Transportation Impact Assessment

Proposed Multifamily Residential Development
10 Boston Street,
49 South Main Street (Route 114) (Partial),
and 18 Boston Street (Partial)
Middleton, Massachusetts

Prepared for:

VILLEBRIDGE
Real Estate Development

Needham, Massachusetts

August 2023

Prepared by:

Vanasse & Associates inc
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

Vanasse & Associates inc
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

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

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

CONTENTS

EXECUTIVE SUMMARY 1

INTRODUCTION 6

Project Description 6
Study Methodology 7

EXISTING CONDITIONS 8

Roadways 8
Intersections 9
Traffic Volumes 11
Pedestrian and Bicycle Facilities 13
Public Transportation 13
Spot Speed Measurements 13
Motor Vehicle Crash Data 14

FUTURE CONDITIONS 17

Future Traffic Growth 17
Project-Generated Traffic 19
Trip Distribution and Assignment 20
Future Traffic Volumes – Build Condition 20

TRAFFIC OPERATIONS ANALYSIS 22

Methodology 22
Analysis Results 25

CONTENTS (Continued)

SIGHT DISTANCE EVALUATION 32

CONCLUSIONS AND RECOMMENDATIONS 34

Conclusions 34
Recommendations 35

FIGURES

No.	Title
1	Site Location Map
2	Existing Intersection Lane Use, Travel Lane Width, and Pedestrian Facilities
3	2023 Existing Weekday Morning Peak-Hour Traffic Volumes
4	2023 Existing Weekday Evening Peak-Hour Traffic Volumes
5	2023 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	2023 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
12	Mitigated Signalized Intersection Level-of-Service and Vehicle Queue Summary

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 construction of a multifamily residential development that will be situated on properties located at 10 Boston Street (Route 62) and portions of 49 South Main Street (Route 114) and 18 Boston Street in Middleton, Massachusetts (hereafter referred to as the "Project"). This assessment was prepared in consultation with the Massachusetts Department of Transportation (MassDOT) and the Town of Middleton; 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 is responsive to the scope of work that was identified by the Town for the preparation of this TIA.

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 460 vehicle trips on an average weekday (two-way, 24-hour volume), with 41 vehicle trips expected during the weekday morning peak-hour, 46 vehicle trips expected during the weekday evening peak-hour and 25 vehicle trips expected during the Saturday midday peak-hour;

2. The Project will not result in a significant impact (increase) on motorist delays or vehicle queuing over anticipated future conditions without the Project (No-Build condition), acknowledging that one or more movements at the study area intersections are currently or are predicted to operate at or over capacity (i.e., level-of-service (LOS) "E" or "F") independent of the Project;

3. All movements exiting the Project site driveway to Boston Street are predicted to operate at LOS C or better during the peak hours with negligible vehicle queuing predicted, with all movements exiting the secondary access to South Main Street predicted to operate at LOS E during the weekday morning and evening peak hours, and at LOS F during the Saturday midday peak-hour, with residual vehicle queues of up to one (1) vehicle, which can be contained within the Project site without impeding access or the movement of vehicles, pedestrians or bicyclists along South Main Street. All movements approaching

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

the Project site driveways along Boston Street and South Main Street are predicted to operate at LOS A with negligible vehicle queuing predicted;

4. Independent of the Project, the South Main Street/Maple Street intersection was found to have a motor vehicle crash rate that is above the MassDOT average crash rate for similar intersections and has been identified as a "Top 5% Intersection Crash Cluster" location for the 2018-2020 reporting period and Highway Safety Improvement Program (HSIP) eligible. As such, specific recommendations have been provided as a part of this assessment to advance safety-related improvements at this intersection (see *Recommendations*); and

5. Lines of sight to and from the Project site driveways were found to exceed the recommended minimum sight distance to function in a safe manner based on the appropriate approach speed.

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 that follow.

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 site will be provided by way of a new driveway that will intersect the south side of Boston Street approximately 350 feet west of South Main Street (the "primary access"). Secondary (gated) access to South Main Street will be provided through the adjacent lot (Lot 3) to the east of the Project site that is proposed to contain a commercial development that will be the subject of a future application to be filed with the Town. The secondary access driveway will intersect the west side of South Main Street approximately 250 feet south of Boston Street and the gate system will allow for access by residents and emergency vehicles. The following recommendations are offered with respect to the design and operation of the Project site access (primary and secondary) and internal circulation, many of which are reflected on the Site Plans:

- The Project site driveways (primary and secondary) should be 24 feet in width and designed to accommodate the turning and maneuvering requirements of the largest anticipated responding emergency vehicle.

- The gate system that will control access to/from South Main Street by way of the secondary driveway should be designed to limit access to residents and emergency vehicles only in a manner that is acceptable to the Middleton Fire Department.

- Where perpendicular parking is proposed, the drive aisle behind the parking should be a minimum of 23-feet in width in order to facilitate parking maneuvers.

- Vehicles exiting the Project site should be placed under STOP-sign control with a marked STOP-line provided.

- 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]

- A sidewalk should be provided within the Project site to link the proposed building to Boston Street, where a sidewalk should be constructed along the south (Project) side of Boston Street between the primary Project site driveway and South Main Street. Crosswalks are provided for crossing South Main Street and Boston Street at the South Main Street/Boston Street/Town Hall Driveways intersection that are a part of the traffic signal system at the intersection (pedestrian traffic signal equipment and phasing are provided for the crossings).

- Americans with Disabilities Act (ADA)-compliant wheelchair ramps should be provided at all pedestrian crossings to be constructed or modified in conjunction with the Project, including for crossing the Project site driveways, or the driveways should be constructed so that the sidewalk crosses the driveways (i.e., pan-type drive).

- Signs and landscaping to be installed as a part of the Project within the intersection sight triangle areas of the Project site driveways should be designed and maintained so as not to restrict lines of sight.

- Snow accumulations (windrows) within the sight triangle areas of the Project site driveways should be promptly removed where such accumulations would impede sight lines.

Off-Site

South Main Street at Boston Street and Town Hall Driveways

The South Main Street/Boston Street/Town Hall Driveways intersection was found to have one or more movements that are currently or are predicted to operate at or over capacity independent of the Project. In an effort to improve traffic operations and off-set the predicted impact of the Project, the Project proponent will design and implement an optimal traffic signal timing and phasing plan prior to the issuance of a Certificate of Occupancy for the Project, subject to receipt of all necessary rights, permits and approvals, with intersection operations to be reevaluated upon achieving 80 percent occupancy (48 units) in order to determine if additional adjustments to the traffic signal timing are necessary to accommodate the additional traffic resulting from the Project.

South Main Street at Maple Street

Independent of the Project, the South Main Street/Maple Street intersection was found to be operating over its design capacity (i.e., LOS "F") under 2023 Existing conditions. In addition, and also independent of the Project, the intersection was identified to have a motor vehicle crash rate that is above the MassDOT average crash rate for similar intersections and has been identified as a "Top 5% Intersection Crash Cluster" location for the 2018-2020 reporting period and HSIP eligible. In an effort to advance safety-related improvements at this intersection and to improve traffic operations, it is recommended that the following improvements be advanced:

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

1. Facilitate the completion of a Road Safety Audit (RSA) at the intersection in order to identify improvement strategies; and
2. Design and implement an optimal traffic signal timing and phasing plan, with a particular emphasis of the "yellow" and "all-red" clearance intervals and the pedestrian phase times.

The Project proponent will undertake the recommended improvements prior to the issuance of a Certificate of Occupancy for the Project, subject to receipt of all necessary rights, permits and approvals, with intersection operations to be reevaluated upon achieving 80 percent occupancy (48 units) in order to determine if additional adjustments to the traffic signal timing are necessary to accommodate the additional traffic resulting from the Project.

North Main Street and South Main Street at Lake Street and Central Street

Independent of the Project, the North Main Street/South Main Street/Lake Street/Central Street intersection was found to have one or more movements that are currently operating at or over capacity during the weekday morning and evening peak hours. In an effort to improve traffic operations and off-set the predicted impact of the Project, the Project proponent will design and implement an optimal traffic signal timing and phasing plan prior to the issuance of a Certificate of Occupancy for the Project, subject to receipt of all necessary rights, permits and approvals, with intersection operations to be reevaluated upon achieving 80 percent occupancy (48 units) in order to determine if additional adjustments to the traffic signal timing are necessary to accommodate the additional traffic resulting from the Project.

Transportation Demand Management

Regularly scheduled public transportation services are not currently provided within the Town of Middleton or in the immediate vicinity of the Project site. The Massachusetts Bay Transportation Authority (MBTA) operates The Ride paratransit services for eligible persons within the Town who cannot use fixed-route transit all or some of the time due to a physical, cognitive, or mental disability in accordance with Americans with Disabilities Act (ADA) requirements. In addition, the Town of Middleton Council on Aging (COA) provides transportation services to eligible seniors for errands and medical appointments by appointment. In an effort to encourage the use of alternative modes of transportation to single-occupancy vehicles (SOVs), the following Transportation Demand Management (TDM) measures will be implemented as a part of the Project:

- A transportation coordinator will be assigned for the Project, who may also have other duties, to coordinate the TDM program;
- Information regarding public transportation services, maps, schedules and fare information will be made available to residents of the Project;
- A "welcome packet" will be provided to new residents detailing available public transportation services, bicycle and walking alternatives, and other commuter options, including the services provided by the COA;
- Pedestrian accommodations have been incorporated within the Project site to encourage walking and will be extended to include connections to Boston Street and South Main Street; and

- Secure bicycle parking will be provided within the Project site.

With implementation of the aforementioned recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

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 construction of a multifamily residential development that will be situated on properties located at 10 Boston Street (Route 62) and portions of 49 South Main Street (Route 114) and 18 Boston Street in Middleton, 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 South Main Street and Boston Street, and at major intersections located along these roadways through which Project-related traffic will travel.

PROJECT DESCRIPTION

The Project will entail the construction of a 60-unit multifamily residential development to be located at 10 Boston Street (Route 62) and portions of 49 South Main Street (Route 114) and 18 Boston Street in Middleton, Massachusetts. The Project site will be created by a subdivision of the three (3) aforementioned properties to create three (3) lots, with Lot 1 to contain the existing single-family home and associated appurtenances located at 18 Boston Street; Lot 2 to contain the Project and comprised of portions of 10 and 18 Boston Street and 49 South Main Street; and Lot 3 to encompass the remainder of 49 South Main Street. Lot 3 is proposed to contain a commercial development that will be the subject of a future application to be filed with the Town. Lot 2 (the "Project site") will encompass approximately 3.1± acres of land that is bounded by Boston Street to the north; Rowell Lane to the south; Lot 3 to the east; and Lot 1 and residential properties to the west. Figure 1 depicts the Project site location in relation to the existing roadway network.

The properties that will be subdivided to create the Project site currently contain a 15,000± sf commercial building (formerly operated as Angelica's Restaurant) located at 49 South Main Street, a multifamily building at 10 Boston Street with associated driveways, parking areas and appurtenances that will be removed to accommodate the Project, with the property at 18 Boston Street containing a single-family home and associated appurtenances that will be retained within Lot 1.



Figure 1

Site Location Map

Vanasse & Associates inc

Copyright © 2022 by VAI. All Rights Reserved.

R:\9301\9301SLM2.dwg, 7/17/2023 3:56:52 PM

Access to the Project site will be provided by way of a new driveway that will intersect the south side of Boston Street approximately 350 feet west of South Main Street (the "primary access"). Secondary (gated) access to South Main Street will be provided through the adjacent lot (Lot 3) to the east of the Project site that is proposed to contain a commercial development that will be the subject of a future application to be filed with the Town. The secondary access driveway will intersect the west side of South Main Street approximately 250 feet south of Boston Street and the gate system will allow for access by residents and emergency vehicles.

Off-street parking will be provided for 103 vehicles, or a parking ratio of 1.72 parking spaces per unit, which is below the parking requirements of Section 5.1, Off-Street Parking and Loading, of the Town of Middleton Zoning Bylaws,[3] but is within the range of parking ratios observed for multifamily residential communities in a similar setting documented by the Institute of Transportation Engineers (ITE).[4] The ITE parking demand observations indicate that the peak parking demand ratio for a multifamily (low-rise) residential community range from 0.58 to 2.50 parking spaces per residential unit, with an average observed peak parking demand of 1.21 parking spaces per unit on a weekday and 1.31 parking spaces on a Saturday. The ITE parking demand data are provided in the appendix.

STUDY METHODOLOGY

This study was prepared in consultation with the Town of Middleton and Massachusetts Department of Transportation (MassDOT), and was: i) performed in accordance with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*; ii) conducted pursuant to the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports; iii) is responsive to the scoping determination issued by Town for the preparation of this assessment; and iv) 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 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.

[3]The Zoning Bylaws require 2.0 parking spaces per dwelling unit for a residential use.

[4]*Parking Generation,* 5th Edition; Institute of Transportation Engineers; Washington D.C.; January 2019.

EXISTING CONDITIONS

A comprehensive field inventory of existing conditions within the study area was conducted in May and June 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 that was assessed for the Project consisted of South Main Street and Boston Street, and the following specific intersections:

- South Main Street (Route 114) at Boston Street (Route 62) and the Town Hall Driveways
- South Main Street (Route 114) at Maple Street (Route 62)
- North Main Street (Route 114) and South Main Street (Route 114) at Central Street and Lake Street
- South Main Street (Route 114) at Orchard Circle

In addition to the filed inventories, a detailed inventory of the traffic signal equipment at the signalized study area intersections along South Main Street was also completed. The traffic signal inventories are included in the Appendix and were used to inform the traffic operations analysis (discussion follows).

A qualitative discussion of Project-related impacts at the North Main Street (Route 114)/ Forest Street/Essex Street, Elm Street (Route 62)/Boston Street and Boston Street intersections with Flint Street and River Street has also been included, and the traffic signal equipment inventory for the North Main Street (Route 114)/Forest Street/Essex Street has also been provided at the request of the Town.

The following describes the study area roadways and intersections.

ROADWAYS

South Main Street (Route 114)

- Urban principal arterial roadway that traverses study area in a general north-south direction provides and four lanes (2 lanes per direction) between Boston Street (Route 62) and Central Street/Lake Street, and two lanes (1 lane per direction) to the north of Central Street/Lake Street and to the south of Boston Street;

- Under MassDOT jurisdiction south of Boston Street, between Pleasant Street and Maple Street, and north of Central Street/Lake Street;
- Provides one to two 13-foot wide travel lanes that are separated by a double-yellow centerline with 2-foot wide marked shoulders and additional travel lanes at major intersections;
- The posted speed limit is 30 miles per hour (mph) within the study area;
- Sidewalks are provided along one or both sides of the roadway within the study area;
- Illumination is provided by way of streetlights mounted on wood poles;
- Land use within the study area consists of the Project site, Memorial Hall (Middleton Town Offices), and residential and commercial properties.

Boston Street (Route 62)

- Two-lane urban minor arterial roadway under Town jurisdiction;
- Traverses the study area in a general northeast-southwest direction;
- Provides two 11- to 12-foot wide travel lanes that are separated by a double-yellow centerline with 1-foot wide marked shoulders and additional travel lanes provided at major intersections;
- The posted speed limit is 25 mph within the study area;
- A sidewalk is provided along the north side of the roadway between Route 114 and James Road and along the south side to Wildwood Road;
- Illumination is provided by way of streetlights mounted on wood poles;
- Land use within the study area consists of the Project site, St. Agnes Parish and residential properties.

INTERSECTIONS

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

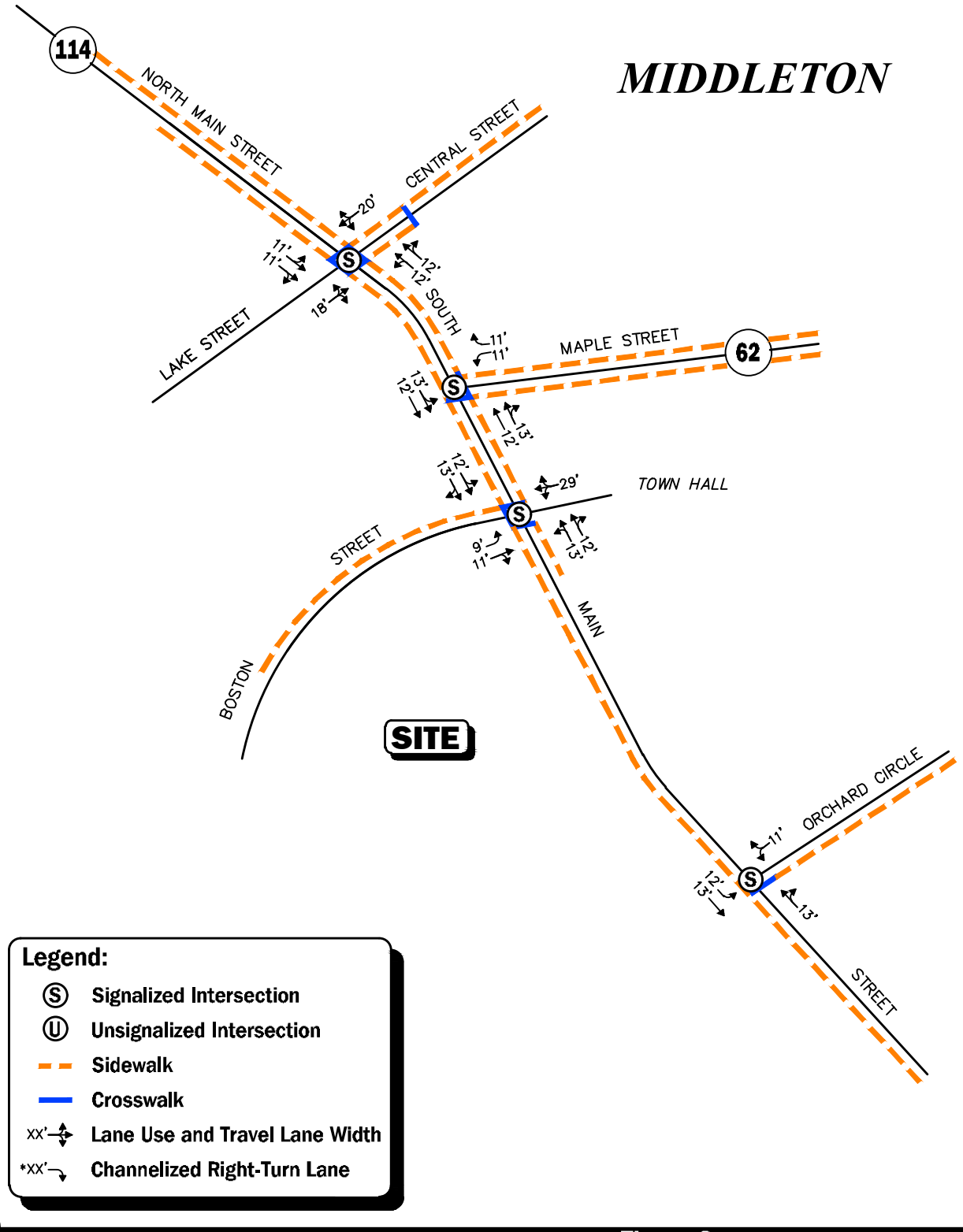


Figure 2

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

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 7/17/2023 3:58:58 PM

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)
South Main St./ Boston St./ Town Hall Dwys	TS	1 left-turn/ through lane and 1 through/right-turn lane on South Main St. approaches; 1 left-turn lane and 1 through/ right-turn lane on Boston St. approach; 1 general-purpose travel lane on the Town Hall driveway approach.	Yes; 2 feet on the South Main St. and 1 foot on Boston St.	Yes; sidewalks are provided along both sides of South Main St. and the north side of Boston St.; crosswalks are provided for crossing the South Main St. and Boston St. legs; the sidewalk along the east side of South Main St. is flush across the Town Hall Dwys; pedestrian traffic signal equipment and phasing (exclusive) are provided as a part of the traffic signal system.	Yes; shared traveled-way[b]
South Main St./ Maple St.	TS	1 through lane and 1 through/right-turn lane on South Main St. northbound approach; 1 left-turn/through lane and1 through lane on South Main St. southbound approach; 1 left-turn lane and 1 right-turn lane on Maple St. approach.	Yes; 1 to 2 feet on all legs.	Yes; sidewalks are provided along both sides of the intersecting roadways; crosswalks are provided for crossing South Main St. south leg and Maple St.; pedestrian traffic signal equipment and phasing (exclusive) provided as a part of the traffic signal system.	Yes; shared traveled-way
South Main St./ North Main St./ Central St./ Lake St.	TS	1 left-turn/through lane and 1 through/right-turn lane on North and South Main St. approaches; 1 general-purpose travel lane on Central St. and Lake St. approaches; marked on-street parking along the west side of North Main St. north of the intersection.	Yes; 1 foot on South Main St.; 1 to 2 feet on Central St.; 2 feet along the east side of North Main St.	Yes; sidewalks are provided along both sides of North and South Main St., along the north side of Central St. and along the south side for approximately 70 feet, and the north side of Lake St. for approximately 80 feet; crosswalks are provided for crossing all legs of the intersection; pedestrian traffic signal equipment and phasing (exclusive) provided as a part of the traffic signal system.	Yes; shared traveled-way
South Main St./ Orchard Cir.	TS	1 left-turn lane and 1 through lane on South Main St. southbound approach; 1 general-purpose travel lane on South Main St. northbound approach and Orchard Cir.; a center left-turn lane is provided along South Main St. south of the intersection	Yes; 3 to 5 feet on South Main St.	Yes; sidewalks are provided along the west side of South Main St. and the south side of Orchard Cir.; a crosswalk is provided for crossing the South Main St. south leg; pedestrian traffic signal equipment and phasing (exclusive) provided as a part of the traffic signal system.	Yes; shared traveled-way

See notes at end of table. TS = traffic signal control; S = STOP-sign control.
[b]Combined shoulder and travel lane width equal to or exceeding 14 feet.

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 completed in May 2023. The ATR counts were conducted on May 19th through May 21st, 2022 (Thursday through Saturday, inclusive) on South Main Street and Boston Street in the vicinity of the Project site and on North Main Street north of Lake Street in order to record weekday traffic conditions over an extended period, with peak-period TMCs performed at the study intersections during the weekday morning (7:00 to 9:00 AM) and evening (3:00 to 7:00 PM) peak-periods on Thursday, May 19, 2022, and during the Saturday midday peak-period (11:00 AM to 2:00 PM) on May 21, 2022. 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-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 3 (Other Principal Arterial) and Groups 4-7 (minor arterials, major and minor collectors and local roads and streets, which includes roadways with the same functional classification as the study area roadways were reviewed.[5] Based on a review of this data, it was determined that traffic volumes for the month of May are approximately 7.0 to 12.0 percent *higher* than those under average-month conditions. In order to provide a conservative assessment of traffic volume conditions within the study area, no adjustment was made to the May traffic volumes as they are representative of *above* average-month conditions.

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. 5080 located on I-95 in Peabody in May 2022 was compared to data collected at the same count station in May 2019.[6] Based on this pre- and post-COVID-19 traffic-volume comparison, the traffic-volume data that was collected as part of this assessment was found to be approximately 8.8 percent *below* the conditions that existed prior to the COVID-19 pandemic. As stated previously, May traffic volumes are approximately 7.0 to 12.0 percent *higher* than those under average-month conditions. A review of the monthly traffic count data for Count Station No. 5080 indicates that May traffic volumes at that location are approximately 5.3 percent *higher* than average month conditions. As such, the May traffic volumes were adjusted upward by the difference between the COVID adjustment (8.8 percent) and the seasonal adjustment (5.3 percent) based on the count station data in order to be representative of traffic volume conditions that existed prior to the COVID-19 pandemic under average-month conditions. We note that MassDOT no longer requires pandemic-related adjustment of traffic counts performed after March 2022, except in locations where the predominant land use consists of offices or similar uses.[7]

In order to account for the changes in traffic volumes between the year the counts were taken (2022) to the current year (2023), the May 2022 traffic volumes were adjusted upward using the annual background traffic growth rate (discussion follows) in order to be representative of traffic volume conditions that exist in 2023.

---

[5]MassDOT statewide Traffic Data Collection; 2019 Weekday Seasonal Factors, Groups U4-7.

[6]MassDOT Traffic Volumes for the Commonwealth of Massachusetts; 2022.

[7]*25% Design Submission Guidelines*; MassDOT Highway Division, Traffic and Safety Engineering; Revised May 31, 2022.

The 2023 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 that are presented in Table 2 were obtained from the aforementioned figures.

Table 2
2023 EXISTING TRAFFIC VOLUMES

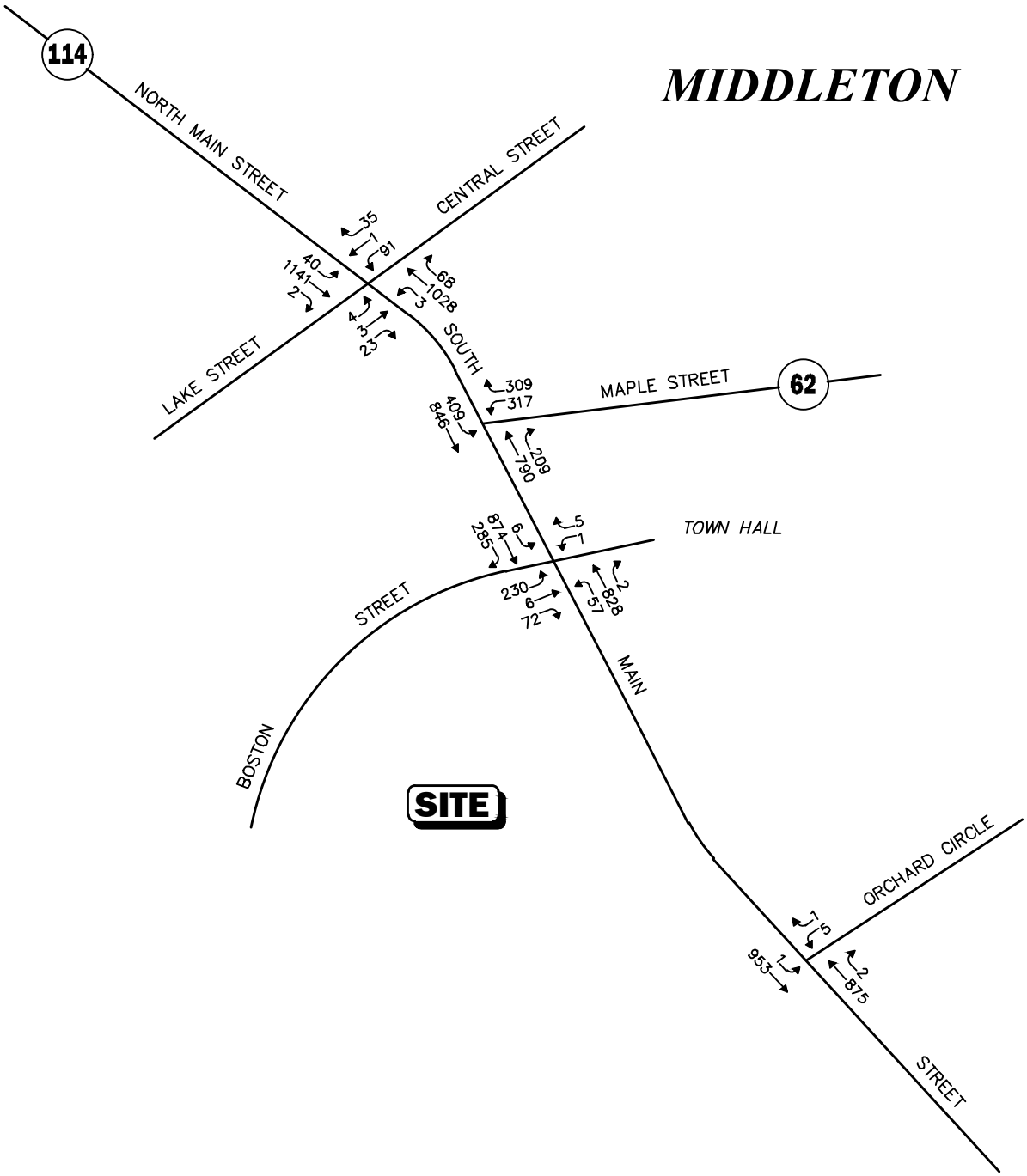
Location/Peak Hour	AWT[a]	Saturday[b]	VPH[c]	K Factor[d]	Directional Distribution[e]
South Main Street, south of Boston Street:	24,345	23,740	--	--	--
Weekday Morning (7:30 – 8:30 AM)	--	--	1,834	7.5	51.7% SB
Weekday Evening (4:45 – 5:45 PM)	--	--	1,934	7.9	51.7% NB
Saturday Midday (12:15PM – 1:15 PM)	--	--	1,907	8.0	50.3% SB
Boston Street, west of South Main Street:	8,400	8,370	--	--	--
Weekday Morning (7:30 – 8:30 AM)	--	--	650	7.7	52.5% WB
Weekday Evening (4:45 – 5:45 PM)	--	--	775	9.2	56.7% EB
Saturday Midday (12:15PM – 1:15 PM)	--	--	649	7.8	56.2% EB
North Main Street, north of Lake Street:	22,265	20,495	--	--	--
Weekday Morning (7:30 – 8:30 AM)	--	--	2,247	10.1	52.6% SB
Weekday Evening (4:45 – 5:45 PM)	--	--	2,366	10.6	52.6% NB
Saturday Midday (12:15PM – 1:15 PM)	--	--	2,002	9.8	51.6% SB

[a]Average weekday traffic in vehicles per day.
[b]Average Saturday traffic in vehicles per day.
[c]Vehicles per hour.
[d]Percent of daily traffic occurring during the peak hour.
[e]Percent traveling in peak direction.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound.

As can be seen in Table 2, South Main Street in the vicinity of the Project site was found to accommodate approximately 24,345 vehicles on an average weekday and approximately 23,740 vehicles on a Saturday (both two-way, 24-hour volumes), with approximately 1,834 vehicles per hour (vph) during the weekday morning peak-hour, 1,934 vph during the weekday evening peak-hour and 1,907 vph during the Saturday midday peak-hour.

Boston Street in the vicinity of the Project site was found to accommodate approximately 8,400 vehicles on an average weekday and approximately 8,370 vehicles on a Saturday, with approximately 650 vph during the weekday morning peak-hour, 775 vph during the weekday evening peak-hour and 649 vph during the Saturday midday peak-hour.

North Main Street north of Lake Street was found to accommodate approximately 22,265 vehicles on an average weekday and approximately 20,495 vehicles on a Saturday, with approximately 2,247 vph during the weekday morning peak-hour, 2,366 vph during the weekday evening peak-hour and 2,002 vph during the Saturday midday peak-hour.



Not To Scale

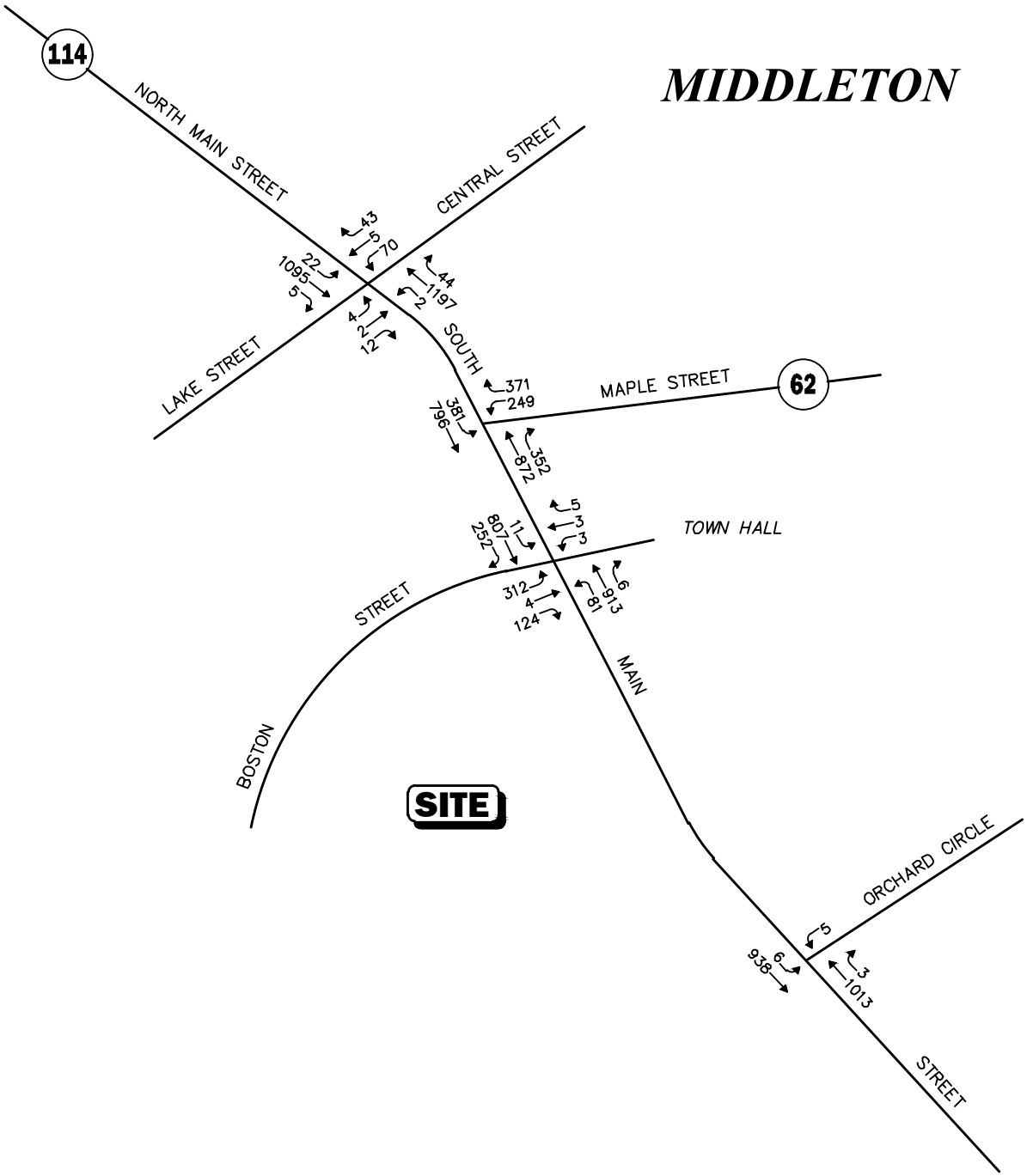
Figure 3

2023 Existing
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:03:05 PM, DWG To PDF.pc3



Not To Scale

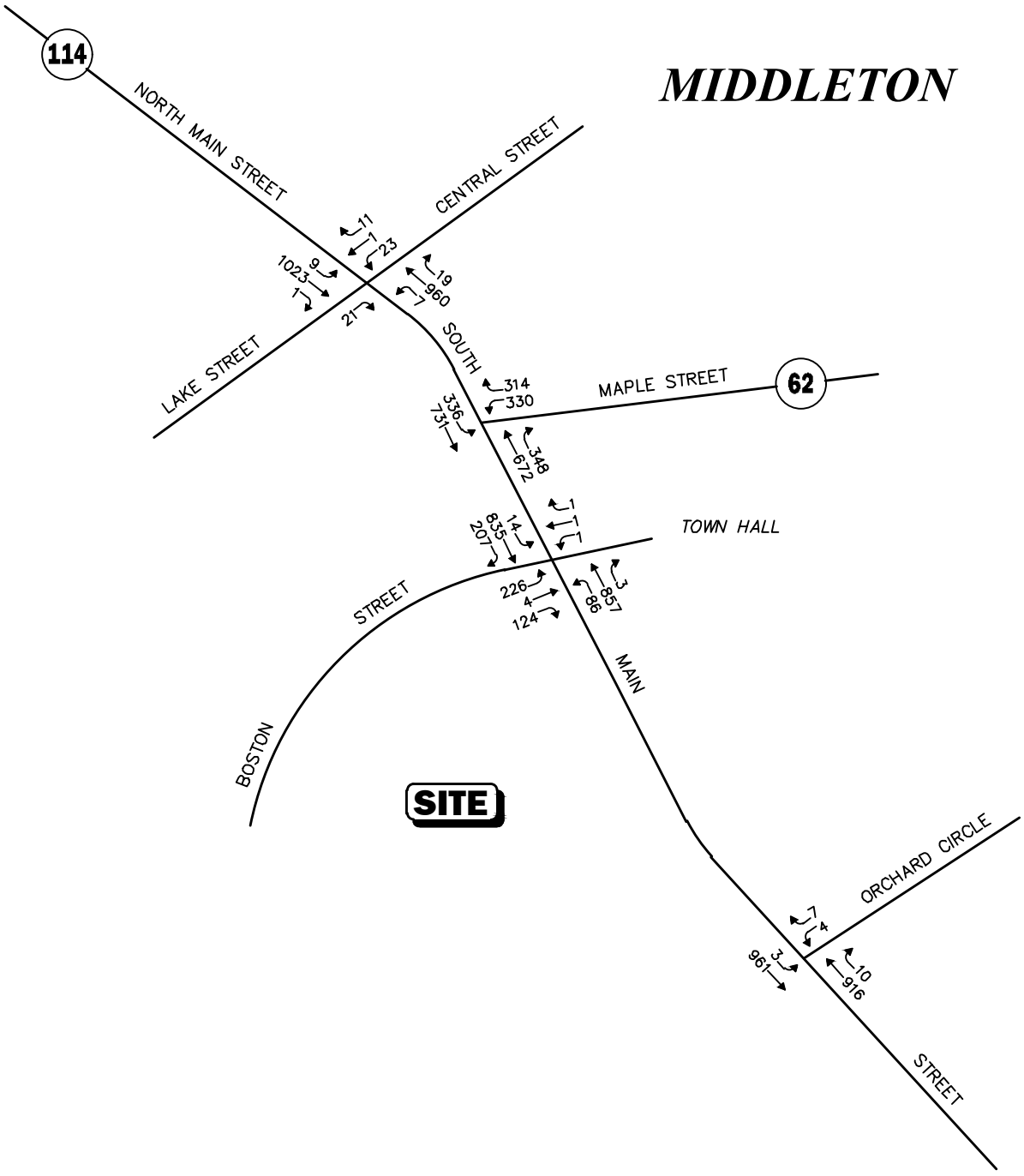
Figure 4

2023 Existing
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:03:23 PM, DWG To PDF.pc3



Not To Scale

Figure 5

2023 Existing
Saturday Midday
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:03:30 PM, DWG To PDF.pc3

PEDESTRIAN AND BICYCLE FACILITIES

A comprehensive field inventory of pedestrian and bicycle facilities within the study area was undertaken in June 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 area intersections, as well as the location of existing and planned future bicycle facilities.

As detailed on Figure 2, with the exception of Lake Street, sidewalks are generally provided along one or both sides of the study area roadways, with marked crosswalks provided for crossing one or more legs of the study area intersections along North and South Main Street, and pedestrian traffic signal equipment and phasing provided as a part of the traffic systems at the signalized study area intersections.

Formal bicycle facilities are not currently provided within the study area; however, the study area roadways generally provide sufficient width (combined travel lane and shoulder) to support bicycle travel in a shared traveled-way configuration.[8]

PUBLIC TRANSPORTATION

Regularly scheduled public transportation services are not currently provided within the Town of Middleton or in the immediate vicinity of the Project site. The Massachusetts Bay Transportation Authority (MBTA) operates The Ride paratransit services for eligible persons within the Town who cannot use fixed-route transit all or some of the time due to a physical, cognitive, or mental disability in accordance with Americans with Disabilities Act (ADA) requirements. In addition, the Town of Middleton Council on Aging (COA) provides transportation services to eligible seniors for errands and medical appointments by appointment.

SPOT SPEED MEASUREMENTS

Vehicle travel speed measurements were performed on North and South Main Street and on Boston Street in conjunction with the ATR counts. Table 3 summarizes the vehicle travel speed measurements.

Table 3
VEHICLE TRAVEL SPEED MEASUREMENTS

	South Main Street		Boston Street		North Main Street	
	Northbound	Southbound	Eastbound	Westbound	Northbound	Southbound
Mean Travel Speed (mph)	32	36	27	30	33	33
85th Percentile Speed (mph)	37	42	33	34	39	40
Posted Speed Limit (mph)	30	30	25	35	30	35

mph = miles per hour.

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

As can be seen in Table 3, the mean vehicle travel speed along South Main Street in the vicinity of the Project site was found to be 32 mph in the northbound direction and 36 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 37 mph in the northbound direction and 42 mph southbound, which is 7 to 12 mph *above* the posted speed limit in the Project site vicinity (30 mph).

The mean vehicle travel speed along Boston Street in the vicinity of the Project site was found to be 27 mph in the eastbound direction and 30 mph westbound, with the measured 85th percentile vehicle travel speed found to be 33 mph in the eastbound direction and 34 mph westbound. We note that the speed limit transitions in the vicinity of the Project site to 25 mph in the eastbound direction approaching South Main Street and is 35 mph in the westbound direction (consistent with the posted speed limit on Maple Street, which is also Route 62).

The mean vehicle travel speed along North Main Street was found to be 33 mph in both the north and southbound directions, with the measured 85th percentile vehicle travel speed found to be 39 mph in the northbound direction and 40 mph southbound, which is 5 to 9 mph *above* the posted speed limit in the vicinity of the Project site (30/35 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, roadway and weather conditions, and day of occurrence, and presented in Table 4.

As can be seen in Table 4, with the exception of the South Main Street/Maple Street intersection, the study area intersections were found to have experienced an average of 5.0 or fewer reported motor vehicle crashes per year over the five-year review period and were found to have motor vehicle crash rates below the MassDOT statewide and District averages for similar intersections for the MassDOT Highway Division District in which the intersections are located (District 4). The majority of the crashes were reported to have occurred on a weekday; under clear conditions; during daylight; and involved angle or rear-end type collisions that resulted in property damage only.

The South Main Street/Maple Street intersection was found to have experienced a total of 65 reported motor vehicle crashes over the five-year review period, or an average of 12.6 crashes per year, the majority of which occurred on a weekday; during daylight; under clear weather conditions; and involved angle or rear-end type collisions that resulted in property damage only. This intersection was found to have a motor vehicle crash rate that is above both the MassDOT statewide and District average crash rates for similar intersections for the MassDOT Highway Division District in which the intersection is located. As such, recommendations have been provided to advance safety-related improvements at this intersection that will be undertaken as part of the Project (discussed in the *Recommendations* section of this assessment).

Table 4
MOTOR VEHICLE CRASH DATA SUMMARY[a]

	South Main St./ Boston St./ Town Hall Dwy	South Main St./ Maple St.	North Main St./ South Main St./ Central St./ Lake St.	South Main St./ Orchard Cir.
Traffic Control Type:[b]	S	S	S	S
Year:				
2016	2	15	6	2
2017	8	13	4	4
2018	7	17	7	0
2019	7	16	2	0
2020	0	4	6	2
Total	24	65	25	8
Average	4.8	13.0	5.0	1.6
Rate[c]	0.47	1.06	0.49	0.20
MassDOT Crash Rate:[d]	0.78/0.73	0.78/0.73	0.78/0.73	0.78/0.73
Significant?[e]	No	Yes	No	No
Type:				
Angle	7	21	7	1
Rear-End	8	29	9	5
Head-On	0	1	3	0
Sideswipe	5	14	5	0
Fixed Object	0	0	1	0
Pedestrian/Bicycle	0	0	0	0
Unknown/Other	4	0	0	2
Total	24	65	25	8
Conditions:				
Clear	20	51	15	7
Cloudy	3	6	5	0
Rain	1	7	4	1
Snow/Ice	0	1	1	0
Total	24	65	25	8
Lighting:				
Daylight	19	40	18	8
Dawn/Dusk	2	3	2	0
Dark (Road Lit)	3	21	5	0
Dark (Road Unlit)	0	1	0	0
Total	24	65	25	8
Day of Week:				
Monday through Friday	19	54	17	7
Saturday	3	6	7	1
Sunday	2	5	1	0
Total	24	65	25	8
Severity:				
Property Damage Only	20	57	19	8
Personal Injury	4	8	6	0
Fatality	0	0	0	0
Not Reported	0	0	0	0
Total	24	65	25	8

[a]Source: MassDOT Safety Management/Traffic Operations Unit records, 2016 through 2020.
[b]Traffic Control Type: S = Signalized; U = unsignalized.
[c]Crash rate per million vehicles entering the intersection.
[d]Statewide/District crash rate.
[e]The 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).

A review of the MassDOT statewide High Crash Location List indicates that the South Main Street/ Maple Street intersection has been identified as a "Top 5% Intersection Crash Cluster" location for the 2018-2020 reporting period and Highway Safety Improvement Program (HSIP) eligible. MassDOT defines a HSIP eligible cluster as: "…one in which the total number of 'equivalent property damage only' crashes is within the top 5% in the region." The Equivalent Property Damage Only (EPDO) index is a method of combining the number of crashes with the severity of crashes based on a weighted scale, where a property damage only crash is worth 1 point and injury and fatal crashes are worth 21 points. Designation as a HSIP location allows for MassDOT to prioritize funding for safety-related improvements in a specific region of the state. Designation as a HSIP location allows for MassDOT to prioritize funding for safety-related improvements in a specific region of the state. As stated previously, recommendations have been provided to advance safety-related improvements at this intersection that will be undertaken as part of the Project.

The detailed MassDOT Crash Rate Worksheet and High Crash Location mapping 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 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 Town of Middleton Planning Department 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 discussion, the following projects were identified for review in conjunction with this assessment:

- ***Multifamily Residential Community, 20 Elm Street, North Reading, Massachusetts.*** This project will entail the construction of a 200-unit multifamily residential community to be located at 20 Elm Street in North Reading, southwest of the Project site.

- ***Proposed Age-Restricted Residential Development, 59 South Main Street, Middleton, Massachusetts.*** This project will entail the construction of a 45 unit age-restricted multifamily residential development to be located at 59 South Main Street in Middleton, directly adjacent to the Project site to the south.

- ***Proposed Middleton Town Complex, 105 South Main Street, Middleton, Massachusetts.*** This project will consist of the relocation of the Middleton Fire Station, Police Station and Town Hall to a single complex to be located at 105 South Main Street in Middleton, south of the Project site, that will also contain a community center and public park.

- ***Proposed Aroma Joe's, 210-220 South Main Street, Middleton, Massachusetts.*** This project will convert a portion of an existing commercial building located at 210-220 South Main Street in Middleton, south of the Project site, to accommodate an Aroma Joe's coffee shop with a drive-through window.

- ***Proposed Chase Bank, 247 South Main Street, Middleton, Massachusetts.*** This project will entail the construction of a Chase Bank with a drive-up ATM to be located at 247 South Main Street in Middleton, south of the Project site.

Traffic volumes associated with the aforementioned specific development projects by others were obtained from the traffic study conducted for the projects.[9,10,11,12]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.

As stated previously, a portion of the land that is being subdivided to create the lot that will contain the Project (Lot 1) is expected to be developed with commercial uses and will be the subject of a future application to be filed with the Town. The subject property abuts the Project site to the east and fronts along South Main Street and Boston Street, and is a portion of the property located at 49 South Main Street that is to be defined as Lot 3 as a part of the proposed subdivision. Lot 3 will contain 2.0± acres of land and is envisioned to contain two (2) buildings that will include a 5,000± sf bank with drive-up teller facility and an 8,000± sf building that will include a coffee-shop, restaurant or pharmacy with drive-through window. For the purpose of this assessment, the coffee shop use was assumed for the second building as it produced the largest number of trips of the three potential uses, allowing for the most conservative assessment of potential impacts on the transportation infrastructure. The trips associated with the future development of Lot 3 were estimated using trip-generation statistics published by the ITE[13] for similar land uses are included in both the No-Build and Build condition traffic volumes. The detailed trip-generation calculations and trip assignments for Lot 3 are included in the Appendix.

[9]*Transportation Impact Assessment*, Proposed Multifamily Residential Community, North Reading, Massachusetts; VAI, July 2019.

[10]*Memorandum*, Trip Generation Estimate Proposed Age-Restricted Residential Development, Middleton, Massachusetts; MDM Transportation Consultants, Inc., August 15th, 2019.

[11]*Initial Traffic Assessment*, Middleton Town Complex, Middleton, Massachusetts, Pare Corporation, October 2019.

[12]*Transportation Impact Assessment*, Proposed Aroma Joe's, Middleton, Massachusetts; VAI, January 2022.

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

General Background Traffic Growth

Traffic-volume data compiled by MassDOT from permanent count stations located in Middleton and surrounding towns 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 (2009 to 2019), with the average traffic growth rate found to be approximately 1.31 percent. In order to provide a prudent planning condition for the Project, a 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

MassDOT and the Town of Middleton Highway Division were consulted in order to determine if there were any planned future roadway improvement projects expected to be completed by 2030 within the study area. Based on these discussions, the following roadway improvement project was identified within the study area:

- ***Route 114 Resurfacing and Related Work, Middleton, Massachusetts.*** This project is being undertaken by the Town of Middleton and will entail the resurfacing of sections of Route 114. The project is expected to be funded through the 2023 Transportation Improvement Program (TIP). No changes are planned at the study area intersections as a result of this project that would impact future traffic volumes or operating conditions.

No other roadway improvement projects aside from routine maintenance activities were identified to be planned within the study area at this time.

No-Build Traffic Volumes

The 2030 No-Build condition peak-hour traffic-volumes were developed by: i) applying the 1.5 percent per year compounded annual background traffic growth rate to the 2023 Existing peak-hour traffic volumes; and ii) adding the peak-hour traffic volumes associated with the identified specific development projects by others and those associated with the future development of Lot 3. 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.

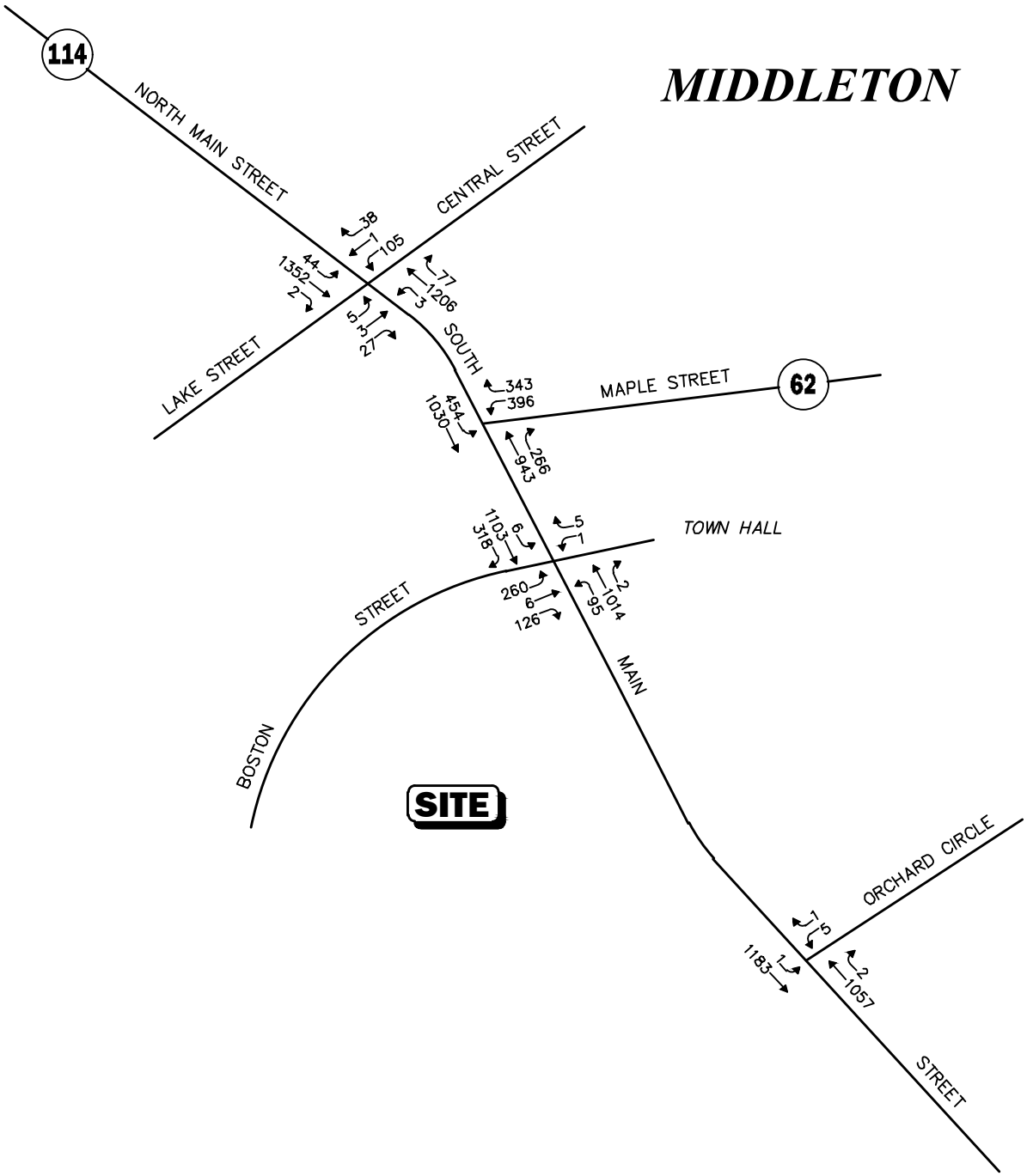
PROJECT-GENERATED TRAFFIC

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 60-unit multifamily residential building. In order to develop the traffic characteristics of the Project, trip-generation statistics published by the Institute of Transportation Engineers (ITE)[14] for a similar land use as that proposed was used. ITE Land Use Code (LUC) 220, *Multifamily Housing (Low-Rise)*, was used to develop the traffic characteristics for the Project, the results of which are summarized in Table 5.

Table 5

[14]Institute of Transportation Engineers, op. cit. 1.



Not To Scale

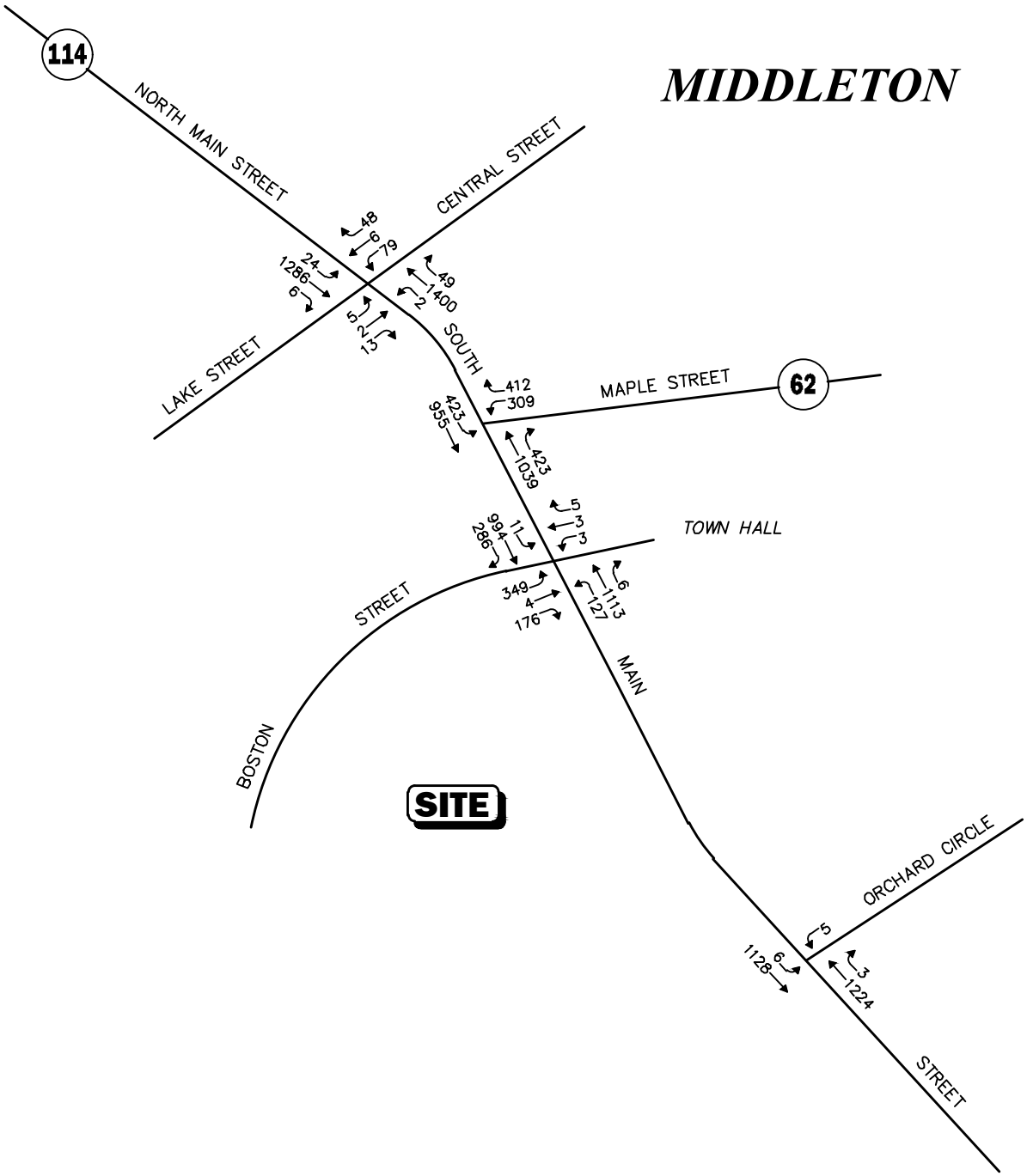
Figure 6

2030 No-Build
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:03:36 PM, DWG To PDF.pc3



Not To Scale

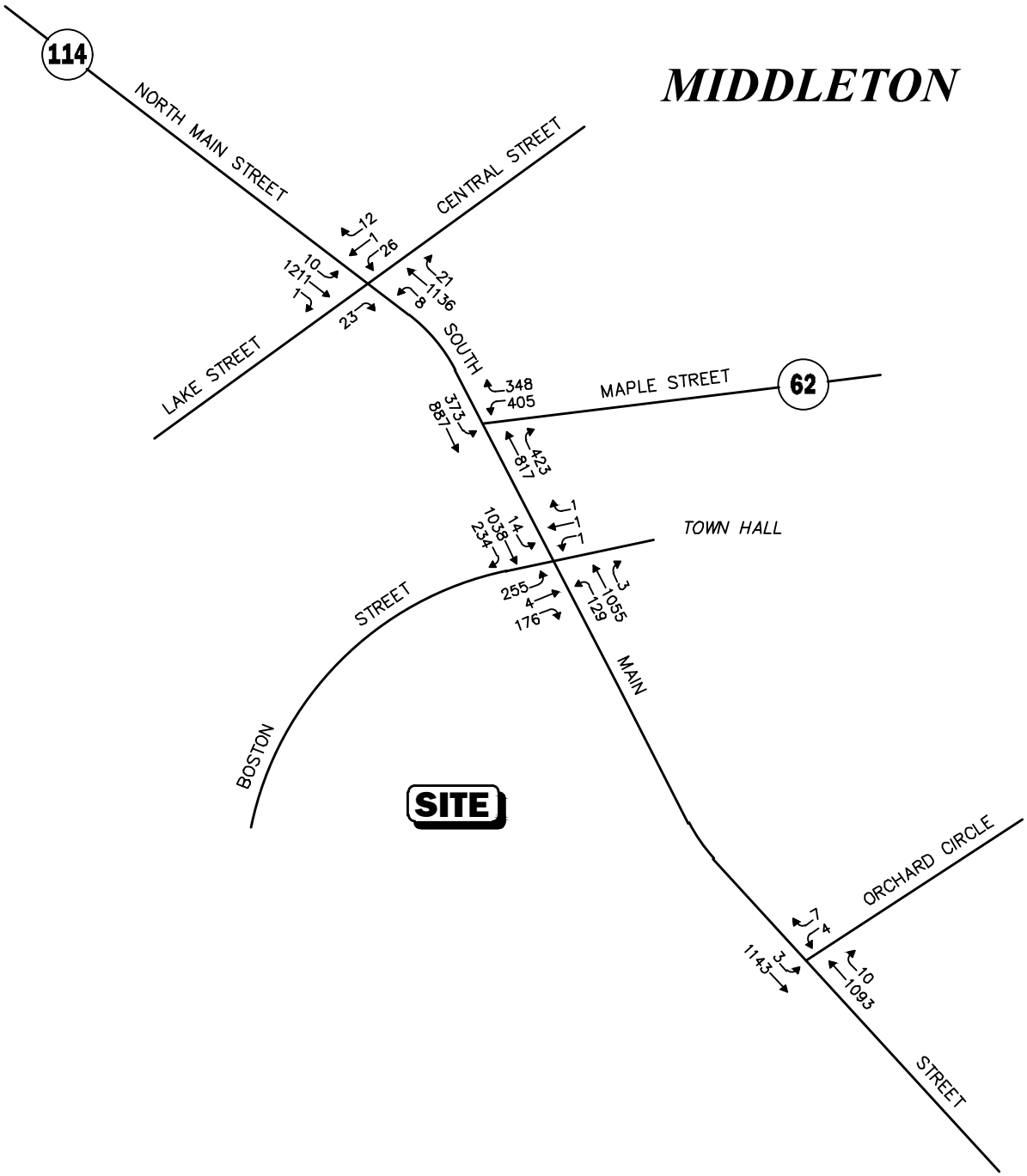
Figure 7

2030 No-Build
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:03:43 PM, DWG To PDF.pc3



Not To Scale

Figure 8

2030 No-Build
Saturday Midday
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:03:49 PM, DWG To PDF.pc3

TRIP-GENERATION SUMMARY

Time Period	Vehicle Trips[a]		
	Entering	Exiting	Total
Average Weekday:	230	230	460
Weekday Morning Peak Hour:	10	31	41
Weekday Evening Peak Hour:	29	17	46
Saturday Midday Peak Hour:	12	13	25

[a]Based on ITE LUC 220, *Multifamily Housing (Low-Rise).*

Project-Generated Traffic-Volume Summary

As can be seen in Table 5, using the aforementioned methodology, the Project is expected to generate approximately 460 vehicle trips on an average weekday (two-way, 24-hour volume, or 230 vehicles entering and 230 exiting), with 41 vehicle trips (10 vehicles entering and 31 exiting) expected during the weekday morning peak-hour, 46 vehicle trips (29 vehicles entering and 17 exiting) expected during the weekday evening peak-hour and 25 vehicle trips (12 vehicles entering and 13 exiting) expected during the Saturday midday peak-hour.

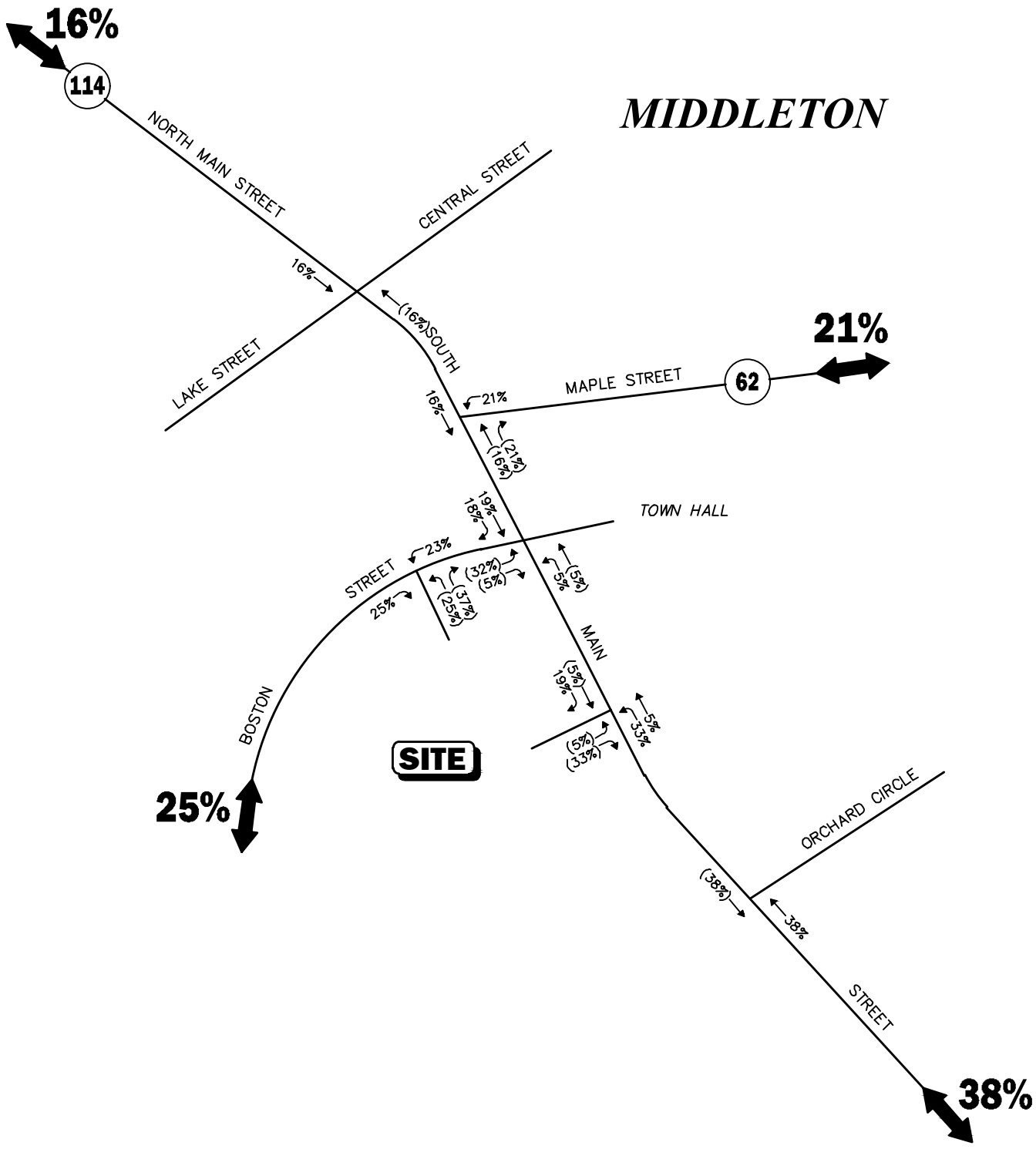
TRIP DISTRIBUTION AND ASSIGNMENT

For the Project, the directional distribution was determined based on a review of Journey-to-Work data obtained from the U.S. Census for persons residing in the Town of Middleton and then refined based on a review of existing traffic patterns within the study area during the peak periods. The general trip distribution for the Project is graphically depicted on Figure 9. Traffic volumes expected to be generated by the Project were assigned onto the study area roadway network as shown on Figures 10, 11 and 12.

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 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 changes outside of the study area that is the subject of this assessment is shown in Table 6. These changes are a result of the construction of the Project.



Not To Scale

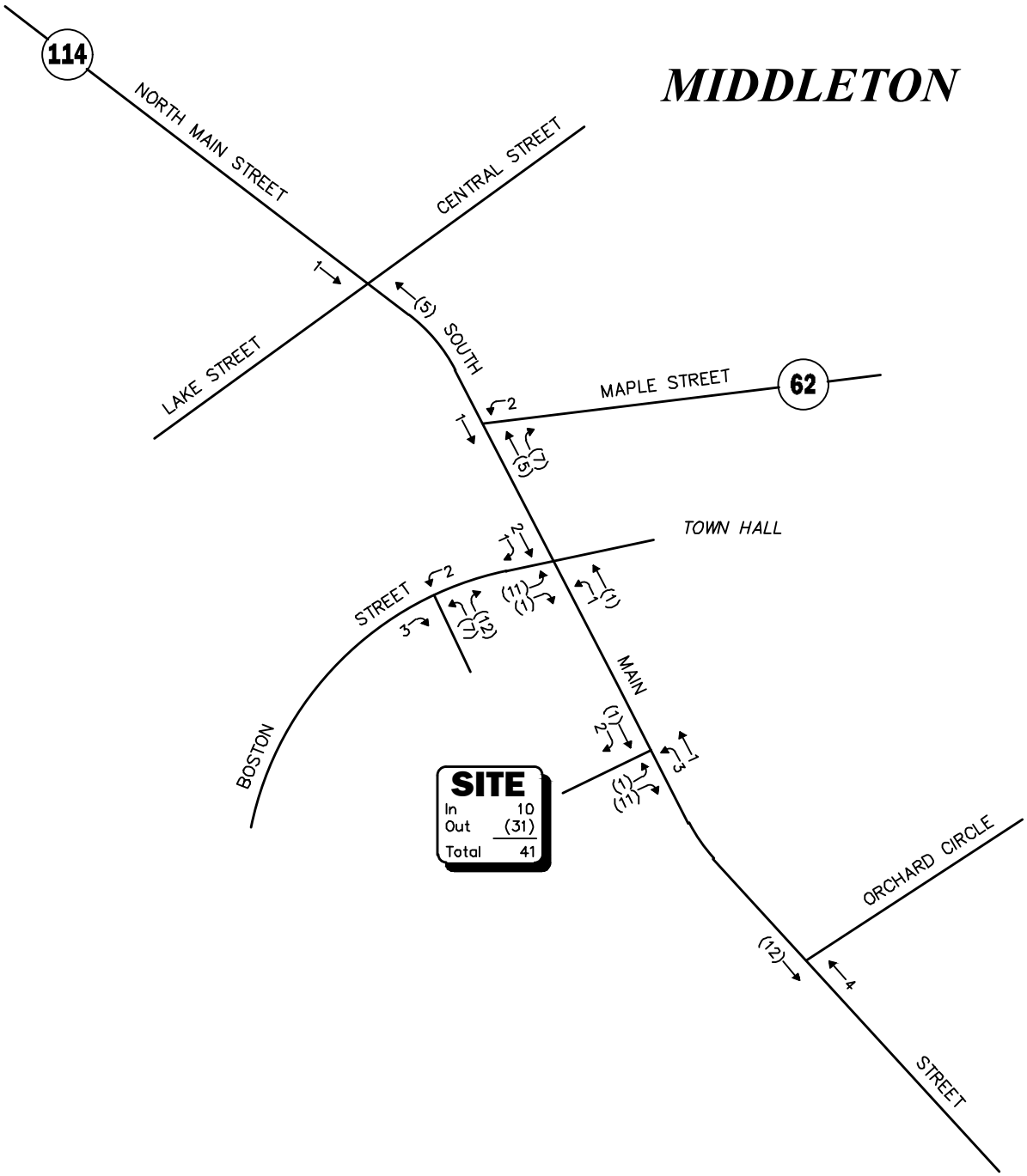
Figure 9

Trip Distribution

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/2/2023 2:18:26 PM, DWG To PDF.pc3



Not To Scale

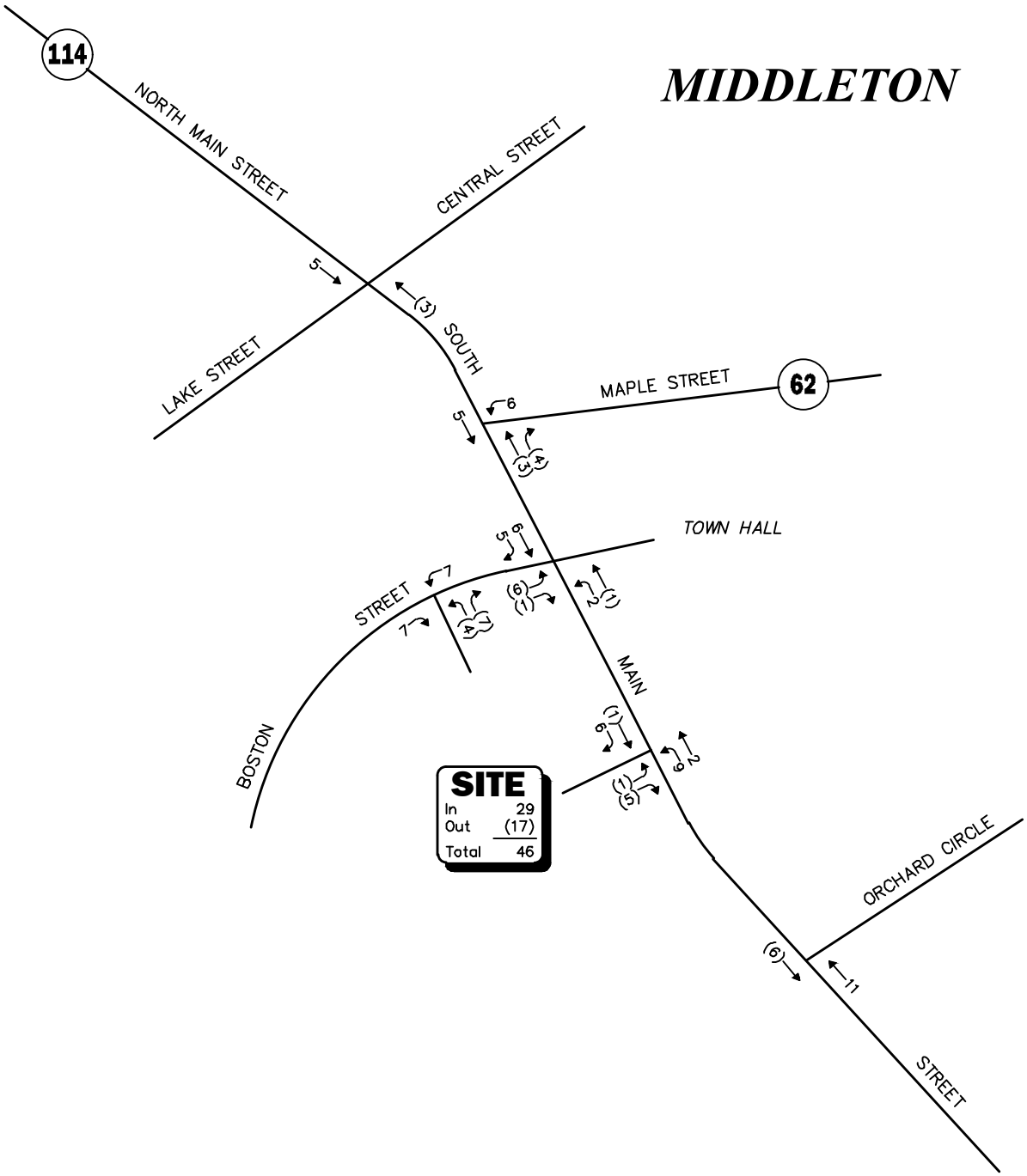
Figure 10

Project-Generated Weekday Morning Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/2/2023 2:18:38 PM, DWG To PDF.pc3



Not To Scale

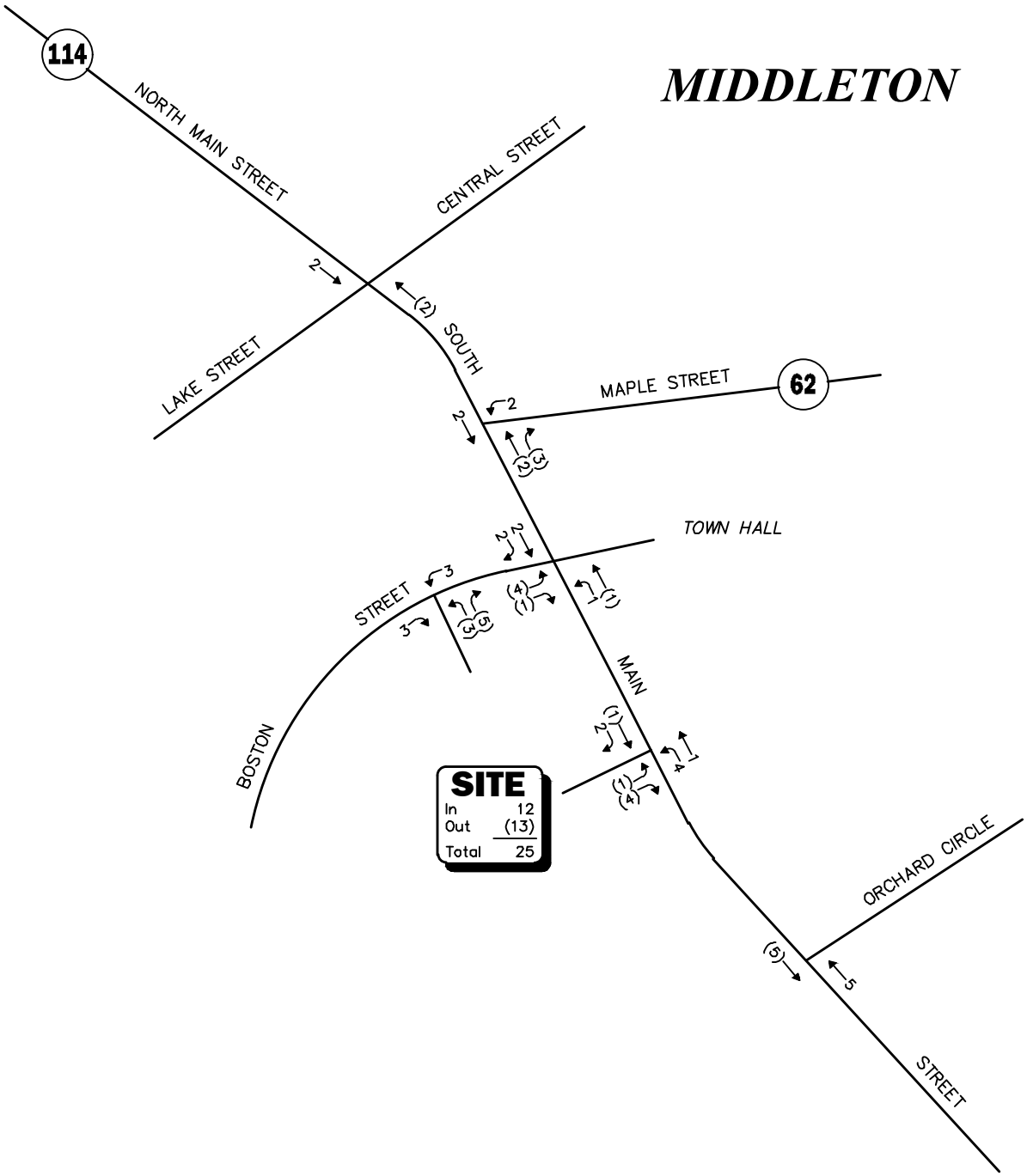
Figure 11

Project-Generated Weekday Evening Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/2/2023 2:18:45 PM, DWG To PDF.pc3



Not To Scale

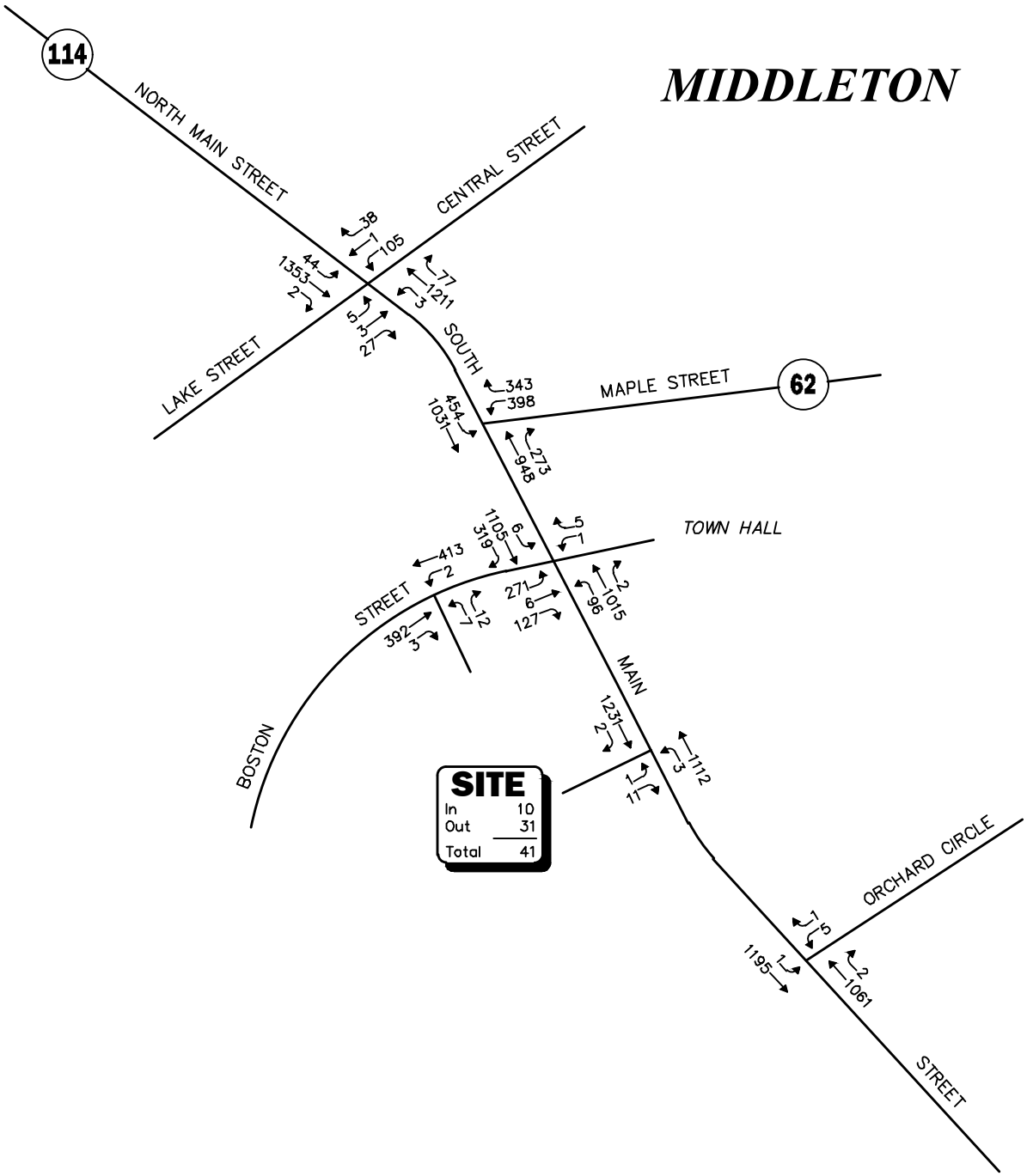
Figure 12

Project-Generated Saturday Midday Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/2/2023 2:18:52 PM, DWG To PDF.pc3



Not To Scale

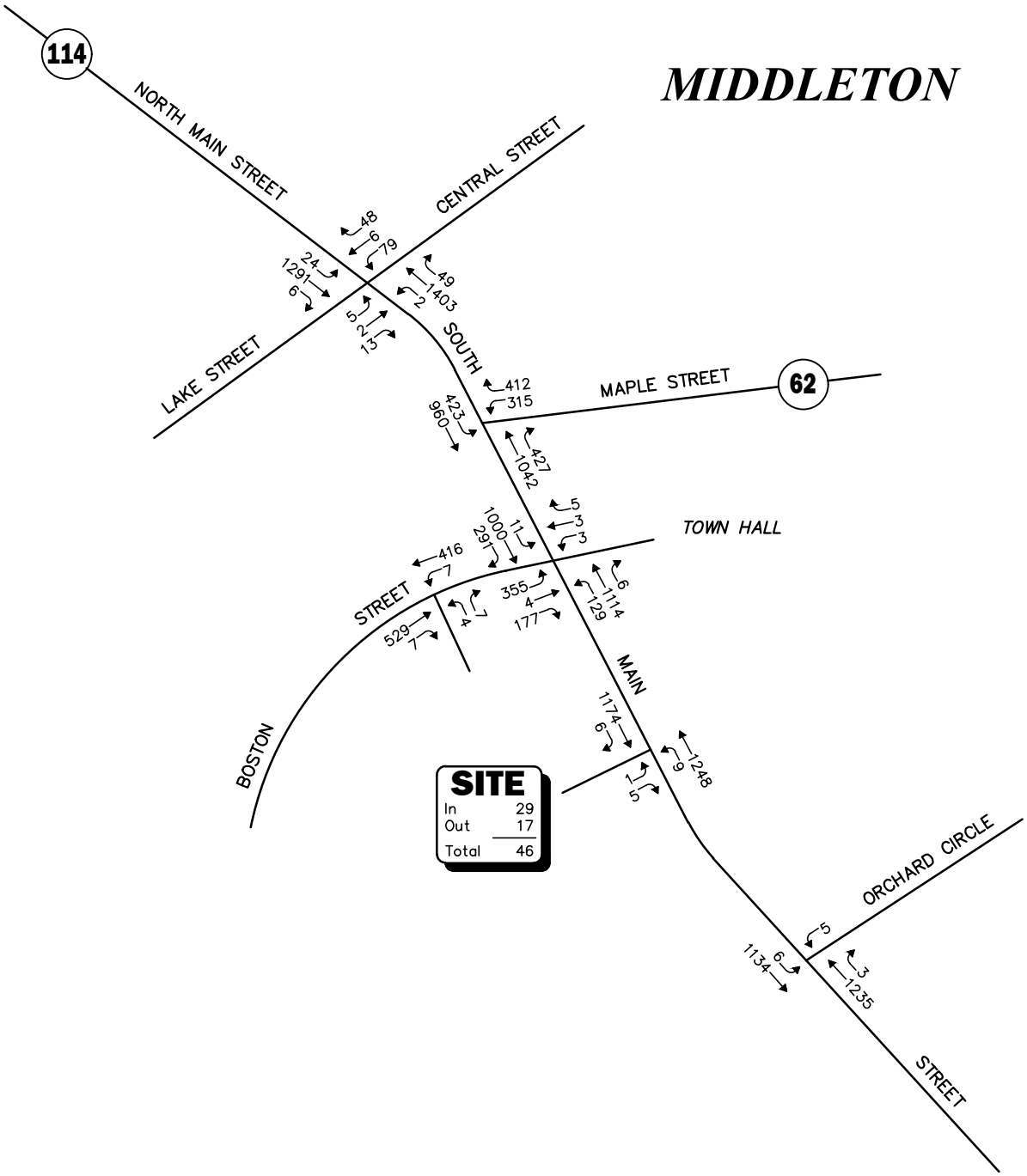
Figure 13

2030 Build
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/2/2023 2:18:58 PM, DWG To PDF.pc3



Not To Scale

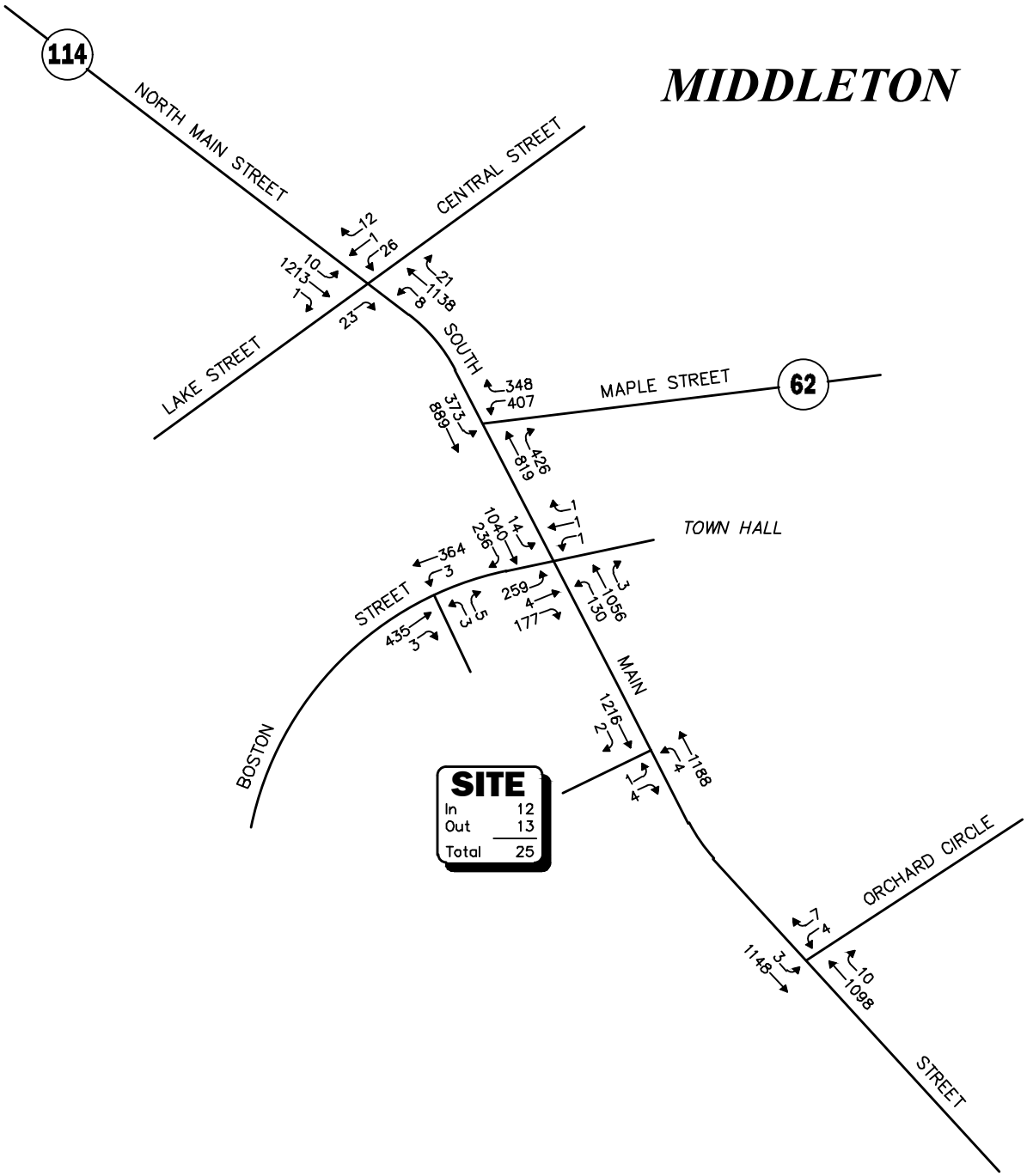
Figure 14

2030 Build
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAi. All Rights Reserved.

R:\93019301NT2.dwg, 8/2/2023 4:02:37 PM



Not To Scale

Figure 15

2030 Build
Saturday Midday
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/2/2023 2:19:11 PM, DWG To PDF.pc3

Table 6
PEAK-HOUR TRAFFIC-VOLUME INCREASES

Location/Peak Hour	2023 Existing	2030 No-Build	2030 Build	Traffic-Volume Increase Over No-Build	Percent Increase Over No-Build
North Main Street, north of Central Street:					
Weekday Morning	2,250	2,639	2,645	6	0.2
Weekday Evening	2,366	2,750	2,758	8	0.3
Saturday Midday	2,004	2,348	2,352	4	0.2
Maple Street, east of South Main Street:					
Weekday Morning	1,224	1,459	1,468	9	0.6
Weekday Evening	1,353	1,569	1,579	10	0.6
Saturday Midday	1,327	1,557	1,557	5	0.3
South Main Street, south of Orchard Circle:					
Weekday Morning	1,835	2,254	2,254	16	0.7
Weekday Evening	1,959	2,358	2,358	17	0.7
Saturday Midday	1,891	2,236	2,236	10	0.4
Boston Street, west of Project site driveway:					
Weekday Morning	650	810	818	10	1.0
Weekday Evening	776	949	960	11	1.1
Saturday Midday	648	805	811	6	0.8

As shown in Table 6, Project-related traffic-volume changes outside of the study area relative to 2030 No-Build conditions are anticipated to range from increases of 0.2 to 1.1 percent during the peak periods, with vehicle increases shown to range from 4 to 17 vehicles.

