3:00	0	0	0	0	14	36	59	66	20	3	0	0	0	0	198
4:00	0	0	0	0	16	37	39	79	32	1	0	0	0	0	204
5:00	0	0	0	2	20	42	52	56	15	0	0	0	0	0	187
6:00	0	0	0	0	3	23	29	37	17	0	1	0	0	0	110
7:00	0	0	0	0	6	11	20	25	11	1	0	0	0	0	74
8:00	0	0	0	0	4	5	7	15	5	1	0	0	0	0	37
9:00	0	0	0	0	2	6	10	14	8	1	0	0	0	0	41
10:00	0	0	0	0	0	0	5	3	5	1	0	0	0	0	14
11:00	0	0	0	0	0	1	2	4	3	0	0	0	0	0	10
Total	0	0	1	7	203	460	720	982	344	24	2	0	0	0	2743

Percentile	15th
Speed	17
Mean Speed (Average)	20.5
10 MPH Pace Speed	15-24
Number in Pace	2272
Percent in Pace	82.8%
Number > 21 MPH	1352
Percent > 21 MPH	49.3%

Location : Main Street
 Location : East of Merrimac Street
 City/State: Amesbury, MA
 Direction: EB,

92210001

1/21/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	1	0	3	1	0	0	0	0	0	0	5
1:00	0	0	0	0	0	0	0	1	4	0	0	0	0	0	5
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	1	0	3	1	0	0	0	0	0	0	5
4:00	0	0	0	0	1	1	3	5	6	0	0	0	0	0	16
5:00	0	0	0	1	2	8	14	22	8	2	0	0	0	0	57
6:00	0	0	1	0	12	19	31	54	17	4	1	0	0	0	139
7:00	0	0	0	1	16	33	63	100	53	3	0	0	0	0	269
8:00	0	0	0	0	13	46	60	92	48	5	0	0	0	1	265
9:00	0	0	0	1	12	35	50	67	29	1	0	0	0	0	195
10:00	0	0	0	1	11	53	46	70	27	4	0	0	0	0	212
11:00	0	0	0	1	22	44	50	71	18	2	0	0	0	0	208
12:00 PM	0	0	1	1	22	35	51	63	33	3	0	0	0	0	209
1:00	0	0	2	2	17	27	54	57	34	2	0	0	0	0	195
2:00	0	0	2	1	20	39	71	75	37	3	0	0	0	0	248
3:00	0	0	0	1	14	33	52	86	28	3	1	0	0	0	218
4:00	0	0	0	0	16	41	57	78	23	1	0	0	0	0	216
5:00	0	0	0	0	15	27	45	62	17	2	0	0	0	0	168
6:00	0	0	0	0	12	21	32	47	30	2	0	0	0	0	144
7:00	0	0	1	0	6	11	23	23	11	2	0	0	0	0	77
8:00	0	0	0	0	1	7	14	19	8	1	0	0	0	0	50
9:00	0	0	0	0	2	1	7	13	3	2	0	0	0	0	28
10:00	0	0	0	0	2	5	5	9	5	2	0	0	0	0	28
11:00	0	0	0	0	2	5	7	8	7	1	0	0	0	0	30
Total	0	0	7	10	220	491	741	1024	446	45	2	0	0	1	2987

Percentile 15th 50th 85th 95th
 Speed 16 21 24 25
 Mean Speed (Average) 20.7
 10 MPH Pace Speed 15-24
 Number in Pace 2397
 Percent in Pace 80.2%
 Number > 21 MPH 1518
 Percent > 21 MPH 50.8%

92210001

1/22/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	2	2	2	2	1	0	0	0	0	0	9
1:00	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3
2:00	0	0	0	0	0	1	1	1	0	0	0	0	0	0	3
3:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:00	0	0	0	0	0	0	0	1	4	0	0	0	0	0	5
5:00	0	0	0	0	2	2	4	11	5	1	0	0	0	0	25
6:00	0	0	0	0	3	6	15	8	15	1	1	0	0	0	49
7:00	0	0	0	1	8	12	18	41	18	1	0	0	0	0	99
8:00	0	0	0	0	10	22	23	34	31	1	1	0	0	0	122
9:00	0	0	1	0	13	22	39	47	29	1	0	0	0	0	152
10:00	0	0	0	0	11	33	45	78	41	4	0	0	0	0	212
11:00	0	0	0	0	19	38	57	81	36	3	0	0	0	0	234
12:00 PM	0	0	0	1	22	49	56	76	26	3	0	0	0	0	233
1:00	0	0	0	2	26	37	44	64	27	2	0	0	0	0	202
2:00	0	0	0	1	21	28	46	64	20	1	0	0	0	0	181
3:00	0	0	1	2	11	34	53	59	32	2	0	0	0	0	194
4:00	0	0	0	1	17	36	42	50	18	0	0	0	0	0	164
5:00	0	0	0	0	8	22	36	41	14	3	1	0	0	0	125
6:00	0	0	0	0	9	11	16	40	27	3	0	0	0	0	106
7:00	0	0	0	0	9	17	18	29	8	1	0	0	0	0	82
8:00	0	0	0	0	1	6	12	21	5	1	0	0	0	0	46
9:00	0	0	0	1	1	6	14	11	6	1	0	0	0	0	40
10:00	0	0	0	0	1	3	4	8	2	0	0	0	0	0	18
11:00	0	0	0	0	0	5	4	7	6	2	0	0	0	0	24
Total	0	0	2	9	194	392	549	775	373	32	3	0	0	0	2329
Percentile															
Speed				15th	50th	85th	95th								
Mean Speed (Average)				16	21	24	25								
10 MPH Pace Speed				20.6											
Number in Pace				16-25											
Percent in Pace				1835											
Number > 21 MPH				78.8%											
Percent > 21 MPH				1183											
				50.8%											
Grand Total	0	0	10	26	617	1343	2010	2781	1163	101	7	0	0	1	8059
Stats	Percentile			15th	50th	85th	95th								
Speed				16	21	24	25								
Mean Speed (Average)				20.6											
10 MPH Pace Speed				15-24											
Number in Pace				6503											
Percent in Pace				80.7%											
Number > 21 MPH				4053											
Percent > 21 MPH				50.3%											

92210001

1/20/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	Total
12:00 AM	0	0	0	0	5	2	1	1	1	0	0	0	0	0	10
1:00	0	0	0	0	1	2	2	3	0	0	0	0	0	0	8
2:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
3:00	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
4:00	0	0	0	0	6	3	3	3	1	0	0	0	0	0	16
5:00	0	0	0	3	6	7	15	8	0	1	0	0	0	0	40
6:00	0	0	10	23	34	20	22	11	1	0	0	0	0	0	121
7:00	0	0	14	34	52	24	58	20	0	0	0	0	0	0	202
8:00	0	0	14	36	62	64	75	22	9	0	0	0	0	0	282
9:00	0	0	19	24	38	34	58	22	5	0	0	0	0	1	201
10:00	0	0	5	28	41	32	56	31	5	2	0	0	0	0	200
11:00	0	0	9	30	63	48	85	36	9	0	0	0	0	0	280
12:00 PM	0	0	24	40	76	49	77	39	4	0	0	0	0	2	311
1:00	0	0	18	44	79	42	84	55	10	0	0	0	0	0	332
2:00	0	0	18	41	93	54	112	46	6	0	0	0	0	1	371
3:00	0	0	35	72	143	96	105	60	10	0	0	0	0	0	521
4:00	0	0	26	57	107	109	119	52	4	0	0	0	0	0	474
5:00	0	0	40	99	117	74	99	25	3	0	0	0	0	0	457
6:00	0	0	4	21	66	50	66	27	3	1	0	0	0	0	238
7:00	0	0	1	14	40	35	61	19	3	0	0	0	0	0	173
8:00	0	0	2	5	16	14	27	13	3	1	0	0	0	0	81
9:00	0	0	3	7	19	13	35	10	3	0	0	0	0	0	90
10:00	0	0	0	2	9	6	10	9	6	0	0	0	0	0	42
11:00	0	0	0	1	2	5	10	9	1	1	1	0	0	0	30
Total	0	0	242	581	1076	784	1180	522	87	6	1	0	0	4	4483
Percentile				15th	50th	85th	95th								
Speed				12	16	20	23								
Mean Speed (Average)				16.4											
10 MPH Pace Speed				12-21											
Number in Pace				3216											
Percent in Pace				71.7%											
Number > 21 MPH				620											
Percent > 21 MPH				13.8%											

92210001

1/21/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	1	0	4	5	0	0	0	0	0	0	10
1:00	0	0	0	1	1	1	3	1	0	1	0	0	0	0	8
2:00	0	0	0	0	3	2	1	0	0	0	0	0	0	0	6
3:00	0	0	0	0	0	1	3	0	0	0	0	0	0	0	4
4:00	0	0	0	0	1	1	4	6	1	0	0	0	0	0	13
5:00	0	0	0	1	8	8	7	4	1	0	0	0	0	0	29
6:00	0	0	1	7	38	30	25	18	2	1	0	0	0	0	122
7:00	0	0	4	34	51	45	81	29	3	0	0	0	0	0	247
8:00	0	0	11	24	75	56	70	48	3	2	0	0	0	2	291
9:00	0	0	11	24	47	52	76	35	8	0	0	0	0	0	253
10:00	0	0	14	31	66	57	64	46	9	0	0	0	0	0	287
11:00	0	0	12	30	65	57	76	42	9	0	0	0	0	1	292
12:00 PM	0	0	20	47	70	71	86	45	16	1	0	0	0	0	356
1:00	0	0	16	45	89	51	102	55	11	1	0	0	0	0	370
2:00	0	0	34	62	79	65	104	44	11	1	0	0	0	0	400
3:00	0	0	38	81	138	89	112	64	12	0	0	0	0	0	534
4:00	0	0	19	60	108	87	122	57	5	0	0	0	0	0	458
5:00	0	0	18	47	108	99	109	42	2	0	0	0	0	1	426
6:00	0	0	10	39	54	62	66	13	6	0	0	0	0	1	251
7:00	0	0	2	15	36	38	64	29	3	1	0	0	0	0	188
8:00	0	0	3	12	35	21	41	20	4	0	0	0	0	0	136
9:00	0	0	0	6	24	23	27	22	9	0	0	0	0	0	111
10:00	0	0	2	3	12	19	27	11	3	0	0	0	0	0	77
11:00	0	0	1	5	11	11	18	6	1	1	0	0	0	0	54
Total	0	0	216	574	1120	946	1292	642	119	9	0	0	0	5	4923
Percentile				15th	50th	85th	95th								
Speed				12	17	21	23								
Mean Speed (Average)				16.7											
10 MPH Pace Speed				12-21											
Number in Pace				3570											
Percent in Pace				72.5%											
Number > 21 MPH				775											
Percent > 21 MPH				15.7%											

92210001

1/22/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	1	2	12	2	4	2	0	0	0	0	0	0	23
1:00	0	0	0	0	0	1	2	1	0	1	0	0	0	0	5
2:00	0	0	0	0	4	1	0	0	0	1	0	0	0	0	6
3:00	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
4:00	0	0	0	0	2	0	2	1	0	0	0	0	0	0	5
5:00	0	0	0	0	0	3	4	2	1	0	0	0	0	0	10
6:00	0	0	1	1	6	8	5	5	1	0	0	0	0	0	27
7:00	0	0	0	4	17	13	26	21	4	1	0	0	0	0	86
8:00	0	0	11	15	21	24	48	39	10	2	0	0	0	0	170
9:00	0	0	12	29	58	43	55	45	8	0	0	0	0	2	252
10:00	0	0	6	30	61	64	97	47	8	0	0	0	0	1	314
11:00	0	0	17	30	65	62	118	57	11	1	1	0	0	0	362
12:00 PM	0	0	25	50	72	56	85	41	12	2	0	0	0	0	343
1:00	0	0	13	40	92	50	83	65	16	0	0	0	0	0	359
2:00	0	0	17	49	96	56	62	41	6	0	0	0	0	0	327
3:00	0	0	16	49	94	54	78	29	9	0	0	0	0	0	329
4:00	0	0	27	34	62	43	76	45	5	0	0	0	0	0	292
5:00	0	0	4	22	51	53	80	25	6	0	0	0	0	0	241
6:00	0	0	2	9	30	38	49	22	5	0	0	0	0	0	155
7:00	0	0	6	19	30	26	55	14	3	1	0	0	0	0	154
8:00	0	0	0	11	20	8	21	23	5	0	0	0	0	0	88
9:00	0	0	0	6	21	24	41	23	1	0	0	0	0	0	116
10:00	0	0	0	4	18	13	18	12	5	1	0	0	0	0	71
11:00	0	0	0	1	18	12	26	5	4	0	0	0	0	0	66
Total	0	0	158	405	850	654	1036	566	120	10	1	0	0	3	3803
Percentile															
Speed				15th	50th	85th	95th								
Mean Speed (Average)				12	17	21	24								
10 MPH Pace Speed				12-21											
Number in Pace				2723											
Percent in Pace				71.6%											
Number > 21 MPH				700											
Percent > 21 MPH				18.4%											
Grand Total	0	0	616	1560	3046	2384	3508	1730	326	25	2	0	0	12	13209
Stats															
Percentile				15th	50th	85th	95th								
Speed				12	17	21	23								
Mean Speed (Average)				16.7											
10 MPH Pace Speed				12-21											
Number in Pace				9509											
Percent in Pace				72.0%											
Number > 21 MPH				2095											
Percent > 21 MPH				15.9%											

92210001

1/20/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	5	3	4	2	1	0	0	0	0	0	15
1:00	0	0	0	0	1	2	2	4	0	0	0	0	0	0	9
2:00	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
3:00	0	0	0	0	1	1	0	2	0	0	0	0	0	0	4
4:00	0	0	0	0	7	4	5	13	5	0	0	0	0	0	34
5:00	0	0	0	3	8	9	33	25	6	1	0	0	0	0	85
6:00	0	0	10	23	48	42	67	57	5	0	0	0	0	0	252
7:00	0	0	14	34	71	64	111	124	31	1	0	0	0	0	450
8:00	0	0	14	37	85	114	150	101	32	3	1	0	0	0	537
9:00	0	0	19	24	48	72	110	83	24	0	0	0	0	1	381
10:00	0	0	5	29	50	54	96	103	27	4	0	0	0	0	368
11:00	0	0	9	31	81	82	135	94	32	0	0	0	0	0	464
12:00 PM	0	0	24	41	89	72	134	112	42	2	0	0	0	2	518
1:00	0	0	18	44	95	70	134	124	33	5	0	0	0	0	523
2:00	0	0	19	42	106	90	164	137	41	3	0	0	0	1	603
3:00	0	0	35	72	157	132	164	126	30	3	0	0	0	0	719
4:00	0	0	26	57	123	146	158	131	36	1	0	0	0	0	678
5:00	0	0	40	101	137	116	151	81	18	0	0	0	0	0	644
6:00	0	0	4	21	69	73	95	64	20	1	1	0	0	0	348
7:00	0	0	1	14	46	46	81	44	14	1	0	0	0	0	247
8:00	0	0	2	5	20	19	34	28	8	2	0	0	0	0	118
9:00	0	0	3	7	21	19	45	24	11	1	0	0	0	0	131
10:00	0	0	0	2	9	6	15	12	11	1	0	0	0	0	56
11:00	0	0	0	1	2	6	12	13	4	1	1	0	0	0	40
Total	0	0	243	588	1279	1244	1900	1504	431	30	3	0	0	4	7226
Percentile				15th	50th	85th	95th								
Speed				13	18	22	24								
Mean Speed (Average)				17.9											
10 MPH Pace Speed				14-23											
Number in Pace				5067											
Percent in Pace				70.1%											
Number > 21 MPH				1972											
Percent > 21 MPH				27.3%											

92210001

[illegible]

92210001

1/22/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	1	2	14	4	6	4	1	0	0	0	0	0	32
1:00	0	0	0	0	0	1	2	1	2	2	0	0	0	0	8
2:00	0	0	0	0	4	2	1	1	0	1	0	0	0	0	9
3:00	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3
4:00	0	0	0	0	2	0	2	2	4	0	0	0	0	0	10
5:00	0	0	0	0	2	5	8	13	6	1	0	0	0	0	35
6:00	0	0	1	1	9	14	20	13	16	1	1	0	0	0	76
7:00	0	0	0	5	25	25	44	62	22	2	0	0	0	0	185
8:00	0	0	11	15	31	46	71	73	41	3	1	0	0	0	292
9:00	0	0	13	29	71	65	94	92	37	1	0	0	0	2	404
10:00	0	0	6	30	72	97	142	125	49	4	0	0	0	1	526
11:00	0	0	17	30	84	100	175	138	47	4	1	0	0	0	596
12:00 PM	0	0	25	51	94	105	141	117	38	5	0	0	0	0	576
1:00	0	0	13	42	118	87	127	129	43	2	0	0	0	0	561
2:00	0	0	17	50	117	84	108	105	26	1	0	0	0	0	508
3:00	0	0	17	51	105	88	131	88	41	2	0	0	0	0	523
4:00	0	0	27	35	79	79	118	95	23	0	0	0	0	0	456
5:00	0	0	4	22	59	75	116	66	20	3	1	0	0	0	366
6:00	0	0	2	9	39	49	65	62	32	3	0	0	0	0	261
7:00	0	0	6	19	39	43	73	43	11	2	0	0	0	0	236
8:00	0	0	0	11	21	14	33	44	10	1	0	0	0	0	134
9:00	0	0	0	7	22	30	55	34	7	1	0	0	0	0	156
10:00	0	0	0	4	19	16	22	20	7	1	0	0	0	0	89
11:00	0	0	0	1	18	17	30	12	10	2	0	0	0	0	90
Total	0	0	160	414	1044	1046	1585	1341	493	42	4	0	0	3	6132
Percentile				15th	50th	85th	95th								
Speed				14	19	23	25								
Mean Speed (Average)				18.4											
10 MPH Pace Speed				14-23											
Number in Pace				4310											
Percent in Pace				70.3%											
Number > 21 MPH				1883											
Percent > 21 MPH				30.7%											
Grand Total	0	0	626	1586	3663	3727	5518	4511	1489	126	9	0	0	13	21268
Stats	Percentile			15th	50th	85th	95th								
Speed				13	19	22	24								
Mean Speed (Average)				18.2											
10 MPH Pace Speed				14-23											
Number in Pace				14949											
Percent in Pace				70.3%											
Number > 21 MPH				6148											
Percent > 21 MPH				28.9%											

Location : Merrimac Street
 Location : South of Main Street
 City/State: Amesbury, MA
 Direction: NB,

9221

1/20/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
3:00	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
4:00	0	0	0	0	0	0	0	0	2	2	0	0	0	0	4
5:00	0	0	0	0	0	0	3	3	3	1	0	0	0	0	10
6:00	0	0	0	1	2	3	7	14	13	5	0	0	0	0	45
7:00	0	0	0	0	0	3	8	27	25	10	6	0	0	0	79
8:00	0	0	0	0	3	0	15	33	31	13	1	0	0	0	96
9:00	0	0	0	0	0	2	10	19	22	14	3	0	0	0	70
10:00	0	0	0	0	0	0	7	25	20	12	3	0	0	0	67
11:00	0	0	0	0	1	2	14	35	34	14	2	0	0	0	102
12:00 PM	0	0	0	0	0	0	5	23	27	7	5	2	0	0	69
1:00	0	0	0	0	0	2	9	28	38	4	2	0	0	0	83
2:00	0	0	1	0	0	3	12	31	32	9	6	1	0	0	95
3:00	0	0	3	1	3	2	11	25	33	9	2	0	0	0	89
4:00	0	0	1	0	1	1	17	21	31	14	2	0	0	0	88
5:00	0	0	0	0	1	2	16	43	22	6	4	0	0	0	94
6:00	0	0	0	0	0	1	9	20	17	8	0	0	0	0	55
7:00	0	0	0	0	0	1	6	15	10	4	0	0	0	0	36
8:00	0	0	0	0	0	0	4	4	3	2	0	0	0	0	13
9:00	0	0	0	1	0	0	4	3	4	3	0	0	0	0	15
10:00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
11:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	0	5	3	11	22	157	371	370	139	36	3	0	0	1117