Project-related impacts on intersections along Boston Street to the west of the Project site, including at Elm Street, Flint Street and River Street, are predicted to be less than 11 vehicles during the peak hours, or fewer than one (1) additional vehicle every 6 minutes during the peak hours, a level of impact that would not be readily apparent over existing or No-Build conditions.

Project-related impacts at the North Main Street (Route 114)/Forest Street/Essex Street intersection are predicted to be less than eight (8) vehicles during the peak hours, or fewer than one (1) additional vehicle every 7 to 8 minutes during the peak hours, again, a level of impact that would not be readily apparent over existing or No-Build conditions.

When distributed over the peak hour, the predicted traffic-volume increases would not result in a significant 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.[15] 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.

[15]The 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 oversaturation. 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 2010 *Highway Capacity Manual*[16] 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.

[16] *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2000.

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

[a]Source: *Highway Capacity Manual*, Transportation Research Board; Washington, DC; 2010; page 16-2.

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 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 2010 *Highway Capacity Manual.*[17] 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 2000 *Highway Capacity Manual*. Table 8 summarizes the relationship between level of service and average control delay for two-way STOP-controlled and all-way STOP-controlled intersections.

[17]*Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010.

Table 8
LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS[a]

Level-of-Service	Average Control Delay (Seconds Per Vehicle)
A	≤ 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	> 50.0

[a]Source: *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010; page 17-2.

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 2010 *Highway Capacity Manual*. The Synchro® vehicle queue analysis methodology is a simulation-based model which reports the number of vehicles that experience a delay of six 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 three minutes out of sixty minutes during the peak one hour of the day (during the remaining fifty-seven 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 2023 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. For context, we note that an LOS of "D" or better is generally defined as "acceptable" operating conditions.

Signalized Intersections

South Main Street at Boston Street and the Town Hall Driveways

The addition of Project-related traffic was shown to result in an increase in overall average motorist over No-Build conditions of delay of 3.9 seconds during the weekday morning peak-hour that resulted in a change in overall level of service from LOS C to LOS D, with vehicle queues at the

intersection shown to increase by up to three (3) vehicles as the result of the addition of Project-related traffic. Focusing on individual movements, the following level-of-service changes were identified to occur as a result of the addition of Project related-traffic: *weekday morning peak-hour* – South Main Street southbound approach was shown to change from LOS B to LOS C (1.1 second increase in average motorist delay); and *weekday evening peak-hour* – South Main Street southbound approach was shown to change from LOS B to LOS C (1.9 second increase in average motorist delay). Independent of the Project, one or more movements at the intersection are currently or are predicted to operate at or over capacity (i.e., LOS "E" or "F", respectively).

South Main Street at Maple Street

No change in overall level-of-service is predicted to occur over No-Build conditions, with Project-related impacts generally defined as a predicted increase in overall average motorist delay of up to 5.0 seconds and in vehicle queuing of up to one (1) vehicle. Independent of the Project, overall intersection operations were identified to be over capacity during the peak hours, with one or more movements currently operating at or over capacity.

North Main Street at South Main Street at Central Street and Lake Street

No change in level-of-service or vehicle queueing is predicted to occur over No-Build conditions, with Project-related impacts generally defined as a predicted increase in overall average motorist delay of less than 1.0 seconds. Independent of the Project, all movements from Central Street are currently operating at or over capacity during the weekday morning and evening peak hours.

South Main Street at Orchard Circle

No change in level-of-service is predicted to occur over No-Build conditions, with all movements continuing to operate at LOS D or better and Project-related impacts generally defined as an increase in overall average motorist delay of up to 1.2 seconds that resulted in an increase in vehicle queuing of up to four (4) vehicles.

Unsignalized Intersections

Boston Street at the Project Site Driveway

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

South Main Street at the Project Site Driveway

All movements exiting the Project site driveway to South Main Street were shown to operate at LOS E during both the weekday morning and evening peak hours, and at LOS F during the Saturday midday peak-hour, with residual vehicle queues of to one (1) vehicle. These operating conditions are similar to other driveways and side streets at unsignalized intersections along the South Main Street corridor, and are a result of the relatively large volume of conflicting traffic traveling along this roadway during the peak hours. All movements along South Main Street approaching the driveway are predicted to operate at LOS A with negligible vehicle queuing predicted.

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

	2023 Existing				2030 No-Build				2030 Build			
Signalized Intersection/Peak Hour/Movement	V/C[a]	Delay[b]	LOS[c]	Queue[d] 50th/95th	V/C	Delay	LOS	Queue 50th/95th	V/C	Delay	LOS	Queue 50th/95th
South Main Street at Boston Street and the Town Hall driveways												
Weekday Morning:												
Boston Street EB LT	0.82	57.3	E	8/11	0.83	56.2	E	9/12	0.84	55.5	E	10/12
Boston Street EB TH/RT	0.07	34.9	C	0/2	0.11	32.7	C	0/2	0.11	31.8	C	0/2
Town Hall Driveways WB LT/TH/RT	0.01	33.5	C	0/0	0.01	30.9	C	0/0	0.01	29.9	C	0/0
South Main Street NB LT/TH/RT	0.58	12.7	B	9/14	0.99	45.5	D	20/30	1.02	54.5	D	23/31
South Main Street SB LT/TH/RT	0.55	14.7	B	15/18	0.70	20.0	B	18/23	0.72	21.1	C	19/23
Overall	**--**	**19.1**	**B**	**--**	**--**	**33.9**	**C**	**--**	**--**	**37.8**	**D**	**--**
Weekday Evening:												
Boston Street EB LT	0.85	52.5	D	11/14	0.81	42.1	D	12/15	0.79	39.8	D	12/15
Boston Street EB TH/RT	0.10	27.4	C	0/2	0.14	23.0	C	0/2	0.14	22.0	C	0/2
Town Hall Driveways WB LT/TH/RT	0.02	27.2	C	0/1	0.02	22.4	C	0/1	0.02	21.4	C	0/1
South Main Street NB LT/TH/RT	0.80	24.8	C	15/21	1.52	>80.0	F	33/39	1.79	>80.0	F	33/40
South Main Street SB LT/TH/RT	0.57	10.9	B	4/12	0.76	19.7	B	7/10	0.80	21.6	C	7/10
Overall	**--**	**23.0**	**C**	**--**	**--**	**>80.0**	**F**	**--**	**--**	**>80.0**	**F**	**--**
Saturday Midday:												
Boston Street EB LT	0.80	57.1	E	8/11	0.82	56.5	E	9/12	0.83	56.6	E	9/12
Boston Street EB TH/RT	0.10	35.9	D	0/2	0.14	34.1	C	0/2	0.14	33.9	C	0/2
Town Hall Driveways WB LT/TH/RT	0.01	35.0	D	0/0	0.01	32.7	C	0/0	0.01	32.5	C	0/0
South Main Street NB LT/TH/RT	0.59	11.5	B	8/14	0.93	31.8	C	18/29	0.94	33.3	C	18/29
South Main Street SB LT/TH/RT	0.48	15.4	B	14/17	0.60	18.6	B	18/19	0.61	18.8	B	18/19
Overall	**--**	**19.4**	**B**	**--**	**--**	**28.5**	**C**	**--**	**--**	**29.2**	**C**	**--**

See notes at end of table.

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

Signalized Intersection/Peak Hour/Movement	2023 Existing				2030 No-Build				2030 Build			
	V/C[a]	Delay[b]	LOS[c]	Queue[d] 50th/95th	V/C	Delay	LOS	Queue 50th/95th	V/C	Delay	LOS	Queue 50th/95th
South Main Street at Maple Street												
Weekday Morning:												
Maple Street WB LT	0.92	76.3	E	11/18	1.15	>80.0	F	16/25	1.16	>80.0	F	17/25
Maple Street WB RT	0.22	40.6	D	0/3	0.29	41.4	D	1/4	0.29	41.5	D	1/4
South Main Street NB TH/RT	1.61	>80.0	F	23/31	1.95	>80.0	F	37/38	1.97	>80.0	F	38/38
South Main Street SB LT/TH	0.72	4.0	A	1/3	0.84	11.1	B	4/4	0.85	11.1	B	4/4
Overall	**--**	**>80.0**	**F**	**--**	--	**>80.0**	**F**	--	**--**	**>80.0**	**F**	**--**
Weekday Evening:												
Maple Street WB LT	0.79	56.7	E	9/13	0.98	>80.0	F	12/18	0.99	>80.0	F	12/19
Maple Street WB RT	0.28	41.4	D	0/3	0.31	41.8	D	0/3	0.31	41.8	D	0/3
South Main Street NB TH/RT	1.76	>80.0	F	34/39	2.11	>80.0	F	31/42	2.12	>80.0	F	31/43
South Main Street SB LT/TH	0.65	1.5	A	0/1	0.76	5.0	A	0/4	0.76	5.1	A	0/4
Overall	**--**	**>80.0**	**F**	**--**	**--**	**>80.0**	**F**	--	--	**>80.0**	**F**	**--**
Saturday Midday:												
Maple Street WB LT	1.08	>80.0	F	15/20	1.32	>80.0	F	21/26	1.33	>80.0	F	21/26
Maple Street WB RT	0.25	41.0	D	0/2	0.46	43.6	D	2/5	0.46	43.7	D	2/5
South Main Street NB TH/RT	1.46	>80.0	F	20/31	1.79	>80.0	F	34/38	1.80	>80.0	F	35/38
South Main Street SB LT/TH	0.62	0.9	A	0/0	0.73	2.7	A	0/0	0.73	2.8	A	0/0
Overall	**--**	**>80.0**	**F**	**--**	**--**	**>80.0**	**F**	--	**--**	**>80.0**	**F**	**--**

See notes at end of table.

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

Signalized Intersection/Peak Hour/Movement	2023 Existing				2030 No-Build				2030 Build			
	V/C[a]	Delay[b]	LOS[c]	Queue[d] 50th/95th	V/C	Delay	LOS	Queue 50th/95th	V/C	Delay	LOS	Queue 50th/95th
North Main Street and South Main Street at Lake Street and Central Street												
Weekday Morning:												
Lake Street EB LT/TH/RT	0.06	47.2	D	1/1	0.07	47.3	D	1/1	0.07	47.3	D	1/1
Central Street WB LT/TH/RT	1.07	>80.0	F	6/8	1.28	>80.0	F	8/10	1.28	>80.0	F	8/10
South Main Street NB LT/TH/RT	0.44	12.8	B	2/7	0.52	19.1	B	3/11	0.52	19.3	B	3/11
North Main Street SB LT/TH/RT	0.76	22.2	C	16/20	0.93	33.4	C	22/30	0.93	33.6	C	22/30
Overall	--	**28.2**	**C**	**--**	--	**42.0**	**D**	**--**	**--**	**42.1**	**D**	**--**
Weekday Evening:												
Lake Street EB LT/TH/RT	0.06	47.5	D	1/1	0.07	47.6	D	1/1	0.07	47.6	D	1/1
Central Street WB LT/TH/RT	0.69	67.4	E	5/6	0.80	77.7	E	6/7	0.80	77.7	E	6/7
South Main Street NB LT/TH/RT	0.48	13.2	B	3/8	0.56	19.5	B	4/12	0.56	19.6	B	4/12
North Main Street SB LT/TH/RT	0.66	19.1	B	13/16	0.79	23.2	C	18/22	0.80	23.3	C	18/22
Overall	--	**19.8**	**B**	**--**	--	**25.2**	**C**	**--**	**--**	**25.3**	**C**	**--**
Saturday Midday:												
Lake Street EB LT/TH/RT	0.02	46.8	D	0/0	0.02	46.8	D	0/0	0.02	46.8	D	0/0
Central Street WB LT/TH/RT	0.15	47.6	D	1/2	0.17	48.1	D	1/2	0.17	48.1	D	1/2
South Main Street NB LT/TH/RT	0.39	4.4	A	3/4	0.47	11.3	B	3/8	0.47	11.3	B	3/8
North Main Street SB LT/TH/RT	0.60	17.1	B	12/15	0.72	20.3	C	16/19	0.71	20.3	C	16/19
Overall	--	**13.7**	**B**	**--**	**--**	**16.9**	**B**	**--**	**--**	**17.0**	**B**	**--**

See notes at end of table.

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

	2023 Existing				2030 No-Build				2030 Build			
Signalized Intersection/Peak Hour/Movement	V/C[a]	Delay[b]	LOS[c]	Queue[d] 50th/95th	V/C	Delay	LOS	Queue 50th/95th	V/C	Delay	LOS	Queue 50th/95th
South Main Street at Orchard Circle												
Weekday Morning:												
Orchard Circle WB LT/RT	0.15	35.2	D	0/1	0.17	46.8	D	0/1	0.17	46.8	D	0/1
South Main Street NB TH/RT	0.68	5.2	A	0/18	0.78	6.6	A	0/32	0.78	6.7	A	0/36
South Main Street SB LT	0.00	3.7	A	0/0	0.00	6.6	A	0/0	0.00	6.7	A	0/0
South Main Street SB TH	0.69	3.2	A	0/11	0.82	5.7	A	0/23	0.83	6.0	A	0/24
Overall	--	**4.3**	**A**	--	--	**6.3**	**A**	--	--	**6.5**	**A**	--
Weekday Evening:												
Orchard Circle WB LT/RT	0.18	39.9	D	0/1	0.19	42.1	D	0/1	0.19	42.1	D	0/1
South Main Street NB TH/RT	0.73	5.7	A	0/24	0.86	10.5	B	0/44	0.87	11.1	B	0/45
South Main Street SB LT	0.02	5.9	A	0/0	0.05	17.3	B	0/0	0.06	18.5	B	0/0
South Main Street SB TH	0.60	2.2	A	0/10	0.71	3.4	A	0/15	0.72	3.4	A	0/16
Overall	--	**4.2**	**A**	--	--	**7.3**	**A**	--	--	**7.6**	**A**	--
Saturday Midday:												
Orchard Circle WB LT/RT	0.13	32.1	C	0/1	0.15	42.0	D	0/1	0.15	42.1	D	0/1
South Main Street NB TH/RT	0.67	5.6	A	0/17	0.75	6.5	A	0/27	0.75	6.6	A	0/27
South Main Street SB LT	0.01	4.3	A	0/0	0.01	7.0	A	0/0	0.01	7.2	A	0/0
South Main Street SB TH	0.67	3.4	A	0/11	0.76	4.6	A	0/19	0.76	4.7	A	0/19
Overall	**--**	**4.8**	**A**	**--**	**--**	**5.9**	**A**	**--**	**--**	**6.0**	**A**	**--**

[a]Volume-to-capacity ratio.
[b]Control (signal) delay per vehicle in seconds.
[c]Level of service.
[d]Queue length in vehicles.
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

	2023 Existing				2030 No-Build				2030 Build			
Unsignalized Intersection/Peak-hour/Movement	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand	Delay	LOS	Queue 95th	Demand	Delay	LOS	Queue 95th
Boston Street at the Project Site Driveway												
Weekday Morning:												
Boston Street EB TH/RT	--	--	--	--	--	--	--	--	395	0.0	A	0
Boston Street WB LT/TH	--	--	--	--	--	--	--	--	415	0.0	A	0
Project Site Driveway NB LT/RT	--	--	--	--	--	--	--	--	19	13.2	B	0
Weekday Evening:												
Boston Street EB TH/RT	--	--	--	--	--	--	--	--	536	0.0	A	0
Boston Street WB LT/TH	--	--	--	--	--	--	--	--	423	0.1	A	0
Project Site Driveway NB LT/RT	--	--	--	--	--	--	--	--	11	15.0	C	0
Saturday Midday:												
Boston Street EB TH/RT	--	--	--	--	--	--	--	--	438	0.0	A	0
Boston Street WB LT/TH	--	--	--	--	--	--	--	--	367	0.1	A	0
Project Site Driveway NB LT/RT	--	--	--	--	--	--	--	--	8	13.2	B	0
South Main Street at the Project Site Driveway												
Weekday Morning:												
Project Site Driveway EB LT/RT	--	--	--	--	--	--	--	--	12	36.6	E	1
South Main Street NB LT/TH	--	--	--	--	--	--	--	--	1115	0.0	A	0
South Main Street SB TH/RT	--	--	--	--	--	--	--	--	1233	0.0	A	0
Weekday Evening:												
Project Site Driveway EB LT/RT	--	--	--	--	--	--	--	--	6	49.2	E	0
South Main Street NB LT/TH	--	--	--	--	--	--	--	--	1257	0.1	A	0
South Main Street SB TH/RT	--	--	--	--	--	--	--	--	1180	0.0	A	0
Saturday Midday:												
Project Site Driveway EB LT/RT	--	--	--	--	--	--	--	--	5	52.0	F	0
South Main Street NB LT/TH	--	--	--	--	--	--	--	--	1192	0.0	A	0
South Main Street SB TH/RT	--	--	--	--	--	--	--	--	1218	0.0	A	0

[a]Volume-to-capacity ratio.
[b]Control (signal) delay per vehicle in seconds.
[c]Level of service.
[d]Queue 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 in accordance with MassDOT and American Association of State Highway and Transportation Officials (AASHTO)[18] requirements. 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, if the measured ISD is at least equal to the required SSD value for the appropriate design speed, the intersection can operate in a safe manner. Table 11 presents the measured SSD and ISD at the subject intersections.

[18] *A Policy on Geometric Design of Highway and Streets,* 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2018.

Table 11
SIGHT DISTANCE MEASUREMENTS[a]

Intersection/Sight Distance Measurement	Feet		
	Required Minimum (SSD)	Desirable (ISD)[b]	Measured
Boston Street at the Project Site Driveway			
Stopping Sight Distance:			
Boston Street approaching from the east	250	--	267
Boston Street approaching from the west	250	--	500+
Intersection Sight Distance:			
Looking to the east from the Project Site Driveway	250	390	292
Looking to the west from the Project Site Driveway	250	335	500+
South Main Street at the Project Site Driveway			
Stopping Sight Distance:			
South Main Street approaching from the north	325	--	351
South Main Street approaching from the south	325	--	500+
Intersection Sight Distance:			
Looking to the north from the Project Site Driveway	325	405	405
Looking to the south from the Project Site Driveway	325	495	500+

[a]Recommended 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 35 mph approach speed along Boston Street, and a 42 mph approach speed along South Main Street.

[b]Values shown are the intersection sight distance for a vehicle turning right or left exiting a roadway 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. The gap time for left-turn movements exiting the South Main Street driveway were increased by 0.5 seconds to account for the additional travel lane along South Main Street.

As can be seen in Table 11, the available lines of sight to and from the intersections the Project site driveways with South Main Street and Boston Street were found to exceed the recommended minimum sight distance to function in a safe manner (SSD) based on the appropriate approach speeds along the intersecting roadways.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

VAI has conducted a TIA in in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of a multifamily residential development that will be situated on properties located at 10 Boston Street (Route 62) and portions of 49 South Main Street (Route 114) and 18 Boston Street in Middleton, Massachusetts (hereafter referred to as the "Project"). This assessment was prepared in consultation with the MassDOT and the Town of Middleton; 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 is responsive to the scope of work that was identified by the Town for the preparation of this TIA.

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

1. Using trip-generation statistics published by the ITE,[19] the Project is expected to generate approximately 460 vehicle trips on an average weekday (two-way, 24-hour volume), with 41 vehicle trips expected during the weekday morning peak-hour, 46 vehicle trips expected during the weekday evening peak-hour and 25 vehicle trips expected during the Saturday midday peak-hour;

2. The Project will not result in a significant impact (increase) on motorist delays or vehicle queuing over anticipated future conditions without the Project (No-Build condition), acknowledging that one or more movements at the study area intersections are currently or are predicted to operate at or over capacity (i.e., LOS "E" or "F") independent of the Project;

3. All movements exiting the Project site driveway to Boston Street are predicted to operate at LOS C or better during the peak hours with negligible vehicle queuing predicted, with all movements exiting the secondary access to South Main Street predicted to operate at LOS E during the weekday morning and evening peak hours, and at LOS F during the Saturday midday peak-hour, with residual vehicle queues of up to one (1) vehicle, which can be contained within the Project site without impeding access or the movement of vehicles, pedestrians or bicyclists along South Main Street. All movements approaching

[19] Institute of Transportation Engineers, op. cit. 1.

the Project site driveways along Boston Street and South Main Street are predicted to operate at LOS A with negligible vehicle queuing predicted;

4. Independent of the Project, the South Main Street/Maple Street intersection was found to have a motor vehicle crash rate that is above the MassDOT average crash rate for similar intersections and has been identified as a "Top 5% Intersection Crash Cluster" location for the 2018-2020 reporting period and Highway Safety Improvement Program (HSIP) eligible. As such, specific recommendations have been provided as a part of this assessment to advance safety-related improvements at this intersection (see *Recommendations*); and

5. Lines of sight to and from the Project site driveways were found to exceed the recommended minimum sight distance to function in a safe manner based on the appropriate approach speed.

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 that follow.

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 site will be provided by way of a new driveway that will intersect the south side of Boston Street approximately 350 feet west of South Main Street (the "primary access"). Secondary (gated) access to South Main Street will be provided through the adjacent lot (Lot 3) to the east of the Project site that is proposed to contain a commercial development that will be the subject of a future application to be filed with the Town. The secondary access driveway will intersect the west side of South Main Street approximately 250 feet south of Boston Street and the gate system will allow for access by residents and emergency vehicles. The following recommendations are offered with respect to the design and operation of the Project site access (primary and secondary) and internal circulation, many of which are reflected on the Site Plans:

- The Project site driveways (primary and secondary) should be 24 feet in width and designed to accommodate the turning and maneuvering requirements of the largest anticipated responding emergency vehicle.

- The gate system that will control access to/from South Main Street by way of the secondary driveway should be designed to limit access to residents and emergency vehicles only in a manner that is acceptable to the Middleton Fire Department.

- Where perpendicular parking is proposed, the drive aisle behind the parking should be a minimum of 23-feet in width in order to facilitate parking maneuvers.

- Vehicles exiting the Project site should be placed under STOP-sign control with a marked STOP-line provided.

- 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).[20]

- A sidewalk should be provided within the Project site to link the proposed building to Boston Street, where a sidewalk should be constructed along the south (Project) side of Boston Street between the primary Project site driveway and South Main Street. Crosswalks are provided for crossing South Main Street and Boston Street at the South Main Street/Boston Street/Town Hall Driveways intersection that are a part of the traffic signal system at the intersection (pedestrian traffic signal equipment and phasing are provided for the crossings).

- Americans with Disabilities Act (ADA)-compliant wheelchair ramps should be provided at all pedestrian crossings to be constructed or modified in conjunction with the Project, including for crossing the Project site driveways, or the driveways should be constructed so that the sidewalk crosses the driveways (i.e., pan-type drive).

- Signs and landscaping to be installed as a part of the Project within the intersection sight triangle areas of the Project site driveways should be designed and maintained so as not to restrict lines of sight.

- Snow accumulations (windrows) within the sight triangle areas of the Project site driveways should be promptly removed where such accumulations would impede sight lines.

Off-Site

South Main Street at Boston Street and Town Hall Driveways

The South Main Street/Boston Street/Town Hall Driveways intersection was found to have one or more movements that are currently or are predicted to operate at or over capacity independent of the Project. In an effort to improve traffic operations and off-set the predicted impact of the Project, the Project proponent will design and implement an optimal traffic signal timing and phasing plan prior to the issuance of a Certificate of Occupancy for the Project, subject to receipt of all necessary rights, permits and approvals, with intersection operations to be reevaluated upon achieving 80 percent occupancy (48 units) in order to determine if additional adjustments to the traffic signal timing are necessary to accommodate the additional traffic resulting from the Project. As can be seen in Table 12, with implementation of the recommended improvements, overall intersection operations were shown to be generally restored to No-Build conditions.

[20]Federal Highway Administration; op. cit. 3.

Table 12
MITIGATED SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

	2030 No-Build				2030 Build				2030 Build (Mitigated)			
Signalized Intersection/Peak Hour/Movement	V/C[a]	Delay[b]	LOS[c]	Queue[d] 50th/95th	V/C	Delay	LOS	Queue 50th/95th	V/C	Delay	LOS	Queue 50th/95th
South Main Street at Boston Street and the Town Hall driveways												
Weekday Morning:												
Boston Street EB LT	0.83	56.2	E	9/12	0.84	55.5	E	10/12	0.82	51.6	D	9/12
Boston Street EB TH/RT	0.11	32.7	C	0/2	0.11	31.8	C	0/2	0.11	30.1	C	0/2
Town Hall Driveways WB LT/TH/RT	0.01	30.9	C	0/0	0.01	29.9	C	0/0	0.01	28.3	C	0/0
South Main Street NB LT/TH/RT	0.99	45.5	D	20/30	1.02	54.5	D	23/31	1.03	57.3	E	22/29
South Main Street SB LT/TH/RT	0.70	20.0	B	18/23	0.72	21.1	C	19/23	0.72	13.7	B	9/14
Overall	**--**	**33.9**	**C**	**--**	**--**	**37.8**	**D**	**--**	--	**35.0**	**C**	--
Weekday Evening:												
Boston Street EB LT	0.81	42.1	D	12/15	0.79	39.8	D	12/15	0.82	42.3	D	12/14
Boston Street EB TH/RT	0.14	23.0	C	0/2	0.14	22.0	C	0/2	0.14	22.2	C	0/2
Town Hall Driveways WB LT/TH/RT	0.02	22.4	C	0/1	0.02	21.4	C	0/1	0.02	21.5	C	0/1
South Main Street NB LT/TH/RT	1.52	>80.0	F	33/39	1.79	>80.0	F	33/40	1.63	>80.0	F	32/38
South Main Street SB LT/TH/RT	0.76	19.7	B	7/10	0.80	21.6	C	7/10	0.77	21.2	C	12/14
Overall	**--**	**>80.0**	**F**	**--**	**--**	**>80.0**	**F**	**--**	--	**>80.0**	**F**	--
Saturday Midday:												
Boston Street EB LT	0.82	56.5	E	9/12	0.83	56.6	E	9/12	0.72	36.3	D	7/11
Boston Street EB TH/RT	0.14	34.1	C	0/2	0.14	33.9	C	0/2	0.14	24.3	C	0/2
Town Hall Driveways WB LT/TH/RT	0.01	32.7	C	0/0	0.01	32.5	C	0/0	0.01	23.2	C	0/0
South Main Street NB LT/TH/RT	0.93	31.8	C	18/29	0.94	33.3	C	18/29	1.02	49.5	D	17/23
South Main Street SB LT/TH/RT	0.60	18.6	B	18/19	0.61	18.8	B	18/19	0.65	12.5	B	7/8
Overall	**--**	**28.5**	**C**	**--**	**--**	**29.2**	**C**	**--**	--	**30.4**	**C**	--

See notes at end of table.

Table 12 (Continued)
MITIGATED SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Signalized Intersection/Peak Hour/Movement	2030 No-Build				2030 Build				2030 Build (Mitigated)			
	V/C[a]	Delay[b]	LOS[c]	Queue[d] 50th/95th	V/C	Delay	LOS	Queue 50th/95th	V/C	Delay	LOS	Queue 50th/95th
South Main Street at Maple Street												
Weekday Morning:												
Maple Street WB LT	1.15	>80.0	F	16/25	1.16	>80.0	F	17/25	1.67	>80.0	F	20/28
Maple Street WB RT	0.29	41.4	D	1/4	0.29	41.5	D	1/4	0.37	46.9	D	1/5
South Main Street NB TH/RT	1.95	>80.0	F	37/38	1.97	>80.0	F	38/38	0.97	35.9	D	23/23
South Main Street SB LT/TH	0.84	11.1	B	4/4	0.85	11.1	B	4/4	1.37	19.1	B	9/11
Overall	--	**>80.0**	**F**	--	**--**	**>80.0**	**F**	**--**	--	**67.7**	**E**	--
Weekday Evening:												
Maple Street WB LT	0.98	>80.0	F	12/18	0.99	>80.0	F	12/19	1.61	>80.0	F	17/23
Maple Street WB RT	0.31	41.8	D	0/3	0.31	41.8	D	0/3	0.31	47.9	D	0/3
South Main Street NB TH/RT	2.11	>80.0	F	31/42	2.12	>80.0	F	30/43	0.89	19.8	B	5/6
South Main Street SB LT/TH	0.76	5.0	A	0/4	0.76	5.1	A	0/4	1.56	16.2	B	7/9
Overall	**--**	**>80.0**	**F**	--	--	**>80.0**	**F**	**--**	--	**53.1**	**D**	--
Saturday Midday:												
Maple Street WB LT	1.32	>80.0	F	21/26	1.33	>80.0	F	21/26	1.44	>80.0	F	17/22
Maple Street WB RT	0.46	43.6	D	2/5	0.46	43.7	D	2/5	0.28	34.4	C	0/2
South Main Street NB TH/RT	1.79	>80.0	F	34/38	1.80	>80.0	F	35/38	0.81	19.5	B	11/12
South Main Street SB LT/TH	0.73	2.7	A	0/0	0.73	2.8	A	0/0	1.35	21.7	C	7/9
Overall	**--**	**>80.0**	**F**	--	**--**	**>80.0**	**F**	**--**	--	**53.5**	**D**	--

See notes at end of table.

Table 12 (Continued)
MITIGATED SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

	2030 No-Build				2030 Build				2030 Build (Mitigated)			
Signalized Intersection/Peak Hour/Movement	V/C[a]	Delay[b]	LOS[c]	Queue[d] 50th/95th	V/C	Delay	LOS	Queue 50th/95th	V/C	Delay	LOS	Queue 50th/95th
North Main Street and South Main Street at Lake Street and Central Street												
Weekday Morning:												
Lake Street EB LT/TH/RT	0.07	47.3	D	1/1	0.07	47.3	D	1/1	0.07	43.9	D	1/1
Central Street WB LT/TH/RT	1.28	>80.0	F	8/10	1.28	>80.0	F	8/10	1.13	>80.0	F	7/9
South Main Street NB LT/TH/RT	0.52	19.1	B	3/11	0.52	19.3	B	2/11	0.53	0.8	A	1/1
North Main Street SB LT/TH/RT	0.93	33.4	C	22/30	0.93	33.6	C	22/30	0.85	22.2	C	19/23
Overall	--	**42.0**	**D**	--	--	**42.1**	**D**	--	--	**23.9**	**C**	--
Weekday Evening:												
Lake Street EB LT/TH/RT	0.07	47.6	D	1/1	0.07	47.6	D	1/1	0.07	46.0	D	1/1
Central Street WB LT/TH/RT	0.80	77.7	E	6/7	0.80	77.7	E	6/7	0.81	77.4	E	6/6
South Main Street NB LT/TH/RT	0.56	19.5	B	4/12	0.56	19.6	B	4/12	0.56	1.1	A	1/2
North Main Street SB LT/TH/RT	0.79	23.2	C	18/22	0.80	23.3	C	18/22	0.69	13.9	B	13/17
Overall	--	**25.2**	**C**	--	--	**25.3**	**C**	--	--	**12.2**	**B**	--
Saturday Midday:												
Lake Street EB LT/TH/RT	0.02	46.8	D	0/0	0.02	46.8	D	0/0	0.02	42.4	D	0/0
Central Street WB LT/TH/RT	0.17	48.1	D	1/2	0.17	48.1	D	1/2	0.29	44.5	D	1/2
South Main Street NB LT/TH/RT	0.47	11.3	B	3/8	0.47	11.3	B	3/8	0.45	0.7	A	1/1
North Main Street SB LT/TH/RT	0.72	20.3	C	16/19	0.71	20.3	C	16/19	0.65	12.3	B	11/13
Overall	--	**16.9**	**B**	--	--	**17.0**	**B**	--	--	**7.9**	**A**	--

[a]Volume-to-capacity ratio.
[b]Control (signal) delay per vehicle in seconds.
[c]Level of service.
[d]Queue length in vehicles.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements

South Main Street at Maple Street

Independent of the Project, the South Main Street/Maple Street intersection was found to be operating over its design capacity (i.e., LOS "F") under 2023 Existing conditions. In addition, and also independent of the Project, the intersection was identified to have a motor vehicle crash rate that is above the MassDOT average crash rate for similar intersections and has been identified as a "Top 5% Intersection Crash Cluster" location for the 2018-2020 reporting period and HSIP eligible. In an effort to advance safety-related improvements at this intersection and to improve traffic operations, it is recommended that the following improvements be advanced:

1. Facilitate the completion of a Road Safety Audit (RSA) at the intersection in order to identify improvement strategies; and
2. Design and implement an optimal traffic signal timing and phasing plan, with a particular emphasis of the "yellow" and "all-red" clearance intervals and the pedestrian phase times.

The Project proponent will undertake the recommended improvements prior to the issuance of a Certificate of Occupancy for the Project, subject to receipt of all necessary rights, permits and approvals, with intersection operations to be reevaluated upon achieving 80 percent occupancy (48 units) in order to determine if additional adjustments to the traffic signal timing are necessary to accommodate the additional traffic resulting from the Project. As can be seen in Table 12, with implementation of the recommended traffic signal timing improvements, overall motorist delays were shown to be reduced and improved over No-Build conditions.

North Main Street and South Main Street at Lake Street and Central Street

Independent of the Project, the North Main Street/South Main Street/Lake Street/Central Street intersection was found to have one or more movements that are currently operating at or over capacity during the weekday morning and evening peak hours. In an effort to improve traffic operations and off-set the predicted impact of the Project, the Project proponent will design and implement an optimal traffic signal timing and phasing plan prior to the issuance of a Certificate of Occupancy for the Project, subject to receipt of all necessary rights, permits and approvals, with intersection operations to be reevaluated upon achieving 80 percent occupancy (48 units) in order to determine if additional adjustments to the traffic signal timing are necessary to accommodate the additional traffic resulting from the Project. As can be seen in Table 12, with implementation of the recommended traffic signal timing improvements, overall motorist delays were shown to be reduced and improved over No-Build conditions.

Transportation Demand Management

Regularly scheduled public transportation services are not currently provided within the Town of Middleton or in the immediate vicinity of the Project site. The MBTA operates The Ride paratransit services for eligible persons within the Town who cannot use fixed-route transit all or some of the time due to a physical, cognitive, or mental disability in accordance with Americans with Disabilities Act (ADA) requirements. In addition, the Town of Middleton Council on Aging (COA) provides transportation services to eligible seniors for errands and medical appointments by appointment. In an effort to encourage the use of alternative modes of transportation to single-occupancy vehicles (SOVs), the following Transportation Demand Management (TDM) measures will be implemented as a part of the Project:

- A transportation coordinator will be assigned for the Project, who may also have other duties, to coordinate the TDM program;

- Information regarding public transportation services, maps, schedules and fare information will be made available to residents of the Project;

- A "welcome packet" will be provided to new residents detailing available public transportation services, bicycle and walking alternatives, and other commuter options, including the services provided by the COA;

- Pedestrian accommodations have been incorporated within the Project site to encourage walking and will be extended to include connections to Boston Street and South Main Street; and

- Secure bicycle parking will be provided within the Project site.

With implementation of the aforementioned recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

Transportation Impact Assessment Appendix

Proposed Multifamily Residential Development
10 Boston Street,
49 South Main Street (Route 114) (Partial),
and 18 Boston Street (Partial)
Middleton, Massachusetts

Prepared for:

VILLEBRIDGE
Real Estate Development

Needham, Massachusetts

August 2023

Prepared by:

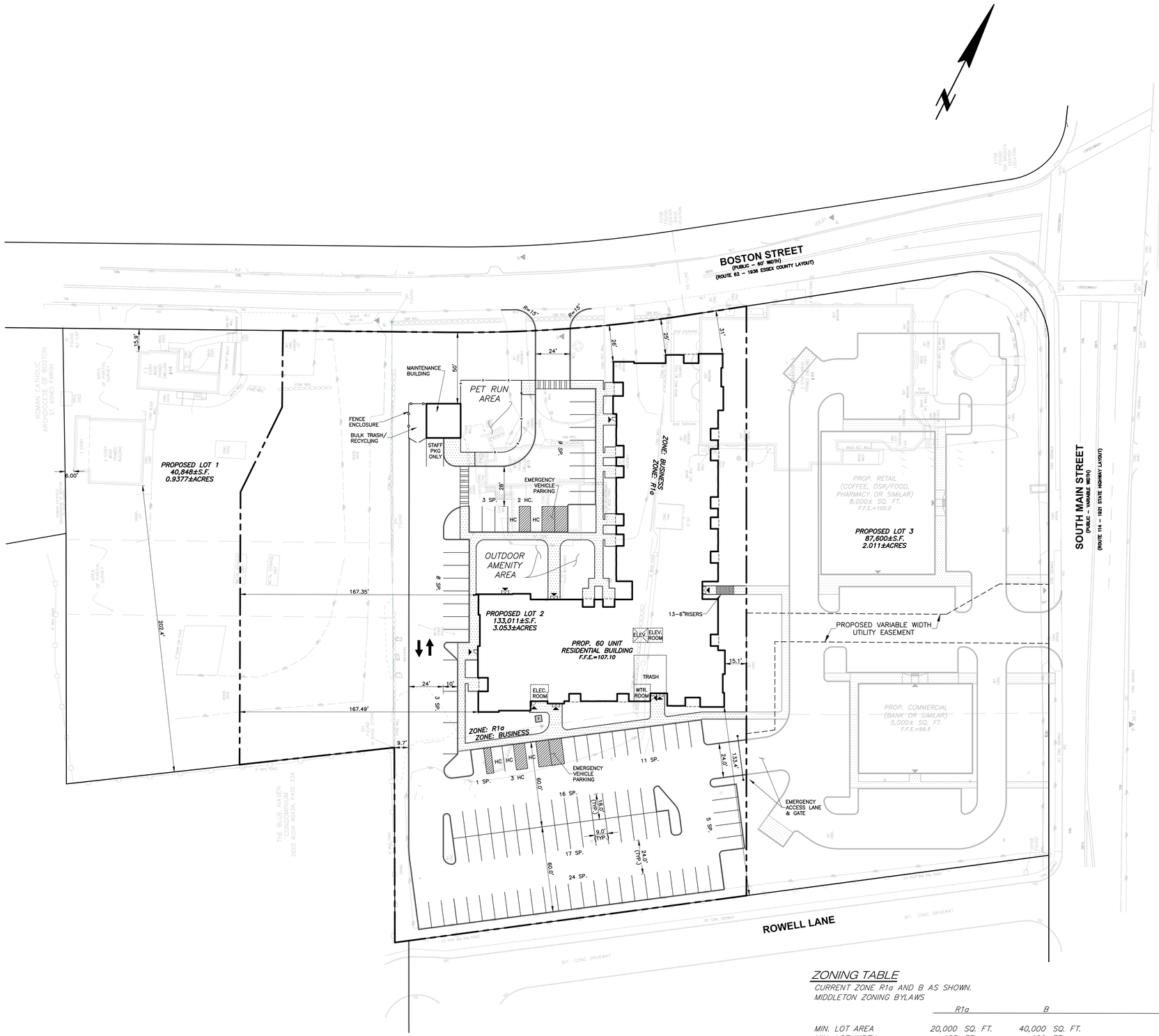
Vanasse & Associates inc
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

APPENDIX

PROJECT SITE PLAN
AUTOMATIC TRAFFIC RECORDER COUNT DATA
TURNING MOVEMENT COUNT DATA
SEASONAL ADJUSTMENT DATA
COVID-19 ADJUSTMENT DATA
PARKING DEMAND DATA
VEHICLE TRAVEL SPEED DATA
MASSDOT CRASH RATE WORKSHEETS AND HIGH CRASH LOCATION MAPPING
GENERAL BACKGROUND TRAFFIC GROWTH
BACKGROUND DEVELOPMENT TRAFFIC-VOLUME NETWORKS
TRIP-GENERATION CALCULATIONS
TRAFFIC SIGNAL INVENTORIES
CAPACITY ANALYSIS WORKSHEETS

PROJECT SITE PLAN



PROP. LEGEND

- PROPOSED PROPERTY LINE/PROPOSED 40B LOT
- CROSS WALK
- CURBING
- DIRECTION OF TRAVEL
- CEMENT CONC. PAD/WALK (ASPHALT WALK OPTION)

30 0 15 30 60
HORIZONTAL GRAPHIC SCALE IN FEET

NOTE:
1. LOT 2 IS BEING SUBMITTED FOR 40B MULTIFAMILY HOUSING APPROVAL
2. LOT 3 IS A STAND-ALONE BUSINESS ZONED LOT TO BE DEVELOPED AS ALLOWED UNDER THE BUSINESS (B) ZONING DISTRICT. LOT 3 IS NOT PART OF THE 40B APPLICATION.
3. LOT 1 IS AN EXISTING DEVELOPED RESIDENTIAL LOT WITH NON-CONFORMING FRONT AND SIDE YARD SETBACKS. PROPOSED SUBDIVISION WILL CONTINUE TO MEET ZONING FOR LOT AREA AND ALL OTHER DIMENSIONAL REQUIREMENTS.

LOT 2 PARKING SUMMARY

REQUIRED RESIDENT PARKING:
60 DWELLING UNITS X 2 SPACES/UNIT = 120 SPACES

* PROVIDED: 97 STANDARD SPACES
5 HC ACCESSIBLE SPACES
102 SPACES

* REQUIRES A WAIVER

RESERVED STAFF & EMERGENCY VEHICLE PARKING
STAFF: 1 SPACE
EMERGENCY VEHICLES: 4 SPACES
5 SPACES

ZONING TABLE

CURRENT ZONE R1a AND B AS SHOWN.
MIDDLETON ZONING BYLAWS

	R1a	B	LOT 1(R1a)	LOT 2 (R1a & B)	LOT 3 (B)
MIN. LOT AREA	20,000 SQ. FT.	40,000 SQ. FT.	40,848± SQ. FT.	133,011± SQ. FT.	87,600± SQ. FT.
MIN. LOT WIDTH	125 FT.	100 FT.	153± FT.	325± FT.	212.3± FT.
MIN. FRONTAGE	100 FT.	100 FT.	154.55 FT.	326.59 FT.	359.97 FT.
MAX. LOT COVERAGE BY BUILDINGS	25 %	35 %	8.2± %	18.0± %	TBD
MAXIMUM BUILDING HEIGHT	35 FT. (3 STORIES)	35 FT.(3 STORIES)	2 STORIES	42' FT. (3 STORIES)	TBD
FRONT YARD	25 FT.	30 FT.	15.9 FT. (EXIST.)*	25 FT.**	TBD
SIDE YARD	15 FT.	25 FT. (35 FT IF YARD ABUTS R DISTRICT)	6 FT.(EXIST.)*	15.1 FT. LEFT SIDE YARD** 167.35 FT. RIGHT SIDE YARD	TBD
REAR YARD	15 FT.	35 FT.	202.4 FT.(EXIST.)	133.4 FT.	TBD
MIN. OPEN SPACE	N/A	25 %	N/A	46± %	TBD

* EXISTING NON-CONFORMING
** REQUIRES A WAIVER

SUMMARY OF REQUESTED ZONING WAIVERS FOR MULT-FAMILY HOUSING LOT 2

LOT 2 WAIVERS

MULTI FAMILY USE R1a AND B ZONES: 60 UNITS
FRONT YARD SETBACK B ZONE: 25 FT VERSUS 30 FT
BUILDING SIDE YARD SETBACK B ZONE: 15.1 FT. VERSUS 25 FT. FOR LEFT SIDE YARD
BUILDING HEIGHT R1a AND B ZONES: 42 FT/ 3 STORIES VERSUS 35 FT/ 3 STORIES
PARKING: 106 SPACES VERSUS 120 SPACES
ANY ADDITIONAL WAIVERS NOT SPECIFICALLY LISTED ABOVE BUT SHOWN ON THE PLAN.

MIDDLETON

10 & 18 Boston Street &
49 South Main Street
Middleton, Massachusetts 01949

PREPARED FOR:

VILLEBRIDGE DEVELOPMENT LLC.

1150 Great Plain Avenue
Needham, Massachusetts 02492

HANCOCK ASSOCIATES

Civil Engineers

Land Surveyors

Wetland Scientists

121 E. BERKELEY ST., 4TH FL., BOSTON, MA 02118
VOICE (617) 357-8145, FAX (617) 357-9495
WWW.HANCOCKASSOCIATES.COM

PROGRESS 05-18-23

NO.	BY	APP	DATE	ISSUE/REVISION DESCRIPTION

DATE:		SCALE:	1" = 30'
DRAWN BY:	CMK	DESIGNED BY:	FAK
CHECKED BY:	FAK	APPROVED BY:	AD

PRELIMINARY SITE LAYOUT PLAN

PLOT DATE: May 18, 2023 3:31 pm
G:\Civil 3D Projects\25912 - Lars - Middleton\Eng\DWG\

DWG: 25912sp13.dwg	
LAYOUT: C-1 Layout	
SHEET: C-1	
PROJECT NO.:	25912

File Name: O:\Civil 3D Projects\25912 - Lars - Middleton\Eng\DWG\25912sp13.dwg Saved:5/18/2023 11:43 AM Plotted: May 18, 2023 3:31:51pm
Tab: C-1 Layout Plot Style: 10PDC.ctb Plotted By: Kevin M. Kwan

AUTOMATIC TRAFFIC RECORDER COUNT DATA

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA

5/19/2022	NB,		Hour Totals		SB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	11	168			9	188				
12:15	11	181			9	217				
12:30	13	189			0	168				
12:45	13	161	48	699	10	169	28	742	76	1441
1:00	8	196			5	184				
1:15	20	193			2	169				
1:30	12	197			6	198				
1:45	8	197	48	783	3	193	16	744	64	1527
2:00	4	195			3	197				
2:15	5	205			3	192				
2:30	3	207			6	184				
2:45	3	199	15	806	7	189	19	762	34	1568
3:00	2	235			4	194				
3:15	10	231			8	181				
3:30	10	184			9	194				
3:45	3	206	25	856	11	212	32	781	57	1637
4:00	7	209			12	209				
4:15	7	227			19	233				
4:30	18	239			28	188				
4:45	20	221	52	896	47	237	106	867	158	1763
5:00	19	223			52	215				
5:15	42	255			70	244				
5:30	61	260			86	220				
5:45	60	231	182	969	89	230	297	909	479	1878
6:00	69	213			99	213				
6:15	90	194			122	151				
6:30	118	148			155	184				
6:45	138	165	415	720	208	139	584	687	999	1407
7:00	164	175			176	145				
7:15	177	151			196	116				
7:30	238	148			218	104				
7:45	208	123	787	597	219	87	809	452	1596	1049
8:00	186	136			220	84				
8:15	206	138			257	76				
8:30	211	105			231	55				
8:45	138	114	741	493	211	63	919	278	1660	771
9:00	156	120			188	63				
9:15	119	105			181	48				
9:30	141	75			185	37				
9:45	146	76	562	376	177	39	731	187	1293	563
10:00	117	54			173	35				
10:15	120	64			170	26				
10:30	135	43			212	31				
10:45	146	39	518	200	184	22	739	114	1257	314
11:00	182	20			158	21				
11:15	138	35			200	18				
11:30	169	27			189	18				
11:45	170	20	659	102	194	22	741	79	1400	181
Total	4052	7497			5021	6602			9073	14099
Percent	35.1%	64.9%			43.2%	56.8%			39.2%	60.8%

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA

5/20/2022	NB,		Hour Totals		SB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	15	192			24	195				
12:15	16	202			8	220				
12:30	24	183			12	202				
12:45	19	172	74	749	8	200	52	817	126	1566
1:00	14	203			3	211				
1:15	10	183			6	208				
1:30	4	214			4	196				
1:45	11	168	39	768	6	209	19	824	58	1592
2:00	4	225			3	195				
2:15	6	227			7	219				
2:30	4	217			9	211				
2:45	6	188	20	857	6	204	25	829	45	1686
3:00	7	160			9	203				
3:15	8	200			7	171				
3:30	7	190			8	188				
3:45	6	225	28	775	14	195	38	757	66	1532
4:00	12	236			13	190				
4:15	7	246			20	240				
4:30	15	247			30	186				
4:45	20	238	54	967	37	202	100	818	154	1785
5:00	17	258			49	246				
5:15	42	250			68	211				
5:30	63	227			85	214				
5:45	47	212	169	947	102	257	304	928	473	1875
6:00	64	189			100	210				
6:15	82	200			113	212				
6:30	112	191			144	249				
6:45	130	179	388	759	189	207	546	878	934	1637
7:00	138	190			184	178				
7:15	158	199			215	176				
7:30	197	187			236	132				
7:45	166	152	659	728	201	138	836	624	1495	1352
8:00	166	194			219	131				
8:15	185	166			248	102				
8:30	184	139			207	94				
8:45	142	127	677	626	207	94	881	421	1558	1047
9:00	128	140			194	68				
9:15	145	128			201	77				
9:30	152	102			188	102				
9:45	167	114	592	484	200	58	783	305	1375	789
10:00	130	103			197	66				
10:15	160	98			188	51				
10:30	184	73			194	43				
10:45	171	62	645	336	184	32	763	192	1408	528
11:00	150	55			187	47				
11:15	165	56			191	20				
11:30	197	38			183	24				
11:45	185	29	697	178	195	21	756	112	1453	290
Total	4042	8174			5103	7505			9145	15679
Percent	33.1%	66.9%			40.5%	59.5%			36.8%	63.2%

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA

5/21/2022	NB,		Hour Totals		SB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	23	196			22	254				
12:15	33	219			14	239				
12:30	11	225			15	222				
12:45	24	231	91	871	7	211	58	926	149	1797
1:00	13	202			11	239				
1:15	8	194			9	227				
1:30	8	213			8	175				
1:45	6	205	35	814	5	232	33	873	68	1687
2:00	8	232			9	220				
2:15	7	225			8	226				
2:30	10	185			2	225				
2:45	5	228	30	870	6	194	25	865	55	1735
3:00	6	214			5	180				
3:15	8	210			4	212				
3:30	4	236			4	197				
3:45	1	253	19	913	5	217	18	806	37	1719
4:00	2	250			10	218				
4:15	2	235			13	189				
4:30	8	222			15	193				
4:45	7	225	19	932	17	173	55	773	74	1705
5:00	8	212			17	174				
5:15	15	217			29	187				
5:30	21	206			36	198				
5:45	20	200	64	835	41	199	123	758	187	1593
6:00	25	195			41	198				
6:15	31	185			49	187				
6:30	45	208			64	152				
6:45	67	174	168	762	72	135	226	672	394	1434
7:00	57	161			82	134				
7:15	52	152			80	151				
7:30	68	159			129	140				
7:45	68	170	245	642	123	110	414	535	659	1177
8:00	115	201			157	131				
8:15	119	153			133	121				
8:30	115	155			154	80				
8:45	111	144	460	653	174	77	618	409	1078	1062
9:00	127	118			160	92				
9:15	135	121			183	79				
9:30	141	107			185	57				
9:45	151	85	554	431	227	63	755	291	1309	722
10:00	162	77			197	54				
10:15	161	72			205	47				
10:30	153	59			218	61				
10:45	162	75	638	283	208	43	828	205	1466	488
11:00	198	46			205	48				
11:15	202	63			230	34				
11:30	199	37			244	37				
11:45	177	22	776	168	224	37	903	156	1679	324
Total	3099	8174			4056	7269			7155	15443
Percent	27.5%	72.5%			35.8%	64.2%			31.7%	68.3%
Grand Total	11193	23845			14180	21376			25373	45221
Percent	31.9%	68.1%			39.9%	60.1%			35.9%	64.1%
ADT		ADT: 23,998		AADT: 23,998						

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA

5/16/2022	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Week Average	
Time	NB,	SB,	NB,	SB,	NB,	SB,	NB,	SB,	NB,	SB,	NB,	SB,	NB,	SB,	NB,	SB,
12:00 AM	*	*	*	*	*	*	48	28	74	52	91	58	*	*	71	46
1:00	*	*	*	*	*	*	48	16	39	19	35	33	*	*	41	23
2:00	*	*	*	*	*	*	15	19	20	25	30	25	*	*	22	23
3:00	*	*	*	*	*	*	25	32	28	38	19	18	*	*	24	29
4:00	*	*	*	*	*	*	52	106	54	100	19	55	*	*	42	87
5:00	*	*	*	*	*	*	182	297	169	304	64	123	*	*	138	241
6:00	*	*	*	*	*	*	415	584	388	546	168	226	*	*	324	452
7:00	*	*	*	*	*	*	787	809	659	836	245	414	*	*	564	686
8:00	*	*	*	*	*	*	741	919	677	881	460	618	*	*	626	806
9:00	*	*	*	*	*	*	562	731	592	783	554	755	*	*	569	756
10:00	*	*	*	*	*	*	518	739	645	763	638	828	*	*	600	777
11:00	*	*	*	*	*	*	659	741	697	756	776	903	*	*	711	800
12:00 PM	*	*	*	*	*	*	699	742	749	817	871	926	*	*	773	828
1:00	*	*	*	*	*	*	783	744	768	824	814	873	*	*	788	814
2:00	*	*	*	*	*	*	806	762	857	829	870	865	*	*	844	819
3:00	*	*	*	*	*	*	856	781	775	757	913	806	*	*	848	781
4:00	*	*	*	*	*	*	896	867	967	818	932	773	*	*	932	819
5:00	*	*	*	*	*	*	969	909	947	928	835	758	*	*	917	865
6:00	*	*	*	*	*	*	720	687	759	878	762	672	*	*	747	746
7:00	*	*	*	*	*	*	597	452	728	624	642	535	*	*	656	537
8:00	*	*	*	*	*	*	493	278	626	421	653	409	*	*	591	369
9:00	*	*	*	*	*	*	376	187	484	305	431	291	*	*	430	261
10:00	*	*	*	*	*	*	200	114	336	192	283	205	*	*	273	170
11:00	*	*	*	*	*	*	102	79	178	112	168	156	*	*	149	116
Total	0	0	0	0	0	0	11549	11623	12216	12608	11273	11325	0	0	11680	11851
Day	0		0		0		23172		24824		22598		0		23531	
AM Peak							7:00	8:00	11:00	8:00	11:00	11:00			11:00	8:00
Volume							787	919	697	881	776	903			711	806
PM Peak							5:00	5:00	4:00	5:00	4:00	12:00 PM			4:00	5:00
Volume							969	909	967	928	932	926			932	865
Comb Total	0		0		0		23172		24824		22598		0		23531	
ADT	ADT: 23,998		AADT: 23,998													

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA

5/19/2022	WB,		Hour Totals		EB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	5	50			8	61				
12:15	3	49			5	92				
12:30	1	39			7	71				
12:45	2	47	11	185	2	58	22	282	33	467
1:00	1	40			1	66				
1:15	0	54			4	67				
1:30	0	45			1	82				
1:45	1	54	2	193	0	86	6	301	8	494
2:00	0	62			3	87				
2:15	0	55			2	91				
2:30	0	63			1	79				
2:45	1	55	1	235	1	86	7	343	8	578
3:00	0	80			0	95				
3:15	3	61			3	86				
3:30	1	49			1	96				
3:45	0	46	4	236	0	87	4	364	8	600
4:00	4	74			6	122				
4:15	8	65			3	98				
4:30	4	64			6	93				
4:45	3	54	19	257	10	122	25	435	44	692
5:00	9	78			16	112				
5:15	15	75			14	96				
5:30	17	56			13	103				
5:45	21	54	62	263	18	104	61	415	123	678
6:00	33	57			18	89				
6:15	28	65			29	88				
6:30	44	38			41	58				
6:45	57	34	162	194	59	63	147	298	309	492
7:00	63	41			62	58				
7:15	64	46			84	56				
7:30	70	32			77	42				
7:45	81	23	278	142	83	41	306	197	584	339
8:00	77	30			61	46				
8:15	71	33			76	36				
8:30	80	22			68	33				
8:45	59	27	287	112	77	27	282	142	569	254
9:00	58	27			75	32				
9:15	42	20			54	25				
9:30	49	20			65	17				
9:45	39	14	188	81	53	21	247	95	435	176
10:00	51	10			79	21				
10:15	46	13			59	23				
10:30	36	9			47	13				
10:45	40	9	173	41	61	17	246	74	419	115
11:00	50	14			62	11				
11:15	60	8			85	14				
11:30	46	5			67	9				
11:45	37	5	193	32	84	11	298	45	491	77
Total	1380	1971			1651	2991			3031	4962
Percent	41.2%	58.8%			35.6%	64.4%			37.9%	62.1%

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA

5/20/2022	WB,		Hour Totals		EB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	1	43			8	75				
12:15	0	43			9	86				
12:30	6	52			3	75				
12:45	6	62	13	200	3	72	23	308	36	508
1:00	1	67			1	89				
1:15	3	56			1	82				
1:30	2	71			2	85				
1:45	0	34	6	228	0	87	4	343	10	571
2:00	3	41			1	86				
2:15	0	47			0	96				
2:30	0	59			2	117				
2:45	1	66	4	213	0	98	3	397	7	610
3:00	1	52			1	83				
3:15	1	66			3	90				
3:30	0	93			2	122				
3:45	2	61	4	272	2	110	8	405	12	677
4:00	4	68			5	121				
4:15	6	69			0	117				
4:30	2	73			6	84				
4:45	8	57	20	267	8	89	19	411	39	678
5:00	13	72			7	113				
5:15	11	80			17	95				
5:30	17	81			14	111				
5:45	13	62	54	295	13	91	51	410	105	705
6:00	25	75			25	84				
6:15	26	45			30	89				
6:30	39	64			39	88				
6:45	50	55	140	239	44	96	138	357	278	596
7:00	36	58			67	90				
7:15	56	54			69	72				
7:30	61	40			81	62				
7:45	40	43	193	195	72	61	289	285	482	480
8:00	68	60			79	59				
8:15	47	45			86	45				
8:30	53	40			60	24				
8:45	42	41	210	186	81	37	306	165	516	351
9:00	35	37			89	48				
9:15	41	30			62	34				
9:30	42	36			61	41				
9:45	49	29	167	132	83	28	295	151	462	283
10:00	69	31			57	38				
10:15	43	33			69	35				
10:30	40	24			61	27				
10:45	54	22	206	110	75	18	262	118	468	228
11:00	37	13			70	28				
11:15	47	15			81	10				
11:30	59	7			67	9				
11:45	56	5	199	40	84	9	302	56	501	96
Total	1216	2377			1700	3406			2916	5783
Percent	33.8%	66.2%			33.3%	66.7%			33.5%	66.5%

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA

5/21/2022	WB,		Hour Totals		EB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	8	69			16	70				
12:15	7	55			8	93				
12:30	5	84			9	64				
12:45	3	54	23	262	4	87	37	314	60	576
1:00	3	45			8	95				
1:15	2	69			4	87				
1:30	3	58			2	95				
1:45	2	70	10	242	6	89	20	366	30	608
2:00	0	86			2	93				
2:15	0	76			0	79				
2:30	2	60			2	92				
2:45	0	65	2	287	2	86	6	350	8	637
3:00	1	72			4	66				
3:15	0	79			1	95				
3:30	1	67			1	102				
3:45	1	76	3	294	1	99	7	362	10	656
4:00	1	79			5	83				
4:15	1	87			1	79				
4:30	0	68			3	84				
4:45	5	74	7	308	3	123	12	369	19	677
5:00	2	68			3	91				
5:15	7	45			13	76				
5:30	9	69			9	76				
5:45	10	69	28	251	4	74	29	317	57	568
6:00	3	69			18	69				
6:15	12	53			13	72				
6:30	14	49			19	69				
6:45	15	57	44	228	29	68	79	278	123	506
7:00	12	53			21	57				
7:15	14	48			28	56				
7:30	17	41			36	62				
7:45	21	44	64	186	50	57	135	232	199	418
8:00	41	51			43	45				
8:15	33	42			47	36				
8:30	25	35			58	38				
8:45	34	38	133	166	56	42	204	161	337	327
9:00	31	28			63	45				
9:15	43	30			84	40				
9:30	51	28			87	32				
9:45	41	27	166	113	82	33	316	150	482	263
10:00	61	26			77	26				
10:15	57	19			80	26				
10:30	49	19			88	27				
10:45	49	17	216	81	89	20	334	99	550	180
11:00	38	15			83	19				
11:15	52	20			97	20				
11:30	49	16			87	21				
11:45	66	8	205	59	73	9	340	69	545	128
Total	901	2477			1519	3067			2420	5544
Percent	26.7%	73.3%			33.1%	66.9%			30.4%	69.6%
Grand Total	3497	6825			4870	9464			8367	16289
Percent	33.9%	66.1%			34.0%	66.0%			33.9%	66.1%
ADT		ADT: 8,219		AADT: 8,219						

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA

5/16/2022	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Week Average	
Time	WB,	EB,	WB,	EB,	WB,	EB,	WB,	EB,	WB,	EB,	WB,	EB,	WB,	EB,	WB,	EB,
12:00 AM	*	*	*	*	*	*	11	22	13	23	23	37	*	*	16	27
1:00	*	*	*	*	*	*	2	6	6	4	10	20	*	*	6	10
2:00	*	*	*	*	*	*	1	7	4	3	2	6	*	*	2	5
3:00	*	*	*	*	*	*	4	4	4	8	3	7	*	*	4	6
4:00	*	*	*	*	*	*	19	25	20	19	7	12	*	*	15	19
5:00	*	*	*	*	*	*	62	61	54	51	28	29	*	*	48	47
6:00	*	*	*	*	*	*	162	147	140	138	44	79	*	*	115	121
7:00	*	*	*	*	*	*	278	306	193	289	64	135	*	*	178	243
8:00	*	*	*	*	*	*	287	282	210	306	133	204	*	*	210	264
9:00	*	*	*	*	*	*	188	247	167	295	166	316	*	*	174	286
10:00	*	*	*	*	*	*	173	246	206	262	216	334	*	*	198	281
11:00	*	*	*	*	*	*	193	298	199	302	205	340	*	*	199	313
12:00 PM	*	*	*	*	*	*	185	282	200	308	262	314	*	*	216	301
1:00	*	*	*	*	*	*	193	301	228	343	242	366	*	*	221	337
2:00	*	*	*	*	*	*	235	343	213	397	287	350	*	*	245	363
3:00	*	*	*	*	*	*	236	364	272	405	294	362	*	*	267	377
4:00	*	*	*	*	*	*	257	435	267	411	308	369	*	*	277	405
5:00	*	*	*	*	*	*	263	415	295	410	251	317	*	*	270	381
6:00	*	*	*	*	*	*	194	298	239	357	228	278	*	*	220	311
7:00	*	*	*	*	*	*	142	197	195	285	186	232	*	*	174	238
8:00	*	*	*	*	*	*	112	142	186	165	166	161	*	*	155	156
9:00	*	*	*	*	*	*	81	95	132	151	113	150	*	*	109	132
10:00	*	*	*	*	*	*	41	74	110	118	81	99	*	*	77	97
11:00	*	*	*	*	*	*	32	45	40	56	59	69	*	*	44	57
Total	0	0	0	0	0	0	3351	4642	3593	5106	3378	4586	0	0	3440	4777
Day	0		0		0		7993		8699		7964		0		8217	
AM Peak							8:00	7:00	8:00	8:00	10:00	11:00			8:00	11:00
Volume							287	306	210	306	216	340			210	313
PM Peak							5:00	4:00	5:00	4:00	4:00	4:00			4:00	4:00
Volume							263	435	295	411	308	369			277	405
Comb Total	0		0		0		7993		8699		7964		0		8217	
ADT	ADT: 8,219		AADT: 8,219													

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA

5/19/2022	SB,		Hour Totals		NB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	9	117			25	160				
12:15	6	128			19	177				
12:30	1	85			25	191				
12:45	10	125	26	455	17	139	86	667	112	1122
1:00	3	119			13	197				
1:15	2	108			22	201				
1:30	5	129			17	191				
1:45	1	112	11	468	16	190	68	779	79	1247
2:00	1	97			13	224				
2:15	0	161			11	207				
2:30	4	120			6	220				
2:45	5	105	10	483	7	270	37	921	47	1404
3:00	2	133			4	292				
3:15	7	101			9	274				
3:30	9	142			13	295				
3:45	5	152	23	528	7	273	33	1134	56	1662
4:00	8	162			14	252				
4:15	12	171			14	284				
4:30	26	148			21	284				
4:45	27	190	73	671	24	273	73	1093	146	1764
5:00	45	164			22	284				
5:15	59	154			54	263				
5:30	102	109			78	293				
5:45	112	124	318	551	76	258	230	1098	548	1649
6:00	118	127			100	221				
6:15	146	99			128	209				
6:30	178	85			155	177				
6:45	212	66	654	377	169	167	552	774	1206	1151
7:00	209	83			228	169				
7:15	178	63			224	147				
7:30	142	57			255	155				
7:45	187	32	716	235	260	148	967	619	1683	854
8:00	136	42			236	136				
8:15	172	34			214	156				
8:30	170	29			233	119				
8:45	145	34	623	139	190	116	873	527	1496	666
9:00	129	31			184	111				
9:15	135	39			145	100				
9:30	117	28			156	77				
9:45	121	26	502	124	128	75	613	363	1115	487
10:00	115	17			135	74				
10:15	114	21			130	80				
10:30	143	24			162	52				
10:45	91	15	463	77	131	69	558	275	1021	352
11:00	104	13			162	52				
11:15	119	12			136	51				
11:30	124	10			162	46				
11:45	116	12	463	47	160	43	620	192	1083	239
Total	3882	4155			4710	8442			8592	12597
Percent	48.3%	51.7%			35.8%	64.2%			40.5%	59.5%

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA

5/20/2022	SB,		Hour Totals		NB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	16	139			21	164				
12:15	6	125			21	190				
12:30	7	120			23	185				
12:45	4	141	33	525	27	181	92	720	125	1245
1:00	1	135			18	181				
1:15	3	126			13	206				
1:30	4	151			10	196				
1:45	3	133	11	545	10	210	51	793	62	1338
2:00	2	135			8	212				
2:15	3	153			8	269				
2:30	3	147			9	209				
2:45	6	142	14	577	7	237	32	927	46	1504
3:00	6	131			5	266				
3:15	4	142			14	255				
3:30	4	137			11	281				
3:45	10	141	24	551	12	261	42	1063	66	1614
4:00	7	170			16	265				
4:15	12	160			13	303				
4:30	27	129			22	271				
4:45	34	177	80	636	20	239	71	1078	151	1714
5:00	44	170			22	264				
5:15	59	176			58	266				
5:30	92	159			82	272				
5:45	88	161	283	666	70	243	232	1045	515	1711
6:00	101	145			90	194				
6:15	127	164			100	209				
6:30	161	143			162	197				
6:45	168	137	557	589	164	175	516	775	1073	1364
7:00	154	91			184	160				
7:15	185	96			196	151				
7:30	182	79			227	186				
7:45	176	77	697	343	212	150	819	647	1516	990
8:00	151	58			183	163				
8:15	167	49			187	171				
8:30	133	55			224	121				
8:45	142	45	593	207	165	127	759	582	1352	789
9:00	121	47			181	138				
9:15	139	45			152	126				
9:30	119	54			175	115				
9:45	135	29	514	175	177	120	685	499	1199	674
10:00	127	37			113	102				
10:15	115	43			171	93				
10:30	125	33			163	85				
10:45	136	25	503	138	148	82	595	362	1098	500
11:00	106	24			146	74				
11:15	102	13			168	75				
11:30	110	16			182	57				
11:45	129	14	447	67	197	51	693	257	1140	324
Total	3756	5019			4587	8748			8343	13767
Percent	42.8%	57.2%			34.4%	65.6%			37.7%	62.3%

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA

5/21/2022	SB,		Hour Totals		NB,		Hour Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	20	178			35	171				
12:15	7	146			37	190				
12:30	16	172			30	217				
12:45	8	150	51	646	31	225	133	803	184	1449
1:00	5	150			25	191				
1:15	6	159			14	233				
1:30	4	136			11	266				
1:45	6	177	21	622	11	229	61	919	82	1541
2:00	5	192			20	250				
2:15	4	138			6	258				
2:30	2	181			10	216				
2:45	4	164	15	675	7	264	43	988	58	1663
3:00	3	153			9	230				
3:15	1	145			11	222				
3:30	2	148			6	230				
3:45	1	145	7	591	0	301	26	983	33	1574
4:00	4	177			7	285				
4:15	7	130			5	280				
4:30	8	129			12	299				
4:45	12	108	31	544	8	263	32	1127	63	1671
5:00	12	126			7	222				
5:15	24	127			26	249				
5:30	38	131			28	237				
5:45	38	142	112	526	24	228	85	936	197	1462
6:00	22	108			34	182				
6:15	36	113			52	220				
6:30	46	99			49	219				
6:45	44	70	148	390	69	170	204	791	352	1181
7:00	53	91			65	178				
7:15	59	102			57	142				
7:30	85	60			79	168				
7:45	69	56	266	309	85	154	286	642	552	951
8:00	71	63			100	168				
8:15	64	68			114	167				
8:30	87	36			108	158				
8:45	87	39	309	206	123	150	445	643	754	849
9:00	87	47			131	136				
9:15	117	24			125	131				
9:30	119	39			113	115				
9:45	148	40	471	150	154	90	523	472	994	622
10:00	131	40			133	79				
10:15	139	19			176	75				
10:30	166	30			159	69				
10:45	140	19	576	108	168	89	636	312	1212	420
11:00	147	23			178	73				
11:15	153	23			173	79				
11:30	154	28			147	55				
11:45	145	23	599	97	200	42	698	249	1297	346
Total	2606	4864			3172	8865			5778	13729
Percent	34.9%	65.1%			26.4%	73.6%			29.6%	70.4%
Grand Total	10244	14038			12469	26055			22713	40093
Percent	42.2%	57.8%			32.4%	67.6%			36.2%	63.8%
ADT		ADT: 21,650		AADT: 21,650						

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA

5/16/2022	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Week Average	
Time	SB,	NB,	SB,	NB,	SB,	NB,	SB,	NB,	SB,	NB,	SB,	NB,	SB,	NB,	SB,	NB,
12:00 AM	*	*	*	*	*	*	26	86	33	92	51	133	*	*	37	104
1:00	*	*	*	*	*	*	11	68	11	51	21	61	*	*	14	60
2:00	*	*	*	*	*	*	10	37	14	32	15	43	*	*	13	37
3:00	*	*	*	*	*	*	23	33	24	42	7	26	*	*	18	34
4:00	*	*	*	*	*	*	73	73	80	71	31	32	*	*	61	59
5:00	*	*	*	*	*	*	318	230	283	232	112	85	*	*	238	182
6:00	*	*	*	*	*	*	654	552	557	516	148	204	*	*	453	424
7:00	*	*	*	*	*	*	716	967	697	819	266	286	*	*	560	691
8:00	*	*	*	*	*	*	623	873	593	759	309	445	*	*	508	692
9:00	*	*	*	*	*	*	502	613	514	685	471	523	*	*	496	607
10:00	*	*	*	*	*	*	463	558	503	595	576	636	*	*	514	596
11:00	*	*	*	*	*	*	463	620	447	693	599	698	*	*	503	670
12:00 PM	*	*	*	*	*	*	455	667	525	720	646	803	*	*	542	730
1:00	*	*	*	*	*	*	468	779	545	793	622	919	*	*	545	830
2:00	*	*	*	*	*	*	483	921	577	927	675	988	*	*	578	945
3:00	*	*	*	*	*	*	528	1134	551	1063	591	983	*	*	557	1060
4:00	*	*	*	*	*	*	671	1093	636	1078	544	1127	*	*	617	1099
5:00	*	*	*	*	*	*	551	1098	666	1045	526	936	*	*	581	1026
6:00	*	*	*	*	*	*	377	774	589	775	390	791	*	*	452	780
7:00	*	*	*	*	*	*	235	619	343	647	309	642	*	*	296	636
8:00	*	*	*	*	*	*	139	527	207	582	206	643	*	*	184	584
9:00	*	*	*	*	*	*	124	363	175	499	150	472	*	*	150	445
10:00	*	*	*	*	*	*	77	275	138	362	108	312	*	*	108	316
11:00	*	*	*	*	*	*	47	192	67	257	97	249	*	*	70	233
Total	0	0	0	0	0	0	8037	13152	8775	13335	7470	12037	0	0	8095	12840
Day	0		0		0		21189		22110		19507		0		20935	
AM Peak							7:00	7:00	7:00	7:00	11:00	11:00			7:00	8:00
Volume							716	967	697	819	599	698			560	692
PM Peak							4:00	3:00	5:00	4:00	2:00	4:00			4:00	4:00
Volume							671	1134	666	1078	675	1127			617	1099
Comb Total	0		0		0		21189		22110		19507		0		20935	
ADT	ADT: 21,650		AADT: 21,650													

TURNING MOVEMENT COUNT DATA

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 1

Groups Printed- Cars - Trucks

	Route 114 From North			Driveway From East			Route 114 From South			Route 62 From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	167	65	0	0	0	10	138	0	58	0	10	448
07:15 AM	0	180	58	0	0	0	10	154	0	67	0	16	485
07:30 AM	1	198	68	1	0	0	14	220	1	56	1	13	573
07:45 AM	2	201	74	0	0	1	17	201	0	71	1	14	582
Total	3	746	265	1	0	1	51	713	1	252	2	53	2088
08:00 AM	0	197	75	0	0	0	7	179	1	36	1	22	518
08:15 AM	3	236	54	0	0	4	16	188	0	56	3	20	580
08:30 AM	0	212	67	0	1	1	20	178	2	50	0	18	549
08:45 AM	1	182	55	0	0	0	10	143	0	50	1	24	466
Total	4	827	251	0	1	5	53	688	3	192	5	84	2113
Grand Total	7	1573	516	1	1	6	104	1401	4	444	7	137	4201
Apprch %	0.3	75	24.6	12.5	12.5	75	6.9	92.8	0.3	75.5	1.2	23.3	
Total %	0.2	37.4	12.3	0	0	0.1	2.5	33.3	0.1	10.6	0.2	3.3	
Cars	7	1528	499	1	1	6	97	1350	4	428	7	129	4057
% Cars	100	97.1	96.7	100	100	100	93.3	96.4	100	96.4	100	94.2	96.6
Trucks	0	45	17	0	0	0	7	51	0	16	0	8	144
% Trucks	0	2.9	3.3	0	0	0	6.7	3.6	0	3.6	0	5.8	3.4

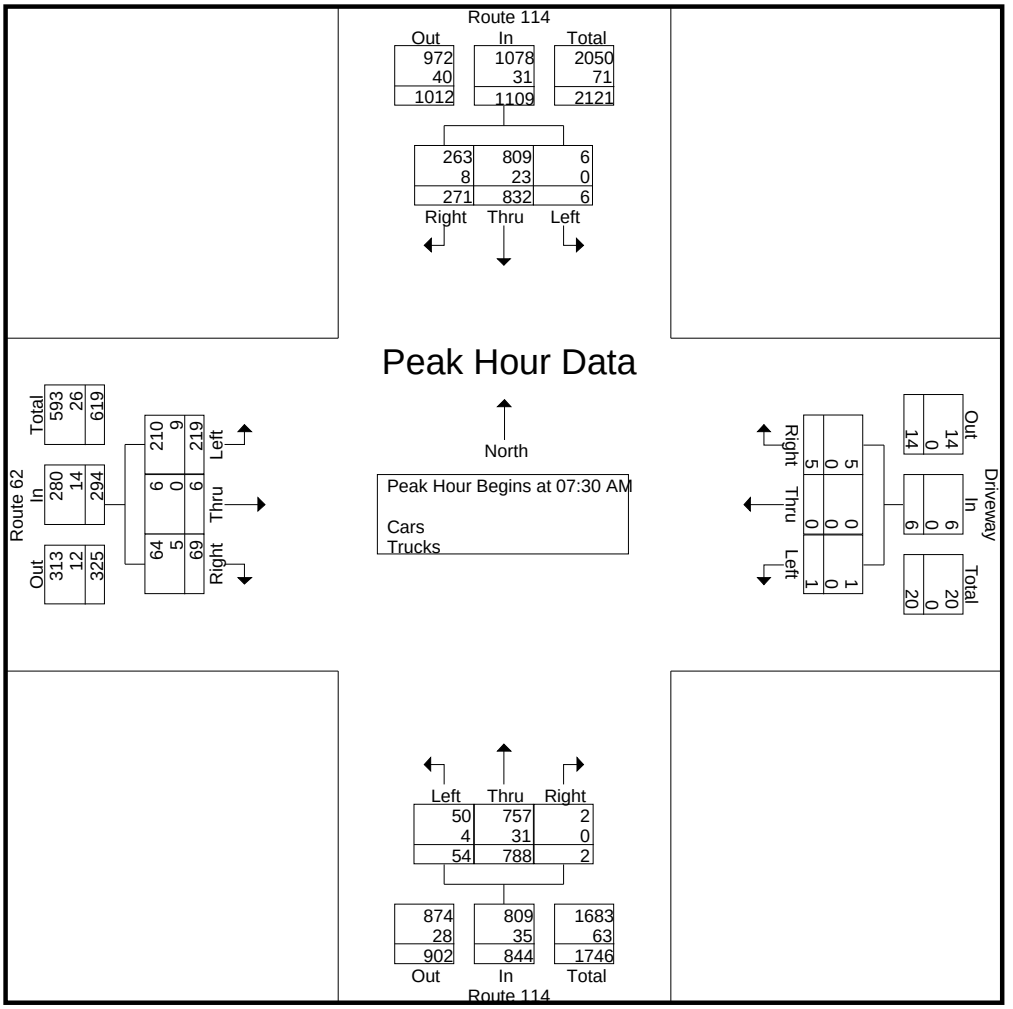
	Route 114 From North				Driveway From East				Route 114 From South				Route 62 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	198	68	267	**1**	0	0	1	14	**220**	**1**	**235**	56	1	13	70	573
07:45 AM	2	201	74	277	0	0	1	1	**17**	201	0	218	**71**	1	14	**86**	**582**
08:00 AM	0	197	**75**	272	0	0	0	0	7	179	1	187	36	1	**22**	59	518
08:15 AM	**3**	**236**	54	**293**	0	0	**4**	**4**	16	188	0	204	56	**3**	20	79	580
Total Volume	6	832	271	1109	1	0	5	6	54	788	2	844	219	6	69	294	2253
% App. Total	0.5	75	24.4		16.7	0	83.3		6.4	93.4	0.2		74.5	2	23.5		
PHF	.500	.881	.903	.946	.250	.000	.313	.375	.794	.895	.500	.898	.771	.500	.784	.855	.968
Cars	6	809	263	1078	1	0	5	6	50	757	2	809	210	6	64	280	2173
% Cars	100	97.2	97.0	97.2	100	0	100	100	92.6	96.1	100	95.9	95.9	100	92.8	95.2	96.4
Trucks	0	23	8	31	0	0	0	0	4	31	0	35	9	0	5	14	80
% Trucks	0	2.8	3.0	2.8	0	0	0	0	7.4	3.9	0	4.1	4.1	0	7.2	4.8	3.6

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
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:

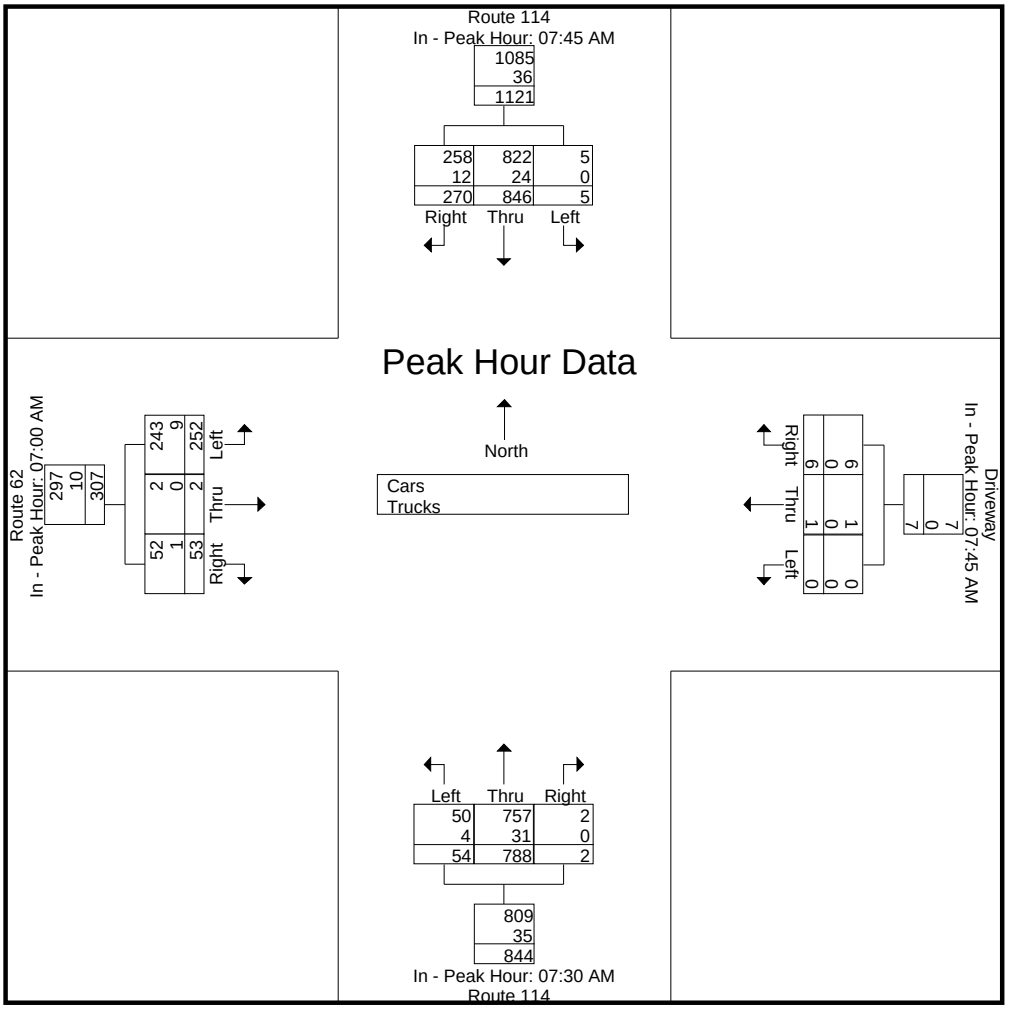
	07:45 AM				07:45 AM				07:30 AM				07:00 AM			
+0 mins.	2	201	74	277	0	0	1	1	14	**220**	**1**	**235**	58	0	10	68
+15 mins.	0	197	**75**	272	0	0	0	0	**17**	201	0	218	67	0	**16**	83
+30 mins.	**3**	**236**	54	**293**	0	0	**4**	**4**	7	179	1	187	56	**1**	13	70
+45 mins.	0	212	67	279	0	**1**	1	2	16	188	0	204	**71**	1	14	**86**
Total Volume	5	846	270	1121	0	1	6	7	54	788	2	844	252	2	53	307
% App. Total	0.4	75.5	24.1		0	14.3	85.7		6.4	93.4	0.2		82.1	0.7	17.3	
PHF	.417	.896	.900	.956	.000	.250	.375	.438	.794	.895	.500	.898	.887	.500	.828	.892
Cars	5	822	258	1085	0	1	6	7	50	757	2	809	243	2	52	297
% Cars	100	97.2	95.6	96.8	0	100	100	100	92.6	96.1	100	95.9	96.4	100	98.1	96.7
Trucks	0	24	12	36	0	0	0	0	4	31	0	35	9	0	1	10
% Trucks	0	2.8	4.4	3.2	0	0	0	0	7.4	3.9	0	4.1	3.6	0	1.9	3.3

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North			Driveway From East			Route 114 From South			Route 62 From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	162	65	0	0	0	8	132	0	54	0	9	430
07:15 AM	0	173	54	0	0	0	9	152	0	67	0	16	471
07:30 AM	1	192	67	1	0	0	13	213	1	54	1	13	556
07:45 AM	2	199	73	0	0	1	16	194	0	68	1	14	568
Total	3	726	259	1	0	1	46	691	1	243	2	52	2025
08:00 AM	0	191	70	0	0	0	7	175	1	34	1	19	498
08:15 AM	3	227	53	0	0	4	14	175	0	54	3	18	551
08:30 AM	0	205	62	0	1	1	20	169	2	50	0	17	527
08:45 AM	1	179	55	0	0	0	10	140	0	47	1	23	456
Total	4	802	240	0	1	5	51	659	3	185	5	77	2032
Grand Total	7	1528	499	1	1	6	97	1350	4	428	7	129	4057
Apprch %	0.3	75.1	24.5	12.5	12.5	75	6.7	93	0.3	75.9	1.2	22.9	
Total %	0.2	37.7	12.3	0	0	0.1	2.4	33.3	0.1	10.5	0.2	3.2	

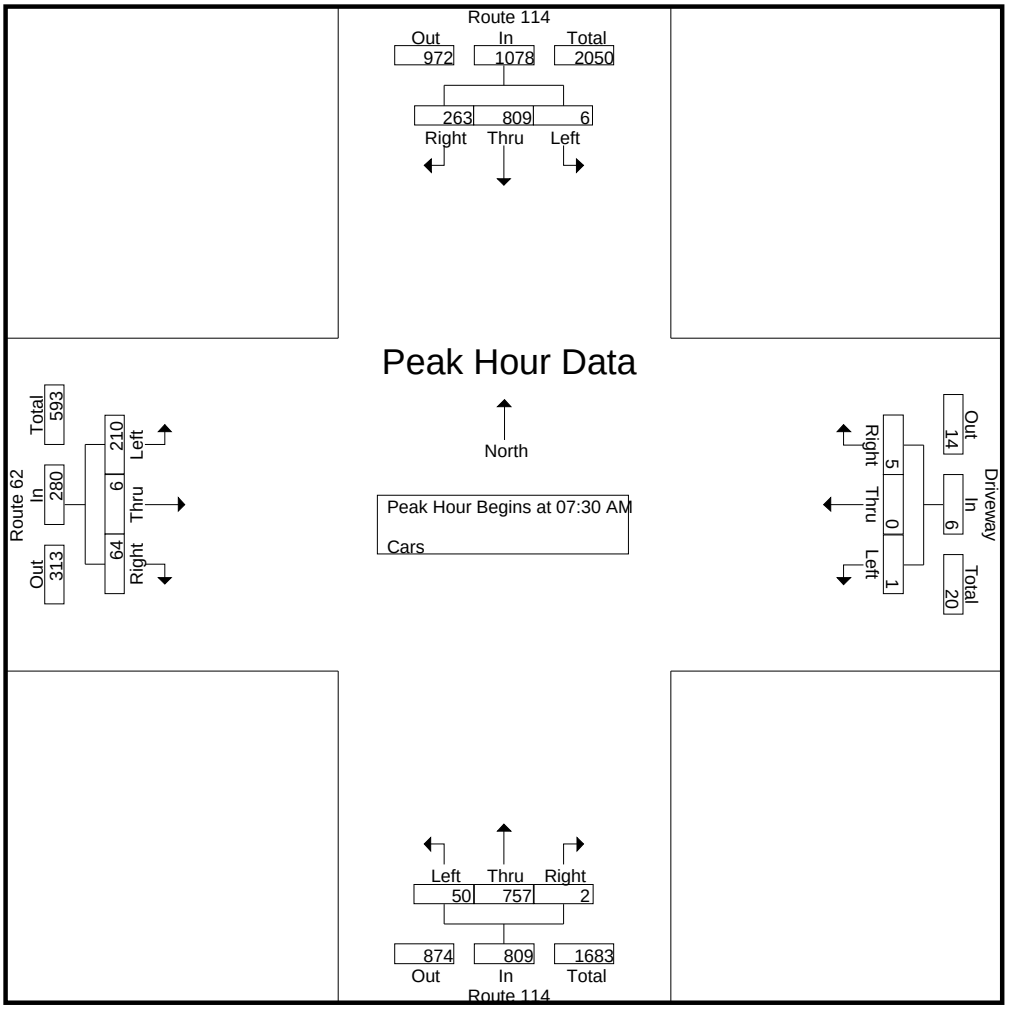
	Route 114 From North				Driveway From East				Route 114 From South				Route 62 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	192	67	260	**1**	0	0	1	13	**213**	**1**	**227**	54	1	13	68	556
07:45 AM	2	199	**73**	274	0	0	1	1	**16**	194	0	210	**68**	1	14	**83**	**568**
08:00 AM	0	191	70	261	0	0	0	0	7	175	1	183	34	1	**19**	54	498
08:15 AM	**3**	**227**	53	**283**	0	0	**4**	**4**	14	175	0	189	54	**3**	18	75	551
Total Volume	6	809	263	1078	1	0	5	6	50	757	2	809	210	6	64	280	2173
% App. Total	0.6	75	24.4		16.7	0	83.3		6.2	93.6	0.2		75	2.1	22.9		
PHF	.500	.891	.901	.952	.250	.000	.313	.375	.781	.888	.500	.891	.772	.500	.842	.843	.956

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
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:

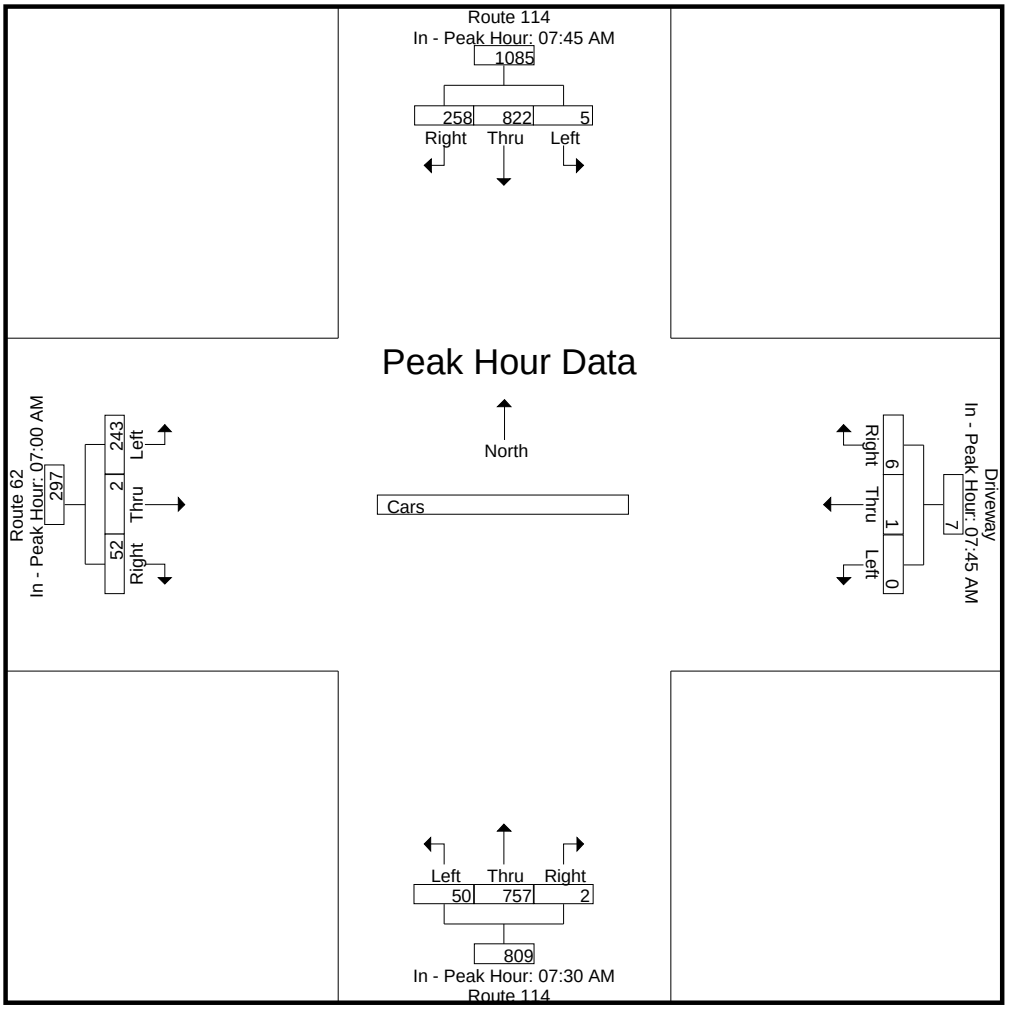
	07:45 AM				07:45 AM				07:30 AM				07:00 AM			
+0 mins.	2	199	**73**	274	0	0	1	1	13	**213**	**1**	**227**	54	0	9	63
+15 mins.	0	191	70	261	0	0	0	0	**16**	194	0	210	67	0	**16**	**83**
+30 mins.	**3**	**227**	53	**283**	0	0	**4**	**4**	7	175	1	183	54	**1**	13	68
+45 mins.	0	205	62	267	0	**1**	1	2	14	175	0	189	**68**	1	14	83
Total Volume	5	822	258	1085	0	1	6	7	50	757	2	809	243	2	52	297
% App. Total	0.5	75.8	23.8		0	14.3	85.7		6.2	93.6	0.2		81.8	0.7	17.5	
PHF	.417	.905	.884	.958	.000	.250	.375	.438	.781	.888	.500	.891	.893	.500	.813	.895

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 7

Groups Printed- Trucks

	Route 114 From North			Driveway From East			Route 114 From South			Route 62 From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	5	0	0	0	0	2	6	0	4	0	1	18
07:15 AM	0	7	4	0	0	0	1	2	0	0	0	0	14
07:30 AM	0	6	1	0	0	0	1	7	0	2	0	0	17
07:45 AM	0	2	1	0	0	0	1	7	0	3	0	0	14
Total	0	20	6	0	0	0	5	22	0	9	0	1	63
08:00 AM	0	6	5	0	0	0	0	4	0	2	0	3	20
08:15 AM	0	9	1	0	0	0	2	13	0	2	0	2	29
08:30 AM	0	7	5	0	0	0	0	9	0	0	0	1	22
08:45 AM	0	3	0	0	0	0	0	3	0	3	0	1	10
Total	0	25	11	0	0	0	2	29	0	7	0	7	81
Grand Total	0	45	17	0	0	0	7	51	0	16	0	8	144
Apprch %	0	72.6	27.4	0	0	0	12.1	87.9	0	66.7	0	33.3	
Total %	0	31.2	11.8	0	0	0	4.9	35.4	0	11.1	0	5.6	

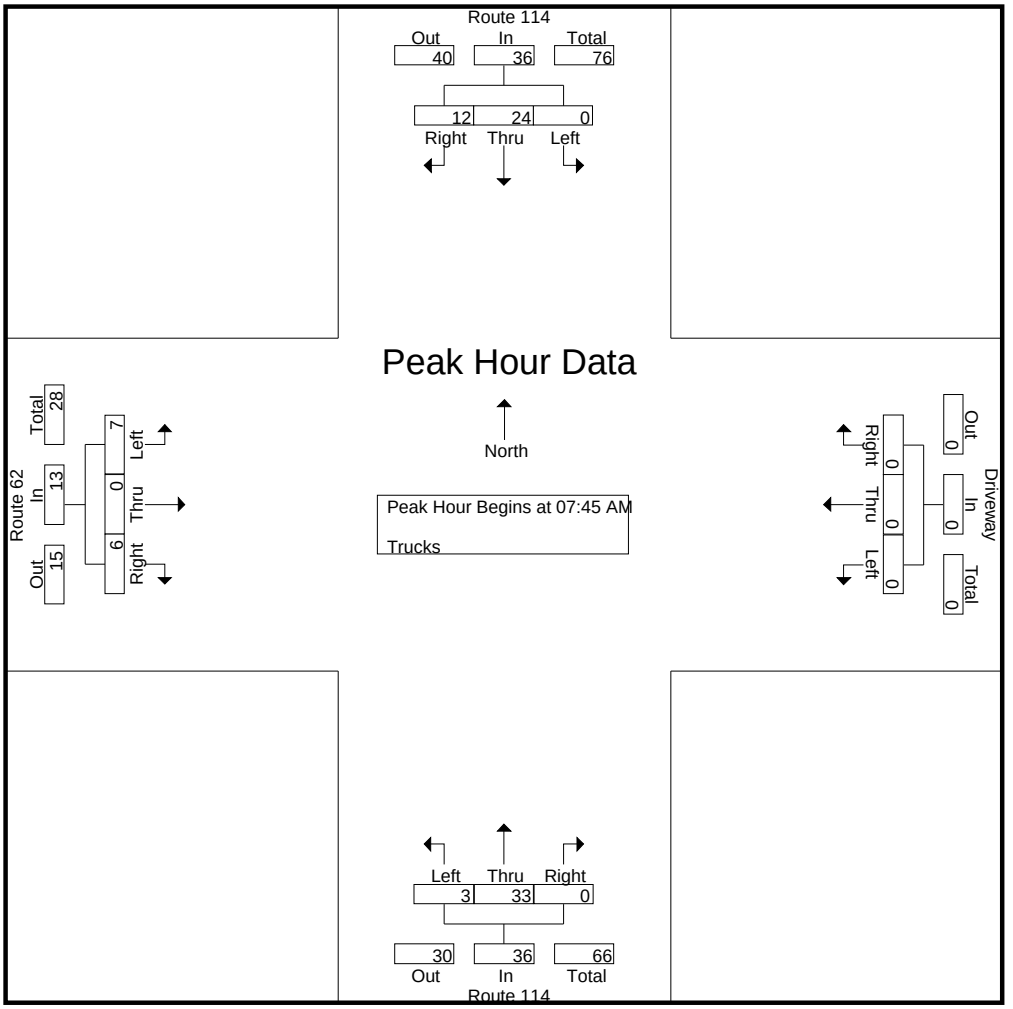
	Route 114 From North				Driveway From East				Route 114 From South				Route 62 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	2	1	3	0	0	0	0	1	7	0	8	**3**	0	0	3	14
08:00 AM	0	6	**5**	11	0	0	0	0	0	4	0	4	2	0	**3**	**5**	20
08:15 AM	0	**9**	1	10	0	0	0	0	**2**	**13**	0	**15**	2	0	2	4	**29**
08:30 AM	0	7	5	**12**	0	0	0	0	0	9	0	9	0	0	1	1	22
Total Volume	0	24	12	36	0	0	0	0	3	33	0	36	7	0	6	13	85
% App. Total	0	66.7	33.3		0	0	0		8.3	91.7	0		53.8	0	46.2		
PHF	.000	.667	.600	.750	.000	.000	.000	.000	.375	.635	.000	.600	.583	.000	.500	.650	.733

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
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:

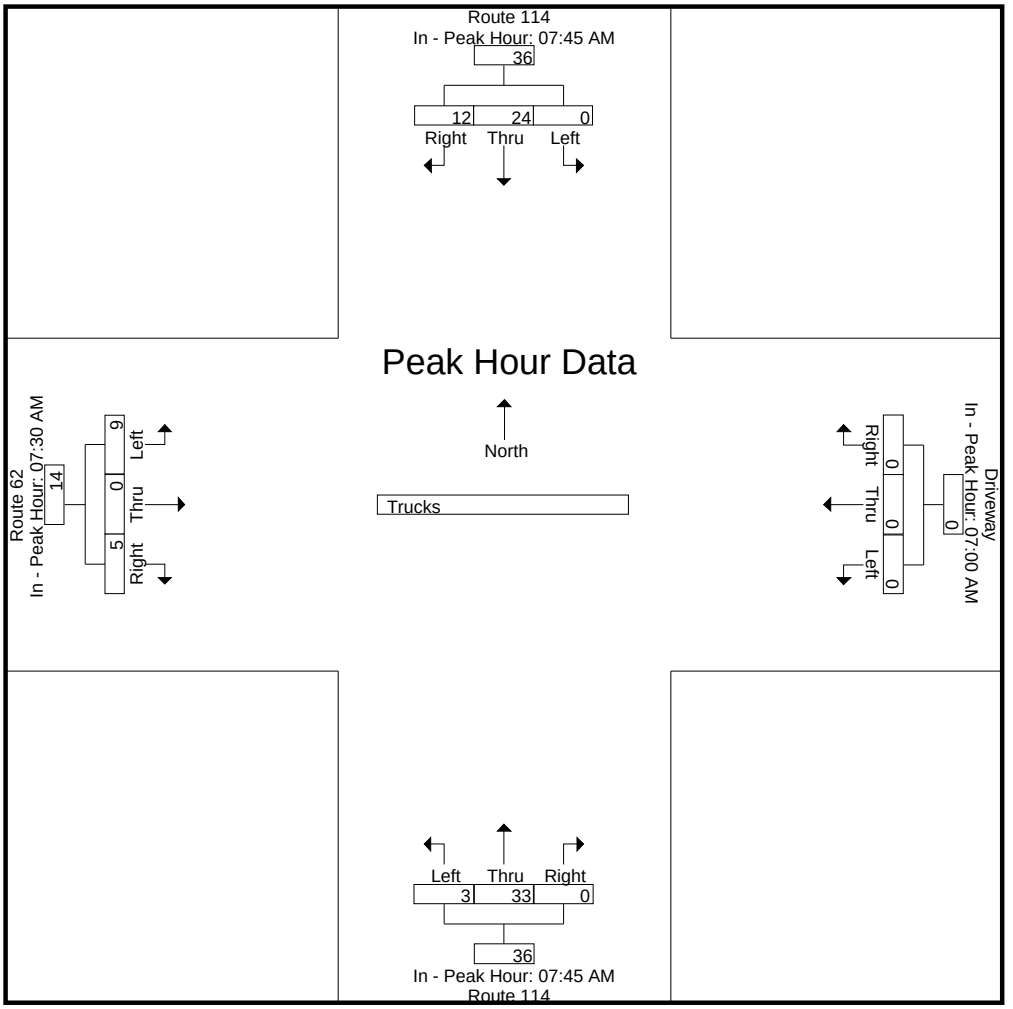
	07:45 AM				07:00 AM				07:45 AM				07:30 AM			
+0 mins.	0	2	1	3	0	0	0	0	1	7	0	8	2	0	0	2
+15 mins.	0	6	**5**	11	0	0	0	0	0	4	0	4	**3**	0	0	3
+30 mins.	0	**9**	1	10	0	0	0	0	**2**	**13**	0	**15**	2	0	**3**	**5**
+45 mins.	0	7	5	**12**	0	0	0	0	0	9	0	9	2	0	2	4
Total Volume	0	24	12	36	0	0	0	0	3	33	0	36	9	0	5	14
% App. Total	0	66.7	33.3		0	0	0		8.3	91.7	0		64.3	0	35.7	
PHF	.000	.667	.600	.750	.000	.000	.000	.000	.375	.635	.000	.600	.750	.000	.417	.700

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 10

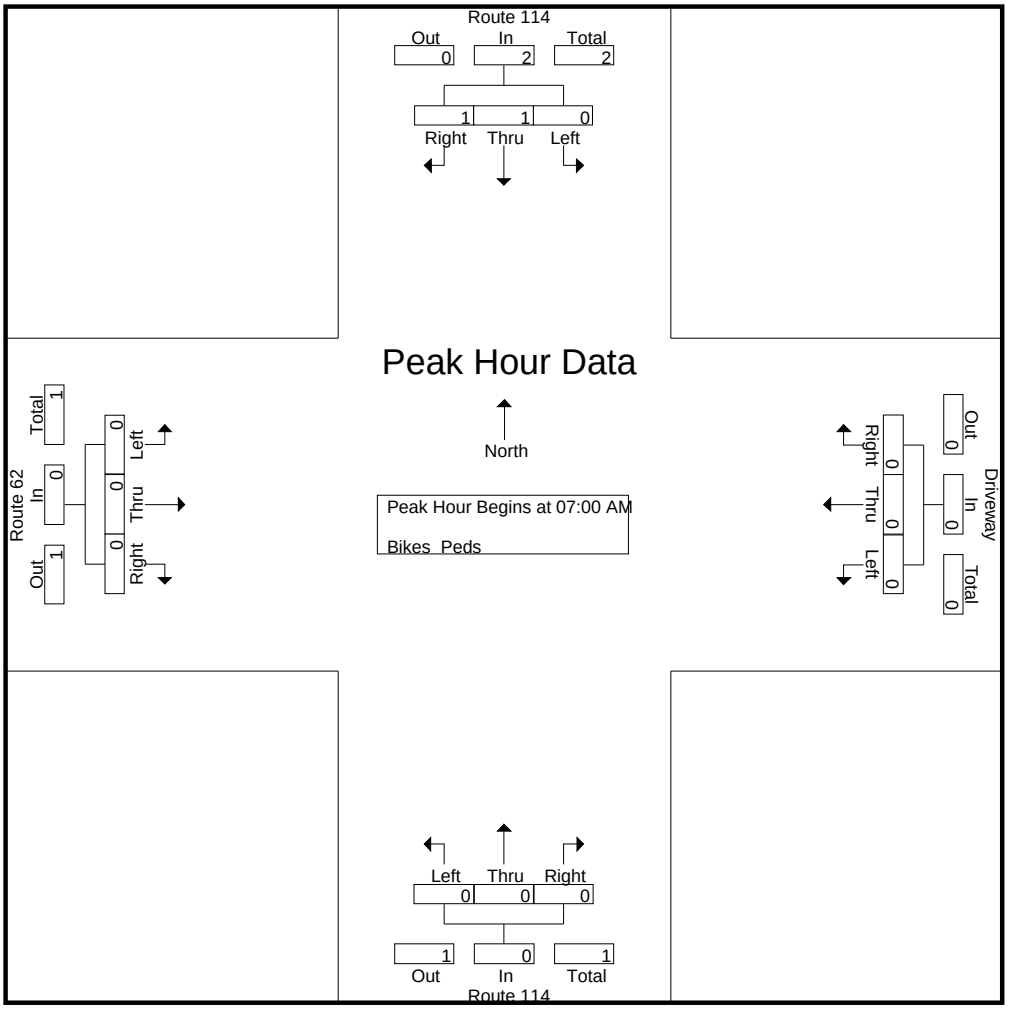
Groups Printed- Bikes Peds

	Route 114 From North				Driveway From East				Route 114 From South				Route 62 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
07:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	2
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	2
Grand Total	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	3	4
Apprch %	0	66.7	33.3		0	0	0		0	0	0		0	0	0				
Total %	0	66.7	33.3		0	0	0		0	0	0		0	0	0		25	75	

	Route 114 From North				Driveway From East				Route 114 From South				Route 62 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 07:00 AM																	
07:00 AM	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
07:15 AM	0	**1**	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
% App. Total	0	50	50		0	0	0		0	0	0		0	0	0		
PHF	.000	.250	.250	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
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:

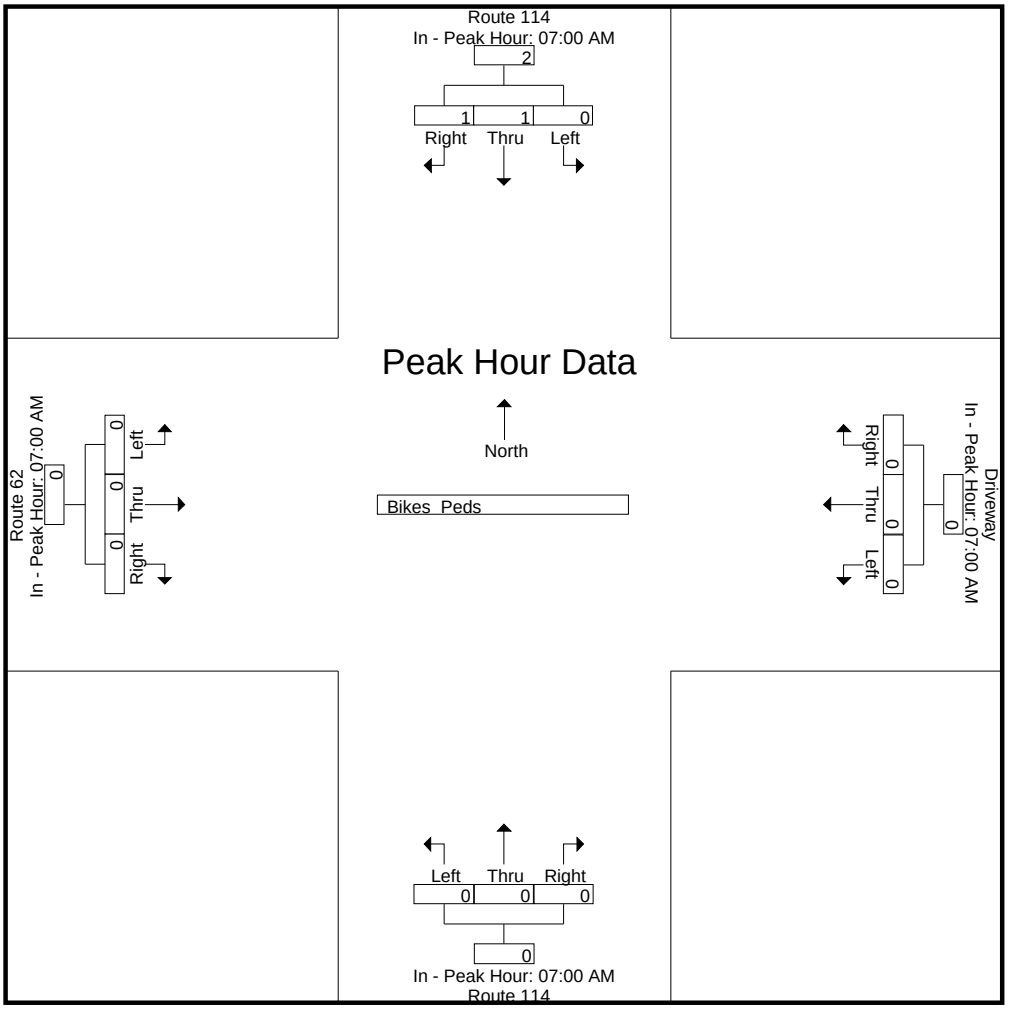
	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	**1**	0	1	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	50	50		0	0	0	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

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 1

Groups Printed- Cars - Trucks

	Route 114 From North			Driveway From East			Route 114 From South			Route 62 From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
03:00 PM	0	169	66	1	0	1	22	219	0	65	0	26	569
03:15 PM	0	158	56	0	0	0	23	223	0	67	0	21	548
03:30 PM	0	190	60	0	0	0	7	181	0	63	0	18	519
03:45 PM	1	167	33	0	0	1	14	184	0	85	0	21	506
Total	1	684	215	1	0	2	66	807	0	280	0	86	2142
04:00 PM	0	183	70	1	1	2	14	201	0	88	0	25	585
04:15 PM	1	198	55	1	0	1	16	211	0	70	0	29	582
04:30 PM	2	162	49	0	0	0	24	214	0	77	0	16	544
04:45 PM	5	193	55	1	0	1	10	200	2	89	2	32	590
Total	8	736	229	3	1	4	64	826	2	324	2	102	2301
05:00 PM	5	182	64	0	3	2	23	194	0	80	1	32	586
05:15 PM	0	208	63	0	0	0	28	227	1	59	1	31	618
05:30 PM	1	185	58	2	0	2	16	248	3	69	0	23	607
05:45 PM	0	192	46	1	0	0	21	214	1	79	0	26	580
Total	6	767	231	3	3	4	88	883	5	287	2	112	2391
06:00 PM	2	184	56	0	0	0	17	186	0	70	0	26	541
06:15 PM	0	130	46	2	2	11	27	162	3	69	0	22	474
06:30 PM	0	166	34	0	1	1	13	143	0	42	0	15	415
06:45 PM	0	115	28	0	1	0	21	141	1	48	0	20	375
Total	2	595	164	2	4	12	78	632	4	229	0	83	1805
Grand Total	17	2782	839	9	8	22	296	3148	11	1120	4	383	8639
Apprch %	0.5	76.5	23.1	23.1	20.5	56.4	8.6	91.1	0.3	74.3	0.3	25.4	
Total %	0.2	32.2	9.7	0.1	0.1	0.3	3.4	36.4	0.1	13	0	4.4	
Cars	17	2748	824	9	8	22	292	3117	11	1103	4	382	8537
% Cars	100	98.8	98.2	100	100	100	98.6	99	100	98.5	100	99.7	98.8
Trucks	0	34	15	0	0	0	4	31	0	17	0	1	102
% Trucks	0	1.2	1.8	0	0	0	1.4	1	0	1.5	0	0.3	1.2

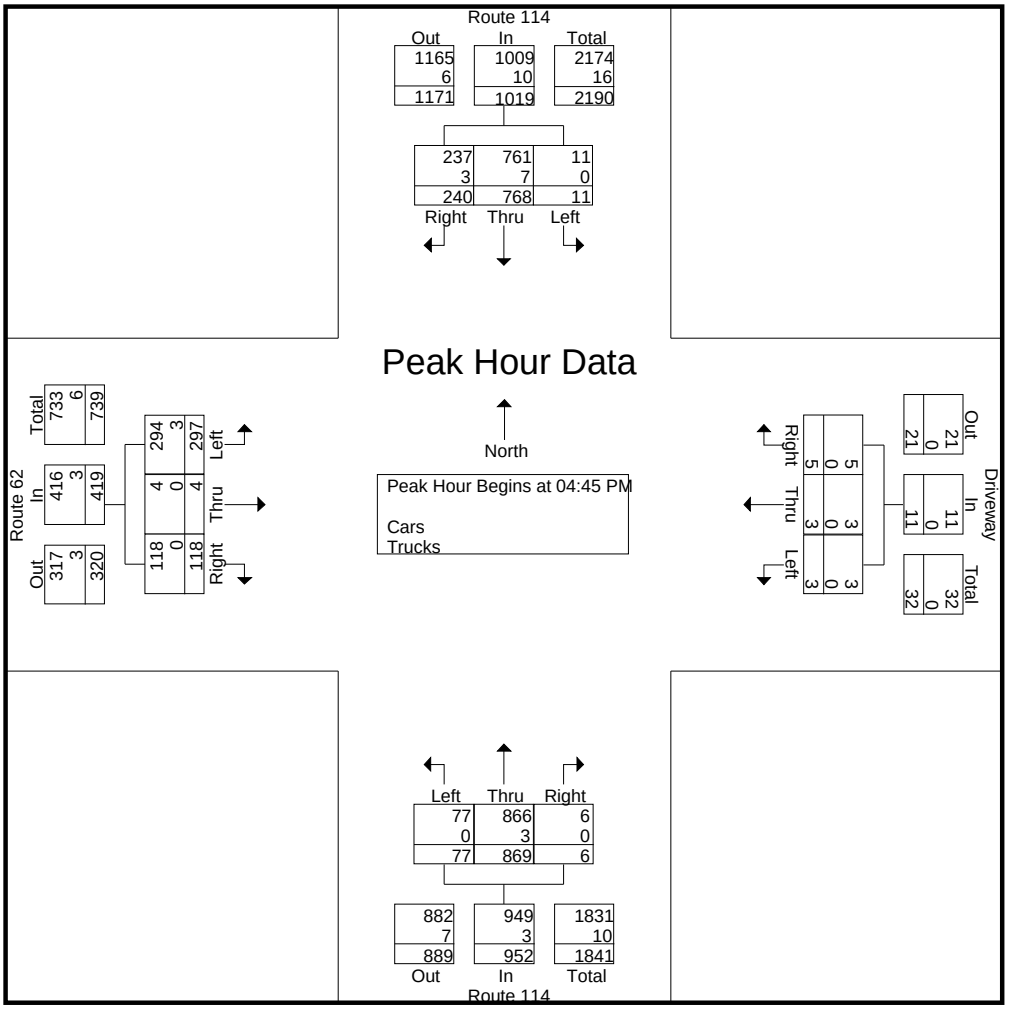
	Route 114 From North				Driveway From East				Route 114 From South				Route 62 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**5**	193	55	253	1	0	1	2	10	200	2	212	**89**	**2**	**32**	**123**	590
05:00 PM	5	182	**64**	251	0	**3**	**2**	**5**	23	194	0	217	80	1	32	113	586
05:15 PM	0	**208**	63	**271**	0	0	0	0	**28**	227	1	256	59	1	31	91	**618**
05:30 PM	1	185	58	244	**2**	0	2	4	16	**248**	**3**	**267**	69	0	23	92	607
Total Volume	11	768	240	1019	3	3	5	11	77	869	6	952	297	4	118	419	2401
% App. Total	1.1	75.4	23.6		27.3	27.3	45.5		8.1	91.3	0.6		70.9	1	28.2		
PHF	.550	.923	.938	.940	.375	.250	.625	.550	.688	.876	.500	.891	.834	.500	.922	.852	.971
Cars	11	761	237	1009	3	3	5	11	77	866	6	949	294	4	118	416	2385
% Cars	100	99.1	98.8	99.0	100	100	100	100	100	99.7	100	99.7	99.0	100	100	99.3	99.3
Trucks	0	7	3	10	0	0	0	0	0	3	0	3	3	0	0	3	16
% Trucks	0	0.9	1.3	1.0	0	0	0	0	0	0.3	0	0.3	1.0	0	0	0.7	0.7

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 2



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

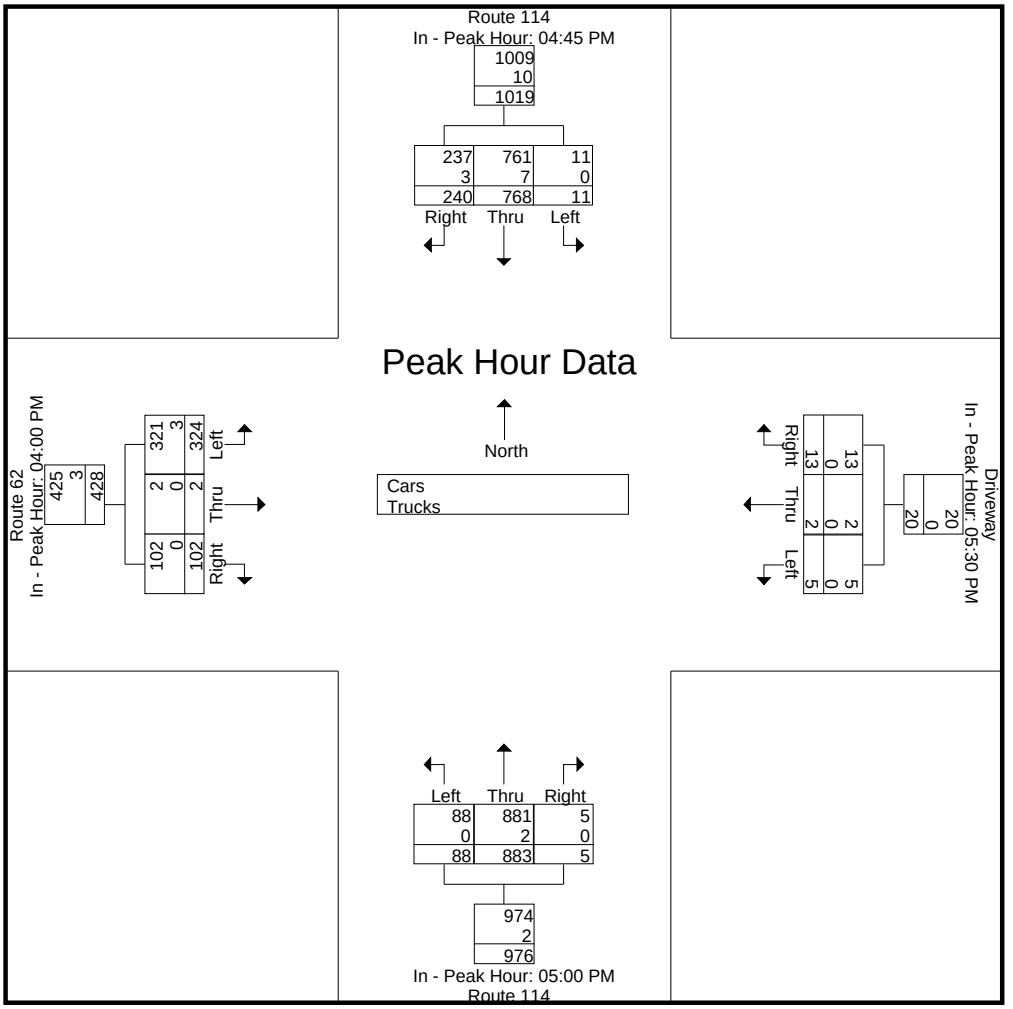
	04:45 PM				05:30 PM				05:00 PM				04:00 PM			
+0 mins.	**5**	193	55	253	**2**	0	2	4	23	194	0	217	88	0	25	113
+15 mins.	5	182	**64**	251	1	0	0	1	**28**	227	1	256	70	0	29	99
+30 mins.	0	**208**	63	**271**	0	0	0	0	16	**248**	**3**	**267**	77	0	16	93
+45 mins.	1	185	58	244	2	**2**	**11**	**15**	21	214	1	236	**89**	**2**	**32**	**123**
Total Volume	11	768	240	1019	5	2	13	20	88	883	5	976	324	2	102	428
% App. Total	1.1	75.4	23.6		25	10	65		9	90.5	0.5		75.7	0.5	23.8	
PHF	.550	.923	.938	.940	.625	.250	.295	.333	.786	.890	.417	.914	.910	.250	.797	.870
Cars	11	761	237	1009	5	2	13	20	88	881	5	974	321	2	102	425
% Cars	100	99.1	98.8	99	100	100	100	100	100	99.8	100	99.8	99.1	100	100	99.3
Trucks	0	7	3	10	0	0	0	0	0	2	0	2	3	0	0	3
% Trucks	0	0.9	1.2	1	0	0	0	0	0	0.2	0	0.2	0.9	0	0	0.7

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North			Driveway From East			Route 114 From South			Route 62 From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
03:00 PM	0	164	65	1	0	1	21	213	0	64	0	26	555
03:15 PM	0	154	55	0	0	0	23	216	0	64	0	21	533
03:30 PM	0	187	58	0	0	0	6	179	0	61	0	18	509
03:45 PM	1	162	32	0	0	1	13	182	0	82	0	21	494
Total	1	667	210	1	0	2	63	790	0	271	0	86	2091
04:00 PM	0	177	67	1	1	2	14	199	0	87	0	25	573
04:15 PM	1	198	54	1	0	1	16	209	0	70	0	29	579
04:30 PM	2	161	49	0	0	0	24	212	0	76	0	16	540
04:45 PM	5	191	53	1	0	1	10	197	2	88	2	32	582
Total	8	727	223	3	1	4	64	817	2	321	2	102	2274
05:00 PM	5	179	64	0	3	2	23	194	0	79	1	32	582
05:15 PM	0	206	63	0	0	0	28	227	1	59	1	31	616
05:30 PM	1	185	57	2	0	2	16	248	3	68	0	23	605
05:45 PM	0	192	46	1	0	0	21	212	1	79	0	26	578
Total	6	762	230	3	3	4	88	881	5	285	2	112	2381
06:00 PM	2	184	55	0	0	0	17	186	0	70	0	26	540
06:15 PM	0	130	46	2	2	11	27	159	3	69	0	21	470
06:30 PM	0	165	33	0	1	1	13	143	0	39	0	15	410
06:45 PM	0	113	27	0	1	0	20	141	1	48	0	20	371
Total	2	592	161	2	4	12	77	629	4	226	0	82	1791
Grand Total	17	2748	824	9	8	22	292	3117	11	1103	4	382	8537
Apprch %	0.5	76.6	23	23.1	20.5	56.4	8.5	91.1	0.3	74.1	0.3	25.7	
Total %	0.2	32.2	9.7	0.1	0.1	0.3	3.4	36.5	0.1	12.9	0	4.5	

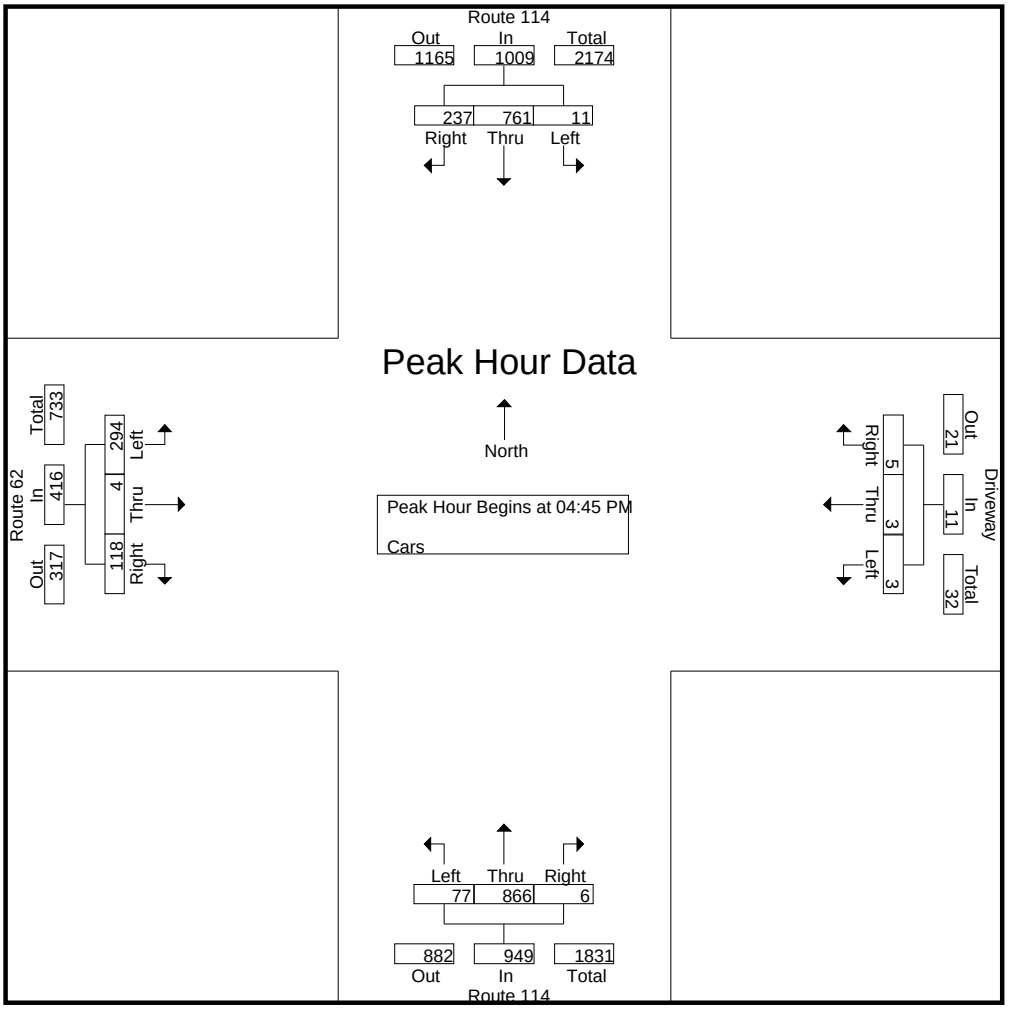
	Route 114 From North				Driveway From East				Route 114 From South				Route 62 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**5**	191	53	249	1	0	1	2	10	197	2	209	**88**	**2**	**32**	**122**	582
05:00 PM	5	179	**64**	248	0	**3**	**2**	**5**	23	194	0	217	79	1	32	112	582
05:15 PM	0	**206**	63	**269**	0	0	0	0	**28**	227	1	256	59	1	31	91	**616**
05:30 PM	1	185	57	243	**2**	0	2	4	16	**248**	**3**	**267**	68	0	23	91	605
Total Volume	11	761	237	1009	3	3	5	11	77	866	6	949	294	4	118	416	2385
% App. Total	1.1	75.4	23.5		27.3	27.3	45.5		8.1	91.3	0.6		70.7	1	28.4		
PHF	.550	.924	.926	.938	.375	.250	.625	.550	.688	.873	.500	.889	.835	.500	.922	.852	.968

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 5



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

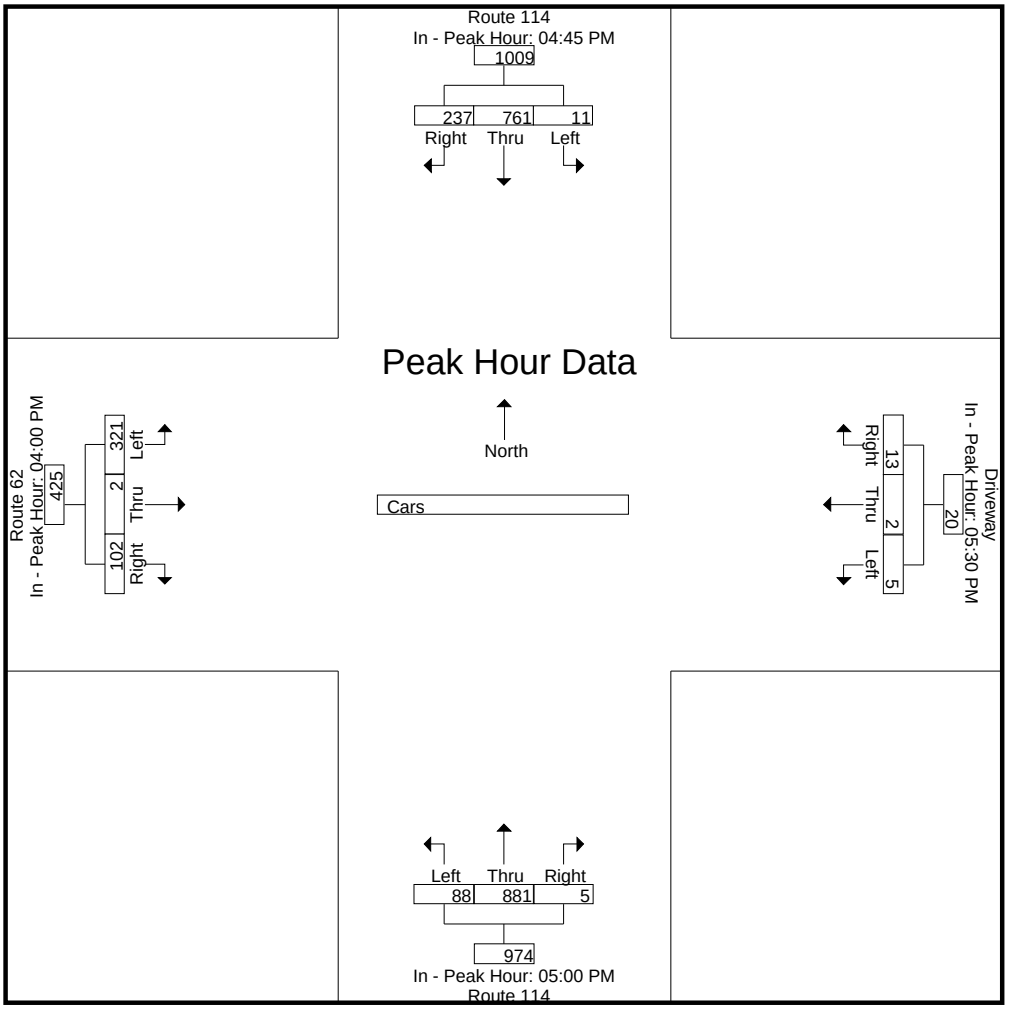
	04:45 PM				05:30 PM				05:00 PM				04:00 PM			
+0 mins.	**5**	191	53	249	**2**	0	2	4	23	194	0	217	87	0	25	112
+15 mins.	5	179	**64**	248	1	0	0	1	**28**	227	1	256	70	0	29	99
+30 mins.	0	**206**	63	**269**	0	0	0	0	16	**248**	**3**	**267**	76	0	16	92
+45 mins.	1	185	57	243	2	**2**	**11**	**15**	21	212	1	234	**88**	**2**	**32**	**122**
Total Volume	11	761	237	1009	5	2	13	20	88	881	5	974	321	2	102	425
% App. Total	1.1	75.4	23.5		25	10	65		9	90.5	0.5		75.5	0.5	24	
PHF	.550	.924	.926	.938	.625	.250	.295	.333	.786	.888	.417	.912	.912	.250	.797	.871

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 7

Groups Printed- Trucks

	Route 114 From North			Driveway From East			Route 114 From South			Route 62 From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
03:00 PM	0	5	1	0	0	0	1	6	0	1	0	0	14
03:15 PM	0	4	1	0	0	0	0	7	0	3	0	0	15
03:30 PM	0	3	2	0	0	0	1	2	0	2	0	0	10
03:45 PM	0	5	1	0	0	0	1	2	0	3	0	0	12
Total	0	17	5	0	0	0	3	17	0	9	0	0	51
04:00 PM	0	6	3	0	0	0	0	2	0	1	0	0	12
04:15 PM	0	0	1	0	0	0	0	2	0	0	0	0	3
04:30 PM	0	1	0	0	0	0	0	2	0	1	0	0	4
04:45 PM	0	2	2	0	0	0	0	3	0	1	0	0	8
Total	0	9	6	0	0	0	0	9	0	3	0	0	27
05:00 PM	0	3	0	0	0	0	0	0	0	1	0	0	4
05:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	1	0	0	0	0	0	0	1	0	0	2
05:45 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
Total	0	5	1	0	0	0	0	2	0	2	0	0	10
06:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
06:15 PM	0	0	0	0	0	0	0	3	0	0	0	1	4
06:30 PM	0	1	1	0	0	0	0	0	0	3	0	0	5
06:45 PM	0	2	1	0	0	0	1	0	0	0	0	0	4
Total	0	3	3	0	0	0	1	3	0	3	0	1	14
Grand Total	0	34	15	0	0	0	4	31	0	17	0	1	102
Apprch %	0	69.4	30.6	0	0	0	11.4	88.6	0	94.4	0	5.6	
Total %	0	33.3	14.7	0	0	0	3.9	30.4	0	16.7	0	1	

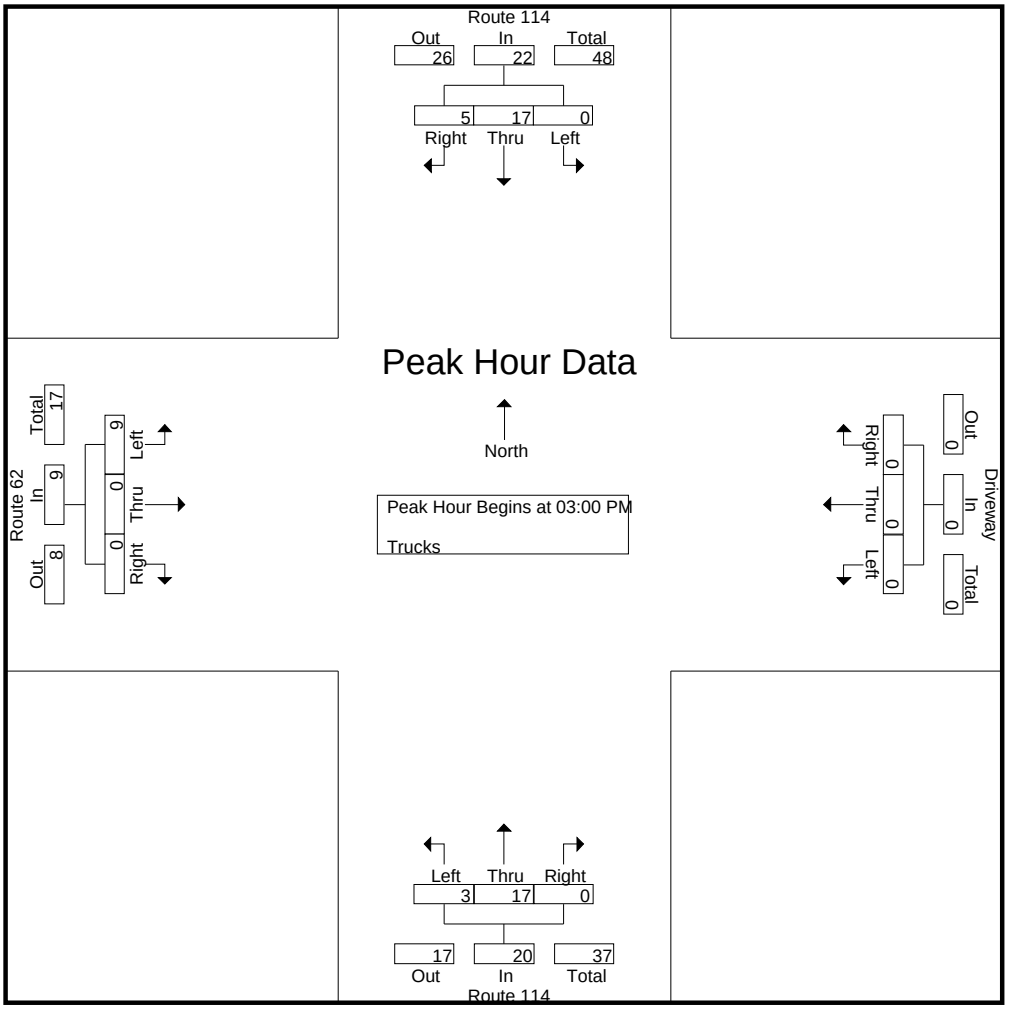
	Route 114 From North				Driveway From East				Route 114 From South				Route 62 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	**5**	1	**6**	0	0	0	0	**1**	6	0	**7**	1	0	0	1	14
03:15 PM	0	4	1	5	0	0	0	0	0	**7**	0	7	**3**	0	0	**3**	**15**
03:30 PM	0	3	**2**	5	0	0	0	0	1	2	0	3	2	0	0	2	10
03:45 PM	0	5	1	6	0	0	0	0	1	2	0	3	3	0	0	3	12
Total Volume	0	17	5	22	0	0	0	0	3	17	0	20	9	0	0	9	51
% App. Total	0	77.3	22.7		0	0	0		15	85	0		100	0	0		
PHF	.000	.850	.625	.917	.000	.000	.000	.000	.750	.607	.000	.714	.750	.000	.000	.750	.850

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 8

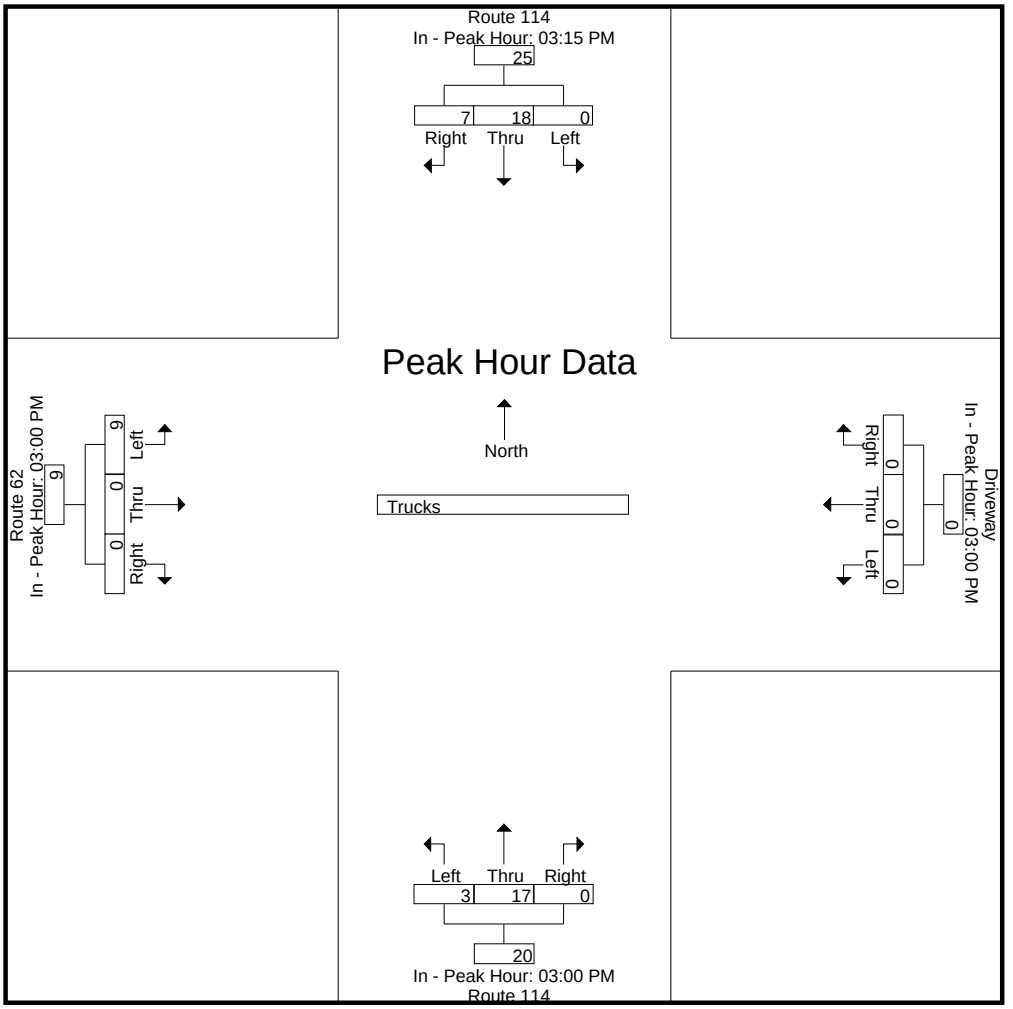


Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:15 PM				03:00 PM				03:00 PM				03:00 PM			
+0 mins.	0	4	1	5	0	0	0	0	**1**	6	0	**7**	1	0	0	1
+15 mins.	0	3	2	5	0	0	0	0	0	**7**	0	7	**3**	0	0	**3**
+30 mins.	0	5	1	6	0	0	0	0	1	2	0	3	2	0	0	2
+45 mins.	0	**6**	**3**	**9**	0	0	0	0	1	2	0	3	3	0	0	3
Total Volume	0	18	7	25	0	0	0	0	3	17	0	20	9	0	0	9
% App. Total	0	72	28		0	0	0		15	85	0		100	0	0	
PHF	.000	.750	.583	.694	.000	.000	.000	.000	.750	.607	.000	.714	.750	.000	.000	.750

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 10

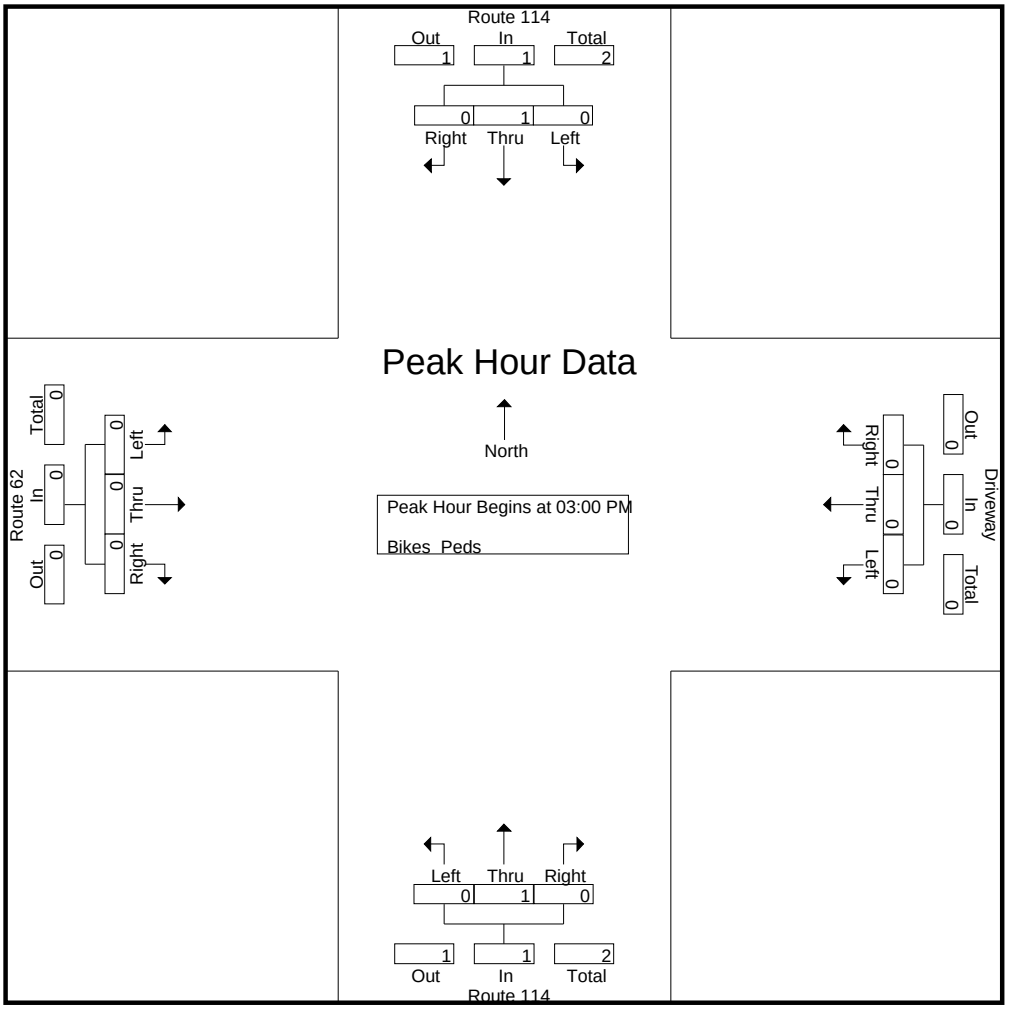
Groups Printed- Bikes Peds

	Route 114 From North				Driveway From East				Route 114 From South				Route 62 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
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2
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	2	0	0	0	0	0	0	0	0	2	0	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	2	0	0	0	0	0	0	0	0	2	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
06:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
06:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0	3
Grand Total	0	1	0	0	0	0	0	5	0	1	0	0	0	0	0	0	5	2	7
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0				
Total %	0	50	0		0	0	0		0	50	0		0	0	0		71.4	28.6	

	Route 114 From North				Driveway From East				Route 114 From South				Route 62 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 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.500

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 11

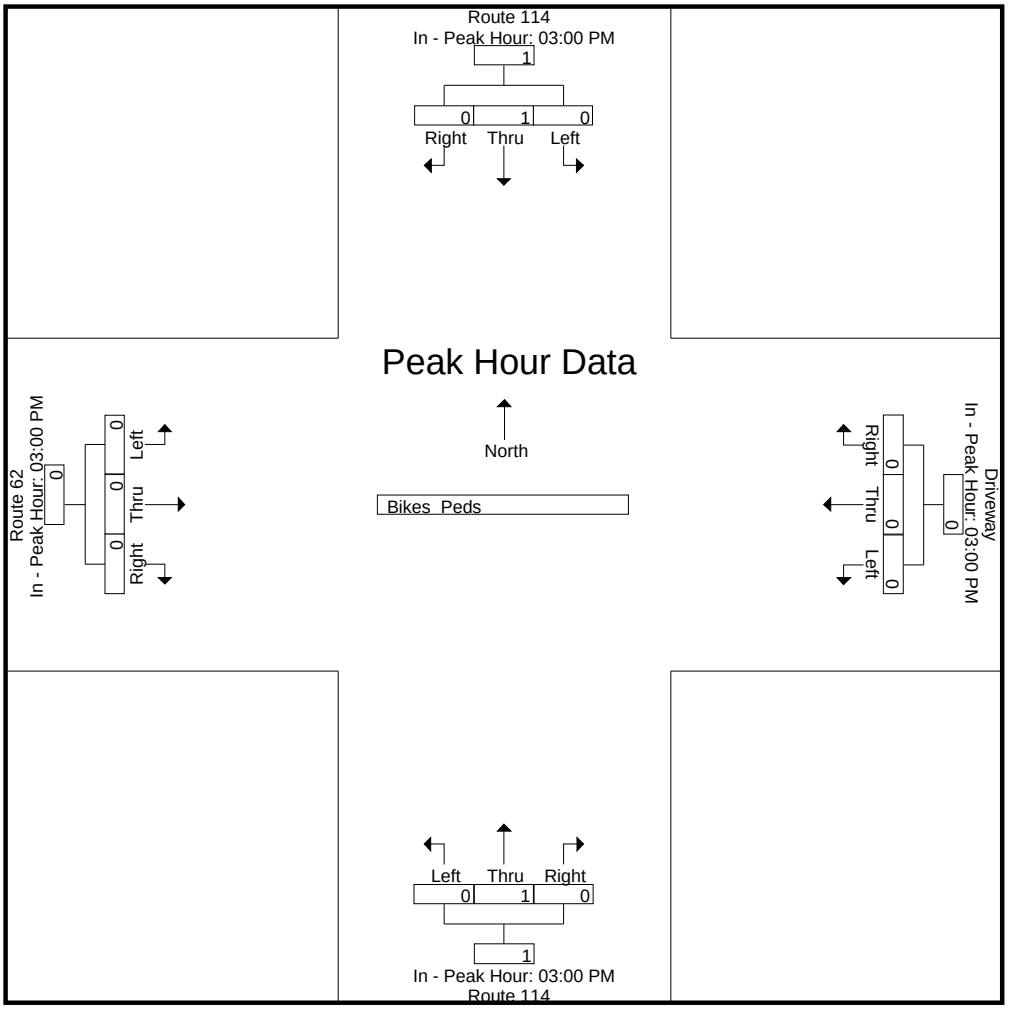


Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM				03:00 PM				03:00 PM				03:00 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	**1**	0	**1**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010001
Site Code : 93010001
Start Date : 5/19/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
Page No : 1

Groups Printed- Cars - Trucks

	Route 114 From North			Driveway From East			Route 114 From South			Route 62 From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
11:00 AM	1	177	39	0	0	0	11	187	0	56	0	23	494
11:15 AM	0	193	48	0	1	0	11	186	0	66	0	33	538
11:30 AM	1	205	47	0	0	1	10	177	1	51	1	37	531
11:45 AM	0	202	62	0	0	0	18	165	0	48	0	23	518
Total	2	777	196	0	1	1	50	715	1	221	1	116	2081
12:00 PM	0	222	62	0	0	0	20	167	0	51	1	21	544
12:15 PM	0	205	43	0	0	0	19	205	0	58	0	32	562
12:30 PM	0	200	65	0	1	0	31	205	0	41	1	22	566
12:45 PM	4	190	52	0	0	0	15	222	1	57	0	30	571
Total	4	817	222	0	1	0	85	799	1	207	2	105	2243
01:00 PM	10	200	37	1	0	1	17	184	2	59	3	34	548
01:15 PM	1	198	60	0	0	0	20	166	3	62	0	24	534
01:30 PM	2	148	55	0	0	0	12	197	0	74	0	26	514
01:45 PM	3	209	55	0	0	0	20	185	0	58	0	29	559
Total	16	755	207	1	0	1	69	732	5	253	3	113	2155
Grand Total	22	2349	625	1	2	2	204	2246	7	681	6	334	6479
Apprch %	0.7	78.4	20.9	20	40	40	8.3	91.4	0.3	66.7	0.6	32.7	
Total %	0.3	36.3	9.6	0	0	0	3.1	34.7	0.1	10.5	0.1	5.2	
Cars	22	2339	621	1	2	2	202	2234	7	679	6	329	6444
% Cars	100	99.6	99.4	100	100	100	99	99.5	100	99.7	100	98.5	99.5
Trucks	0	10	4	0	0	0	2	12	0	2	0	5	35
% Trucks	0	0.4	0.6	0	0	0	1	0.5	0	0.3	0	1.5	0.5

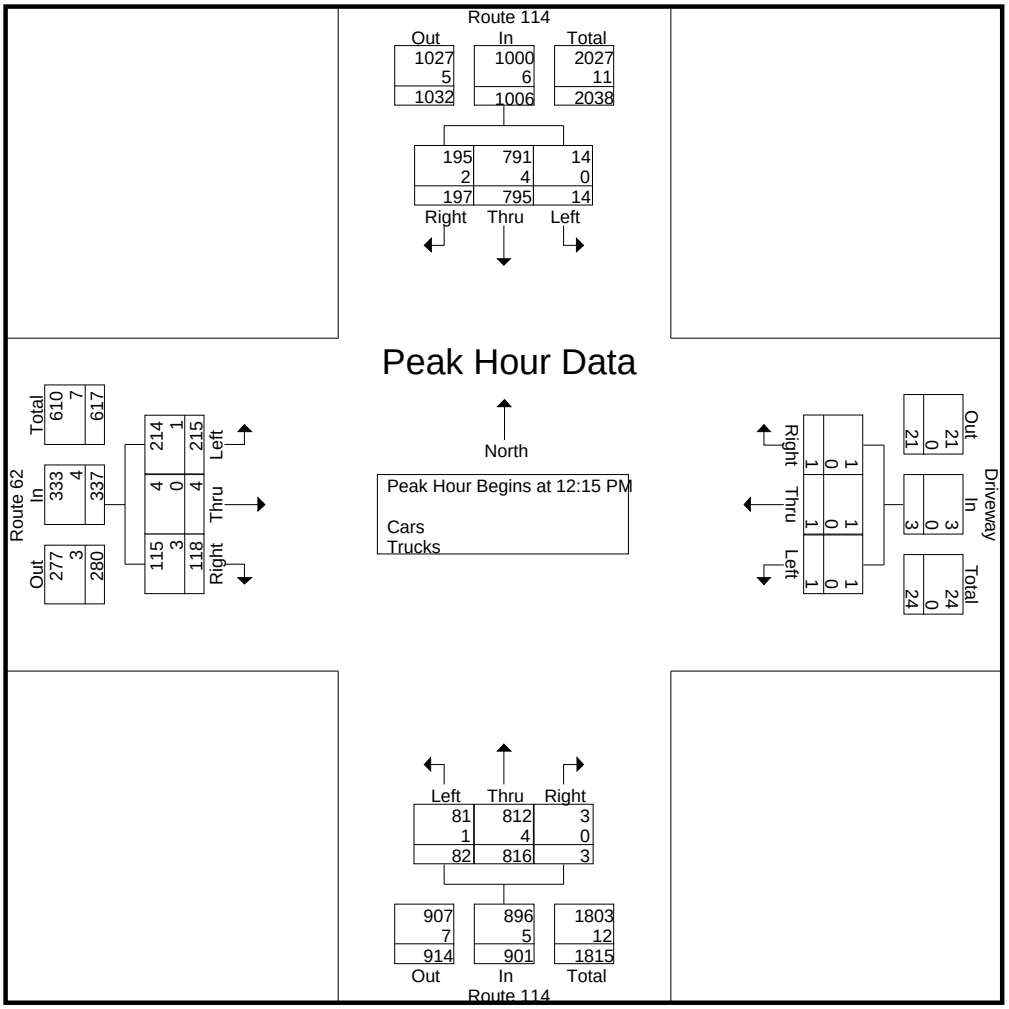
	Route 114 From North				Driveway From East				Route 114 From South				Route 62 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:15 PM																	
12:15 PM	0	**205**	43	248	0	0	0	0	19	205	0	224	58	0	32	90	562
12:30 PM	0	200	**65**	**265**	0	**1**	0	1	**31**	205	0	236	41	1	22	64	566
12:45 PM	4	190	52	246	0	0	0	0	15	**222**	1	**238**	57	0	30	87	**571**
01:00 PM	**10**	200	37	247	**1**	0	**1**	**2**	17	184	**2**	203	**59**	**3**	**34**	**96**	548
Total Volume	14	795	197	1006	1	1	1	3	82	816	3	901	215	4	118	337	2247
% App. Total	1.4	79	19.6		33.3	33.3	33.3		9.1	90.6	0.3		63.8	1.2	35		
PHF	.350	.970	.758	.949	.250	.250	.250	.375	.661	.919	.375	.946	.911	.333	.868	.878	.984
Cars	14	791	195	1000	1	1	1	3	81	812	3	896	214	4	115	333	2232
% Cars	100	99.5	99.0	99.4	100	100	100	100	98.8	99.5	100	99.4	99.5	100	97.5	98.8	99.3
Trucks	0	4	2	6	0	0	0	0	1	4	0	5	1	0	3	4	15
% Trucks	0	0.5	1.0	0.6	0	0	0	0	1.2	0.5	0	0.6	0.5	0	2.5	1.2	0.7

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
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:

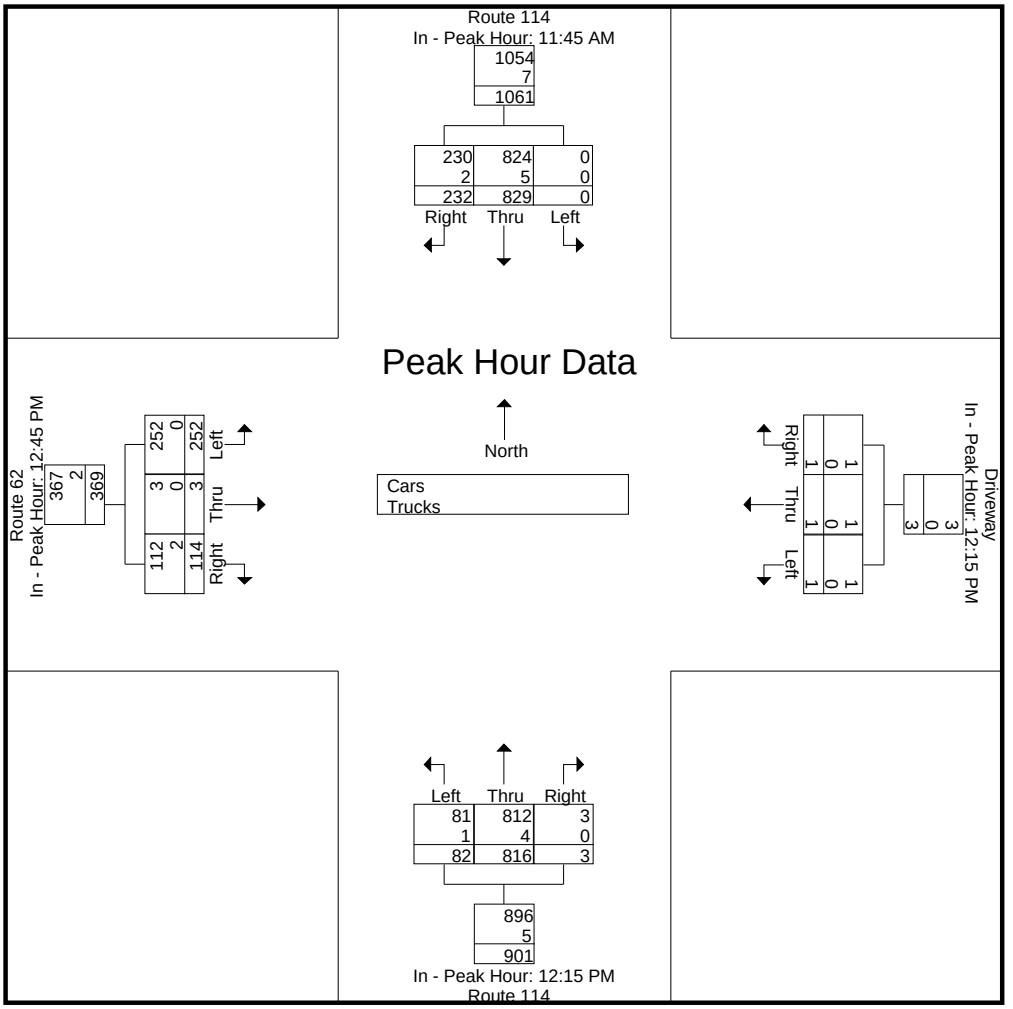
	11:45 AM				12:15 PM				12:15 PM				12:45 PM			
+0 mins.	0	202	62	264	0	0	0	0	19	205	0	224	57	0	30	87
+15 mins.	0	**222**	62	**284**	0	**1**	0	1	**31**	205	0	236	59	**3**	**34**	96
+30 mins.	0	205	43	248	0	0	0	0	15	**222**	1	**238**	62	0	24	86
+45 mins.	0	200	**65**	265	**1**	0	**1**	**2**	17	184	**2**	203	**74**	0	26	**100**
Total Volume	0	829	232	1061	1	1	1	3	82	816	3	901	252	3	114	369
% App. Total	0	78.1	21.9		33.3	33.3	33.3		9.1	90.6	0.3		68.3	0.8	30.9	
PHF	.000	.934	.892	.934	.250	.250	.250	.375	.661	.919	.375	.946	.851	.250	.838	.923
Cars	0	824	230	1054	1	1	1	3	81	812	3	896	252	3	112	367
% Cars	0	99.4	99.1	99.3	100	100	100	100	98.8	99.5	100	99.4	100	100	98.2	99.5
Trucks	0	5	2	7	0	0	0	0	1	4	0	5	0	0	2	2
% Trucks	0	0.6	0.9	0.7	0	0	0	0	1.2	0.5	0	0.6	0	0	1.8	0.5

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North			Driveway From East			Route 114 From South			Route 62 From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
11:00 AM	1	176	39	0	0	0	11	186	0	56	0	22	491
11:15 AM	0	192	48	0	1	0	11	184	0	66	0	33	535
11:30 AM	1	205	47	0	0	1	9	177	1	51	1	37	530
11:45 AM	0	200	62	0	0	0	18	165	0	48	0	23	516
Total	2	773	196	0	1	1	49	712	1	221	1	115	2072
12:00 PM	0	221	61	0	0	0	20	166	0	50	1	21	540
12:15 PM	0	204	42	0	0	0	19	204	0	57	0	30	556
12:30 PM	0	199	65	0	1	0	30	205	0	41	1	22	564
12:45 PM	4	188	52	0	0	0	15	220	1	57	0	29	566
Total	4	812	220	0	1	0	84	795	1	205	2	102	2226
01:00 PM	10	200	36	1	0	1	17	183	2	59	3	34	546
01:15 PM	1	197	59	0	0	0	20	165	3	62	0	24	531
01:30 PM	2	148	55	0	0	0	12	194	0	74	0	25	510
01:45 PM	3	209	55	0	0	0	20	185	0	58	0	29	559
Total	16	754	205	1	0	1	69	727	5	253	3	112	2146
Grand Total	22	2339	621	1	2	2	202	2234	7	679	6	329	6444
Apprch %	0.7	78.4	20.8	20	40	40	8.3	91.4	0.3	67	0.6	32.4	
Total %	0.3	36.3	9.6	0	0	0	3.1	34.7	0.1	10.5	0.1	5.1	

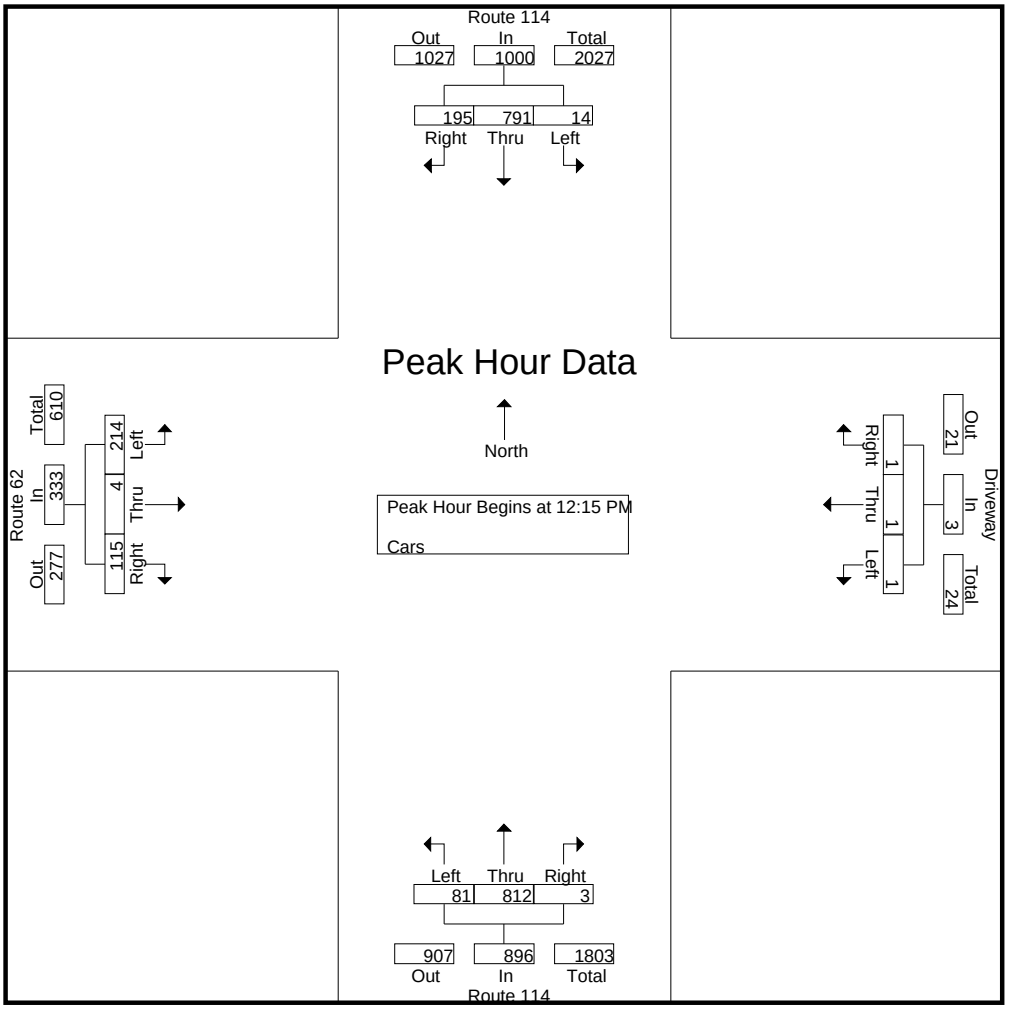
	Route 114 From North				Driveway From East				Route 114 From South				Route 62 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:15 PM																	
12:15 PM	0	**204**	42	246	0	0	0	0	19	204	0	223	57	0	30	87	556
12:30 PM	0	199	**65**	**264**	0	**1**	0	1	**30**	205	0	235	41	1	22	64	564
12:45 PM	4	188	52	244	0	0	0	0	15	**220**	1	**236**	57	0	29	86	**566**
01:00 PM	**10**	200	36	246	**1**	0	**1**	**2**	17	183	**2**	202	**59**	**3**	**34**	**96**	546
Total Volume	14	791	195	1000	1	1	1	3	81	812	3	896	214	4	115	333	2232
% App. Total	1.4	79.1	19.5		33.3	33.3	33.3		9	90.6	0.3		64.3	1.2	34.5		
PHF	.350	.969	.750	.947	.250	.250	.250	.375	.675	.923	.375	.949	.907	.333	.846	.867	.986

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
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:

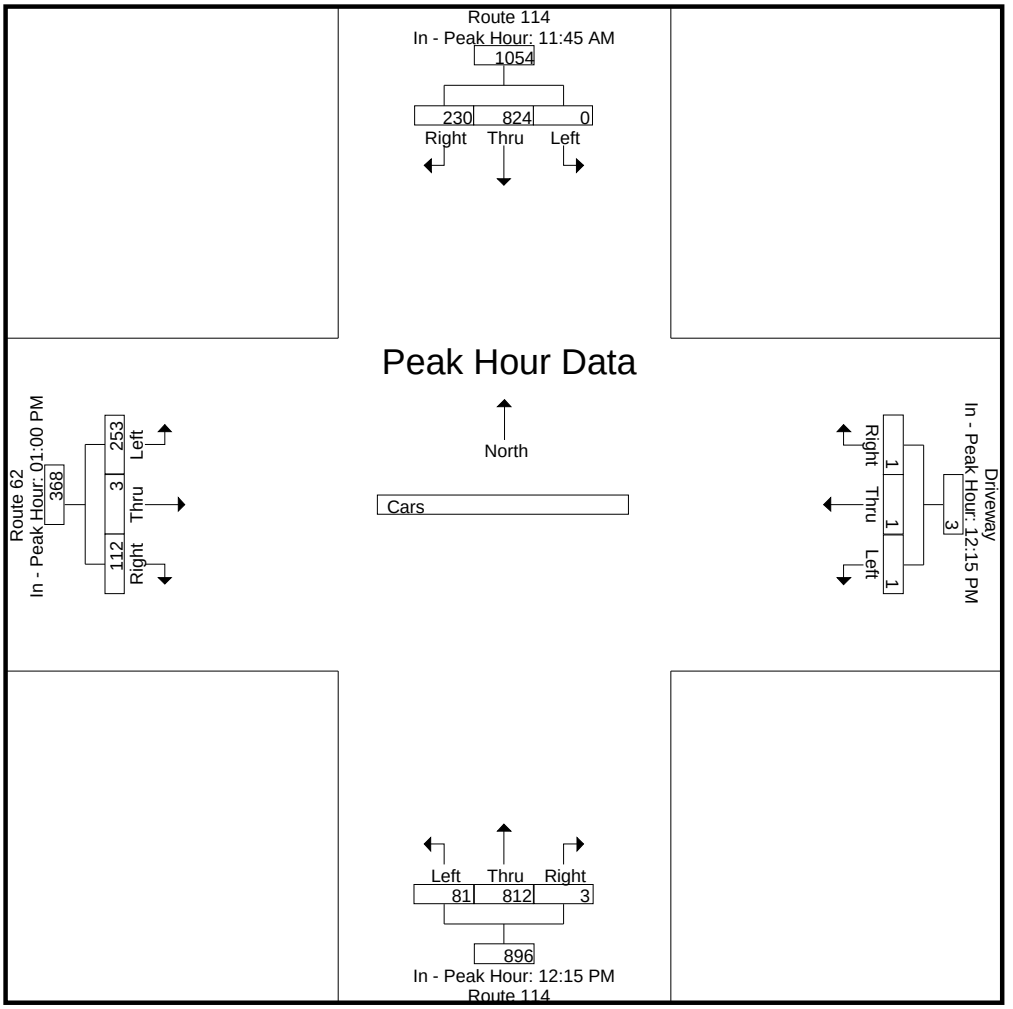
	11:45 AM				12:15 PM				12:15 PM				01:00 PM			
+0 mins.	0	200	62	262	0	0	0	0	19	204	0	223	59	**3**	**34**	96
+15 mins.	0	**221**	61	**282**	0	**1**	0	1	**30**	205	0	235	62	0	24	86
+30 mins.	0	204	42	246	0	0	0	0	15	**220**	1	**236**	**74**	0	25	**99**
+45 mins.	0	199	**65**	264	**1**	0	**1**	**2**	17	183	**2**	202	58	0	29	87
Total Volume	0	824	230	1054	1	1	1	3	81	812	3	896	253	3	112	368
% App. Total	0	78.2	21.8		33.3	33.3	33.3		9	90.6	0.3		68.8	0.8	30.4	
PHF	.000	.932	.885	.934	.250	.250	.250	.375	.675	.923	.375	.949	.855	.250	.824	.929

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
Page No : 7

Groups Printed- Trucks

	Route 114 From North			Driveway From East			Route 114 From South			Route 62 From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
11:00 AM	0	1	0	0	0	0	0	1	0	0	0	1	3
11:15 AM	0	1	0	0	0	0	0	2	0	0	0	0	3
11:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	1
11:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	4	0	0	0	0	1	3	0	0	0	1	9
12:00 PM	0	1	1	0	0	0	0	1	0	1	0	0	4
12:15 PM	0	1	1	0	0	0	0	1	0	1	0	2	6
12:30 PM	0	1	0	0	0	0	1	0	0	0	0	0	2
12:45 PM	0	2	0	0	0	0	0	2	0	0	0	1	5
Total	0	5	2	0	0	0	1	4	0	2	0	3	17
01:00 PM	0	0	1	0	0	0	0	1	0	0	0	0	2
01:15 PM	0	1	1	0	0	0	0	1	0	0	0	0	3
01:30 PM	0	0	0	0	0	0	0	3	0	0	0	1	4
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	2	0	0	0	0	5	0	0	0	1	9
Grand Total	0	10	4	0	0	0	2	12	0	2	0	5	35
Apprch %	0	71.4	28.6	0	0	0	14.3	85.7	0	28.6	0	71.4	
Total %	0	28.6	11.4	0	0	0	5.7	34.3	0	5.7	0	14.3	