Percentile	15th
Speed	20
Mean Speed (Average)	23.9
10 MPH Pace Speed	18-27
Number in Pace	940
Percent in Pace	84.2%
Number > 24 MPH	548
Percent > 24 MPH	49.1%

Location : Merrimac Street
 Location : South of Main Street
 City/State: Amesbury, MA
 Direction: NB,

9221

1/21/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	1	0	1	0	1	0	0	0	3
4:00	0	0	0	0	0	0	0	0	1	1	1	0	0	0	3
5:00	0	0	0	0	0	0	3	4	6	2	1	0	0	0	16
6:00	0	0	1	0	0	1	6	17	14	9	0	0	0	0	48
7:00	0	0	0	0	1	0	8	24	44	9	3	0	0	0	89
8:00	0	0	2	0	0	0	6	24	37	18	1	1	0	0	89
9:00	0	0	0	0	1	4	2	19	29	15	2	0	0	0	72
10:00	0	0	0	0	1	2	14	26	38	7	1	0	0	0	89
11:00	0	0	0	0	1	4	15	24	38	11	4	0	0	0	97
12:00 PM	0	0	0	1	0	4	10	30	31	15	3	0	0	0	94
1:00	0	0	0	0	2	4	11	27	17	13	2	0	0	0	76
2:00	0	0	0	0	2	2	18	35	32	9	4	0	0	0	102
3:00	0	0	0	0	0	1	12	26	24	10	6	1	0	0	80
4:00	0	0	2	0	0	1	11	32	43	11	1	1	0	0	102
5:00	0	0	0	0	0	1	15	35	17	7	1	0	0	0	76
6:00	0	0	0	0	1	1	12	15	23	4	0	0	0	0	56
7:00	0	0	0	0	0	1	4	11	15	4	0	0	0	0	35
8:00	0	0	0	0	0	0	1	4	6	3	0	0	0	0	14
9:00	0	0	0	0	0	0	1	1	1	1	0	0	0	0	4
10:00	0	0	0	0	0	0	2	2	1	2	0	0	0	0	7
11:00	0	0	0	0	0	0	1	6	6	0	0	0	0	0	13
Total	0	0	5	1	9	26	153	363	425	151	31	3	0	0	1167

Percentile	15th
Speed	20
Mean Speed (Average)	24.0
10 MPH Pace Speed	19-28
Number in Pace	991
Percent in Pace	84.9%
Number > 24 MPH	610
Percent > 24 MPH	52.3%

9221

1/22/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	0	4	1	0	0	0	0	0	5
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
3:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
4:00	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2
5:00	0	0	0	0	0	0	0	2	2	0	0	0	0	0	4
6:00	0	0	0	0	0	0	1	9	5	0	0	0	0	0	15
7:00	0	0	0	0	0	0	4	6	10	6	1	2	0	0	29
8:00	0	0	0	0	1	2	5	13	16	13	2	0	0	0	52
9:00	0	0	0	1	1	1	5	25	18	12	2	0	0	0	65
10:00	0	0	2	0	0	1	10	33	26	13	2	0	0	0	87
11:00	0	0	0	0	2	0	7	31	35	21	2	1	0	0	99
12:00 PM	0	0	0	0	1	2	19	39	44	9	2	0	0	0	116
1:00	0	0	1	0	1	1	18	43	31	15	2	1	0	0	113
2:00	0	0	2	1	1	3	17	31	25	10	1	0	1	0	92
3:00	0	0	0	0	0	4	10	22	35	14	3	0	0	0	88
4:00	0	0	1	1	1	0	11	37	25	10	2	0	0	0	88
5:00	0	0	0	0	0	2	9	21	20	8	2	0	0	0	62
6:00	0	0	0	1	0	0	4	17	18	6	0	0	0	0	46
7:00	0	0	0	0	0	2	5	9	13	3	0	0	0	0	32
8:00	0	0	0	0	0	0	1	4	4	0	1	0	0	0	10
9:00	0	0	0	0	0	1	1	7	5	0	0	0	0	0	14
10:00	0	0	0	0	0	1	1	2	1	1	0	0	0	0	6
11:00	0	0	0	0	1	0	2	3	3	0	0	1	0	0	10
Total	0	0	6	4	9	20	130	359	338	142	22	5	1	1	1037
Percentile				15th	50th	85th	95th								
Speed				20	24	27	29								
Mean Speed (Average)				24.0											
10 MPH Pace Speed				20-29											
Number in Pace				882											
Percent in Pace				85.1%											
Number > 24 MPH				509											
Percent > 24 MPH				49.1%											
Grand Total	0	0	16	8	29	68	440	1093	1133	432	89	11	1	1	3321
Stats				Percentile	15th	50th	85th	95th							
Speed				20	24	27	29								
Mean Speed (Average)				24.0											
10 MPH Pace Speed				19-28											
Number in Pace				2808											
Percent in Pace				84.6%											
Number > 24 MPH				1667											
Percent > 24 MPH				50.2%											

Location : Merrimac Street
 Location : South of Main Street
 City/State: Amesbury, MA
 Direction: SB,

9221

1/20/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3
1:00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
2:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
3:00	0	0	0	0	0	0	0	0	1	1	1	0	0	0	3
4:00	0	0	0	0	0	0	1	1	2	3	1	1	0	0	9
5:00	0	0	0	0	0	0	0	2	9	5	1	0	0	0	17
6:00	0	0	0	0	1	2	6	10	27	14	3	0	0	0	63
7:00	0	0	1	0	0	1	4	11	41	40	8	2	0	0	108
8:00	0	0	0	0	0	1	4	21	45	31	4	0	0	0	106
9:00	0	0	3	2	1	3	7	22	48	13	2	1	0	0	102
10:00	0	0	1	0	2	0	2	13	44	15	6	1	0	0	84
11:00	0	0	3	0	0	2	13	23	36	14	11	1	0	0	103
12:00 PM	0	0	3	1	0	3	9	36	58	23	3	1	0	0	137
1:00	0	0	1	1	2	1	9	38	50	20	4	0	0	0	126
2:00	0	0	3	1	2	4	11	24	46	24	4	0	1	0	120
3:00	0	0	0	1	3	2	11	52	82	41	8	0	0	0	200
4:00	0	0	0	0	1	4	10	34	58	33	12	1	0	0	153
5:00	0	0	0	0	1	3	11	30	95	42	9	0	0	0	191
6:00	0	0	1	3	1	1	4	12	52	24	2	1	0	0	101
7:00	0	0	0	0	0	0	2	14	28	7	8	2	0	0	61
8:00	0	0	1	0	0	0	4	8	21	11	2	1	0	0	48
9:00	0	0	0	0	1	0	1	3	15	7	5	0	0	0	32
10:00	0	0	0	0	0	0	0	3	6	6	0	1	0	0	16
11:00	0	0	0	0	0	0	0	3	2	2	2	1	0	0	10
Total	0	0	17	9	15	27	109	361	770	377	96	14	1	0	1796

Percentile	15th
Speed	22
Mean Speed (Average)	25.1
10 MPH Pace Speed	21-30
Number in Pace	1540
Percent in Pace	85.7%
Number > 24 MPH	1258
Percent > 24 MPH	70.0%

Location : Merrimac Street
 Location : South of Main Street
 City/State: Amesbury, MA
 Direction: SB,

9221

1/21/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
1:00	0	0	0	0	0	0	1	1	1	1	0	0	0	0	4
2:00	0	0	0	0	0	0	0	1	1	1	0	0	0	0	3
3:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
4:00	0	0	0	0	0	0	0	1	1	0	2	1	0	0	5
5:00	0	0	0	0	0	0	2	2	10	2	2	0	0	0	18
6:00	0	0	2	0	0	0	1	8	24	18	7	1	0	0	61
7:00	0	0	0	0	0	1	3	12	36	31	12	2	1	0	98
8:00	0	0	0	0	0	1	3	8	38	33	12	1	0	0	96
9:00	0	0	0	0	0	1	2	11	50	28	5	3	0	0	100
10:00	0	0	0	1	2	3	5	15	49	20	3	0	0	0	98
11:00	0	0	2	2	1	2	8	22	38	18	8	0	0	0	101
12:00 PM	0	0	0	2	2	3	10	24	62	28	11	0	0	0	142
1:00	0	0	2	2	4	0	10	26	50	26	4	1	0	0	125
2:00	0	0	0	0	1	1	8	29	50	29	10	0	0	0	128
3:00	0	0	0	0	0	2	11	29	79	53	13	0	1	0	188
4:00	0	0	1	0	1	2	6	25	67	38	12	3	0	0	155
5:00	0	0	1	1	1	2	8	23	73	30	6	2	0	0	147
6:00	0	0	0	0	2	0	6	17	45	19	8	0	0	0	97
7:00	0	0	0	0	0	0	3	9	29	16	4	1	0	0	62
8:00	0	0	0	1	0	0	1	2	28	5	4	0	0	0	41
9:00	0	0	0	0	0	0	1	7	16	14	3	0	0	0	41
10:00	0	0	0	0	0	0	0	9	7	7	3	0	0	0	26
11:00	0	0	0	0	0	0	0	6	11	3	2	2	0	0	24
Total	0	0	8	9	14	18	89	287	767	421	131	17	2	0	1763

Percentile	15th
Speed	22
Mean Speed (Average)	25.7
10 MPH Pace Speed	21-30
Number in Pace	1517
Percent in Pace	86.0%
Number > 24 MPH	1338
Percent > 24 MPH	75.9%

9221

1/22/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	1	4	7	3	1	0	0	0	16
1:00	0	0	0	0	0	0	0	0	1	1	1	0	0	0	3
2:00	0	0	0	0	0	0	0	1	0	2	0	0	0	0	3
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0	0	2	0	1	0	0	0	3
5:00	0	0	1	0	0	0	0	0	1	1	0	0	0	0	3
6:00	0	0	0	0	0	1	0	2	4	5	3	0	0	0	15
7:00	0	0	0	0	0	0	2	7	7	9	3	0	0	0	28
8:00	0	0	0	0	0	1	1	6	24	26	6	1	0	0	65
9:00	0	0	0	0	0	3	3	9	43	23	7	1	0	0	89
10:00	0	0	0	1	0	0	5	15	42	34	10	2	0	0	109
11:00	0	0	0	1	1	3	5	16	42	30	8	1	0	0	107
12:00 PM	0	0	1	1	1	1	7	28	50	26	14	2	0	0	131
1:00	0	0	1	0	5	1	15	32	45	21	9	0	0	0	129
2:00	0	0	0	1	2	2	15	30	48	27	6	1	0	0	132
3:00	0	0	3	1	3	3	10	20	69	42	7	0	0	0	158
4:00	0	0	1	2	2	2	8	20	45	34	6	1	0	1	122
5:00	0	0	0	0	0	1	8	21	44	14	1	0	0	0	89
6:00	0	0	3	0	1	1	4	13	27	17	8	0	0	0	74
7:00	0	0	0	0	1	0	4	15	24	12	3	1	0	0	60
8:00	0	0	0	0	0	0	2	7	8	7	1	0	0	0	25
9:00	0	0	0	0	0	0	0	3	16	11	1	0	0	0	31
10:00	0	0	0	1	0	0	1	5	11	5	1	0	0	0	24
11:00	0	0	0	0	0	0	0	4	6	9	2	1	0	0	22
Total	0	0	10	8	16	19	91	258	566	359	99	11	0	1	1438
Percentile				15th	50th	85th	95th								
Speed				22	25	29	30								
Mean Speed (Average)				25.5											
10 MPH Pace Speed				21-30											
Number in Pace				1216											
Percent in Pace				84.6%											
Number > 24 MPH				1036											
Percent > 24 MPH				72.0%											
Grand Total	0	0	35	26	45	64	289	906	2103	1157	326	42	3	1	4997
Stats	Percentile			15th	50th	85th	95th								
Speed				22	25	29	30								
Mean Speed (Average)				25.4											
10 MPH Pace Speed				21-30											
Number in Pace				4273											
Percent in Pace				85.5%											
Number > 24 MPH				3632											
Percent > 24 MPH				72.7%											

Location : Merrimac Street
 Location : South of Main Street
 City/State: Amesbury, MA
 Direction: Combined

9221

1/20/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	0	0	3	1	0	0	0	0	4
1:00	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
2:00	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
3:00	0	0	0	0	0	0	0	1	1	2	1	0	0	0	5
4:00	0	0	0	0	0	0	1	1	4	5	1	1	0	0	13
5:00	0	0	0	0	0	0	3	5	12	6	1	0	0	0	27
6:00	0	0	0	1	3	5	13	24	40	19	3	0	0	0	108
7:00	0	0	1	0	0	4	12	38	66	50	14	2	0	0	187
8:00	0	0	0	0	3	1	19	54	76	44	5	0	0	0	202
9:00	0	0	3	2	1	5	17	41	70	27	5	1	0	0	172
10:00	0	0	1	0	2	0	9	38	64	27	9	1	0	0	151
11:00	0	0	3	0	1	4	27	58	70	28	13	1	0	0	205
12:00 PM	0	0	3	1	0	3	14	59	85	30	8	3	0	0	206
1:00	0	0	1	1	2	3	18	66	88	24	6	0	0	0	209
2:00	0	0	4	1	2	7	23	55	78	33	10	1	1	0	215
3:00	0	0	3	2	6	4	22	77	115	50	10	0	0	0	289
4:00	0	0	1	0	2	5	27	55	89	47	14	1	0	0	241
5:00	0	0	0	0	2	5	27	73	117	48	13	0	0	0	285
6:00	0	0	1	3	1	2	13	32	69	32	2	1	0	0	156
7:00	0	0	0	0	0	1	8	29	38	11	8	2	0	0	97
8:00	0	0	1	0	0	0	8	12	24	13	2	1	0	0	61
9:00	0	0	0	1	1	0	5	6	19	10	5	0	0	0	47
10:00	0	0	0	0	0	0	0	3	8	6	0	1	0	0	18
11:00	0	0	0	0	0	0	0	4	2	2	2	1	0	0	11
Total	0	0	22	12	26	49	266	732	1140	516	132	17	1	0	2913

Percentile	15th
Speed	21
Mean Speed (Average)	24.7
10 MPH Pace Speed	20-29
Number in Pace	2468
Percent in Pace	84.7%
Number > 24 MPH	1806
Percent > 24 MPH	62.0%

Location : Merrimac Street
 Location : South of Main Street
 City/State: Amesbury, MA
 Direction: Combined

9221

1/21/2022	0 - 3	> 3 - 6	> 6 - 9	> 9 - 12	> 12 - 15	> 15 - 18	> 18 - 21	> 21 - 24	> 24 - 27	> 27 - 30	> 30 - 33	> 33 - 36	> 36 - 39	> 39	Total
Time	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	MPH	
12:00 AM	0	0	0	0	0	0	0	1	3	0	0	0	0	0	4
1:00	0	0	0	0	0	0	1	1	1	1	0	0	0	0	4
2:00	0	0	0	0	0	0	0	1	1	1	0	0	0	0	3
3:00	0	0	0	0	0	0	1	0	1	1	1	0	0	0	4
4:00	0	0	0	0	0	0	0	1	2	1	3	1	0	0	8
5:00	0	0	0	0	0	0	5	6	16	4	3	0	0	0	34
6:00	0	0	3	0	0	1	7	25	38	27	7	1	0	0	109
7:00	0	0	0	0	1	1	11	36	80	40	15	2	1	0	187
8:00	0	0	2	0	0	1	9	32	75	51	13	2	0	0	185
9:00	0	0	0	0	1	5	4	30	79	43	7	3	0	0	172
10:00	0	0	0	1	3	5	19	41	87	27	4	0	0	0	187
11:00	0	0	2	2	2	6	23	46	76	29	12	0	0	0	198
12:00 PM	0	0	0	3	2	7	20	54	93	43	14	0	0	0	236
1:00	0	0	2	2	6	4	21	53	67	39	6	1	0	0	201
2:00	0	0	0	0	3	3	26	64	82	38	14	0	0	0	230
3:00	0	0	0	0	0	3	23	55	103	63	19	1	1	0	268
4:00	0	0	3	0	1	3	17	57	110	49	13	4	0	0	257
5:00	0	0	1	1	1	3	23	58	90	37	7	2	0	0	223
6:00	0	0	0	0	3	1	18	32	68	23	8	0	0	0	153
7:00	0	0	0	0	0	1	7	20	44	20	4	1	0	0	97
8:00	0	0	0	1	0	0	2	6	34	8	4	0	0	0	55
9:00	0	0	0	0	0	0	2	8	17	15	3	0	0	0	45
10:00	0	0	0	0	0	0	2	11	8	9	3	0	0	0	33
11:00	0	0	0	0	0	0	1	12	17	3	2	2	0	0	37
Total	0	0	13	10	23	44	242	650	1192	572	162	20	2	0	2930

Percentile	15th
Speed	22
Mean Speed (Average)	25.0
10 MPH Pace Speed	20-29
Number in Pace	2484
Percent in Pace	84.8%
Number > 24 MPH	1948
Percent > 24 MPH	66.5%