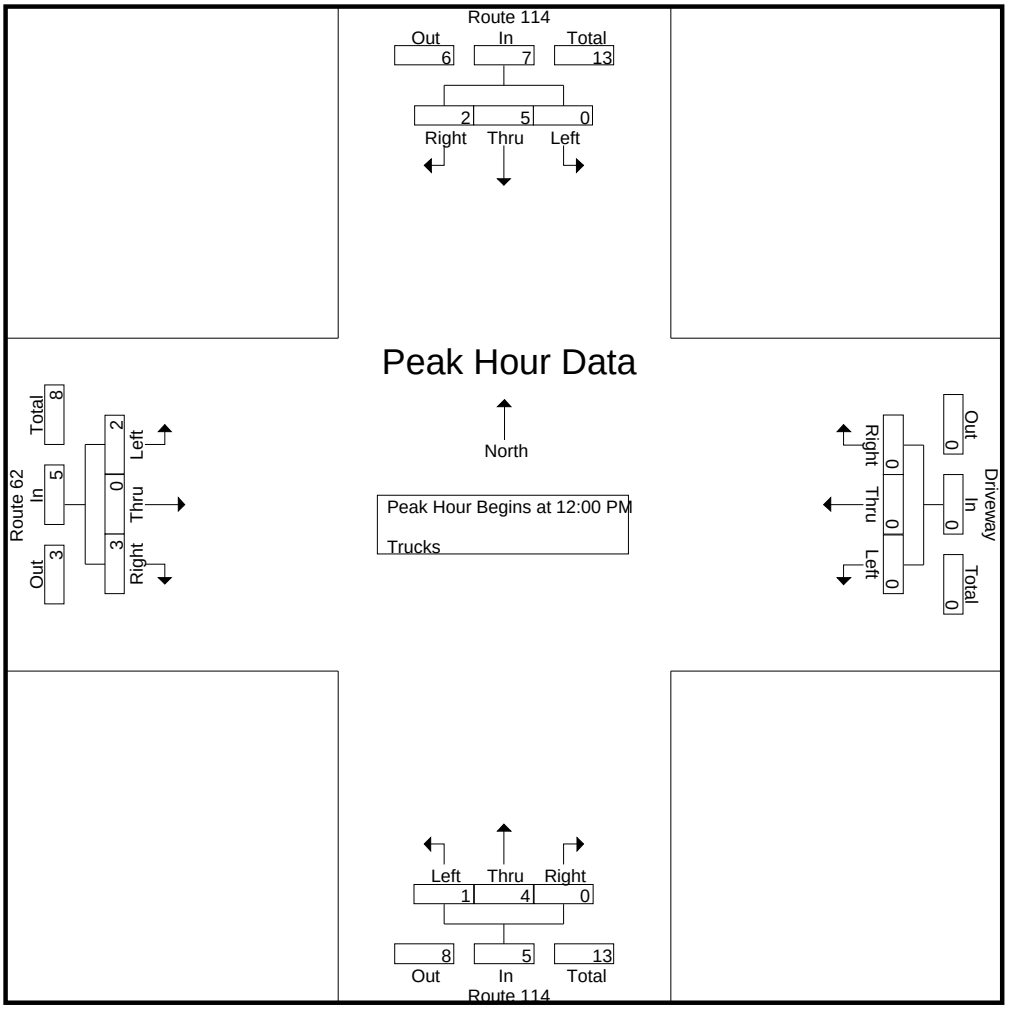
	Route 114 From North				Driveway From East				Route 114 From South				Route 62 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	0	1	**1**	**2**	0	0	0	0	0	1	0	1	**1**	0	0	1	4
12:15 PM	0	1	1	2	0	0	0	0	0	1	0	1	1	0	**2**	**3**	**6**
12:30 PM	0	1	0	1	0	0	0	0	**1**	0	0	1	0	0	0	0	2
12:45 PM	0	**2**	0	2	0	0	0	0	0	**2**	0	**2**	0	0	1	1	5
Total Volume	0	5	2	7	0	0	0	0	1	4	0	5	2	0	3	5	17
% App. Total	0	71.4	28.6		0	0	0		20	80	0		40	0	60		
PHF	.000	.625	.500	.875	.000	.000	.000	.000	.250	.500	.000	.625	.500	.000	.375	.417	.708

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
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:

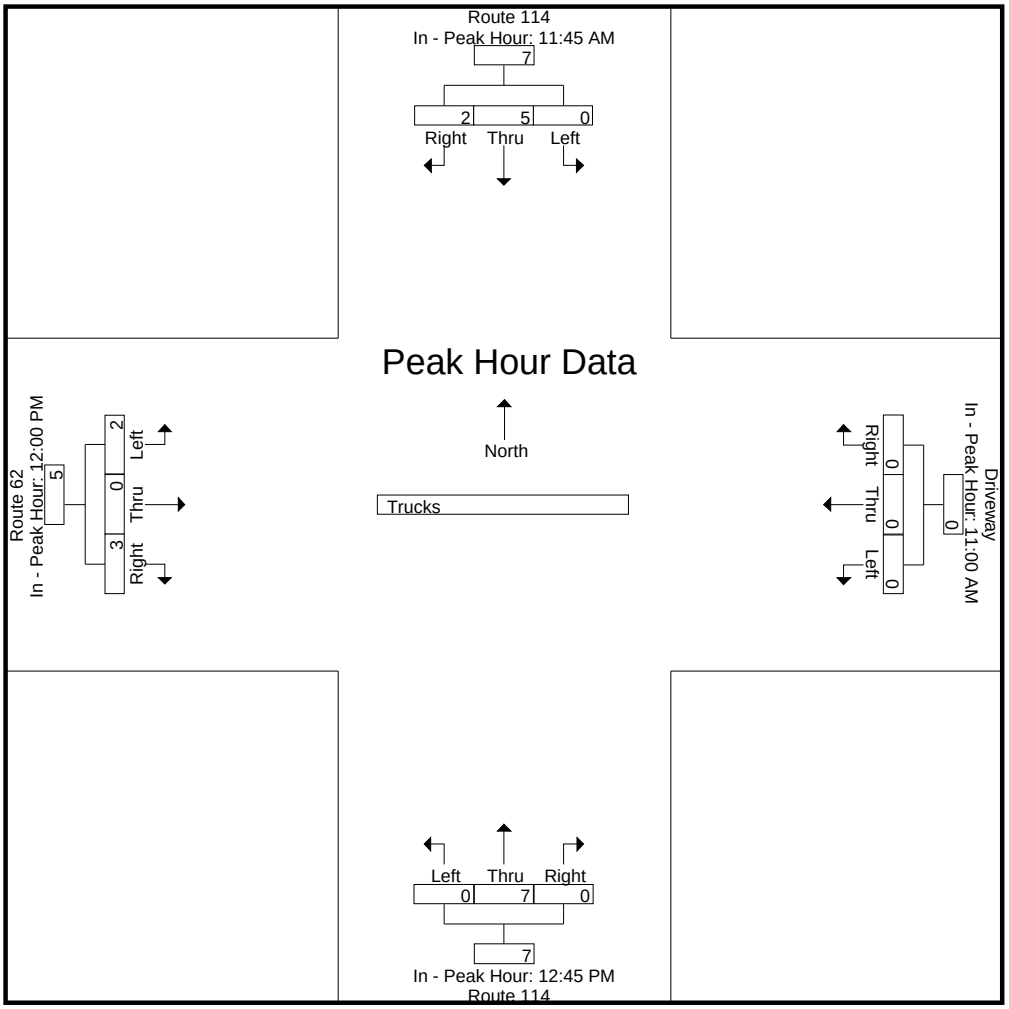
	11:45 AM				11:00 AM				12:45 PM				12:00 PM			
+0 mins.	0	**2**	0	**2**	0	0	0	0	0	2	0	2	**1**	0	0	1
+15 mins.	0	1	**1**	2	0	0	0	0	0	1	0	1	1	0	**2**	**3**
+30 mins.	0	1	1	2	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	0	**3**	0	**3**	0	0	1	1
Total Volume	0	5	2	7	0	0	0	0	0	7	0	7	2	0	3	5
% App. Total	0	71.4	28.6		0	0	0		0	100	0		40	0	60	
PHF	.000	.625	.500	.875	.000	.000	.000	.000	.000	.583	.000	.583	.500	.000	.375	.417

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
Page No : 10

Groups Printed- Bikes Peds

	Route 114 From North				Driveway From East				Route 114 From South				Route 62 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	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	3	3
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
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	13	0	0	0	0	0	0	0	0	0	2	0	0	0	0	15	15
Total	0	0	16	0	0	0	0	0	0	1	0	0	3	0	0	0	0	20	20
12:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
12:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
12:30 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	4
12:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	2
Total	0	0	7	0	0	0	0	0	0	0	0	0	1	0	1	0	0	9	9
01:00 PM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
01:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
01:30 PM	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4	4
01:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	2
Total	0	1	7	0	0	0	0	0	0	0	0	0	1	0	1	0	0	10	10
Grand Total	0	1	30	0	0	0	0	0	0	1	0	0	5	0	2	0	0	39	39
Apprch %	0	3.2	96.8		0	0	0		0	100	0		71.4	0	28.6				
Total %	0	2.6	76.9		0	0	0		0	2.6	0		12.8	0	5.1		0	100	

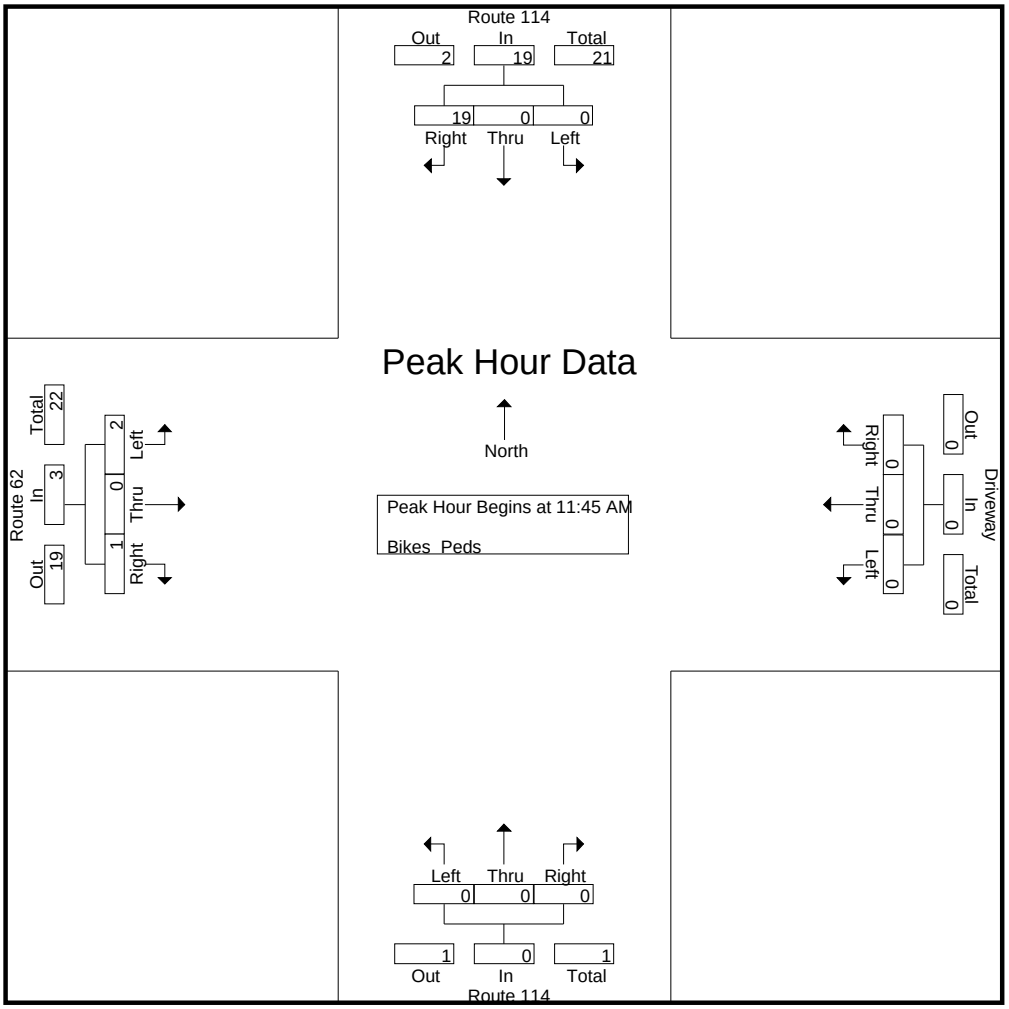
	Route 114 From North				Driveway From East				Route 114 From South				Route 62 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:45 AM																	
11:45 AM	0	0	**13**	**13**	0	0	0	0	0	0	0	0	**2**	0	0	**2**	**15**
12:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2
12:30 PM	0	0	3	3	0	0	0	0	0	0	0	0	0	0	**1**	1	4
Total Volume	0	0	19	19	0	0	0	0	0	0	0	0	2	0	1	3	22
% App. Total	0	0	100		0	0	0		0	0	0		66.7	0	33.3		
PHF	.000	.000	.365	.365	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.375	.367

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
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:

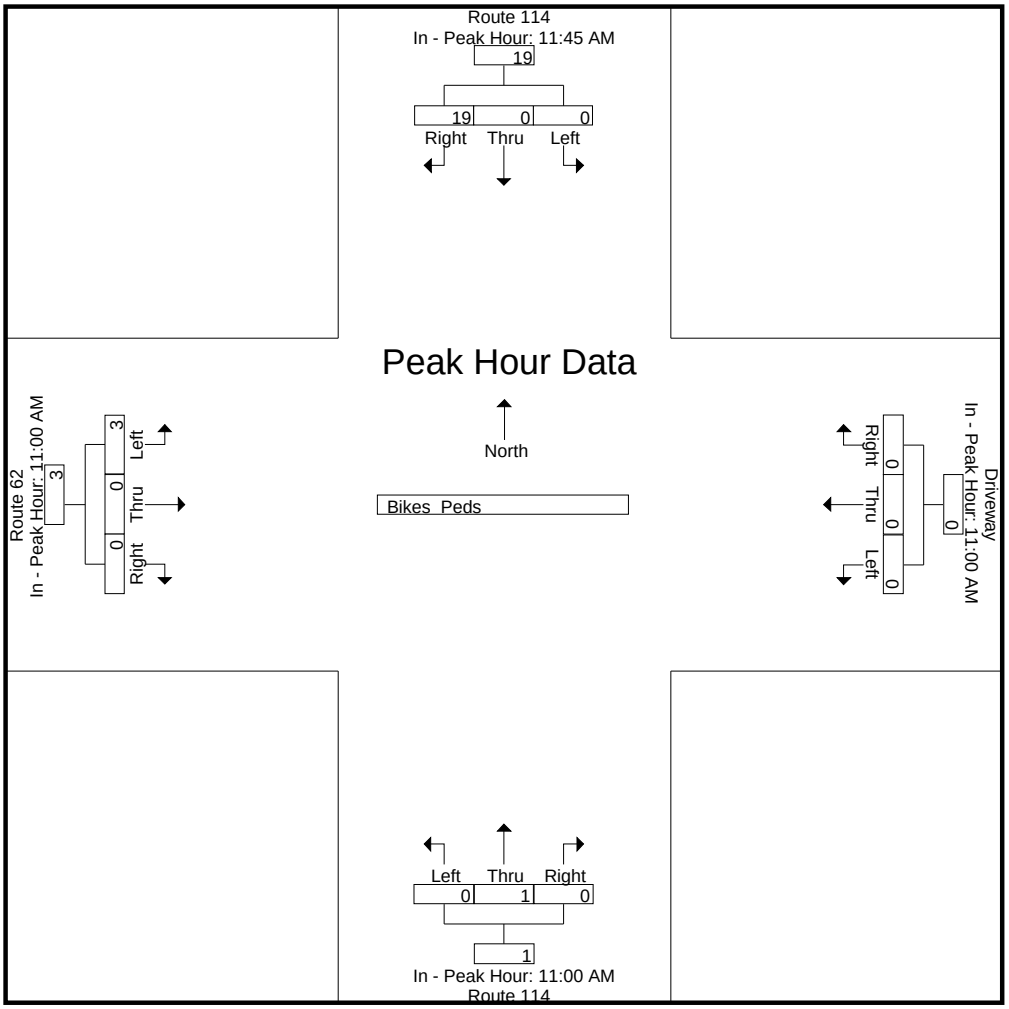
	11:45 AM				11:00 AM				11:00 AM				11:00 AM			
+0 mins.	0	0	**13**	**13**	0	0	0	0	0	**1**	0	**1**	1	0	0	1
+15 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	3	3	0	0	0	0	0	0	0	0	**2**	0	0	**2**
Total Volume	0	0	19	19	0	0	0	0	0	1	0	1	3	0	0	3
% App. Total	0	0	100		0	0	0		0	100	0		100	0	0	
PHF	.000	.000	.365	.365	.000	.000	.000	.000	.000	.250	.000	.250	.375	.000	.000	.375

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Driveway / Route 62
City/State : Middleton, MA
Weather : Clear

File Name : 930100S1
Site Code : 93010001
Start Date : 5/21/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 1

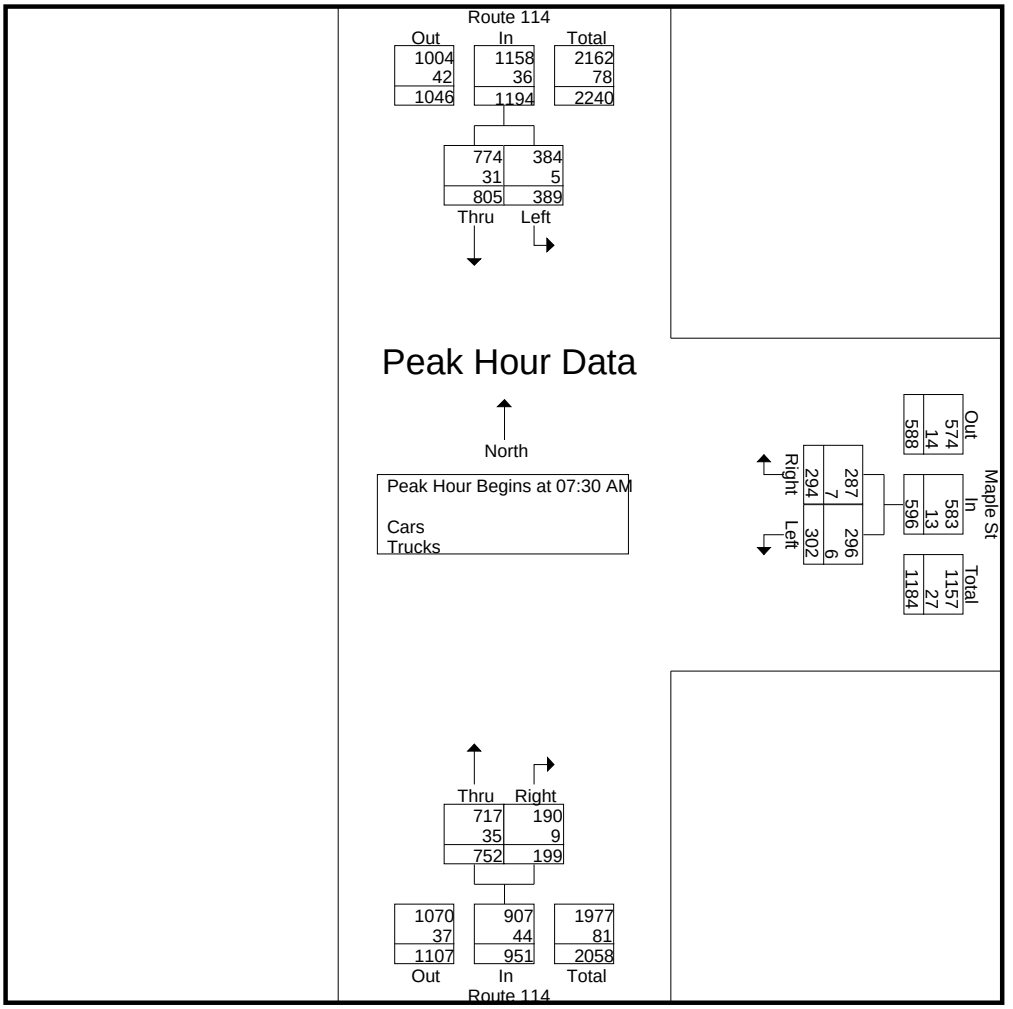
Groups Printed- Cars - Trucks

	Route 114 From North		Maple St From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	117	187	56	76	156	44	636
07:15 AM	108	175	59	102	147	54	645
07:30 AM	105	178	82	63	221	58	707
07:45 AM	110	206	72	63	208	59	718
Total	440	746	269	304	732	215	2706
08:00 AM	89	198	67	89	175	35	653
08:15 AM	85	223	81	79	148	47	663
08:30 AM	92	208	62	70	194	51	677
08:45 AM	80	166	62	58	127	61	554
Total	346	795	272	296	644	194	2547
Grand Total	786	1541	541	600	1376	409	5253
Apprch %	33.8	66.2	47.4	52.6	77.1	22.9	
Total %	15	29.3	10.3	11.4	26.2	7.8	
Cars	766	1484	527	585	1323	390	5075
% Cars	97.5	96.3	97.4	97.5	96.1	95.4	96.6
Trucks	20	57	14	15	53	19	178
% Trucks	2.5	3.7	2.6	2.5	3.9	4.6	3.4

	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	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 07:30 AM										
07:30 AM	105	178	283	**82**	63	145	**221**	58	**279**	707
07:45 AM	**110**	206	**316**	72	63	135	208	**59**	267	**718**
08:00 AM	89	198	287	67	**89**	156	175	35	210	653
08:15 AM	85	**223**	308	81	79	**160**	148	47	195	663
Total Volume	389	805	1194	302	294	596	752	199	951	2741
% App. Total	32.6	67.4		50.7	49.3		79.1	20.9		
PHF	.884	.902	.945	.921	.826	.931	.851	.843	.852	.954
Cars	384	774	1158	296	287	583	717	190	907	2648
% Cars	98.7	96.1	97.0	98.0	97.6	97.8	95.3	95.5	95.4	96.6
Trucks	5	31	36	6	7	13	35	9	44	93
% Trucks	1.3	3.9	3.0	2.0	2.4	2.2	4.7	4.5	4.6	3.4

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
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:

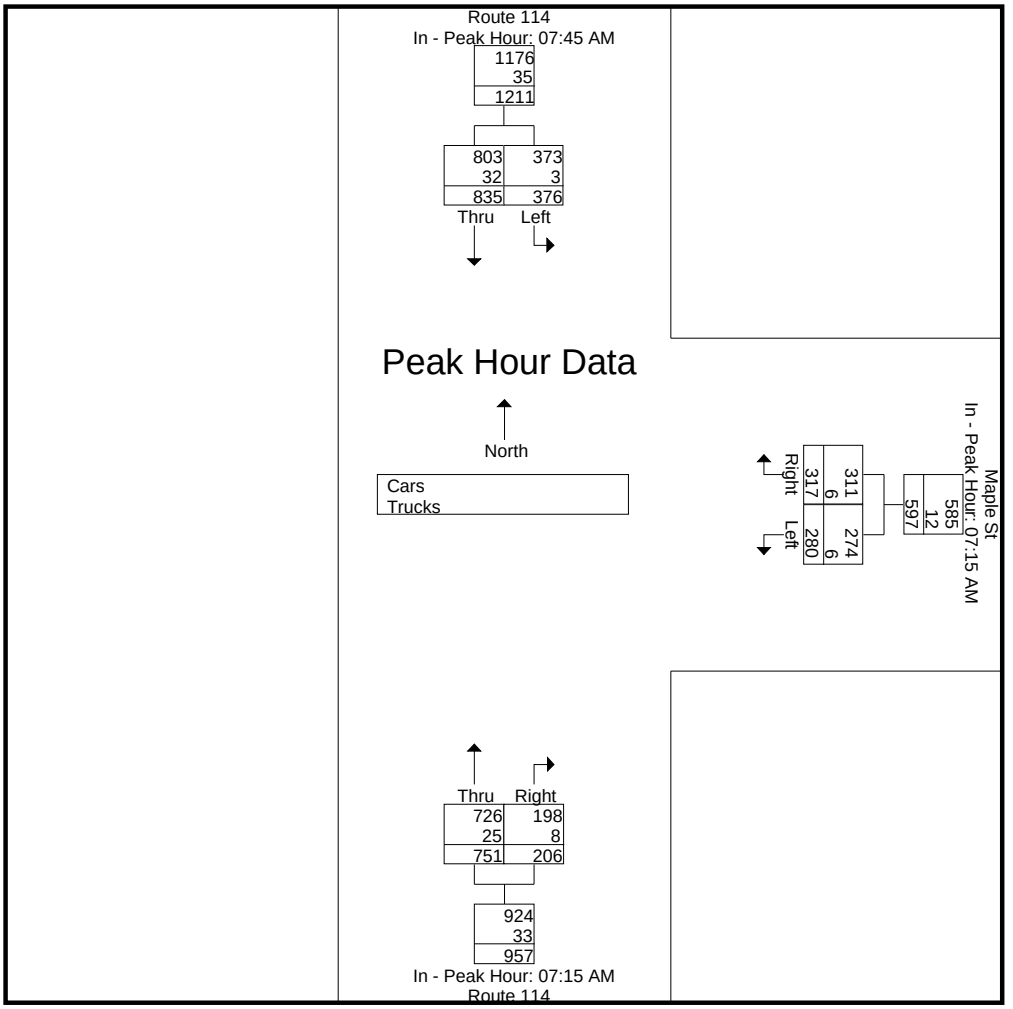
	07:45 AM			07:15 AM			07:15 AM		
+0 mins.	**110**	206	**316**	59	**102**	**161**	147	54	201
+15 mins.	89	198	287	**82**	63	145	**221**	58	**279**
+30 mins.	85	**223**	308	72	63	135	208	**59**	267
+45 mins.	92	208	300	67	89	156	175	35	210
Total Volume	376	835	1211	280	317	597	751	206	957
% App. Total	31	69		46.9	53.1		78.5	21.5	
PHF	.855	.936	.958	.854	.777	.927	.850	.873	.858
Cars	373	803	1176	274	311	585	726	198	924
% Cars	99.2	96.2	97.1	97.9	98.1	98	96.7	96.1	96.6
Trucks	3	32	35	6	6	12	25	8	33
% Trucks	0.8	3.8	2.9	2.1	1.9	2	3.3	3.9	3.4

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North		Maple St From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	114	182	53	74	150	39	612
07:15 AM	101	166	57	101	146	53	624
07:30 AM	102	169	80	63	211	56	681
07:45 AM	109	202	71	60	198	56	696
Total	426	719	261	298	705	204	2613
08:00 AM	88	189	66	87	171	33	634
08:15 AM	85	214	79	77	137	45	637
08:30 AM	91	198	60	70	187	50	656
08:45 AM	76	164	61	53	123	58	535
Total	340	765	266	287	618	186	2462
Grand Total	766	1484	527	585	1323	390	5075
Apprch %	34	66	47.4	52.6	77.2	22.8	
Total %	15.1	29.2	10.4	11.5	26.1	7.7	

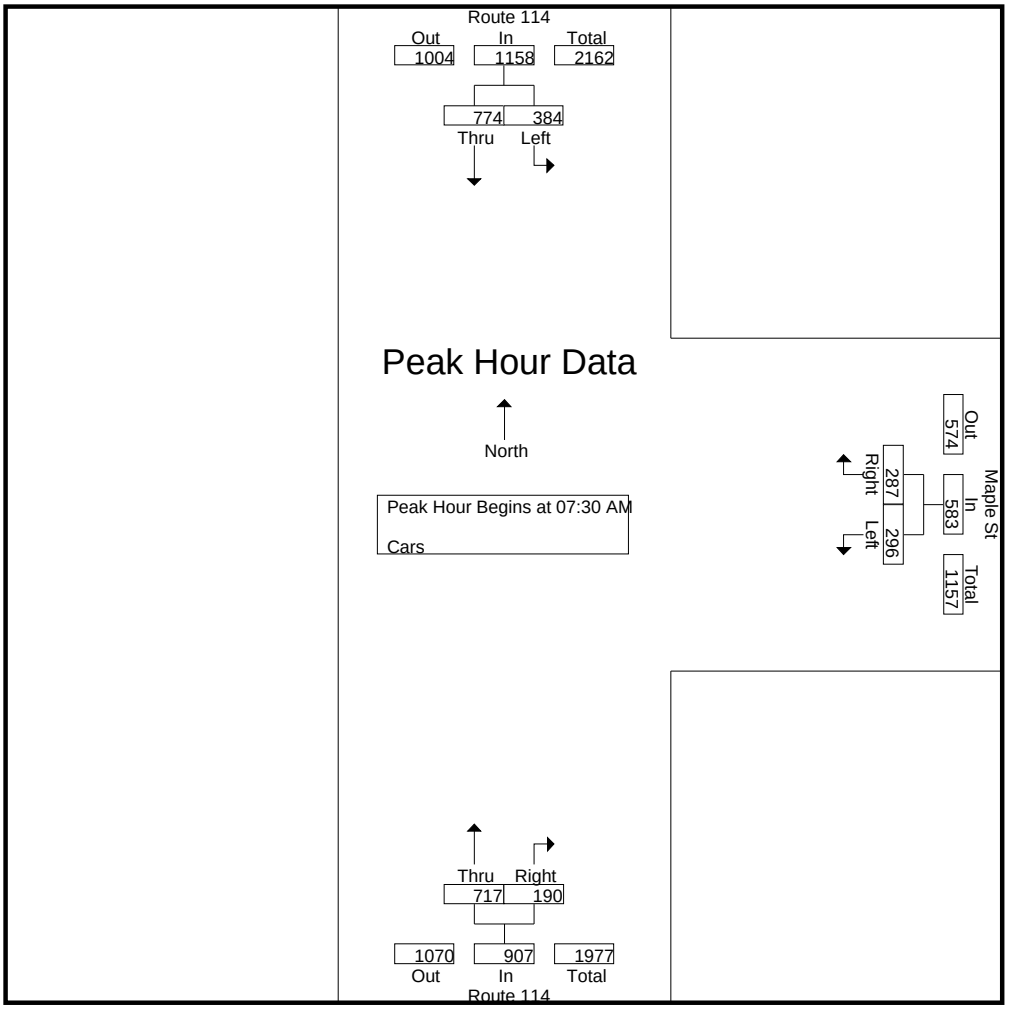
	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	102	169	271	**80**	63	143	**211**	**56**	**267**	681
07:45 AM	**109**	202	**311**	71	60	131	198	56	254	**696**
08:00 AM	88	189	277	66	**87**	153	171	33	204	634
08:15 AM	85	**214**	299	79	77	**156**	137	45	182	637
Total Volume	384	774	1158	296	287	583	717	190	907	2648
% App. Total	33.2	66.8		50.8	49.2		79.1	20.9		
PHF	.881	.904	.931	.925	.825	.934	.850	.848	.849	.951

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 5



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

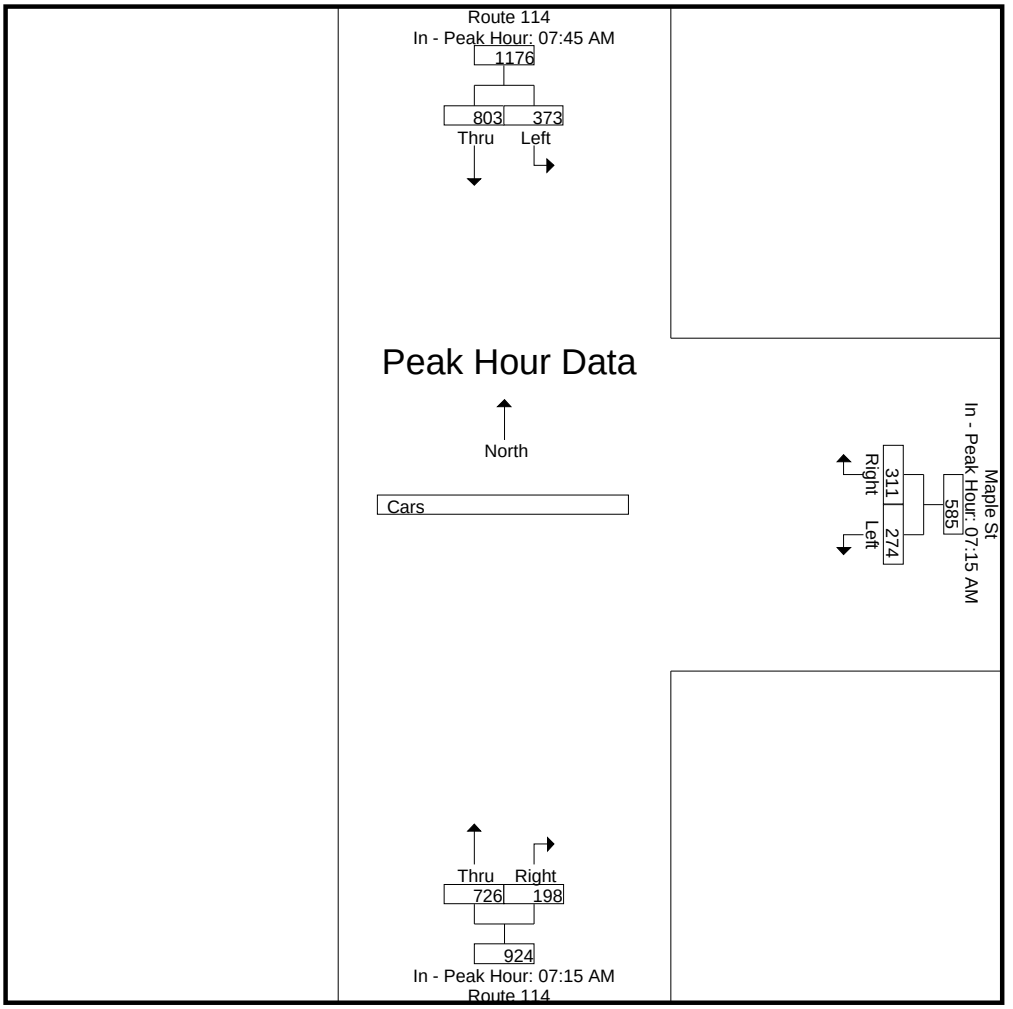
Peak Hour for Each Approach Begins at:

	07:45 AM			07:15 AM			07:15 AM		
+0 mins.	**109**	202	**311**	57	**101**	**158**	146	53	199
+15 mins.	88	189	277	**80**	63	143	**211**	**56**	**267**
+30 mins.	85	**214**	299	71	60	131	198	56	254
+45 mins.	91	198	289	66	87	153	171	33	204
Total Volume	373	803	1176	274	311	585	726	198	924
% App. Total	31.7	68.3		46.8	53.2		78.6	21.4	
PHF	.856	.938	.945	.856	.770	.926	.860	.884	.865

Accurate Counts
978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 7

Groups Printed- Trucks

	Route 114 From North		Maple St From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	3	5	3	2	6	5	24
07:15 AM	7	9	2	1	1	1	21
07:30 AM	3	9	2	0	10	2	26
07:45 AM	1	4	1	3	10	3	22
Total	14	27	8	6	27	11	93
08:00 AM	1	9	1	2	4	2	19
08:15 AM	0	9	2	2	11	2	26
08:30 AM	1	10	2	0	7	1	21
08:45 AM	4	2	1	5	4	3	19
Total	6	30	6	9	26	8	85
Grand Total	20	57	14	15	53	19	178
Apprch %	26	74	48.3	51.7	73.6	26.4	
Total %	11.2	32	7.9	8.4	29.8	10.7	

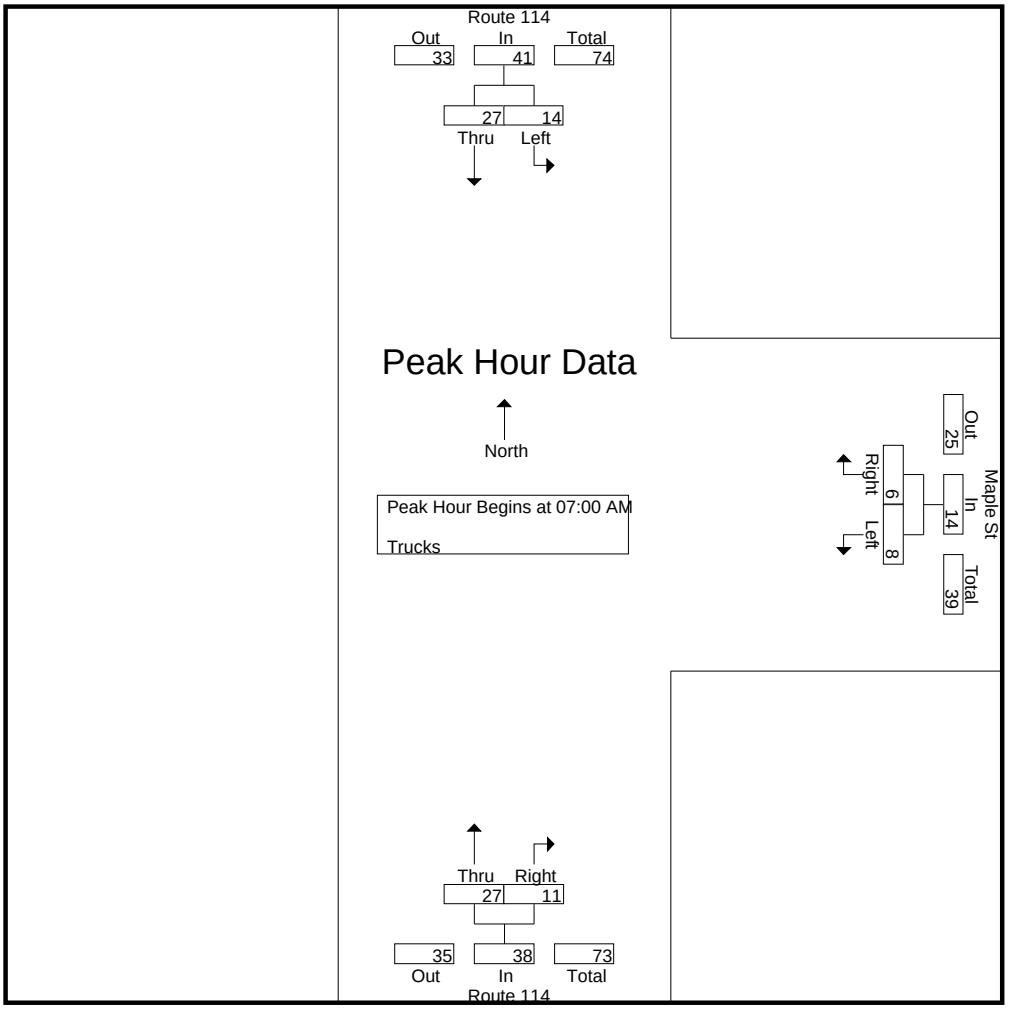
	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	3	5	8	**3**	2	**5**	6	**5**	11	24
07:15 AM	**7**	**9**	**16**	2	1	3	1	1	2	21
07:30 AM	3	9	12	2	0	2	**10**	2	12	**26**
07:45 AM	1	4	5	1	**3**	4	10	3	**13**	22
Total Volume	14	27	41	8	6	14	27	11	38	93
% App. Total	34.1	65.9		57.1	42.9		71.1	28.9		
PHF	.500	.750	.641	.667	.500	.700	.675	.550	.731	.894

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 8



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

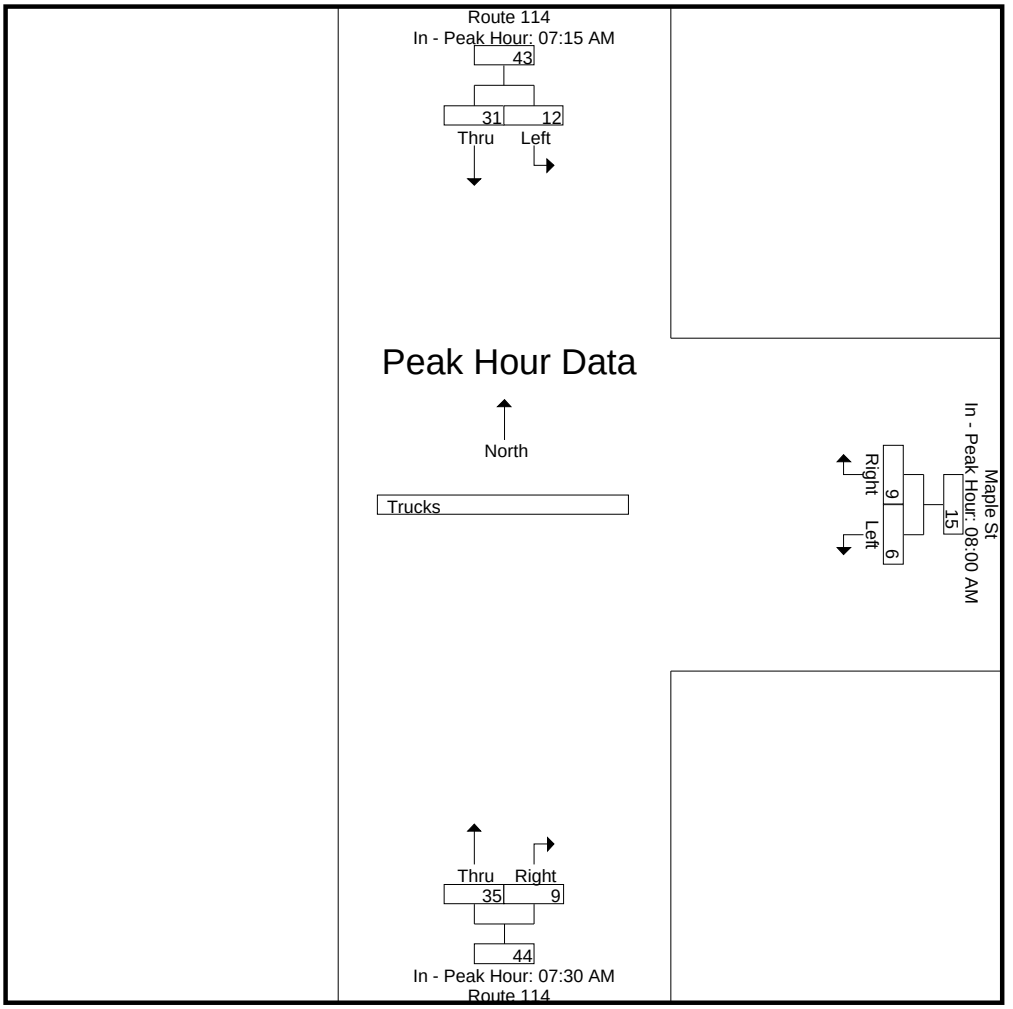
Peak Hour for Each Approach Begins at:

	07:15 AM			08:00 AM			07:30 AM		
+0 mins.	**7**	**9**	**16**	1	2	3	10	2	12
+15 mins.	3	9	12	**2**	2	4	10	**3**	**13**
+30 mins.	1	4	5	2	0	2	4	2	6
+45 mins.	1	9	10	1	**5**	**6**	**11**	2	13
Total Volume	12	31	43	6	9	15	35	9	44
% App. Total	27.9	72.1		40	60		79.5	20.5	
PHF	.429	.861	.672	.750	.450	.625	.795	.750	.846

Accurate Counts
978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 10

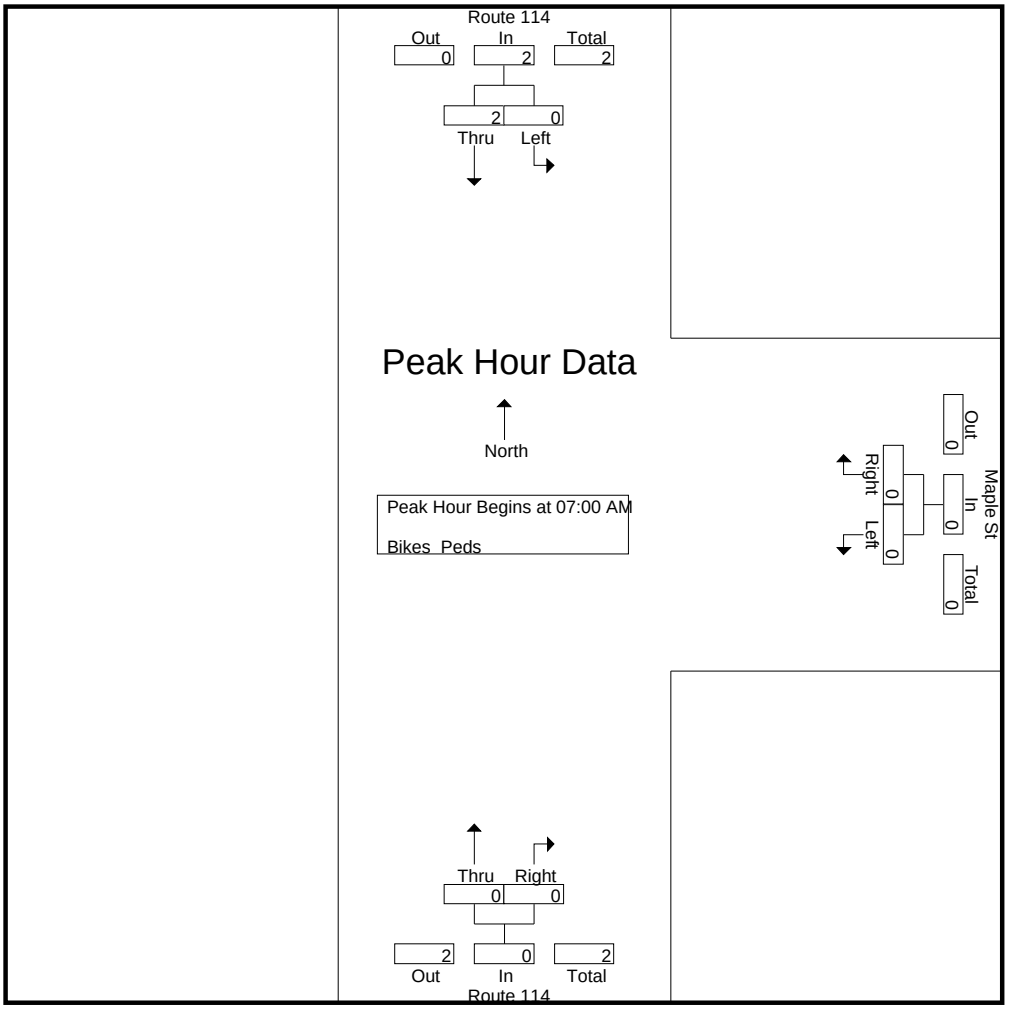
Groups Printed- Bikes Peds

	Route 114 From North			Maple St From East			Route 114 From South					
Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	2	0	0	0	0	0	0	0	0	2	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	0	0	0	0	0	0	2	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	1	0	0	0	1	1
Total	0	0	0	0	0	0	1	0	0	0	1	1
Grand Total	0	2	0	0	0	0	1	0	0	0	3	3
Apprch %	0	100		0	0		100	0				
Total %	0	66.7		0	0		33.3	0		0	100	

	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	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 07:00 AM										
07:00 AM	0	**2**	**2**	0	0	0	0	0	0	**2**
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	2	0	0	0	0	0	0	2
% App. Total	0	100		0	0		0	0		
PHF	.000	.250	.250	.000	.000	.000	.000	.000	.000	.250

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 11

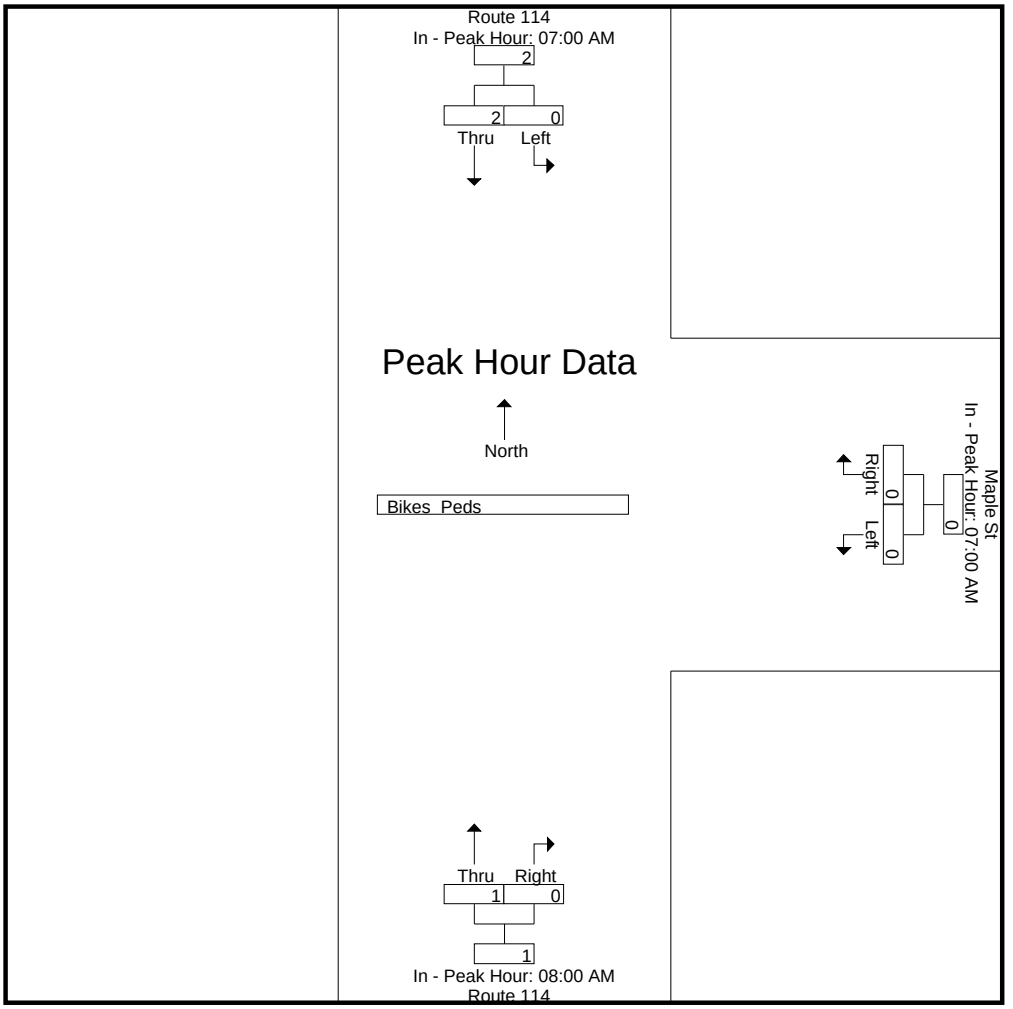


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			08:00 AM		
+0 mins.	0	**2**	**2**	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	0	0	0	**1**	0	**1**
Total Volume	0	2	2	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 1

Groups Printed- Cars - Trucks

	Route 114 From North		Maple St From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
03:00 PM	77	180	60	109	196	84	706
03:15 PM	73	155	58	125	169	96	676
03:30 PM	64	204	56	110	185	62	681
03:45 PM	77	172	55	90	193	85	672
Total	291	711	229	434	743	327	2735
04:00 PM	80	187	57	72	210	90	696
04:15 PM	86	186	62	87	205	70	696
04:30 PM	92	153	60	77	201	80	663
04:45 PM	95	190	62	75	198	71	691
Total	353	716	241	311	814	311	2746
05:00 PM	96	193	68	105	186	91	739
05:15 PM	91	200	50	88	216	67	712
05:30 PM	81	185	57	87	225	91	726
05:45 PM	95	179	62	73	203	86	698
Total	363	757	237	353	830	335	2875
06:00 PM	77	187	60	67	160	77	628
06:15 PM	59	120	57	65	160	85	546
06:30 PM	50	149	42	65	132	55	493
06:45 PM	47	104	42	46	126	61	426
Total	233	560	201	243	578	278	2093
Grand Total	1240	2744	908	1341	2965	1251	10449
Apprch %	31.1	68.9	40.4	59.6	70.3	29.7	
Total %	11.9	26.3	8.7	12.8	28.4	12	
Cars	1227	2700	897	1320	2919	1239	10302
% Cars	99	98.4	98.8	98.4	98.4	99	98.6
Trucks	13	44	11	21	46	12	147
% Trucks	1	1.6	1.2	1.6	1.6	1	1.4

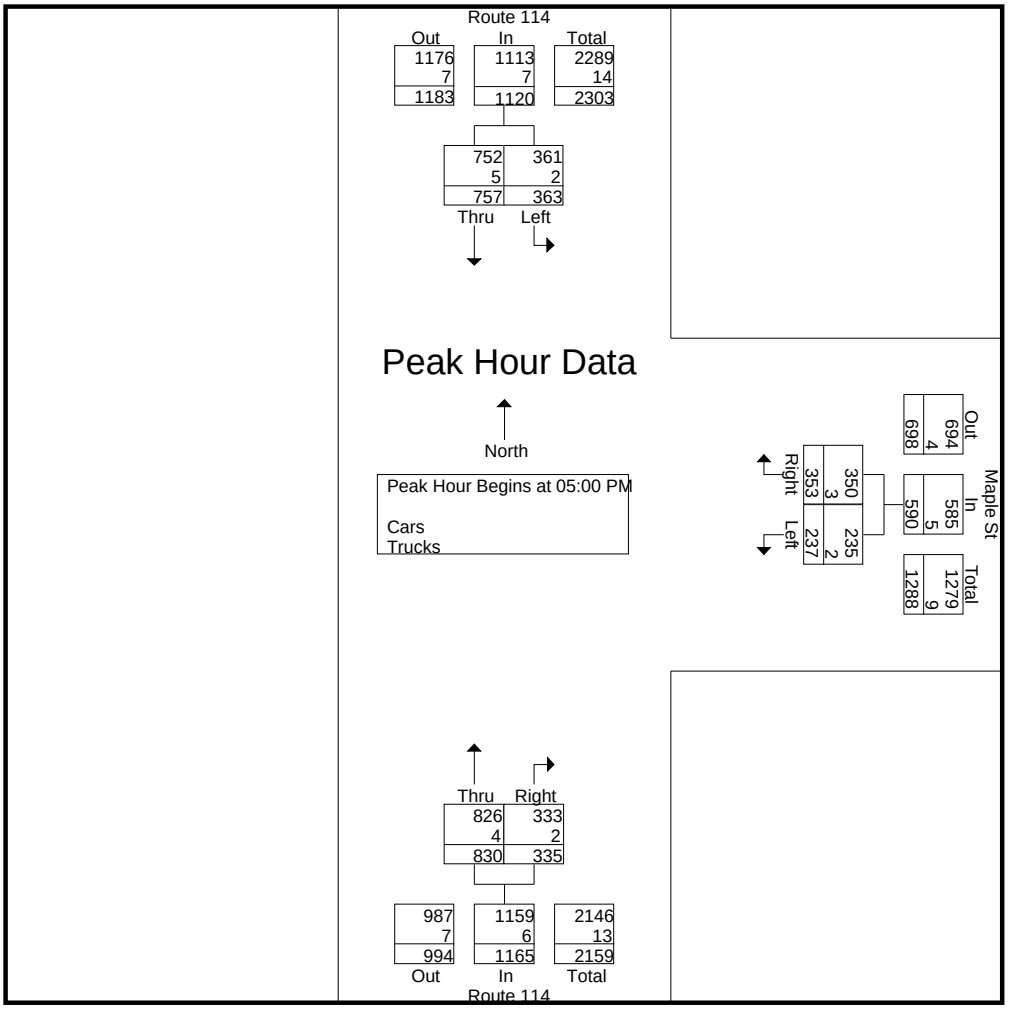
	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	**96**	193	289	**68**	**105**	**173**	186	**91**	277	**739**
05:15 PM	91	**200**	**291**	50	88	138	216	67	283	712
05:30 PM	81	185	266	57	87	144	**225**	91	**316**	726
05:45 PM	95	179	274	62	73	135	203	86	289	698
Total Volume	363	757	1120	237	353	590	830	335	1165	2875
% App. Total	32.4	67.6		40.2	59.8		71.2	28.8		
PHF	.945	.946	.962	.871	.840	.853	.922	.920	.922	.973
Cars	361	752	1113	235	350	585	826	333	1159	2857
% Cars	99.4	99.3	99.4	99.2	99.2	99.2	99.5	99.4	99.5	99.4
Trucks	2	5	7	2	3	5	4	2	6	18
% Trucks	0.6	0.7	0.6	0.8	0.8	0.8	0.5	0.6	0.5	0.6

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 2



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1

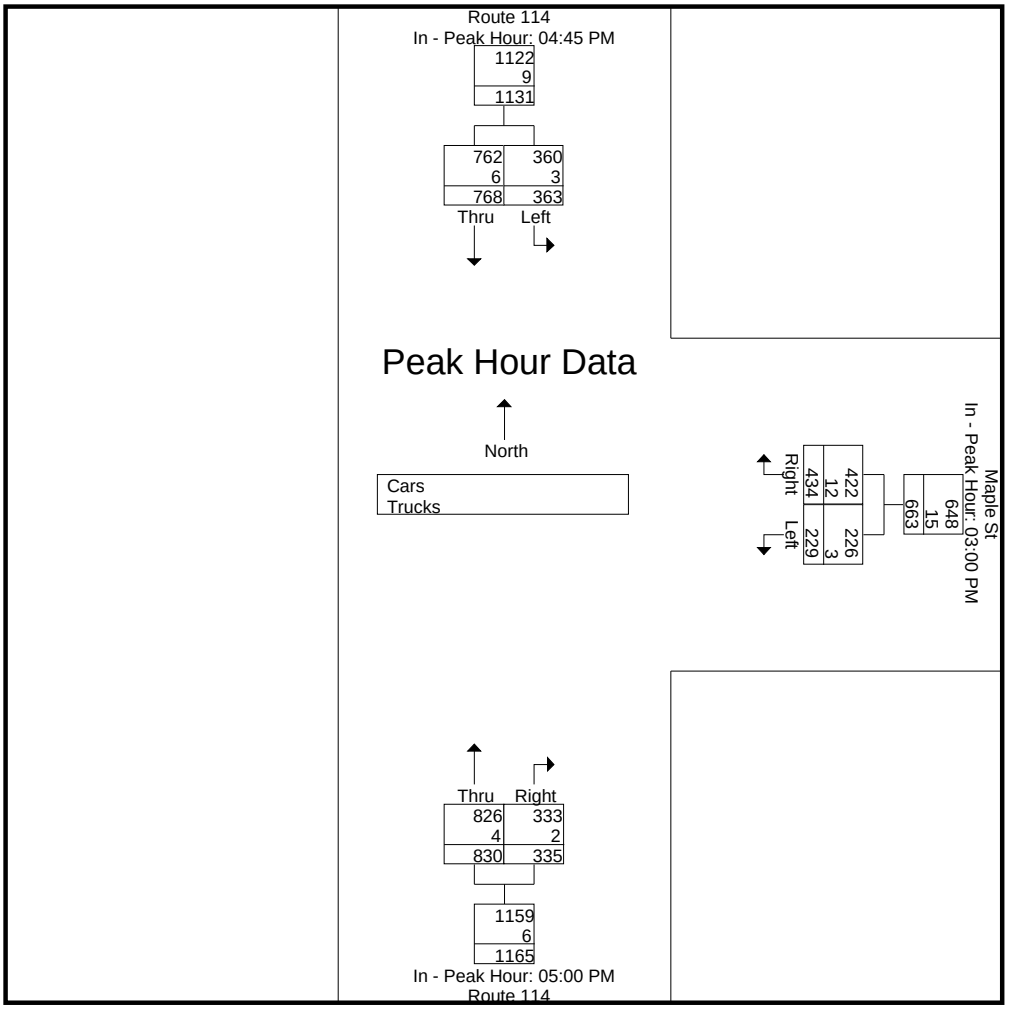
Peak Hour for Each Approach Begins at:

	04:45 PM			03:00 PM			05:00 PM		
+0 mins.	95	190	285	**60**	109	169	186	**91**	277
+15 mins.	**96**	193	289	58	**125**	**183**	216	67	283
+30 mins.	91	**200**	**291**	56	110	166	**225**	91	**316**
+45 mins.	81	185	266	55	90	145	203	86	289
Total Volume	363	768	1131	229	434	663	830	335	1165
% App. Total	32.1	67.9		34.5	65.5		71.2	28.8	
PHF	.945	.960	.972	.954	.868	.906	.922	.920	.922
Cars	360	762	1122	226	422	648	826	333	1159
% Cars	99.2	99.2	99.2	98.7	97.2	97.7	99.5	99.4	99.5
Trucks	3	6	9	3	12	15	4	2	6
% Trucks	0.8	0.8	0.8	1.3	2.8	2.3	0.5	0.6	0.5

Accurate Counts
978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North		Maple St From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
03:00 PM	75	174	58	104	187	83	681
03:15 PM	72	149	57	121	162	93	654
03:30 PM	63	199	56	109	181	61	669
03:45 PM	77	167	55	88	189	84	660
Total	287	689	226	422	719	321	2664
04:00 PM	78	180	55	71	206	89	679
04:15 PM	86	186	61	86	202	70	691
04:30 PM	91	150	60	76	198	79	654
04:45 PM	93	188	62	73	195	71	682
Total	348	704	238	306	801	309	2706
05:00 PM	95	191	68	105	184	90	733
05:15 PM	91	198	50	88	215	67	709
05:30 PM	81	185	55	85	225	90	721
05:45 PM	94	178	62	72	202	86	694
Total	361	752	235	350	826	333	2857
06:00 PM	77	185	59	66	160	77	624
06:15 PM	58	120	56	65	157	85	541
06:30 PM	49	148	41	65	131	53	487
06:45 PM	47	102	42	46	125	61	423
Total	231	555	198	242	573	276	2075
Grand Total	1227	2700	897	1320	2919	1239	10302
Apprch %	31.2	68.8	40.5	59.5	70.2	29.8	
Total %	11.9	26.2	8.7	12.8	28.3	12	

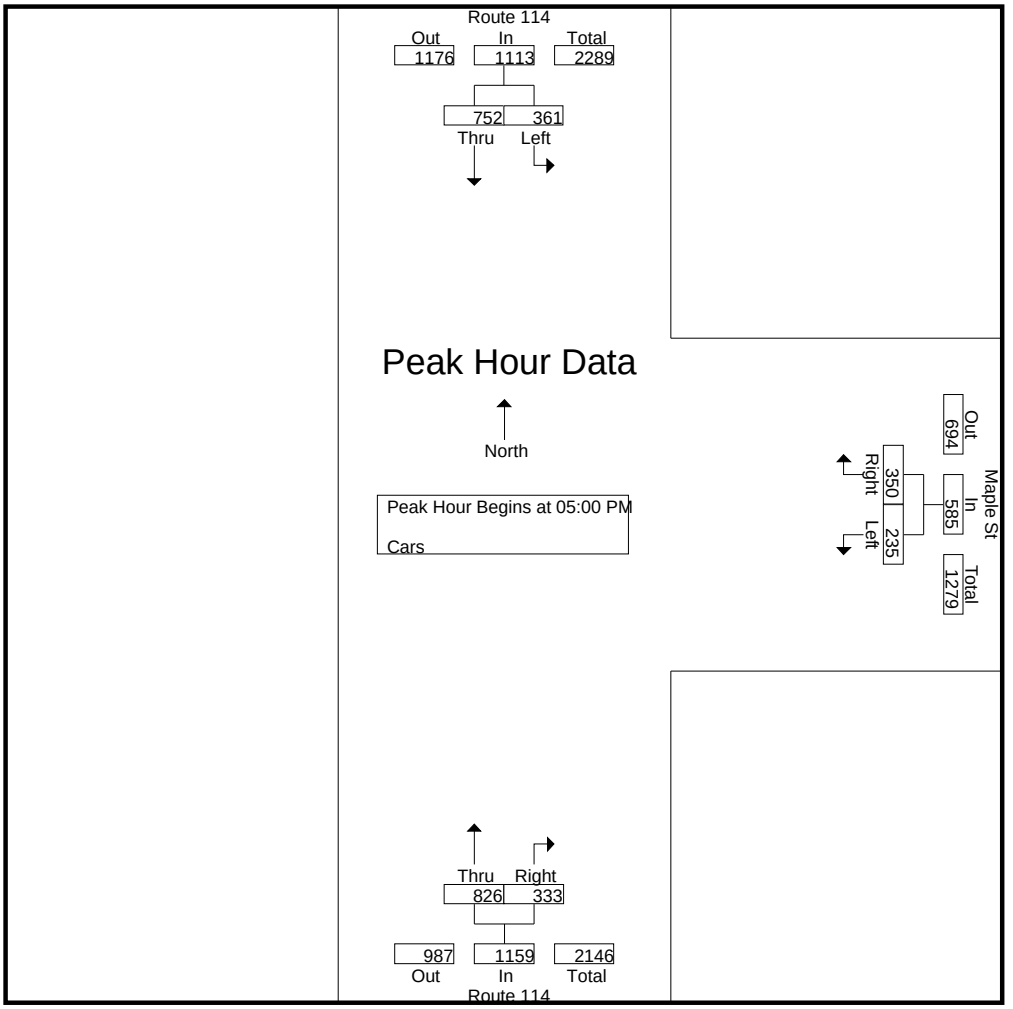
	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	**95**	191	286	**68**	**105**	**173**	184	**90**	274	**733**
05:15 PM	91	**198**	**289**	50	88	138	215	67	282	709
05:30 PM	81	185	266	55	85	140	**225**	90	**315**	721
05:45 PM	94	178	272	62	72	134	202	86	288	694
Total Volume	361	752	1113	235	350	585	826	333	1159	2857
% App. Total	32.4	67.6		40.2	59.8		71.3	28.7		
PHF	.950	.949	.963	.864	.833	.845	.918	.925	.920	.974

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 5



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1

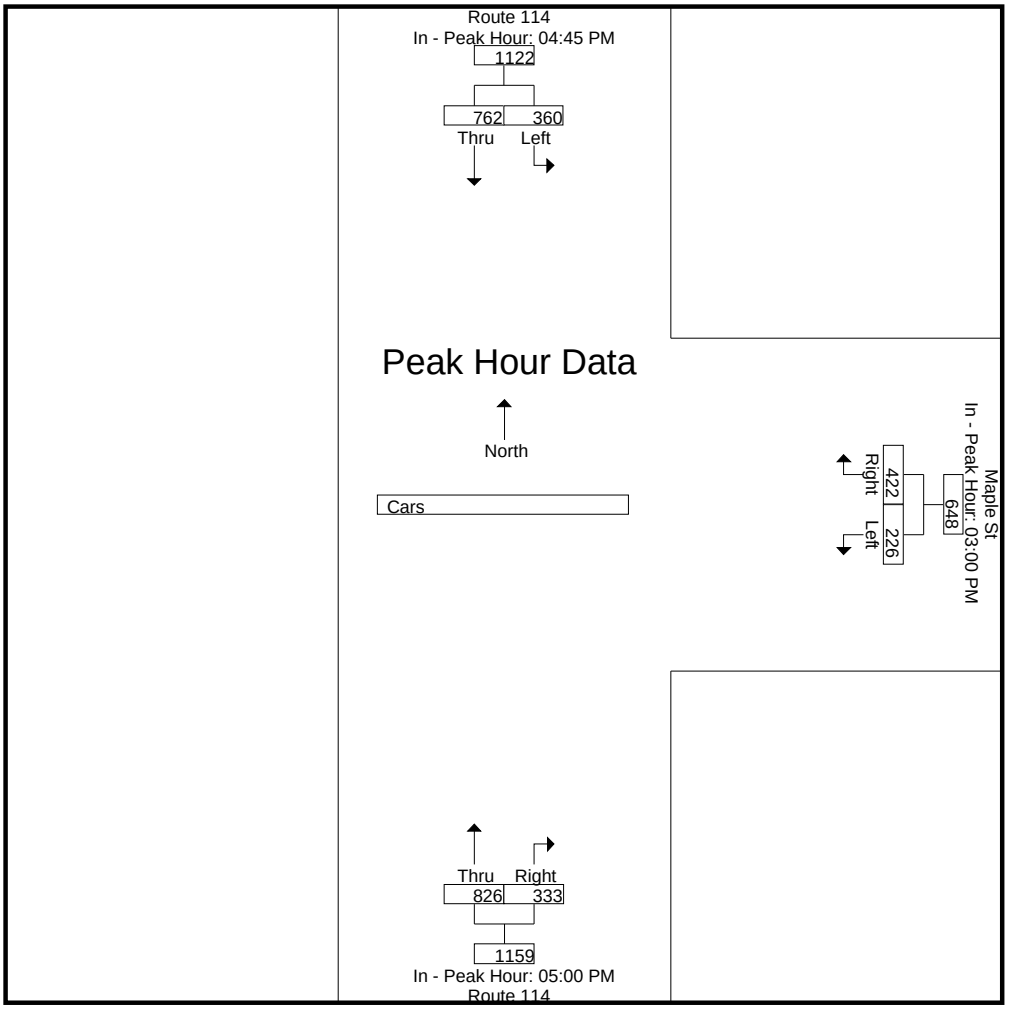
Peak Hour for Each Approach Begins at:

	04:45 PM			03:00 PM			05:00 PM		
+0 mins.	93	188	281	**58**	104	162	184	**90**	274
+15 mins.	**95**	191	286	57	**121**	**178**	215	67	282
+30 mins.	91	**198**	**289**	56	109	165	**225**	90	**315**
+45 mins.	81	185	266	55	88	143	202	86	288
Total Volume	360	762	1122	226	422	648	826	333	1159
% App. Total	32.1	67.9		34.9	65.1		71.3	28.7	
PHF	.947	.962	.971	.974	.872	.910	.918	.925	.920

Accurate Counts
978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 7

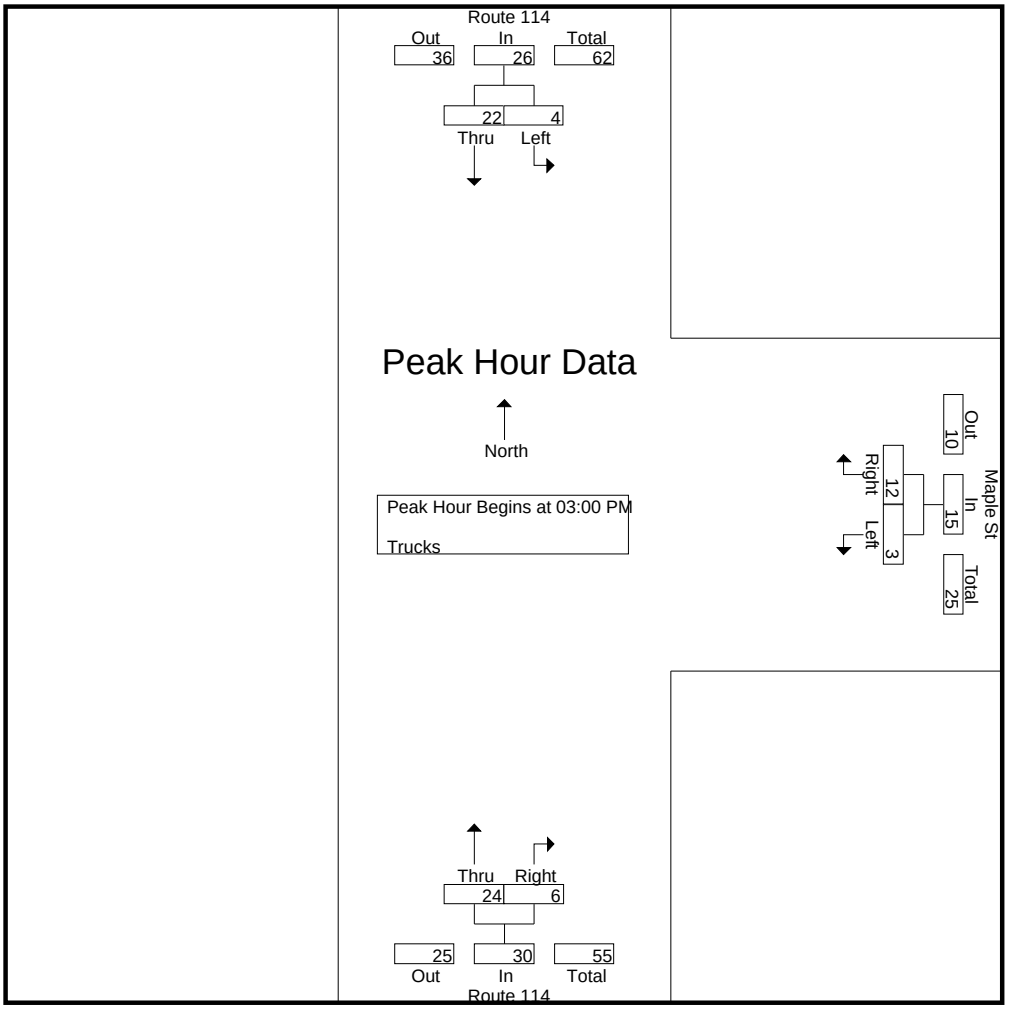
Groups Printed- Trucks

	Route 114 From North		Maple St From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
03:00 PM	2	6	2	5	9	1	25
03:15 PM	1	6	1	4	7	3	22
03:30 PM	1	5	0	1	4	1	12
03:45 PM	0	5	0	2	4	1	12
Total	4	22	3	12	24	6	71
04:00 PM	2	7	2	1	4	1	17
04:15 PM	0	0	1	1	3	0	5
04:30 PM	1	3	0	1	3	1	9
04:45 PM	2	2	0	2	3	0	9
Total	5	12	3	5	13	2	40
05:00 PM	1	2	0	0	2	1	6
05:15 PM	0	2	0	0	1	0	3
05:30 PM	0	0	2	2	0	1	5
05:45 PM	1	1	0	1	1	0	4
Total	2	5	2	3	4	2	18
06:00 PM	0	2	1	1	0	0	4
06:15 PM	1	0	1	0	3	0	5
06:30 PM	1	1	1	0	1	2	6
06:45 PM	0	2	0	0	1	0	3
Total	2	5	3	1	5	2	18
Grand Total	13	44	11	21	46	12	147
Apprch %	22.8	77.2	34.4	65.6	79.3	20.7	
Total %	8.8	29.9	7.5	14.3	31.3	8.2	

	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	**2**	**6**	**8**	**2**	**5**	**7**	**9**	1	**10**	**25**
03:15 PM	1	6	7	1	4	5	7	**3**	10	22
03:30 PM	1	5	6	0	1	1	4	1	5	12
03:45 PM	0	5	5	0	2	2	4	1	5	12
Total Volume	4	22	26	3	12	15	24	6	30	71
% App. Total	15.4	84.6		20	80		80	20		
PHF	.500	.917	.813	.375	.600	.536	.667	.500	.750	.710

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 8



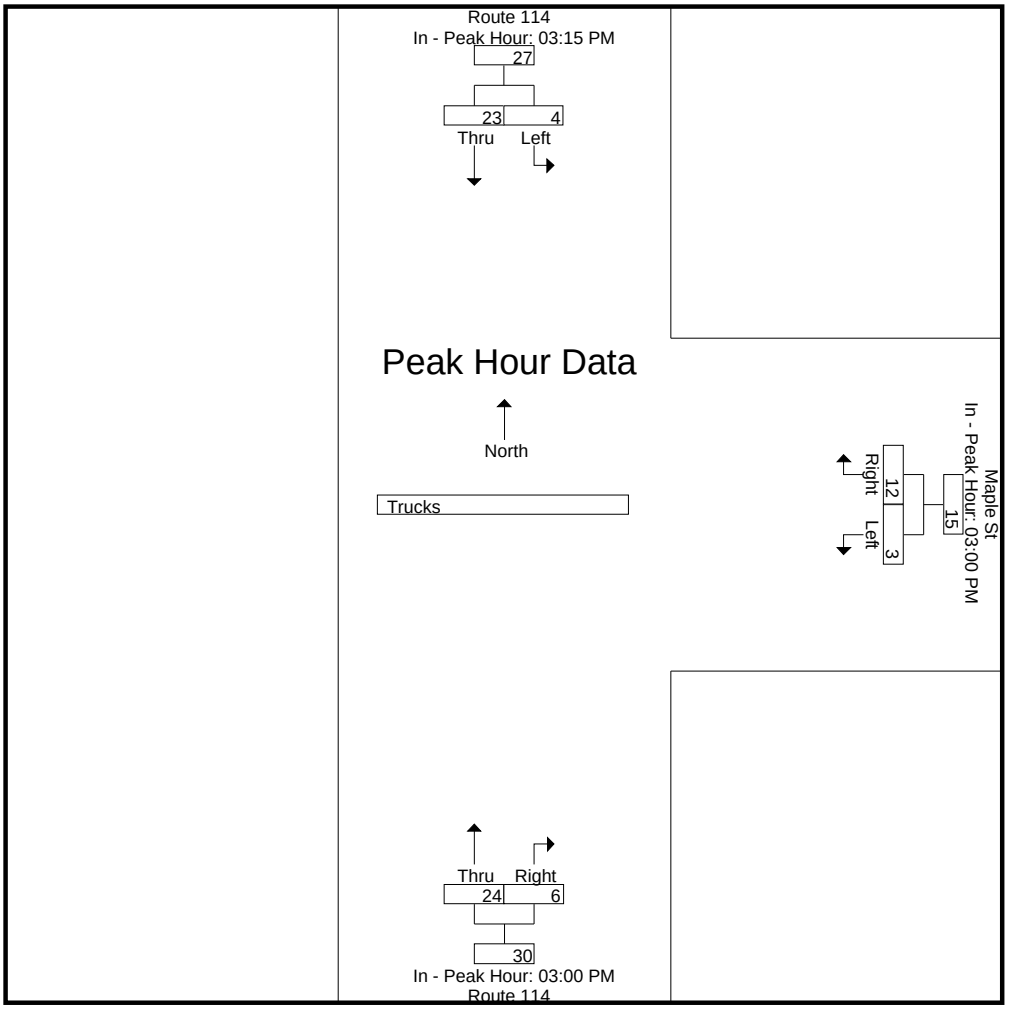
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:15 PM			03:00 PM			03:00 PM		
+0 mins.	1	6	7	**2**	**5**	**7**	**9**	1	**10**
+15 mins.	1	5	6	1	4	5	7	**3**	10
+30 mins.	0	5	5	0	1	1	4	1	5
+45 mins.	**2**	**7**	**9**	0	2	2	4	1	5
Total Volume	4	23	27	3	12	15	24	6	30
% App. Total	14.8	85.2		20	80		80	20	
PHF	.500	.821	.750	.375	.600	.536	.667	.500	.750

Accurate Counts
978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022

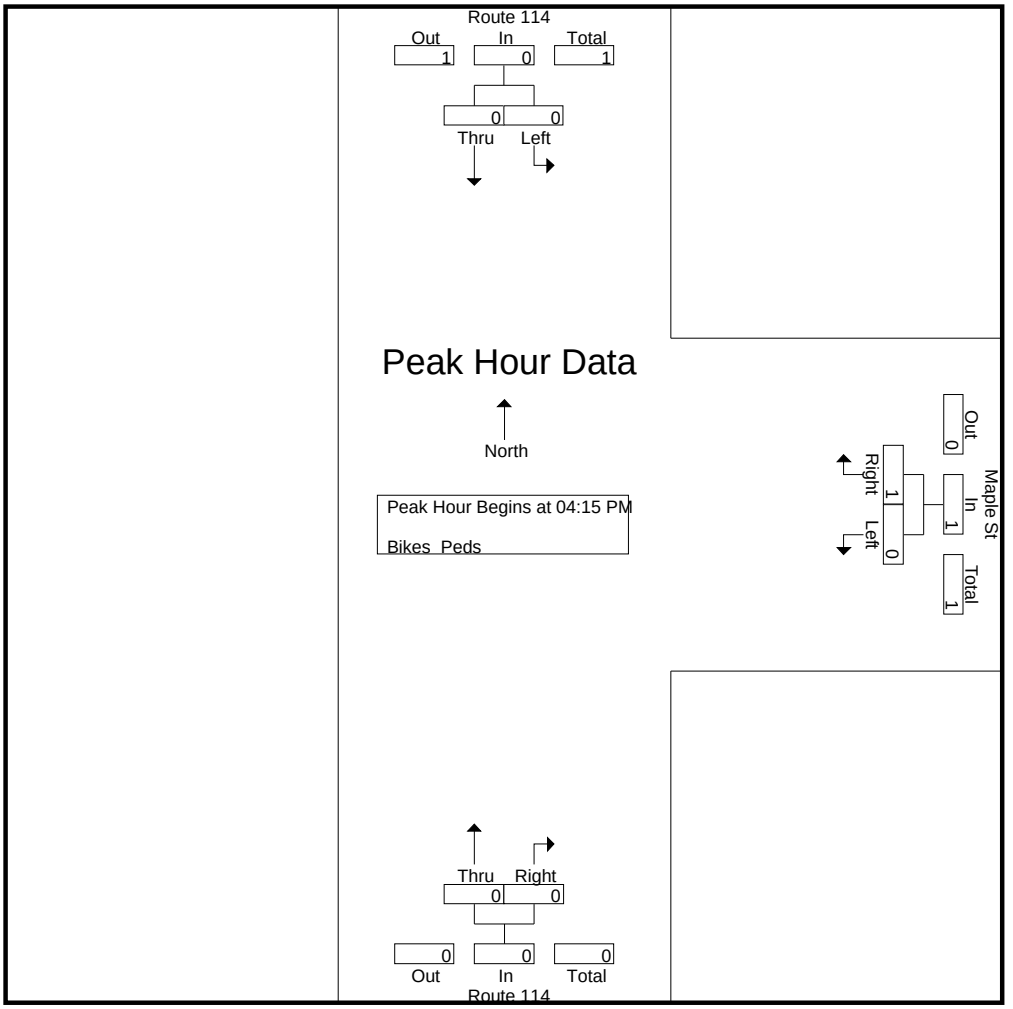
Groups Printed- Bikes Peds

	Route 114 From North			Maple St From East			Route 114 From South					
Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:45 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
04:00 PM	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
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 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
05:00 PM	0	0	0	0	1	0	0	0	0	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	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
Total	0	0	0	0	1	0	0	0	0	0	1	1
06:00 PM	0	0	0	0	0	1	0	0	0	1	0	1
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	1	0	0	0	1	0	1
Total	0	0	0	0	0	2	0	0	0	2	0	2
Grand Total	0	0	0	0	1	2	0	0	0	2	1	3
Apprch %	0	0		0	100		0	0				
Total %	0	0		0	100		0	0		66.7	33.3	

	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	0	0	0	0	0	0	0	0	0	0
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	**1**	**1**	0	0	0	**1**
Total Volume	0	0	0	0	1	1	0	0	0	1
% App. Total	0	0		0	100		0	0		
PHF	.000	.000	.000	.000	.250	.250	.000	.000	.000	.250

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 11



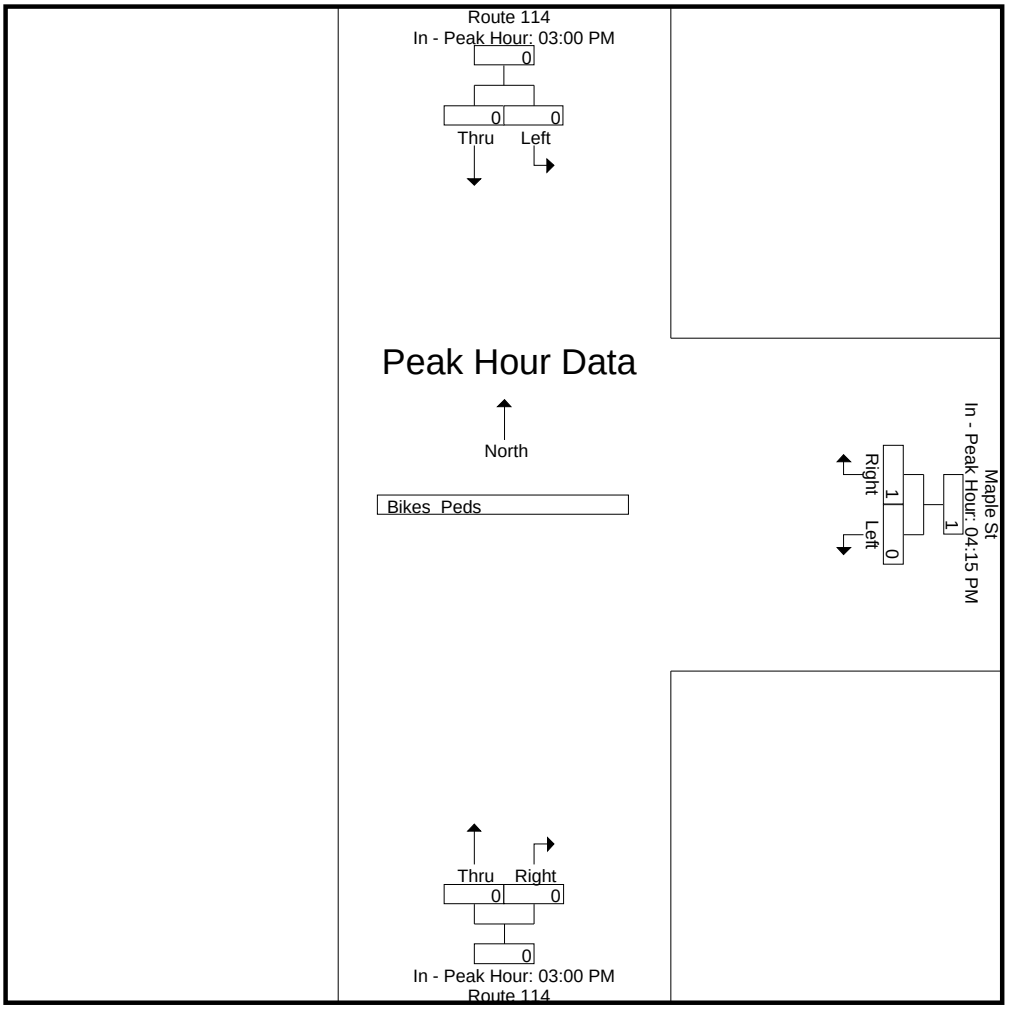
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM			04:15 PM			03:00 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	0	**1**	**1**	0	0	0
Total Volume	0	0	0	0	1	1	0	0	0
% App. Total	0	0		0	100		0	0	
PHF	.000	.000	.000	.000	.250	.250	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010002
Site Code : 93010002
Start Date : 5/19/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022
Page No : 1

Groups Printed- Cars - Trucks

	Route 114 From North		Maple St From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
11:00 AM	54	158	76	44	139	82	553
11:15 AM	70	151	77	62	140	109	609
11:30 AM	81	168	85	41	121	86	582
11:45 AM	66	169	91	53	154	70	603
Total	271	646	329	200	554	347	2347
12:00 PM	71	202	78	62	120	81	614
12:15 PM	67	172	61	60	142	79	581
12:30 PM	88	187	69	71	162	81	658
12:45 PM	87	165	80	69	180	88	669
Total	313	726	288	262	604	329	2522
01:00 PM	69	164	82	54	151	73	593
01:15 PM	74	176	83	103	144	89	669
01:30 PM	64	125	85	104	179	86	643
01:45 PM	75	175	87	85	148	88	658
Total	282	640	337	346	622	336	2563
Grand Total	866	2012	954	808	1780	1012	7432
Apprch %	30.1	69.9	54.1	45.9	63.8	36.2	
Total %	11.7	27.1	12.8	10.9	24	13.6	
Cars	862	2001	950	802	1768	1009	7392
% Cars	99.5	99.5	99.6	99.3	99.3	99.7	99.5
Trucks	4	11	4	6	12	3	40
% Trucks	0.5	0.5	0.4	0.7	0.7	0.3	0.5

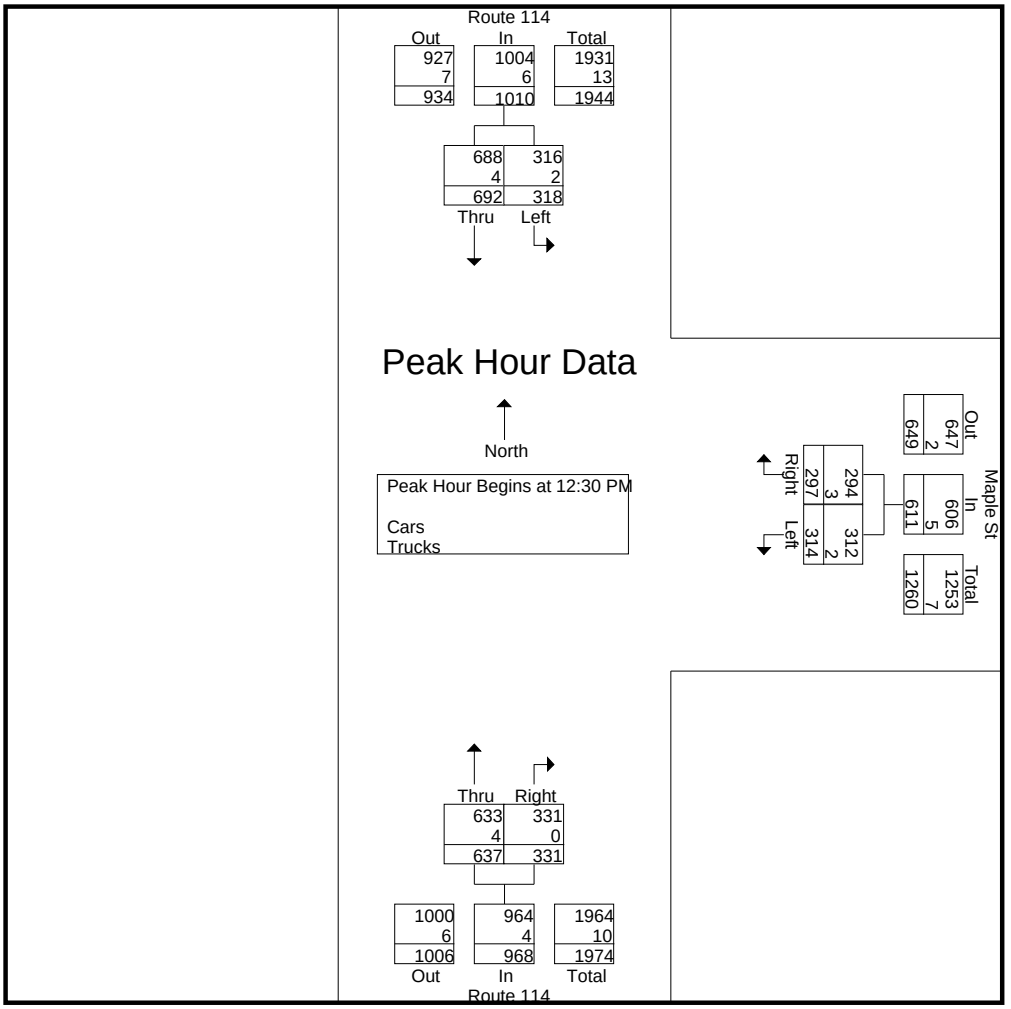
	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:30 PM										
12:30 PM	**88**	**187**	**275**	69	71	140	162	81	243	658
12:45 PM	87	165	252	80	69	149	**180**	88	**268**	**669**
01:00 PM	69	164	233	82	54	136	151	73	224	593
01:15 PM	74	176	250	**83**	**103**	**186**	144	**89**	233	669
Total Volume	318	692	1010	314	297	611	637	331	968	2589
% App. Total	31.5	68.5		51.4	48.6		65.8	34.2		
PHF	.903	.925	.918	.946	.721	.821	.885	.930	.903	.967
Cars	316	688	1004	312	294	606	633	331	964	2574
% Cars	99.4	99.4	99.4	99.4	99.0	99.2	99.4	100	99.6	99.4
Trucks	2	4	6	2	3	5	4	0	4	15
% Trucks	0.6	0.6	0.6	0.6	1.0	0.8	0.6	0	0.4	0.6

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022
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:

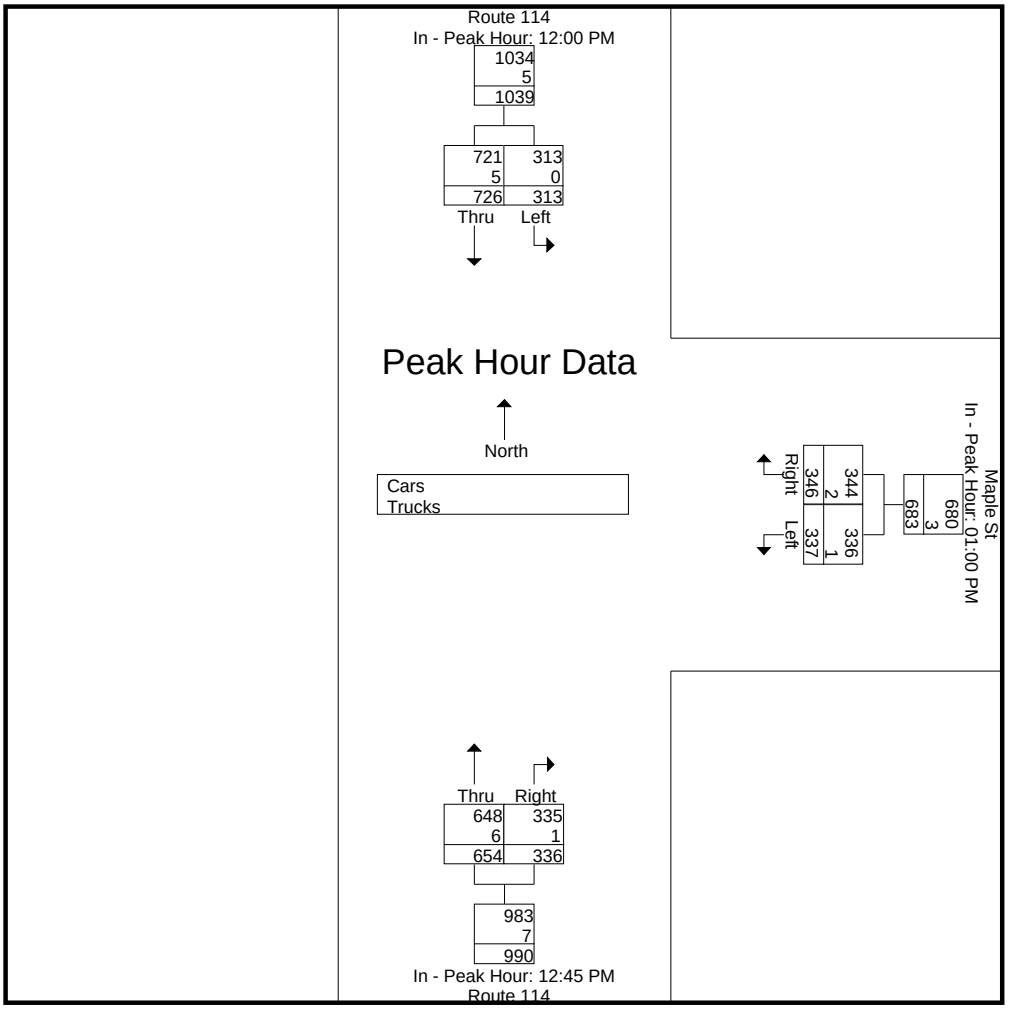
	12:00 PM			01:00 PM			12:45 PM		
+0 mins.	71	**202**	273	82	54	136	**180**	88	**268**
+15 mins.	67	172	239	83	103	186	151	73	224
+30 mins.	**88**	187	**275**	85	**104**	**189**	144	**89**	233
+45 mins.	87	165	252	**87**	85	172	179	86	265
Total Volume	313	726	1039	337	346	683	654	336	990
% App. Total	30.1	69.9		49.3	50.7		66.1	33.9	
PHF	.889	.899	.945	.968	.832	.903	.908	.944	.924
Cars	313	721	1034	336	344	680	648	335	983
% Cars	100	99.3	99.5	99.7	99.4	99.6	99.1	99.7	99.3
Trucks	0	5	5	1	2	3	6	1	7
% Trucks	0	0.7	0.5	0.3	0.6	0.4	0.9	0.3	0.7

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North		Maple St From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
11:00 AM	54	156	76	44	138	82	550
11:15 AM	70	150	77	61	138	109	605
11:30 AM	80	168	85	41	121	86	581
11:45 AM	65	167	91	53	153	70	599
Total	269	641	329	199	550	347	2335
12:00 PM	71	201	77	61	119	80	609
12:15 PM	67	171	60	60	141	78	577
12:30 PM	88	186	69	71	162	81	657
12:45 PM	87	163	79	67	178	88	662
Total	313	721	285	259	600	327	2505
01:00 PM	67	164	82	54	150	73	590
01:15 PM	74	175	82	102	143	89	665
01:30 PM	64	125	85	103	177	85	639
01:45 PM	75	175	87	85	148	88	658
Total	280	639	336	344	618	335	2552
Grand Total	862	2001	950	802	1768	1009	7392
Apprch %	30.1	69.9	54.2	45.8	63.7	36.3	
Total %	11.7	27.1	12.9	10.8	23.9	13.6	

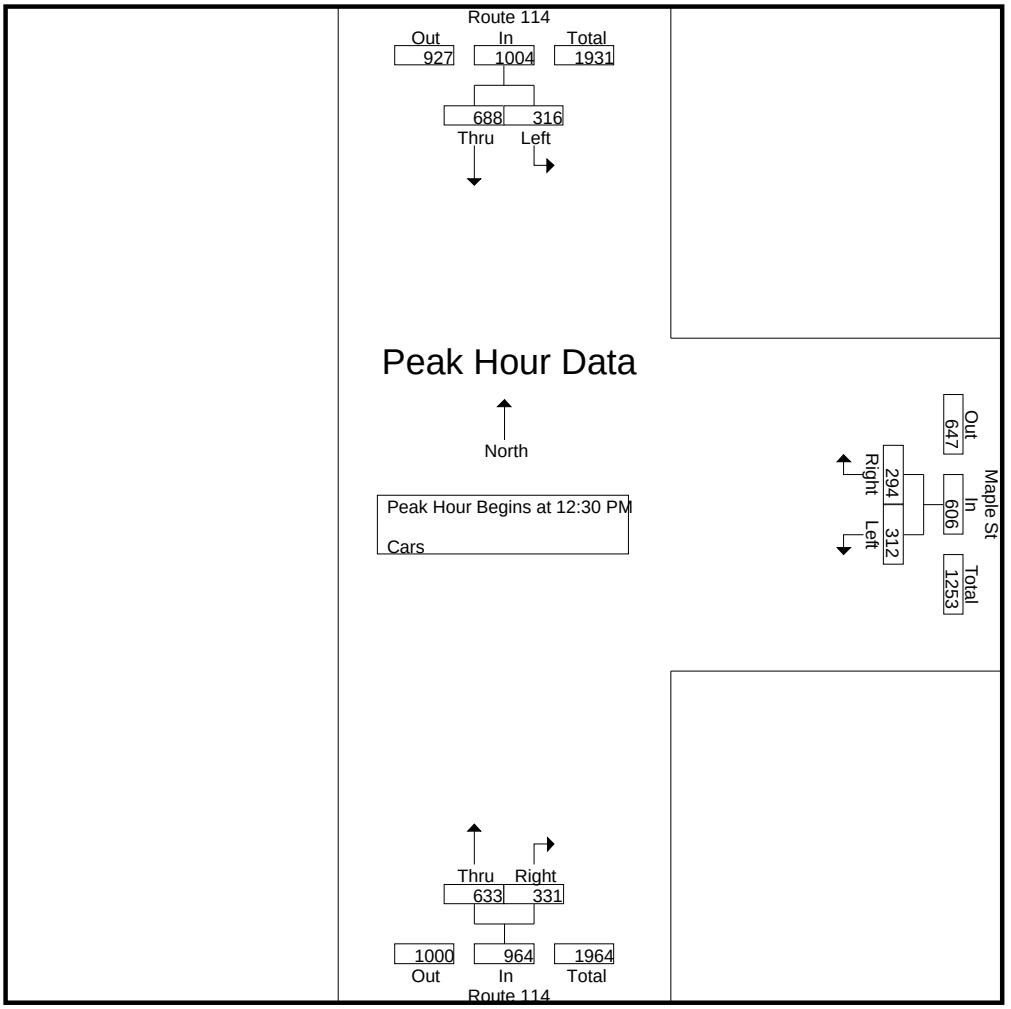
	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:30 PM										
12:30 PM	**88**	**186**	**274**	69	71	140	162	81	243	657
12:45 PM	87	163	250	79	67	146	**178**	88	**266**	662
01:00 PM	67	164	231	**82**	54	136	150	73	223	590
01:15 PM	74	175	249	82	**102**	**184**	143	**89**	232	**665**
Total Volume	316	688	1004	312	294	606	633	331	964	2574
% App. Total	31.5	68.5		51.5	48.5		65.7	34.3		
PHF	.898	.925	.916	.951	.721	.823	.889	.930	.906	.968

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022
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:

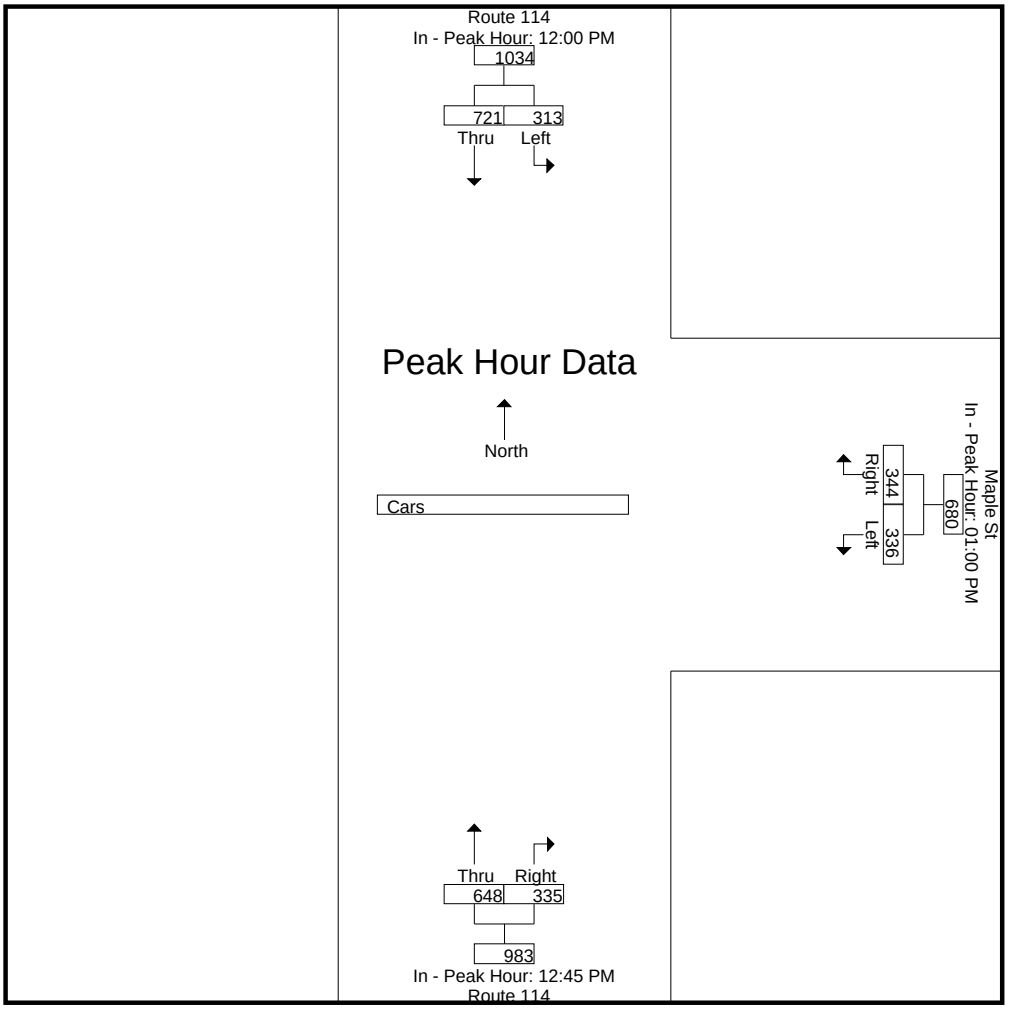
	12:00 PM			01:00 PM			12:45 PM		
+0 mins.	71	**201**	272	82	54	136	**178**	88	**266**
+15 mins.	67	171	238	82	102	184	150	73	223
+30 mins.	**88**	186	**274**	85	**103**	**188**	143	**89**	232
+45 mins.	87	163	250	**87**	85	172	177	85	262
Total Volume	313	721	1034	336	344	680	648	335	983
% App. Total	30.3	69.7		49.4	50.6		65.9	34.1	
PHF	.889	.897	.943	.966	.835	.904	.910	.941	.924

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022

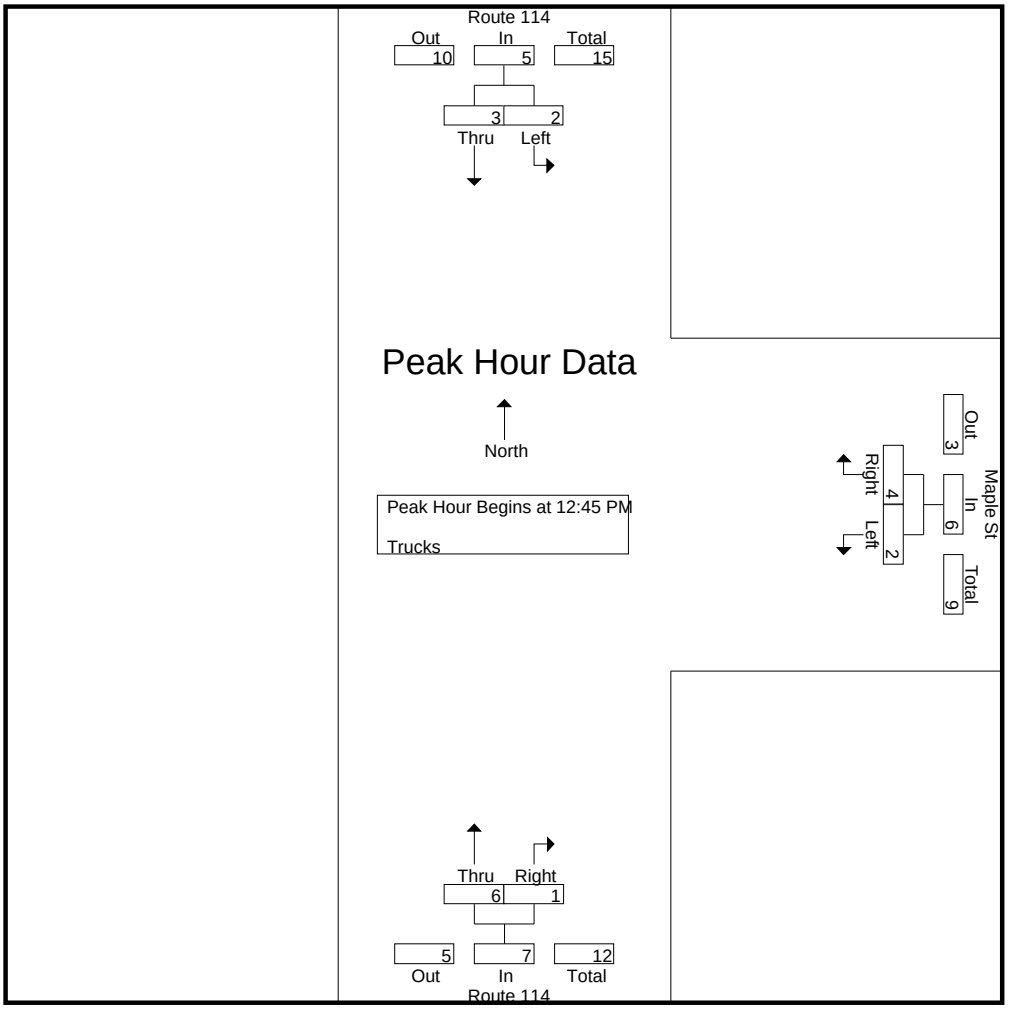
Groups Printed- Trucks

	Route 114 From North		Maple St From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
11:00 AM	0	2	0	0	1	0	3
11:15 AM	0	1	0	1	2	0	4
11:30 AM	1	0	0	0	0	0	1
11:45 AM	1	2	0	0	1	0	4
Total	2	5	0	1	4	0	12
12:00 PM	0	1	1	1	1	1	5
12:15 PM	0	1	1	0	1	1	4
12:30 PM	0	1	0	0	0	0	1
12:45 PM	0	2	1	2	2	0	7
Total	0	5	3	3	4	2	17
01:00 PM	2	0	0	0	1	0	3
01:15 PM	0	1	1	1	1	0	4
01:30 PM	0	0	0	1	2	1	4
01:45 PM	0	0	0	0	0	0	0
Total	2	1	1	2	4	1	11
Grand Total	4	11	4	6	12	3	40
Apprch %	26.7	73.3	40	60	80	20	
Total %	10	27.5	10	15	30	7.5	

	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	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 12:45 PM										
12:45 PM	0	**2**	**2**	**1**	**2**	**3**	**2**	0	2	**7**
01:00 PM	**2**	0	2	0	0	0	1	0	1	3
01:15 PM	0	1	1	1	1	2	1	0	1	4
01:30 PM	0	0	0	0	1	1	2	**1**	**3**	4
Total Volume	2	3	5	2	4	6	6	1	7	18
% App. Total	40	60		33.3	66.7		85.7	14.3		
PHF	.250	.375	.625	.500	.500	.500	.750	.250	.583	.643

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022
Page No : 8



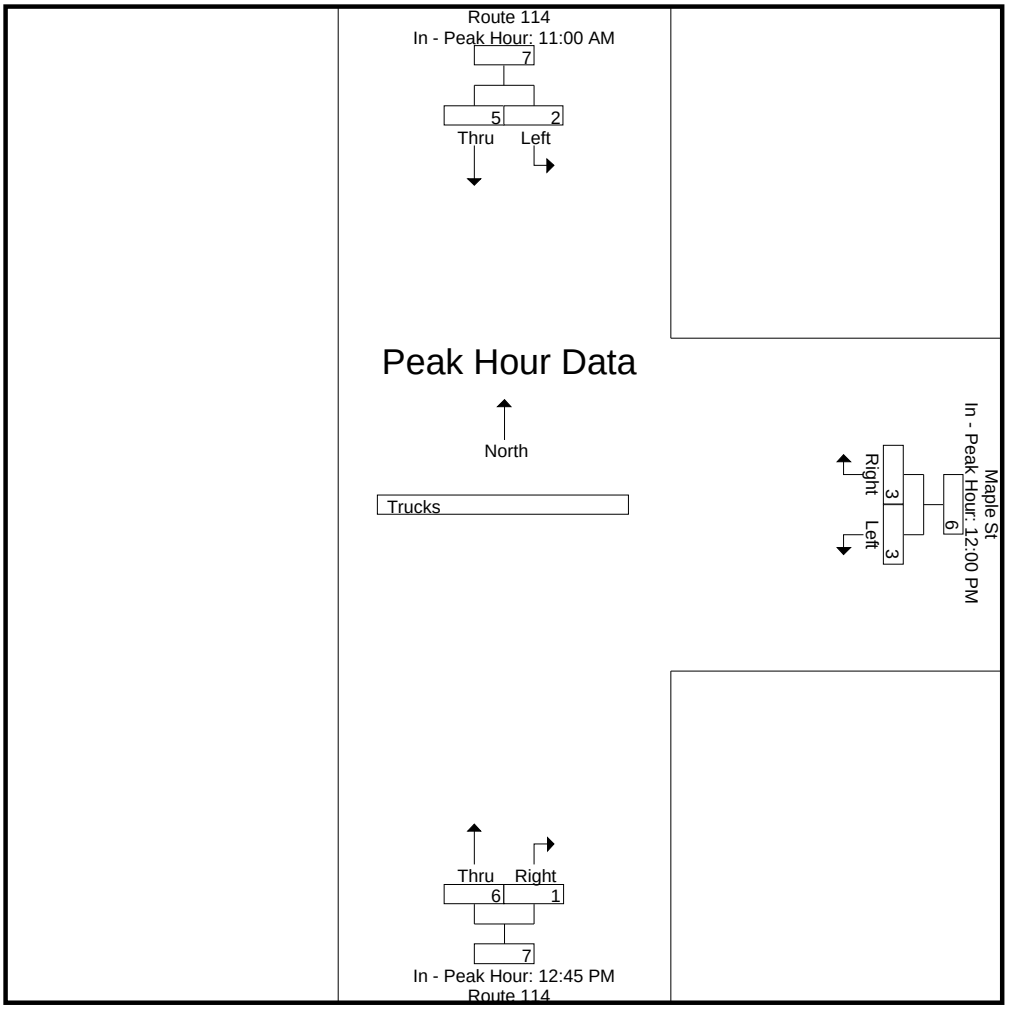
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:00 AM			12:00 PM			12:45 PM		
+0 mins.	0	**2**	2	**1**	1	2	**2**	0	2
+15 mins.	0	1	1	1	0	1	1	0	1
+30 mins.	**1**	0	1	0	0	0	1	0	1
+45 mins.	1	2	**3**	1	**2**	**3**	2	**1**	**3**
Total Volume	2	5	7	3	3	6	6	1	7
% App. Total	28.6	71.4		50	50		85.7	14.3	
PHF	.500	.625	.583	.750	.375	.500	.750	.250	.583

Accurate Counts
978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022

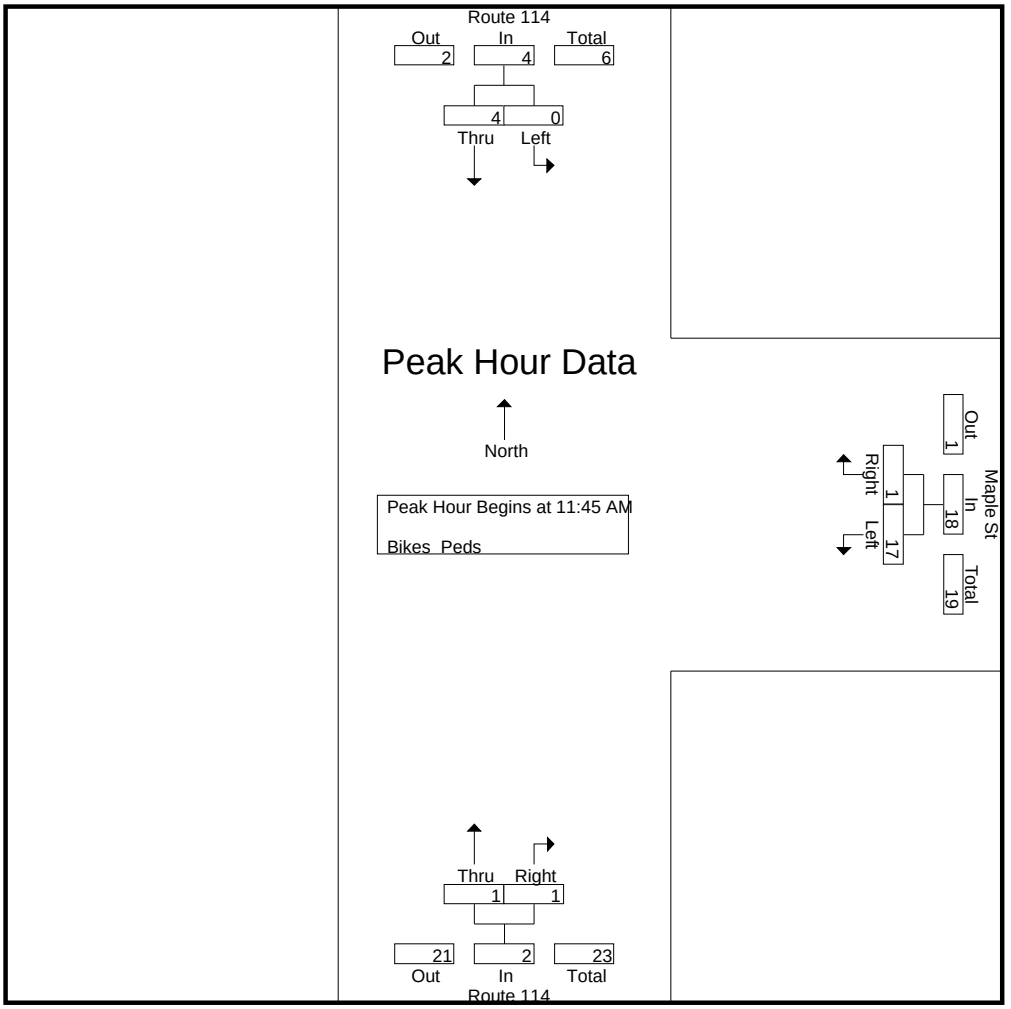
Groups Printed- Bikes Peds

	Route 114 From North			Maple St From East			Route 114 From South					
Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
11:00 AM	0	0	0	1	0	0	1	0	3	3	2	5
11:15 AM	0	1	0	0	0	1	0	0	3	4	1	5
11:30 AM	0	2	1	0	0	0	0	0	1	2	2	4
11:45 AM	0	1	2	13	1	0	1	1	0	2	17	19
Total	0	4	3	14	1	1	2	1	7	11	22	33
12:00 PM	0	1	0	0	0	0	0	0	0	0	1	1
12:15 PM	0	1	0	2	0	5	0	0	2	7	3	10
12:30 PM	0	1	1	2	0	0	0	0	0	1	3	4
12:45 PM	0	2	0	0	0	0	0	1	0	0	3	3
Total	0	5	1	4	0	5	0	1	2	8	10	18
01:00 PM	0	1	0	1	0	0	0	0	0	0	2	2
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	3	1	0	0	1	0	0	5	5
01:45 PM	0	0	0	1	0	0	0	0	0	0	1	1
Total	0	1	0	5	1	0	0	1	0	0	8	8
Grand Total	0	10	4	23	2	6	2	3	9	19	40	59
Apprch %	0	100		92	8		40	60				
Total %	0	25		57.5	5		5	7.5		32.2	67.8	

	Route 114 From North			Maple St From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	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	0	**1**	**1**	**13**	**1**	**14**	**1**	**1**	**2**	**17**
12:00 PM	0	1	1	0	0	0	0	0	0	1
12:15 PM	0	1	1	2	0	2	0	0	0	3
12:30 PM	0	1	1	2	0	2	0	0	0	3
Total Volume	0	4	4	17	1	18	1	1	2	24
% App. Total	0	100		94.4	5.6		50	50		
PHF	.000	1.00	1.00	.327	.250	.321	.250	.250	.250	.353

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022
Page No : 11



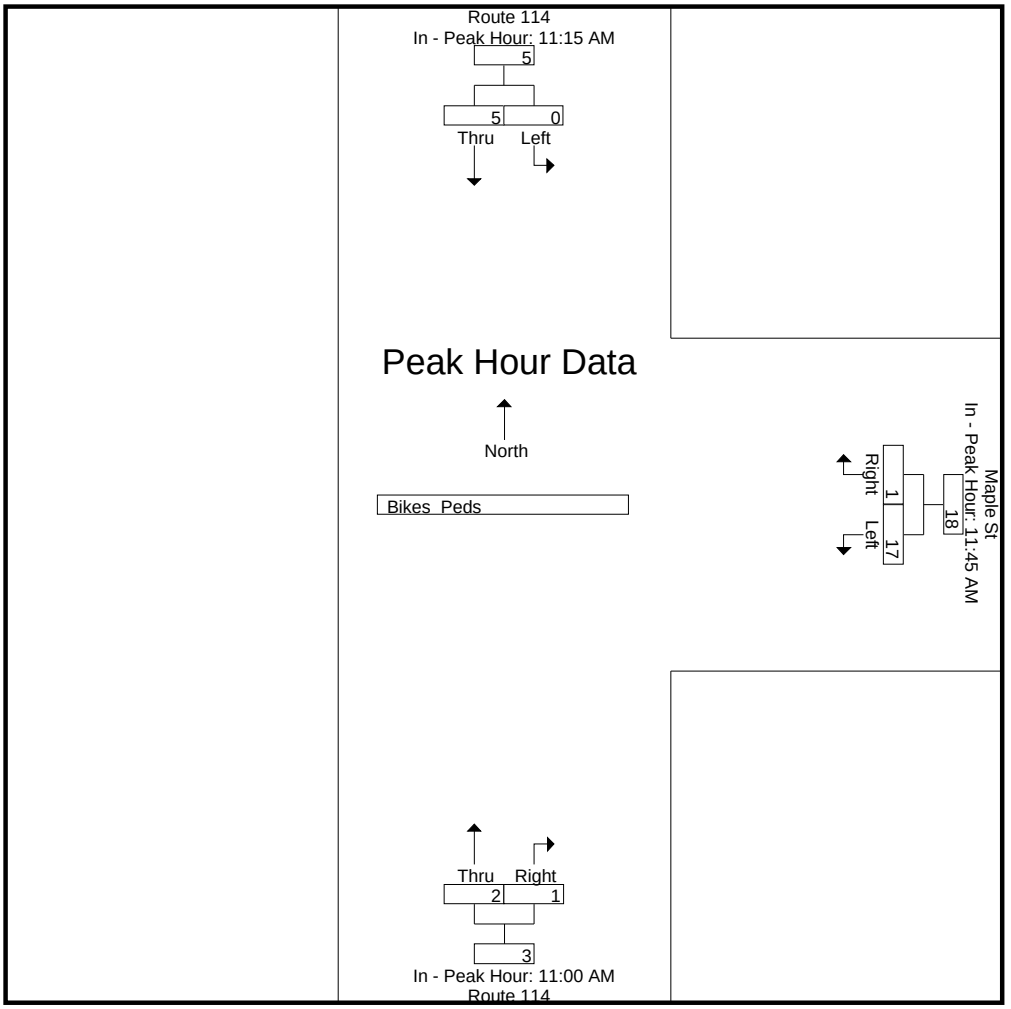
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:15 AM			11:45 AM			11:00 AM		
+0 mins.	0	1	1	**13**	**1**	**14**	**1**	0	1
+15 mins.	0	**2**	**2**	0	0	0	0	0	0
+30 mins.	0	1	1	2	0	2	0	0	0
+45 mins.	0	1	1	2	0	2	1	**1**	**2**
Total Volume	0	5	5	17	1	18	2	1	3
% App. Total	0	100		94.4	5.6		66.7	33.3	
PHF	.000	.625	.625	.327	.250	.321	.500	.250	.375

Accurate Counts
978-664-2565

N/S Street : Route 114
E/W Street : Maple Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S2
Site Code : 93010002
Start Date : 5/21/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 1

Groups Printed- Cars - Trucks

	Route 114 From North			Central St From East			Route 114 From South			Lake St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	3	299	1	5	0	3	2	228	4	0	1	6	552
07:15 AM	2	277	0	3	0	0	2	238	5	1	1	2	531
07:30 AM	0	263	1	8	0	3	2	275	6	0	0	3	561
07:45 AM	5	294	0	2	1	2	1	263	11	3	0	6	588
Total	10	1133	2	18	1	8	7	1004	26	4	2	17	2232
08:00 AM	11	250	0	23	0	6	1	249	19	1	1	6	567
08:15 AM	14	251	2	37	0	16	0	204	25	0	1	10	560
08:30 AM	8	272	0	23	0	9	1	253	9	0	1	0	576
08:45 AM	4	236	3	6	0	2	2	181	7	0	0	2	443
Total	37	1009	5	89	0	33	4	887	60	1	3	18	2146
Grand Total	47	2142	7	107	1	41	11	1891	86	5	5	35	4378
Apprch %	2.1	97.5	0.3	71.8	0.7	27.5	0.6	95.1	4.3	11.1	11.1	77.8	
Total %	1.1	48.9	0.2	2.4	0	0.9	0.3	43.2	2	0.1	0.1	0.8	
Cars	44	2070	6	103	1	38	9	1834	80	5	5	33	4228
% Cars	93.6	96.6	85.7	96.3	100	92.7	81.8	97	93	100	100	94.3	96.6
Trucks	3	72	1	4	0	3	2	57	6	0	0	2	150
% Trucks	6.4	3.4	14.3	3.7	0	7.3	18.2	3	7	0	0	5.7	3.4

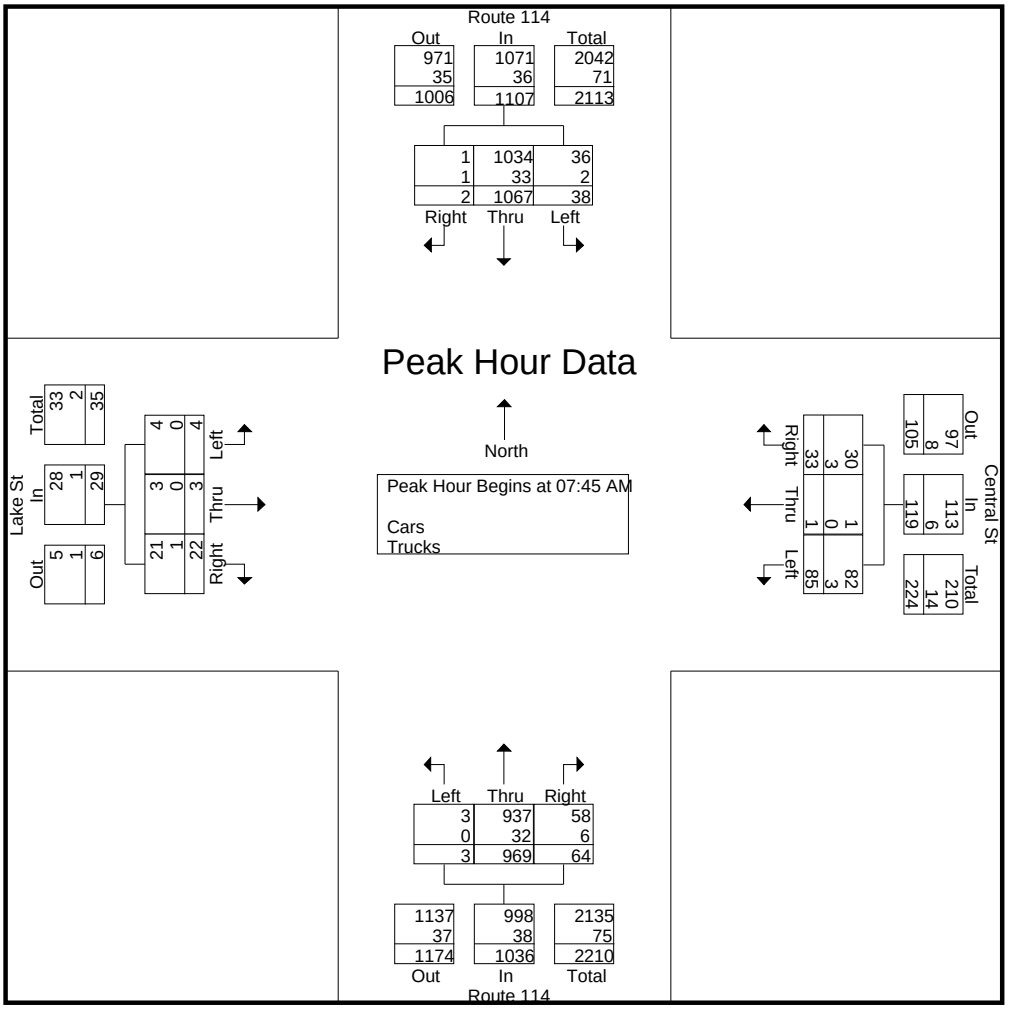
	Route 114 From North				Central St From East				Route 114 From South				Lake St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	5	**294**	0	**299**	2	**1**	2	5	**1**	**263**	11	**275**	**3**	0	6	9	**588**
08:00 AM	11	250	0	261	23	0	6	29	1	249	19	269	1	**1**	6	8	567
08:15 AM	**14**	251	**2**	267	**37**	0	**16**	**53**	0	204	**25**	229	0	1	**10**	**11**	560
08:30 AM	8	272	0	280	23	0	9	32	1	253	9	263	0	1	0	1	576
Total Volume	38	1067	2	1107	85	1	33	119	3	969	64	1036	4	3	22	29	2291
% App. Total	3.4	96.4	0.2		71.4	0.8	27.7		0.3	93.5	6.2		13.8	10.3	75.9		
PHF	.679	.907	.250	.926	.574	.250	.516	.561	.750	.921	.640	.942	.333	.750	.550	.659	.974
Cars	36	1034	1	1071	82	1	30	113	3	937	58	998	4	3	21	28	2210
% Cars	94.7	96.9	50.0	96.7	96.5	100	90.9	95.0	100	96.7	90.6	96.3	100	100	95.5	96.6	96.5
Trucks	2	33	1	36	3	0	3	6	0	32	6	38	0	0	1	1	81
% Trucks	5.3	3.1	50.0	3.3	3.5	0	9.1	5.0	0	3.3	9.4	3.7	0	0	4.5	3.4	3.5

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
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:

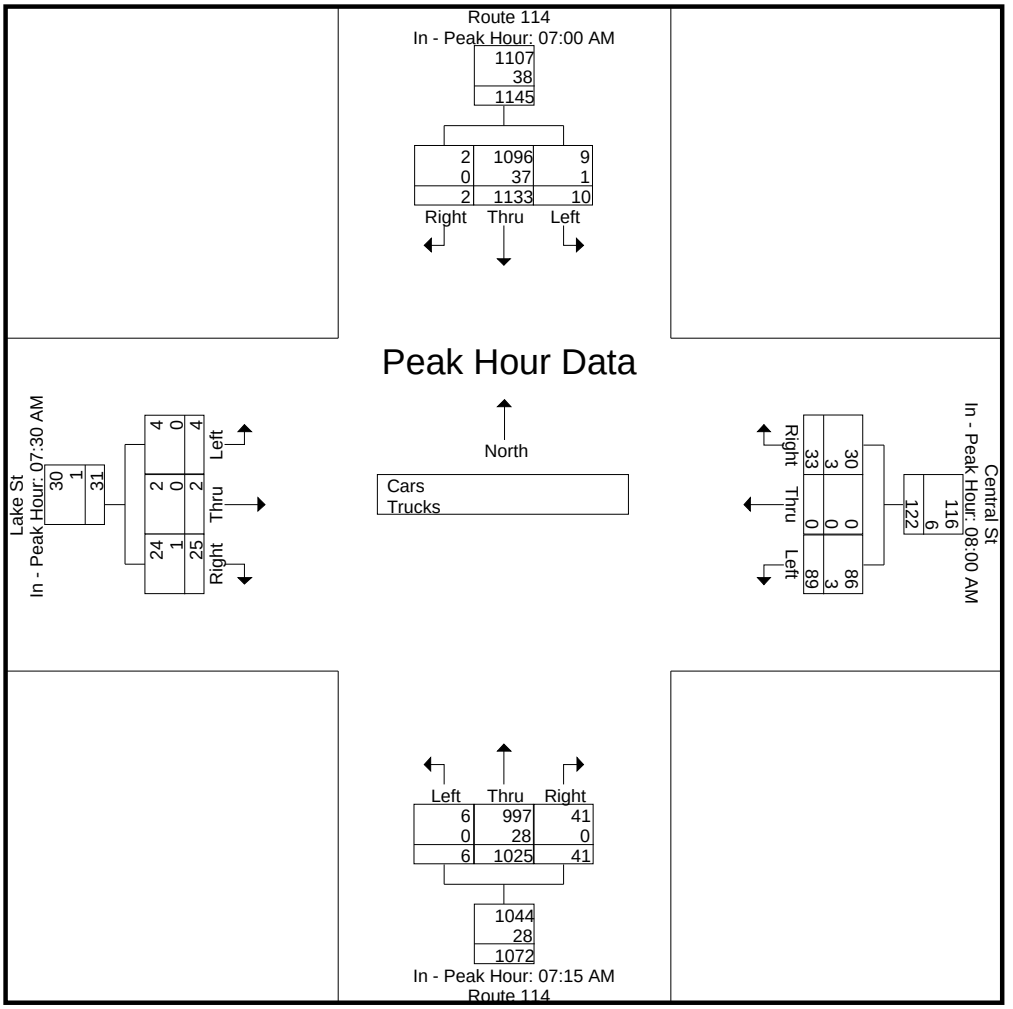
	07:00 AM				08:00 AM				07:15 AM				07:30 AM			
+0 mins.	3	**299**	**1**	**303**	23	0	6	29	**2**	238	5	245	0	0	3	3
+15 mins.	2	277	0	279	**37**	0	**16**	**53**	2	**275**	6	**283**	**3**	0	6	9
+30 mins.	0	263	1	264	23	0	9	32	1	263	11	275	1	**1**	6	8
+45 mins.	**5**	294	0	299	6	0	2	8	1	249	**19**	269	0	1	**10**	**11**
Total Volume	10	1133	2	1145	89	0	33	122	6	1025	41	1072	4	2	25	31
% App. Total	0.9	99	0.2		73	0	27		0.6	95.6	3.8		12.9	6.5	80.6	
PHF	.500	.947	.500	.945	.601	.000	.516	.575	.750	.932	.539	.947	.333	.500	.625	.705
Cars	9	1096	2	1107	86	0	30	116	6	997	41	1044	4	2	24	30
% Cars	90	96.7	100	96.7	96.6	0	90.9	95.1	100	97.3	100	97.4	100	100	96	96.8
Trucks	1	37	0	38	3	0	3	6	0	28	0	28	0	0	1	1
% Trucks	10	3.3	0	3.3	3.4	0	9.1	4.9	0	2.7	0	2.6	0	0	4	3.2

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North			Central St From East			Route 114 From South			Lake St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	2	295	1	4	0	3	1	221	4	0	1	6	538
07:15 AM	2	263	0	3	0	0	2	235	5	1	1	1	513
07:30 AM	0	248	1	8	0	3	2	267	6	0	0	3	538
07:45 AM	5	290	0	2	1	2	1	252	11	3	0	6	573
Total	9	1096	2	17	1	8	6	975	26	4	2	16	2162
08:00 AM	11	242	0	23	0	6	1	243	19	1	1	6	553
08:15 AM	13	245	1	34	0	14	0	197	19	0	1	9	533
08:30 AM	7	257	0	23	0	8	1	245	9	0	1	0	551
08:45 AM	4	230	3	6	0	2	1	174	7	0	0	2	429
Total	35	974	4	86	0	30	3	859	54	1	3	17	2066
Grand Total	44	2070	6	103	1	38	9	1834	80	5	5	33	4228
Apprch %	2.1	97.6	0.3	72.5	0.7	26.8	0.5	95.4	4.2	11.6	11.6	76.7	
Total %	1	49	0.1	2.4	0	0.9	0.2	43.4	1.9	0.1	0.1	0.8	

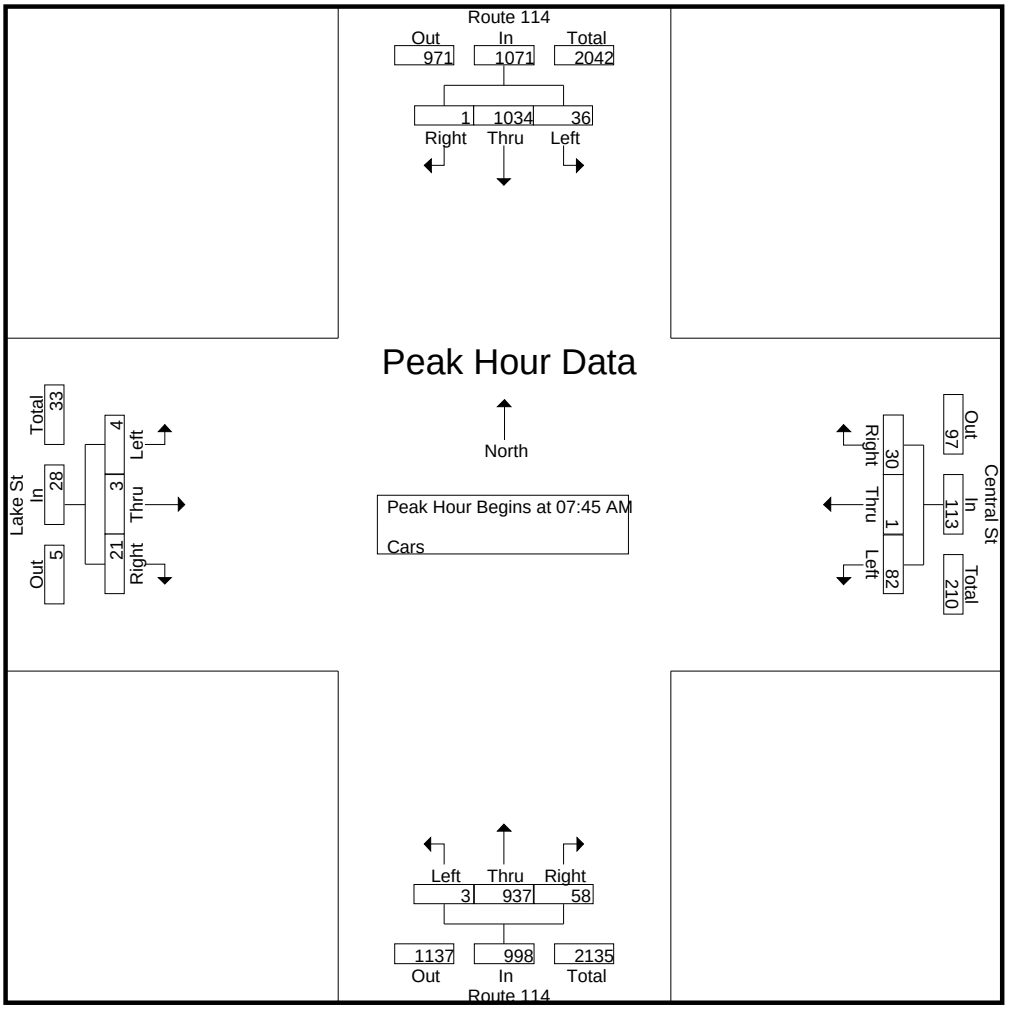
	Route 114 From North				Central St From East				Route 114 From South				Lake St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	5	**290**	0	**295**	2	**1**	2	5	**1**	**252**	11	**264**	**3**	0	6	9	**573**
08:00 AM	11	242	0	253	23	0	6	29	1	243	**19**	263	1	**1**	6	8	553
08:15 AM	**13**	245	**1**	259	**34**	0	**14**	**48**	0	197	19	216	0	1	**9**	**10**	533
08:30 AM	7	257	0	264	23	0	8	31	1	245	9	255	0	1	0	1	551
Total Volume	36	1034	1	1071	82	1	30	113	3	937	58	998	4	3	21	28	2210
% App. Total	3.4	96.5	0.1		72.6	0.9	26.5		0.3	93.9	5.8		14.3	10.7	75		
PHF	.692	.891	.250	.908	.603	.250	.536	.589	.750	.930	.763	.945	.333	.750	.583	.700	.964

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
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:

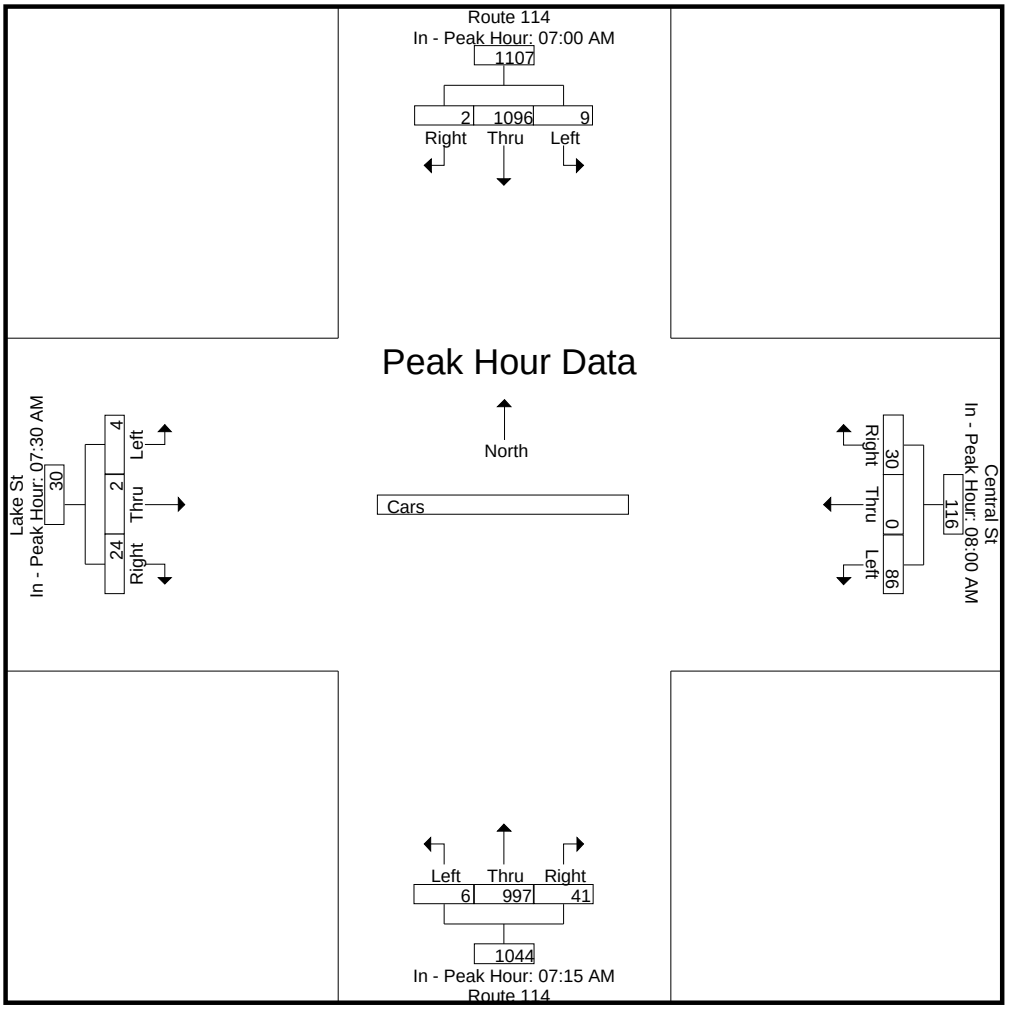
	07:00 AM				08:00 AM				07:15 AM				07:30 AM			
+0 mins.	2	**295**	**1**	**298**	23	0	6	29	**2**	235	5	242	0	0	3	3
+15 mins.	2	263	0	265	**34**	0	**14**	**48**	2	**267**	6	**275**	**3**	0	6	9
+30 mins.	0	248	1	249	23	0	8	31	1	252	11	264	1	**1**	6	8
+45 mins.	**5**	290	0	295	6	0	2	8	1	243	**19**	263	0	1	**9**	**10**
Total Volume	9	1096	2	1107	86	0	30	116	6	997	41	1044	4	2	24	30
% App. Total	0.8	99	0.2		74.1	0	25.9		0.6	95.5	3.9		13.3	6.7	80	
PHF	.450	.929	.500	.929	.632	.000	.536	.604	.750	.934	.539	.949	.333	.500	.667	.750

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 7

Groups Printed- Trucks

	Route 114 From North			Central St From East			Route 114 From South			Lake St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	1	4	0	1	0	0	1	7	0	0	0	0	14
07:15 AM	0	14	0	0	0	0	0	3	0	0	0	1	18
07:30 AM	0	15	0	0	0	0	0	8	0	0	0	0	23
07:45 AM	0	4	0	0	0	0	0	11	0	0	0	0	15
Total	1	37	0	1	0	0	1	29	0	0	0	1	70
08:00 AM	0	8	0	0	0	0	0	6	0	0	0	0	14
08:15 AM	1	6	1	3	0	2	0	7	6	0	0	1	27
08:30 AM	1	15	0	0	0	1	0	8	0	0	0	0	25
08:45 AM	0	6	0	0	0	0	1	7	0	0	0	0	14
Total	2	35	1	3	0	3	1	28	6	0	0	1	80
Grand Total	3	72	1	4	0	3	2	57	6	0	0	2	150
Apprch %	3.9	94.7	1.3	57.1	0	42.9	3.1	87.7	9.2	0	0	100	
Total %	2	48	0.7	2.7	0	2	1.3	38	4	0	0	1.3	

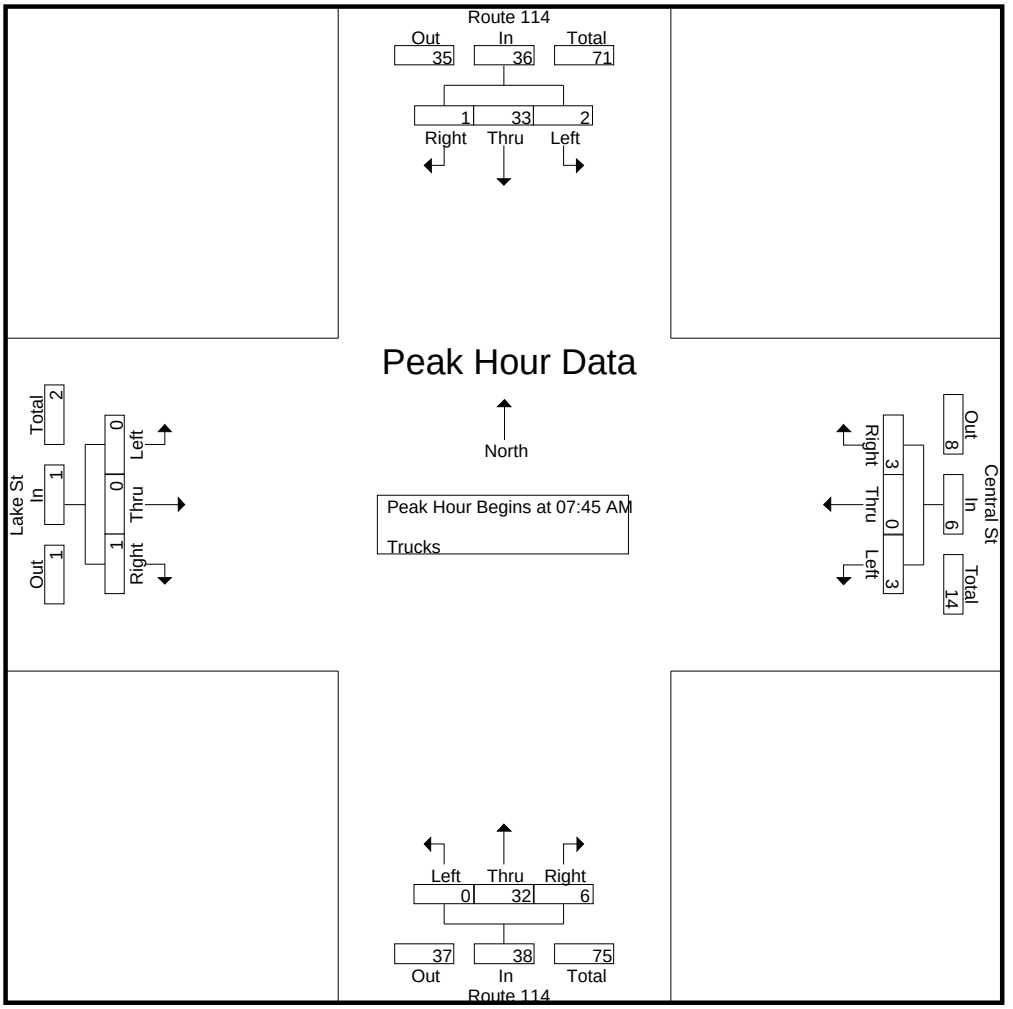
	Route 114 From North				Central St From East				Route 114 From South				Lake St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	4	0	4	0	0	0	0	0	**11**	0	11	0	0	0	0	15
08:00 AM	0	8	0	8	0	0	0	0	0	6	0	6	0	0	0	0	14
08:15 AM	**1**	6	**1**	8	**3**	0	**2**	**5**	0	7	**6**	**13**	0	0	**1**	**1**	**27**
08:30 AM	1	**15**	0	**16**	0	0	1	1	0	8	0	8	0	0	0	0	25
Total Volume	2	33	1	36	3	0	3	6	0	32	6	38	0	0	1	1	81
% App. Total	5.6	91.7	2.8		50	0	50		0	84.2	15.8		0	0	100		
PHF	.500	.550	.250	.563	.250	.000	.375	.300	.000	.727	.250	.731	.000	.000	.250	.250	.750

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
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:

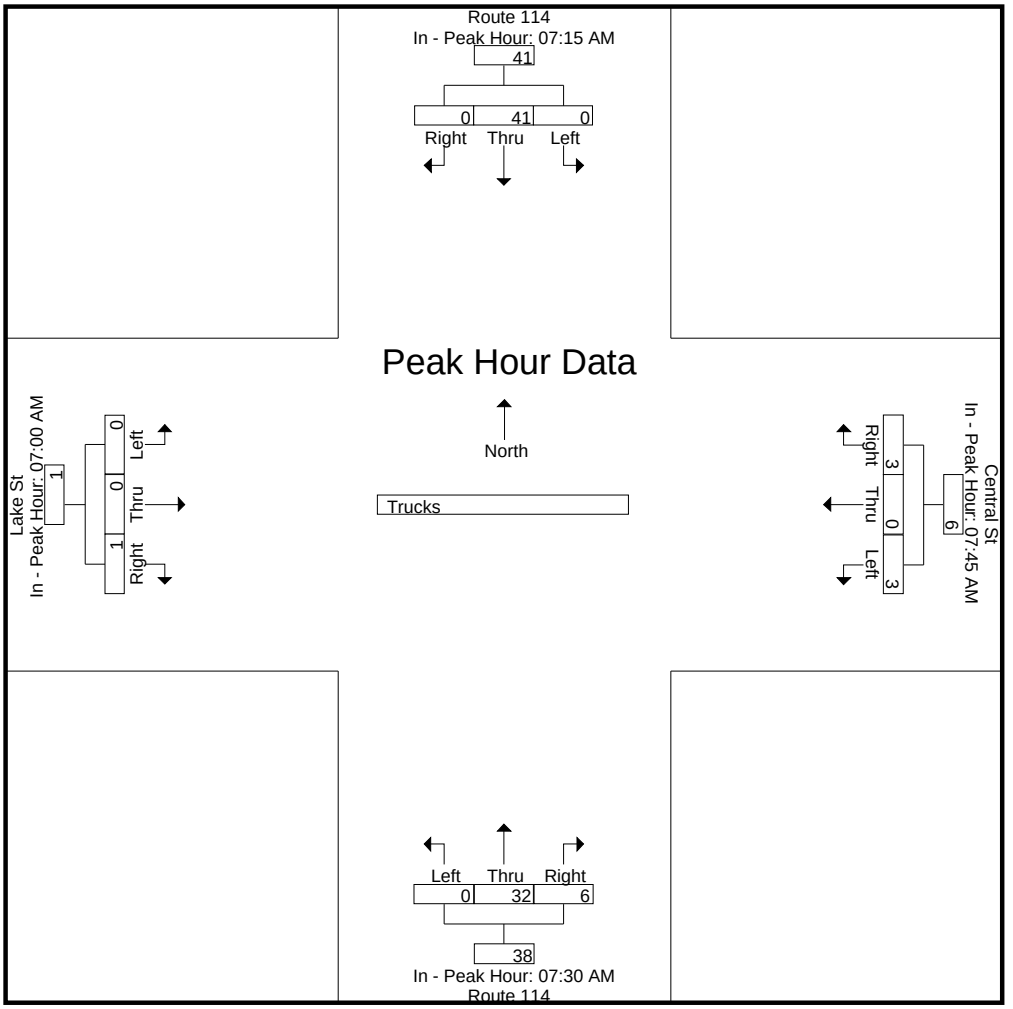
	07:15 AM				07:45 AM				07:30 AM				07:00 AM			
+0 mins.	0	14	0	14	0	0	0	0	0	8	0	8	0	0	0	0
+15 mins.	0	**15**	0	**15**	0	0	0	0	0	**11**	0	11	0	0	**1**	**1**
+30 mins.	0	4	0	4	**3**	0	**2**	**5**	0	6	0	6	0	0	0	0
+45 mins.	0	8	0	8	0	0	1	1	0	7	**6**	**13**	0	0	0	0
Total Volume	0	41	0	41	3	0	3	6	0	32	6	38	0	0	1	1
% App. Total	0	100	0		50	0	50		0	84.2	15.8		0	0	100	
PHF	.000	.683	.000	.683	.250	.000	.375	.300	.000	.727	.250	.731	.000	.000	.250	.250

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022

Groups Printed- Bikes Peds

	Route 114 From North				Central St From East				Route 114 From South				Lake St 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
07:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2
08:00 AM	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	12	0	12
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	2
08:45 AM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	2	1	3
Total	0	0	0	12	0	0	0	0	0	0	1	4	0	0	0	0	16	1	17
Grand Total	0	1	0	12	1	0	0	0	0	0	1	4	0	0	0	0	16	3	19
Apprch %	0	100	0		100	0	0		0	0	100		0	0	0				
Total %	0	33.3	0		33.3	0	0		0	0	33.3		0	0	0		84.2	15.8	

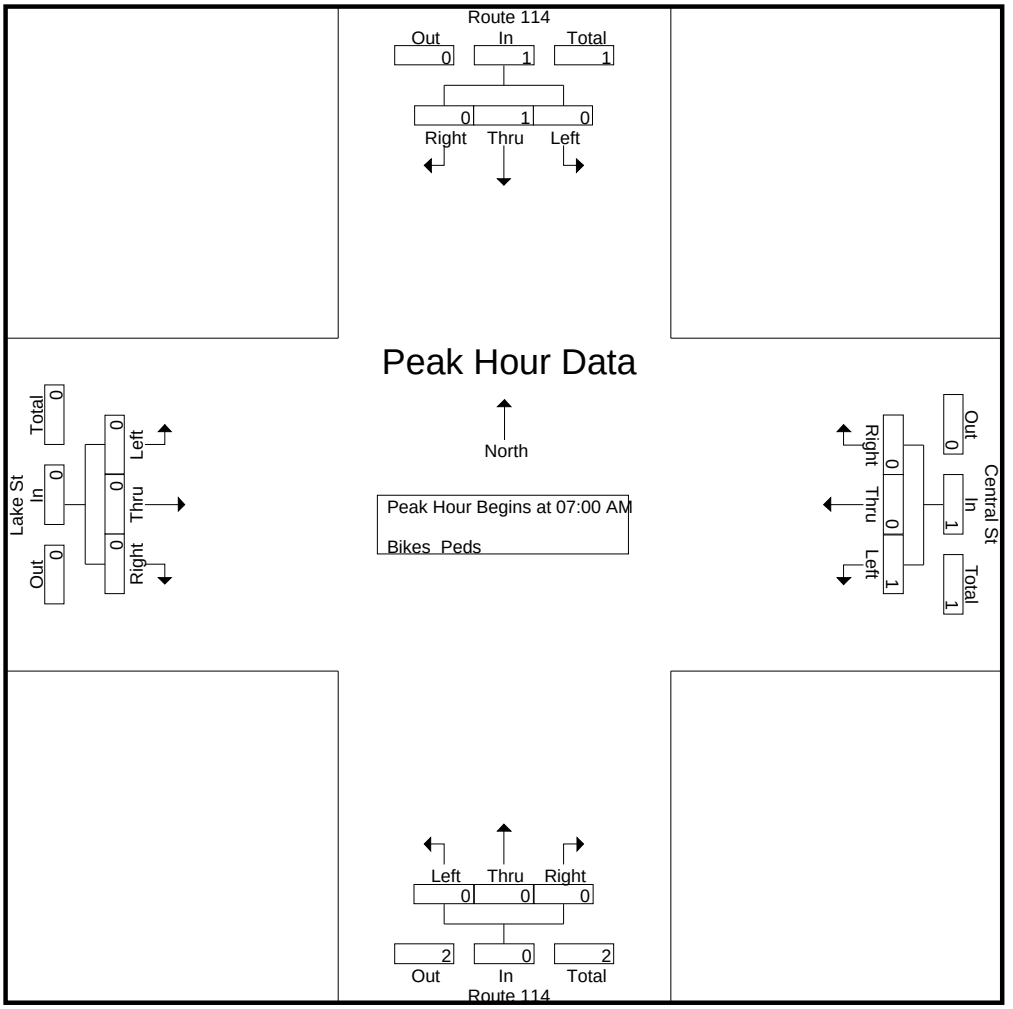
	Route 114 From North				Central St From East				Route 114 From South				Lake St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
07:15 AM	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
% App. Total	0	100	0		100	0	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.500

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
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:

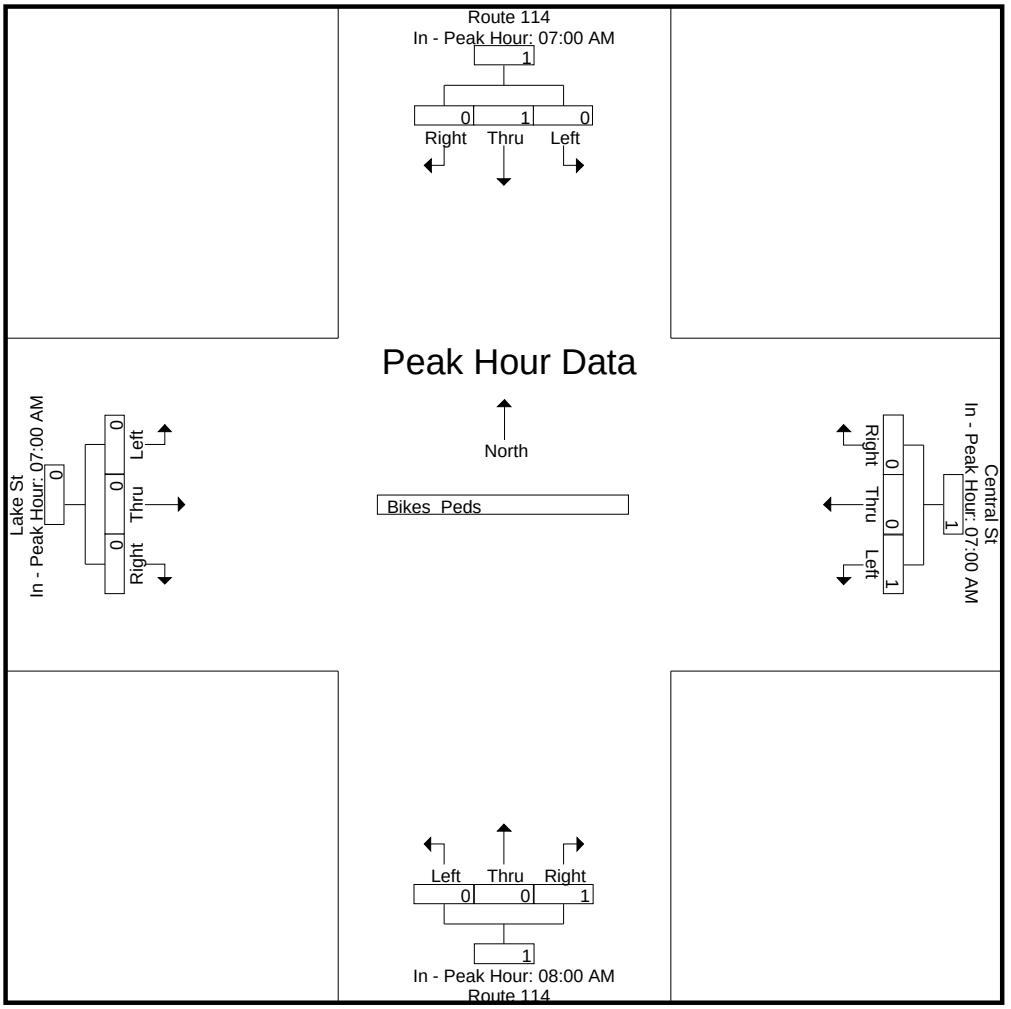
	07:00 AM				07:00 AM				08:00 AM				07:00 AM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0
Total Volume	0	1	0	1	1	0	0	1	0	0	1	1	0	0	0	0
% App. Total	0	100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

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 1

Groups Printed- Cars - Trucks

	Route 114 From North			Central St From East			Route 114 From South			Lake St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
03:00 PM	5	224	1	30	0	21	1	297	16	1	1	5	602
03:15 PM	2	208	0	16	0	10	3	288	8	1	0	2	538
03:30 PM	3	250	0	11	0	7	3	265	7	4	1	1	552
03:45 PM	3	227	0	14	1	6	2	277	9	3	0	3	545
Total	13	909	1	71	1	44	9	1127	40	9	2	11	2237
04:00 PM	7	257	0	10	1	3	1	279	7	1	0	2	568
04:15 PM	3	263	0	11	1	15	2	289	1	1	1	4	591
04:30 PM	3	234	1	5	1	10	0	270	7	0	0	1	532
04:45 PM	9	258	0	14	2	13	0	257	11	2	2	4	572
Total	22	1012	1	40	5	41	3	1095	26	4	3	11	2263
05:00 PM	4	261	2	25	1	16	0	281	12	1	0	3	606
05:15 PM	4	274	2	14	1	6	1	280	7	1	0	1	591
05:30 PM	4	237	1	13	1	6	1	283	11	0	0	3	560
05:45 PM	3	255	1	8	1	5	1	255	18	1	0	3	551
Total	15	1027	6	60	4	33	3	1099	48	3	0	10	2308
06:00 PM	5	248	1	12	0	8	0	227	3	1	0	2	507
06:15 PM	4	172	0	7	1	1	2	217	5	0	0	1	410
06:30 PM	0	193	3	1	0	3	1	194	4	1	0	2	402
06:45 PM	0	145	0	4	0	1	1	166	7	1	0	0	325
Total	9	758	4	24	1	13	4	804	19	3	0	5	1644
Grand Total	59	3706	12	195	11	131	19	4125	133	19	5	37	8452
Apprch %	1.6	98.1	0.3	57.9	3.3	38.9	0.4	96.4	3.1	31.1	8.2	60.7	
Total %	0.7	43.8	0.1	2.3	0.1	1.5	0.2	48.8	1.6	0.2	0.1	0.4	
Cars	59	3659	12	189	11	128	19	4068	128	18	5	36	8332
% Cars	100	98.7	100	96.9	100	97.7	100	98.6	96.2	94.7	100	97.3	98.6
Trucks	0	47	0	6	0	3	0	57	5	1	0	1	120
% Trucks	0	1.3	0	3.1	0	2.3	0	1.4	3.8	5.3	0	2.7	1.4

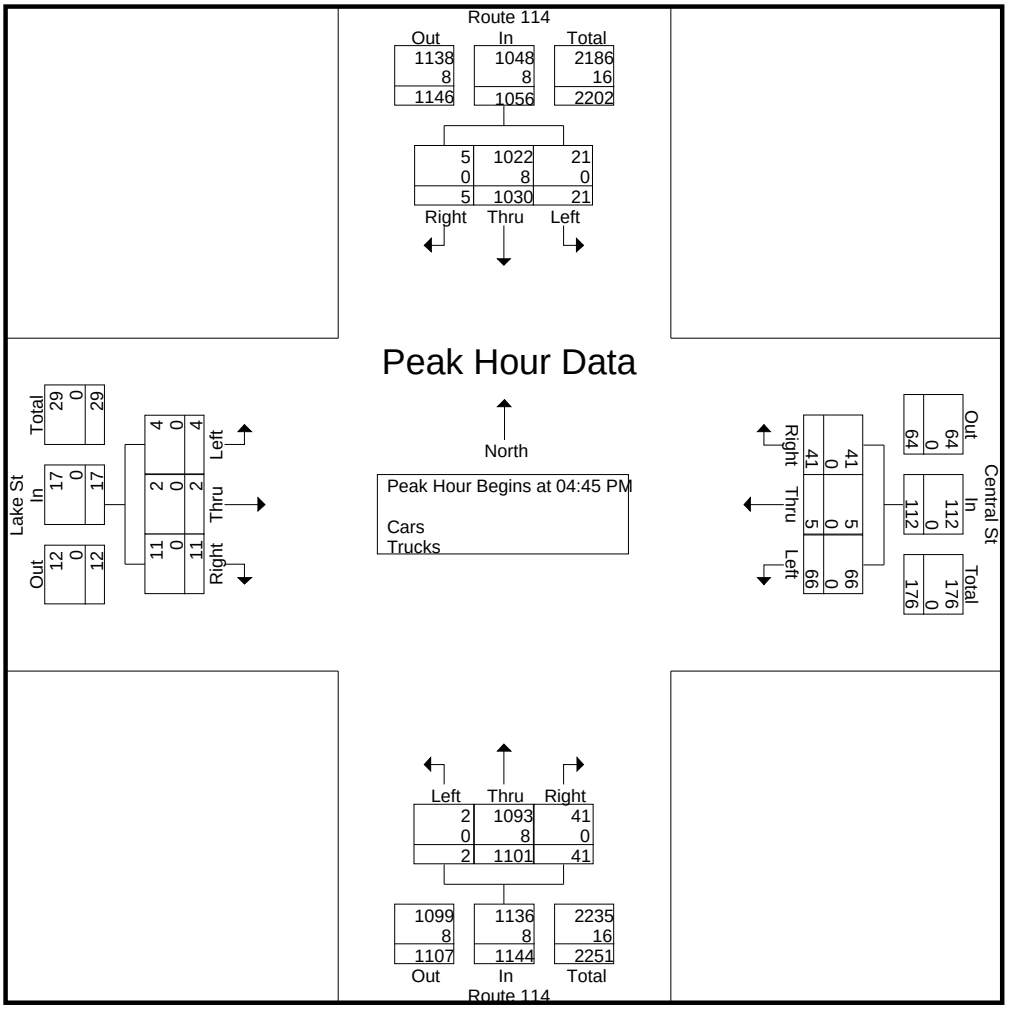
	Route 114 From North				Central St From East				Route 114 From South				Lake St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**9**	258	0	267	14	**2**	13	29	0	257	11	268	**2**	**2**	**4**	**8**	572
05:00 PM	4	261	**2**	267	**25**	1	**16**	**42**	0	281	**12**	293	1	0	3	4	**606**
05:15 PM	4	**274**	2	**280**	14	1	6	21	**1**	280	7	288	1	0	1	2	591
05:30 PM	4	237	1	242	13	1	6	20	1	**283**	11	**295**	0	0	3	3	560
Total Volume	21	1030	5	1056	66	5	41	112	2	1101	41	1144	4	2	11	17	2329
% App. Total	2	97.5	0.5		58.9	4.5	36.6		0.2	96.2	3.6		23.5	11.8	64.7		
PHF	.583	.940	.625	.943	.660	.625	.641	.667	.500	.973	.854	.969	.500	.250	.688	.531	.961
Cars	21	1022	5	1048	66	5	41	112	2	1093	41	1136	4	2	11	17	2313
% Cars	100	99.2	100	99.2	100	100	100	100	100	99.3	100	99.3	100	100	100	100	99.3
Trucks	0	8	0	8	0	0	0	0	0	8	0	8	0	0	0	0	16
% Trucks	0	0.8	0	0.8	0	0	0	0	0	0.7	0	0.7	0	0	0	0	0.7

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 2



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

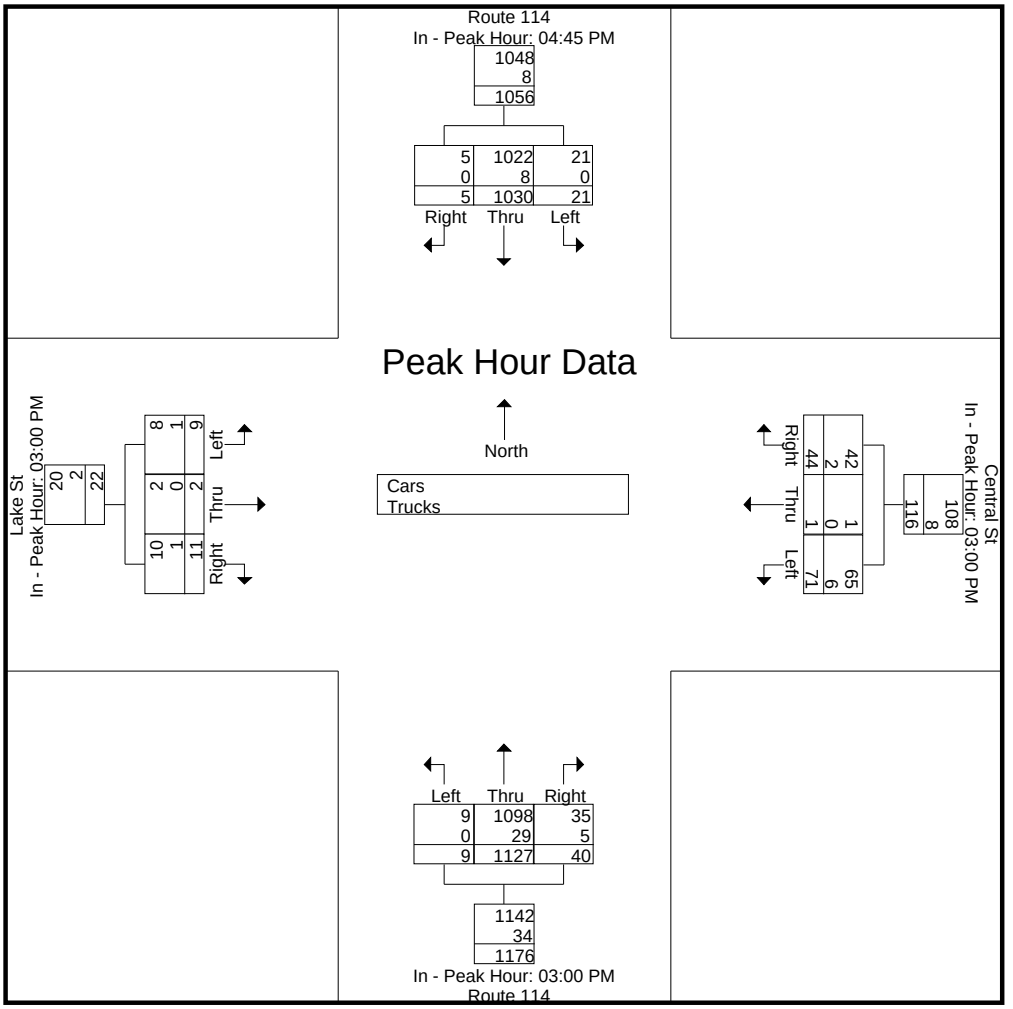
	04:45 PM				03:00 PM				03:00 PM				03:00 PM			
+0 mins.	**9**	258	0	267	**30**	0	**21**	**51**	1	**297**	**16**	**314**	1	**1**	**5**	**7**
+15 mins.	4	261	**2**	267	16	0	10	26	**3**	288	8	299	1	0	2	3
+30 mins.	4	**274**	2	**280**	11	0	7	18	3	265	7	275	**4**	1	1	6
+45 mins.	4	237	1	242	14	**1**	6	21	2	277	9	288	3	0	3	6
Total Volume	21	1030	5	1056	71	1	44	116	9	1127	40	1176	9	2	11	22
% App. Total	2	97.5	0.5		61.2	0.9	37.9		0.8	95.8	3.4		40.9	9.1	50	
PHF	.583	.940	.625	.943	.592	.250	.524	.569	.750	.949	.625	.936	.563	.500	.550	.786
Cars	21	1022	5	1048	65	1	42	108	9	1098	35	1142	8	2	10	20
% Cars	100	99.2	100	99.2	91.5	100	95.5	93.1	100	97.4	87.5	97.1	88.9	100	90.9	90.9
Trucks	0	8	0	8	6	0	2	8	0	29	5	34	1	0	1	2
% Trucks	0	0.8	0	0.8	8.5	0	4.5	6.9	0	2.6	12.5	2.9	11.1	0	9.1	9.1

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North			Central St From East			Route 114 From South			Lake St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
03:00 PM	5	220	1	27	0	21	1	287	13	1	1	4	581
03:15 PM	2	204	0	14	0	8	3	280	6	0	0	2	519
03:30 PM	3	244	0	10	0	7	3	260	7	4	1	1	540
03:45 PM	3	222	0	14	1	6	2	271	9	3	0	3	534
Total	13	890	1	65	1	42	9	1098	35	8	2	10	2174
04:00 PM	7	250	0	10	1	3	1	274	7	1	0	2	556
04:15 PM	3	262	0	11	1	14	2	285	1	1	1	4	585
04:30 PM	3	230	1	5	1	10	0	266	7	0	0	1	524
04:45 PM	9	255	0	14	2	13	0	251	11	2	2	4	563
Total	22	997	1	40	5	40	3	1076	26	4	3	11	2228
05:00 PM	4	258	2	25	1	16	0	280	12	1	0	3	602
05:15 PM	4	272	2	14	1	6	1	279	7	1	0	1	588
05:30 PM	4	237	1	13	1	6	1	283	11	0	0	3	560
05:45 PM	3	253	1	8	1	5	1	253	18	1	0	3	547
Total	15	1020	6	60	4	33	3	1095	48	3	0	10	2297
06:00 PM	5	248	1	12	0	8	0	226	3	1	0	2	506
06:15 PM	4	171	0	7	1	1	2	214	5	0	0	1	406
06:30 PM	0	191	3	1	0	3	1	193	4	1	0	2	399
06:45 PM	0	142	0	4	0	1	1	166	7	1	0	0	322
Total	9	752	4	24	1	13	4	799	19	3	0	5	1633
Grand Total	59	3659	12	189	11	128	19	4068	128	18	5	36	8332
Apprch %	1.6	98.1	0.3	57.6	3.4	39	0.5	96.5	3	30.5	8.5	61	
Total %	0.7	43.9	0.1	2.3	0.1	1.5	0.2	48.8	1.5	0.2	0.1	0.4	

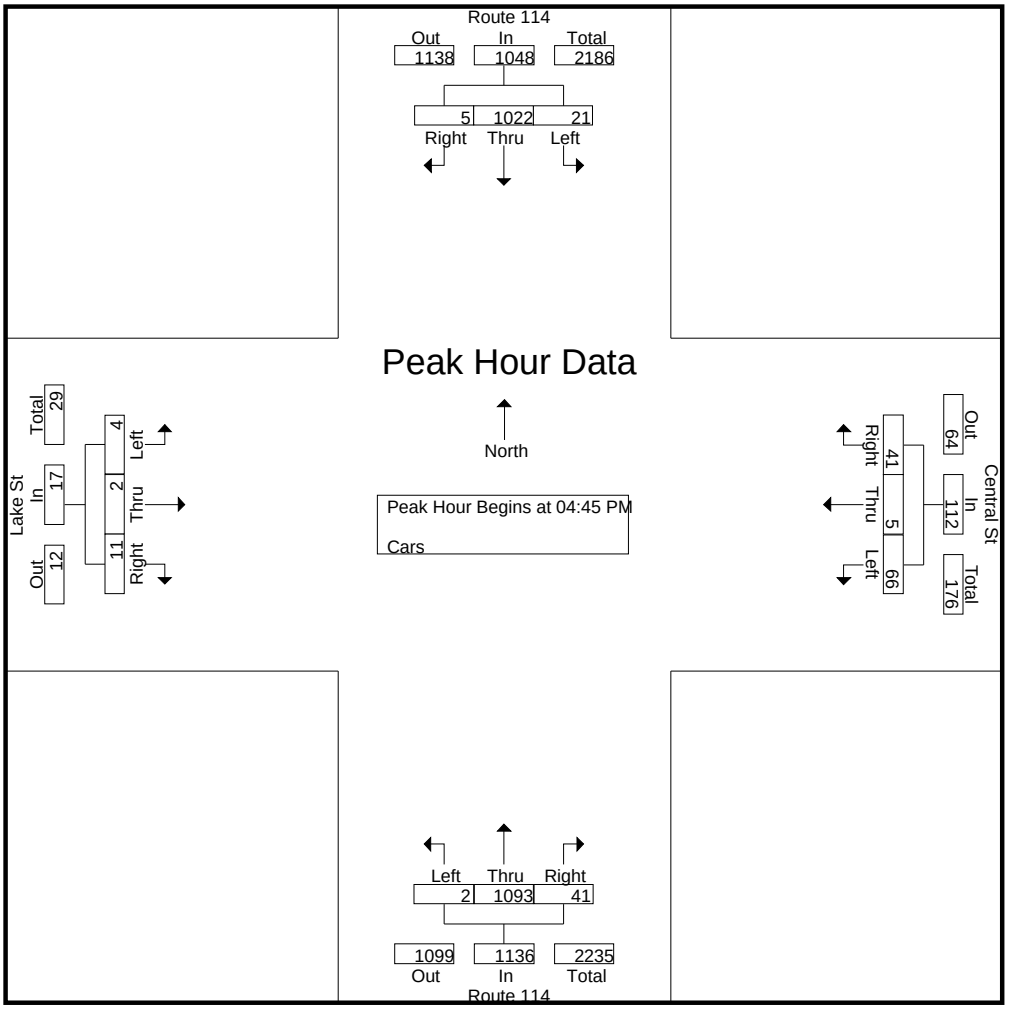
	Route 114 From North				Central St From East				Route 114 From South				Lake St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**9**	255	0	264	14	**2**	13	29	0	251	11	262	**2**	**2**	**4**	**8**	563
05:00 PM	4	258	**2**	264	**25**	1	**16**	**42**	0	280	**12**	292	1	0	3	4	**602**
05:15 PM	4	**272**	2	**278**	14	1	6	21	**1**	279	7	287	1	0	1	2	588
05:30 PM	4	237	1	242	13	1	6	20	1	**283**	11	**295**	0	0	3	3	560
Total Volume	21	1022	5	1048	66	5	41	112	2	1093	41	1136	4	2	11	17	2313
% App. Total	2	97.5	0.5		58.9	4.5	36.6		0.2	96.2	3.6		23.5	11.8	64.7		
PHF	.583	.939	.625	.942	.660	.625	.641	.667	.500	.966	.854	.963	.500	.250	.688	.531	.961