9221

1/22/2022		> 12 -	> 15 -	> 18 -	> 21 -	> 24 -	> 27 -	> 30 -	> 33 -	> 36 -						
Time	0 - 3 MPH	> 3 - 6 MPH	> 6 - 9 MPH	> 9 - 12 MPH	15 MPH	18 MPH	21 MPH	24 MPH	27 MPH	30 MPH	33 MPH	36 MPH	39 MPH	> 39 MPH	Total	
12:00 AM	0	0	0	0	0	0	1	8	8	3	1	0	0	0	21	
1:00	0	0	0	0	0	0	0	0	1	1	1	0	0	0	3	
2:00	0	0	0	0	0	0	0	2	0	2	0	0	0	0	4	
3:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
4:00	0	0	0	0	0	0	0	0	3	0	1	0	0	1	5	
5:00	0	0	1	0	0	0	0	2	3	1	0	0	0	0	7	
6:00	0	0	0	0	0	1	1	11	9	5	3	0	0	0	30	
7:00	0	0	0	0	0	0	6	13	17	15	4	2	0	0	57	
8:00	0	0	0	0	1	3	6	19	40	39	8	1	0	0	117	
9:00	0	0	0	1	1	4	8	34	61	35	9	1	0	0	154	
10:00	0	0	2	1	0	1	15	48	68	47	12	2	0	0	196	
11:00	0	0	0	1	3	3	12	47	77	51	10	2	0	0	206	
12:00 PM	0	0	1	1	2	3	26	67	94	35	16	2	0	0	247	
1:00	0	0	2	0	6	2	33	75	76	36	11	1	0	0	242	
2:00	0	0	2	2	3	5	32	61	73	37	7	1	1	0	224	
3:00	0	0	3	1	3	7	20	42	104	56	10	0	0	0	246	
4:00	0	0	2	3	3	2	19	57	70	44	8	1	0	1	210	
5:00	0	0	0	0	0	3	17	42	64	22	3	0	0	0	151	
6:00	0	0	3	1	1	1	8	30	45	23	8	0	0	0	120	
7:00	0	0	0	0	1	2	9	24	37	15	3	1	0	0	92	
8:00	0	0	0	0	0	0	3	11	12	7	2	0	0	0	35	
9:00	0	0	0	0	0	1	1	10	21	11	1	0	0	0	45	
10:00	0	0	0	1	0	1	2	7	12	6	1	0	0	0	30	
11:00	0	0	0	0	1	0	2	7	9	9	2	2	0	0	32	
Total	0	0	16	12	25	39	221	617	904	501	121	16	1	2	2475	
			Percentile	15th	50th	85th	95th									
			Speed	21	25	28	30									
	Mean Speed (Average)			24.9												
	10 MPH Pace Speed			20-29												
	Number in Pace			2086												
	Percent in Pace			84.3%												
	Number > 24 MPH			1545												
	Percent > 24 MPH			62.4%												
Grand Total	0	0	51	34	74	132	729	1999	3236	1589	415	53	4	2	8318	
Stats			Percentile	15th	50th	85th	95th									
			Speed	21	25	28	30									
	Mean Speed (Average)			24.8												
	10 MPH Pace Speed			20-29												
	Number in Pace			7038												
	Percent in Pace			84.6%												
	Number > 24 MPH			5299												
	Percent > 24 MPH			63.7%												

MASSDOT CRASH RATE WORKSHEETS AND HIGH CRASH LOCATION MAPPING



INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Amesbury COUNT DATE : Jan-22

DISTRICT : 4 UNSIGNALIZED : ☐ SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Macy Street (Route 110)

MINOR STREET(S) : Haverhill Road (Route 110)

Main Street

**INTERSECTION
DIAGRAM
(Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	405	371	473	700		1,949

" K " FACTOR : **0.090** INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME : **21,656**

TOTAL # OF CRASHES : **62** # OF YEARS : **5** AVERAGE # OF CRASHES PER YEAR (A) : **12.40**

CRASH RATE CALCULATION :

1.57

$$\text{RATE} = \frac{(A * 1,000,000)}{(V * 365)}$$

Comments : Above MassDOT District and statewide crash rates

Project Title & Date : 9221 - Amesbury

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Amesbury COUNT DATE : Jan-22

DISTRICT : 4 UNSIGNALIZED : ☒ SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Main Street

MINOR STREET(S) : Merrimac Street

**INTERSECTION
DIAGRAM
(Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	120	207	492			819

" K " FACTOR :

0.090

INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

9,100

TOTAL # OF CRASHES :

7

OF YEARS :

5

AVERAGE # OF CRASHES PER YEAR (A) :

1.40

CRASH RATE CALCULATION :

0.42

$$\text{RATE} = \frac{(A * 1,000,000)}{(V * 365)}$$

Comments : Below MassDOT District and statewide crash rates

Project Title & Date : 9221 - Amesbury

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Amesbury COUNT DATE : Jan-22

DISTRICT : 4 UNSIGNALIZED : ☒ SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Main Street

MINOR STREET(S) : Rocky Hill Road

**INTERSECTION
DIAGRAM**
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :		158	265	512		935

" K " FACTOR :

0.090

INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

10,389

TOTAL # OF CRASHES :

10

OF YEARS :

5

AVERAGE # OF CRASHES PER YEAR (A) :

2.00

CRASH RATE CALCULATION :

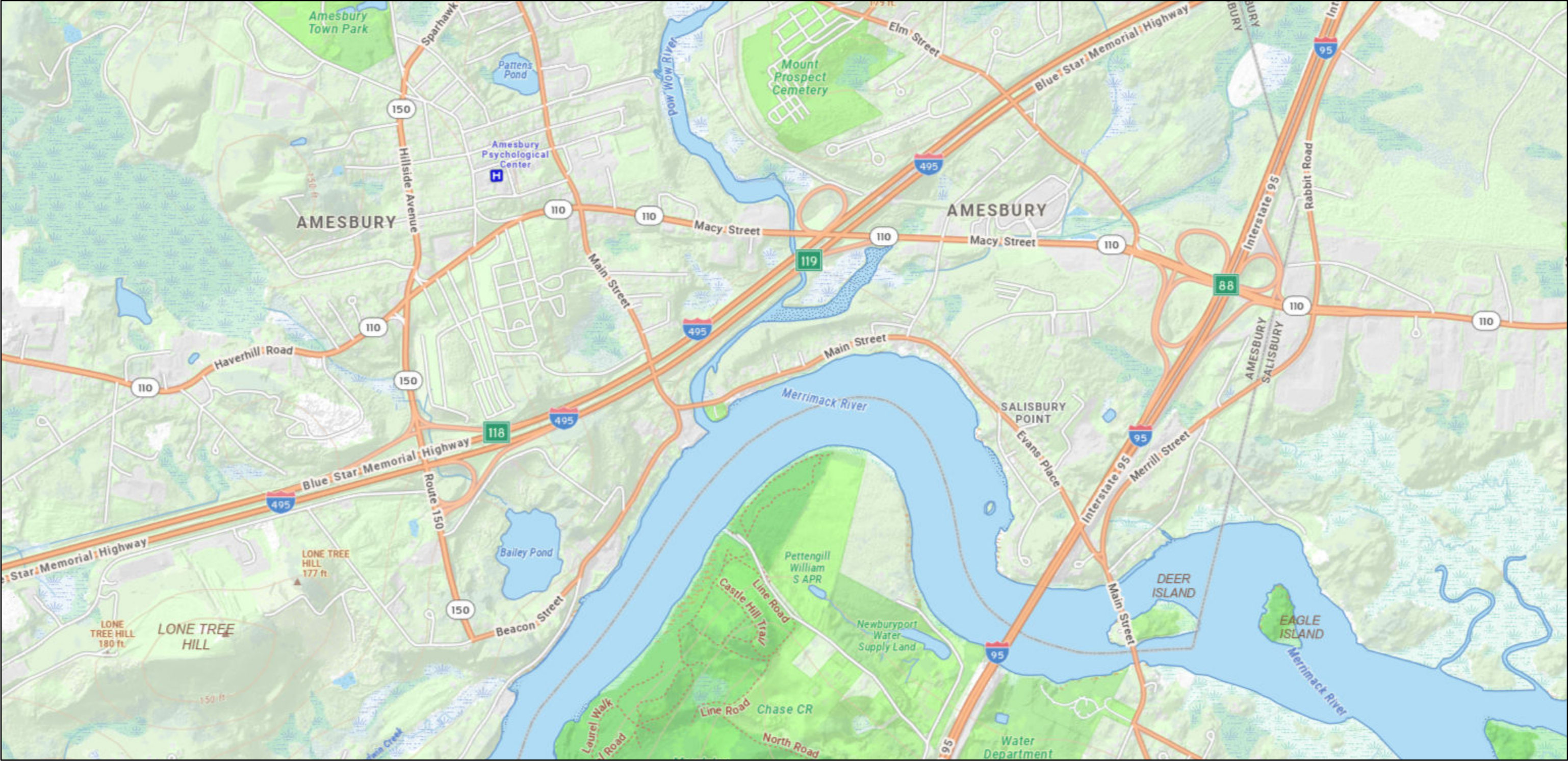
0.53

RATE = $\frac{(A * 1,000,000)}{(V * 365)}$

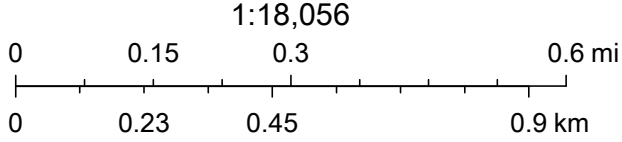
Comments : Below MassDOT District and statewide crash rates

Project Title & Date: 9221 - Amesbury

MassDOT Top Crash Locations



5/2/2023, 3:42:38 PM



MassGIS

GENERAL BACKGROUND TRAFFIC GROWTH



General Background Traffic Growth - Daily Traffic Volumes

CITY/TOWN	ROUTE/STREET	LOCATION	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Annual Growth Rate
Amesbury	Clarks Road	south of Route 110						3,805	3,893	4,134	4,204	4,217	4,200	2.02%
Amesbury	Merrill Street	southwest of Old Merrill Street						9,942	10,051	10,182	10,294	10,438	10,480	1.06%
Amesbury	Route 150	south of 150 to 495 SB ramps							9,223	9,795	9,962	9,992	9,952	1.95%
Amesbury	Rocky Hill Road	south of Route 110						1,444	1,460			1,556	1,550	0.36%
Amesbury	Haverhill Road	west of Main Street							11,684	12,408	12,619	12,657	12,606	1.95%
Amesbury	Macy Street	east of I-495					27,949	30,089	28,328	31,765	32,114	32,564	32,694	2.81%
Amesbury	Main Street	east of Clarks Road								8,205	8,344	8,369	8,336	0.53%
Amesbury	Hillside Avenue	north of Haverhill Road									9,071	9,098	9,062	-0.05%
Amesbury	Macy Street	east of I-495	25,900	25,991	27,511	27,028	27,410	28,918	27,297	27,652	27,956	28,347	28,460	1.00%
Newbury Port	I-95	at Amesbury town line	72,747	69,765	77,396	72,774	63,821	63,438	72,636	74,452	74,973	76,194	77,032	0.84%
														1.25%

BACKGROUND DEVELOPMENT NETWORKS

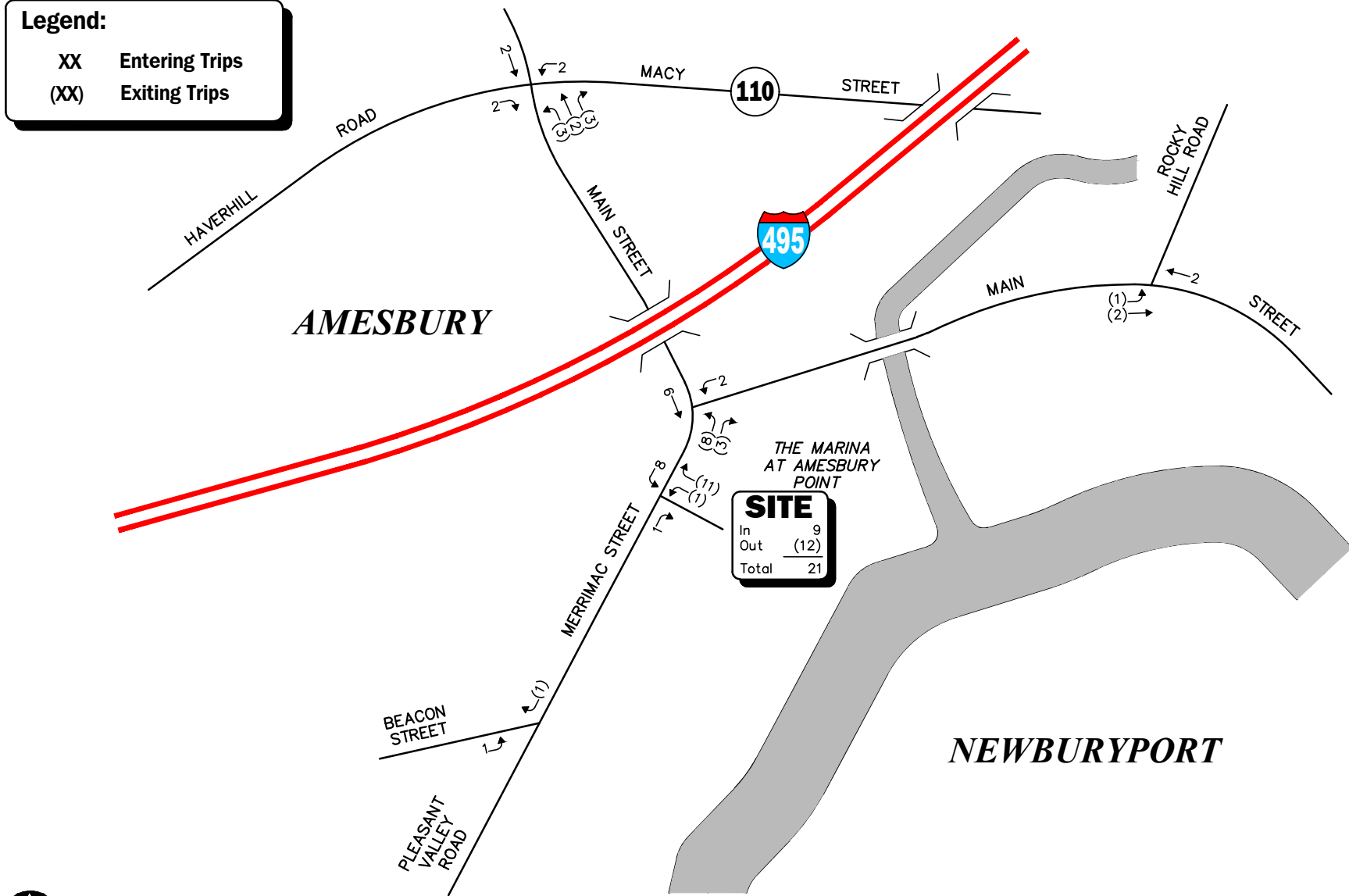




Figure A-1

**2030 No-Build
Marina Trips
Weekday Morning
Peak-Hour Traffic Volumes**





Not To Scale

Figure A-3

**2030 No-Build
Marina Trips
Saturday Midday
Peak-Hour Traffic Volumes**

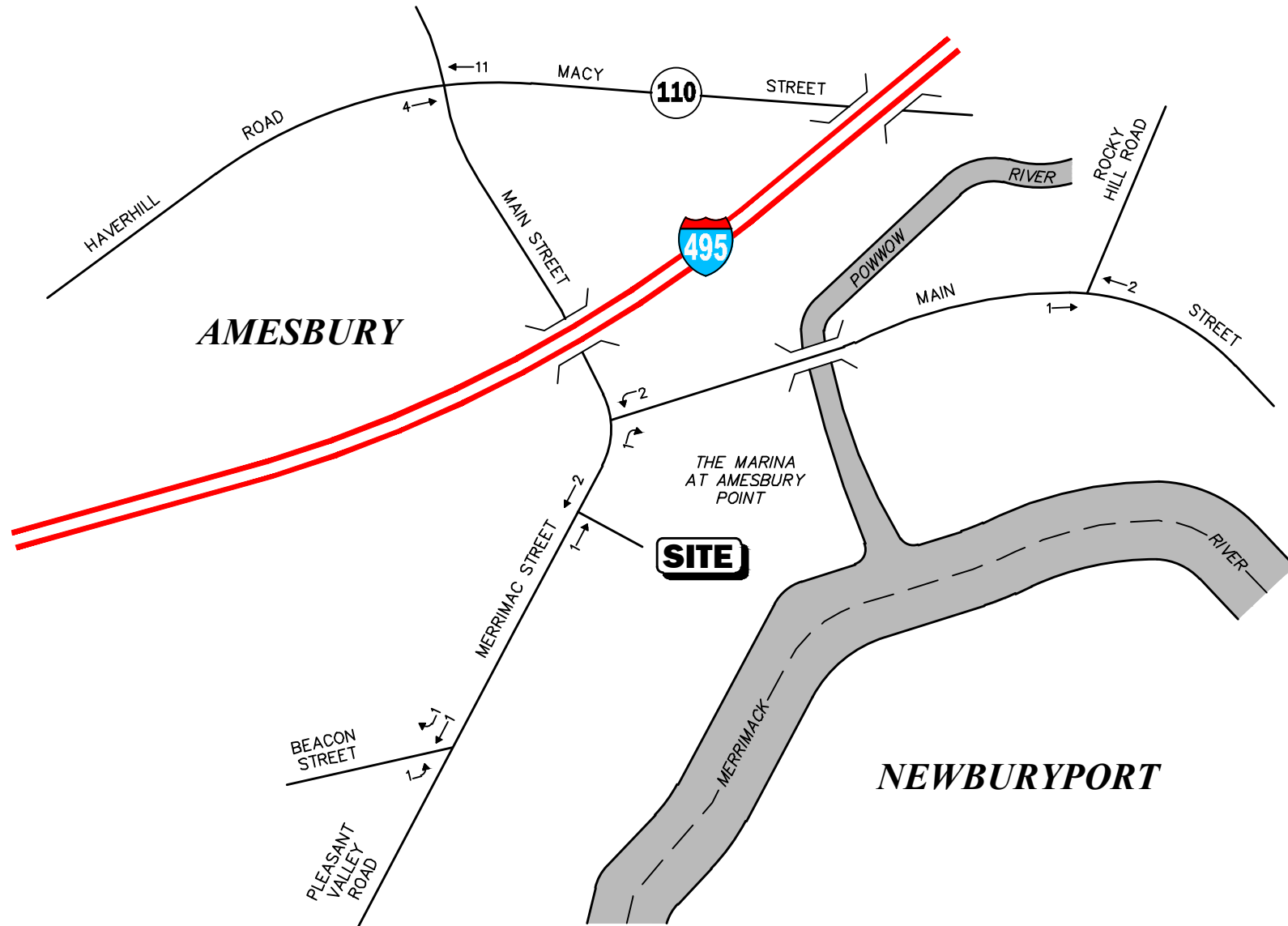


Figure A-4

Proposed Residential Development
(29 Clark's Road)
Weekday Morning
Peak-Hour Traffic Volumes