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 5



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

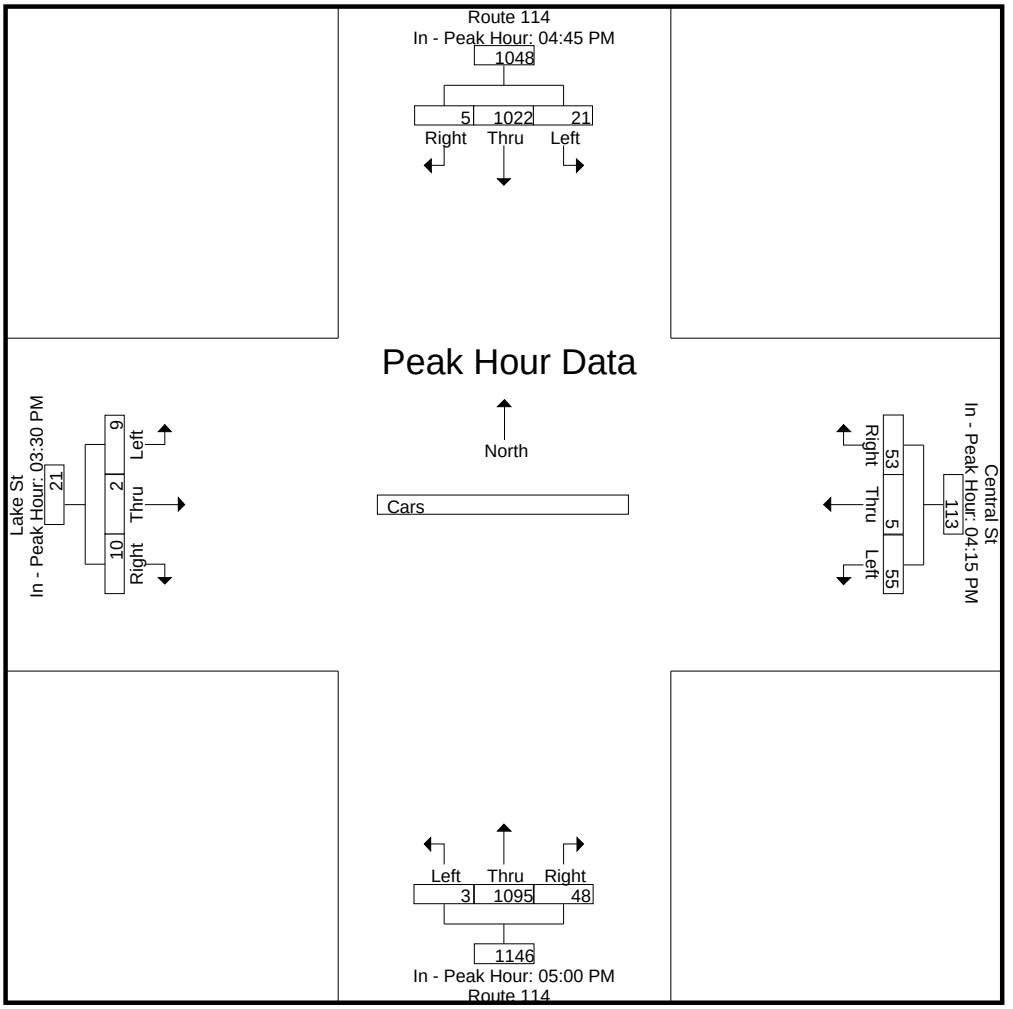
	04:45 PM				04:15 PM				05:00 PM				03:30 PM			
+0 mins.	**9**	255	0	264	11	1	14	26	0	280	12	292	**4**	**1**	1	**6**
+15 mins.	4	258	**2**	264	5	1	10	16	**1**	279	7	287	3	0	3	6
+30 mins.	4	**272**	2	**278**	14	**2**	13	29	1	**283**	11	**295**	1	0	2	3
+45 mins.	4	237	1	242	**25**	1	**16**	**42**	1	253	**18**	272	1	1	**4**	6
Total Volume	21	1022	5	1048	55	5	53	113	3	1095	48	1146	9	2	10	21
% App. Total	2	97.5	0.5		48.7	4.4	46.9		0.3	95.5	4.2		42.9	9.5	47.6	
PHF	.583	.939	.625	.942	.550	.625	.828	.673	.750	.967	.667	.971	.563	.500	.625	.875

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 7

Groups Printed- Trucks

	Route 114 From North			Central St From East			Route 114 From South			Lake St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
03:00 PM	0	4	0	3	0	0	0	10	3	0	0	1	21
03:15 PM	0	4	0	2	0	2	0	8	2	1	0	0	19
03:30 PM	0	6	0	1	0	0	0	5	0	0	0	0	12
03:45 PM	0	5	0	0	0	0	0	6	0	0	0	0	11
Total	0	19	0	6	0	2	0	29	5	1	0	1	63
04:00 PM	0	7	0	0	0	0	0	5	0	0	0	0	12
04:15 PM	0	1	0	0	0	1	0	4	0	0	0	0	6
04:30 PM	0	4	0	0	0	0	0	4	0	0	0	0	8
04:45 PM	0	3	0	0	0	0	0	6	0	0	0	0	9
Total	0	15	0	0	0	1	0	19	0	0	0	0	35
05:00 PM	0	3	0	0	0	0	0	1	0	0	0	0	4
05:15 PM	0	2	0	0	0	0	0	1	0	0	0	0	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	2	0	0	0	0	0	2	0	0	0	0	4
Total	0	7	0	0	0	0	0	4	0	0	0	0	11
06:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
06:15 PM	0	1	0	0	0	0	0	3	0	0	0	0	4
06:30 PM	0	2	0	0	0	0	0	1	0	0	0	0	3
06:45 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
Total	0	6	0	0	0	0	0	5	0	0	0	0	11
Grand Total	0	47	0	6	0	3	0	57	5	1	0	1	120
Apprch %	0	100	0	66.7	0	33.3	0	91.9	8.1	50	0	50	
Total %	0	39.2	0	5	0	2.5	0	47.5	4.2	0.8	0	0.8	

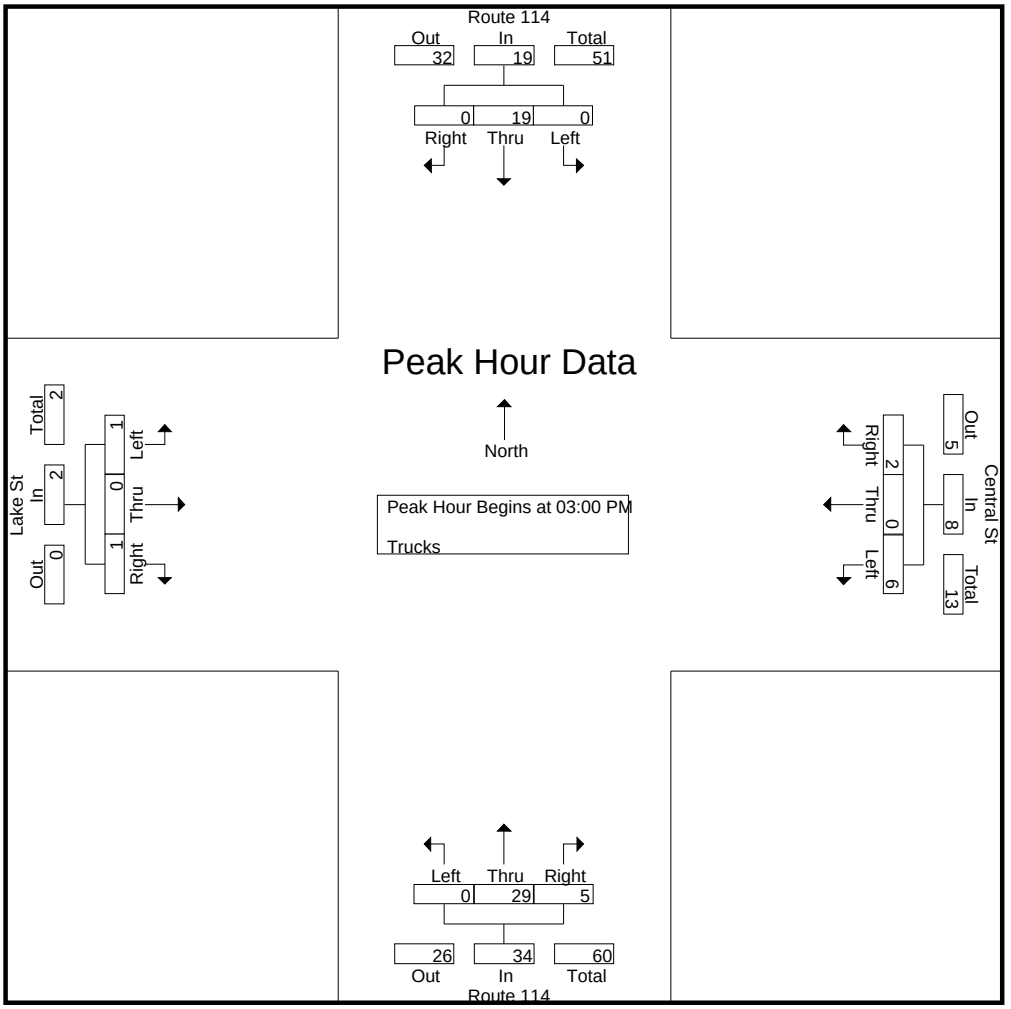
	Route 114 From North				Central St From East				Route 114 From South				Lake St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	4	0	4	**3**	0	0	3	0	**10**	**3**	**13**	0	0	**1**	**1**	**21**
03:15 PM	0	4	0	4	2	0	**2**	**4**	0	8	2	10	**1**	0	0	1	19
03:30 PM	0	**6**	0	**6**	1	0	0	1	0	5	0	5	0	0	0	0	12
03:45 PM	0	5	0	5	0	0	0	0	0	6	0	6	0	0	0	0	11
Total Volume	0	19	0	19	6	0	2	8	0	29	5	34	1	0	1	2	63
% App. Total	0	100	0		75	0	25		0	85.3	14.7		50	0	50		
PHF	.000	.792	.000	.792	.500	.000	.250	.500	.000	.725	.417	.654	.250	.000	.250	.500	.750

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 8



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

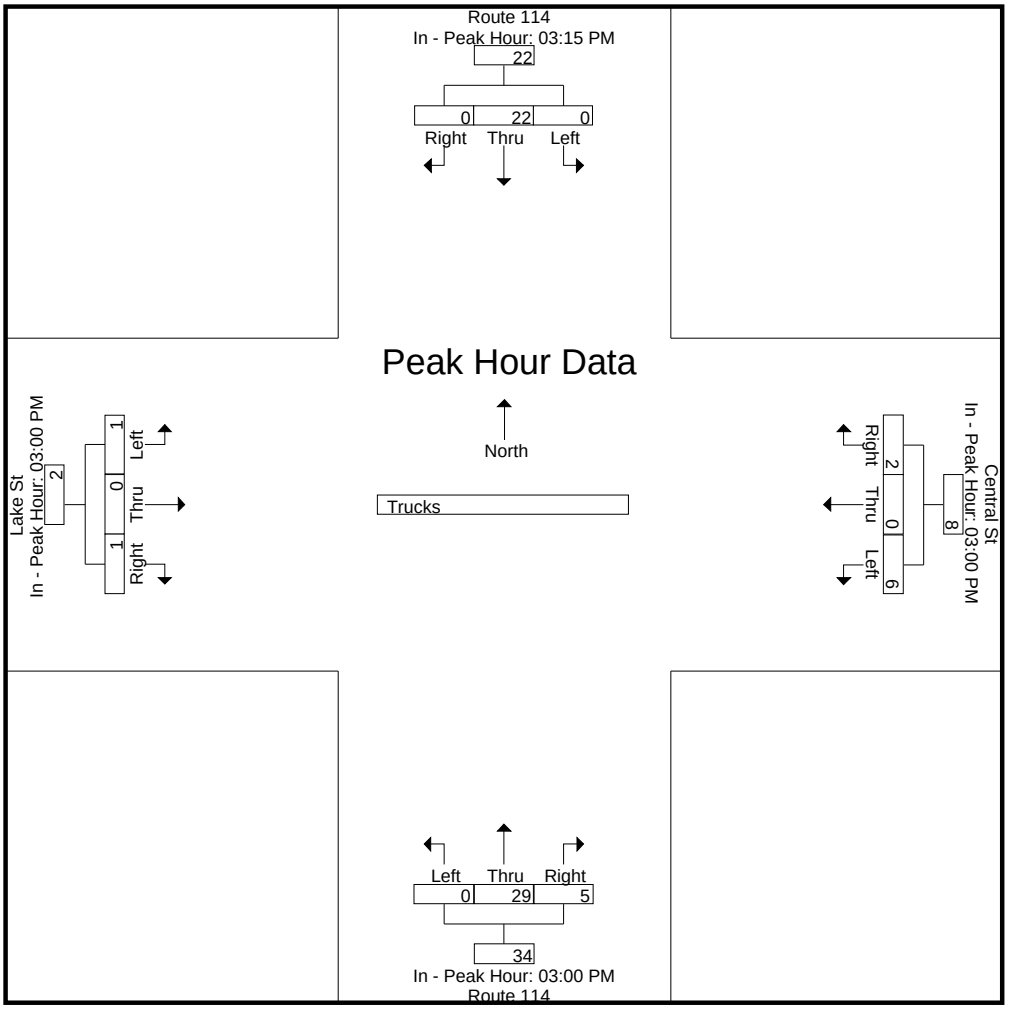
	03:15 PM				03:00 PM				03:00 PM				03:00 PM			
+0 mins.	0	4	0	4	**3**	0	0	3	0	**10**	**3**	**13**	0	0	**1**	**1**
+15 mins.	0	6	0	6	2	0	**2**	**4**	0	8	2	10	**1**	0	0	1
+30 mins.	0	5	0	5	1	0	0	1	0	5	0	5	0	0	0	0
+45 mins.	0	**7**	0	**7**	0	0	0	0	0	6	0	6	0	0	0	0
Total Volume	0	22	0	22	6	0	2	8	0	29	5	34	1	0	1	2
% App. Total	0	100	0		75	0	25		0	85.3	14.7		50	0	50	
PHF	.000	.786	.000	.786	.500	.000	.250	.500	.000	.725	.417	.654	.250	.000	.250	.500

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022

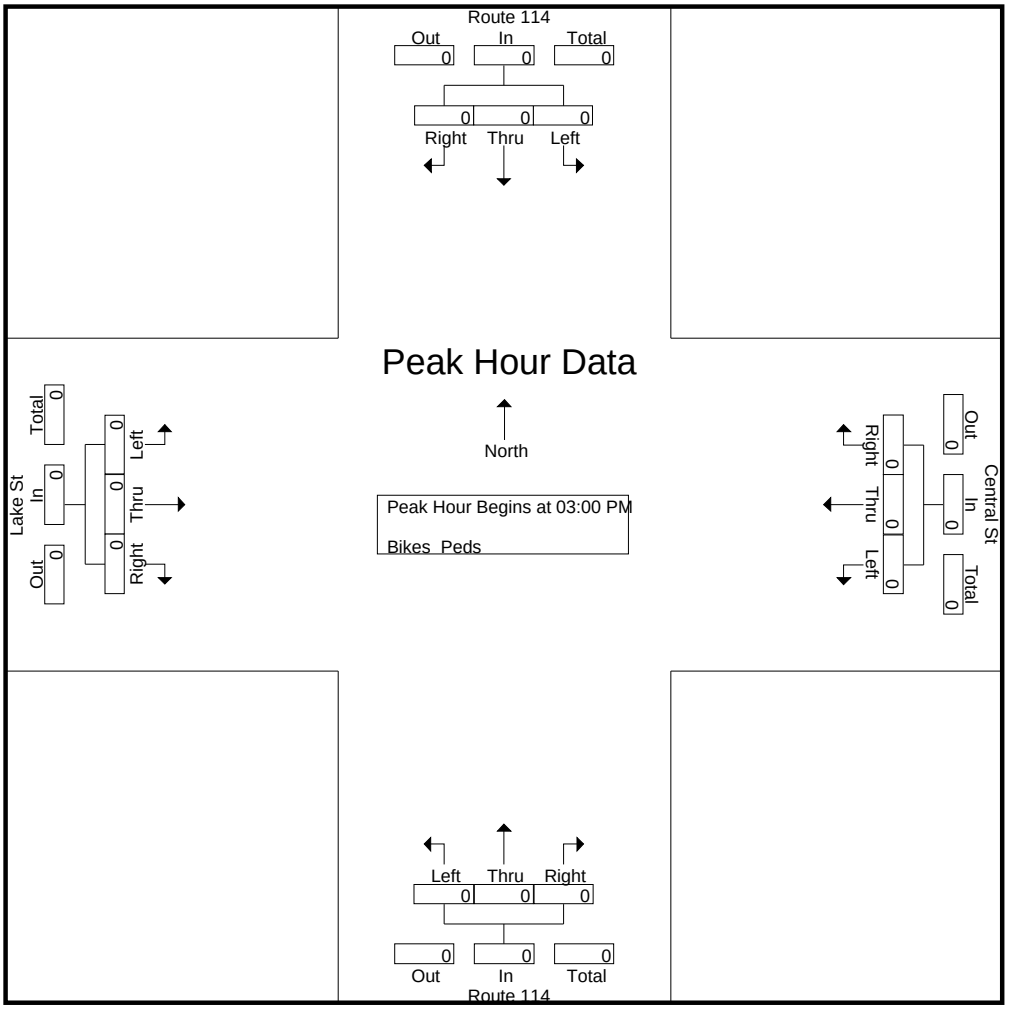
Groups Printed- Bikes Peds

	Route 114 From North				Central St From East				Route 114 From South				Lake St 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
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2	0	2
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	1	0	0	0	0	0	0	0	0	0	0	0	1	2	0	2
04:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
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	2	0	0	0	0	0	0	0	0	0	0	0	1	3	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	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	0	0	0	0
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	1	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	2
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	2	5	0	5
Total	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	2	5	0	5
Grand Total	0	0	0	5	0	0	0	1	0	0	0	3	0	0	0	3	12	0	12
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

	Route 114 From North				Central St From East				Route 114 From South				Lake St 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 03:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 11



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

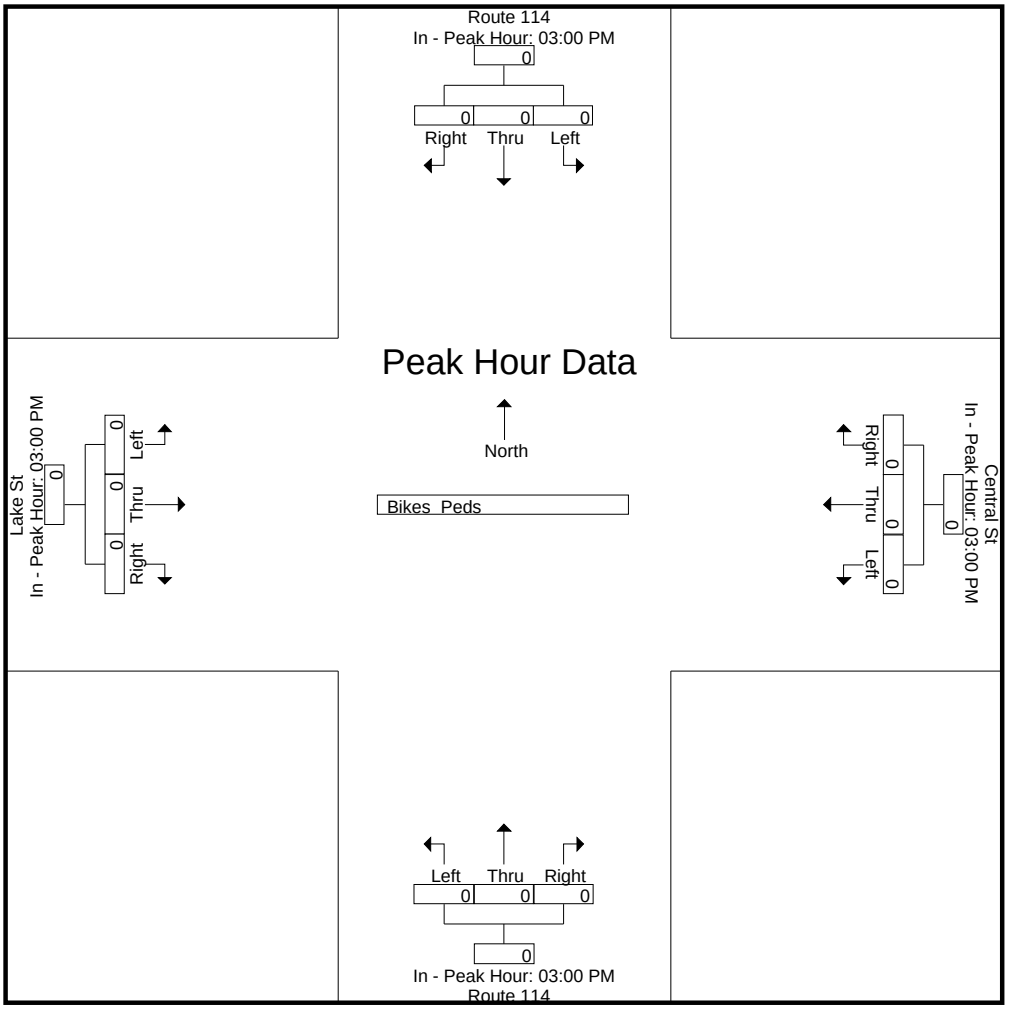
	03:00 PM				03:00 PM				03:00 PM				03:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Cloudy

File Name : 93010003
Site Code : 93010003
Start Date : 5/19/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
Page No : 1

Groups Printed- Cars - Trucks

	Route 114 From North			Central St From East			Route 114 From South			Lake St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
11:00 AM	1	207	0	9	0	1	0	174	11	2	0	4	409
11:15 AM	0	215	0	7	0	2	2	191	9	0	0	1	427
11:30 AM	1	243	0	7	0	4	1	153	3	1	0	4	417
11:45 AM	0	222	0	7	0	4	4	201	4	0	0	6	448
Total	2	887	0	30	0	11	7	719	27	3	0	15	1701
12:00 PM	2	253	2	11	0	6	2	176	6	1	0	2	461
12:15 PM	0	228	1	8	0	3	0	193	9	0	1	1	444
12:30 PM	1	269	0	9	1	1	2	226	6	0	0	2	517
12:45 PM	2	233	1	7	0	3	3	244	5	0	0	7	505
Total	5	983	4	35	1	13	7	839	26	1	1	12	1927
01:00 PM	3	223	0	5	0	6	0	203	2	0	0	7	449
01:15 PM	3	248	0	1	0	0	2	240	5	0	0	4	503
01:30 PM	1	186	0	2	0	5	1	284	2	0	0	1	482
01:45 PM	0	250	0	4	0	3	4	230	3	1	0	3	498
Total	7	907	0	12	0	14	7	957	12	1	0	15	1932
Grand Total	14	2777	4	77	1	38	21	2515	65	5	1	42	5560
Apprch %	0.5	99.4	0.1	66.4	0.9	32.8	0.8	96.7	2.5	10.4	2.1	87.5	
Total %	0.3	49.9	0.1	1.4	0	0.7	0.4	45.2	1.2	0.1	0	0.8	
Cars	14	2766	4	77	1	38	20	2496	65	5	1	40	5527
% Cars	100	99.6	100	100	100	100	95.2	99.2	100	100	100	95.2	99.4
Trucks	0	11	0	0	0	0	1	19	0	0	0	2	33
% Trucks	0	0.4	0	0	0	0	4.8	0.8	0	0	0	4.8	0.6

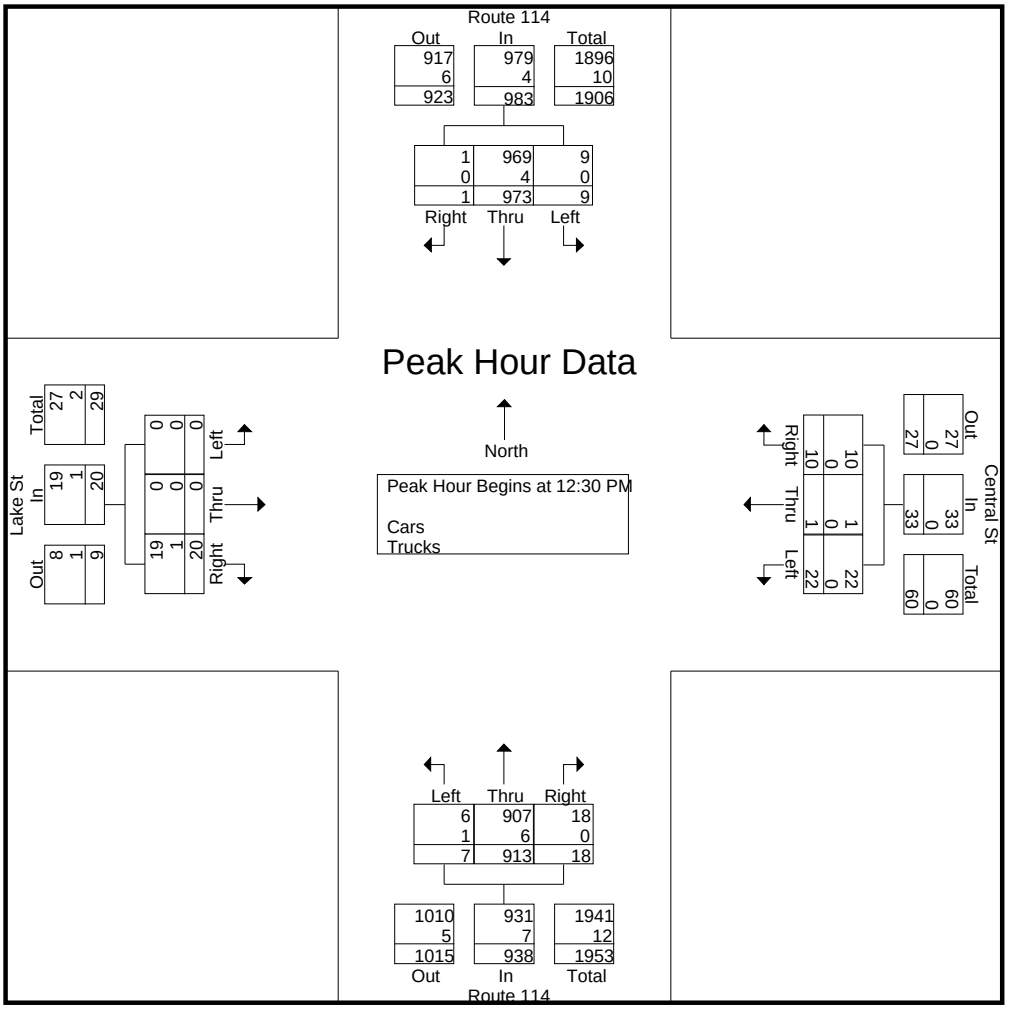
	Route 114 From North				Central St From East				Route 114 From South				Lake St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:30 PM																	
12:30 PM	1	**269**	0	**270**	**9**	**1**	1	**11**	2	226	**6**	234	0	0	2	2	**517**
12:45 PM	2	233	**1**	236	7	0	3	10	**3**	**244**	5	**252**	0	0	**7**	**7**	505
01:00 PM	**3**	223	0	226	5	0	**6**	11	0	203	2	205	0	0	7	7	449
01:15 PM	3	248	0	251	1	0	0	1	2	240	5	247	0	0	4	4	503
Total Volume	9	973	1	983	22	1	10	33	7	913	18	938	0	0	20	20	1974
% App. Total	0.9	99	0.1		66.7	3	30.3		0.7	97.3	1.9		0	0	100		
PHF	.750	.904	.250	.910	.611	.250	.417	.750	.583	.935	.750	.931	.000	.000	.714	.714	.955
Cars	9	969	1	979	22	1	10	33	6	907	18	931	0	0	19	19	1962
% Cars	100	99.6	100	99.6	100	100	100	100	85.7	99.3	100	99.3	0	0	95.0	95.0	99.4
Trucks	0	4	0	4	0	0	0	0	1	6	0	7	0	0	1	1	12
% Trucks	0	0.4	0	0.4	0	0	0	0	14.3	0.7	0	0.7	0	0	5.0	5.0	0.6

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
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:

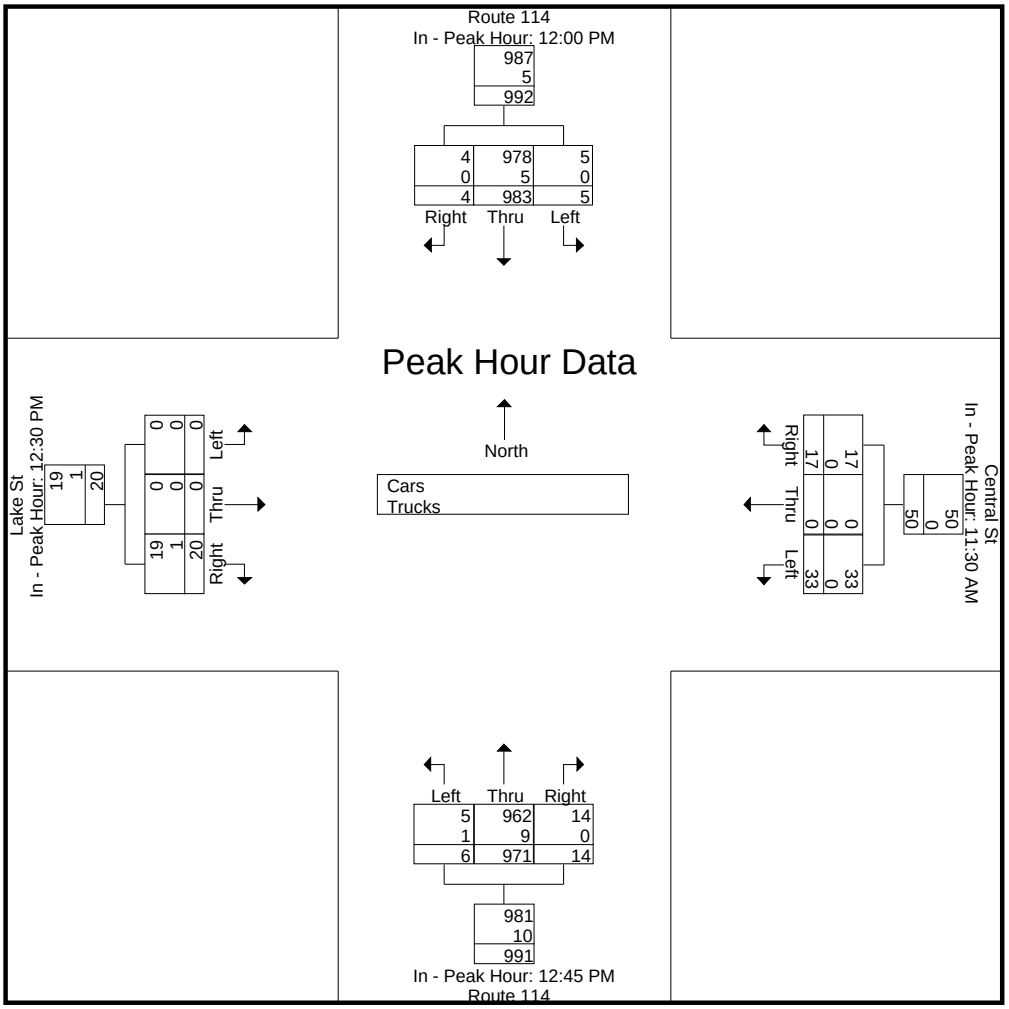
	12:00 PM				11:30 AM				12:45 PM				12:30 PM			
+0 mins.	**2**	253	**2**	257	7	0	4	11	**3**	244	**5**	252	0	0	2	2
+15 mins.	0	228	1	229	7	0	4	11	0	203	2	205	0	0	**7**	**7**
+30 mins.	1	**269**	0	**270**	**11**	0	**6**	**17**	2	240	5	247	0	0	7	7
+45 mins.	2	233	1	236	8	0	3	11	1	**284**	2	**287**	0	0	4	4
Total Volume	5	983	4	992	33	0	17	50	6	971	14	991	0	0	20	20
% App. Total	0.5	99.1	0.4		66	0	34		0.6	98	1.4		0	0	100	
PHF	.625	.914	.500	.919	.750	.000	.708	.735	.500	.855	.700	.863	.000	.000	.714	.714
Cars	5	978	4	987	33	0	17	50	5	962	14	981	0	0	19	19
% Cars	100	99.5	100	99.5	100	0	100	100	83.3	99.1	100	99	0	0	95	95
Trucks	0	5	0	5	0	0	0	0	1	9	0	10	0	0	1	1
% Trucks	0	0.5	0	0.5	0	0	0	0	16.7	0.9	0	1	0	0	5	5

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North			Central St From East			Route 114 From South			Lake St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
11:00 AM	1	205	0	9	0	1	0	172	11	2	0	4	405
11:15 AM	0	214	0	7	0	2	2	187	9	0	0	1	422
11:30 AM	1	243	0	7	0	4	1	153	3	1	0	3	416
11:45 AM	0	220	0	7	0	4	4	200	4	0	0	6	445
Total	2	882	0	30	0	11	7	712	27	3	0	14	1688
12:00 PM	2	252	2	11	0	6	2	174	6	1	0	2	458
12:15 PM	0	227	1	8	0	3	0	192	9	0	1	1	442
12:30 PM	1	268	0	9	1	1	2	226	6	0	0	2	516
12:45 PM	2	231	1	7	0	3	2	240	5	0	0	7	498
Total	5	978	4	35	1	13	6	832	26	1	1	12	1914
01:00 PM	3	223	0	5	0	6	0	202	2	0	0	6	447
01:15 PM	3	247	0	1	0	0	2	239	5	0	0	4	501
01:30 PM	1	186	0	2	0	5	1	281	2	0	0	1	479
01:45 PM	0	250	0	4	0	3	4	230	3	1	0	3	498
Total	7	906	0	12	0	14	7	952	12	1	0	14	1925
Grand Total	14	2766	4	77	1	38	20	2496	65	5	1	40	5527
Apprch %	0.5	99.4	0.1	66.4	0.9	32.8	0.8	96.7	2.5	10.9	2.2	87	
Total %	0.3	50	0.1	1.4	0	0.7	0.4	45.2	1.2	0.1	0	0.7	

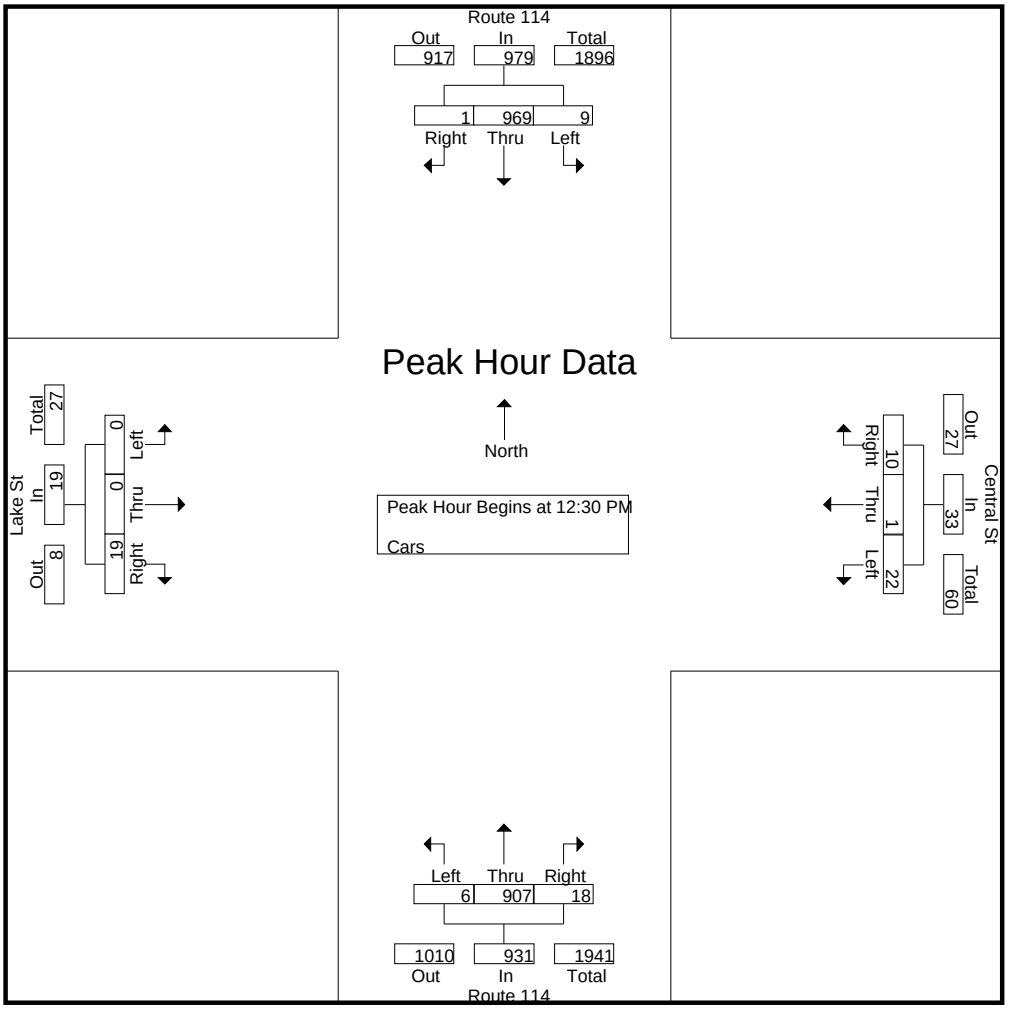
	Route 114 From North				Central St From East				Route 114 From South				Lake St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:30 PM																	
12:30 PM	1	**268**	0	**269**	**9**	**1**	1	**11**	**2**	226	**6**	234	0	0	2	2	**516**
12:45 PM	2	231	**1**	234	7	0	3	10	2	**240**	5	**247**	0	0	**7**	**7**	498
01:00 PM	**3**	223	0	226	5	0	**6**	11	0	202	2	204	0	0	6	6	447
01:15 PM	3	247	0	250	1	0	0	1	2	239	5	246	0	0	4	4	501
Total Volume	9	969	1	979	22	1	10	33	6	907	18	931	0	0	19	19	1962
% App. Total	0.9	99	0.1		66.7	3	30.3		0.6	97.4	1.9		0	0	100		
PHF	.750	.904	.250	.910	.611	.250	.417	.750	.750	.945	.750	.942	.000	.000	.679	.679	.951

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
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:

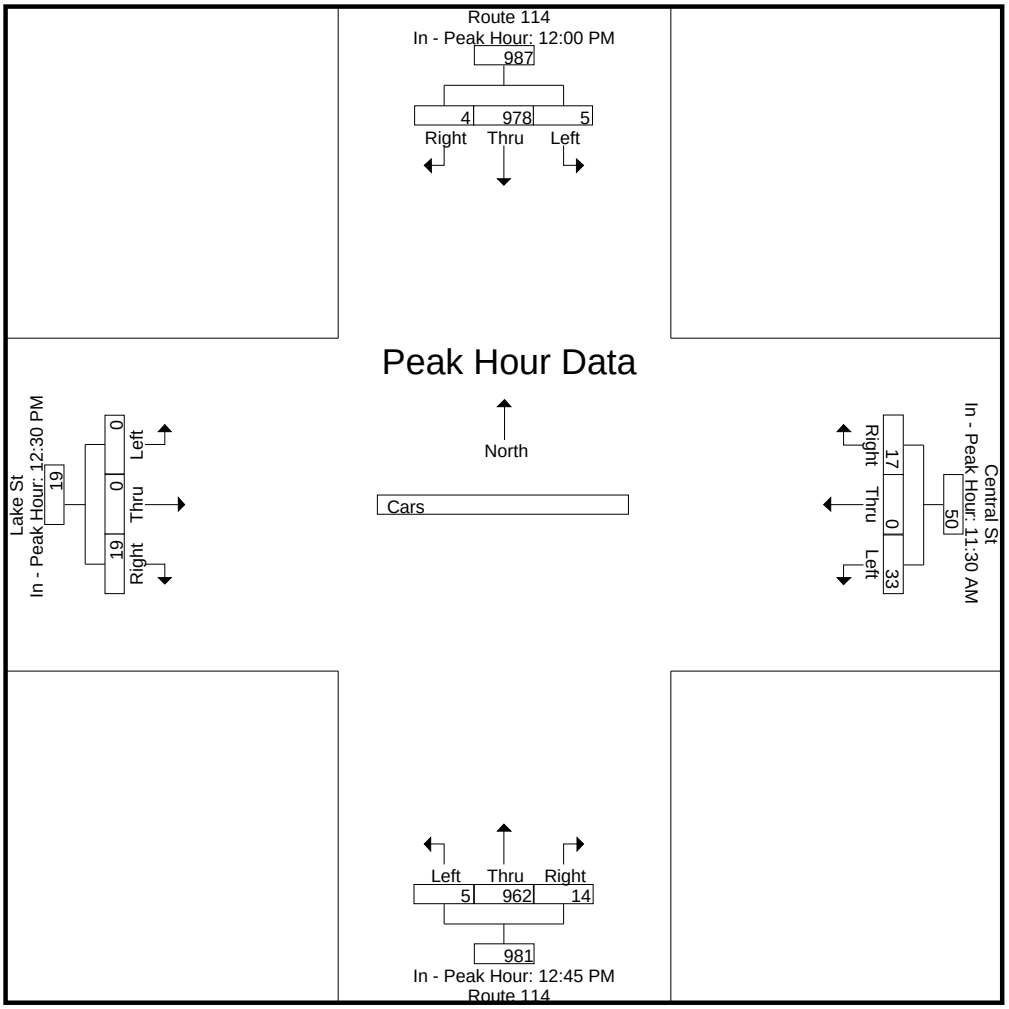
	12:00 PM				11:30 AM				12:45 PM				12:30 PM			
+0 mins.	**2**	252	**2**	256	7	0	4	11	**2**	240	**5**	247	0	0	2	2
+15 mins.	0	227	1	228	7	0	4	11	0	202	2	204	0	0	**7**	**7**
+30 mins.	1	**268**	0	**269**	**11**	0	**6**	**17**	2	239	5	246	0	0	6	6
+45 mins.	2	231	1	234	8	0	3	11	1	**281**	2	**284**	0	0	4	4
Total Volume	5	978	4	987	33	0	17	50	5	962	14	981	0	0	19	19
% App. Total	0.5	99.1	0.4		66	0	34		0.5	98.1	1.4		0	0	100	
PHF	.625	.912	.500	.917	.750	.000	.708	.735	.625	.856	.700	.864	.000	.000	.679	.679

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
Page No : 7

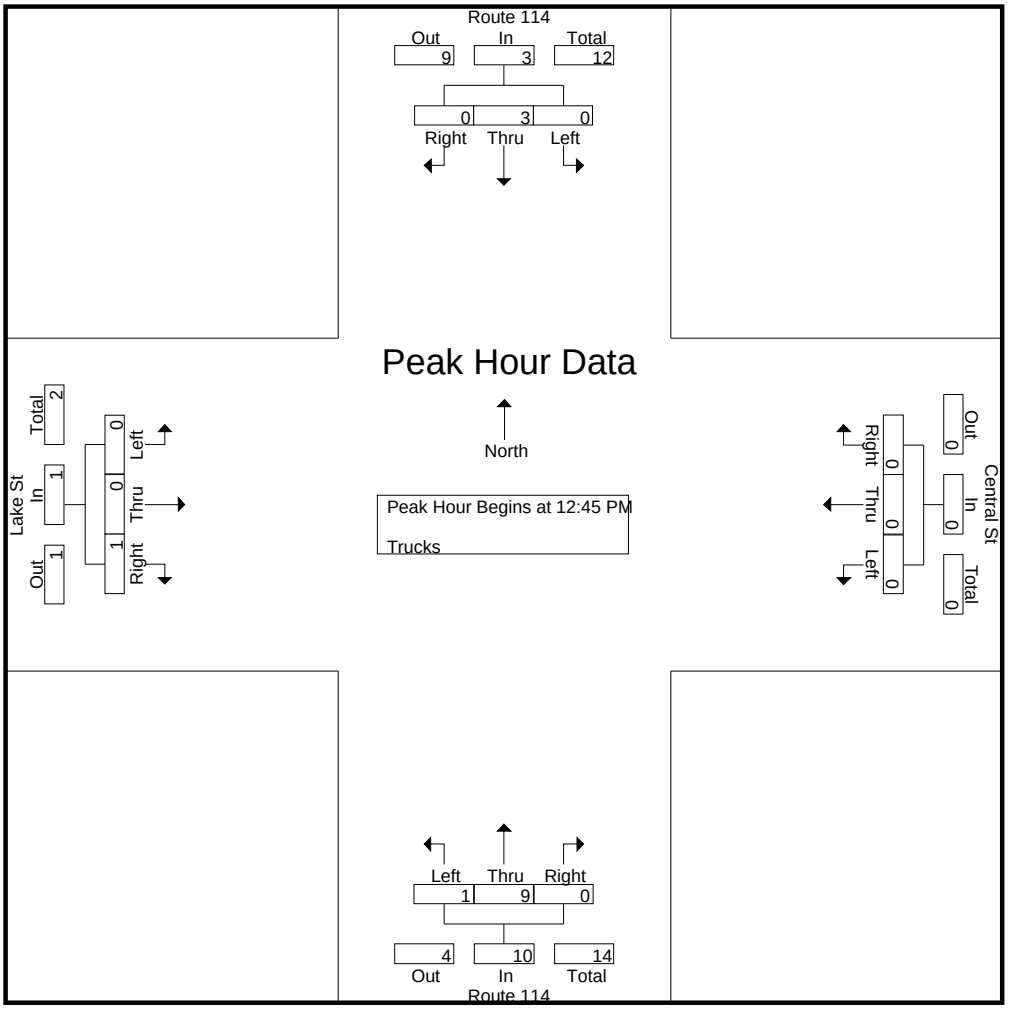
Groups Printed- Trucks

	Route 114 From North			Central St From East			Route 114 From South			Lake St From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
11:00 AM	0	2	0	0	0	0	0	2	0	0	0	0	4
11:15 AM	0	1	0	0	0	0	0	4	0	0	0	0	5
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
11:45 AM	0	2	0	0	0	0	0	1	0	0	0	0	3
Total	0	5	0	0	0	0	0	7	0	0	0	1	13
12:00 PM	0	1	0	0	0	0	0	2	0	0	0	0	3
12:15 PM	0	1	0	0	0	0	0	1	0	0	0	0	2
12:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	2	0	0	0	0	1	4	0	0	0	0	7
Total	0	5	0	0	0	0	1	7	0	0	0	0	13
01:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	2
01:15 PM	0	1	0	0	0	0	0	1	0	0	0	0	2
01:30 PM	0	0	0	0	0	0	0	3	0	0	0	0	3
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	5	0	0	0	1	7
Grand Total	0	11	0	0	0	0	1	19	0	0	0	2	33
Apprch %	0	100	0	0	0	0	5	95	0	0	0	100	
Total %	0	33.3	0	0	0	0	3	57.6	0	0	0	6.1	

	Route 114 From North				Central St From East				Route 114 From South				Lake St 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 12:45 PM																	
12:45 PM	0	**2**	0	**2**	0	0	0	0	**1**	**4**	0	**5**	0	0	0	0	**7**
01:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	**1**	**1**	2
01:15 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
01:30 PM	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
Total Volume	0	3	0	3	0	0	0	0	1	9	0	10	0	0	1	1	14
% App. Total	0	100	0		0	0	0		10	90	0		0	0	100		
PHF	.000	.375	.000	.375	.000	.000	.000	.000	.250	.563	.000	.500	.000	.000	.250	.250	.500

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
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:

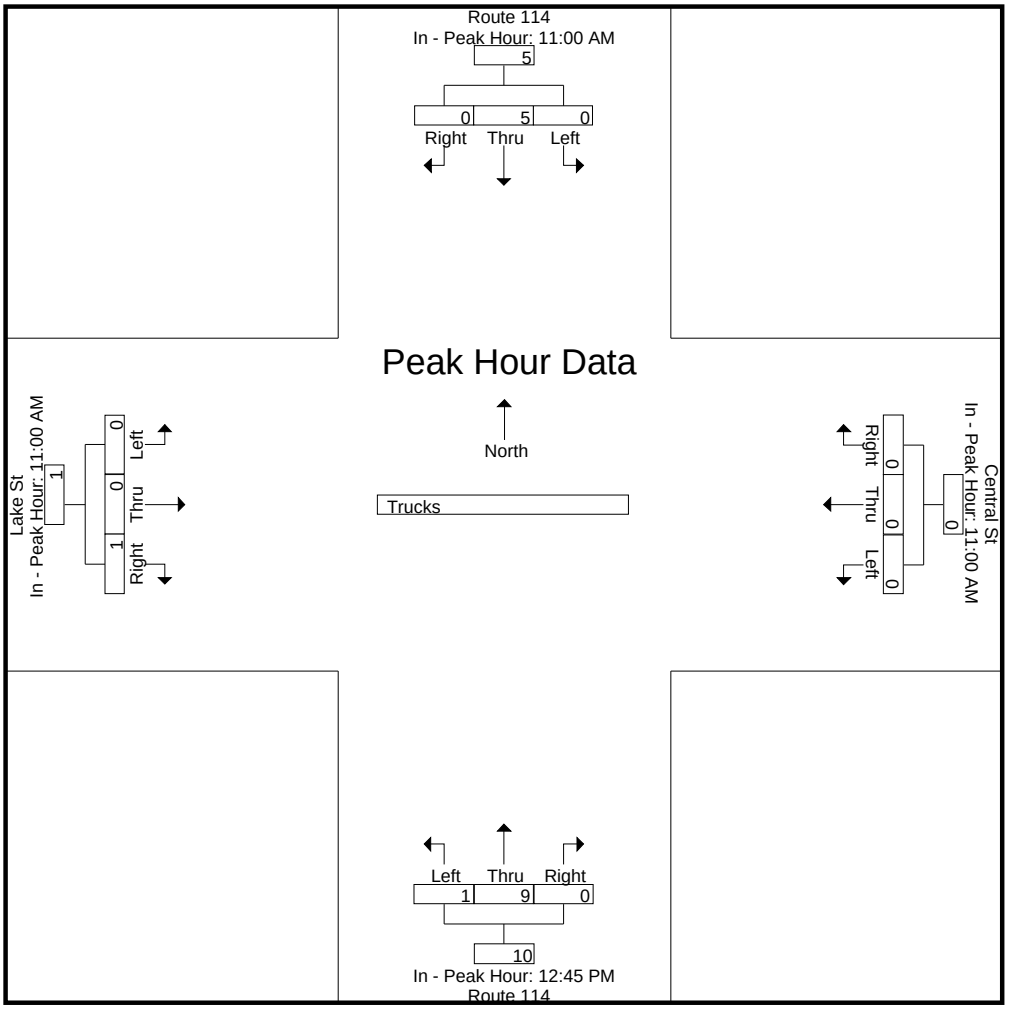
	11:00 AM				11:00 AM				12:45 PM				11:00 AM			
+0 mins.	0	**2**	0	**2**	0	0	0	0	**1**	**4**	0	**5**	0	0	0	0
+15 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	**1**	**1**
+45 mins.	0	2	0	2	0	0	0	0	0	3	0	3	0	0	0	0
Total Volume	0	5	0	5	0	0	0	0	1	9	0	10	0	0	1	1
% App. Total	0	100	0		0	0	0		10	90	0		0	0	100	
PHF	.000	.625	.000	.625	.000	.000	.000	.000	.250	.563	.000	.500	.000	.000	.250	.250

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
Page No : 10

Groups Printed- Bikes Peds

	Route 114 From North				Central St From East				Route 114 From South				Lake St 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	2	0	0	1	0	0	2	0	0	0	1	0	0	2	4	6
11:15 AM	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	2
11:30 AM	0	0	0	0	0	0	1	0	0	0	0	3	0	0	1	0	3	2	5
11:45 AM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	3
Total	0	3	0	2	0	0	2	0	0	3	0	4	0	1	1	0	6	10	16
12:00 PM	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3
12:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	3
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	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	4	0	2	0	0	0	0	0	0	0	0	0	2	0	0	2	6	8
01:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2
Grand Total	0	8	0	4	0	0	2	0	0	4	0	4	0	3	1	0	8	18	26
Apprch %	0	100	0		0	0	100		0	100	0		0	75	25				
Total %	0	44.4	0		0	0	11.1		0	22.2	0		0	16.7	5.6		30.8	69.2	

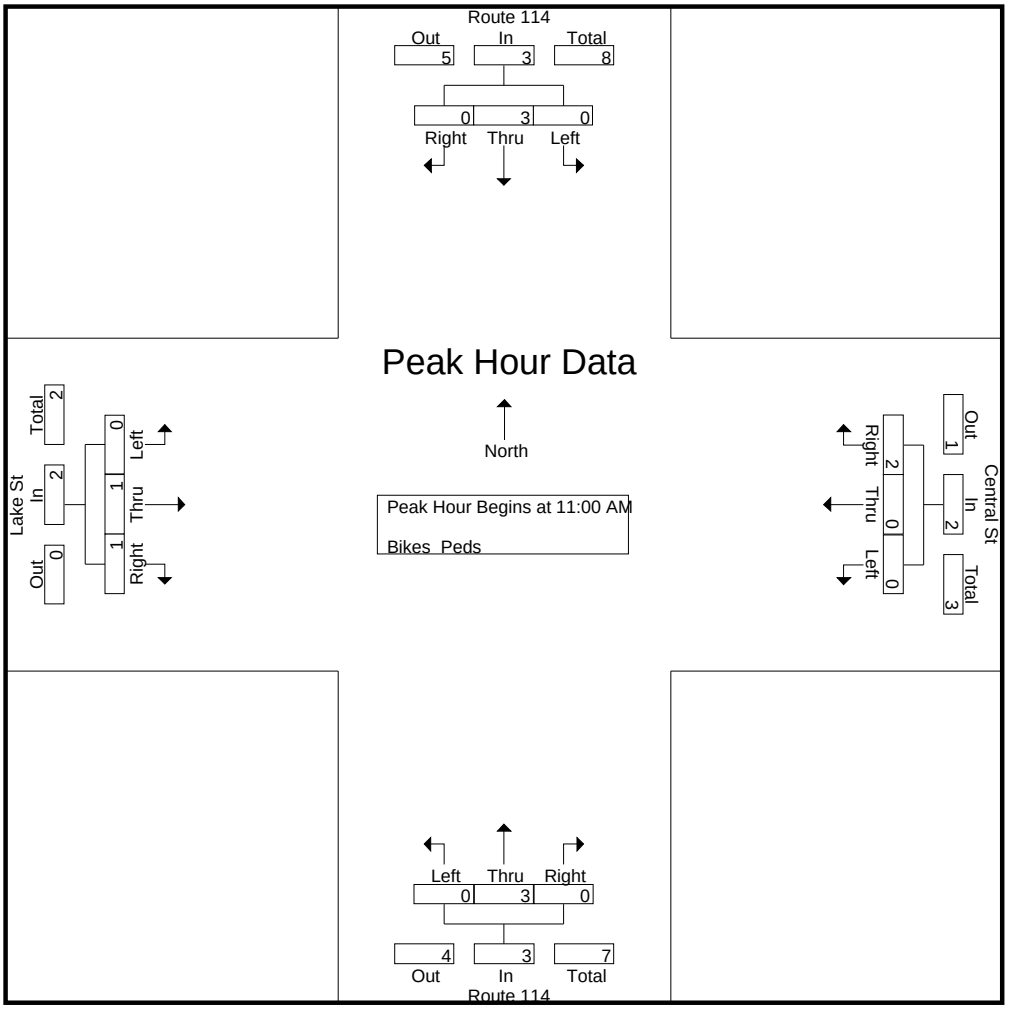
	Route 114 From North				Central St From East				Route 114 From South				Lake St From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 11:00 AM																	
11:00 AM	0	0	0	0	0	0	**1**	**1**	0	**2**	0	**2**	0	**1**	0	**1**	**4**
11:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	**1**	1	2
11:45 AM	0	**2**	0	**2**	0	0	0	0	0	1	0	1	0	0	0	0	3
Total Volume	0	3	0	3	0	0	2	2	0	3	0	3	0	1	1	2	10
% App. Total	0	100	0		0	0	100		0	100	0		0	50	50		
PHF	.000	.375	.000	.375	.000	.000	.500	.500	.000	.375	.000	.375	.000	.250	.250	.500	.625

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
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:

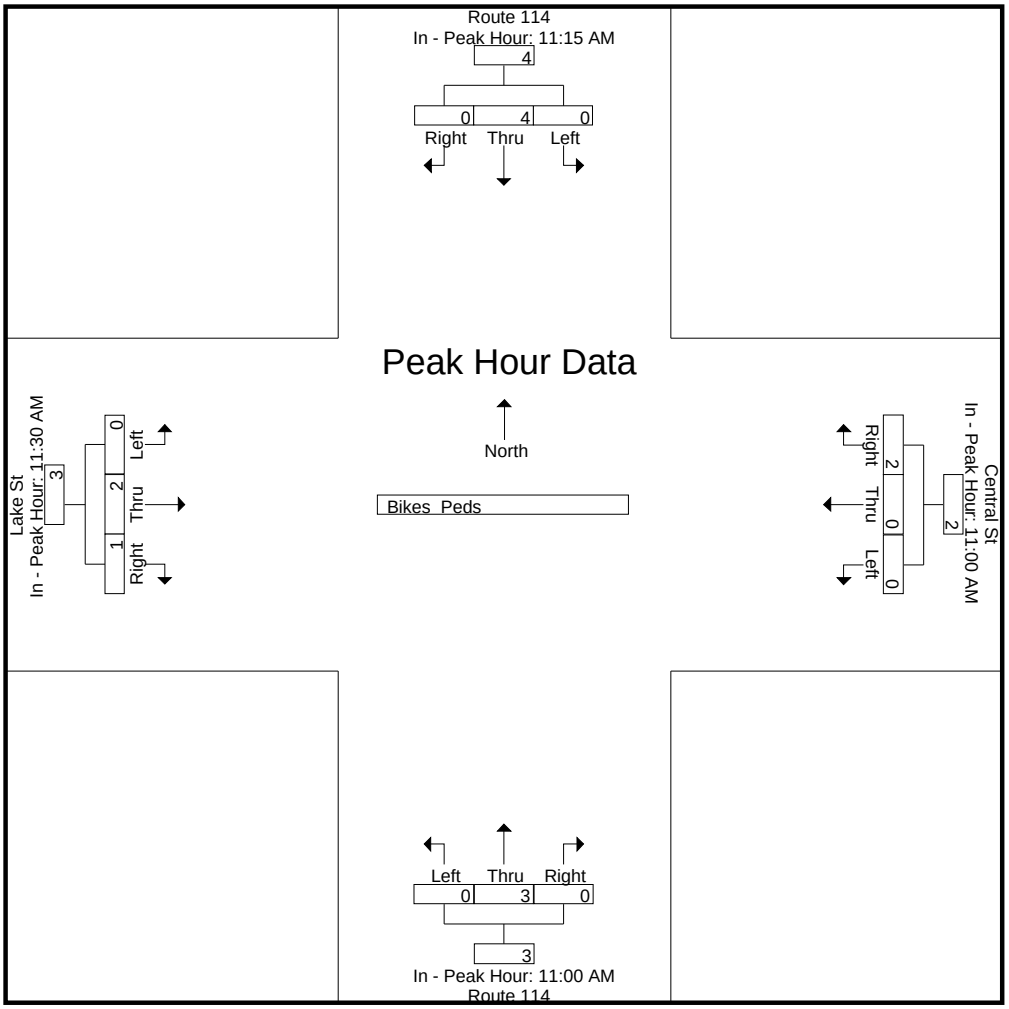
	11:15 AM				11:00 AM				11:00 AM				11:30 AM			
+0 mins.	0	1	0	1	0	0	**1**	**1**	0	**2**	0	**2**	0	0	**1**	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	**2**	0	**2**	0	0	1	1	0	0	0	0	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	**2**	0	**2**
Total Volume	0	4	0	4	0	0	2	2	0	3	0	3	0	2	1	3
% App. Total	0	100	0		0	0	100		0	100	0		0	66.7	33.3	
PHF	.000	.500	.000	.500	.000	.000	.500	.500	.000	.375	.000	.375	.000	.250	.250	.375

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Central Street/Lake Street
City/State : Middleton, MA
Weather : Clear

File Name : 930100S3
Site Code : 93010003
Start Date : 5/21/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 1

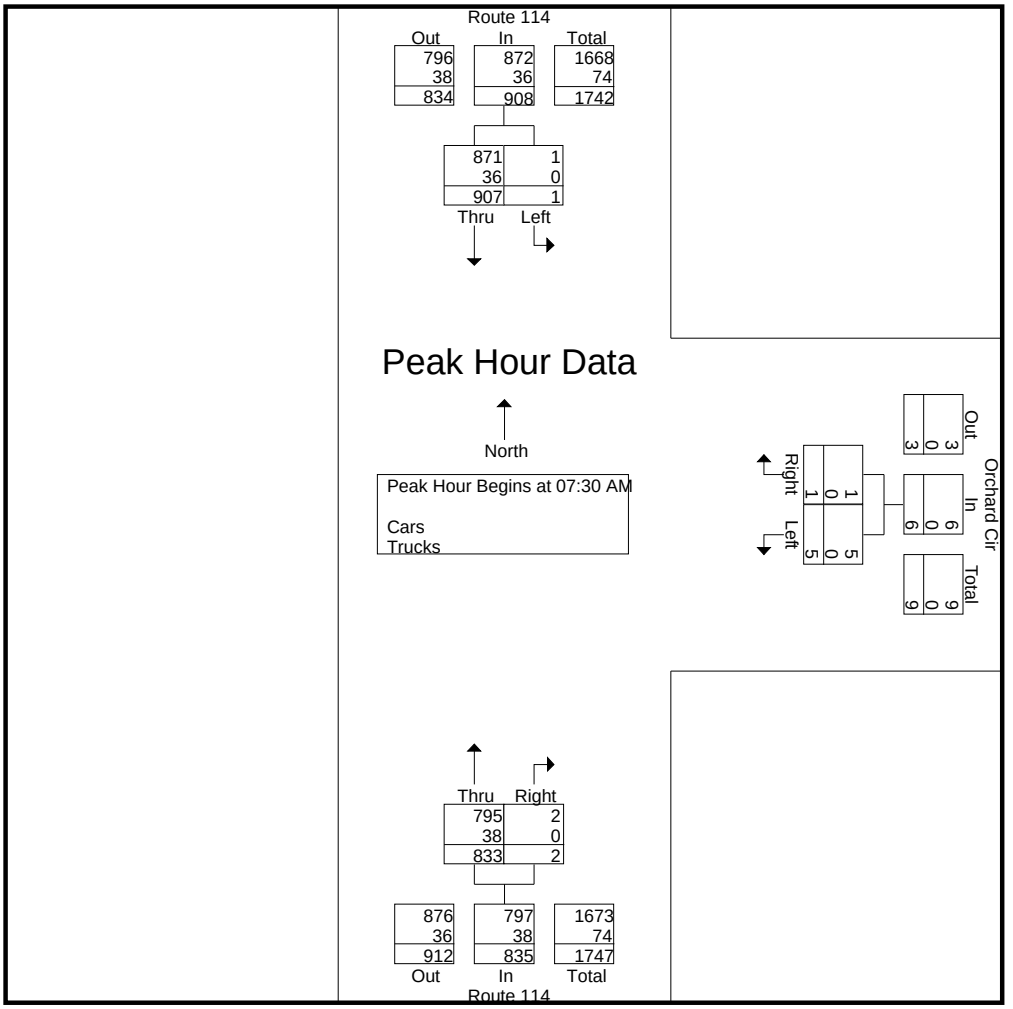
Groups Printed- Cars - Trucks

	Route 114 From North		Orchard Cir From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	0	180	0	0	160	0	340
07:15 AM	1	191	1	1	172	1	367
07:30 AM	0	208	1	0	235	1	445
07:45 AM	1	221	2	0	205	0	429
Total	2	800	4	1	772	2	1581
08:00 AM	0	216	1	0	187	0	404
08:15 AM	0	262	1	1	206	1	471
08:30 AM	1	224	1	2	207	0	435
08:45 AM	1	206	1	2	136	2	348
Total	2	908	4	5	736	3	1658
Grand Total	4	1708	8	6	1508	5	3239
Apprch %	0.2	99.8	57.1	42.9	99.7	0.3	
Total %	0.1	52.7	0.2	0.2	46.6	0.2	
Cars	4	1644	8	6	1445	5	3112
% Cars	100	96.3	100	100	95.8	100	96.1
Trucks	0	64	0	0	63	0	127
% Trucks	0	3.7	0	0	4.2	0	3.9

	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	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 07:30 AM										
07:30 AM	0	208	208	1	0	1	**235**	**1**	**236**	445
07:45 AM	**1**	221	222	**2**	0	**2**	205	0	205	429
08:00 AM	0	216	216	1	0	1	187	0	187	404
08:15 AM	0	**262**	**262**	1	**1**	2	206	1	207	**471**
Total Volume	1	907	908	5	1	6	833	2	835	1749
% App. Total	0.1	99.9		83.3	16.7		99.8	0.2		
PHF	.250	.865	.866	.625	.250	.750	.886	.500	.885	.928
Cars	1	871	872	5	1	6	795	2	797	1675
% Cars	100	96.0	96.0	100	100	100	95.4	100	95.4	95.8
Trucks	0	36	36	0	0	0	38	0	38	74
% Trucks	0	4.0	4.0	0	0	0	4.6	0	4.6	4.2

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 2



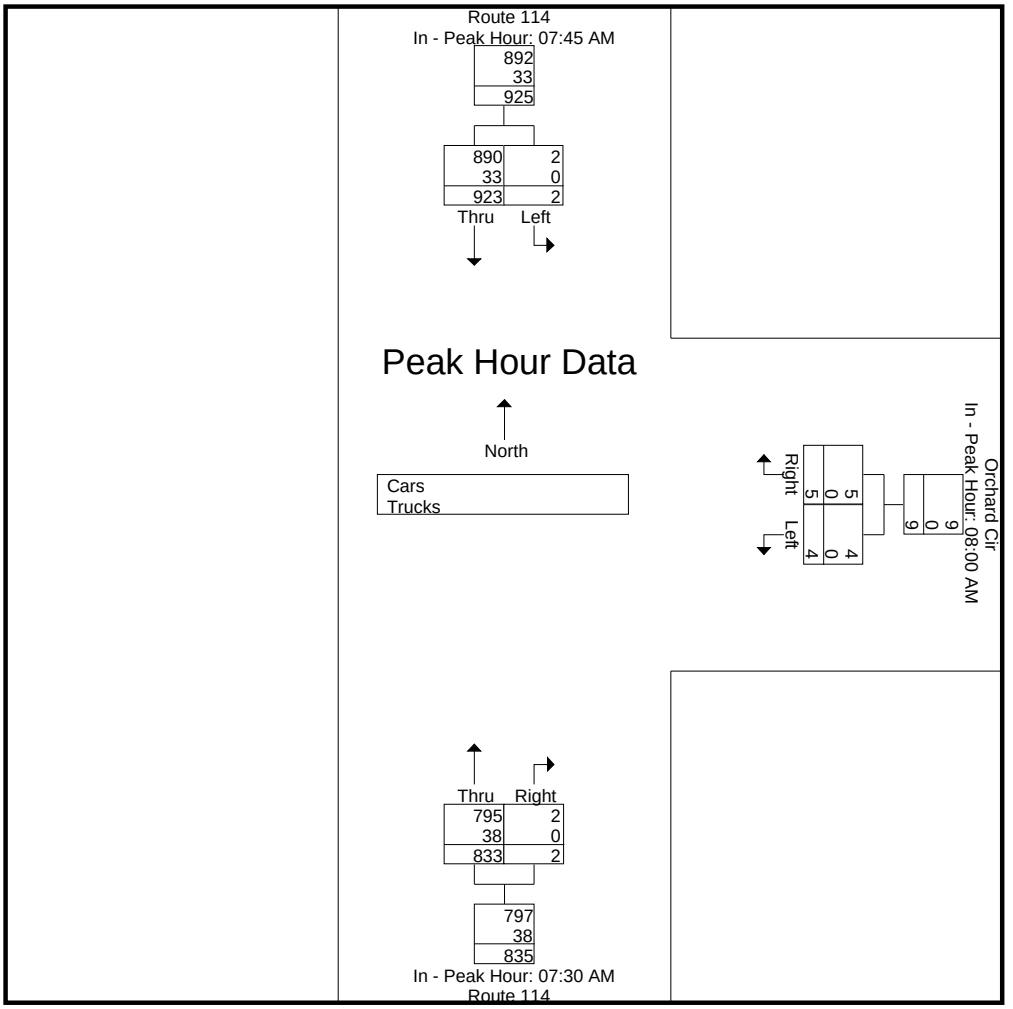
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			08:00 AM			07:30 AM		
+0 mins.	**1**	221	222	**1**	0	1	**235**	**1**	**236**
+15 mins.	0	216	216	1	1	2	205	0	205
+30 mins.	0	**262**	**262**	1	**2**	**3**	187	0	187
+45 mins.	1	224	225	1	2	3	206	1	207
Total Volume	2	923	925	4	5	9	833	2	835
% App. Total	0.2	99.8		44.4	55.6		99.8	0.2	
PHF	.500	.881	.883	1.000	.625	.750	.886	.500	.885
Cars	2	890	892	4	5	9	795	2	797
% Cars	100	96.4	96.4	100	100	100	95.4	100	95.4
Trucks	0	33	33	0	0	0	38	0	38
% Trucks	0	3.6	3.6	0	0	0	4.6	0	4.6

Accurate Counts
978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North		Orchard Cir From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	0	173	0	0	150	0	323
07:15 AM	1	185	1	1	168	1	357
07:30 AM	0	195	1	0	228	1	425
07:45 AM	1	219	2	0	195	0	417
Total	2	772	4	1	741	2	1522
08:00 AM	0	207	1	0	182	0	390
08:15 AM	0	250	1	1	190	1	443
08:30 AM	1	214	1	2	199	0	417
08:45 AM	1	201	1	2	133	2	340
Total	2	872	4	5	704	3	1590
Grand Total	4	1644	8	6	1445	5	3112
Apprch %	0.2	99.8	57.1	42.9	99.7	0.3	
Total %	0.1	52.8	0.3	0.2	46.4	0.2	

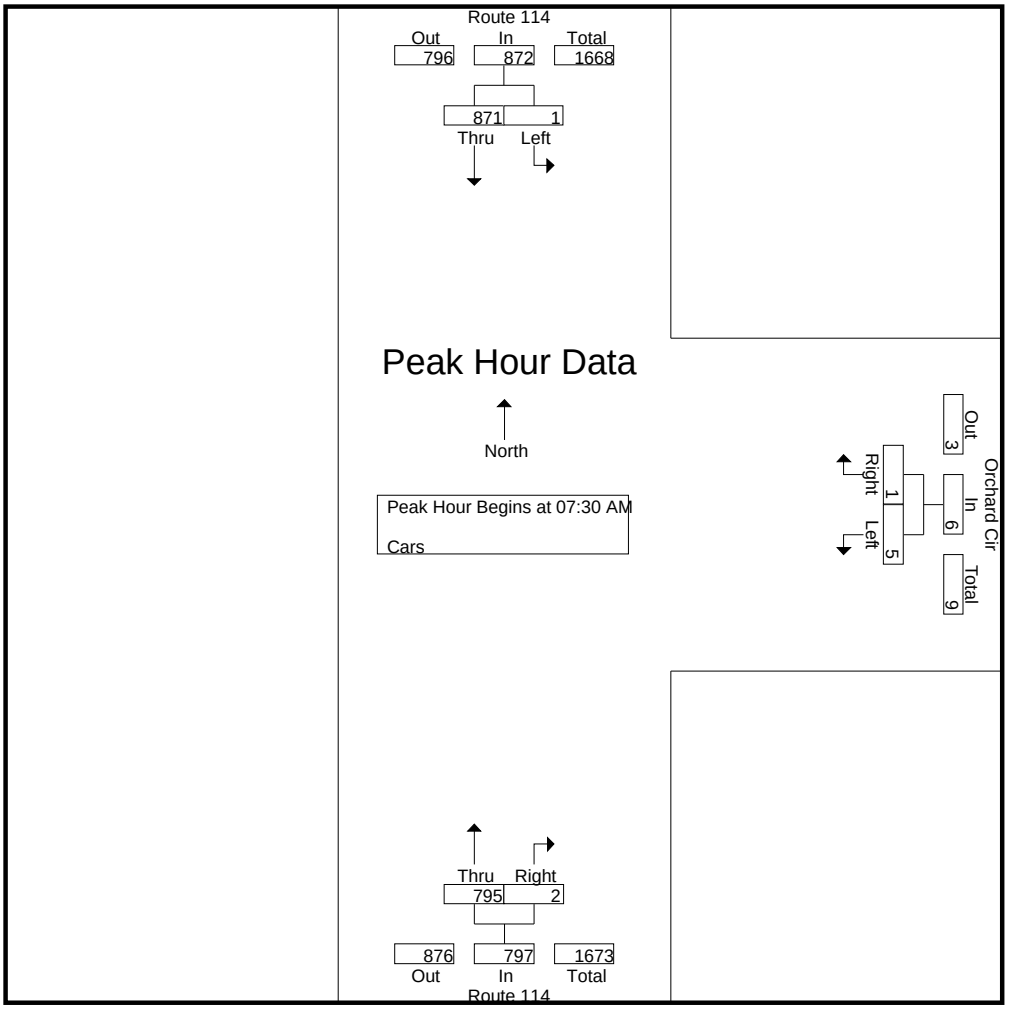
	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	195	195	1	0	1	**228**	**1**	**229**	425
07:45 AM	**1**	219	220	**2**	0	**2**	195	0	195	417
08:00 AM	0	207	207	1	0	1	182	0	182	390
08:15 AM	0	**250**	**250**	1	**1**	2	190	1	191	**443**
Total Volume	1	871	872	5	1	6	795	2	797	1675
% App. Total	0.1	99.9		83.3	16.7		99.7	0.3		
PHF	.250	.871	.872	.625	.250	.750	.872	.500	.870	.945

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
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:

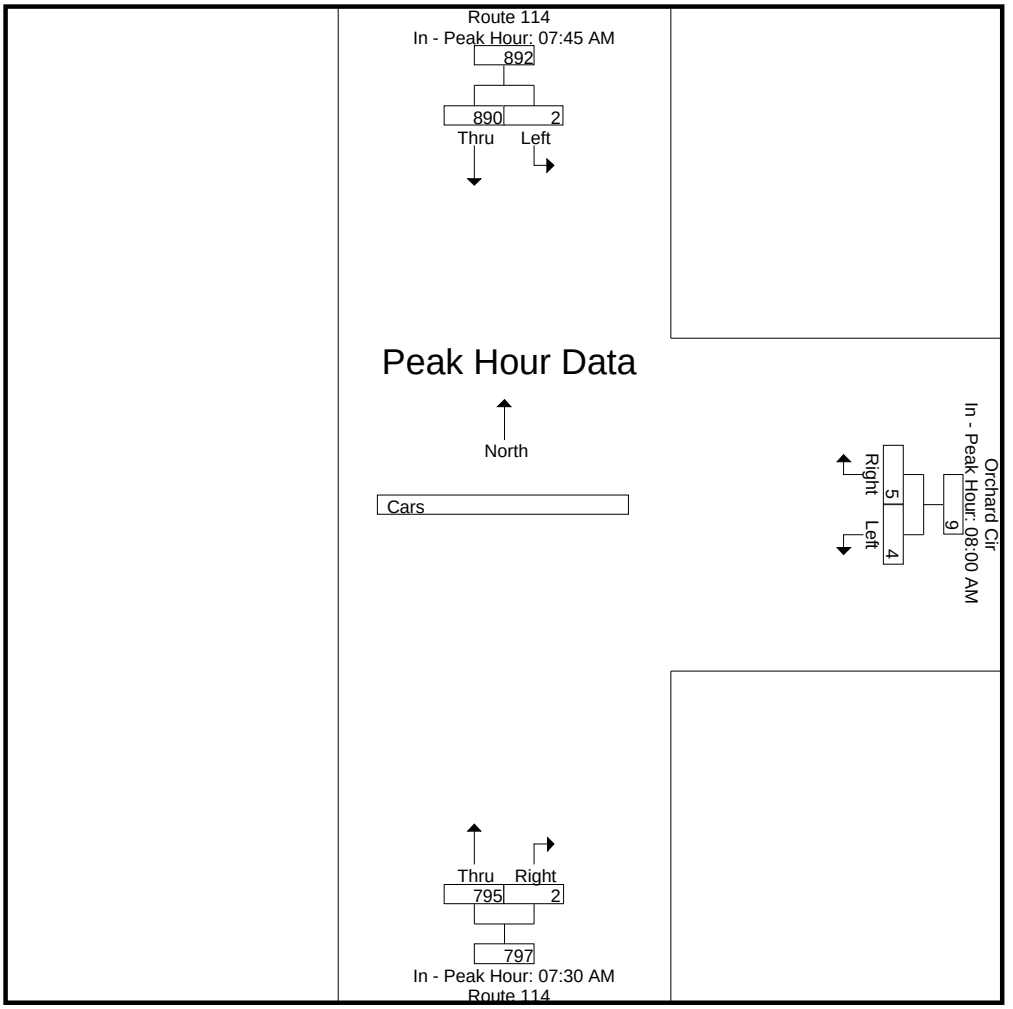
	07:45 AM			08:00 AM			07:30 AM		
+0 mins.	**1**	219	220	**1**	0	1	**228**	**1**	**229**
+15 mins.	0	207	207	1	1	2	195	0	195
+30 mins.	0	**250**	**250**	1	**2**	**3**	182	0	182
+45 mins.	1	214	215	1	2	3	190	1	191
Total Volume	2	890	892	4	5	9	795	2	797
% App. Total	0.2	99.8		44.4	55.6		99.7	0.3	
PHF	.500	.890	.892	1.000	.625	.750	.872	.500	.870

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 7

Groups Printed- Trucks

	Route 114 From North		Orchard Cir From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	0	7	0	0	10	0	17
07:15 AM	0	6	0	0	4	0	10
07:30 AM	0	13	0	0	7	0	20
07:45 AM	0	2	0	0	10	0	12
Total	0	28	0	0	31	0	59
08:00 AM	0	9	0	0	5	0	14
08:15 AM	0	12	0	0	16	0	28
08:30 AM	0	10	0	0	8	0	18
08:45 AM	0	5	0	0	3	0	8
Total	0	36	0	0	32	0	68
Grand Total	0	64	0	0	63	0	127
Apprch %	0	100	0	0	100	0	
Total %	0	50.4	0	0	49.6	0	

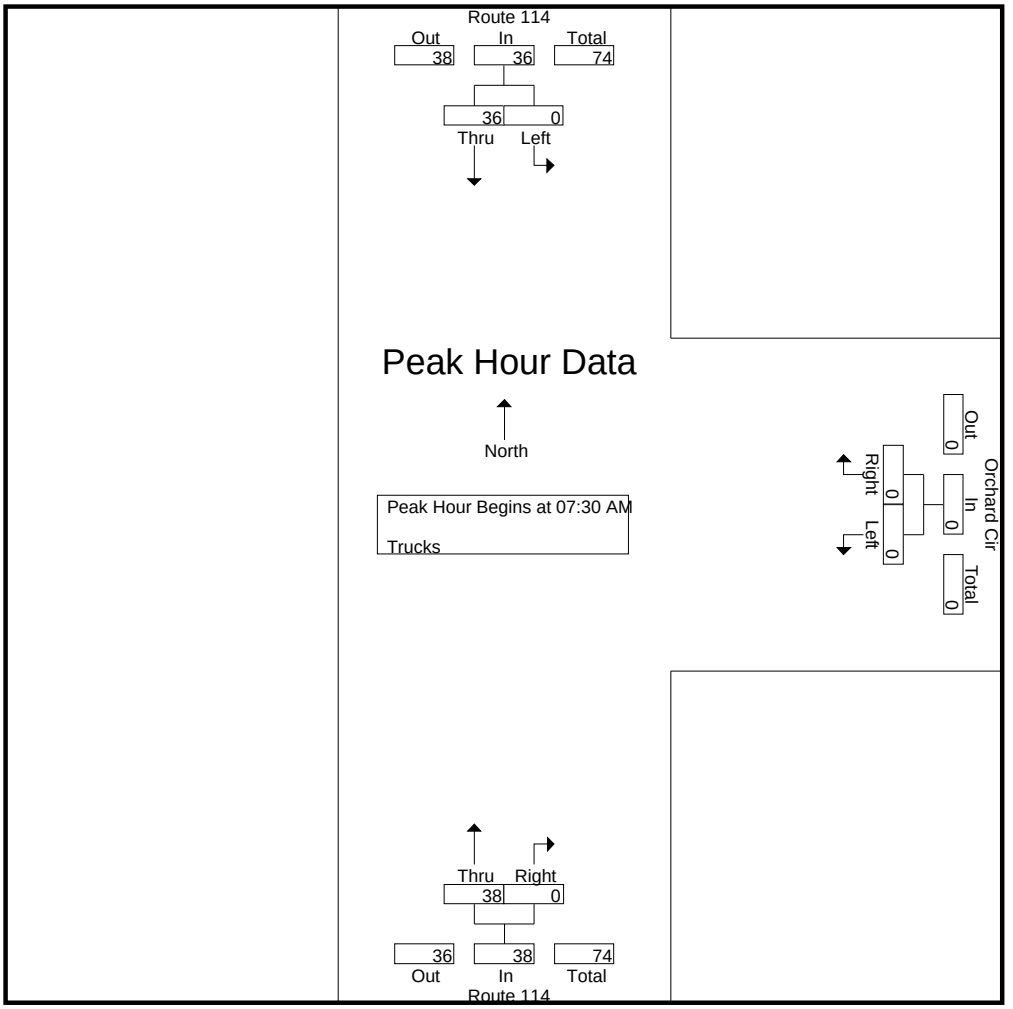
	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	**13**	**13**	0	0	0	7	0	7	20
07:45 AM	0	2	2	0	0	0	10	0	10	12
08:00 AM	0	9	9	0	0	0	5	0	5	14
08:15 AM	0	12	12	0	0	0	**16**	0	**16**	**28**
Total Volume	0	36	36	0	0	0	38	0	38	74
% App. Total	0	100		0	0		100	0		
PHF	.000	.692	.692	.000	.000	.000	.594	.000	.594	.661

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
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:

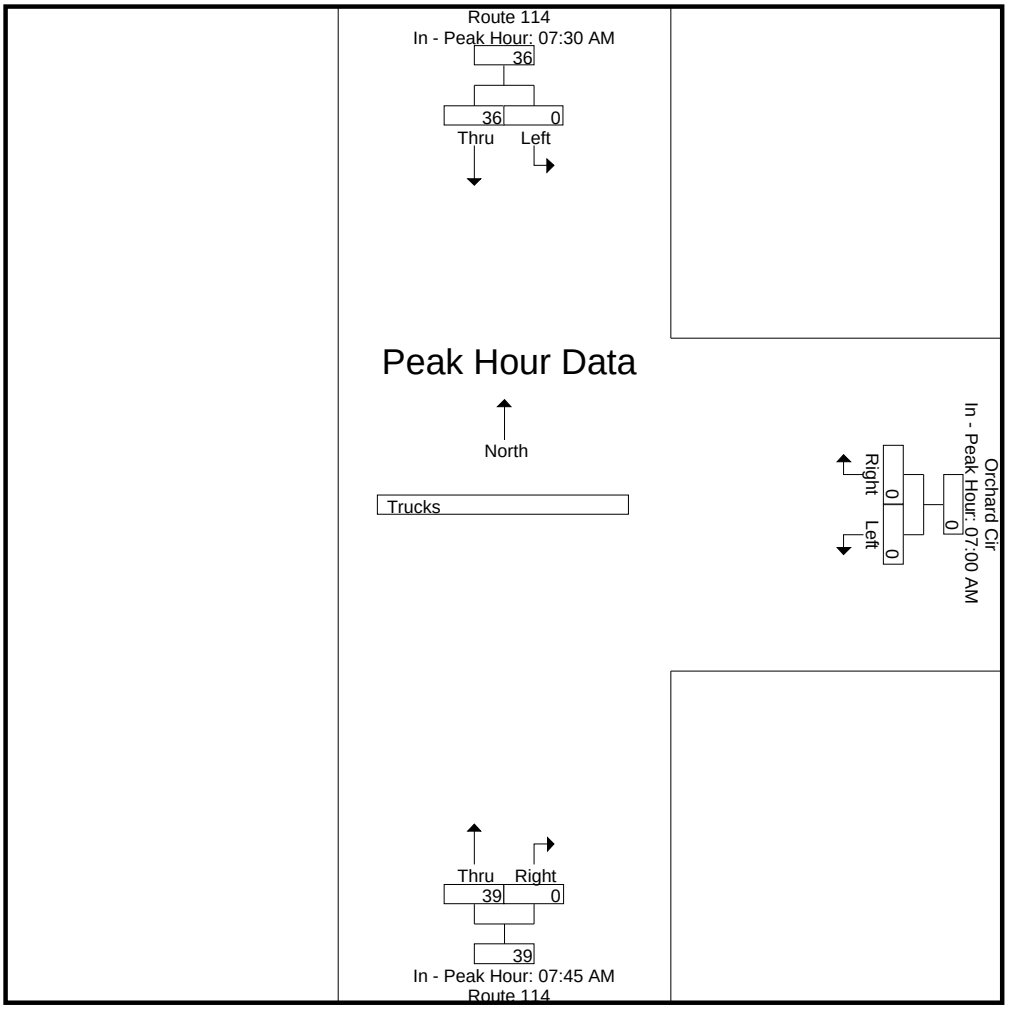
	07:30 AM			07:00 AM			07:45 AM		
+0 mins.	0	**13**	**13**	0	0	0	10	0	10
+15 mins.	0	2	2	0	0	0	5	0	5
+30 mins.	0	9	9	0	0	0	**16**	0	**16**
+45 mins.	0	12	12	0	0	0	8	0	8
Total Volume	0	36	36	0	0	0	39	0	39
% App. Total	0	100		0	0		100	0	
PHF	.000	.692	.692	.000	.000	.000	.609	.000	.609

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022

Groups Printed- Bikes Peds

	Route 114 From North			Orchard Cir From East			Route 114 From South					
Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	0	0	0	0	0	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	0	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:45 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
Grand Total	0	1	0	0	0	0	0	0	0	0	1	1
Apprch %	0	100		0	0		0	0				
Total %	0	100		0	0		0	0		0	100	

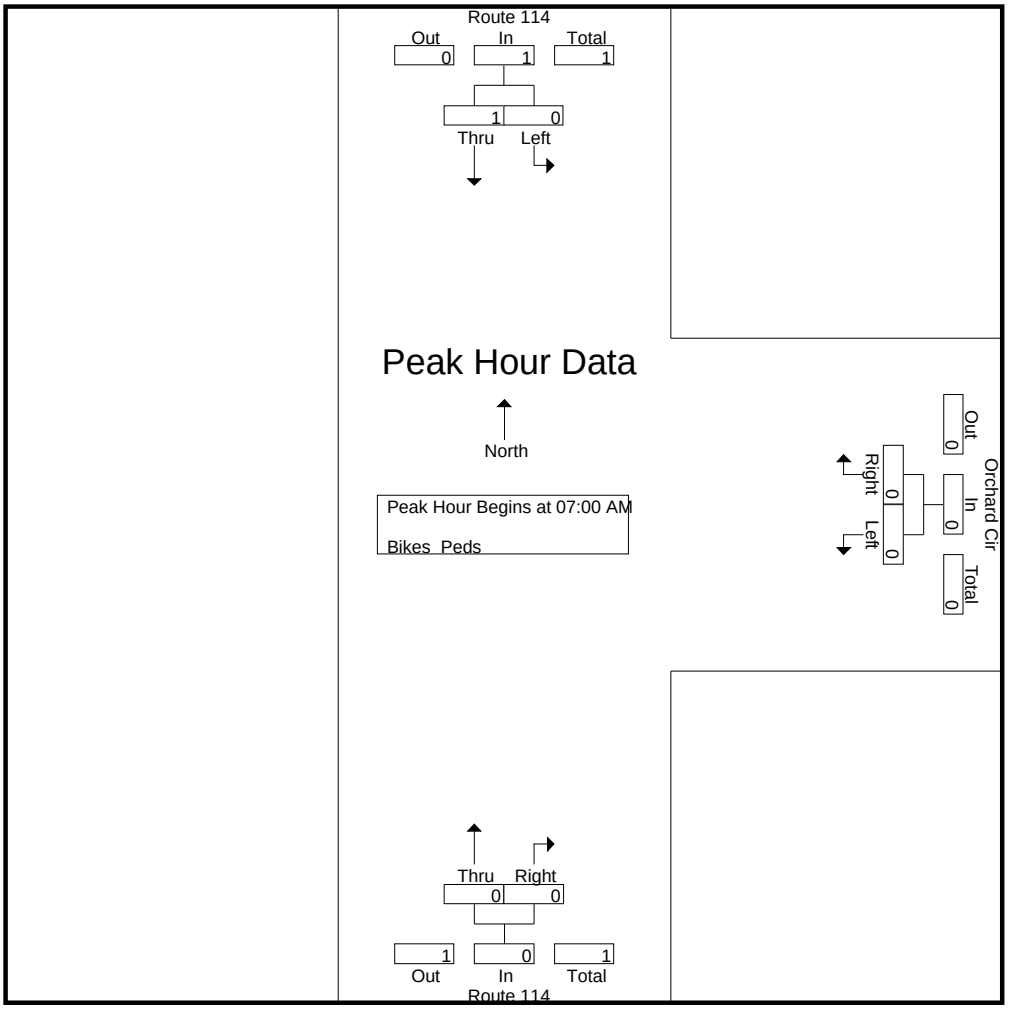
	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	**1**	**1**	0	0	0	0	0	0	**1**
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	0	0	0	1
% App. Total	0	100		0	0		0	0		
PHF	.000	.250	.250	.000	.000	.000	.000	.000	.000	.250