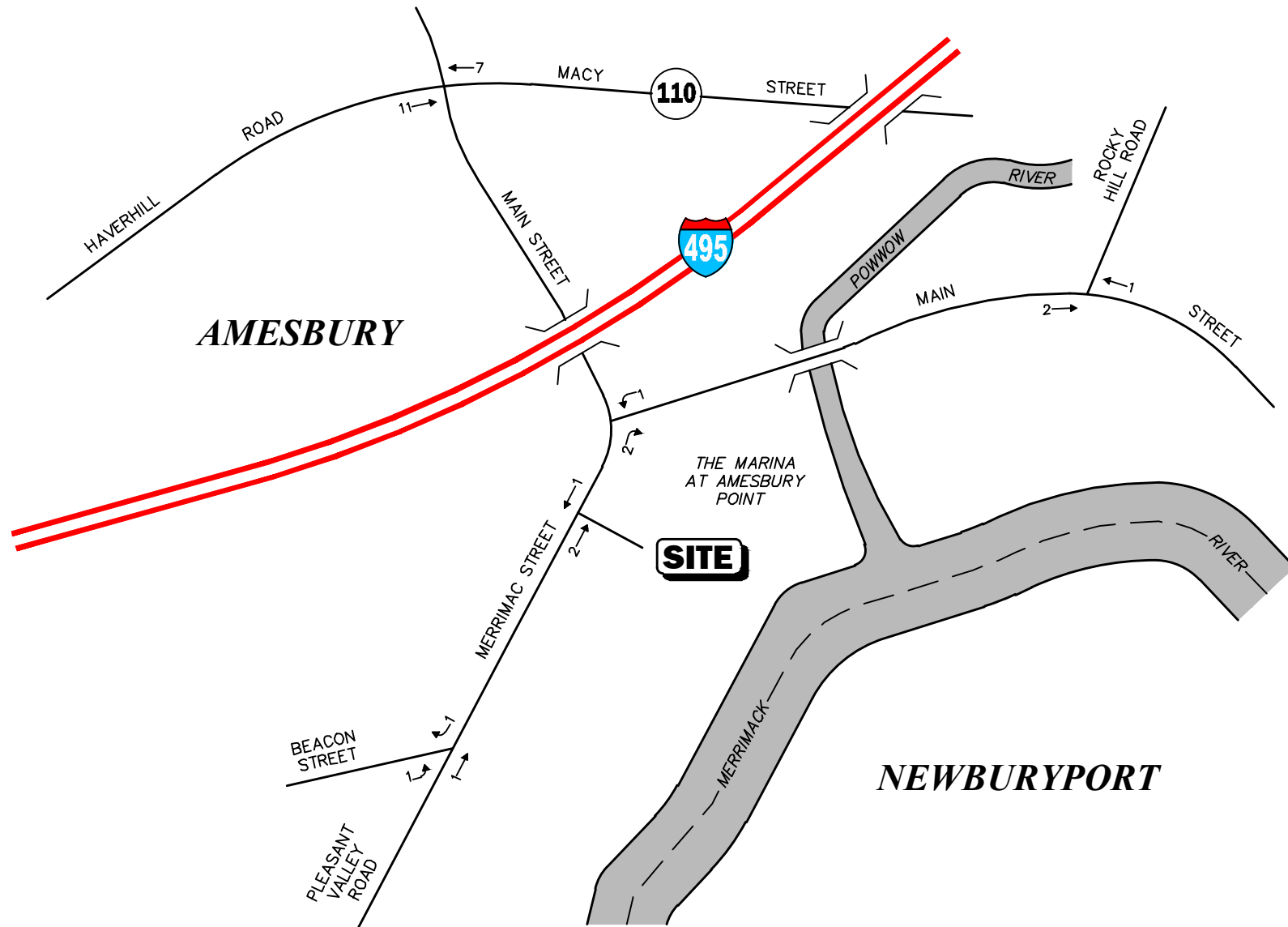


Figure A-5

Proposed Residential Development
(29 Clark's Road)
Weekday Evening
Peak-Hour Traffic Volumes

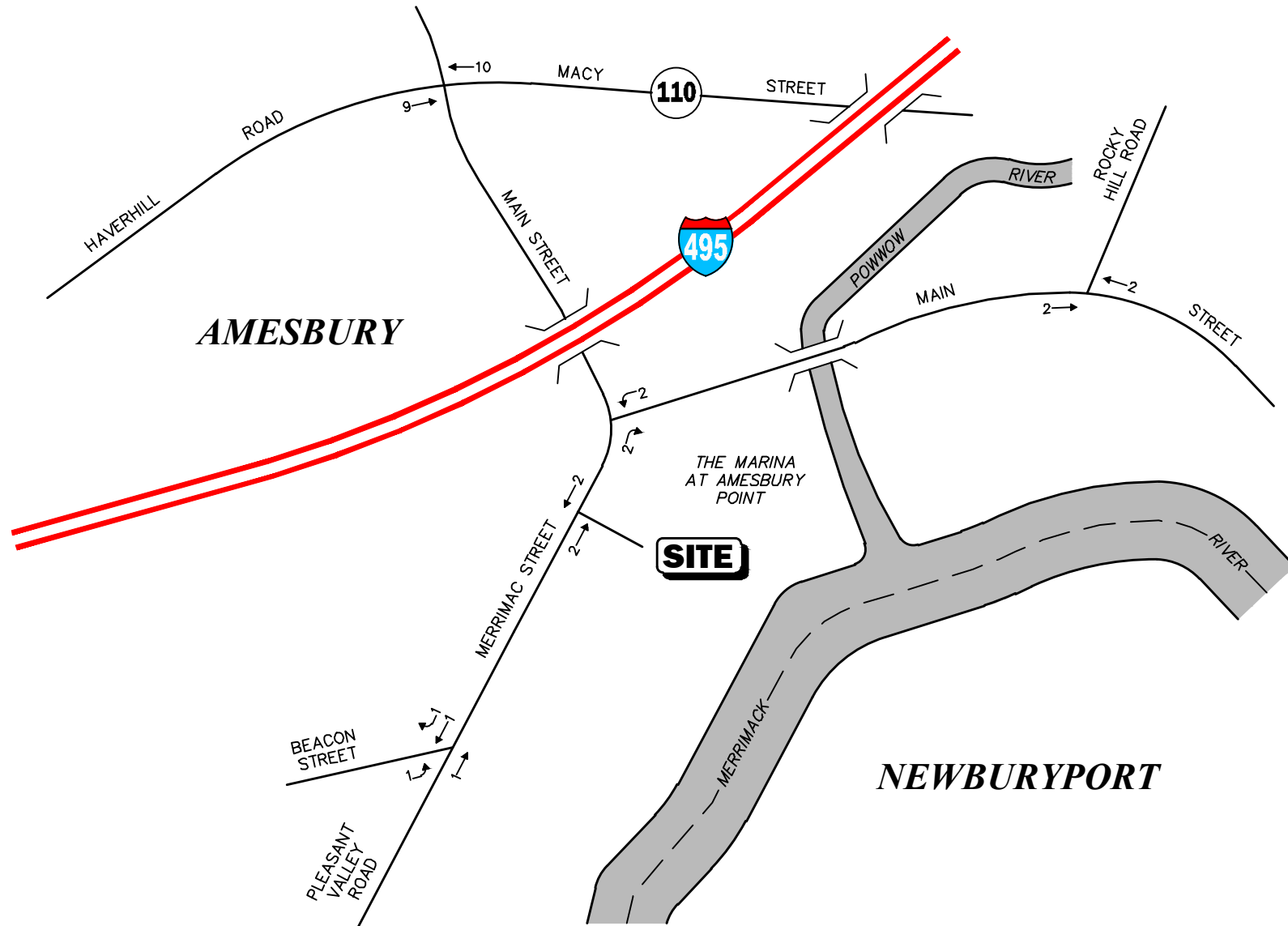


Figure A-6

Proposed Residential Development
(29 Clark's Road)
Saturday Midday
Peak-Hour Traffic Volumes

TRIP-GENERATION CALCULATIONS





Query

Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

420



LAND USE GROUP:

(400-499) Recreational

LAND USE :

420 - Marina

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Berths

TIME PERIOD:

Weekday

TRIP TYPE:

Vehicle

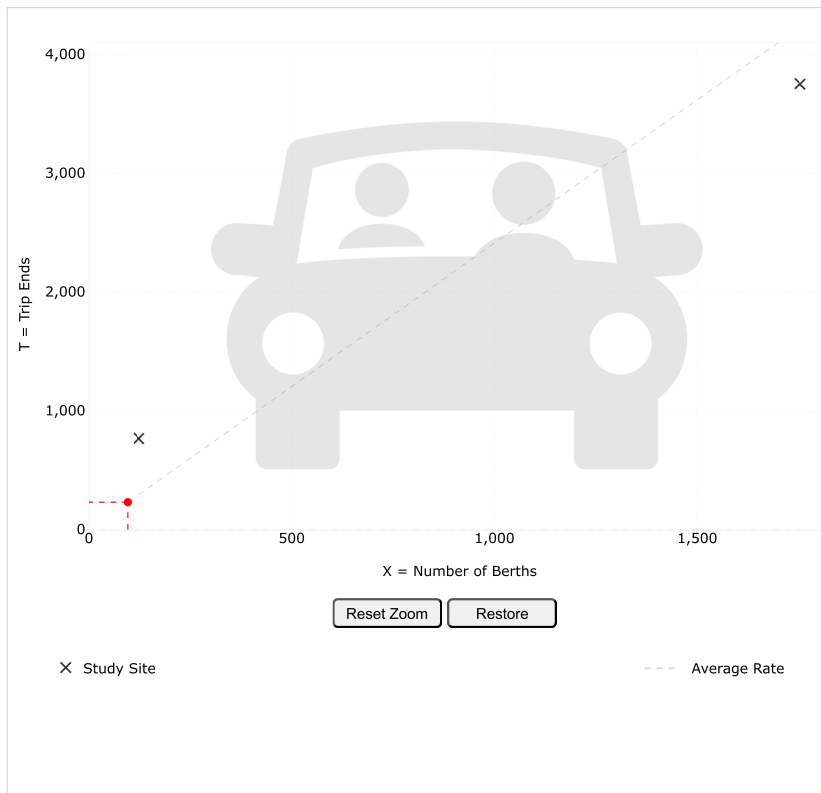
ENTER IV VALUE TO CALCULATE TRIPS:

96

Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Marina (420) [Click for Description and Data Plots](#)

Independent Variable:

Berths

Time Period:

Weekday

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

2

Avg. Num. of Berths:

939

Average Rate:

2.41

Range of Rates:

2.14 - 6.21

Standard Deviation:

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

50% entering, 50% exiting

Calculated Trip Ends:

Average Rate: 231 (Total), 116 (Entry), 115 (Exit)



Query

Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

420



LAND USE GROUP:

(400-499) Recreational

LAND USE :

420 - Marina

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Berths

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

96

Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Marina (420) [Click for Description and Data Plots](#)

Independent Variable:

Berths

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

1

Avg. Num. of Berths:

300

Average Rate:

0.07

Range of Rates:

0.07 - 0.07

Standard Deviation:

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

33% entering, 67% exiting

Calculated Trip Ends:

Average Rate: 7 (Total), 2 (Entry), 5 (Exit)



Query

Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

420



LAND USE GROUP:

(400-499) Recreational

LAND USE :

420 - Marina

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Berths

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

Vehicle

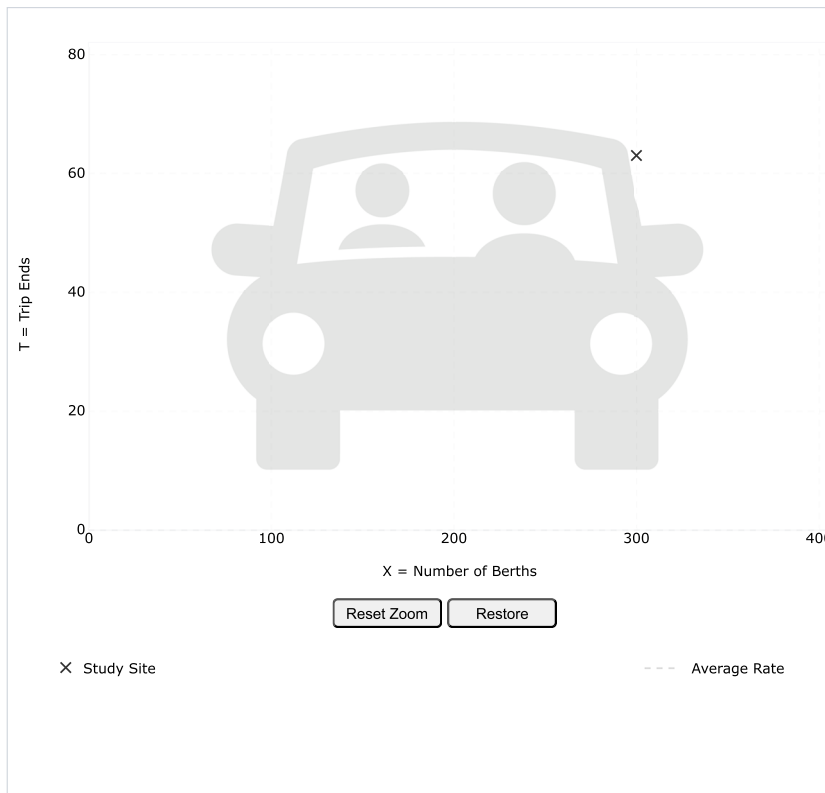
ENTER IV VALUE TO CALCULATE TRIPS:

96

Calculate

Data Plot and Equation

Caution – Small Sample Size



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Marina (420) [Click for Description and Data Plots](#)

Independent Variable:

Berths

Time Period:

Weekday

Peak Hour of Adjacent Street Traffic

One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

1

Avg. Num. of Berths:

300

Average Rate:

0.21

Range of Rates:

0.21 - 0.21

Standard Deviation:

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

60% entering, 40% exiting

Calculated Trip Ends:

Average Rate: 20 (Total), 12 (Entry), 8 (Exit)



Query

Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

420



LAND USE GROUP:

(400-499) Recreational

LAND USE :

420 - Marina

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Berths

TIME PERIOD:

Saturday

TRIP TYPE:

Vehicle

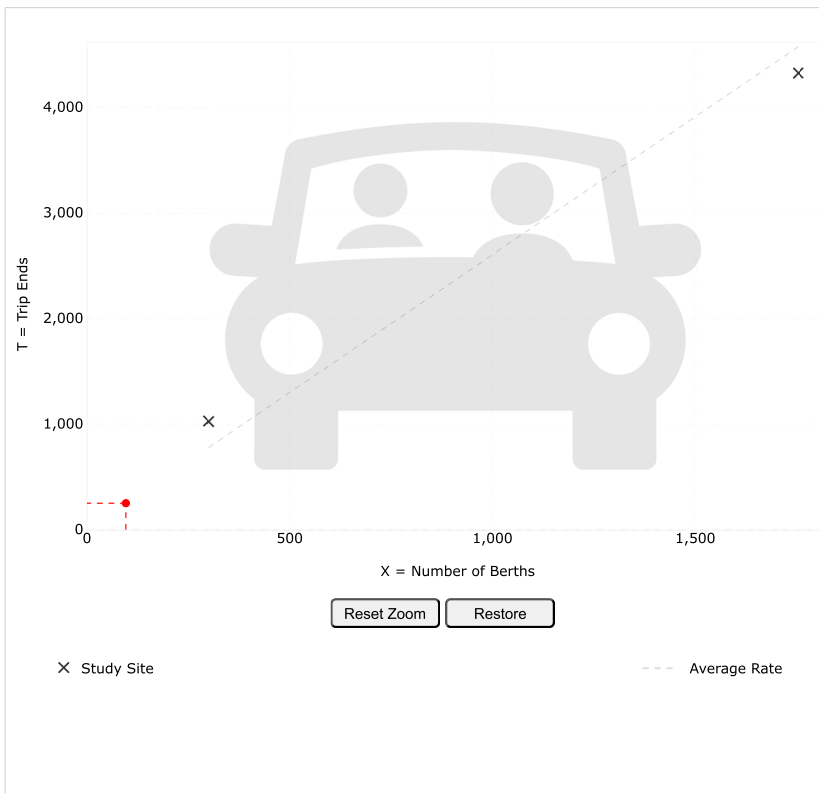
ENTER IV VALUE TO CALCULATE TRIPS:

96

Calculate

Data Plot and Equation

Caution – Small Sample Size



Reset Zoom

Restore

X Study Site

--- Average Rate

Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Marina (420) [Click for Description and Data Plots](#)

Independent Variable:

Berths

Time Period:

Saturday

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

2

Avg. Num. of Berths:

1027

Average Rate:

2.61

Range of Rates:

2.47 - 3.43

Standard Deviation:

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

50% entering, 50% exiting

Calculated Trip Ends:

Average Rate: 251 (Total), 125 (Entry), 126 (Exit)



Query

Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

420



LAND USE GROUP:

(400-499) Recreational

LAND USE :

420 - Marina

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Berths

TIME PERIOD:

Saturday, Peak Hour of Generator

TRIP TYPE:

Vehicle

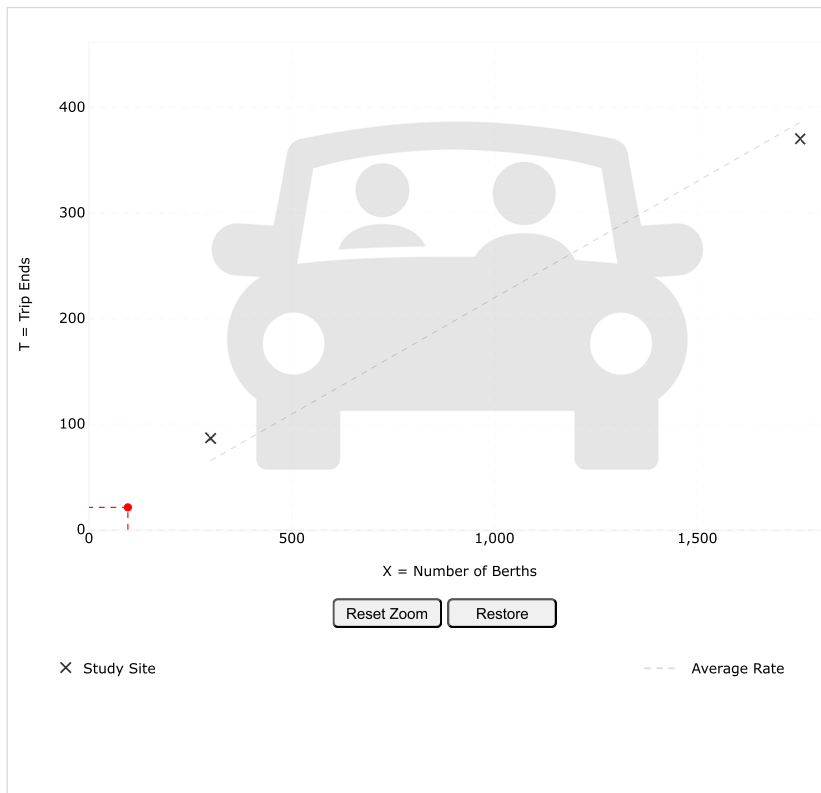
ENTER IV VALUE TO CALCULATE TRIPS:

96

Calculate

Data Plot and Equation

Caution – Small Sample Size



Reset Zoom

Restore

X Study Site

--- Average Rate

Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Marina (420) [Click for Description and Data Plots](#)

Independent Variable:

Berths

Time Period:

Saturday
Peak Hour of Generator

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

2

Avg. Num. of Berths:

1027

Average Rate:

0.22

Range of Rates:

0.21 - 0.29

Standard Deviation:

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

44% entering, 56% exiting

Calculated Trip Ends:

Average Rate: 21 (Total), 9 (Entry), 12 (Exit)



Query

Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

931



LAND USE GROUP:

(900-999) Services

LAND USE:

931 - Fine Dining Restaurant

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Seats

TIME PERIOD:

Weekday

TRIP TYPE:

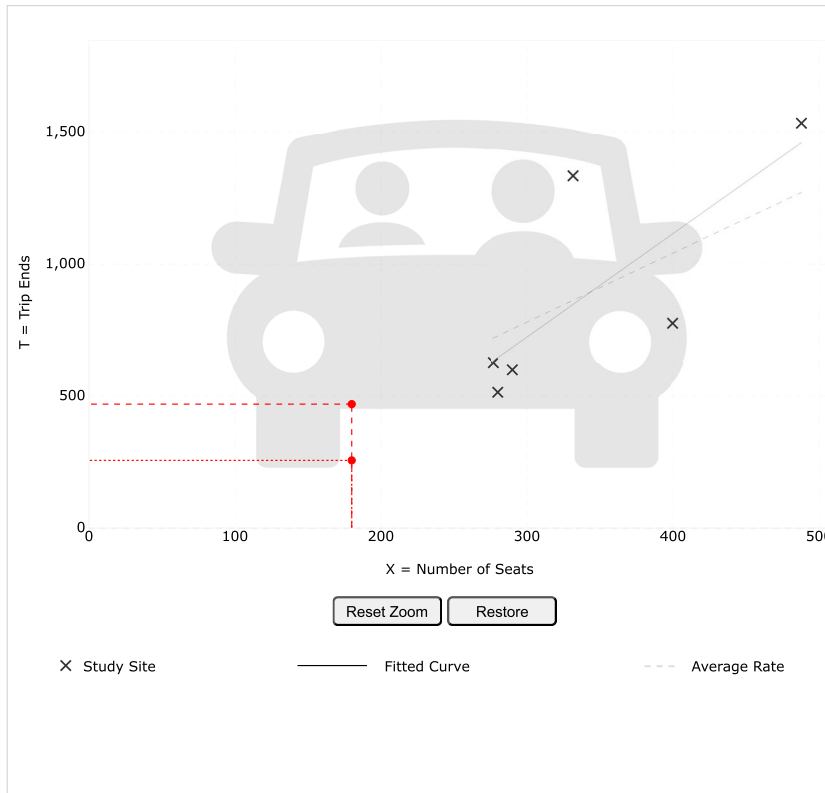
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