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
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:

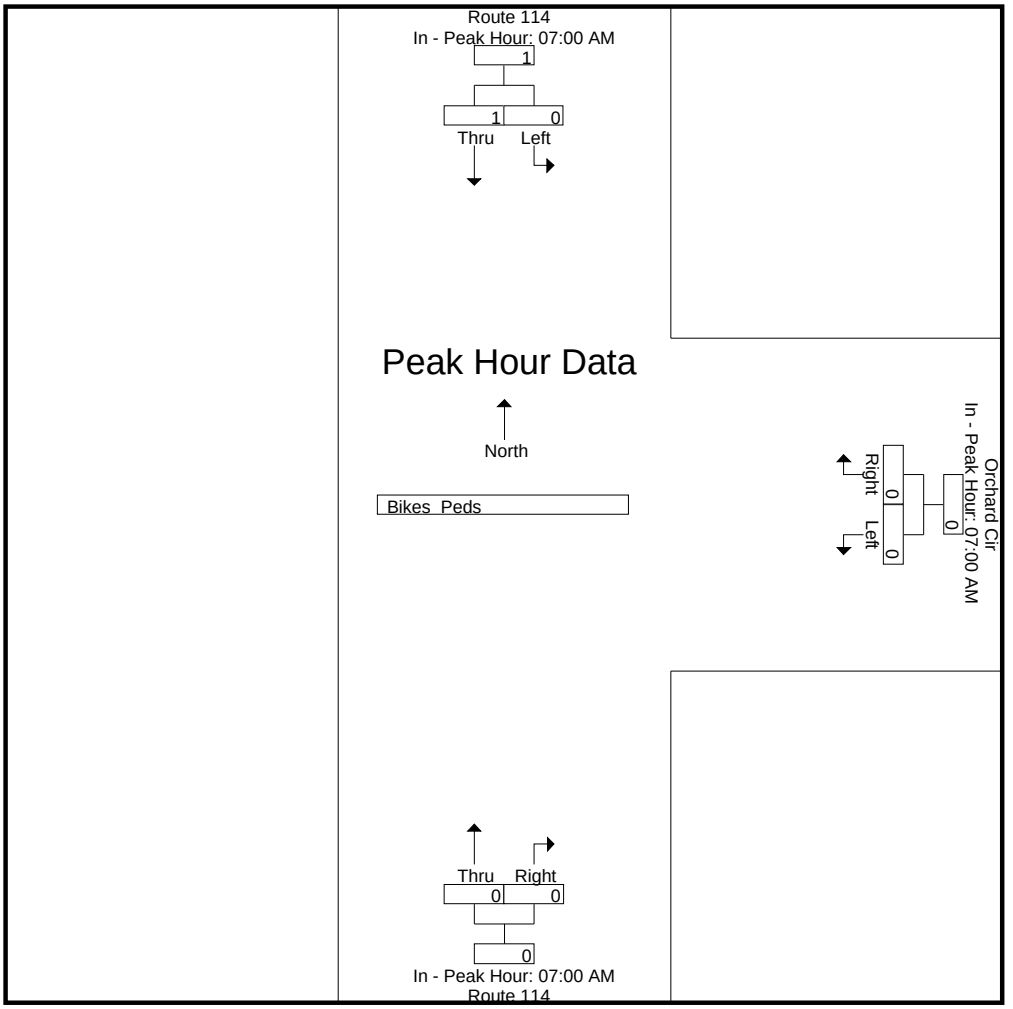
	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	**1**	**1**	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	0	0	0
% App. Total	0	100		0	0		0	0	
PHF	.000	.250	.250	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 1

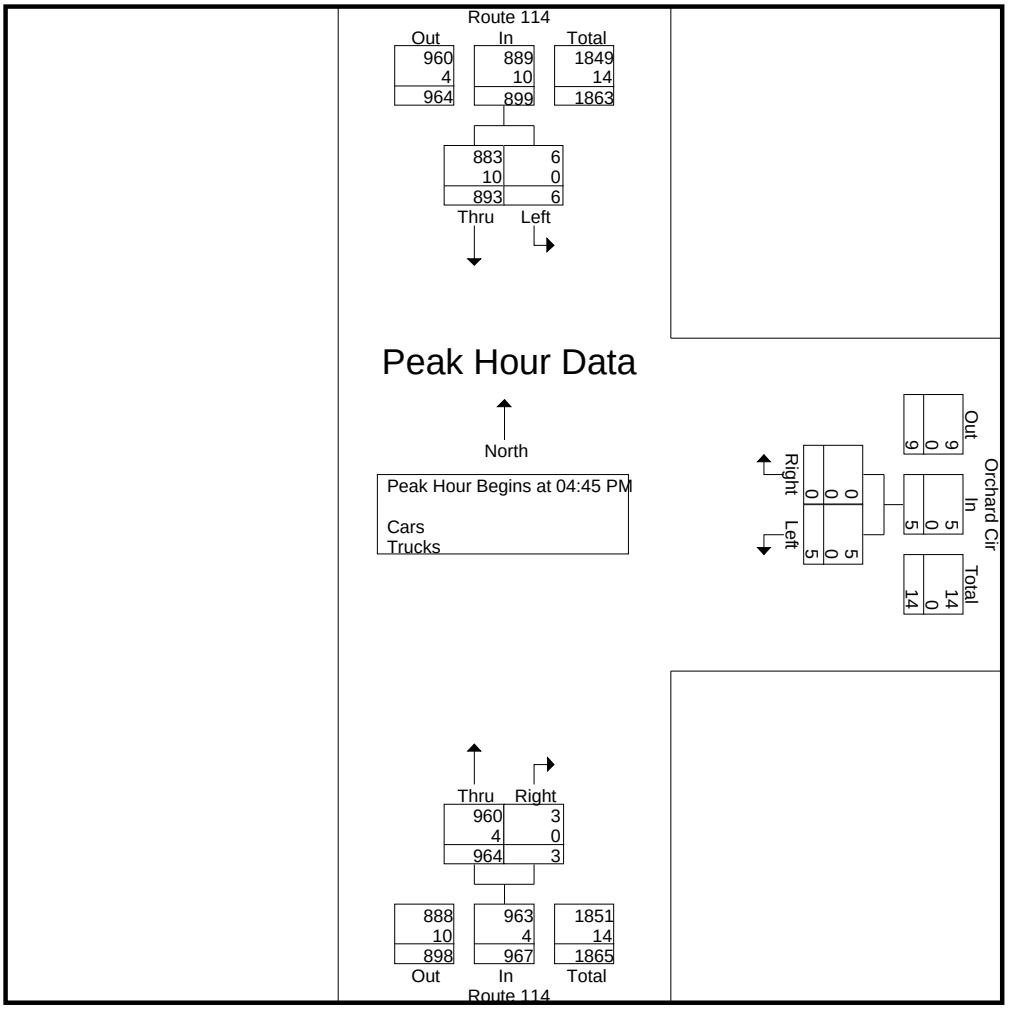
Groups Printed- Cars - Trucks

	Route 114 From North		Orchard Cir From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
03:00 PM	1	192	2	0	255	1	451
03:15 PM	1	184	0	3	229	0	417
03:30 PM	0	209	1	1	192	1	404
03:45 PM	2	215	2	3	197	1	420
Total	4	800	5	7	873	3	1692
04:00 PM	2	202	0	4	207	1	416
04:15 PM	2	225	0	0	227	1	455
04:30 PM	0	189	2	2	233	3	429
04:45 PM	3	227	2	0	223	0	455
Total	7	843	4	6	890	5	1755
05:00 PM	2	210	2	0	220	1	435
05:15 PM	0	238	1	0	253	2	494
05:30 PM	1	218	0	0	268	0	487
05:45 PM	1	224	1	1	219	1	447
Total	4	890	4	1	960	4	1863
06:00 PM	0	219	0	0	215	0	434
06:15 PM	0	151	0	0	190	0	341
06:30 PM	0	180	0	0	150	0	330
06:45 PM	0	133	1	1	163	3	301
Total	0	683	1	1	718	3	1406
Grand Total	15	3216	14	15	3441	15	6716
Apprch %	0.5	99.5	48.3	51.7	99.6	0.4	
Total %	0.2	47.9	0.2	0.2	51.2	0.2	
Cars	15	3164	14	15	3401	15	6624
% Cars	100	98.4	100	100	98.8	100	98.6
Trucks	0	52	0	0	40	0	92
% Trucks	0	1.6	0	0	1.2	0	1.4

	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	**3**	227	230	**2**	0	**2**	223	0	223	455
05:00 PM	2	210	212	2	0	2	220	1	221	435
05:15 PM	0	**238**	**238**	1	0	1	253	**2**	255	**494**
05:30 PM	1	218	219	0	0	0	**268**	0	**268**	487
Total Volume	6	893	899	5	0	5	964	3	967	1871
% App. Total	0.7	99.3		100	0		99.7	0.3		
PHF	.500	.938	.944	.625	.000	.625	.899	.375	.902	.947
Cars	6	883	889	5	0	5	960	3	963	1857
% Cars	100	98.9	98.9	100	0	100	99.6	100	99.6	99.3
Trucks	0	10	10	0	0	0	4	0	4	14
% Trucks	0	1.1	1.1	0	0	0	0.4	0	0.4	0.7

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 2



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

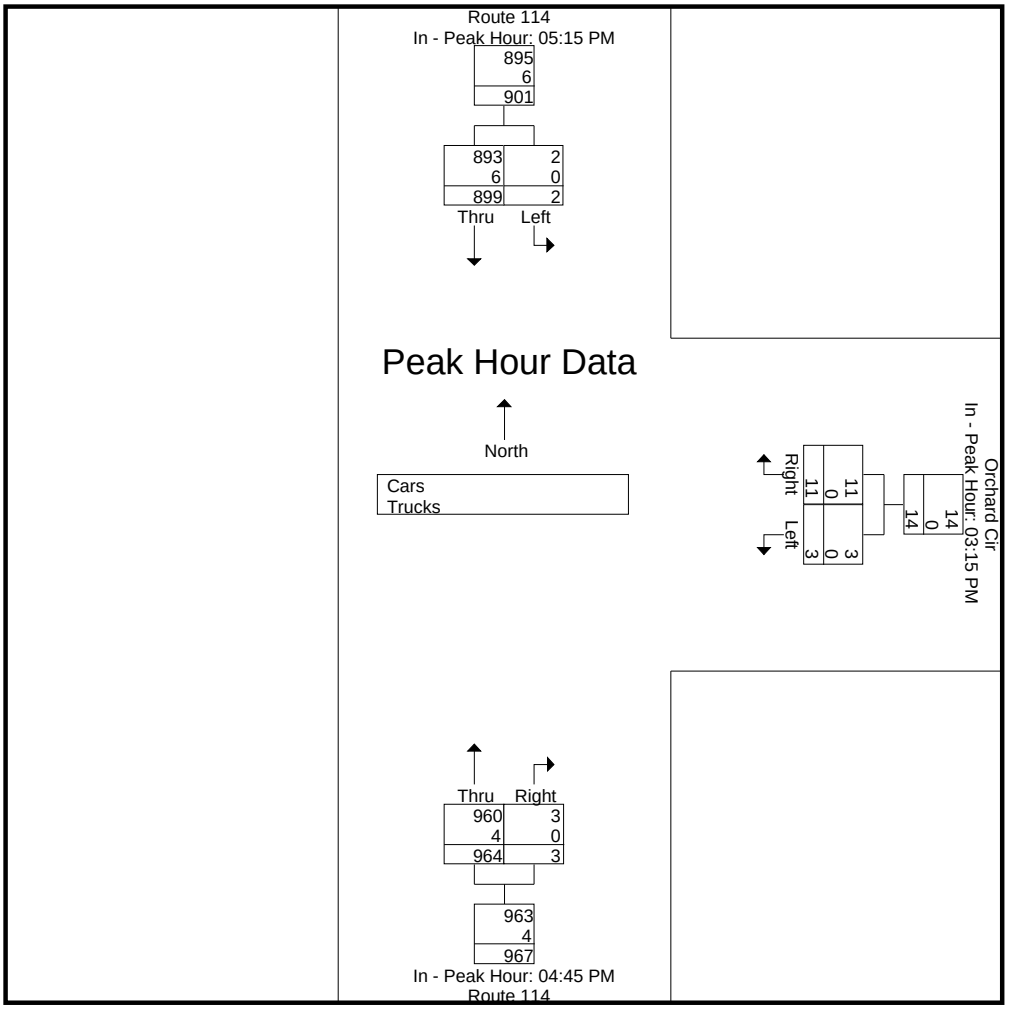
	05:15 PM			03:15 PM			04:45 PM		
+0 mins.	0	**238**	**238**	0	3	3	223	0	223
+15 mins.	**1**	218	219	1	1	2	220	1	221
+30 mins.	1	224	225	**2**	3	**5**	253	**2**	255
+45 mins.	0	219	219	0	**4**	4	**268**	0	**268**
Total Volume	2	899	901	3	11	14	964	3	967
% App. Total	0.2	99.8		21.4	78.6		99.7	0.3	
PHF	.500	.944	.946	.375	.688	.700	.899	.375	.902
Cars	2	893	895	3	11	14	960	3	963
% Cars	100	99.3	99.3	100	100	100	99.6	100	99.6
Trucks	0	6	6	0	0	0	4	0	4
% Trucks	0	0.7	0.7	0	0	0	0.4	0	0.4

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North		Orchard Cir From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
03:00 PM	1	183	2	0	245	1	432
03:15 PM	1	177	0	3	223	0	404
03:30 PM	0	205	1	1	189	1	397
03:45 PM	2	210	2	3	194	1	412
Total	4	775	5	7	851	3	1645
04:00 PM	2	196	0	4	204	1	407
04:15 PM	2	224	0	0	225	1	452
04:30 PM	0	187	2	2	230	3	424
04:45 PM	3	224	2	0	221	0	450
Total	7	831	4	6	880	5	1733
05:00 PM	2	206	2	0	219	1	430
05:15 PM	0	236	1	0	252	2	491
05:30 PM	1	217	0	0	268	0	486
05:45 PM	1	223	1	1	219	1	446
Total	4	882	4	1	958	4	1853
06:00 PM	0	217	0	0	215	0	432
06:15 PM	0	150	0	0	187	0	337
06:30 PM	0	179	0	0	149	0	328
06:45 PM	0	130	1	1	161	3	296
Total	0	676	1	1	712	3	1393
Grand Total	15	3164	14	15	3401	15	6624
Apprch %	0.5	99.5	48.3	51.7	99.6	0.4	
Total %	0.2	47.8	0.2	0.2	51.3	0.2	

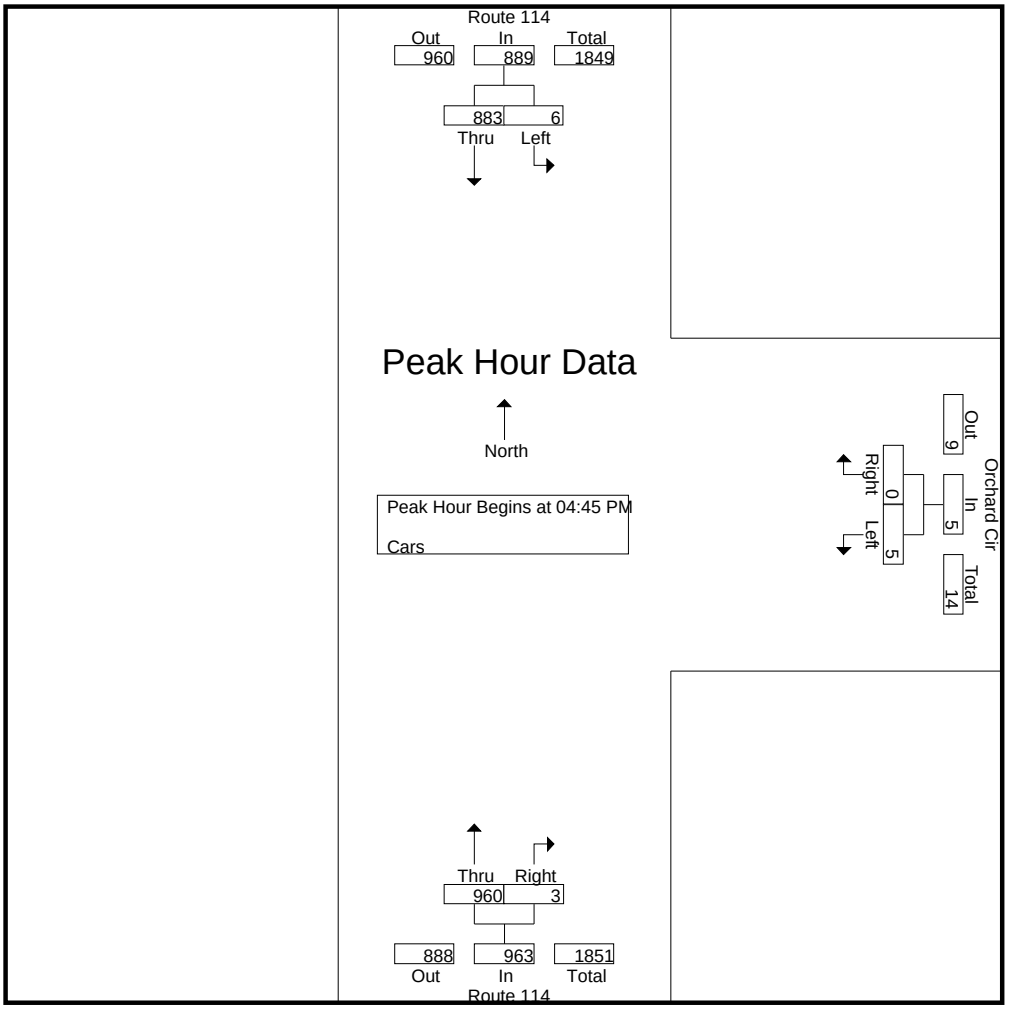
	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	**3**	224	227	**2**	0	**2**	221	0	221	450
05:00 PM	2	206	208	2	0	2	219	1	220	430
05:15 PM	0	**236**	**236**	1	0	1	252	**2**	254	**491**
05:30 PM	1	217	218	0	0	0	**268**	0	**268**	486
Total Volume	6	883	889	5	0	5	960	3	963	1857
% App. Total	0.7	99.3		100	0		99.7	0.3		
PHF	.500	.935	.942	.625	.000	.625	.896	.375	.898	.946

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 5



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

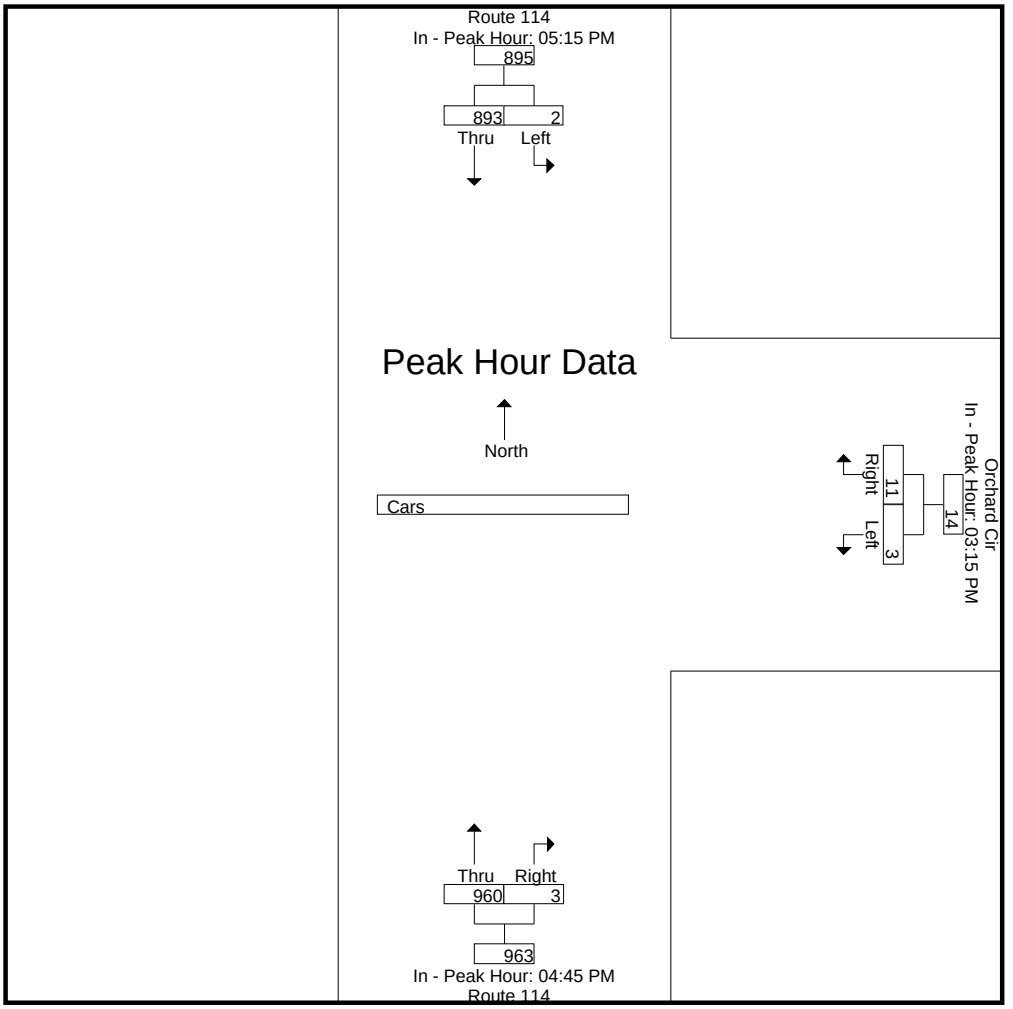
	05:15 PM			03:15 PM			04:45 PM		
+0 mins.	0	**236**	**236**	0	3	3	221	0	221
+15 mins.	**1**	217	218	1	1	2	219	1	220
+30 mins.	1	223	224	**2**	3	**5**	252	**2**	254
+45 mins.	0	217	217	0	**4**	4	**268**	0	**268**
Total Volume	2	893	895	3	11	14	960	3	963
% App. Total	0.2	99.8		21.4	78.6		99.7	0.3	
PHF	.500	.946	.948	.375	.688	.700	.896	.375	.898

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 7

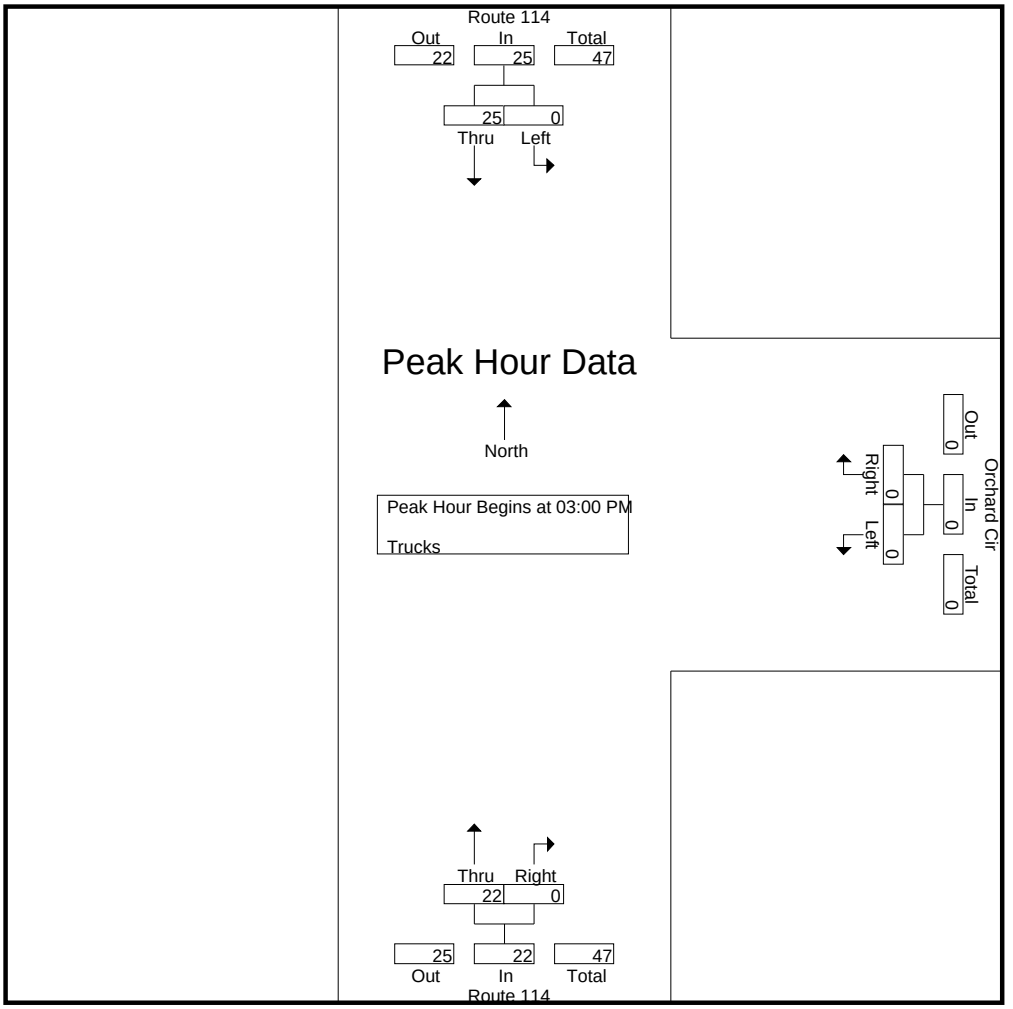
Groups Printed- Trucks

	Route 114 From North		Orchard Cir From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
03:00 PM	0	9	0	0	10	0	19
03:15 PM	0	7	0	0	6	0	13
03:30 PM	0	4	0	0	3	0	7
03:45 PM	0	5	0	0	3	0	8
Total	0	25	0	0	22	0	47
04:00 PM	0	6	0	0	3	0	9
04:15 PM	0	1	0	0	2	0	3
04:30 PM	0	2	0	0	3	0	5
04:45 PM	0	3	0	0	2	0	5
Total	0	12	0	0	10	0	22
05:00 PM	0	4	0	0	1	0	5
05:15 PM	0	2	0	0	1	0	3
05:30 PM	0	1	0	0	0	0	1
05:45 PM	0	1	0	0	0	0	1
Total	0	8	0	0	2	0	10
06:00 PM	0	2	0	0	0	0	2
06:15 PM	0	1	0	0	3	0	4
06:30 PM	0	1	0	0	1	0	2
06:45 PM	0	3	0	0	2	0	5
Total	0	7	0	0	6	0	13
Grand Total	0	52	0	0	40	0	92
Apprch %	0	100	0	0	100	0	
Total %	0	56.5	0	0	43.5	0	

	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	0	**9**	**9**	0	0	0	**10**	0	**10**	**19**
03:15 PM	0	7	7	0	0	0	6	0	6	13
03:30 PM	0	4	4	0	0	0	3	0	3	7
03:45 PM	0	5	5	0	0	0	3	0	3	8
Total Volume	0	25	25	0	0	0	22	0	22	47
% App. Total	0	100		0	0		100	0		
PHF	.000	.694	.694	.000	.000	.000	.550	.000	.550	.618

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 8



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

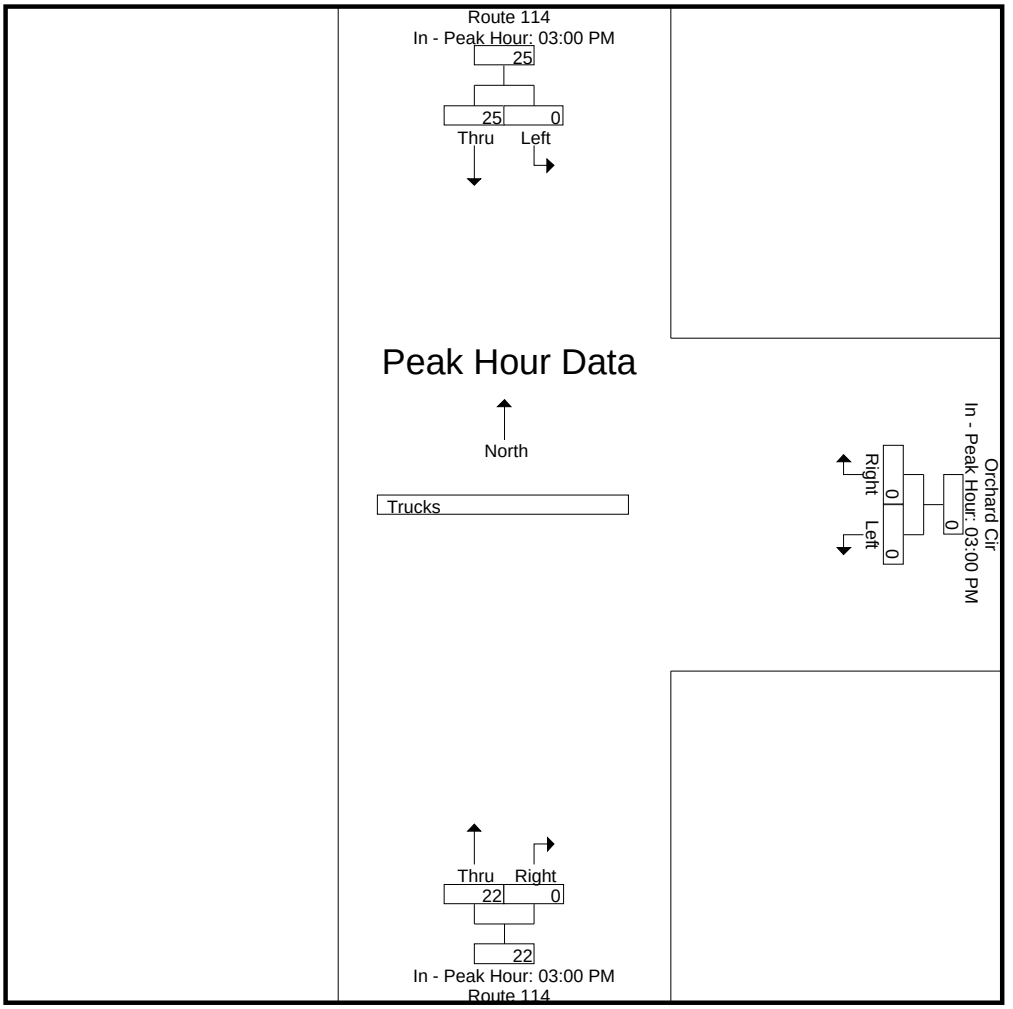
	03:00 PM			03:00 PM			03:00 PM		
+0 mins.	0	**9**	**9**	0	0	0	**10**	0	**10**
+15 mins.	0	7	7	0	0	0	6	0	6
+30 mins.	0	4	4	0	0	0	3	0	3
+45 mins.	0	5	5	0	0	0	3	0	3
Total Volume	0	25	25	0	0	0	22	0	22
% App. Total	0	100		0	0		100	0	
PHF	.000	.694	.694	.000	.000	.000	.550	.000	.550

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022

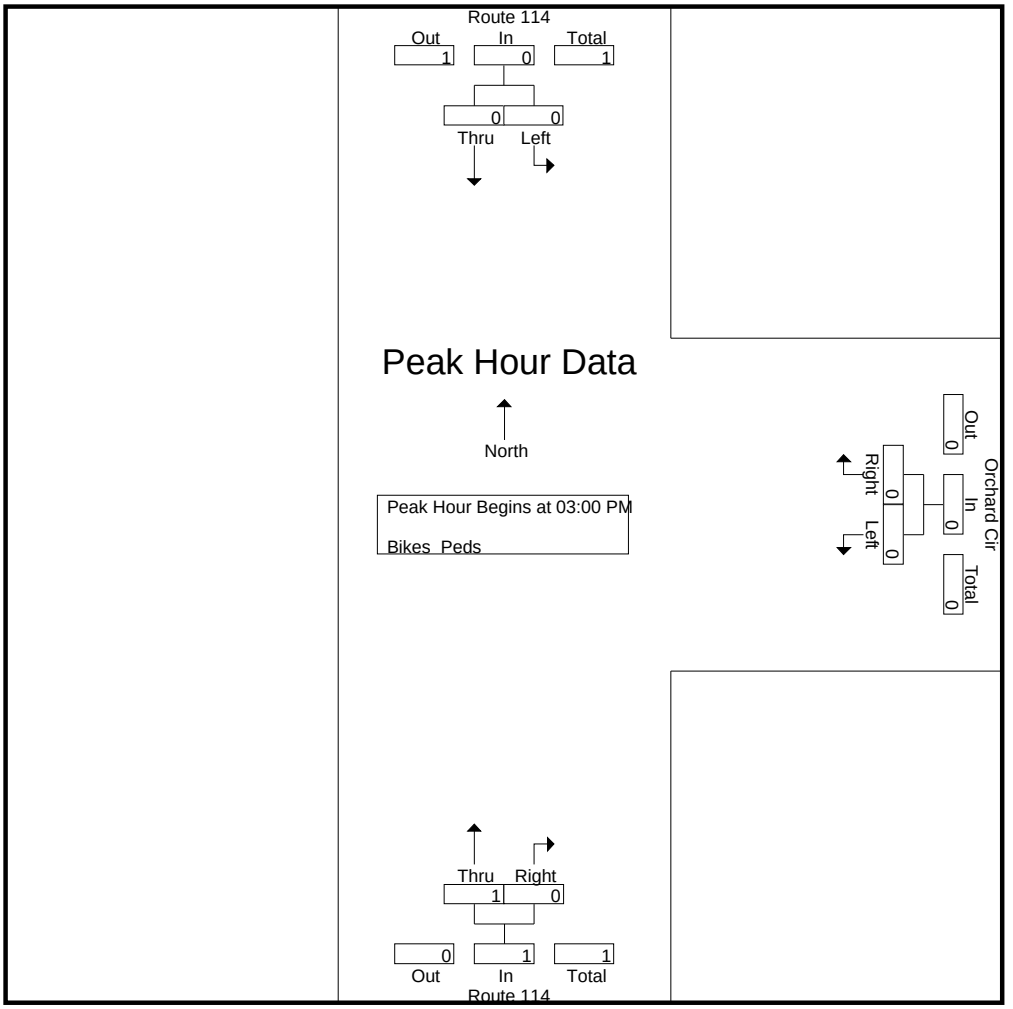
Groups Printed- Bikes Peds

	Route 114 From North			Orchard Cir From East			Route 114 From South					
Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	1	0	0	0	1	1
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	0	1	1
04:00 PM	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
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 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
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	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
Total	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	1	0	0	0	1	0	1
06:45 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
Grand Total	0	0	0	0	0	1	1	0	0	1	1	2
Apprch %	0	0		0	0		100	0				
Total %	0	0		0	0		100	0		50	50	

	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:00 PM										
03:00 PM	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	**1**	0	**1**	**1**
03:30 PM	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	1	1
% App. Total	0	0		0	0		100	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 11



Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

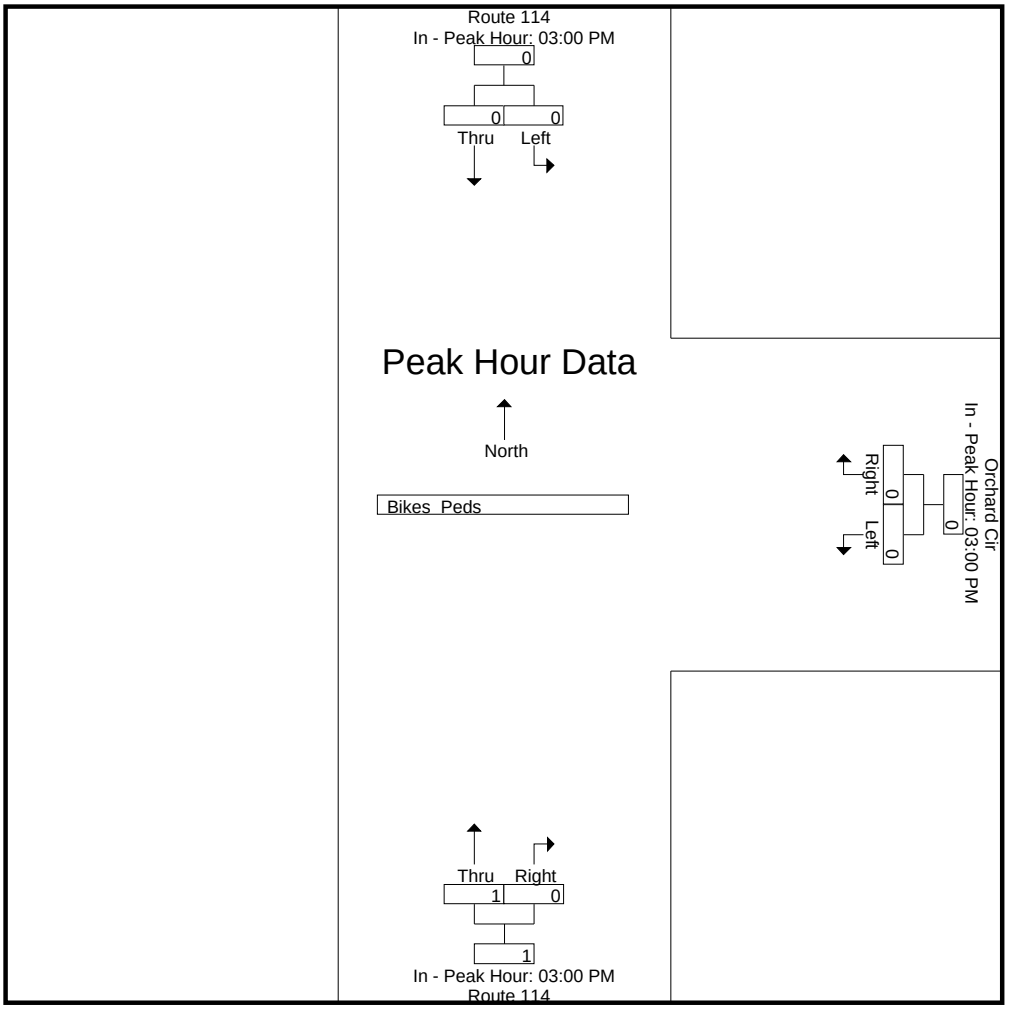
	03:00 PM			03:00 PM			03:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	**1**	0	**1**
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	1
% App. Total	0	0		0	0		100	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Cloudy

File Name : 93010004
Site Code : 93010004
Start Date : 5/19/2022
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022
Page No : 1

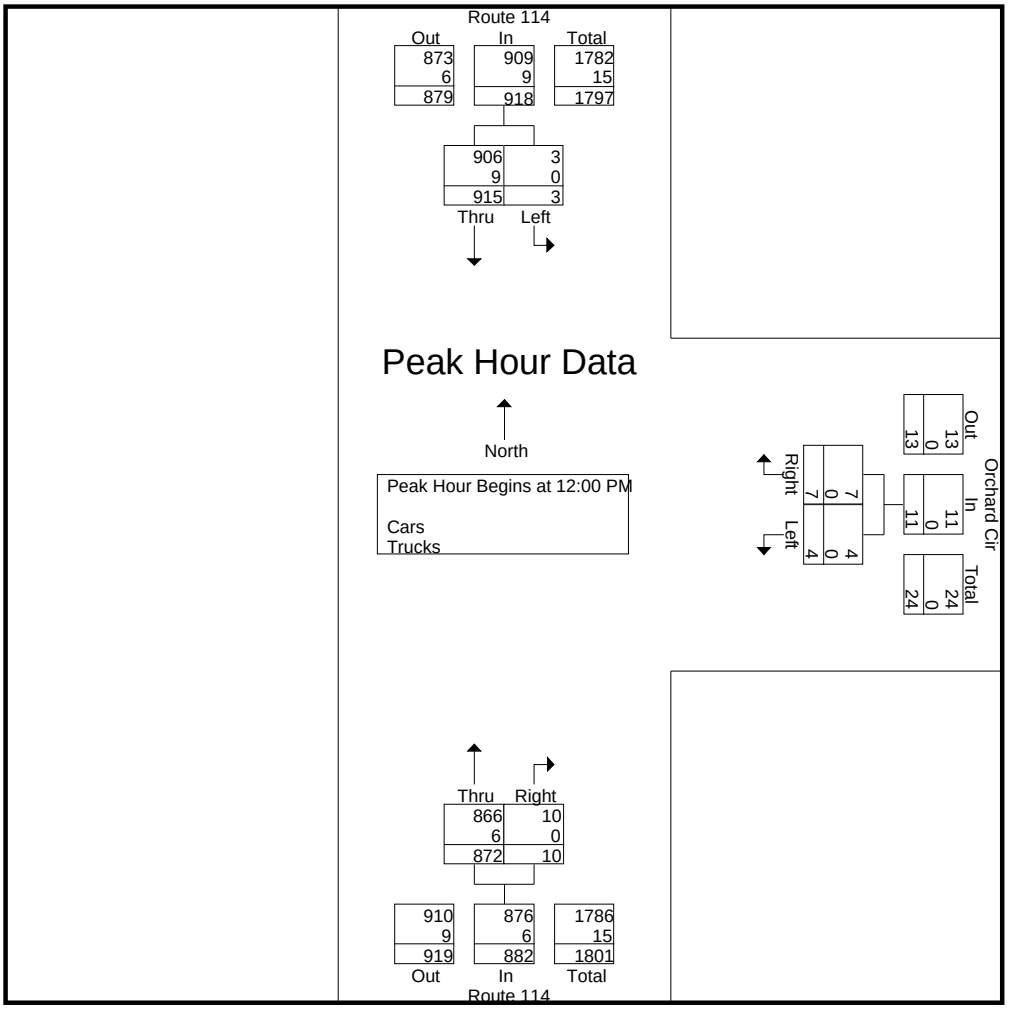
Groups Printed- Cars - Trucks

	Route 114 From North		Orchard Cir From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
11:00 AM	0	198	0	1	198	0	397
11:15 AM	3	231	1	3	197	1	436
11:30 AM	0	244	1	2	197	3	447
11:45 AM	1	220	5	0	181	0	407
Total	4	893	7	6	773	4	1687
12:00 PM	0	256	0	0	196	2	454
12:15 PM	0	233	1	1	219	2	456
12:30 PM	1	222	2	4	231	2	462
12:45 PM	2	204	1	2	226	4	439
Total	3	915	4	7	872	10	1811
01:00 PM	3	225	1	2	200	1	432
01:15 PM	1	232	2	0	196	1	432
01:30 PM	0	184	0	1	211	1	397
01:45 PM	0	230	0	0	208	3	441
Total	4	871	3	3	815	6	1702
Grand Total	11	2679	14	16	2460	20	5200
Apprch %	0.4	99.6	46.7	53.3	99.2	0.8	
Total %	0.2	51.5	0.3	0.3	47.3	0.4	
Cars	11	2659	14	16	2443	20	5163
% Cars	100	99.3	100	100	99.3	100	99.3
Trucks	0	20	0	0	17	0	37
% Trucks	0	0.7	0	0	0.7	0	0.7

	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	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 12:00 PM										
12:00 PM	0	**256**	**256**	0	0	0	196	2	198	454
12:15 PM	0	233	233	1	1	2	219	2	221	456
12:30 PM	1	222	223	**2**	**4**	**6**	**231**	2	**233**	**462**
12:45 PM	**2**	204	206	1	2	3	226	**4**	230	439
Total Volume	3	915	918	4	7	11	872	10	882	1811
% App. Total	0.3	99.7		36.4	63.6		98.9	1.1		
PHF	.375	.894	.896	.500	.438	.458	.944	.625	.946	.980
Cars	3	906	909	4	7	11	866	10	876	1796
% Cars	100	99.0	99.0	100	100	100	99.3	100	99.3	99.2
Trucks	0	9	9	0	0	0	6	0	6	15
% Trucks	0	1.0	1.0	0	0	0	0.7	0	0.7	0.8

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022
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:

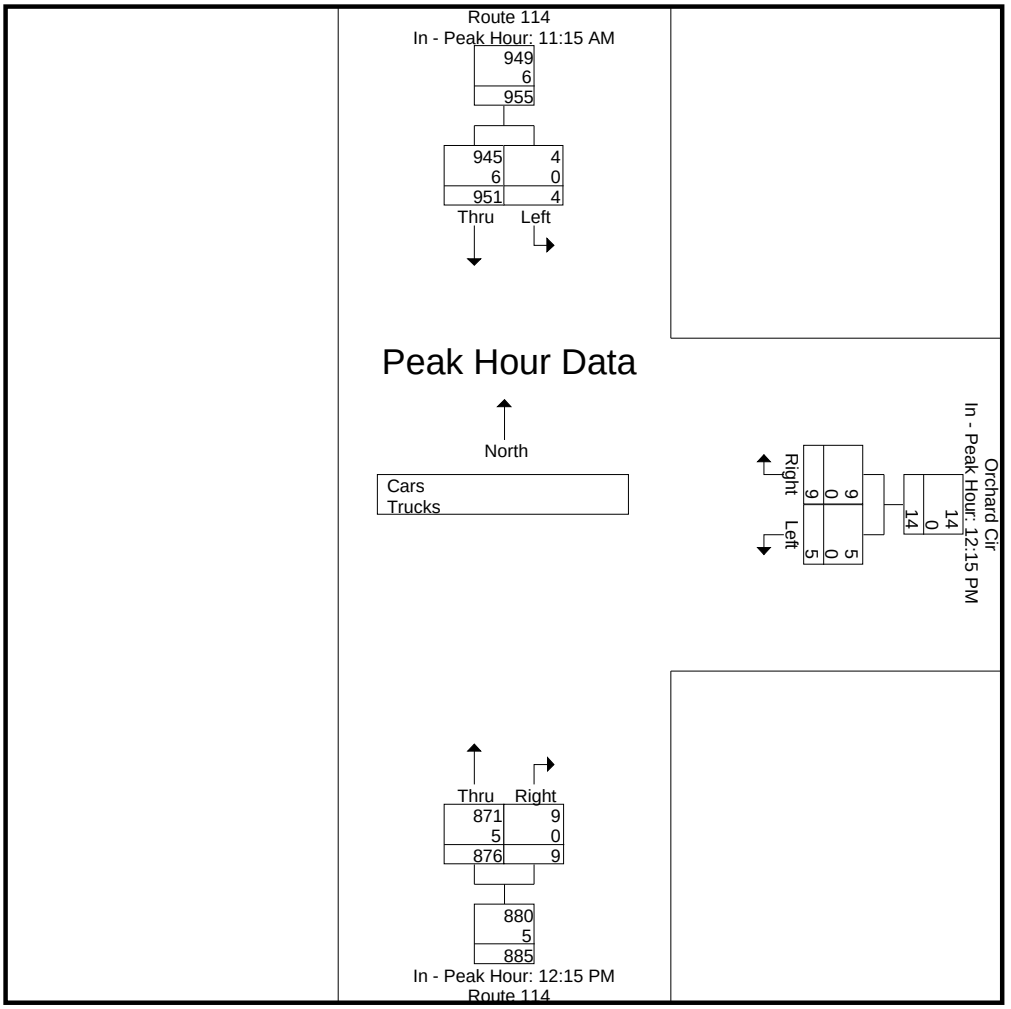
	11:15 AM			12:15 PM			12:15 PM		
+0 mins.	**3**	231	234	1	1	2	219	2	221
+15 mins.	0	244	244	**2**	**4**	**6**	**231**	2	**233**
+30 mins.	1	220	221	1	2	3	226	**4**	230
+45 mins.	0	**256**	**256**	1	2	3	200	1	201
Total Volume	4	951	955	5	9	14	876	9	885
% App. Total	0.4	99.6		35.7	64.3		99	1	
PHF	.333	.929	.933	.625	.563	.583	.948	.563	.950
Cars	4	945	949	5	9	14	871	9	880
% Cars	100	99.4	99.4	100	100	100	99.4	100	99.4
Trucks	0	6	6	0	0	0	5	0	5
% Trucks	0	0.6	0.6	0	0	0	0.6	0	0.6

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022
Page No : 4

Groups Printed- Cars

	Route 114 From North		Orchard Cir From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
11:00 AM	0	196	0	1	197	0	394
11:15 AM	3	230	1	3	195	1	433
11:30 AM	0	243	1	2	195	3	444
11:45 AM	1	218	5	0	180	0	404
Total	4	887	7	6	767	4	1675
12:00 PM	0	254	0	0	194	2	450
12:15 PM	0	230	1	1	218	2	452
12:30 PM	1	221	2	4	230	2	460
12:45 PM	2	201	1	2	224	4	434
Total	3	906	4	7	866	10	1796
01:00 PM	3	223	1	2	199	1	429
01:15 PM	1	231	2	0	195	1	430
01:30 PM	0	183	0	1	208	1	393
01:45 PM	0	229	0	0	208	3	440
Total	4	866	3	3	810	6	1692
Grand Total	11	2659	14	16	2443	20	5163
Apprch %	0.4	99.6	46.7	53.3	99.2	0.8	
Total %	0.2	51.5	0.3	0.3	47.3	0.4	

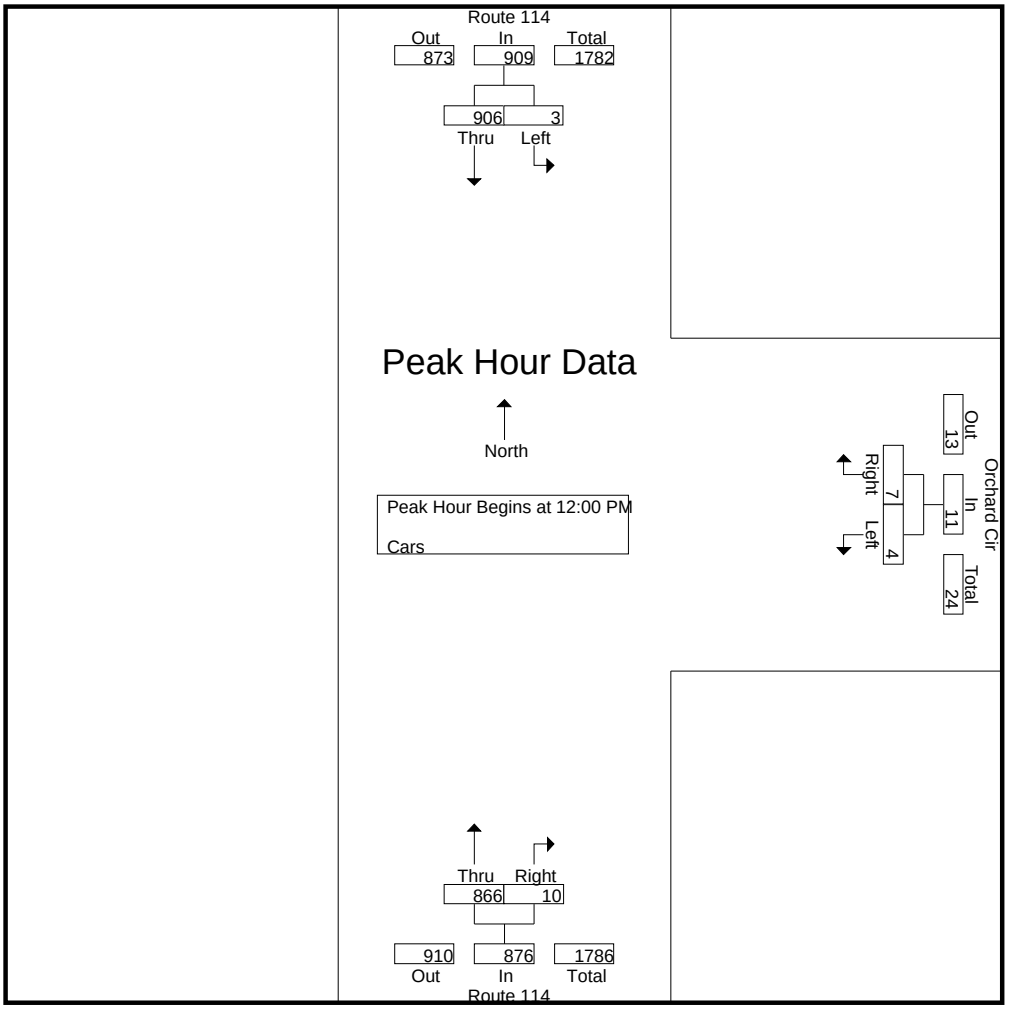
	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:00 PM										
12:00 PM	0	**254**	**254**	0	0	0	194	2	196	450
12:15 PM	0	230	230	1	1	2	218	2	220	452
12:30 PM	1	221	222	**2**	**4**	**6**	**230**	2	**232**	**460**
12:45 PM	**2**	201	203	1	2	3	224	**4**	228	434
Total Volume	3	906	909	4	7	11	866	10	876	1796
% App. Total	0.3	99.7		36.4	63.6		98.9	1.1		
PHF	.375	.892	.895	.500	.438	.458	.941	.625	.944	.976

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022
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:

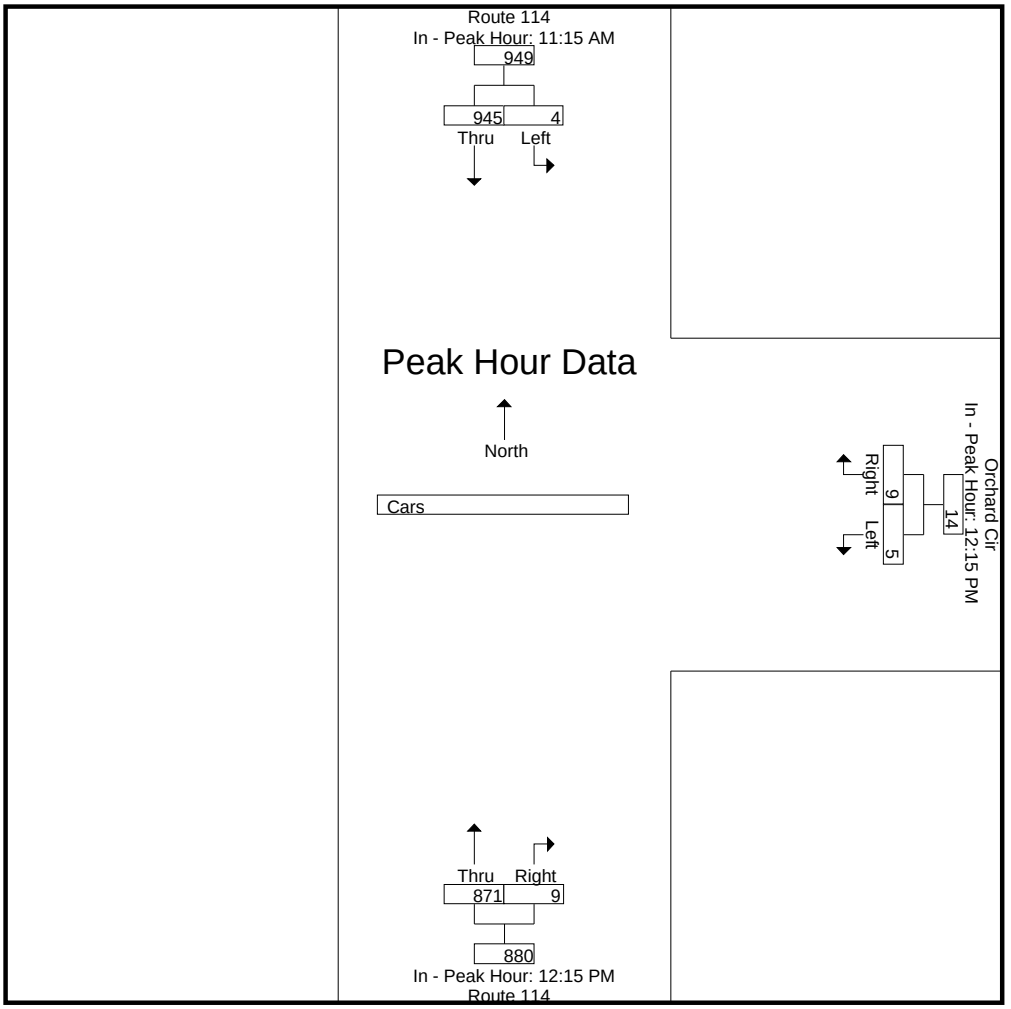
	11:15 AM			12:15 PM			12:15 PM		
+0 mins.	**3**	230	233	1	1	2	218	2	220
+15 mins.	0	243	243	**2**	**4**	**6**	**230**	2	**232**
+30 mins.	1	218	219	1	2	3	224	**4**	228
+45 mins.	0	**254**	**254**	1	2	3	199	1	200
Total Volume	4	945	949	5	9	14	871	9	880
% App. Total	0.4	99.6		35.7	64.3		99	1	
PHF	.333	.930	.934	.625	.563	.583	.947	.563	.948

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022
Page No : 7

Groups Printed- Trucks

	Route 114 From North		Orchard Cir From East		Route 114 From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
11:00 AM	0	2	0	0	1	0	3
11:15 AM	0	1	0	0	2	0	3
11:30 AM	0	1	0	0	2	0	3
11:45 AM	0	2	0	0	1	0	3
Total	0	6	0	0	6	0	12
12:00 PM	0	2	0	0	2	0	4
12:15 PM	0	3	0	0	1	0	4
12:30 PM	0	1	0	0	1	0	2
12:45 PM	0	3	0	0	2	0	5
Total	0	9	0	0	6	0	15
01:00 PM	0	2	0	0	1	0	3
01:15 PM	0	1	0	0	1	0	2
01:30 PM	0	1	0	0	3	0	4
01:45 PM	0	1	0	0	0	0	1
Total	0	5	0	0	5	0	10
Grand Total	0	20	0	0	17	0	37
Apprch %	0	100	0	0	100	0	
Total %	0	54.1	0	0	45.9	0	

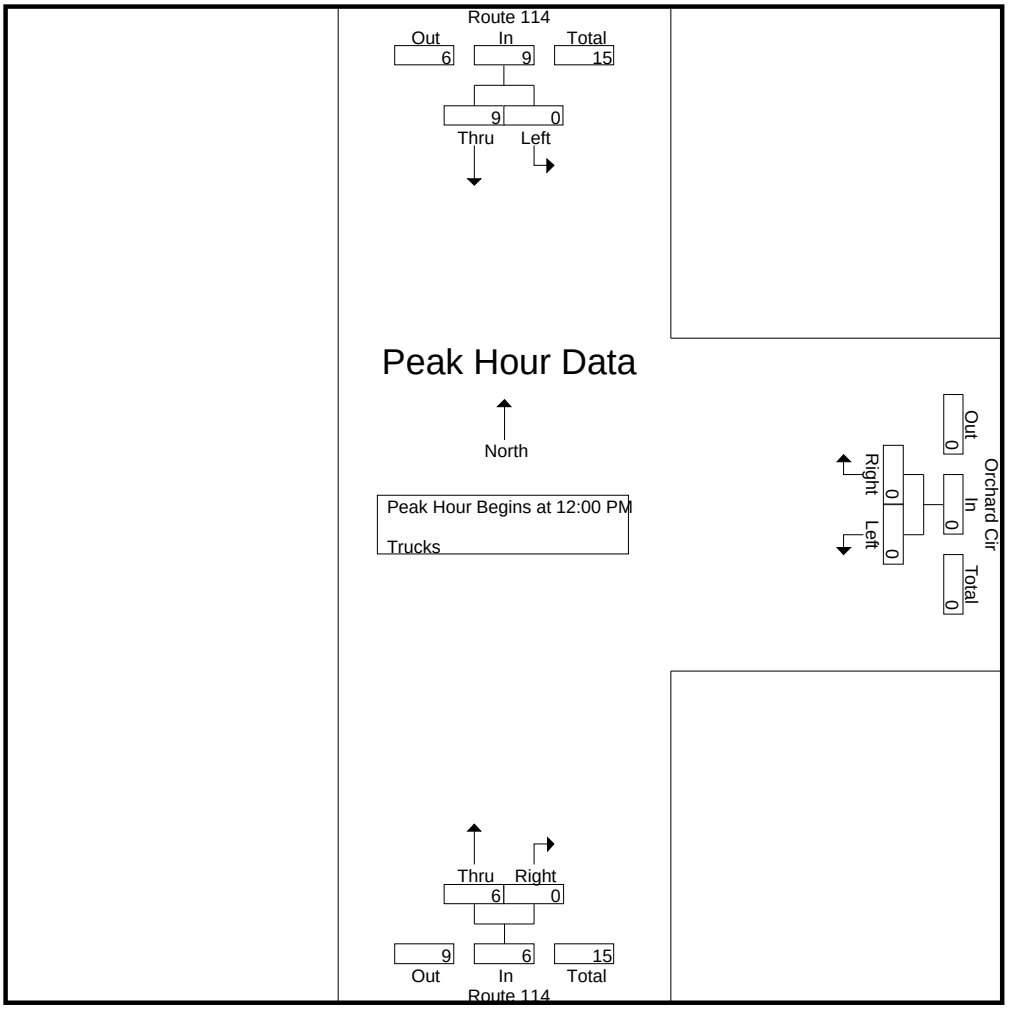
	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:00 PM										
12:00 PM	0	2	2	0	0	0	**2**	0	**2**	4
12:15 PM	0	**3**	**3**	0	0	0	1	0	1	4
12:30 PM	0	1	1	0	0	0	1	0	1	2
12:45 PM	0	3	3	0	0	0	2	0	2	**5**
Total Volume	0	9	9	0	0	0	6	0	6	15
% App. Total	0	100		0	0		100	0		
PHF	.000	.750	.750	.000	.000	.000	.750	.000	.750	.750

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022
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:

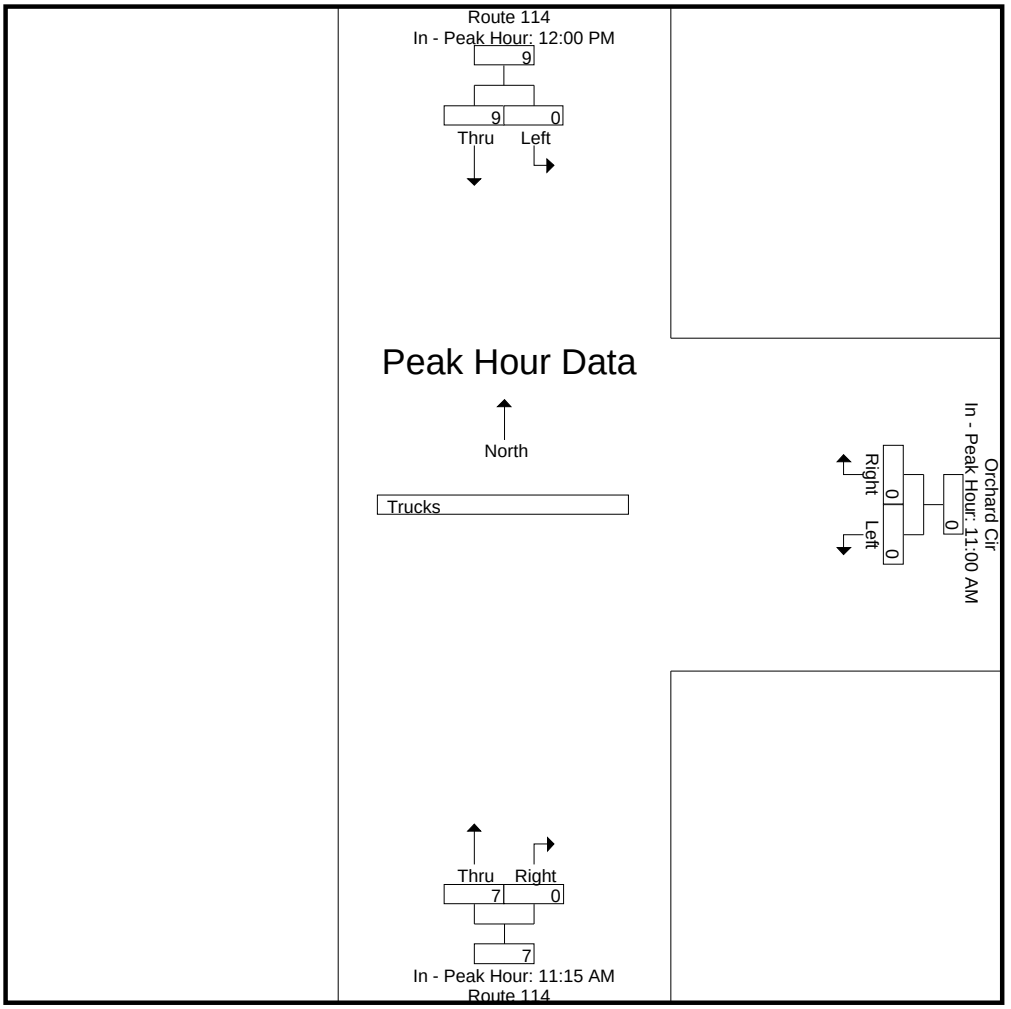
	12:00 PM			11:00 AM			11:15 AM		
+0 mins.	0	2	2	0	0	0	**2**	0	**2**
+15 mins.	0	**3**	**3**	0	0	0	2	0	2
+30 mins.	0	1	1	0	0	0	1	0	1
+45 mins.	0	3	3	0	0	0	2	0	2
Total Volume	0	9	9	0	0	0	7	0	7
% App. Total	0	100		0	0		100	0	
PHF	.000	.750	.750	.000	.000	.000	.875	.000	.875

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022

Groups Printed- Bikes Peds

	Route 114 From North			Orchard Cir From East			Route 114 From South					
Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	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	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	2	0	0	0	0	0	0	0	0	2	2
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	0	0	0	0	0	0	2	2
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	1	0	0	1	2	0	2
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	1	2	0	2
Grand Total	0	2	0	0	0	1	0	0	1	2	2	4
Apprch %	0	100		0	0		0	0				
Total %	0	100		0	0		0	0		50	50	

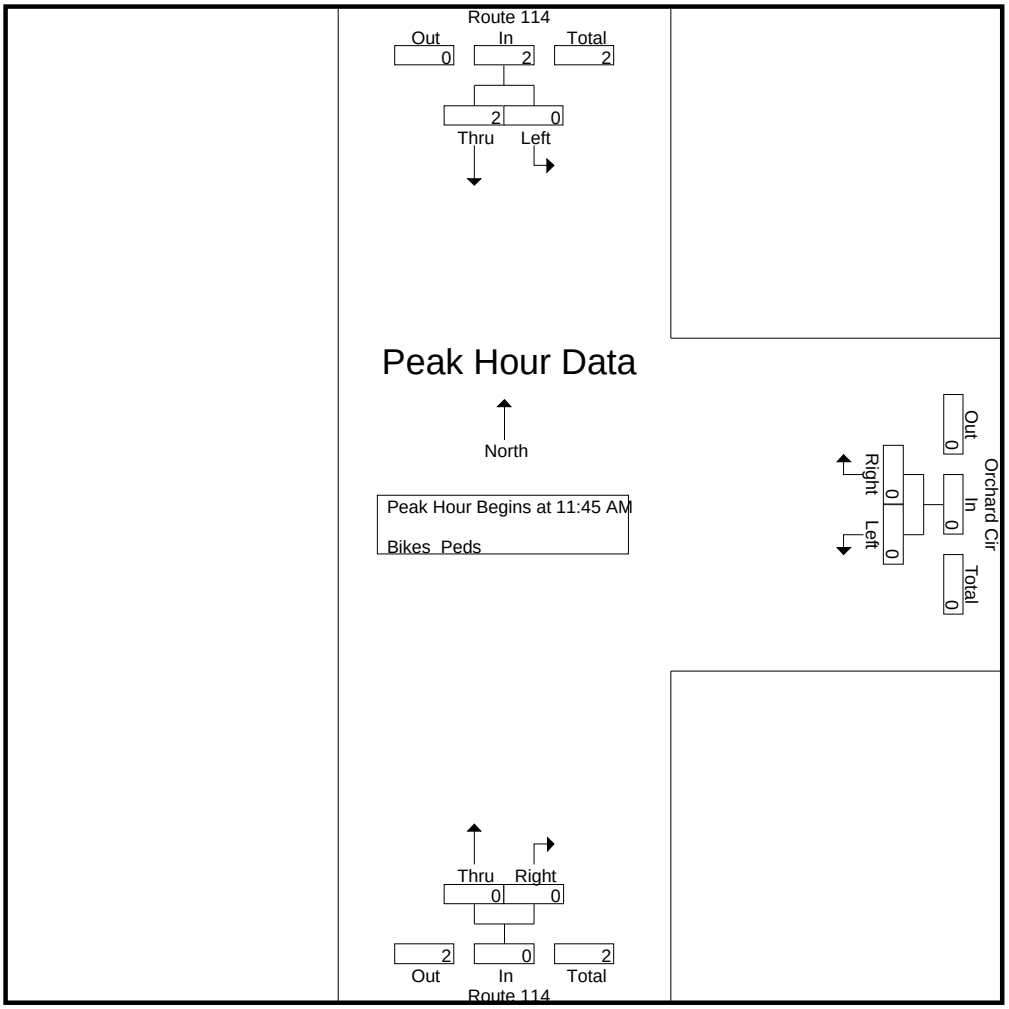
	Route 114 From North			Orchard Cir From East			Route 114 From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 11:45 AM										
11:45 AM	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	**2**	**2**	0	0	0	0	0	0	**2**
Total Volume	0	2	2	0	0	0	0	0	0	2
% App. Total	0	100		0	0		0	0		
PHF	.000	.250	.250	.000	.000	.000	.000	.000	.000	.250

Accurate Counts

978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022
Page No : 11



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

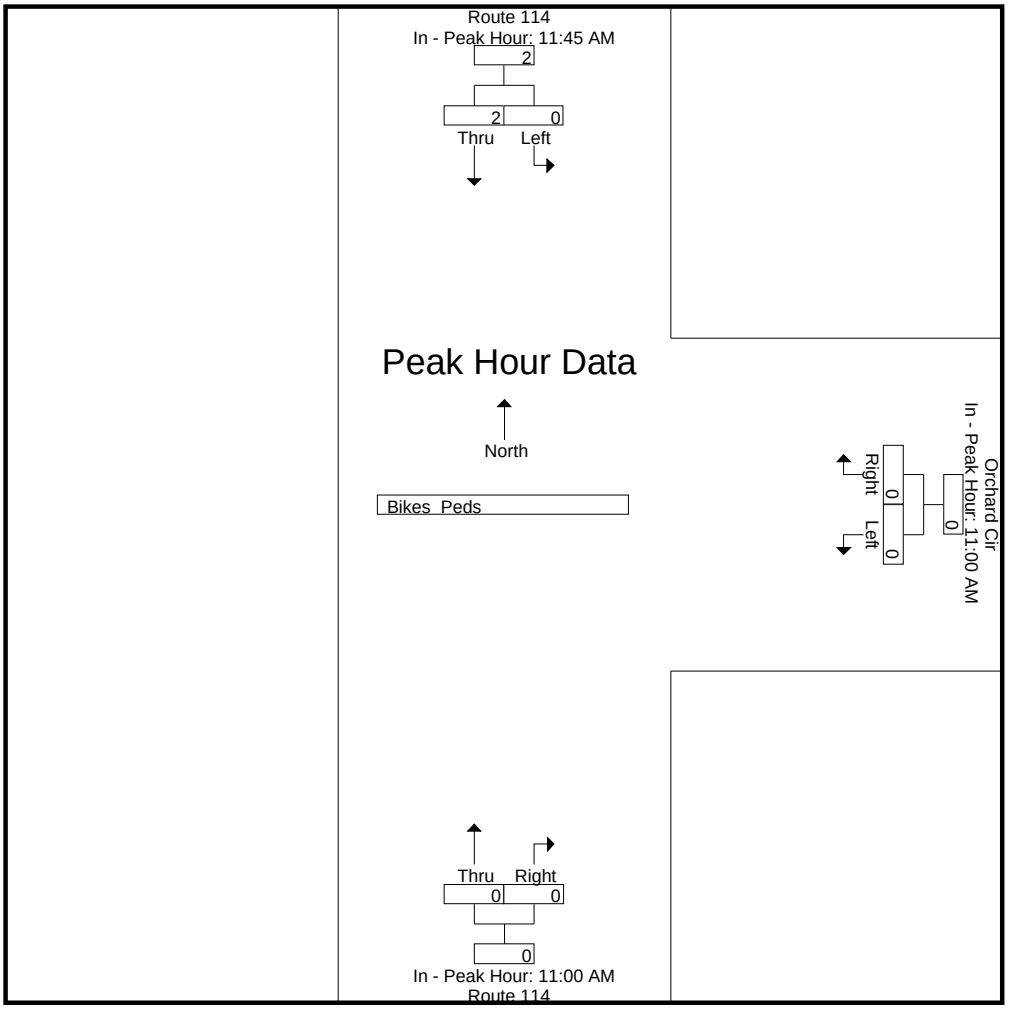
Peak Hour for Each Approach Begins at:

	11:45 AM			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.	0	**2**	**2**	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	.250	.250	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Route 114
E/W Street : Orchard Circle
City/State : Danvers, MA
Weather : Clear

File Name : 930100S4
Site Code : 93010004
Start Date : 5/21/2022
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.

2019 Average Count Data – Sta. 5080

Year ADT: 142,109

May ADT: 150,148

Seasonal Adjustment

$$\frac{142{,}109}{150{,}148} = 0.947$$

COVID-19 ADJUSTMENT DATA

2019 Average Count Data – Sta. 5080

May ADT: 150,148

2022 Average Count Data – Sta. 5080

May ADT: 138,029

COVID Adjustment

$$\frac{150{,}148}{138{,}029} = 1.088$$

PARKING DEMAND DATA

Graph Look Up

Query Filter

DATA SOURCE:
Parking Generation Manual, 5th Ed

SEARCH BY LAND USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE:
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
All Sites

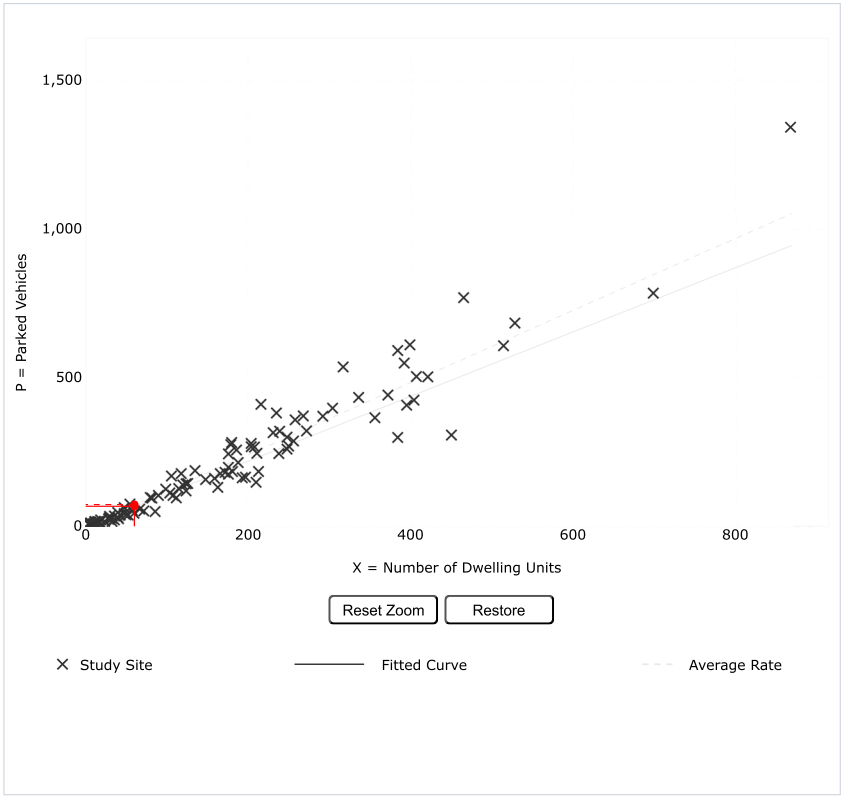
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday (Monday - Friday)

SETTING/LOCATION:
General Urban/Suburban (no nearby rail transi

ENTER IV VALUE TO CALCULATE PARKING DEMAND:
60 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 P values.

DATA STATISTICS

Land Use:
Multifamily Housing (Low-Rise) (220) Click for more details

Independent Variable:
Dwelling Units

Time Period:
Weekday (Monday - Friday)

Setting/Location:
General Urban/Suburban (no nearby rail transit)

Peak Period of Parking Demand:
11:00 p.m. - 6:00 a.m.

Number of Studies:
119

Avg. Num. of Dwelling Units:
156

Average Rate:
1.21

Range of Rates:
0.58 - 2.50

33rd / 85th Percentile:
1.03 / 1.52

95% Confidence Interval:
1.16 - 1.26

Standard Deviation:
0.27

Coefficient of Variation:
22%

Fitted Curve Equation:
Ln(P) = 0.99 Ln(X) + 0.15

R^2:
0.96

Calculated Parking Demand:
Average Rate: 73 (Total)
Fitted Curve: 67 (Total)

© COPYRIGHT 2023 | DEVELOPED IN COLLABORATION WITH TRANSOFT SOLUTIONS INC.

Graph Look Up

Query | Filter

DATA SOURCE:
Parking Generation Manual, 5th Ed

SEARCH BY LAND USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE:
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
All Sites

INDEPENDENT VARIABLE (IV):
Dwelling Units

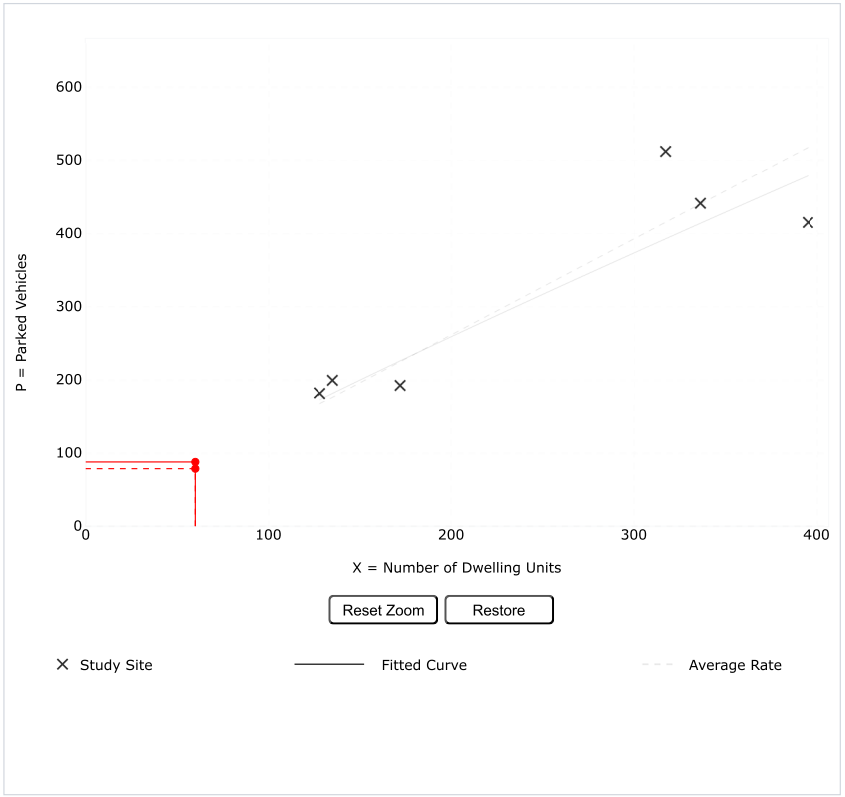
TIME PERIOD:
Saturday

SETTING/LOCATION:
General Urban/Suburban (no nearby rail transi

ENTER IV VALUE TO CALCULATE PARKING DEMAND:
60 Calculate

Data Range: 128.00 - 395.00

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 P values.

DATA STATISTICS

Land Use:
Multifamily Housing (Low-Rise) (220) Click for more details

Independent Variable:
Dwelling Units

Time Period:
Saturday

Setting/Location:
General Urban/Suburban (no nearby rail transit)

Peak Period of Parking Demand:
11:00 p.m. - 7:00 a.m.

Number of Studies:
6

Avg. Num. of Dwelling Units:
247

Average Rate:
1.31

Range of Rates:
1.05 - 1.62

33rd / 85th Percentile:
1.18 / 1.61

95% Confidence Interval:
***

Standard Deviation:
0.23

Coefficient of Variation:
18%

Fitted Curve Equation:
Ln(P) = 0.90 Ln(X) + 0.79

R^2:
0.89

Calculated Parking Demand:
Average Rate: 79 (Total)
Fitted Curve: 88 (Total)

© COPYRIGHT 2023 | DEVELOPED IN COLLABORATION WITH TRANSOFT SOLUTIONS INC.