180

Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Fine Dining Restaurant (931) [Click for Description and Data Plots](#)

Independent Variable:

Seats

Time Period:

Weekday

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

6

Avg. Num. of Seats:

345

Average Rate:

2.60

Range of Rates:

1.83 - 4.01

Standard Deviation:

0.85

Fitted Curve Equation:

$T = 3.90(X) - 447.07$

R^2 :

0.59

Directional Distribution:

50% entering, 50% exiting

Calculated Trip Ends:

Average Rate: 468 (Total), 234 (Entry), 234 (Exit)

Fitted Curve: 255 (Total), 127 (Entry), 128 (Exit)



Query

Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

931



LAND USE GROUP:

(900-999) Services

LAND USE:

931 - Fine Dining Restaurant

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Seats

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

Vehicle

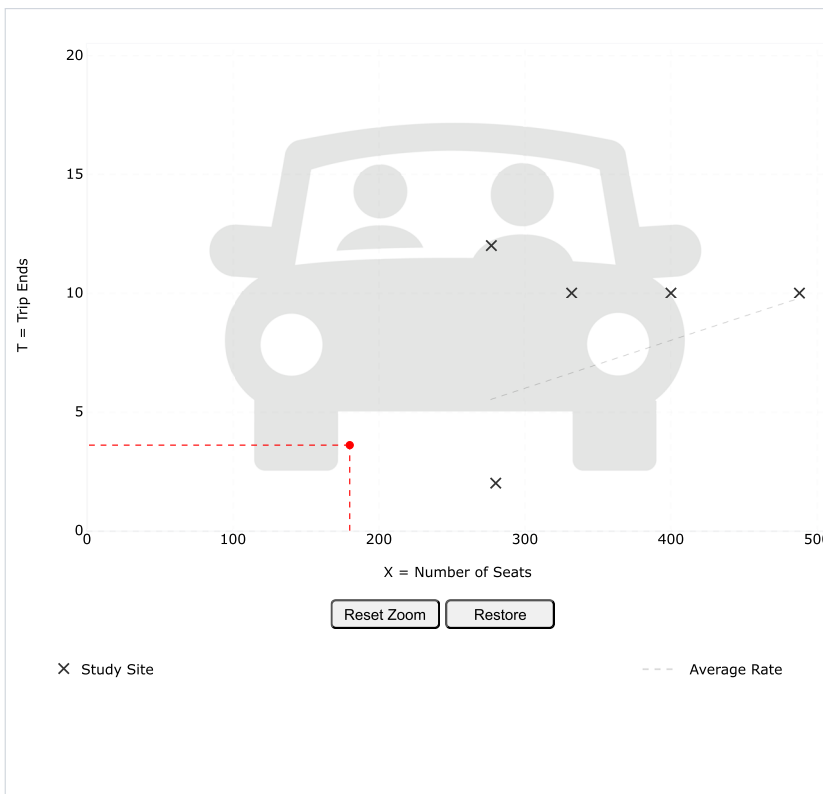
ENTER IV VALUE TO CALCULATE TRIPS:

180

Calculate

Data Plot and Equation

Caution – Small Sample Size



DATA STATISTICS

Land Use:

Fine Dining Restaurant (931) [Click for Description and Data Plots](#)

Independent Variable:

Seats

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

5

Avg. Num. of Seats:

355

Average Rate:

0.02

Range of Rates:

0.01 - 0.04

Standard Deviation:

0.01

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

Not available

Calculated Trip Ends:

Average Rate: 4 (Total)



Query

Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

931



LAND USE GROUP:

(900-999) Services

LAND USE :

931 - Fine Dining Restaurant

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Seats

TIME PERIOD:

Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:

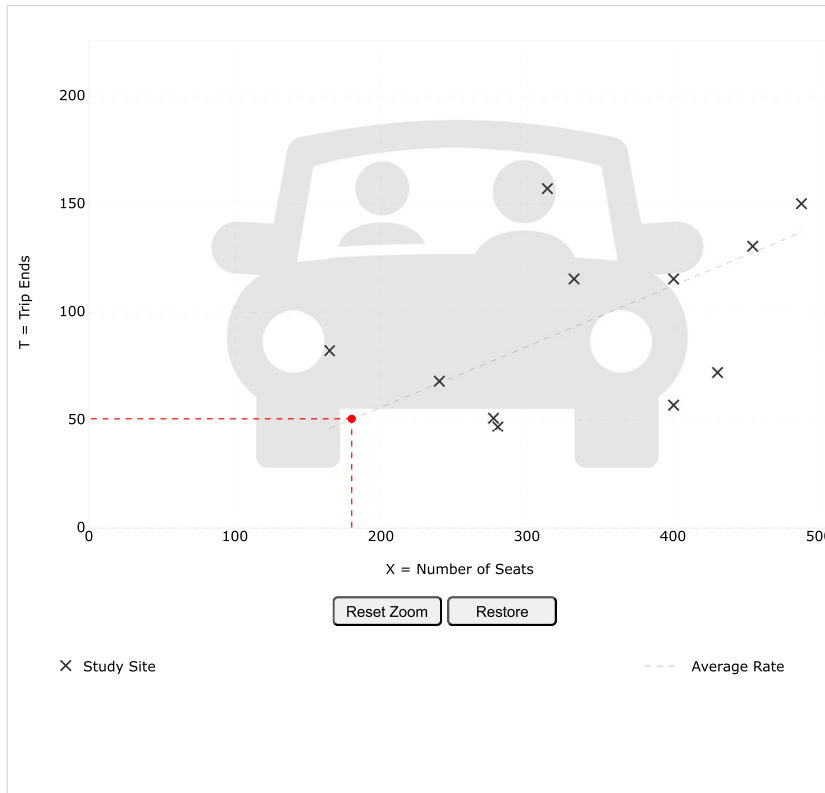
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

180

Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Fine Dining Restaurant (931) [Click for Description and Data Plots](#)

Independent Variable:

Seats

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

11

Avg. Num. of Seats:

344

Average Rate:

0.28

Range of Rates:

0.14 - 0.50

Standard Deviation:

0.11

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

67% entering, 33% exiting

Calculated Trip Ends:

Average Rate: 50 (Total), 34 (Entry), 16 (Exit)



Query

Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

931



LAND USE GROUP:

(900-999) Services

LAND USE :

931 - Fine Dining Restaurant

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Seats

TIME PERIOD:

Saturday

TRIP TYPE:

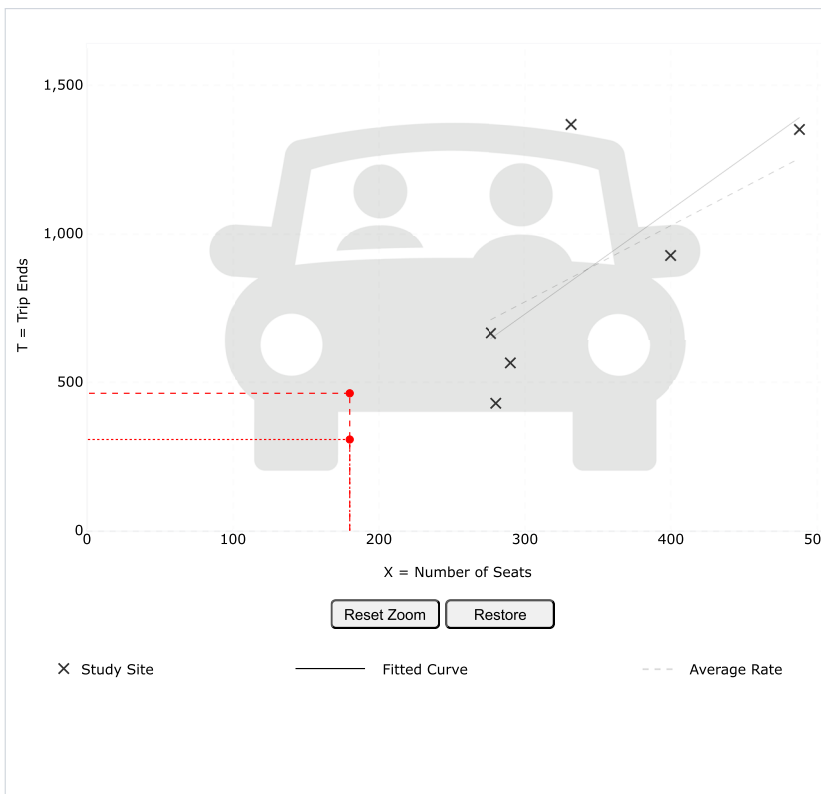
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

180

Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Fine Dining Restaurant (931) [Click for Description and Data Plots](#)

Independent Variable:

Seats

Time Period:

Saturday

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

6

Avg. Num. of Seats:

345

Average Rate:

2.57

Range of Rates:

1.53 - 4.12

Standard Deviation:

0.86

Fitted Curve Equation:

$T = 3.52(X) - 326.59$

R²:

0.54

Directional Distribution:

50% entering, 50% exiting

Calculated Trip Ends:

Average Rate: 463 (Total), 231 (Entry), 232 (Exit)

Fitted Curve: 307 (Total), 154 (Entry), 153 (Exit)



Query

Filter

DATA SOURCE:

Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:

931



LAND USE GROUP:

(900-999) Services

LAND USE:

931 - Fine Dining Restaurant

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Seats

TIME PERIOD:

Saturday, Peak Hour of Generator

TRIP TYPE:

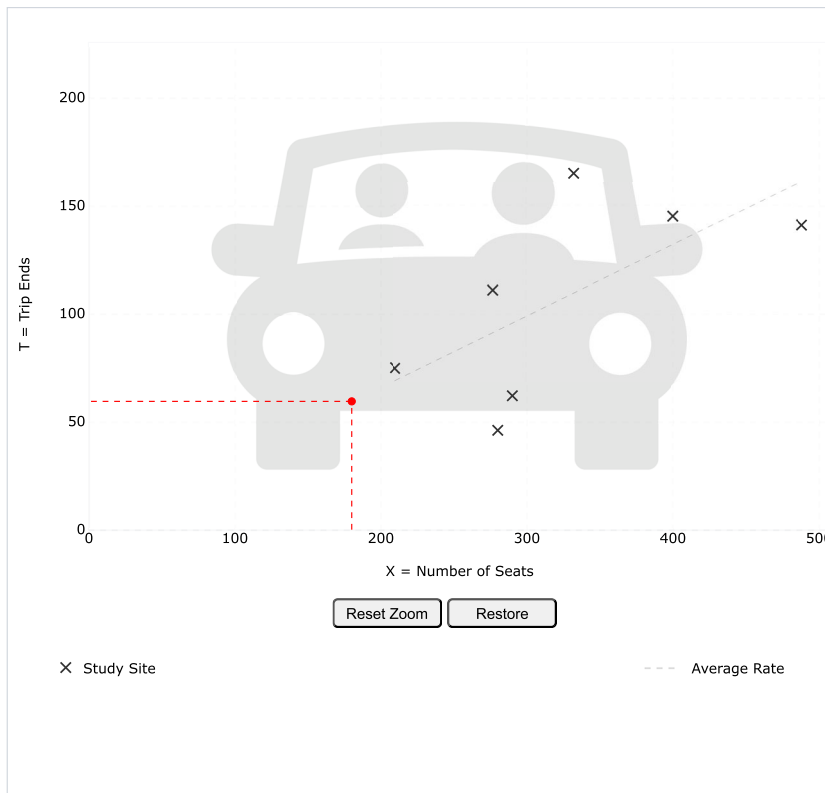
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

180

Calculate

Data Plot and Equation



Use the mouse wheel to Zoom Out or Zoom In.
Hover the mouse pointer on data points to view X and T values.

DATA STATISTICS

Land Use:

Fine Dining Restaurant (931) [Click for Description and Data Plots](#)

Independent Variable:

Seats

Time Period:

Saturday
Peak Hour of Generator

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

7

Avg. Num. of Seats:

325

Average Rate:

0.33

Range of Rates:

0.16 - 0.50

Standard Deviation:

0.11

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

59% entering, 41% exiting

Calculated Trip Ends:

Average Rate: 59 (Total), 35 (Entry), 24 (Exit)

CAPACITY ANALYSIS WORKSHEETS

Route 110 at Main Street

Main Street at Rocky Hill Road

Main Street at Merrimac Street

Merrimac Street at Pleasant Valley Road and Beacon Street

Merrimac Street at Project Site Driveway



Route 110 at Main Street



2022 Existing Weekday Morning
1: Main Street & Route 110

05/03/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	365	128	21	222	159	74	78	39	158	120	24
Future Volume (vph)	71	365	128	21	222	159	74	78	39	158	120	24
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.947			0.972			0.989	
Flt Protected		0.994			0.997			0.981			0.974	
Satd. Flow (prot)	0	1796	0	0	1757	0	0	1783	0	0	1773	0
Flt Permitted		0.888			0.953			0.752			0.689	
Satd. Flow (perm)	0	1604	0	0	1680	0	0	1366	0	0	1254	0
Satd. Flow (RTOR)		16			35			12			4	
Adj. Flow (vph)	84	429	151	23	244	175	93	98	49	198	150	30
Lane Group Flow (vph)	0	664	0	0	442	0	0	240	0	0	378	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	42.0	42.0		42.0	42.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.83			0.52			0.46			0.80	
Control Delay		32.6			19.5			24.6			40.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		32.6			19.5			24.6			40.0	
Queue Length 50th (ft)		301			149			88			171	
Queue Length 95th (ft)		#668			350			179			#348	
Internal Link Dist (ft)		305			337			557			202	
Turn Bay Length (ft)												
Base Capacity (vph)		800			847			589			537	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.83			0.52			0.41			0.70	
Intersection Summary												
Cycle Length: 112												

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	4
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
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	

2022 Existing Weekday Morning

1: Main Street & Route 110

05/03/2023

Actuated Cycle Length: 90.5

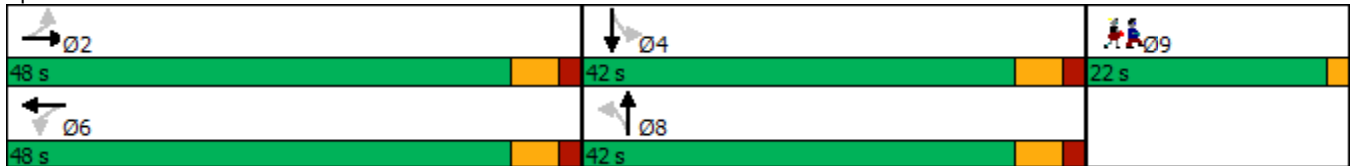
Natural Cycle: 110

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Route 110



2022 Existing Weekday Morning
1: Main Street & Route 110

05/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	365	128	21	222	159	74	78	39	158	120	24
Future Volume (vph)	71	365	128	21	222	159	74	78	39	158	120	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.95			0.97			0.99	
Flt Protected		0.99			1.00			0.98			0.97	
Satd. Flow (prot)		1796			1757			1783			1775	
Flt Permitted		0.89			0.95			0.75			0.69	
Satd. Flow (perm)		1606			1680			1367			1254	
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	84	429	151	23	244	175	92	98	49	198	150	30
RTOR Reduction (vph)	0	8	0	0	18	0	0	8	0	0	3	0
Lane Group Flow (vph)	0	656	0	0	424	0	0	232	0	0	375	0
Heavy Vehicles (%)	3%	2%	1%	11%	2%	1%	0%	1%	6%	4%	0%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.6			42.6			32.1			32.1	
Effective Green, g (s)		44.6			44.6			34.1			34.1	
Actuated g/C Ratio		0.49			0.49			0.37			0.37	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		779			815			507			465	
v/s Ratio Prot												
v/s Ratio Perm		c0.41			0.25			0.17			c0.30	
v/c Ratio		0.84			0.52			0.46			0.81	
Uniform Delay, d1		20.6			16.3			21.9			26.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		8.2			0.6			0.7			9.9	
Delay (s)		28.8			16.9			22.6			35.9	
Level of Service		C			B			C			D	
Approach Delay (s)		28.8			16.9			22.6			35.9	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			26.4			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			91.9			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			82.7%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

2022 Existing Weekday Evening
1: Main Street & Route 110

05/03/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	350	86	26	443	231	155	211	39	200	134	37
Future Volume (vph)	37	350	86	26	443	231	155	211	39	200	134	37
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		0.976			0.955			0.987			0.986	
Flt Protected		0.996			0.998			0.981			0.974	
Satd. Flow (prot)	0	1847	0	0	1799	0	0	1840	0	0	1825	0
Flt Permitted		0.886			0.970			0.713			0.582	
Satd. Flow (perm)	0	1643	0	0	1749	0	0	1337	0	0	1090	0
Satd. Flow (RTOR)		12			26			5			5	
Adj. Flow (vph)	39	372	91	31	521	272	174	237	44	247	165	46
Lane Group Flow (vph)	0	502	0	0	824	0	0	455	0	0	458	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	42.0	42.0		42.0	42.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.65			0.99			0.83			1.03	
Control Delay		24.9			54.2			41.6			80.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		24.9			54.2			41.6			80.3	
Queue Length 50th (ft)		195			417			218			249	
Queue Length 95th (ft)		442			#859			#531			#522	
Internal Link Dist (ft)		305			337			557			202	
Turn Bay Length (ft)												
Base Capacity (vph)		778			835			545			445	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.65			0.99			0.83			1.03	
Intersection Summary												
Cycle Length: 112												

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	2
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
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	

2022 Existing Weekday Evening

1: Main Street & Route 110

05/03/2023

Actuated Cycle Length: 94.4

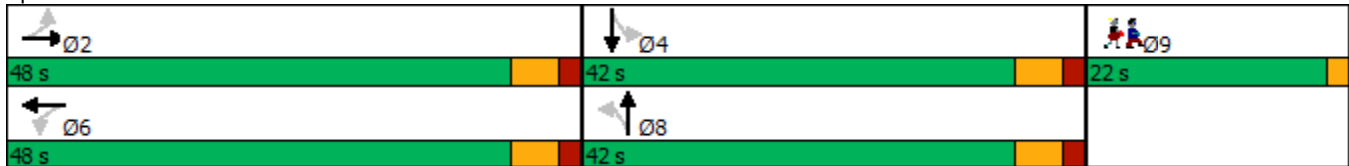
Natural Cycle: 150

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Route 110



2022 Existing Weekday Evening
1: Main Street & Route 110

05/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	350	86	26	443	231	155	211	39	200	134	37
Future Volume (vph)	37	350	86	26	443	231	155	211	39	200	134	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		1.00			1.00			0.98			0.97	
Satd. Flow (prot)		1846			1801			1840			1825	
Flt Permitted		0.89			0.97			0.71			0.58	
Satd. Flow (perm)		1643			1750			1336			1091	
Peak-hour factor, PHF	0.94	0.94	0.94	0.85	0.85	0.85	0.89	0.89	0.89	0.81	0.81	0.81
Adj. Flow (vph)	39	372	91	31	521	272	174	237	44	247	165	46
RTOR Reduction (vph)	0	6	0	0	14	0	0	3	0	0	3	0
Lane Group Flow (vph)	0	496	0	0	810	0	0	452	0	0	455	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.3			42.3			36.3			36.3	
Effective Green, g (s)		44.3			44.3			38.3			38.3	
Actuated g/C Ratio		0.46			0.46			0.40			0.40	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		758			807			533			435	
v/s Ratio Prot												
v/s Ratio Perm		0.30			c0.46			0.34			c0.42	
v/c Ratio		0.65			1.00			0.85			1.05	
Uniform Delay, d1		19.9			25.9			26.2			28.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.0			32.6			11.9			55.7	
Delay (s)		22.0			58.4			38.1			84.5	
Level of Service		C			E			D			F	
Approach Delay (s)		22.0			58.4			38.1			84.5	
Approach LOS		C			E			D			F	
Intersection Summary												
HCM 2000 Control Delay			51.5			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			96.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			81.6%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

2022 Existing Saturday MIDDAY
1: Main Street & Route 110

05/03/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	429	86	28	305	157	99	140	43	200	139	44
Future Volume (vph)	48	429	86	28	305	157	99	140	43	200	139	44
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		0.979			0.957			0.979			0.984	
Flt Protected		0.996			0.997			0.983			0.975	
Satd. Flow (prot)	0	1847	0	0	1813	0	0	1828	0	0	1823	0
Flt Permitted		0.915			0.954			0.736			0.646	
Satd. Flow (perm)	0	1697	0	0	1735	0	0	1369	0	0	1208	0
Satd. Flow (RTOR)		10			25			9			6	
Adj. Flow (vph)	49	442	89	30	332	171	115	163	50	253	176	56
Lane Group Flow (vph)	0	580	0	0	533	0	0	328	0	0	485	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	42.0	42.0		42.0	42.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.79			0.71			0.54			0.91	
Control Delay		31.7			26.5			25.1			49.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		31.7			26.5			25.1			49.0	
Queue Length 50th (ft)		240			202			120			230	
Queue Length 95th (ft)		#580			454			286			#508	
Internal Link Dist (ft)		305			337			557			202	
Turn Bay Length (ft)												
Base Capacity (vph)		869			896			607			534	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.67			0.59			0.54			0.91	
Intersection Summary												
Cycle Length: 112												

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	2
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
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	

Actuated Cycle Length: 88.1

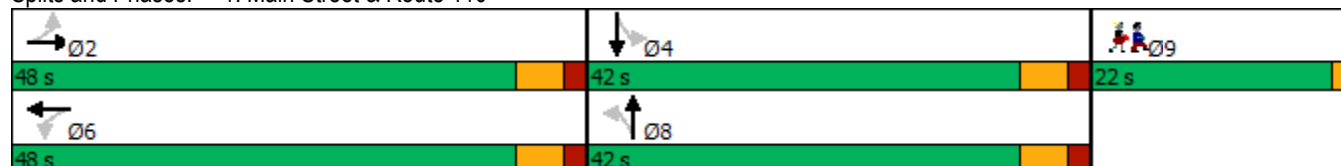
Natural Cycle: 130

Control Type: Actuated-Uncoordinated

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Route 110



2022 Existing Saturday Midday
1: Main Street & Route 110

05/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	429	86	28	305	157	99	140	43	200	139	44
Future Volume (vph)	48	429	86	28	305	157	99	140	43	200	139	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.98			0.98	
Flt Protected		1.00			1.00			0.98			0.97	
Satd. Flow (prot)		1847			1813			1829			1823	
Flt Permitted		0.92			0.95			0.74			0.65	
Satd. Flow (perm)		1698			1734			1370			1208	
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.86	0.86	0.86	0.79	0.79	0.79
Adj. Flow (vph)	49	442	89	30	332	171	115	163	50	253	176	56
RTOR Reduction (vph)	0	6	0	0	14	0	0	5	0	0	3	0
Lane Group Flow (vph)	0	574	0	0	519	0	0	323	0	0	482	0
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		35.7			35.7			36.7			36.7	
Effective Green, g (s)		37.7			37.7			38.7			38.7	
Actuated g/C Ratio		0.42			0.42			0.43			0.43	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		715			730			592			522	
v/s Ratio Prot												
v/s Ratio Perm		c0.34			0.30			0.24			c0.40	
v/c Ratio		0.80			0.71			0.55			0.92	
Uniform Delay, d1		22.7			21.4			18.9			24.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		6.5			3.3			1.0			22.0	
Delay (s)		29.2			24.7			19.9			46.0	
Level of Service		C			C			B			D	
Approach Delay (s)		29.2			24.7			19.9			46.0	
Approach LOS		C			C			B			D	
Intersection Summary												
HCM 2000 Control Delay			30.6									C
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			89.5							10.0		
Intersection Capacity Utilization			83.2%									E
Analysis Period (min)			15									
c Critical Lane Group												

2030 No Build Weekday Morning
1: Main Street & Route 110

07/10/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	415	145	24	261	179	84	89	46	178	135	27
Future Volume (vph)	80	415	145	24	261	179	84	89	46	178	135	27
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.948			0.971			0.989	
Flt Protected		0.994			0.997			0.981			0.974	
Satd. Flow (prot)	0	1796	0	0	1759	0	0	1780	0	0	1773	0
Flt Permitted		0.841			0.950			0.736			0.671	
Satd. Flow (perm)	0	1520	0	0	1676	0	0	1335	0	0	1222	0
Satd. Flow (RTOR)		16			33			13			4	
Adj. Flow (vph)	94	488	171	26	287	197	105	111	58	223	169	34
Lane Group Flow (vph)	0	753	0	0	510	0	0	274	0	0	426	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	42.0	42.0		42.0	42.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		1.04			0.63			0.50			0.86	
Control Delay		71.5			23.5			25.3			45.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		71.5			23.5			25.3			45.0	
Queue Length 50th (ft)		~407			189			104			207	
Queue Length 95th (ft)		#832			430			208			#428	
Internal Link Dist (ft)		305			337			557			202	
Turn Bay Length (ft)												
Base Capacity (vph)		722			804			549			498	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.04			0.63			0.50			0.86	
Intersection Summary												
Cycle Length: 112												

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	4
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
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	

2030 No Build Weekday Morning

1: Main Street & Route 110

07/10/2023

Actuated Cycle Length: 94.4

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Route 110

 Ø2  48 s	 Ø4  42 s	 Ø9  22 s
 Ø6  48 s	 Ø8  42 s	

2030 No Build Weekday Morning
1: Main Street & Route 110

07/10/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	415	145	24	261	179	84	89	46	178	135	27
Future Volume (vph)	80	415	145	24	261	179	84	89	46	178	135	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.95			0.97			0.99	
Flt Protected		0.99			1.00			0.98			0.97	
Satd. Flow (prot)		1796			1760			1781			1775	
Flt Permitted		0.84			0.95			0.74			0.67	
Satd. Flow (perm)		1521			1675			1335			1223	
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	94	488	171	26	287	197	105	111	58	222	169	34
RTOR Reduction (vph)	0	9	0	0	18	0	0	8	0	0	2	0
Lane Group Flow (vph)	0	744	0	0	492	0	0	266	0	0	424	0
Heavy Vehicles (%)	3%	2%	1%	11%	2%	1%	0%	1%	6%	4%	0%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.3			42.3			36.3			36.3	
Effective Green, g (s)		44.3			44.3			38.3			38.3	
Actuated g/C Ratio		0.46			0.46			0.40			0.40	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		701			772			532			487	
v/s Ratio Prot												
v/s Ratio Perm		c0.49			0.29			0.20			c0.35	
v/c Ratio		1.06			0.64			0.50			0.87	
Uniform Delay, d1		25.9			19.7			21.7			26.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		51.6			1.7			0.7			15.2	
Delay (s)		77.5			21.5			22.4			41.8	
Level of Service		E			C			C			D	
Approach Delay (s)		77.5			21.5			22.4			41.8	
Approach LOS		E			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			47.5			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			96.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			94.2%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

2030 No Build Weekday Evening
1: Main Street & Route 110

07/10/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	405	100	33	506	261	177	238	46	226	152	42
Future Volume (vph)	42	405	100	33	506	261	177	238	46	226	152	42
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.956			0.986			0.986	
Flt Protected		0.996			0.998			0.981			0.974	
Satd. Flow (prot)	0	1845	0	0	1801	0	0	1838	0	0	1825	0
Flt Permitted		0.844			0.962			0.701			0.564	
Satd. Flow (perm)	0	1564	0	0	1736	0	0	1313	0	0	1057	0
Satd. Flow (RTOR)		12			26			5			5	
Adj. Flow (vph)	45	431	106	39	595	307	199	267	52	279	188	52
Lane Group Flow (vph)	0	582	0	0	941	0	0	518	0	0	519	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	42.0	42.0		42.0	42.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.79			1.14			0.97			1.20	
Control Delay		31.4			101.1			61.3			139.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		31.4			101.1			61.3			139.7	
Queue Length 50th (ft)		252			~603			270			~352	
Queue Length 95th (ft)		#620			#1039			#642			#621	
Internal Link Dist (ft)		305			337			557			202	
Turn Bay Length (ft)												
Base Capacity (vph)		740			829			535			431	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.79			1.14			0.97			1.20	
Intersection Summary												
Cycle Length: 112												

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	2
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
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	

2030 No Build Weekday Evening

1: Main Street & Route 110

07/10/2023

Actuated Cycle Length: 94.4

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Route 110

 Ø2	 Ø4	 Ø9
48 s	42 s	22 s
 Ø6	 Ø8	
48 s	42 s	

2030 No Build Weekday Evening
1: Main Street & Route 110

07/10/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	405	100	33	506	261	177	238	46	226	152	42
Future Volume (vph)	42	405	100	33	506	261	177	238	46	226	152	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		1.00			1.00			0.98			0.97	
Satd. Flow (prot)		1846			1801			1839			1825	
Flt Permitted		0.84			0.96			0.70			0.56	
Satd. Flow (perm)		1565			1736			1315			1057	
Peak-hour factor, PHF	0.94	0.94	0.94	0.85	0.85	0.85	0.89	0.89	0.89	0.81	0.81	0.81
Adj. Flow (vph)	45	431	106	39	595	307	199	267	52	279	188	52
RTOR Reduction (vph)	0	6	0	0	14	0	0	3	0	0	3	0
Lane Group Flow (vph)	0	576	0	0	927	0	0	515	0	0	516	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.3			42.3			36.3			36.3	
Effective Green, g (s)		44.3			44.3			38.3			38.3	
Actuated g/C Ratio		0.46			0.46			0.40			0.40	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		722			801			524			421	
v/s Ratio Prot												
v/s Ratio Perm		0.37			0.53			0.39			0.49	
v/c Ratio		0.80			1.16			0.98			1.23	
Uniform Delay, d1		22.0			25.9			28.5			28.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		6.1			84.6			34.7			121.0	
Delay (s)		28.1			110.5			63.2			149.9	
Level of Service		C			F			E			F	
Approach Delay (s)		28.1			110.5			63.2			149.9	
Approach LOS		C			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			90.2			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.14									
Actuated Cycle Length (s)			96.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			92.6%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

2030 No Build Saturday Middyay
1: Main Street & Route 110

07/10/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	493	99	33	354	176	115	160	51	226	159	49
Future Volume (vph)	54	493	99	33	354	176	115	160	51	226	159	49
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		0.979			0.958			0.979			0.985	
Flt Protected		0.996			0.997			0.983			0.975	
Satd. Flow (prot)	0	1847	0	0	1815	0	0	1828	0	0	1825	0
Flt Permitted		0.900			0.941			0.718			0.612	
Satd. Flow (perm)	0	1669	0	0	1713	0	0	1336	0	0	1145	0
Satd. Flow (RTOR)		10			24			9			6	
Adj. Flow (vph)	56	508	102	36	385	191	134	186	59	286	201	62
Lane Group Flow (vph)	0	666	0	0	612	0	0	379	0	0	549	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	42.0	42.0		42.0	42.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.84			0.75			0.69			1.18	
Control Delay		34.8			28.2			32.3			127.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		34.8			28.2			32.3			127.6	
Queue Length 50th (ft)		303			253			165			~365	
Queue Length 95th (ft)		#728			#614			#375			#619	
Internal Link Dist (ft)		305			337			557			202	
Turn Bay Length (ft)												
Base Capacity (vph)		789			817			547			467	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.84			0.75			0.69			1.18	
Intersection Summary												
Cycle Length: 112												

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	2
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
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	

2030 No Build Saturday Midday

1: Main Street & Route 110

07/10/2023

Actuated Cycle Length: 94.4

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Route 110

 Ø2 48 s	 Ø4 42 s	 Ø9 22 s
 Ø6 48 s	 Ø8 42 s	

2030 No Build Saturday Middyay
1: Main Street & Route 110

07/10/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	493	99	33	354	176	115	160	51	226	159	49
Future Volume (vph)	54	493	99	33	354	176	115	160	51	226	159	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.98			0.98	
Flt Protected		1.00			1.00			0.98			0.97	
Satd. Flow (prot)		1847			1815			1828			1824	
Flt Permitted		0.90			0.94			0.72			0.61	
Satd. Flow (perm)		1670			1712			1335			1144	
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.86	0.86	0.86	0.79	0.79	0.79
Adj. Flow (vph)	56	508	102	36	385	191	134	186	59	286	201	62
RTOR Reduction (vph)	0	5	0	0	13	0	0	5	0	0	4	0
Lane Group Flow (vph)	0	661	0	0	599	0	0	374	0	0	545	0
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.3			42.3			36.3			36.3	
Effective Green, g (s)		44.3			44.3			38.3			38.3	
Actuated g/C Ratio		0.46			0.46			0.40			0.40	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		770			790			532			456	
v/s Ratio Prot												
v/s Ratio Perm		c0.40			0.35			0.28			c0.48	
v/c Ratio		0.86			0.76			0.70			1.20	
Uniform Delay, d1		23.0			21.4			24.1			28.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		9.4			4.2			4.2			107.9	
Delay (s)		32.4			25.6			28.3			136.8	
Level of Service		C			C			C			F	
Approach Delay (s)		32.4			25.6			28.3			136.8	
Approach LOS		C			C			C			F	
Intersection Summary												
HCM 2000 Control Delay			55.8			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			96.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			93.3%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

2030 Build Weekday Morning
1: Main Street & Route 110

05/03/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	415	146	25	261	179	84	89	46	178	136	27
Future Volume (vph)	80	415	146	25	261	179	84	89	46	178	136	27
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.948			0.971			0.989	
Flt Protected		0.994			0.997			0.981			0.975	
Satd. Flow (prot)	0	1796	0	0	1759	0	0	1780	0	0	1775	0
Flt Permitted		0.841			0.947			0.735			0.672	
Satd. Flow (perm)	0	1520	0	0	1671	0	0	1334	0	0	1224	0
Satd. Flow (RTOR)		16			33			13			4	
Adj. Flow (vph)	94	488	172	27	287	197	105	111	58	223	170	34
Lane Group Flow (vph)	0	754	0	0	511	0	0	274	0	0	427	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	42.0	42.0		42.0	42.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		1.04			0.64			0.50			0.86	
Control Delay		72.0			23.6			25.3			45.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		72.0			23.6			25.3			45.0	
Queue Length 50th (ft)		~409			189			104			207	
Queue Length 95th (ft)		#833			432			208			#431	
Internal Link Dist (ft)		305			337			557			202	
Turn Bay Length (ft)												
Base Capacity (vph)		722			802			548			499	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		1.04			0.64			0.50			0.86	
Intersection Summary												
Cycle Length: 112												

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	4
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
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	

Actuated Cycle Length: 94.4

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Route 110

 Ø2	 Ø4	 Ø9
48 s	42 s	22 s
 Ø6	 Ø8	
48 s	42 s	

2030 Build Weekday Morning
1: Main Street & Route 110

05/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	415	146	25	261	179	84	89	46	178	136	27
Future Volume (vph)	80	415	146	25	261	179	84	89	46	178	136	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.95			0.97			0.99	
Flt Protected		0.99			1.00			0.98			0.97	
Satd. Flow (prot)		1796			1760			1781			1775	
Flt Permitted		0.84			0.95			0.74			0.67	
Satd. Flow (perm)		1521			1670			1334			1224	
Peak-hour factor, PHF	0.85	0.85	0.85	0.91	0.91	0.91	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	94	488	172	27	287	197	105	111	58	222	170	34
RTOR Reduction (vph)	0	9	0	0	18	0	0	8	0	0	2	0
Lane Group Flow (vph)	0	745	0	0	493	0	0	266	0	0	425	0
Heavy Vehicles (%)	3%	2%	1%	11%	2%	1%	0%	1%	6%	4%	0%	14%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.3			42.3			36.3			36.3	
Effective Green, g (s)		44.3			44.3			38.3			38.3	
Actuated g/C Ratio		0.46			0.46			0.40			0.40	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		701			770			532			488	
v/s Ratio Prot												
v/s Ratio Perm		c0.49			0.30			0.20			c0.35	
v/c Ratio		1.06			0.64			0.50			0.87	
Uniform Delay, d1		25.9			19.8			21.7			26.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		52.1			1.8			0.7			15.5	
Delay (s)		77.9			21.6			22.4			42.0	
Level of Service		E			C			C			D	
Approach Delay (s)		77.9			21.6			22.4			42.0	
Approach LOS		E			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			47.8			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			96.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			93.7%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

2030 Build Weekday Evening
1: Main Street & Route 110

05/03/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	405	108	43	506	261	181	241	50	226	158	42
Future Volume (vph)	42	405	108	43	506	261	181	241	50	226	158	42
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.957			0.986			0.987	
Flt Protected		0.996			0.997			0.981			0.974	
Satd. Flow (prot)	0	1843	0	0	1802	0	0	1838	0	0	1827	0
Flt Permitted		0.846			0.942			0.699			0.564	
Satd. Flow (perm)	0	1566	0	0	1702	0	0	1310	0	0	1058	0
Satd. Flow (RTOR)		13			25			6			5	
Adj. Flow (vph)	45	431	115	51	595	307	203	271	56	279	195	52
Lane Group Flow (vph)	0	591	0	0	953	0	0	530	0	0	526	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	42.0	42.0		42.0	42.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.80			1.17			0.99			1.22	
Control Delay		31.9			116.5			66.9			145.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		31.9			116.5			66.9			145.8	
Queue Length 50th (ft)		257			~629			281			~360	
Queue Length 95th (ft)		#634			#1069			#661			#631	
Internal Link Dist (ft)		305			337			557			202	
Turn Bay Length (ft)												
Base Capacity (vph)		742			812			534			432	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.80			1.17			0.99			1.22	
Intersection Summary												
Cycle Length: 112												

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	2
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
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	

Actuated Cycle Length: 94.4

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

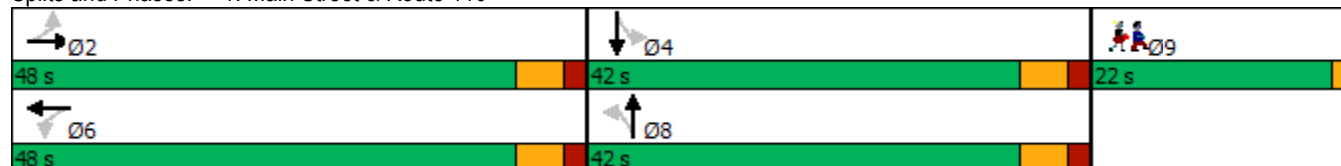
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Route 110



2030 Build Weekday Evening
1: Main Street & Route 110

05/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	405	108	43	506	261	181	241	50	226	158	42
Future Volume (vph)	42	405	108	43	506	261	181	241	50	226	158	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			0.99			0.99	
Flt Protected		1.00			1.00			0.98			0.97	
Satd. Flow (prot)		1843			1801			1838			1826	
Flt Permitted		0.85			0.94			0.70			0.56	
Satd. Flow (perm)		1565			1701			1309			1056	
Peak-hour factor, PHF	0.94	0.94	0.94	0.85	0.85	0.85	0.89	0.89	0.89	0.81	0.81	0.81
Adj. Flow (vph)	45	431	115	51	595	307	203	271	56	279	195	52
RTOR Reduction (vph)	0	7	0	0	13	0	0	4	0	0	3	0
Lane Group Flow (vph)	0	584	0	0	940	0	0	526	0	0	523	0
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.3			42.3			36.3			36.3	
Effective Green, g (s)		44.3			44.3			38.3			38.3	
Actuated g/C Ratio		0.46			0.46			0.40			0.40	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		722			784			522			421	
v/s Ratio Prot												
v/s Ratio Perm		0.37			c0.55			0.40			c0.50	
v/c Ratio		0.81			1.20			1.01			1.24	
Uniform Delay, d1		22.2			25.9			28.9			28.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		6.7			101.5			41.5			127.7	
Delay (s)		28.9			127.3			70.3			156.6	
Level of Service		C			F			E			F	
Approach Delay (s)		28.9			127.3			70.3			156.6	
Approach LOS		C			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			99.3			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.17									
Actuated Cycle Length (s)			96.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			95.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

2030 Build Saturday Midday
1: Main Street & Route 110

05/03/2023

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	493	107	43	354	176	121	164	58	226	165	49
Future Volume (vph)	54	493	107	43	354	176	121	164	58	226	165	49
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			0.959			0.977			0.985	
Flt Protected		0.996			0.996			0.983			0.975	
Satd. Flow (prot)	0	1845	0	0	1815	0	0	1825	0	0	1825	0
Flt Permitted		0.900			0.909			0.712			0.606	
Satd. Flow (perm)	0	1667	0	0	1656	0	0	1322	0	0	1134	0
Satd. Flow (RTOR)		10			23			10			6	
Adj. Flow (vph)	56	508	110	47	385	191	141	191	67	286	209	62
Lane Group Flow (vph)	0	674	0	0	623	0	0	399	0	0	557	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	48.0	48.0		48.0	48.0		42.0	42.0		42.0	42.0	
Total Split (%)	42.9%	42.9%		42.9%	42.9%		37.5%	37.5%		37.5%	37.5%	
Maximum Green (s)	42.0	42.0		42.0	42.0		36.0	36.0		36.0	36.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-2.0			-2.0			-2.0			-2.0	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.86			0.79			0.74			1.20	
Control Delay		35.7			30.6			34.5			138.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		35.7			30.6			34.5			138.2	
Queue Length 50th (ft)		309			266			177			~377	
Queue Length 95th (ft)		#740			#649			#410			#633	
Internal Link Dist (ft)		305			337			557			202	
Turn Bay Length (ft)												
Base Capacity (vph)		788			790			541			463	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.86			0.79			0.74			1.20	
Intersection Summary												
Cycle Length: 112												

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	5.0
Minimum Split (s)	22.0
Total Split (s)	22.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	13.0
Pedestrian Calls (#/hr)	2
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
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	

Actuated Cycle Length: 94.4

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Route 110

 Ø2	 Ø4	 Ø9
48 s	42 s	22 s
 Ø6	 Ø8	
48 s	42 s	

2030 Build Saturday Midday
1: Main Street & Route 110

05/03/2023

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	493	107	43	354	176	121	164	58	226	165	49
Future Volume (vph)	54	493	107	43	354	176	121	164	58	226	165	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.98			0.98	
Flt Protected		1.00			1.00			0.98			0.97	
Satd. Flow (prot)		1844			1815			1825			1825	
Flt Permitted		0.90			0.91			0.71			0.61	
Satd. Flow (perm)		1666			1656			1322			1134	
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.86	0.86	0.86	0.79	0.79	0.79
Adj. Flow (vph)	56	508	110	47	385	191	141	191	67	286	209	62
RTOR Reduction (vph)	0	5	0	0	12	0	0	6	0	0	4	0
Lane Group Flow (vph)	0	669	0	0	611	0	0	393	0	0	553	0
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		42.3			42.3			36.3			36.3	
Effective Green, g (s)		44.3			44.3			38.3			38.3	
Actuated g/C Ratio		0.46			0.46			0.40			0.40	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		768			764			527			452	
v/s Ratio Prot												
v/s Ratio Perm		c0.40			0.37			0.30			c0.49	
v/c Ratio		0.87			0.80			0.75			1.22	
Uniform Delay, d1		23.3			22.1			24.7			28.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		10.6			5.9			5.7			119.3	
Delay (s)		33.8			27.9			30.4			148.2	
Level of Service		C			C			C			F	
Approach Delay (s)		33.8			27.9			30.4			148.2	
Approach LOS		C			C			C			F	
Intersection Summary												
HCM 2000 Control Delay			59.9			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			96.0			Sum of lost time (s)				10.0		
Intersection Capacity Utilization			91.4%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

Main Street at Rocky Hill Road



2022 Existing Weekday Morning
2: Main Street & Rocky Hill Road

05/03/2023

Intersection

Int Delay, s/veh 6

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations 

Traffic Vol, veh/h 15 341 257 21 166 15

Future Vol, veh/h 15 341 257 21 166 15

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 91 91 97 97 78 78

Heavy Vehicles, % 0 0 0 0 0 0

Mvmt Flow 16 375 265 22 213 19

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 287 0 - 0 683 276

Stage 1 - - - - 276 -

Stage 2 - - - - 407 -

Critical Hdwy 4.1 - - - 6.4 6.2

Critical Hdwy Stg 1 - - - - 5.4 -

Critical Hdwy Stg 2 - - - - 5.4 -

Follow-up Hdwy 2.2 - - - 3.5 3.3

Pot Cap-1 Maneuver 1287 - - - 418 768

Stage 1 - - - - 775 -

Stage 2 - - - - 676 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1287 - - - 411 768

Mov Cap-2 Maneuver - - - - 411 -

Stage 1 - - - - 763 -

Stage 2 - - - - 676 -

Approach EB WB SB

HCM Control Delay, s 0.3 0 23

HCM LOS C

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1287 - - - 427

HCM Lane V/C Ratio 0.013 - - - 0.543

HCM Control Delay (s) 7.8 0 - - 23

HCM Lane LOS A A - - C

HCM 95th %tile Q(veh) 0 - - - 3.2

2022 Existing Weekday Evening
2: Main Street & Rocky Hill Road

05/03/2023

Intersection

Int Delay, s/veh 5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	253	472	40	126	32
Future Vol, veh/h	12	253	472	40	126	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	79	79	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	305	597	51	147	37

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	648	0	956
Stage 1	-	-	623
Stage 2	-	-	333
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	947	-	289
Stage 1	-	-	539
Stage 2	-	-	731
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	947	-	284
Mov Cap-2 Maneuver	-	-	284
Stage 1	-	-	529
Stage 2	-	-	731

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	32.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	947	-	-	-	310
HCM Lane V/C Ratio	0.015	-	-	-	0.593
HCM Control Delay (s)	8.9	0	-	-	32.2
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	3.6

2022 Existing Saturday MIDDAY
2: Main Street & Rocky Hill Road

05/03/2023

Intersection						
Int Delay, s/veh	3.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	277	295	37	102	26
Future Vol, veh/h	21	277	295	37	102	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	97	97	78	78
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	23	304	304	38	131	33
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	342	0	-	0	673	323
Stage 1	-	-	-	-	323	-
Stage 2	-	-	-	-	350	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1228	-	-	-	424	723
Stage 1	-	-	-	-	738	-
Stage 2	-	-	-	-	718	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1228	-	-	-	414	723
Mov Cap-2 Maneuver	-	-	-	-	414	-
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	718	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.6	0		17.4		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1228	-	-	-	453	
HCM Lane V/C Ratio	0.019	-	-	-	0.362	
HCM Control Delay (s)	8	0	-	-	17.4	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	1.6	

2030 No Build Weekday Morning
2: Main Street & Rocky Hill Road

07/10/2023

Intersection

Int Delay, s/veh 8.6

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations   

Traffic Vol, veh/h 17 386 291 23 187 17

Future Vol, veh/h 17 386 291 23 187 17

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 91 91 97 97 78 78

Heavy Vehicles, % 0 0 0 0 0 0

Mvmt Flow 19 424 300 24 240 22

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 324 0 - 0 774 312

Stage 1 - - - - 312 -

Stage 2 - - - - 462 -

Critical Hdwy 4.1 - - - 6.4 6.2

Critical Hdwy Stg 1 - - - - 5.4 -

Critical Hdwy Stg 2 - - - - 5.4 -

Follow-up Hdwy 2.2 - - - 3.5 3.3

Pot Cap-1 Maneuver 1247 - - - 370 733

Stage 1 - - - - 747 -

Stage 2 - - - - 638 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1247 - - - 363 733

Mov Cap-2 Maneuver - - - - 363 -

Stage 1 - - - - 732 -

Stage 2 - - - - 638 -

Approach EB WB SB

HCM Control Delay, s 0.3 0 33.2

HCM LOS D

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1247 - - - 379

HCM Lane V/C Ratio 0.015 - - - 0.69

HCM Control Delay (s) 7.9 0 - - 33.2

HCM Lane LOS A A - - D

HCM 95th %tile Q(veh) 0 - - - 5

2030 No Build Weekday Evening
2: Main Street & Rocky Hill Road

07/10/2023

Intersection

Int Delay, s/veh 9.1

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations 

Traffic Vol, veh/h 13 289 535 45 141 37

Future Vol, veh/h 13 289 535 45 141 37

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 83 83 79 79 86 86

Heavy Vehicles, % 0 0 0 0 0 0

Mvmt Flow 16 348 677 57 164 43

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 734 0 - 0 1086 706

Stage 1 - - - - 706 -

Stage 2 - - - - 380 -

Critical Hdwy 4.1 - - - 6.4 6.2

Critical Hdwy Stg 1 - - - - 5.4 -

Critical Hdwy Stg 2 - - - - 5.4 -

Follow-up Hdwy 2.2 - - - 3.5 3.3

Pot Cap-1 Maneuver 880 - - - 242 439

Stage 1 - - - - 493 -

Stage 2 - - - - 696 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 880 - - - 236 439

Mov Cap-2 Maneuver - - - - 236 -

Stage 1 - - - - 482 -

Stage 2 - - - - 696 -

Approach EB WB SB

HCM Control Delay, s 0.4 0 56.4

HCM LOS F

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 880 - - - 261

HCM Lane V/C Ratio 0.018 - - - 0.793

HCM Control Delay (s) 9.2 0 - - 56.4

HCM Lane LOS A A - - F

HCM 95th %tile Q(veh) 0.1 - - - 6.1

2030 No Build Saturday MIDDAY
2: Main Street & Rocky Hill Road

07/10/2023

Intersection

Int Delay, s/veh 4.4

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations 

Traffic Vol, veh/h 24 317 336 42 115 30

Future Vol, veh/h 24 317 336 42 115 30

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 91 91 97 97 78 78

Heavy Vehicles, % 0 0 0 0 0 0

Mvmt Flow 26 348 346 43 147 38

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 389 0 - 0 768 368

Stage 1 - - - - 368 -

Stage 2 - - - - 400 -

Critical Hdwy 4.1 - - - 6.4 6.2

Critical Hdwy Stg 1 - - - - 5.4 -

Critical Hdwy Stg 2 - - - - 5.4 -

Follow-up Hdwy 2.2 - - - 3.5 3.3

Pot Cap-1 Maneuver 1181 - - - 373 682

Stage 1 - - - - 704 -

Stage 2 - - - - 681 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1181 - - - 363 682

Mov Cap-2 Maneuver - - - - 363 -

Stage 1 - - - - 685 -

Stage 2 - - - - 681 -

Approach EB WB SB

HCM Control Delay, s 0.6 0 21.4

HCM LOS C

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1181 - - - 402

HCM Lane V/C Ratio 0.022 - - - 0.462

HCM Control Delay (s) 8.1 0 - - 21.4

HCM Lane LOS A A - - C

HCM 95th %tile Q(veh) 0.1 - - - 2.4

2030 Build Weekday Morning
2: Main Street & Rocky Hill Road

05/03/2023

Intersection

Int Delay, s/veh 8.6

Movement EBL EBT WBT WBR SBL SBR

Lane Configurations 

Traffic Vol, veh/h 17 386 292 23 187 17

Future Vol, veh/h 17 386 292 23 187 17

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 91 91 97 97 78 78

Heavy Vehicles, % 0 0 0 0 0 0

Mvmt Flow 19 424 301 24 240 22

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 325 0 - 0 775 313

Stage 1 - - - - 313 -

Stage 2 - - - - 462 -

Critical Hdwy 4.1 - - - 6.4 6.2

Critical Hdwy Stg 1 - - - - 5.4 -

Critical Hdwy Stg 2 - - - - 5.4 -

Follow-up Hdwy 2.2 - - - 3.5 3.3

Pot Cap-1 Maneuver 1246 - - - 369 732

Stage 1 - - - - 746 -

Stage 2 - - - - 638 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1246 - - - 362 732

Mov Cap-2 Maneuver - - - - 362 -

Stage 1 - - - - 731 -

Stage 2 - - - - 638 -

Approach EB WB SB

HCM Control Delay, s 0.3 0 33.4

HCM LOS D

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1246 - - - 378

HCM Lane V/C Ratio 0.015 - - - 0.692

HCM Control Delay (s) 7.9 0 - - 33.4

HCM Lane LOS A A - - D

HCM 95th %tile Q(veh) 0 - - - 5

2030 Build Weekday Evening
2: Main Street & Rocky Hill Road

05/03/2023

Intersection						
Int Delay, s/veh	9.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	292	542	45	141	38
Future Vol, veh/h	14	292	542	45	141	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	83	83	79	79	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	352	686	57	164	44
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	743	0	-	0	1101	715
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	386	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	873	-	-	-	237	434
Stage 1	-	-	-	-	488	-
Stage 2	-	-	-	-	691	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	873	-	-	-	231	434
Mov Cap-2 Maneuver	-	-	-	-	231	-
Stage 1	-	-	-	-	476	-
Stage 2	-	-	-	-	691	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		60.2		
HCM LOS				F		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	873	-	-	-	256	
HCM Lane V/C Ratio	0.019	-	-	-	0.813	
HCM Control Delay (s)	9.2	0	-	-	60.2	
HCM Lane LOS	A	A	-	-	F	
HCM 95th %tile Q(veh)	0.1	-	-	-	6.3	

Intersection						
Int Delay, s/veh	4.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	24	322	343	42	115	32
Future Vol, veh/h	24	322	343	42	115	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	97	97	78	78
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	26	354	354	43	147	41
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	397	0	-	0	782	376
Stage 1	-	-	-	-	376	-
Stage 2	-	-	-	-	406	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1173	-	-	-	366	675
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	677	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1173	-	-	-	356	675
Mov Cap-2 Maneuver	-	-	-	-	356	-
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	677	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.6	0		22		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1173	-	-	-	397	
HCM Lane V/C Ratio	0.022	-	-	-	0.475	
HCM Control Delay (s)	8.1	0	-	-	22	
HCM Lane LOS	A	A	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	2.5	

Main Street at Merrimac Street



2022 Existing Weekday Evening
3: Merrimac Street & Main Street

05/03/2023

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	153	339	24	96	170	37
Future Vol, veh/h	153	339	24	96	170	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	77	77	80	80
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	189	419	31	125	213	46

Major/Minor	Minor2	Major2
Conflicting Flow All	472	46
Stage 1	472	-
Stage 2	0	-
Critical Hdwy	6.5	6.2
Critical Hdwy Stg 1	5.5	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	4	3.3
Pot Cap-1 Maneuver	493	1029
Stage 1	562	-
Stage 2	-	-
Platoon blocked, %		-
Mov Cap-1 Maneuver	0	1029
Mov Cap-2 Maneuver	0	-
Stage 1	0	-
Stage 2	0	-

Approach	NB	SB
HCM Control Delay, s	9.1	
HCM LOS	A	

Minor Lane/Major Mvmt	NBLn1	SBL	SBT
Capacity (veh/h)	1029	-	-
HCM Lane V/C Ratio	0.151	-	-
HCM Control Delay (s)	9.1	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-

2022 Existing Weekday Morning
3: Merrimac Street & Main Street

05/03/2023

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	99	150	17	88	265	23
Future Vol, veh/h	99	150	17	88	265	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	84	84	74	74
Heavy Vehicles, %	0	0	20	0	0	5
Mvmt Flow	116	176	20	105	358	31
Major/Minor		Minor2		Major2		
Conflicting Flow All		747	31	0	0	
Stage 1		747	-	-	-	
Stage 2		0	-	-	-	
Critical Hdwy		6.7	6.2	4.1	-	
Critical Hdwy Stg 1		5.7	-	-	-	
Critical Hdwy Stg 2		-	-	-	-	
Follow-up Hdwy		4.18	3.3	2.2	-	
Pot Cap-1 Maneuver		321	1049	-	-	
Stage 1		395	-	-	-	
Stage 2		-	-	-	-	
Platoon blocked, %					-	
Mov Cap-1 Maneuver		0	1049	-	-	
Mov Cap-2 Maneuver		0	-	-	-	
Stage 1		0	-	-	-	
Stage 2		0	-	-	-	
Approach		NB		SB		
HCM Control Delay, s		8.9				
HCM LOS		A				
Minor Lane/Major Mvmt	NBLn1	SBL	SBT			
Capacity (veh/h)	1049	-	-			
HCM Lane V/C Ratio	0.119	-	-			
HCM Control Delay (s)	8.9	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	0.4	-	-			

2022 Existing Saturday Midday
3: Merrimac Street & Main Street

05/03/2023

Intersection

Int Delay, s/veh 4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	107	208	38	113	175	52
Future Vol, veh/h	107	208	38	113	175	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	74	74	86	86
Heavy Vehicles, %	0	0	3	0	0	2
Mvmt Flow	120	234	51	153	203	60

Major/Minor	Minor2	Major2
Conflicting Flow All	466	60
Stage 1	466	-
Stage 2	0	-
Critical Hdwy	6.53	6.2
Critical Hdwy Stg 1	5.53	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	4.027	3.3
Pot Cap-1 Maneuver	493	1011
Stage 1	561	-
Stage 2	-	-
Platoon blocked, %		-
Mov Cap-1 Maneuver	0	1011
Mov Cap-2 Maneuver	0	-
Stage 1	0	-
Stage 2	0	-

Approach	NB	SB
HCM Control Delay, s	9.5	
HCM LOS	A	

Minor Lane/Major Mvmt	NBLn1	SBL	SBT
Capacity (veh/h)	1011	-	-
HCM Lane V/C Ratio	0.202	-	-
HCM Control Delay (s)	9.5	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.8	-	-

2030 No Build Weekday Morning
3: Merrimac Street & Main Street

07/10/2023

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	114	169	23	101	298	28
Future Vol, veh/h	114	169	23	101	298	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	84	84	74	74
Heavy Vehicles, %	0	0	20	0	0	5
Mvmt Flow	134	199	27	120	403	38
Major/Minor		Minor2		Major2		
Conflicting Flow All		844	38	0	0	
Stage 1		844	-	-	-	
Stage 2		0	-	-	-	
Critical Hdwy		6.7	6.2	4.1	-	
Critical Hdwy Stg 1		5.7	-	-	-	
Critical Hdwy Stg 2		-	-	-	-	
Follow-up Hdwy		4.18	3.3	2.2	-	
Pot Cap-1 Maneuver		281	1040	-	-	
Stage 1		355	-	-	-	
Stage 2		-	-	-	-	
Platoon blocked, %					-	
Mov Cap-1 Maneuver		0	1040	-	-	
Mov Cap-2 Maneuver		0	-	-	-	
Stage 1		0	-	-	-	
Stage 2		0	-	-	-	
Approach		NB		SB		
HCM Control Delay, s		9				
HCM LOS		A				
Minor Lane/Major Mvmt	NBLn1	SBL	SBT			
Capacity (veh/h)	1040	-	-			
HCM Lane V/C Ratio	0.142	-	-			
HCM Control Delay (s)	9	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	0.5	-	-			

2030 No Build Weekday Evening
3: Merrimac Street & Main Street

07/10/2023

Intersection

Int Delay, s/veh 3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	177	381	32	112	192	50
Future Vol, veh/h	177	381	32	112	192	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	77	77	80	80
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	219	470	42	145	240	63

Major/Minor	Minor2	Major2
Conflicting Flow All	543	63
Stage 1	543	-
Stage 2	0	-
Critical Hdwy	6.5	6.2
Critical Hdwy Stg 1	5.5	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	4	3.3
Pot Cap-1 Maneuver	450	1007
Stage 1	523	-
Stage 2	-	-
Platoon blocked, %		-
Mov Cap-1 Maneuver	0	1007
Mov Cap-2 Maneuver	0	-
Stage 1	0	-
Stage 2	0	-

Approach	NB	SB
HCM Control Delay, s	9.4	
HCM LOS	A	

Minor Lane/Major Mvmt	NBLn1	SBL	SBT
Capacity (veh/h)	1007	-	-
HCM Lane V/C Ratio	0.186	-	-
HCM Control Delay (s)	9.4	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.7	-	-

2030 No Build Saturday Middy
3: Merrimac Street & Main Street

07/10/2023

Intersection

Int Delay, s/veh 4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	125	235	51	132	197	64
Future Vol, veh/h	125	235	51	132	197	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	74	74	86	86
Heavy Vehicles, %	0	0	3	0	0	2
Mvmt Flow	140	264	69	178	229	74

Major/Minor	Minor2	Major2
Conflicting Flow All	532	74
Stage 1	532	-
Stage 2	0	-
Critical Hdwy	6.53	6.2
Critical Hdwy Stg 1	5.53	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	4.027	3.3
Pot Cap-1 Maneuver	452	993
Stage 1	524	-
Stage 2	-	-
Platoon blocked, %		-
Mov Cap-1 Maneuver	0	993
Mov Cap-2 Maneuver	0	-
Stage 1	0	-
Stage 2	0	-

Approach	NB	SB
HCM Control Delay, s	9.8	
HCM LOS	A	

Minor Lane/Major Mvmt	NBLn1	SBL	SBT
Capacity (veh/h)	993	-	-
HCM Lane V/C Ratio	0.249	-	-
HCM Control Delay (s)	9.8	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	1	-	-

Intersection

Int Delay, s/veh 2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	169	23	101	298	31
Future Vol, veh/h	115	169	23	101	298	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	84	84	74	74
Heavy Vehicles, %	0	0	20	0	0	5
Mvmt Flow	135	199	27	120	403	42

Major/Minor	Minor2	Major2
Conflicting Flow All	848	42 0 0
Stage 1	848	- - -
Stage 2	0	- - -
Critical Hdwy	6.7	6.2 4.1 -
Critical Hdwy Stg 1	5.7	- - -
Critical Hdwy Stg 2	-	- - -
Follow-up Hdwy	4.18	3.3 2.2 -
Pot Cap-1 Maneuver	279	1034 - -
Stage 1	354	- - -
Stage 2	-	- - -
Platoon blocked, %		-
Mov Cap-1 Maneuver	0	1034 - -
Mov Cap-2 Maneuver	0	- - -
Stage 1	0	- - -
Stage 2	0	- - -

Approach	NB	SB
HCM Control Delay, s	9.1	
HCM LOS	A	

Minor Lane/Major Mvmt	NBLn1	SBL	SBT
Capacity (veh/h)	1034	-	-
HCM Lane V/C Ratio	0.143	-	-
HCM Control Delay (s)	9.1	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-

Intersection						
Int Delay, s/veh	3.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	185	381	43	116	192	74
Future Vol, veh/h	185	381	43	116	192	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	77	77	80	80
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	228	470	56	151	240	93
Major/Minor		Minor2		Major2		
Conflicting Flow All		573	93	0	0	
Stage 1		573	-	-	-	
Stage 2		0	-	-	-	
Critical Hdwy		6.5	6.2	4.1	-	
Critical Hdwy Stg 1		5.5	-	-	-	
Critical Hdwy Stg 2		-	-	-	-	
Follow-up Hdwy		4	3.3	2.2	-	
Pot Cap-1 Maneuver		432	970	-	-	
Stage 1		507	-	-	-	
Stage 2		-	-	-	-	
Platoon blocked, %					-	
Mov Cap-1 Maneuver		0	970	-	-	
Mov Cap-2 Maneuver		0	-	-	-	
Stage 1		0	-	-	-	
Stage 2		0	-	-	-	
Approach		NB		SB		
HCM Control Delay, s		9.7				
HCM LOS		A				
Minor Lane/Major Mvmt	NBLn1	SBL	SBT			
Capacity (veh/h)	970	-	-			
HCM Lane V/C Ratio	0.213	-	-			
HCM Control Delay (s)	9.7	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	0.8	-	-			

Intersection

Int Delay, s/veh 4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	134	235	68	137	197	88
Future Vol, veh/h	134	235	68	137	197	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Stop	Stop	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	74	74	86	86
Heavy Vehicles, %	0	0	3	0	0	2
Mvmt Flow	151	264	92	185	229	102

Major/Minor	Minor2	Major2
Conflicting Flow All	560	102
Stage 1	560	-
Stage 2	0	-
Critical Hdwy	6.53	6.2
Critical Hdwy Stg 1	5.53	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	4.027	3.3
Pot Cap-1 Maneuver	436	959
Stage 1	509	-
Stage 2	-	-
Platoon blocked, %		-
Mov Cap-1 Maneuver	0	959
Mov Cap-2 Maneuver	0	-
Stage 1	0	-
Stage 2	0	-

Approach	NB	SB
HCM Control Delay, s	10.3	
HCM LOS	B	

Minor Lane/Major Mvmt	NBLn1	SBL	SBT
Capacity (veh/h)	959	-	-
HCM Lane V/C Ratio	0.289	-	-
HCM Control Delay (s)	10.3	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	1.2	-	-

Merrimac Street at Pleasant Valley Road and Beacon Street



2022 Existing Weekday Morning
4: Pleasant Valley Road/Merrimac Street & Beacon Street

05/03/2023

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	9	21	50	25	113
Future Vol, veh/h	38	9	21	50	25	113
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	85	85	73	73
Heavy Vehicles, %	3	13	0	5	4	1
Mvmt Flow	56	13	25	59	34	155
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	221	112	189	0	-	0
Stage 1	112	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.43	6.33	4.1	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.417	2.2	-	-	-
Pot Cap-1 Maneuver	765	912	1397	-	-	-
Stage 1	910	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	750	912	1397	-	-	-
Mov Cap-2 Maneuver	750	-	-	-	-	-
Stage 1	893	-	-	-	-	-
Stage 2	913	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.1	2.3		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1397	-	776	-	-	
HCM Lane V/C Ratio	0.018	-	0.089	-	-	
HCM Control Delay (s)	7.6	0	10.1	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-	

2022 Existing Weekday Evening
4: Pleasant Valley Road/Merrimac Street & Beacon Street

05/03/2023

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	25	8	48	74	121
Future Vol, veh/h	45	25	8	48	74	121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	58	58	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	65	36	14	83	89	146
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	273	162	235	0	-	0
Stage 1	162	-	-	-	-	-
Stage 2	111	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	721	888	1344	-	-	-
Stage 1	872	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	713	888	1344	-	-	-
Mov Cap-2 Maneuver	713	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.4	1.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1344	-	767	-	-	
HCM Lane V/C Ratio	0.01	-	0.132	-	-	
HCM Control Delay (s)	7.7	0	10.4	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.5	-	-	

2022 Existing Saturday Midday
4: Pleasant Valley Road/Merrimac Street & Beacon Street

05/03/2023

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	53	17	8	66	75	70
Future Vol, veh/h	53	17	8	66	75	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	84	84	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	58	18	10	79	88	82

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	228	129	170	0	-	0
Stage 1	129	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	765	926	1420	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	930	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	760	926	1420	-	-	-
Mov Cap-2 Maneuver	760	-	-	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	930	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1420	-	795	-	-
HCM Lane V/C Ratio	0.007	-	0.096	-	-
HCM Control Delay (s)	7.6	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

2030 No Build Weekday Morning
4: Pleasant Valley Road/Merrimac Street & Beacon Street

07/10/2023

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	10	23	56	30	128
Future Vol, veh/h	44	10	23	56	30	128
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	68	68	85	85	73	73
Heavy Vehicles, %	3	13	0	5	4	1
Mvmt Flow	65	15	27	66	41	175
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	249	129	216	0	-	0
Stage 1	129	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.43	6.33	4.1	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.417	2.2	-	-	-
Pot Cap-1 Maneuver	737	892	1366	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	903	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	722	892	1366	-	-	-
Mov Cap-2 Maneuver	722	-	-	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	903	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.4	2.2		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1366	-	748	-	-	
HCM Lane V/C Ratio	0.02	-	0.106	-	-	
HCM Control Delay (s)	7.7	0	10.4	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-	

2030 No Build Weekday Evening
4: Pleasant Valley Road/Merrimac Street & Beacon Street

07/10/2023

Intersection						
Int Delay, s/veh	2.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	53	29	9	55	83	138
Future Vol, veh/h	53	29	9	55	83	138
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	58	58	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	77	42	16	95	100	166
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	310	183	266	0	-	0
Stage 1	183	-	-	-	-	-
Stage 2	127	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	687	865	1310	-	-	-
Stage 1	853	-	-	-	-	-
Stage 2	904	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	678	865	1310	-	-	-
Mov Cap-2 Maneuver	678	-	-	-	-	-
Stage 1	842	-	-	-	-	-
Stage 2	904	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.9	1.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1310	-	734	-	-	
HCM Lane V/C Ratio	0.012	-	0.162	-	-	
HCM Control Delay (s)	7.8	0	10.9	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.6	-	-	

2030 No Build Saturday MIDDAY
4: Pleasant Valley Road/Merrimac Street & Beacon Street

07/10/2023

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	62	19	10	74	85	81
Future Vol, veh/h	62	19	10	74	85	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	84	84	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	67	21	12	88	100	95
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	260	148	195	0	-	0
Stage 1	148	-	-	-	-	-
Stage 2	112	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	733	904	1390	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	726	904	1390	-	-	-
Mov Cap-2 Maneuver	726	-	-	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.3	0.9		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1390	-	761	-	-	
HCM Lane V/C Ratio	0.009	-	0.116	-	-	
HCM Control Delay (s)	7.6	0	10.3	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.4	-	-	

Intersection

Int Delay, s/veh 2.7

Movement EBL EBR NBL NBT SBT SBRLane Configurations 

Traffic Vol, veh/h 44 10 23 56 30 128

Future Vol, veh/h 44 10 23 56 30 128

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 68 68 85 85 73 73

Heavy Vehicles, % 3 13 0 5 4 1

Mvmt Flow 65 15 27 66 41 175

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 249 129 216 0 - 0

Stage 1 129 - - - - -

Stage 2 120 - - - - -

Critical Hdwy 6.43 6.33 4.1 - - -

Critical Hdwy Stg 1 5.43 - - - - -

Critical Hdwy Stg 2 5.43 - - - - -

Follow-up Hdwy 3.527 3.417 2.2 - - -

Pot Cap-1 Maneuver 737 892 1366 - - -

Stage 1 894 - - - - -

Stage 2 903 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 722 892 1366 - - -

Mov Cap-2 Maneuver 722 - - - - -

Stage 1 875 - - - - -

Stage 2 903 - - - - -

Approach EB NB SB

HCM Control Delay, s 10.4 2.2 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h) 1366 - 748 - -

HCM Lane V/C Ratio 0.02 - 0.106 - -

HCM Control Delay (s) 7.7 0 10.4 - -

HCM Lane LOS A A B - -

HCM 95th %tile Q(veh) 0.1 - 0.4 - -

2030 Build Weekday Evening
4: Pleasant Valley Road/Merrimac Street & Beacon Street

05/03/2023

Intersection						
Int Delay, s/veh	2.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	29	9	56	83	139
Future Vol, veh/h	54	29	9	56	83	139
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	69	69	58	58	83	83
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	78	42	16	97	100	167
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	313	184	267	0	-	0
Stage 1	184	-	-	-	-	-
Stage 2	129	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	684	864	1308	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	675	864	1308	-	-	-
Mov Cap-2 Maneuver	675	-	-	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.9	1.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1308	-	731	-	-	
HCM Lane V/C Ratio	0.012	-	0.165	-	-	
HCM Control Delay (s)	7.8	0	10.9	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.6	-	-	

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	63	19	10	75	86	82
Future Vol, veh/h	63	19	10	75	86	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	84	84	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	68	21	12	89	101	96
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	262	149	197	0	-	0
Stage 1	149	-	-	-	-	-
Stage 2	113	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	731	903	1388	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	917	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	724	903	1388	-	-	-
Mov Cap-2 Maneuver	724	-	-	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	917	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10.4	0.9		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1388	-	759	-	-	
HCM Lane V/C Ratio	0.009	-	0.117	-	-	
HCM Control Delay (s)	7.6	0	10.4	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.4	-	-	

Merrimac Street at Project Site Driveway



2030 No Build Weekday Morning
5: Merrimac Street & Project Site Driveway

07/10/2023

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	119	0	2	140
Future Vol, veh/h	0	5	119	0	2	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	84	92	92	81
Heavy Vehicles, %	2	2	1	1	2	10
Mvmt Flow	0	5	142	0	2	173

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	319	142	0
Stage 1	142	-	-
Stage 2	177	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	674	906	-
Stage 1	885	-	-
Stage 2	854	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	673	906	-
Mov Cap-2 Maneuver	673	-	-
Stage 1	885	-	-
Stage 2	852	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	906	1441
HCM Lane V/C Ratio	-	-	0.006	0.002
HCM Control Delay (s)	-	-	9	7.5
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

2030 No Build Weekday Evening
5: Merrimac Street & Project Site Driveway

07/10/2023

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	7	138	1	11	216
Future Vol, veh/h	1	7	138	1	11	216
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	77	92	92	81
Heavy Vehicles, %	2	2	0	2	2	0
Mvmt Flow	1	8	179	1	12	267
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	471	180	0	0	180	0
Stage 1	180	-	-	-	-	-
Stage 2	291	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	551	863	-	-	1396	-
Stage 1	851	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	545	863	-	-	1396	-
Mov Cap-2 Maneuver	545	-	-	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	751	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.5	0		0.3		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	804		1396	-	
HCM Lane V/C Ratio	-	0.011		0.009	-	
HCM Control Delay (s)	-	9.5		7.6	0	
HCM Lane LOS	-	A		A	A	
HCM 95th %tile Q(veh)	-	0		0	-	

2030 No Build Saturday Middy
5: Merrimac Street & Project Site Driveway

07/10/2023

Intersection

Int Delay, s/veh 0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	11	172	1	8	181
Future Vol, veh/h	1	11	172	1	8	181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	74	74	88	88
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	1	12	232	1	9	206

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	457	233	0
Stage 1	233	-	-
Stage 2	224	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	562	806	-
Stage 1	806	-	-
Stage 2	813	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	558	806	-
Mov Cap-2 Maneuver	558	-	-
Stage 1	806	-	-
Stage 2	806	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	777	1340
HCM Lane V/C Ratio	-	-	0.017	0.007
HCM Control Delay (s)	-	-	9.7	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

2030 Build Weekday Morning
5: Merrimac Street & Project Site Driveway

05/03/2023

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	119	0	6	140
Future Vol, veh/h	0	5	119	0	6	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	84	92	92	81
Heavy Vehicles, %	2	2	1	1	2	10
Mvmt Flow	0	5	142	0	7	173
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	329	142	0	0	142	0
Stage 1	142	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	665	906	-	-	1441	-
Stage 1	885	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	662	906	-	-	1441	-
Mov Cap-2 Maneuver	662	-	-	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9	0		0.3		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	906	1441	-	
HCM Lane V/C Ratio	-	-	0.006	0.005	-	
HCM Control Delay (s)	-	-	9	7.5	0	
HCM Lane LOS	-	-	A	A	A	
HCM 95th %tile Q(veh)	-	-	0	0	-	

2030 Build Weekday Evening
5: Merrimac Street & Project Site Driveway

05/03/2023

Intersection

Int Delay, s/veh 1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	22	138	3	43	216
Future Vol, veh/h	2	22	138	3	43	216
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	77	92	92	81
Heavy Vehicles, %	2	2	0	2	2	0
Mvmt Flow	2	24	179	3	47	267

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	542	181	0
Stage 1	181	-	-
Stage 2	361	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	501	862	-
Stage 1	850	-	-
Stage 2	705	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	481	862	-
Mov Cap-2 Maneuver	481	-	-
Stage 1	850	-	-
Stage 2	677	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	809	1393
HCM Lane V/C Ratio	-	-	0.032	0.034
HCM Control Delay (s)	-	-	9.6	7.7
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1

2030 Build Saturday Midday
5: Merrimac Street & Project Site Driveway

05/03/2023

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	33	172	3	41	181
Future Vol, veh/h	3	33	172	3	41	181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	74	74	88	88
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	3	36	232	4	47	206
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	534	234	0	0	236	0
Stage 1	234	-	-	-	-	-
Stage 2	300	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	507	805	-	-	1337	-
Stage 1	805	-	-	-	-	-
Stage 2	752	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	487	805	-	-	1337	-
Mov Cap-2 Maneuver	487	-	-	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10	0	1.4			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	763	1337	-	
HCM Lane V/C Ratio	-	-	0.051	0.035	-	
HCM Control Delay (s)	-	-	10	7.8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	