VEHICLE TRAVEL SPEED DATA

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA
Direction: NB,

5/19/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	4	21	16	4	2	1	0	0	0	0	48
1:00	0	0	0	2	17	20	5	2	1	1	0	0	0	48
2:00	0	0	0	1	8	3	2	0	1	0	0	0	0	15
3:00	0	0	0	0	4	17	1	3	0	0	0	0	0	25
4:00	0	0	0	3	13	20	12	3	1	0	0	0	0	52
5:00	0	0	0	7	59	73	37	5	1	0	0	0	0	182
6:00	2	2	5	22	148	168	54	12	0	2	0	0	0	415
7:00	3	17	48	182	347	163	27	0	0	0	0	0	0	787
8:00	0	3	29	169	341	174	20	4	0	1	0	0	0	741
9:00	0	2	15	118	255	142	28	1	1	0	0	0	0	562
10:00	2	2	7	83	260	145	19	0	0	0	0	0	0	518
11:00	0	0	30	147	326	135	21	0	0	0	0	0	0	659
12:00 PM	1	1	25	166	342	157	7	0	0	0	0	0	0	699
1:00	3	2	57	232	328	140	17	2	2	0	0	0	0	783
2:00	60	18	72	273	280	100	3	0	0	0	0	0	0	806
3:00	336	211	144	95	56	13	1	0	0	0	0	0	0	856
4:00	9	18	72	296	333	150	16	1	1	0	0	0	0	896
5:00	35	13	84	313	427	92	5	0	0	0	0	0	0	969
6:00	3	9	18	92	352	225	19	1	1	0	0	0	0	720
7:00	0	0	4	92	274	197	27	2	1	0	0	0	0	597
8:00	0	0	3	78	207	184	19	1	1	0	0	0	0	493
9:00	0	0	2	34	182	144	12	1	1	0	0	0	0	376
10:00	0	0	2	21	70	73	28	5	0	0	0	1	0	200
11:00	0	0	0	13	38	36	14	1	0	0	0	0	0	102
Total	454	298	617	2443	4688	2587	398	46	13	4	0	1	0	11549

		Percentile	15th	50th	85th	95th
		Speed	27	32	37	40
	Mean Speed (Average)	31.1				
	10 MPH Pace Speed	30-39				
	Number in Pace	7272				
	Percent in Pace	63.0%				
	Number > 35 MPH	3049				
	Percent > 35 MPH	26.4%				

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA
Direction: NB,

5/20/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	4	27	25	13	3	2	0	0	0	0	74
1:00	0	0	0	5	13	8	12	1	0	0	0	0	0	39
2:00	0	0	1	0	4	8	3	0	2	0	2	0	0	20
3:00	0	0	0	7	6	10	1	3	1	0	0	0	0	28
4:00	0	0	1	6	12	15	14	5	0	1	0	0	0	54
5:00	0	0	0	7	36	70	34	17	4	1	0	0	0	169
6:00	0	1	5	25	122	163	62	7	2	1	0	0	0	388
7:00	4	6	17	81	305	202	42	2	0	0	0	0	0	659
8:00	0	5	30	124	296	194	28	0	0	0	0	0	0	677
9:00	1	1	9	70	243	236	31	1	0	0	0	0	0	592
10:00	0	3	7	118	283	202	29	3	0	0	0	0	0	645
11:00	9	3	22	149	309	180	22	3	0	0	0	0	0	697
12:00 PM	0	8	24	157	354	177	29	0	0	0	0	0	0	749
1:00	3	7	37	181	370	150	16	4	0	0	0	0	0	768
2:00	115	49	78	182	304	122	7	0	0	0	0	0	0	857
3:00	397	228	121	16	9	3	1	0	0	0	0	0	0	775
4:00	112	93	147	186	286	130	12	0	1	0	0	0	0	967
5:00	52	27	100	251	336	152	28	1	0	0	0	0	0	947
6:00	0	0	0	125	330	269	34	1	0	0	0	0	0	759
7:00	0	0	10	135	372	180	27	4	0	0	0	0	0	728
8:00	0	0	9	100	345	155	17	0	0	0	0	0	0	626
9:00	0	0	2	51	270	133	22	6	0	0	0	0	0	484
10:00	0	0	0	48	129	129	27	2	1	0	0	0	0	336
11:00	0	0	0	16	69	72	17	2	2	0	0	0	0	178
Total	693	431	620	2044	4830	2985	528	65	15	3	2	0	0	12216

Percentile	15th	50th	85th	95th
Speed	25	33	37	40

Mean Speed (Average)	31.0
10 MPH Pace Speed	30-39
Number in Pace	7796
Percent in Pace	63.8%
Number > 35 MPH	3598
Percent > 35 MPH	29.5%

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA
Direction: NB,

5/21/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	1	12	32	31	13	1	1	0	0	0	0	91
1:00	0	0	0	2	12	15	5	0	1	0	0	0	0	35
2:00	0	0	0	1	12	9	4	4	0	0	0	0	0	30
3:00	0	0	0	0	4	7	5	3	0	0	0	0	0	19
4:00	0	0	0	0	10	6	3	0	0	0	0	0	0	19
5:00	0	0	0	1	9	19	25	6	4	0	0	0	0	64
6:00	0	3	3	7	45	83	24	3	0	0	0	0	0	168
7:00	0	0	1	15	82	112	32	3	0	0	0	0	0	245
8:00	0	1	19	39	223	154	24	0	0	0	0	0	0	460
9:00	0	1	0	41	251	217	39	5	0	0	0	0	0	554
10:00	1	1	15	78	274	236	30	3	0	0	0	0	0	638
11:00	16	10	18	125	391	183	33	0	0	0	0	0	0	776
12:00 PM	0	2	40	278	405	136	10	0	0	0	0	0	0	871
1:00	0	3	27	134	464	175	11	0	0	0	0	0	0	814
2:00	0	0	34	216	400	202	18	0	0	0	0	0	0	870
3:00	2	9	64	347	346	127	18	0	0	0	0	0	0	913
4:00	10	25	81	242	399	161	14	0	0	0	0	0	0	932
5:00	0	0	5	137	396	262	35	0	0	0	0	0	0	835
6:00	1	5	16	79	373	240	46	2	0	0	0	0	0	762
7:00	0	0	8	110	321	177	23	3	0	0	0	0	0	642
8:00	0	0	6	165	319	152	11	0	0	0	0	0	0	653
9:00	0	0	1	72	224	119	14	1	0	0	0	0	0	431
10:00	0	0	0	30	128	98	22	4	1	0	0	0	0	283
11:00	0	0	0	16	63	58	27	3	1	0	0	0	0	168
Total	30	60	339	2147	5183	2979	486	41	8	0	0	0	0	11273
			Percentile	15th	50th	85th	95th							
			Speed	29	33	37	40							
			Mean Speed (Average)	33.0										
			10 MPH Pace Speed	30-39										
			Number in Pace	8145										
			Percent in Pace	72.3%										
			Number > 35 MPH	3514										
			Percent > 35 MPH	31.2%										
Grand Total	1177	789	1576	6634	14701	8551	1412	152	36	7	2	1	0	35038
Stats			Percentile	15th	50th	85th	95th							
			Speed	27	33	37	40							
			Mean Speed (Average)	31.7										
			10 MPH Pace Speed	30-39										
			Number in Pace	23214										
			Percent in Pace	66.3%										
			Number > 35 MPH	10161										
			Percent > 35 MPH	29.0%										

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA
Direction: SB,

5/19/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	0	2	11	11	2	2	0	0	0	0	28
1:00	0	0	0	0	2	4	7	3	0	0	0	0	0	16
2:00	0	0	0	0	0	5	7	7	0	0	0	0	0	19
3:00	0	0	0	0	3	13	7	6	3	0	0	0	0	32
4:00	0	0	0	3	1	22	38	32	7	2	1	0	0	106
5:00	0	0	0	0	24	48	123	74	19	4	0	2	3	297
6:00	2	5	5	19	98	193	192	50	15	0	1	1	3	584
7:00	14	16	47	149	243	219	100	15	5	1	0	0	0	809
8:00	16	13	64	157	273	291	87	9	5	0	0	1	3	919
9:00	3	9	24	87	270	246	80	10	1	0	0	1	0	731
10:00	0	7	13	89	228	288	95	13	2	0	0	2	2	739
11:00	1	3	18	105	236	247	117	10	1	0	1	0	2	741
12:00 PM	0	4	32	101	227	293	71	13	1	0	0	0	0	742
1:00	0	7	35	125	256	246	66	8	0	0	0	0	1	744
2:00	5	18	21	123	260	228	90	13	1	1	0	0	2	762
3:00	19	25	58	143	208	239	79	8	2	0	0	0	0	781
4:00	3	12	55	121	291	247	116	18	4	0	0	0	0	867
5:00	8	44	76	171	237	272	87	11	2	1	0	0	0	909
6:00	0	0	2	27	116	310	198	29	4	0	1	0	0	687
7:00	0	0	0	18	98	197	114	22	2	1	0	0	0	452
8:00	0	0	0	3	44	131	78	18	4	0	0	0	0	278
9:00	0	0	0	1	21	72	73	15	5	0	0	0	0	187
10:00	0	0	0	0	17	42	44	7	2	1	0	0	1	114
11:00	0	0	0	1	10	19	26	15	3	3	1	1	0	79
Total	71	163	450	1443	3165	3883	1906	408	90	14	5	8	17	11623

Percentile	15th	50th	85th	95th
Speed	29	35	42	45

Mean Speed (Average)	35.4
10 MPH Pace Speed	30-39
Number in Pace	6999
Percent in Pace	60.2%
Number > 35 MPH	6331
Percent > 35 MPH	54.5%

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA
Direction: SB,

5/20/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	0	5	13	25	5	4	0	0	0	0	52
1:00	0	0	0	0	1	7	4	5	2	0	0	0	0	19
2:00	0	0	0	2	1	7	8	6	1	0	0	0	0	25
3:00	0	0	0	1	1	6	19	7	3	1	0	0	0	38
4:00	0	0	0	0	4	17	28	40	9	2	0	0	0	100
5:00	0	0	0	1	3	50	142	68	30	9	1	0	0	304
6:00	7	4	3	26	64	181	196	57	7	0	0	0	1	546
7:00	1	3	4	108	252	315	126	22	3	0	0	0	2	836
8:00	8	24	73	146	289	230	92	14	2	1	1	0	1	881
9:00	9	5	24	96	223	289	113	16	4	1	2	0	1	783
10:00	5	9	17	82	246	288	102	11	2	0	0	0	1	763
11:00	8	3	28	77	215	295	112	15	2	0	0	0	1	756
12:00 PM	7	20	22	97	261	281	112	13	1	1	1	0	1	817
1:00	1	3	23	106	261	297	104	27	2	0	0	0	0	824
2:00	6	19	47	162	232	250	80	21	4	3	1	2	2	829
3:00	123	101	79	148	166	100	35	3	1	0	1	0	0	757
4:00	8	34	43	96	239	243	141	12	1	1	0	0	0	818
5:00	24	12	71	139	236	297	128	17	4	0	0	0	0	928
6:00	4	12	45	139	222	317	116	20	1	2	0	0	0	878
7:00	0	0	1	25	182	272	123	16	4	0	1	0	0	624
8:00	0	0	0	15	86	210	87	21	2	0	0	0	0	421
9:00	0	0	0	3	47	153	76	19	5	2	0	0	0	305
10:00	0	0	0	2	15	85	69	13	7	0	1	0	0	192
11:00	0	0	0	2	7	53	33	14	2	0	1	0	0	112
Total	211	249	480	1473	3258	4256	2071	462	103	23	10	2	10	12608

Percentile	15th	50th	85th	95th
Speed	29	36	42	45

Mean Speed (Average)	35.1
10 MPH Pace Speed	30-39
Number in Pace	7458
Percent in Pace	59.2%
Number > 35 MPH	6937
Percent > 35 MPH	55.0%

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA
Direction: SB,

5/21/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	0	10	22	14	9	2	1	0	0	0	58
1:00	0	0	0	0	7	7	12	7	0	0	0	0	0	33
2:00	0	0	0	0	1	9	7	5	3	0	0	0	0	25
3:00	0	0	0	0	1	7	6	4	0	0	0	0	0	18
4:00	0	0	0	0	3	16	21	11	3	1	0	0	0	55
5:00	0	0	0	0	1	23	58	35	3	1	2	0	0	123
6:00	0	0	0	1	18	57	96	42	9	3	0	0	0	226
7:00	0	0	1	7	66	176	120	33	8	3	0	0	0	414
8:00	0	6	8	28	116	268	153	33	3	1	0	0	2	618
9:00	7	3	15	69	213	299	119	25	5	0	0	0	0	755
10:00	0	8	8	87	264	321	111	27	1	1	0	0	0	828
11:00	12	11	39	107	276	320	119	14	2	2	1	0	0	903
12:00 PM	17	19	30	135	330	254	115	25	1	0	0	0	0	926
1:00	28	30	54	71	216	297	155	21	0	0	1	0	0	873
2:00	9	9	17	135	238	293	138	23	2	0	1	0	0	865
3:00	9	5	27	114	224	296	98	27	3	0	0	2	1	806
4:00	2	6	18	67	261	258	118	37	4	0	1	0	1	773
5:00	1	4	26	34	192	304	163	30	4	0	0	0	0	758
6:00	2	15	18	28	158	276	148	23	3	1	0	0	0	672
7:00	0	1	3	18	159	235	94	18	6	1	0	0	0	535
8:00	0	0	2	22	91	192	79	15	5	1	2	0	0	409
9:00	0	0	0	6	36	144	72	28	4	0	1	0	0	291
10:00	0	0	0	1	30	81	82	10	0	0	1	0	0	205
11:00	0	0	0	0	9	63	58	23	1	0	0	0	2	156
Total	87	117	266	930	2920	4218	2156	525	72	16	10	2	6	11325
			Percentile	15th	50th	85th	95th							
			Speed	30	36	42	45							
			Mean Speed (Average)	36.3										
			10 MPH Pace Speed	30-39										
			Number in Pace	7072										
			Percent in Pace	62.4%										
			Number > 35 MPH	7005										
			Percent > 35 MPH	61.9%										
Grand Total	369	529	1196	3846	9343	12357	6133	1395	265	53	25	12	33	35556
Stats			Percentile	15th	50th	85th	95th							
			Speed	30	36	42	45							
			Mean Speed (Average)	35.6										
			10 MPH Pace Speed	30-39										
			Number in Pace	21530										
			Percent in Pace	60.6%										
			Number > 35 MPH	20273										
			Percent > 35 MPH	57.0%										

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA
Direction: Combined

5/19/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	4	23	27	15	4	3	0	0	0	0	76
1:00	0	0	0	2	19	24	12	5	1	1	0	0	0	64
2:00	0	0	0	1	8	8	9	7	1	0	0	0	0	34
3:00	0	0	0	0	7	30	8	9	3	0	0	0	0	57
4:00	0	0	0	6	14	42	50	35	8	2	1	0	0	158
5:00	0	0	0	7	83	121	160	79	20	4	0	2	3	479
6:00	4	7	10	41	246	361	246	62	15	2	1	1	3	999
7:00	17	33	95	331	590	382	127	15	5	1	0	0	0	1596
8:00	16	16	93	326	614	465	107	13	5	1	0	1	3	1660
9:00	3	11	39	205	525	388	108	11	2	0	0	1	0	1293
10:00	2	9	20	172	488	433	114	13	2	0	0	2	2	1257
11:00	1	3	48	252	562	382	138	10	1	0	1	0	2	1400
12:00 PM	1	5	57	267	569	450	78	13	1	0	0	0	0	1441
1:00	3	9	92	357	584	386	83	10	2	0	0	0	1	1527
2:00	65	36	93	396	540	328	93	13	1	1	0	0	2	1568
3:00	355	236	202	238	264	252	80	8	2	0	0	0	0	1637
4:00	12	30	127	417	624	397	132	19	5	0	0	0	0	1763
5:00	43	57	160	484	664	364	92	11	2	1	0	0	0	1878
6:00	3	9	20	119	468	535	217	30	5	0	1	0	0	1407
7:00	0	0	4	110	372	394	141	24	3	1	0	0	0	1049
8:00	0	0	3	81	251	315	97	19	5	0	0	0	0	771
9:00	0	0	2	35	203	216	85	16	6	0	0	0	0	563
10:00	0	0	2	21	87	115	72	12	2	1	0	1	1	314
11:00	0	0	0	14	48	55	40	16	3	3	1	1	0	181
Total	525	461	1067	3886	7853	6470	2304	454	103	18	5	9	17	23172

Percentile	15th	50th	85th	95th
Speed	28	34	39	43

Mean Speed (Average)	33.3
10 MPH Pace Speed	30-39
Number in Pace	14271
Percent in Pace	61.6%
Number > 35 MPH	9379
Percent > 35 MPH	40.5%

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA
Direction: Combined

5/20/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	4	32	38	38	8	6	0	0	0	0	126
1:00	0	0	0	5	14	15	16	6	2	0	0	0	0	58
2:00	0	0	1	2	5	15	11	6	3	0	2	0	0	45
3:00	0	0	0	8	7	16	20	10	4	1	0	0	0	66
4:00	0	0	1	6	16	32	42	45	9	3	0	0	0	154
5:00	0	0	0	8	39	120	176	85	34	10	1	0	0	473
6:00	7	5	8	51	186	344	258	64	9	1	0	0	1	934
7:00	5	9	21	189	557	517	168	24	3	0	0	0	2	1495
8:00	8	29	103	270	585	424	120	14	2	1	1	0	1	1558
9:00	10	6	33	166	466	525	144	17	4	1	2	0	1	1375
10:00	5	12	24	200	529	490	131	14	2	0	0	0	1	1408
11:00	17	6	50	226	524	475	134	18	2	0	0	0	1	1453
12:00 PM	7	28	46	254	615	458	141	13	1	1	1	0	1	1566
1:00	4	10	60	287	631	447	120	31	2	0	0	0	0	1592
2:00	121	68	125	344	536	372	87	21	4	3	1	2	2	1686
3:00	520	329	200	164	175	103	36	3	1	0	1	0	0	1532
4:00	120	127	190	282	525	373	153	12	2	1	0	0	0	1785
5:00	76	39	171	390	572	449	156	18	4	0	0	0	0	1875
6:00	4	12	45	264	552	586	150	21	1	2	0	0	0	1637
7:00	0	0	11	160	554	452	150	20	4	0	1	0	0	1352
8:00	0	0	9	115	431	365	104	21	2	0	0	0	0	1047
9:00	0	0	2	54	317	286	98	25	5	2	0	0	0	789
10:00	0	0	0	50	144	214	96	15	8	0	1	0	0	528
11:00	0	0	0	18	76	125	50	16	4	0	1	0	0	290
Total	904	680	1100	3517	8088	7241	2599	527	118	26	12	2	10	24824

Percentile	15th	50th	85th	95th
Speed	27	34	40	43

Mean Speed (Average)	33.1
10 MPH Pace Speed	30-39
Number in Pace	15254
Percent in Pace	61.4%
Number > 35 MPH	10536
Percent > 35 MPH	42.4%

Location : South Main Street (Route 114) 93010001
Location : South of Boston Street (Route 62)
City/State: Middleton, MA
Direction: Combined

5/21/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	1	12	42	53	27	10	3	1	0	0	0	149
1:00	0	0	0	2	19	22	17	7	1	0	0	0	0	68
2:00	0	0	0	1	13	18	11	9	3	0	0	0	0	55
3:00	0	0	0	0	5	14	11	7	0	0	0	0	0	37
4:00	0	0	0	0	13	22	24	11	3	1	0	0	0	74
5:00	0	0	0	1	10	42	83	41	7	1	2	0	0	187
6:00	0	3	3	8	63	140	120	45	9	3	0	0	0	394
7:00	0	0	2	22	148	288	152	36	8	3	0	0	0	659
8:00	0	7	27	67	339	422	177	33	3	1	0	0	2	1078
9:00	7	4	15	110	464	516	158	30	5	0	0	0	0	1309
10:00	1	9	23	165	538	557	141	30	1	1	0	0	0	1466
11:00	28	21	57	232	667	503	152	14	2	2	1	0	0	1679
12:00 PM	17	21	70	413	735	390	125	25	1	0	0	0	0	1797
1:00	28	33	81	205	680	472	166	21	0	0	1	0	0	1687
2:00	9	9	51	351	638	495	156	23	2	0	1	0	0	1735
3:00	11	14	91	461	570	423	116	27	3	0	0	2	1	1719
4:00	12	31	99	309	660	419	132	37	4	0	1	0	1	1705
5:00	1	4	31	171	588	566	198	30	4	0	0	0	0	1593
6:00	3	20	34	107	531	516	194	25	3	1	0	0	0	1434
7:00	0	1	11	128	480	412	117	21	6	1	0	0	0	1177
8:00	0	0	8	187	410	344	90	15	5	1	2	0	0	1062
9:00	0	0	1	78	260	263	86	29	4	0	1	0	0	722
10:00	0	0	0	31	158	179	104	14	1	0	1	0	0	488
11:00	0	0	0	16	72	121	85	26	2	0	0	0	2	324
Total	117	177	605	3077	8103	7197	2642	566	80	16	10	2	6	22598
			Percentile	15th	50th	85th	95th							
			Speed	30	35	40	43							
			Mean Speed (Average)	34.6										
			10 MPH Pace Speed	30-39										
			Number in Pace	15218										
			Percent in Pace	67.3%										
			Number > 35 MPH	10518										
			Percent > 35 MPH	46.5%										
Grand Total	1546	1318	2772	10480	24044	20908	7545	1547	301	60	27	13	33	70594
Stats			Percentile	15th	50th	85th	95th							
			Speed	29	34	40	43							
			Mean Speed (Average)	33.7										
			10 MPH Pace Speed	30-39										
			Number in Pace	44743										
			Percent in Pace	63.4%										
			Number > 35 MPH	30434										
			Percent > 35 MPH	43.1%										

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA
Direction: WB,

5/19/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	1	5	4	1	0	0	0	0	0	0	0	11
1:00	0	0	0	2	0	0	0	0	0	0	0	0	0	2
2:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1
3:00	0	1	0	1	0	2	0	0	0	0	0	0	0	4
4:00	0	1	4	9	2	2	1	0	0	0	0	0	0	19
5:00	0	0	11	23	20	4	3	0	0	1	0	0	0	62
6:00	0	0	16	59	60	27	0	0	0	0	0	0	0	162
7:00	3	5	32	97	110	28	3	0	0	0	0	0	0	278
8:00	1	2	43	93	97	39	8	2	0	1	1	0	0	287
9:00	1	2	24	67	76	15	1	1	1	0	0	0	0	188
10:00	1	0	28	65	62	14	1	0	2	0	0	0	0	173
11:00	1	7	33	79	54	16	3	0	0	0	0	0	0	193
12:00 PM	1	2	17	80	64	15	3	0	1	0	1	0	1	185
1:00	3	5	20	67	74	20	4	0	0	0	0	0	0	193
2:00	2	5	33	85	83	23	3	1	0	0	0	0	0	235
3:00	3	9	53	95	61	12	3	0	0	0	0	0	0	236
4:00	0	2	34	110	80	27	2	0	1	0	0	1	0	257
5:00	0	4	42	119	75	22	1	0	0	0	0	0	0	263
6:00	1	1	34	81	55	18	4	0	0	0	0	0	0	194
7:00	0	4	10	60	46	18	4	0	0	0	0	0	0	142
8:00	0	0	18	50	34	9	1	0	0	0	0	0	0	112
9:00	0	2	12	32	24	9	1	1	0	0	0	0	0	81
10:00	0	1	5	14	16	4	1	0	0	0	0	0	0	41
11:00	0	0	7	14	10	1	0	0	0	0	0	0	0	32
Total	17	53	477	1308	1107	326	47	5	5	2	2	1	1	3351

Percentile	15th	50th	85th	95th
Speed	25	30	34	37

Mean Speed (Average)	29.6
10 MPH Pace Speed	25-34
Number in Pace	2402
Percent in Pace	71.7%
Number > 30 MPH	1496
Percent > 30 MPH	44.6%

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA
Direction: WB,

5/20/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	2	4	7	0	0	0	0	0	0	0	0	13
1:00	0	2	0	3	1	0	0	0	0	0	0	0	0	6
2:00	0	1	1	0	2	0	0	0	0	0	0	0	0	4
3:00	0	0	2	1	1	0	0	0	0	0	0	0	0	4
4:00	0	4	5	6	2	2	1	0	0	0	0	0	0	20
5:00	0	0	3	29	16	4	2	0	0	0	0	0	0	54
6:00	6	1	14	63	37	17	2	0	0	0	0	0	0	140
7:00	1	0	20	72	69	25	6	0	0	0	0	0	0	193
8:00	0	2	32	69	82	22	1	0	1	0	1	0	0	210
9:00	0	0	11	74	63	17	1	1	0	0	0	0	0	167
10:00	0	1	26	75	77	23	4	0	0	0	0	0	0	206
11:00	1	2	25	65	76	24	5	1	0	0	0	0	0	199
12:00 PM	1	0	13	73	85	24	3	0	0	1	0	0	0	200
1:00	0	5	15	98	78	27	4	0	1	0	0	0	0	228
2:00	1	1	31	86	71	20	2	1	0	0	0	0	0	213
3:00	3	27	64	93	67	11	7	0	0	0	0	0	0	272
4:00	2	7	29	121	86	16	4	2	0	0	0	0	0	267
5:00	0	3	21	90	129	39	8	3	1	1	0	0	0	295
6:00	0	0	30	77	104	24	2	1	1	0	0	0	0	239
7:00	1	1	13	60	87	25	8	0	0	0	0	0	0	195
8:00	0	0	25	80	67	12	2	0	0	0	0	0	0	186
9:00	1	1	8	59	51	8	4	0	0	0	0	0	0	132
10:00	0	2	9	51	36	10	2	0	0	0	0	0	0	110
11:00	0	0	3	16	16	5	0	0	0	0	0	0	0	40
Total	17	60	402	1365	1310	355	68	9	4	2	1	0	0	3593

Percentile	15th	50th	85th	95th
Speed	25	30	35	38

Mean Speed (Average)	29.9
10 MPH Pace Speed	25-34
Number in Pace	2657
Percent in Pace	73.9%
Number > 30 MPH	1749
Percent > 30 MPH	48.7%

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA
Direction: WB,

5/21/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	1	9	9	3	1	0	0	0	0	0	0	23
1:00	0	1	0	2	5	2	0	0	0	0	0	0	0	10
2:00	0	0	1	0	1	0	0	0	0	0	0	0	0	2
3:00	0	0	0	0	1	2	0	0	0	0	0	0	0	3
4:00	0	1	2	1	1	0	1	1	0	0	0	0	0	7
5:00	0	0	3	12	9	4	0	0	0	0	0	0	0	28
6:00	0	2	7	15	17	2	1	0	0	0	0	0	0	44
7:00	0	3	6	22	21	12	0	0	0	0	0	0	0	64
8:00	0	1	28	54	38	11	1	0	0	0	0	0	0	133
9:00	1	4	21	62	55	21	2	0	0	0	0	0	0	166
10:00	1	2	16	107	67	21	1	1	0	0	0	0	0	216
11:00	1	4	16	66	97	17	2	1	1	0	0	0	0	205
12:00 PM	4	9	40	97	77	30	5	0	0	0	0	0	0	262
1:00	1	11	25	90	82	28	5	0	0	0	0	0	0	242
2:00	0	5	31	124	97	23	6	1	0	0	0	0	0	287
3:00	3	2	33	146	82	22	5	1	0	0	0	0	0	294
4:00	0	7	37	130	106	26	2	0	0	0	0	0	0	308
5:00	1	0	26	97	91	31	3	2	0	0	0	0	0	251
6:00	0	4	27	79	87	26	4	1	0	0	0	0	0	228
7:00	1	1	18	73	67	24	2	0	0	0	0	0	0	186
8:00	0	0	16	65	65	19	1	0	0	0	0	0	0	166
9:00	1	2	20	45	34	9	2	0	0	0	0	0	0	113
10:00	1	1	15	28	24	8	4	0	0	0	0	0	0	81
11:00	0	0	10	15	24	8	2	0	0	0	0	0	0	59
Total	15	60	399	1339	1157	349	50	8	1	0	0	0	0	3378
			Percentile	15th	50th	85th	95th							
			Speed	25	30	34	37							
			Mean Speed (Average)	29.7										
			10 MPH Pace Speed	25-34										
			Number in Pace	2481										
			Percent in Pace	73.4%										
			Number > 30 MPH	1565										
			Percent > 30 MPH	46.3%										
Grand Total	49	173	1278	4012	3574	1030	165	22	10	4	3	1	1	10322
Stats			Percentile	15th	50th	85th	95th							
			Speed	25	30	34	38							
			Mean Speed (Average)	29.7										
			10 MPH Pace Speed	25-34										
			Number in Pace	7540										
			Percent in Pace	73.0%										
			Number > 30 MPH	4810										
			Percent > 30 MPH	46.6%										

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA
Direction: EB,

5/19/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	1	8	10	3	0	0	0	0	0	0	0	22
1:00	0	0	0	2	3	0	1	0	0	0	0	0	0	6
2:00	0	0	0	2	5	0	0	0	0	0	0	0	0	7
3:00	0	0	0	0	4	0	0	0	0	0	0	0	0	4
4:00	0	0	2	6	9	7	0	1	0	0	0	0	0	25
5:00	0	1	3	17	23	15	1	1	0	0	0	0	0	61
6:00	1	4	21	36	64	20	1	0	0	0	0	0	0	147
7:00	31	38	50	95	76	13	0	0	3	0	0	0	0	306
8:00	12	19	40	100	92	18	0	0	1	0	0	0	0	282
9:00	8	9	33	86	92	15	2	2	0	0	0	0	0	247
10:00	2	4	37	106	77	20	0	0	0	0	0	0	0	246
11:00	1	9	36	124	109	18	1	0	0	0	0	0	0	298
12:00 PM	2	2	28	120	103	23	3	1	0	0	0	0	0	282
1:00	2	1	29	157	101	11	0	0	0	0	0	0	0	301
2:00	19	32	83	119	81	7	2	0	0	0	0	0	0	343
3:00	176	37	55	53	35	6	2	0	0	0	0	0	0	364
4:00	84	54	97	128	66	4	2	0	0	0	0	0	0	435
5:00	73	41	84	146	62	9	0	0	0	0	0	0	0	415
6:00	0	7	46	140	94	10	1	0	0	0	0	0	0	298
7:00	0	3	10	79	88	17	0	0	0	0	0	0	0	197
8:00	0	0	12	59	59	10	2	0	0	0	0	0	0	142
9:00	0	1	5	43	39	6	1	0	0	0	0	0	0	95
10:00	0	0	1	30	34	7	2	0	0	0	0	0	0	74
11:00	0	0	4	23	13	4	1	0	0	0	0	0	0	45
Total	411	262	677	1679	1339	243	22	5	4	0	0	0	0	4642

Percentile	15th	50th	85th	95th
Speed	20	29	32	35

Mean Speed (Average)	26.6
10 MPH Pace Speed	25-34
Number in Pace	3005
Percent in Pace	64.7%
Number > 30 MPH	1613
Percent > 30 MPH	34.7%

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA
Direction: EB,

5/20/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	1	8	13	1	0	0	0	0	0	0	0	23
1:00	0	0	0	1	1	2	0	0	0	0	0	0	0	4
2:00	0	0	0	1	2	0	0	0	0	0	0	0	0	3
3:00	0	0	0	5	2	1	0	0	0	0	0	0	0	8
4:00	1	0	3	5	6	2	2	0	0	0	0	0	0	19
5:00	0	0	4	11	24	12	0	0	0	0	0	0	0	51
6:00	1	8	13	47	54	15	0	0	0	0	0	0	0	138
7:00	12	13	44	105	93	22	0	0	0	0	0	0	0	289
8:00	18	21	55	116	86	9	0	0	0	1	0	0	0	306
9:00	6	10	47	121	94	16	1	0	0	0	0	0	0	295
10:00	1	3	35	105	89	25	4	0	0	0	0	0	0	262
11:00	1	5	24	109	127	30	4	1	0	1	0	0	0	302
12:00 PM	1	5	33	110	130	28	0	1	0	0	0	0	0	308
1:00	5	10	51	133	120	21	3	0	0	0	0	0	0	343
2:00	82	21	59	130	94	9	1	0	0	1	0	0	0	397
3:00	203	47	32	63	46	13	0	1	0	0	0	0	0	405
4:00	97	51	65	126	65	7	0	0	0	0	0	0	0	411
5:00	61	44	62	142	94	7	0	0	0	0	0	0	0	410
6:00	14	23	61	145	99	13	2	0	0	0	0	0	0	357
7:00	0	6	26	111	103	35	4	0	0	0	0	0	0	285
8:00	0	1	12	61	79	12	0	0	0	0	0	0	0	165
9:00	1	0	8	66	64	12	0	0	0	0	0	0	0	151
10:00	0	1	11	43	49	11	3	0	0	0	0	0	0	118
11:00	0	1	3	23	25	1	3	0	0	0	0	0	0	56
Total	504	270	649	1787	1559	304	27	3	0	3	0	0	0	5106

Percentile	15th	50th	85th	95th
Speed	20	29	33	35

Mean Speed (Average)	26.6
10 MPH Pace Speed	25-34
Number in Pace	3328
Percent in Pace	65.2%
Number > 30 MPH	1896
Percent > 30 MPH	37.1%

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA
Direction: EB,

5/21/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	1	2	17	15	2	0	0	0	0	0	0	0	37
1:00	0	1	0	7	9	3	0	0	0	0	0	0	0	20
2:00	0	0	1	1	4	0	0	0	0	0	0	0	0	6
3:00	0	0	0	2	4	1	0	0	0	0	0	0	0	7
4:00	0	0	2	1	8	0	1	0	0	0	0	0	0	12
5:00	0	0	2	13	10	2	1	1	0	0	0	0	0	29
6:00	0	3	4	20	37	11	3	1	0	0	0	0	0	79
7:00	1	3	10	53	51	16	1	0	0	0	0	0	0	135
8:00	2	6	10	71	93	20	2	0	0	0	0	0	0	204
9:00	1	16	40	97	137	23	2	0	0	0	0	0	0	316
10:00	1	7	24	141	125	32	4	0	0	0	0	0	0	334
11:00	3	13	41	133	122	24	4	0	0	0	0	0	0	340
12:00 PM	3	11	33	120	124	22	1	0	0	0	0	0	0	314
1:00	1	15	53	147	131	18	1	0	0	0	0	0	0	366
2:00	3	15	49	151	118	14	0	0	0	0	0	0	0	350
3:00	20	20	48	144	109	20	1	0	0	0	0	0	0	362
4:00	19	26	66	137	108	13	0	0	0	0	0	0	0	369
5:00	5	6	30	129	127	20	0	0	0	0	0	0	0	317
6:00	0	3	18	104	134	18	1	0	0	0	0	0	0	278
7:00	1	3	21	83	106	15	3	0	0	0	0	0	0	232
8:00	1	0	11	60	71	16	2	0	0	0	0	0	0	161
9:00	1	1	14	61	56	14	3	0	0	0	0	0	0	150
10:00	0	0	2	34	43	18	2	0	0	0	0	0	0	99
11:00	0	1	4	18	35	9	2	0	0	0	0	0	0	69
Total	62	151	485	1744	1777	331	34	2	0	0	0	0	0	4586
			Percentile	15th	50th	85th	95th							
			Speed	25	30	34	36							
		Mean Speed (Average)		29.2										
		10 MPH Pace Speed		25-34										
		Number in Pace		3495										
		Percent in Pace		76.2%										
		Number > 30 MPH		2144										
		Percent > 30 MPH		46.8%										
Grand Total	977	683	1811	5210	4675	878	83	10	4	3	0	0	0	14334
Stats			Percentile	15th	50th	85th	95th							
			Speed	22	29	33	35							
		Mean Speed (Average)		27.4										
		10 MPH Pace Speed		25-34										
		Number in Pace		9828										
		Percent in Pace		68.6%										
		Number > 30 MPH		5653										
		Percent > 30 MPH		39.4%										

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA
Direction: Combined

5/19/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	2	13	14	4	0	0	0	0	0	0	0	33
1:00	0	0	0	4	3	0	1	0	0	0	0	0	0	8
2:00	0	0	0	3	5	0	0	0	0	0	0	0	0	8
3:00	0	1	0	1	4	2	0	0	0	0	0	0	0	8
4:00	0	1	6	15	11	9	1	1	0	0	0	0	0	44
5:00	0	1	14	40	43	19	4	1	0	1	0	0	0	123
6:00	1	4	37	95	124	47	1	0	0	0	0	0	0	309
7:00	34	43	82	192	186	41	3	0	3	0	0	0	0	584
8:00	13	21	83	193	189	57	8	2	1	1	1	0	0	569
9:00	9	11	57	153	168	30	3	3	1	0	0	0	0	435
10:00	3	4	65	171	139	34	1	0	2	0	0	0	0	419
11:00	2	16	69	203	163	34	4	0	0	0	0	0	0	491
12:00 PM	3	4	45	200	167	38	6	1	1	0	1	0	1	467
1:00	5	6	49	224	175	31	4	0	0	0	0	0	0	494
2:00	21	37	116	204	164	30	5	1	0	0	0	0	0	578
3:00	179	46	108	148	96	18	5	0	0	0	0	0	0	600
4:00	84	56	131	238	146	31	4	0	1	0	0	1	0	692
5:00	73	45	126	265	137	31	1	0	0	0	0	0	0	678
6:00	1	8	80	221	149	28	5	0	0	0	0	0	0	492
7:00	0	7	20	139	134	35	4	0	0	0	0	0	0	339
8:00	0	0	30	109	93	19	3	0	0	0	0	0	0	254
9:00	0	3	17	75	63	15	2	1	0	0	0	0	0	176
10:00	0	1	6	44	50	11	3	0	0	0	0	0	0	115
11:00	0	0	11	37	23	5	1	0	0	0	0	0	0	77
Total	428	315	1154	2987	2446	569	69	10	9	2	2	1	1	7993

Percentile	15th	50th	85th	95th
Speed	23	29	34	36

Mean Speed (Average)	27.8
10 MPH Pace Speed	25-34
Number in Pace	5407
Percent in Pace	67.6%
Number > 30 MPH	3109
Percent > 30 MPH	38.9%

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA
Direction: Combined

5/20/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	3	12	20	1	0	0	0	0	0	0	0	36
1:00	0	2	0	4	2	2	0	0	0	0	0	0	0	10
2:00	0	1	1	1	4	0	0	0	0	0	0	0	0	7
3:00	0	0	2	6	3	1	0	0	0	0	0	0	0	12
4:00	1	4	8	11	8	4	3	0	0	0	0	0	0	39
5:00	0	0	7	40	40	16	2	0	0	0	0	0	0	105
6:00	7	9	27	110	91	32	2	0	0	0	0	0	0	278
7:00	13	13	64	177	162	47	6	0	0	0	0	0	0	482
8:00	18	23	87	185	168	31	1	0	1	1	1	0	0	516
9:00	6	10	58	195	157	33	2	1	0	0	0	0	0	462
10:00	1	4	61	180	166	48	8	0	0	0	0	0	0	468
11:00	2	7	49	174	203	54	9	2	0	1	0	0	0	501
12:00 PM	2	5	46	183	215	52	3	1	0	1	0	0	0	508
1:00	5	15	66	231	198	48	7	0	1	0	0	0	0	571
2:00	83	22	90	216	165	29	3	1	0	1	0	0	0	610
3:00	206	74	96	156	113	24	7	1	0	0	0	0	0	677
4:00	99	58	94	247	151	23	4	2	0	0	0	0	0	678
5:00	61	47	83	232	223	46	8	3	1	1	0	0	0	705
6:00	14	23	91	222	203	37	4	1	1	0	0	0	0	596
7:00	1	7	39	171	190	60	12	0	0	0	0	0	0	480
8:00	0	1	37	141	146	24	2	0	0	0	0	0	0	351
9:00	2	1	16	125	115	20	4	0	0	0	0	0	0	283
10:00	0	3	20	94	85	21	5	0	0	0	0	0	0	228
11:00	0	1	6	39	41	6	3	0	0	0	0	0	0	96
Total	521	330	1051	3152	2869	659	95	12	4	5	1	0	0	8699

Percentile	15th	50th	85th	95th
Speed	23	29	34	37

Mean Speed (Average)	28.0
10 MPH Pace Speed	25-34
Number in Pace	5985
Percent in Pace	68.8%
Number > 30 MPH	3645
Percent > 30 MPH	41.9%

Location : Boston Street (Route 62) 93010002
Location : West of South Main St (Route 114)
City/State: Middleton, MA
Direction: Combined

5/21/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	1	3	26	24	5	1	0	0	0	0	0	0	60
1:00	0	2	0	9	14	5	0	0	0	0	0	0	0	30
2:00	0	0	2	1	5	0	0	0	0	0	0	0	0	8
3:00	0	0	0	2	5	3	0	0	0	0	0	0	0	10
4:00	0	1	4	2	9	0	2	1	0	0	0	0	0	19
5:00	0	0	5	25	19	6	1	1	0	0	0	0	0	57
6:00	0	5	11	35	54	13	4	1	0	0	0	0	0	123
7:00	1	6	16	75	72	28	1	0	0	0	0	0	0	199
8:00	2	7	38	125	131	31	3	0	0	0	0	0	0	337
9:00	2	20	61	159	192	44	4	0	0	0	0	0	0	482
10:00	2	9	40	248	192	53	5	1	0	0	0	0	0	550
11:00	4	17	57	199	219	41	6	1	1	0	0	0	0	545
12:00 PM	7	20	73	217	201	52	6	0	0	0	0	0	0	576
1:00	2	26	78	237	213	46	6	0	0	0	0	0	0	608
2:00	3	20	80	275	215	37	6	1	0	0	0	0	0	637
3:00	23	22	81	290	191	42	6	1	0	0	0	0	0	656
4:00	19	33	103	267	214	39	2	0	0	0	0	0	0	677
5:00	6	6	56	226	218	51	3	2	0	0	0	0	0	568
6:00	0	7	45	183	221	44	5	1	0	0	0	0	0	506
7:00	2	4	39	156	173	39	5	0	0	0	0	0	0	418
8:00	1	0	27	125	136	35	3	0	0	0	0	0	0	327
9:00	2	3	34	106	90	23	5	0	0	0	0	0	0	263
10:00	1	1	17	62	67	26	6	0	0	0	0	0	0	180
11:00	0	1	14	33	59	17	4	0	0	0	0	0	0	128
Total	77	211	884	3083	2934	680	84	10	1	0	0	0	0	7964
			Percentile	15th	50th	85th	95th							
			Speed	25	30	34	37							
		Mean Speed (Average)		29.4										
		10 MPH Pace Speed		25-34										
		Number in Pace		5976										
		Percent in Pace		75.0%										
		Number > 30 MPH		3709										
		Percent > 30 MPH		46.6%										
Grand Total	1026	856	3089	9222	8249	1908	248	32	14	7	3	1	1	24656
Stats			Percentile	15th	50th	85th	95th							
			Speed	24	29	34	37							
		Mean Speed (Average)		28.4										
		10 MPH Pace Speed		25-34										
		Number in Pace		17368										
		Percent in Pace		70.4%										
		Number > 30 MPH		10464										
		Percent > 30 MPH		42.4%										

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA
Direction: SB,

5/19/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	0	6	6	10	4	0	0	0	0	0	26
1:00	0	0	0	0	1	6	4	0	0	0	0	0	0	11
2:00	0	0	0	0	0	4	5	1	0	0	0	0	0	10
3:00	0	0	0	0	2	9	5	5	2	0	0	0	0	23
4:00	0	0	0	0	4	17	35	14	2	1	0	0	0	73
5:00	0	0	0	12	29	128	118	25	5	1	0	0	0	318
6:00	10	34	98	80	158	195	61	17	1	0	0	0	0	654
7:00	101	178	205	137	68	24	2	1	0	0	0	0	0	716
8:00	111	133	146	91	79	52	11	0	0	0	0	0	0	623
9:00	1	0	9	74	169	197	45	6	0	1	0	0	0	502
10:00	1	5	16	56	177	169	35	4	0	0	0	0	0	463
11:00	0	1	19	62	186	143	45	5	0	1	0	1	0	463
12:00 PM	0	2	4	57	178	166	45	1	1	0	0	0	1	455
1:00	0	1	11	80	175	158	37	6	0	0	0	0	0	468
2:00	8	9	19	117	187	122	20	0	1	0	0	0	0	483
3:00	13	13	64	163	164	90	16	3	0	0	2	0	0	528
4:00	27	42	85	149	215	126	26	1	0	0	0	0	0	671
5:00	89	74	159	112	85	23	7	2	0	0	0	0	0	551
6:00	17	4	17	33	135	130	34	6	1	0	0	0	0	377
7:00	0	0	0	7	67	111	41	7	2	0	0	0	0	235
8:00	0	0	0	9	34	67	26	3	0	0	0	0	0	139
9:00	0	0	0	2	18	69	30	4	0	0	0	1	0	124
10:00	0	0	0	2	15	28	24	6	1	0	1	0	0	77
11:00	0	0	0	1	8	18	17	3	0	0	0	0	0	47
Total	378	496	852	1244	2160	2058	699	124	16	4	3	2	1	8037

Percentile	15th	50th	85th	95th
Speed	22	33	39	42

Mean Speed (Average)	31.1
10 MPH Pace Speed	30-39
Number in Pace	4202
Percent in Pace	52.3%
Number > 35 MPH	2907
Percent > 35 MPH	36.2%

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA
Direction: SB,

5/20/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	0	3	17	8	4	0	1	0	0	0	33
1:00	0	0	0	0	3	3	3	1	1	0	0	0	0	11
2:00	0	0	0	1	1	4	5	3	0	0	0	0	0	14
3:00	0	0	0	1	1	11	6	3	1	1	0	0	0	24
4:00	0	0	0	1	8	27	23	16	4	1	0	0	0	80
5:00	0	0	0	0	21	117	98	38	5	2	2	0	0	283
6:00	0	0	14	67	160	225	79	10	2	0	0	0	0	557
7:00	34	78	134	184	179	75	12	1	0	0	0	0	0	697
8:00	29	34	83	123	198	100	23	3	0	0	0	0	0	593
9:00	0	1	8	50	210	170	61	12	1	0	0	0	1	514
10:00	17	14	15	60	154	188	50	4	1	0	0	0	0	503
11:00	0	0	1	43	130	207	57	8	0	0	1	0	0	447
12:00 PM	10	8	12	55	191	204	40	4	1	0	0	0	0	525
1:00	0	0	2	47	209	220	61	6	0	0	0	0	0	545
2:00	12	8	46	73	239	174	20	3	2	0	0	0	0	577
3:00	45	37	59	102	175	113	19	1	0	0	0	0	0	551
4:00	49	49	102	108	185	115	25	3	0	0	0	0	0	636
5:00	16	21	68	166	215	141	39	0	0	0	0	0	0	666
6:00	30	33	61	84	180	149	44	5	3	0	0	0	0	589
7:00	0	0	0	8	86	180	60	8	1	0	0	0	0	343
8:00	0	0	1	6	55	101	40	4	0	0	0	0	0	207
9:00	0	0	4	11	43	71	37	9	0	0	0	0	0	175
10:00	0	0	0	4	28	50	44	12	0	0	0	0	0	138
11:00	0	0	0	0	16	32	15	3	1	0	0	0	0	67
Total	242	283	610	1194	2690	2694	869	161	23	5	3	0	1	8775

Percentile	15th	50th	85th	95th
Speed	26	34	39	43

Mean Speed (Average)	32.9
10 MPH Pace Speed	30-39
Number in Pace	5354
Percent in Pace	61.0%
Number > 35 MPH	3756
Percent > 35 MPH	42.8%

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA
Direction: SB,

5/21/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	2	10	10	17	7	4	1	0	0	0	51
1:00	0	0	0	0	4	4	10	1	2	0	0	0	0	21
2:00	0	0	0	1	1	7	4	2	0	0	0	0	0	15
3:00	0	0	0	0	0	2	3	2	0	0	0	0	0	7
4:00	0	0	0	0	1	10	11	6	1	2	0	0	0	31
5:00	0	0	0	0	7	39	44	19	3	0	0	0	0	112
6:00	0	0	0	5	25	69	39	9	1	0	0	0	0	148
7:00	0	0	2	14	78	117	45	7	1	1	0	1	0	266
8:00	0	0	3	23	85	137	56	5	0	0	0	0	0	309
9:00	18	15	18	70	148	156	41	4	1	0	0	0	0	471
10:00	0	9	17	42	203	237	54	13	1	0	0	0	0	576
11:00	6	4	25	84	233	204	40	3	0	0	0	0	0	599
12:00 PM	42	62	63	99	202	144	31	3	0	0	0	0	0	646
1:00	4	1	27	98	223	221	41	6	1	0	0	0	0	622
2:00	5	9	33	122	230	214	52	10	0	0	0	0	0	675
3:00	4	7	39	100	208	182	46	4	1	0	0	0	0	591
4:00	1	7	33	89	165	186	49	14	0	0	0	0	0	544
5:00	0	2	11	55	138	234	73	12	1	0	0	0	0	526
6:00	0	0	2	41	111	159	66	11	0	0	0	0	0	390
7:00	0	0	6	21	99	127	50	6	0	0	0	0	0	309
8:00	0	0	0	4	69	94	32	6	1	0	0	0	0	206
9:00	0	0	0	13	32	74	23	6	1	1	0	0	0	150
10:00	0	0	0	3	24	40	35	6	0	0	0	0	0	108
11:00	0	0	1	4	16	42	28	5	0	0	1	0	0	97
Total	80	116	280	890	2312	2709	890	167	19	5	1	1	0	7470
			Percentile	15th	50th	85th	95th							
			Speed	29	35	40	43							
			Mean Speed (Average)	34.5										
			10 MPH Pace Speed	30-39										
			Number in Pace	4985										
			Percent in Pace	66.7%										
			Number > 35 MPH	3792										
			Percent > 35 MPH	50.8%										
Grand Total	700	895	1742	3328	7162	7461	2458	452	58	14	7	3	2	24282
Stats			Percentile	15th	50th	85th	95th							
			Speed	26	34	39	43							
			Mean Speed (Average)	32.8										
			10 MPH Pace Speed	30-39										
			Number in Pace	14540										
			Percent in Pace	59.9%										
			Number > 35 MPH	10455										
			Percent > 35 MPH	43.1%										

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA
Direction: NB,

5/19/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	0	6	42	29	7	2	0	0	0	0	86
1:00	0	0	0	0	6	25	28	7	2	0	0	0	0	68
2:00	0	0	0	0	5	17	10	5	0	0	0	0	0	37
3:00	0	0	0	0	5	9	13	4	1	0	1	0	0	33
4:00	0	0	0	0	4	14	30	19	5	0	1	0	0	73
5:00	0	0	0	3	21	98	74	29	5	0	0	0	0	230
6:00	0	2	16	64	137	184	126	19	3	1	0	0	0	552
7:00	5	120	176	217	228	169	46	3	3	0	0	0	0	967
8:00	36	70	148	238	201	128	43	9	0	0	0	0	0	873
9:00	0	6	35	96	212	178	68	17	1	0	0	0	0	613
10:00	1	1	14	73	186	205	64	14	0	0	0	0	0	558
11:00	1	1	34	93	208	195	76	12	0	0	0	0	0	620
12:00 PM	8	3	26	118	235	184	85	8	0	0	0	0	0	667
1:00	2	14	54	205	241	180	79	3	0	0	0	0	1	779
2:00	45	58	158	238	226	141	50	4	0	1	0	0	0	921
3:00	258	305	315	140	74	32	9	1	0	0	0	0	0	1134
4:00	69	100	236	205	314	139	27	3	0	0	0	0	0	1093
5:00	276	282	181	181	130	38	9	0	1	0	0	0	0	1098
6:00	0	6	33	95	187	302	135	15	1	0	0	0	0	774
7:00	0	1	8	47	199	236	108	16	2	2	0	0	0	619
8:00	0	0	6	32	140	243	89	15	2	0	0	0	0	527
9:00	0	0	0	13	62	155	107	24	2	0	0	0	0	363
10:00	0	1	1	1	42	138	75	14	3	0	0	0	0	275
11:00	0	0	0	1	15	78	76	20	2	0	0	0	0	192
Total	701	970	1441	2060	3084	3130	1456	268	35	4	2	0	1	13152

Percentile	15th	50th	85th	95th
Speed	21	32	40	43

Mean Speed (Average)	30.9
10 MPH Pace Speed	30-39
Number in Pace	6193
Percent in Pace	47.1%
Number > 35 MPH	4896
Percent > 35 MPH	37.2%

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA
Direction: NB,

5/20/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	0	8	27	37	19	0	1	0	0	0	92
1:00	0	0	0	0	4	13	20	11	3	0	0	0	0	51
2:00	0	0	0	0	1	8	13	8	1	1	0	0	0	32
3:00	0	0	0	0	2	21	15	2	1	1	0	0	0	42
4:00	0	0	0	0	7	18	28	16	2	0	0	0	0	71
5:00	0	0	0	0	20	68	101	36	7	0	0	0	0	232
6:00	0	0	4	26	108	204	131	37	5	0	0	0	1	516
7:00	26	23	74	138	215	240	92	9	2	0	0	0	0	819
8:00	5	11	62	163	223	207	75	10	2	0	0	1	0	759
9:00	0	3	31	135	184	219	95	17	1	0	0	0	0	685
10:00	0	9	19	83	167	226	77	14	0	0	0	0	0	595
11:00	0	5	29	111	193	234	97	21	3	0	0	0	0	693
12:00 PM	0	1	16	122	240	223	97	21	0	0	0	0	0	720
1:00	1	2	31	144	270	236	98	10	1	0	0	0	0	793
2:00	6	10	105	222	306	215	52	9	2	0	0	0	0	927
3:00	107	107	140	216	280	179	29	3	2	0	0	0	0	1063
4:00	111	167	239	186	202	139	32	2	0	0	0	0	0	1078
5:00	34	73	94	258	319	186	71	9	0	1	0	0	0	1045
6:00	0	7	38	132	249	241	91	17	0	0	0	0	0	775
7:00	0	1	9	67	218	242	93	16	1	0	0	0	0	647
8:00	0	0	1	49	184	260	79	9	0	0	0	0	0	582
9:00	0	0	5	35	139	222	82	13	2	1	0	0	0	499
10:00	0	0	0	15	73	161	93	15	4	1	0	0	0	362
11:00	0	0	0	4	44	114	73	17	4	0	1	0	0	257
Total	290	419	897	2106	3656	3903	1671	341	43	6	1	1	1	13335

Percentile	15th	50th	85th	95th
Speed	27	34	40	43

Mean Speed (Average)	33.3
10 MPH Pace Speed	30-39
Number in Pace	7523
Percent in Pace	56.4%
Number > 35 MPH	5967
Percent > 35 MPH	44.7%

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA
Direction: NB,

5/21/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	5	12	56	47	11	2	0	0	0	0	133
1:00	0	0	0	1	4	27	22	5	2	0	0	0	0	61
2:00	1	0	0	0	6	18	14	4	0	0	0	0	0	43
3:00	0	0	0	0	4	9	10	3	0	0	0	0	0	26
4:00	0	0	0	0	4	10	10	6	2	0	0	0	0	32
5:00	0	0	0	0	2	19	40	19	5	0	0	0	0	85
6:00	0	0	1	3	25	88	58	27	2	0	0	0	0	204
7:00	0	0	6	10	40	115	84	29	2	0	0	0	0	286
8:00	0	1	12	31	90	198	95	16	0	1	0	0	1	445
9:00	0	1	8	41	146	204	110	13	0	0	0	0	0	523
10:00	0	1	15	78	198	240	91	10	2	1	0	0	0	636
11:00	0	5	36	127	229	207	74	19	1	0	0	0	0	698
12:00 PM	0	5	43	167	274	218	86	10	0	0	0	0	0	803
1:00	7	33	49	136	289	276	114	9	6	0	0	0	0	919
2:00	0	5	47	209	374	268	77	8	0	0	0	0	0	988
3:00	23	43	75	187	334	233	73	14	1	0	0	0	0	983
4:00	108	137	158	233	228	202	53	8	0	0	0	0	0	1127
5:00	9	20	47	159	297	294	101	7	2	0	0	0	0	936
6:00	0	7	29	101	266	259	111	13	4	1	0	0	0	791
7:00	0	2	7	77	193	236	96	29	1	1	0	0	0	642
8:00	0	1	6	78	200	264	81	9	4	0	0	0	0	643
9:00	0	0	0	23	153	210	78	8	0	0	0	0	0	472
10:00	0	0	0	4	59	157	79	9	4	0	0	0	0	312
11:00	0	0	0	2	41	105	72	25	2	2	0	0	0	249
Total	148	261	539	1672	3468	3913	1676	311	42	6	0	0	1	12037
			Percentile	15th	50th	85th	95th							
			Speed	28	35	40	43							
			Mean Speed (Average)	34.3										
			10 MPH Pace Speed	30-39										
			Number in Pace	7336										
			Percent in Pace	60.9%										
			Number > 35 MPH	5949										
			Percent > 35 MPH	49.4%										
Grand Total	1139	1650	2877	5838	10208	10946	4803	920	120	16	3	1	3	38524
Stats			Percentile	15th	50th	85th	95th							
			Speed	25	34	40	43							
			Mean Speed (Average)	32.8										
			10 MPH Pace Speed	30-39										
			Number in Pace	21052										
			Percent in Pace	54.6%										
			Number > 35 MPH	16813										
			Percent > 35 MPH	43.6%										

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA
Direction: Combined

5/19/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	0	12	48	39	11	2	0	0	0	0	112
1:00	0	0	0	0	7	31	32	7	2	0	0	0	0	79
2:00	0	0	0	0	5	21	15	6	0	0	0	0	0	47
3:00	0	0	0	0	7	18	18	9	3	0	1	0	0	56
4:00	0	0	0	0	8	31	65	33	7	1	1	0	0	146
5:00	0	0	0	15	50	226	192	54	10	1	0	0	0	548
6:00	10	36	114	144	295	379	187	36	4	1	0	0	0	1206
7:00	106	298	381	354	296	193	48	4	3	0	0	0	0	1683
8:00	147	203	294	329	280	180	54	9	0	0	0	0	0	1496
9:00	1	6	44	170	381	375	113	23	1	1	0	0	0	1115
10:00	2	6	30	129	363	374	99	18	0	0	0	0	0	1021
11:00	1	2	53	155	394	338	121	17	0	1	0	1	0	1083
12:00 PM	8	5	30	175	413	350	130	9	1	0	0	0	1	1122
1:00	2	15	65	285	416	338	116	9	0	0	0	0	1	1247
2:00	53	67	177	355	413	263	70	4	1	1	0	0	0	1404
3:00	271	318	379	303	238	122	25	4	0	0	2	0	0	1662
4:00	96	142	321	354	529	265	53	4	0	0	0	0	0	1764
5:00	365	356	340	293	215	61	16	2	1	0	0	0	0	1649
6:00	17	10	50	128	322	432	169	21	2	0	0	0	0	1151
7:00	0	1	8	54	266	347	149	23	4	2	0	0	0	854
8:00	0	0	6	41	174	310	115	18	2	0	0	0	0	666
9:00	0	0	0	15	80	224	137	28	2	0	0	1	0	487
10:00	0	1	1	3	57	166	99	20	4	0	1	0	0	352
11:00	0	0	0	2	23	96	93	23	2	0	0	0	0	239
Total	1079	1466	2293	3304	5244	5188	2155	392	51	8	5	2	2	21189

Percentile	15th	50th	85th	95th
Speed	22	33	39	43

Mean Speed (Average)	31.0
10 MPH Pace Speed	30-39
Number in Pace	10394
Percent in Pace	49.1%
Number > 35 MPH	7803
Percent > 35 MPH	36.8%

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA
Direction: Combined

5/20/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	0	11	44	45	23	0	2	0	0	0	125
1:00	0	0	0	0	7	16	23	12	4	0	0	0	0	62
2:00	0	0	0	1	2	12	18	11	1	1	0	0	0	46
3:00	0	0	0	1	3	32	21	5	2	2	0	0	0	66
4:00	0	0	0	1	15	45	51	32	6	1	0	0	0	151
5:00	0	0	0	0	41	185	199	74	12	2	2	0	0	515
6:00	0	0	18	93	268	429	210	47	7	0	0	0	1	1073
7:00	60	101	208	322	394	315	104	10	2	0	0	0	0	1516
8:00	34	45	145	286	421	307	98	13	2	0	0	1	0	1352
9:00	0	4	39	185	394	389	156	29	2	0	0	0	1	1199
10:00	17	23	34	143	321	414	127	18	1	0	0	0	0	1098
11:00	0	5	30	154	323	441	154	29	3	0	1	0	0	1140
12:00 PM	10	9	28	177	431	427	137	25	1	0	0	0	0	1245
1:00	1	2	33	191	479	456	159	16	1	0	0	0	0	1338
2:00	18	18	151	295	545	389	72	12	4	0	0	0	0	1504
3:00	152	144	199	318	455	292	48	4	2	0	0	0	0	1614
4:00	160	216	341	294	387	254	57	5	0	0	0	0	0	1714
5:00	50	94	162	424	534	327	110	9	0	1	0	0	0	1711
6:00	30	40	99	216	429	390	135	22	3	0	0	0	0	1364
7:00	0	1	9	75	304	422	153	24	2	0	0	0	0	990
8:00	0	0	2	55	239	361	119	13	0	0	0	0	0	789
9:00	0	0	9	46	182	293	119	22	2	1	0	0	0	674
10:00	0	0	0	19	101	211	137	27	4	1	0	0	0	500
11:00	0	0	0	4	60	146	88	20	5	0	1	0	0	324
Total	532	702	1507	3300	6346	6597	2540	502	66	11	4	1	2	22110

Percentile	15th	50th	85th	95th
Speed	26	34	40	43

Mean Speed (Average)	33.1
10 MPH Pace Speed	30-39
Number in Pace	12877
Percent in Pace	58.2%
Number > 35 MPH	9723
Percent > 35 MPH	44.0%

Location : South Main Street (Route 114) 93010003
Location : North of Lake Street
City/State: Middleton, MA
Direction: Combined

5/21/2022 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	7	22	66	64	18	6	1	0	0	0	184
1:00	0	0	0	1	8	31	32	6	4	0	0	0	0	82
2:00	1	0	0	1	7	25	18	6	0	0	0	0	0	58
3:00	0	0	0	0	4	11	13	5	0	0	0	0	0	33
4:00	0	0	0	0	5	20	21	12	3	2	0	0	0	63
5:00	0	0	0	0	9	58	84	38	8	0	0	0	0	197
6:00	0	0	1	8	50	157	97	36	3	0	0	0	0	352
7:00	0	0	8	24	118	232	129	36	3	1	0	1	0	552
8:00	0	1	15	54	175	335	151	21	0	1	0	0	1	754
9:00	18	16	26	111	294	360	151	17	1	0	0	0	0	994
10:00	0	10	32	120	401	477	145	23	3	1	0	0	0	1212
11:00	6	9	61	211	462	411	114	22	1	0	0	0	0	1297
12:00 PM	42	67	106	266	476	362	117	13	0	0	0	0	0	1449
1:00	11	34	76	234	512	497	155	15	7	0	0	0	0	1541
2:00	5	14	80	331	604	482	129	18	0	0	0	0	0	1663
3:00	27	50	114	287	542	415	119	18	2	0	0	0	0	1574
4:00	109	144	191	322	393	388	102	22	0	0	0	0	0	1671
5:00	9	22	58	214	435	528	174	19	3	0	0	0	0	1462
6:00	0	7	31	142	377	418	177	24	4	1	0	0	0	1181
7:00	0	2	13	98	292	363	146	35	1	1	0	0	0	951
8:00	0	1	6	82	269	358	113	15	5	0	0	0	0	849
9:00	0	0	0	36	185	284	101	14	1	1	0	0	0	622
10:00	0	0	0	7	83	197	114	15	4	0	0	0	0	420
11:00	0	0	1	6	57	147	100	30	2	2	1	0	0	346
Total	228	377	819	2562	5780	6622	2566	478	61	11	1	1	1	19507
			Percentile	15th	50th	85th	95th							
			Speed	29	35	40	43							
			Mean Speed (Average)	34.4										
			10 MPH Pace Speed	30-39										
			Number in Pace	12321										
			Percent in Pace	63.2%										
			Number > 35 MPH	9742										
			Percent > 35 MPH	49.9%										
Grand Total	1839	2545	4619	9166	17370	18407	7261	1372	178	30	10	4	5	62806
Stats			Percentile	15th	50th	85th	95th							
			Speed	25	34	40	43							
			Mean Speed (Average)	32.8										
			10 MPH Pace Speed	30-39										
			Number in Pace	35592										
			Percent in Pace	56.7%										
			Number > 35 MPH	27266										
			Percent > 35 MPH	43.4%										

MASSDOT CRASH RATE WORKSHEETS AND HIGH CRASH LOCATION MAPPING

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Middleton | COUNT DATE : 19-May-22

DISTRICT : 4 | UNSIGNALIZED : | SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : South Main Street

MINOR STREET(S) : Boston Street

Town Hall Driveway

INTERSECTION DIAGRAM (Label Approaches)

↑ *North*



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :	440	11	1,000	1,070		**2,521**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **28,011**

TOTAL # OF CRASHES : 24

OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR (**A**) : **4.80**

CRASH RATE CALCULATION : **0.47**

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

Comments : Below Statewide and District Crash Rates

Project Title & Date: Proposed Multifamily Residential Development

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Middleton COUNT DATE : 19-May-22

DISTRICT : 4 UNSIGNALIZED : SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : North Main Street

MINOR STREET(S) : South Main Street

Maple Street

INTERSECTION DIAGRAM
(Label Approaches)

↑ *North*



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :		620	1,224	1,177		3,021

" K " FACTOR : 0.090

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : 33,567

TOTAL # OF CRASHES : 65

OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR (**A**) : 13.00

CRASH RATE CALCULATION : 1.06

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

Comments : Above Statewide and District Crash Rates

Project Title & Date: Proposed Multifamily Residential Development

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Middleton | COUNT DATE : 19-May-22

DISTRICT : 4 | UNSIGNALIZED : | SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : North Main Street

MINOR STREET(S) : Central Street

Lake Street

INTERSECTION DIAGRAM (Label Approaches)

↑ *North*



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :	18	118	1,243	1,122		**2,501**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **27,789**

TOTAL # OF CRASHES : 25

OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR (**A**) : **5.00**

CRASH RATE CALCULATION : 0.49

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

Comments : Below Statewide and District Crash Rates

Project Title & Date: Proposed Multifamily Residential Development

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Middleton | COUNT DATE : 19-May-22

DISTRICT : 4 | UNSIGNALIZED : | SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : South Main Street

MINOR STREET(S) : Orchard Circle

INTERSECTION DIAGRAM (Label Approaches)

↑ *North*



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :		5	1,016	944		**1,965**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **21,833**

TOTAL # OF CRASHES : 8

OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR (**A**) : **1.60**

CRASH RATE CALCULATION : 0.20

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

Comments : Below Statewide and District Crash Rates

Project Title & Date: Proposed Multifamily Residential Development

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Middleton COUNT DATE : 19-May-22

DISTRICT : 4 UNSIGNALIZED : X SIGNALIZED :

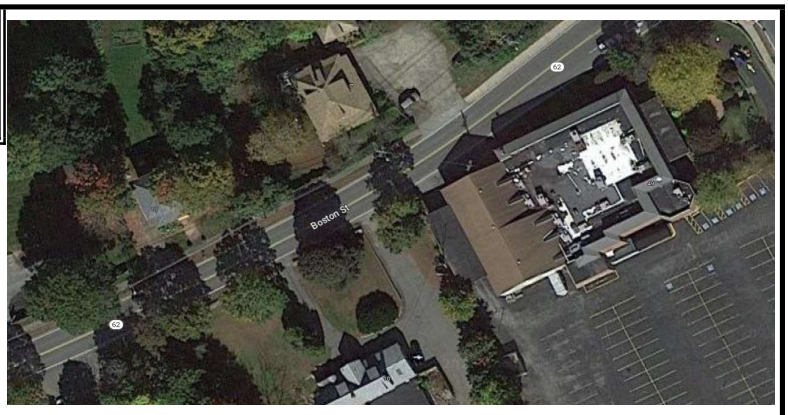
~ INTERSECTION DATA ~

MAJOR STREET : Boston Street

MINOR STREET(S) : Northbound Project Site Driveway

INTERSECTION DIAGRAM (Label Approaches)

↑ *North*



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :	440	336				**776**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **8,622**

TOTAL # OF CRASHES : 0 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.00**

CRASH RATE CALCULATION : **0.00** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Below Statewide and District Crash Rates

Project Title & Date: Proposed Multifamily Residential Development

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Middleton COUNT DATE : 19-May-22

DISTRICT : 4 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : South Main Street

MINOR STREET(S) : Eastbound Project Site Driveway

INTERSECTION DIAGRAM (Label Approaches)

↑ *North*



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :			1,000	934		**1,934**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **21,489**

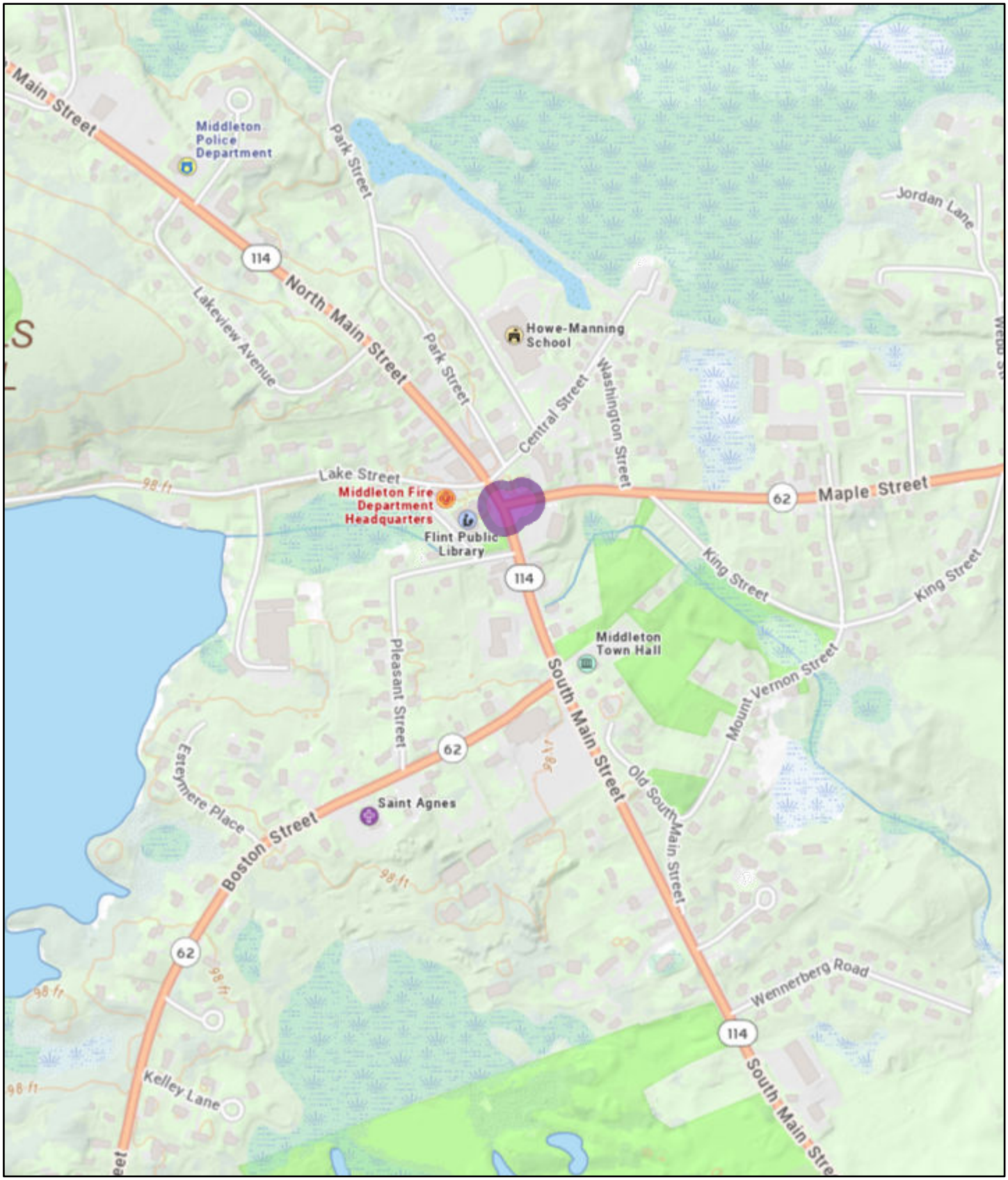
TOTAL # OF CRASHES : 0 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.00**

CRASH RATE CALCULATION : **0.00** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Below Statewide and District Crash Rates

Project Title & Date: Proposed Multifamily Residential Development

MassDOT Top Crash Locations



7/14/2023, 12:38:21 PM

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Top 5% Intersection Crash Clusters 2018-2020

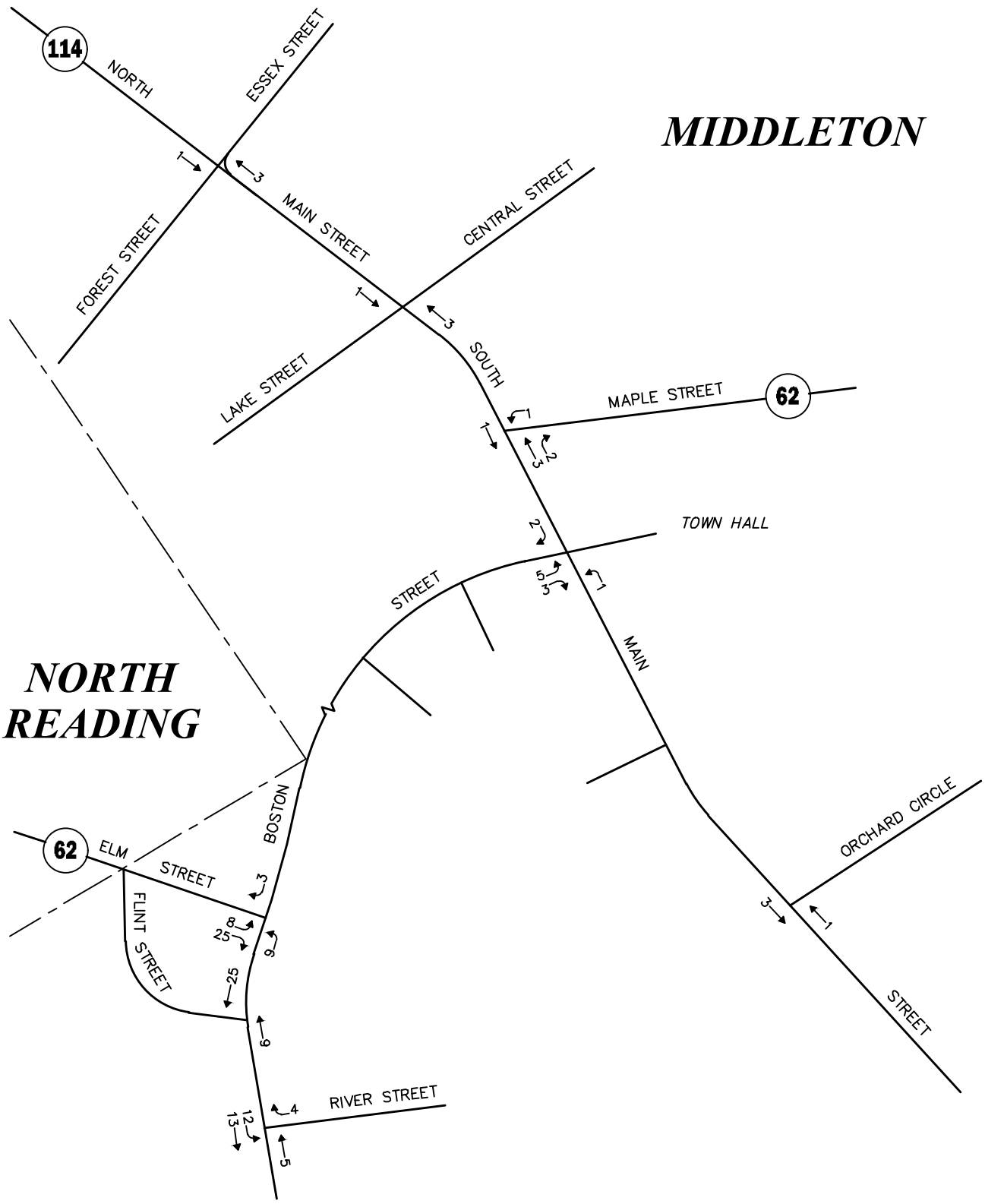
MassDOT

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
Danvers	I-95	Ramp-RT 62 to RT 95 SB	75,393	72,992	75,381	85,079	77,200	76,737	79,120	83,789	84,656	87,814	87,282	**1.63%**
Middleton	Route 114	South of Orchard Circle										21,621	21,707	**0.40%**
Middleton	North Main Street/ Route 114	West of Lakeview Ave.	17,325	25,400	25,559	26,114	24,920	26,291	26,580	26,926	27,222	27,603	27,713	**5.56%**
North Reading	Park Street/Route 62	West of Haverhill Street	11,759	11,657	11,755	11,982	12,097	13,079	13,380	14,210	12,241	12,278	12,229	**0.55%**
North Andover	Turnpike Street/Route 114	East of Hillside Road	24,880	25,000	21,391	21,028	21,388	21,279	21,513	21,793	21,392	21,691	21,778	**-1.21%**
Danvers	I-95	North of Maple Street	72,878	74,244	72,142	74,666	73,735	73,293	81,105	79,951	80,477	79,139	82,502	**1.32%**
Danvers	I-95	North of Route 1	78,819	82,348	78,499	85,021	89,261	93,168	84,116	84,808	82,872	86,152	87,968	**1.24%**
Boxford	I-95	Between Endicott & Topsfield Roads	79,402	80,422	78,974	85,254	79,145	81,046	85,713	85,636	86,037	86,887	87,635	**1.07%**
Boxford	I-95	North of Topsfield Road	76,773	61,287	76,353	76,525	77,120	78,477	80,535	83,276	83,520	84,342	87,159	**1.78%**
Peabody	I-95	South of RTE. 114	79,459	72,400	78,757	79,335	78,179	77,710	79,575	81,564	82,135	83,285	84,201	**0.67%**
Peabody	I-95	North of RTE. 128	50,240	50,000	52,873				48,976	50,200	50,551	51,259	51,823	**1.83%**
Danvers	Newbury Street/Route 1	At Peabody City Line	41,123	43,700	44,649	47,372	45,618	45,594	45,819	45,226	44,981	46,284	44,960	**0.95%**
														1.31%

BACKGROUND DEVELOPMENT TRAFFIC-VOLUME NETWORKS



Not To Scale

Figure A-1

20 Elm Street (Route 62)
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc

R:\9301\9301NT2.dwg, 7/18/2023 10:22:14 AM

Copyright © 2022 VAI. All Rights Reserved.

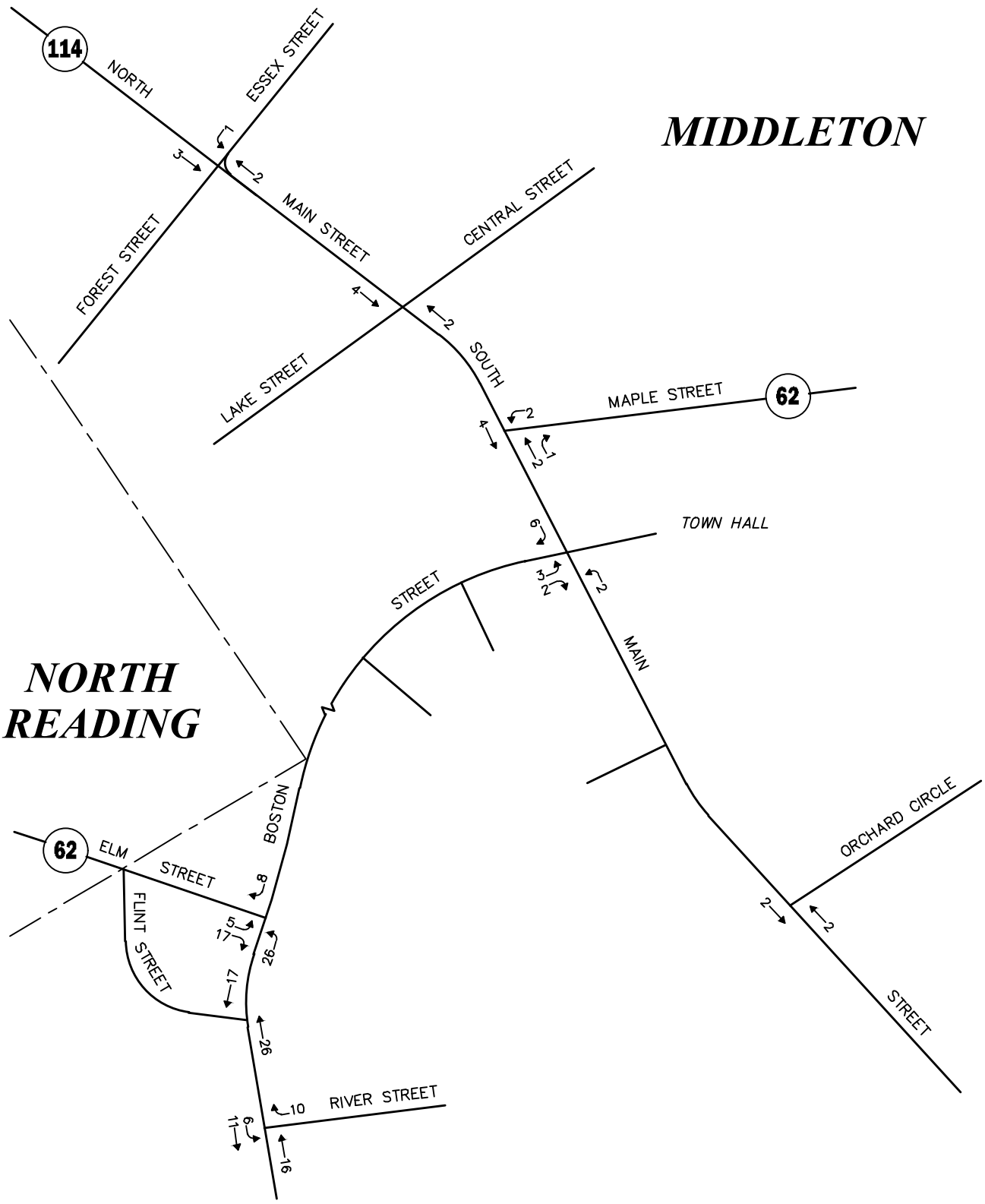


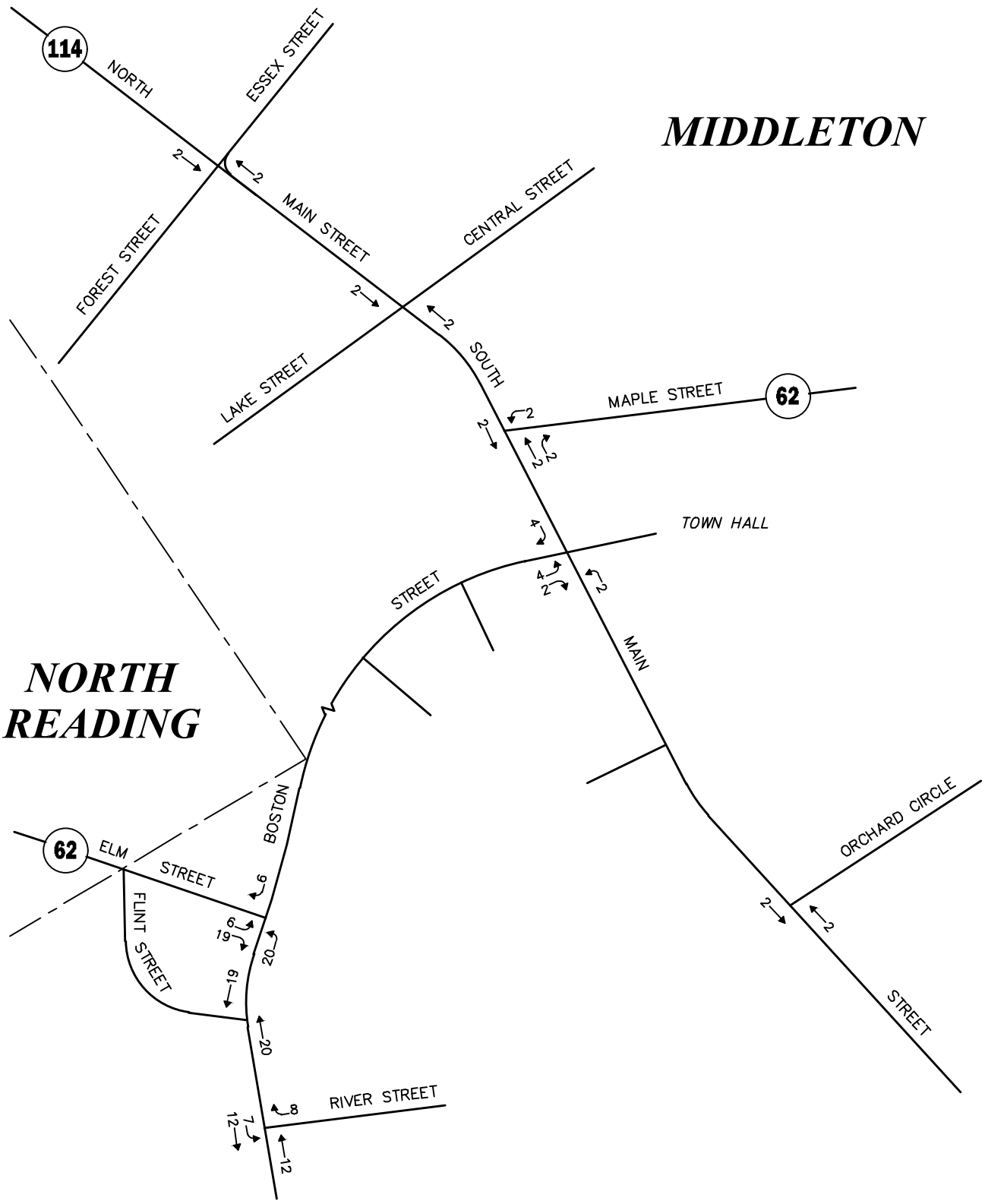
Figure A-2

20 Elm Street (Route 62)
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2022 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 7/18/2023 10:22:36 AM



Not To Scale

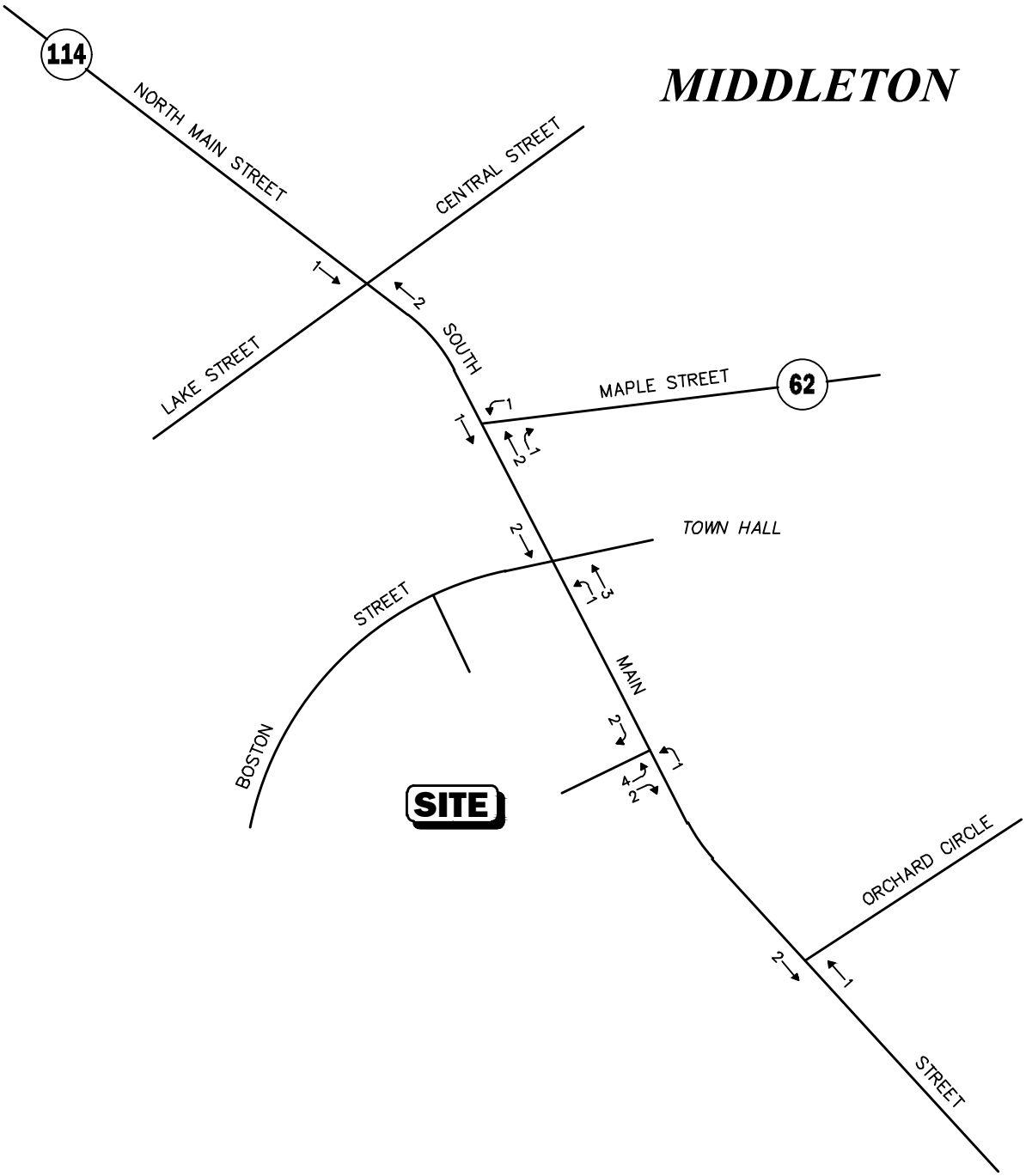
Figure A-3

20 Elm Street (Route 62)
Saturday Midday
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2022 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 7/18/2023 10:22:56 AM



Not To Scale

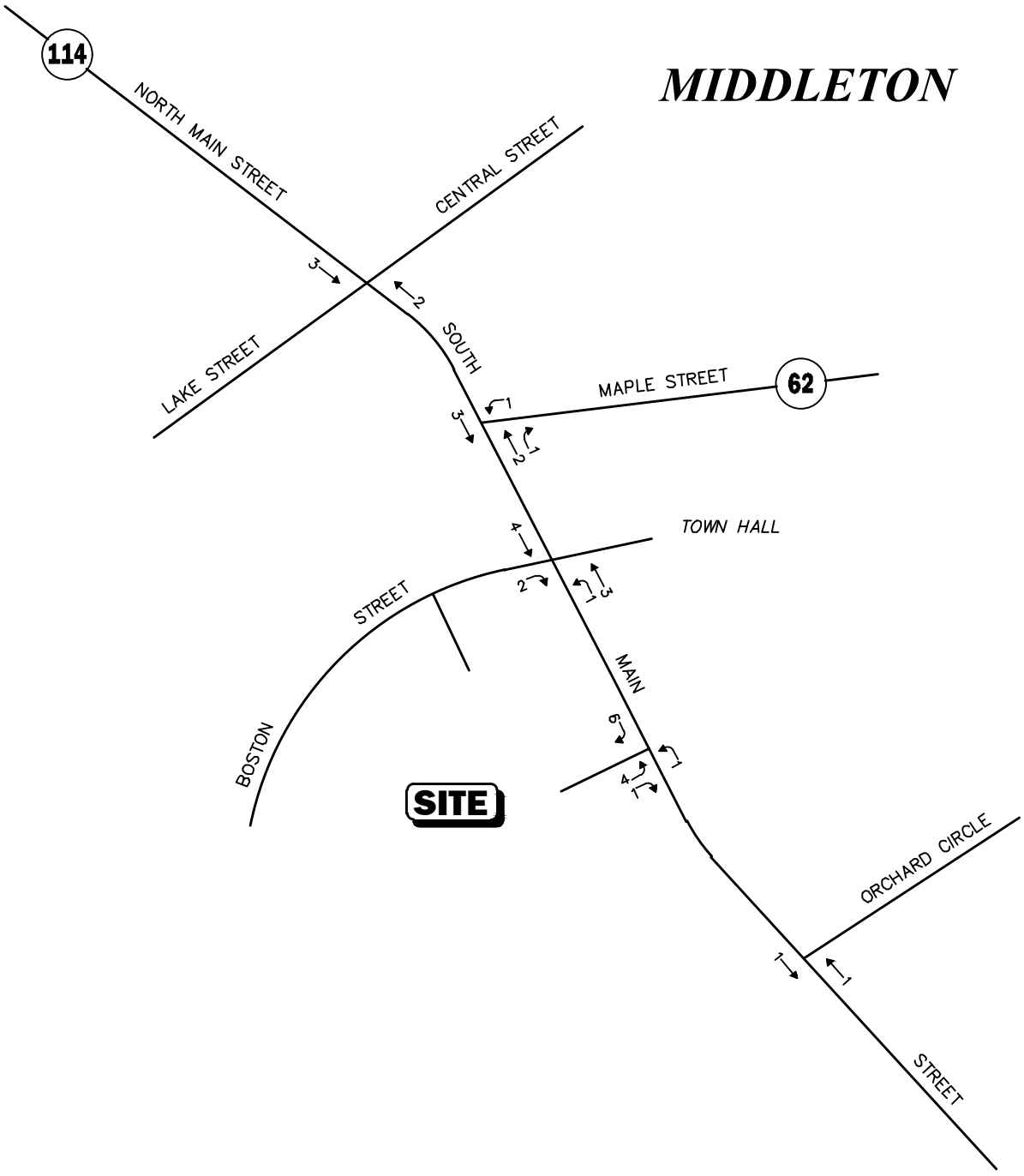
Figure A-4

59 South Main Street
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2022 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:05:33 PM, DWG To PDF.pc3



Not To Scale

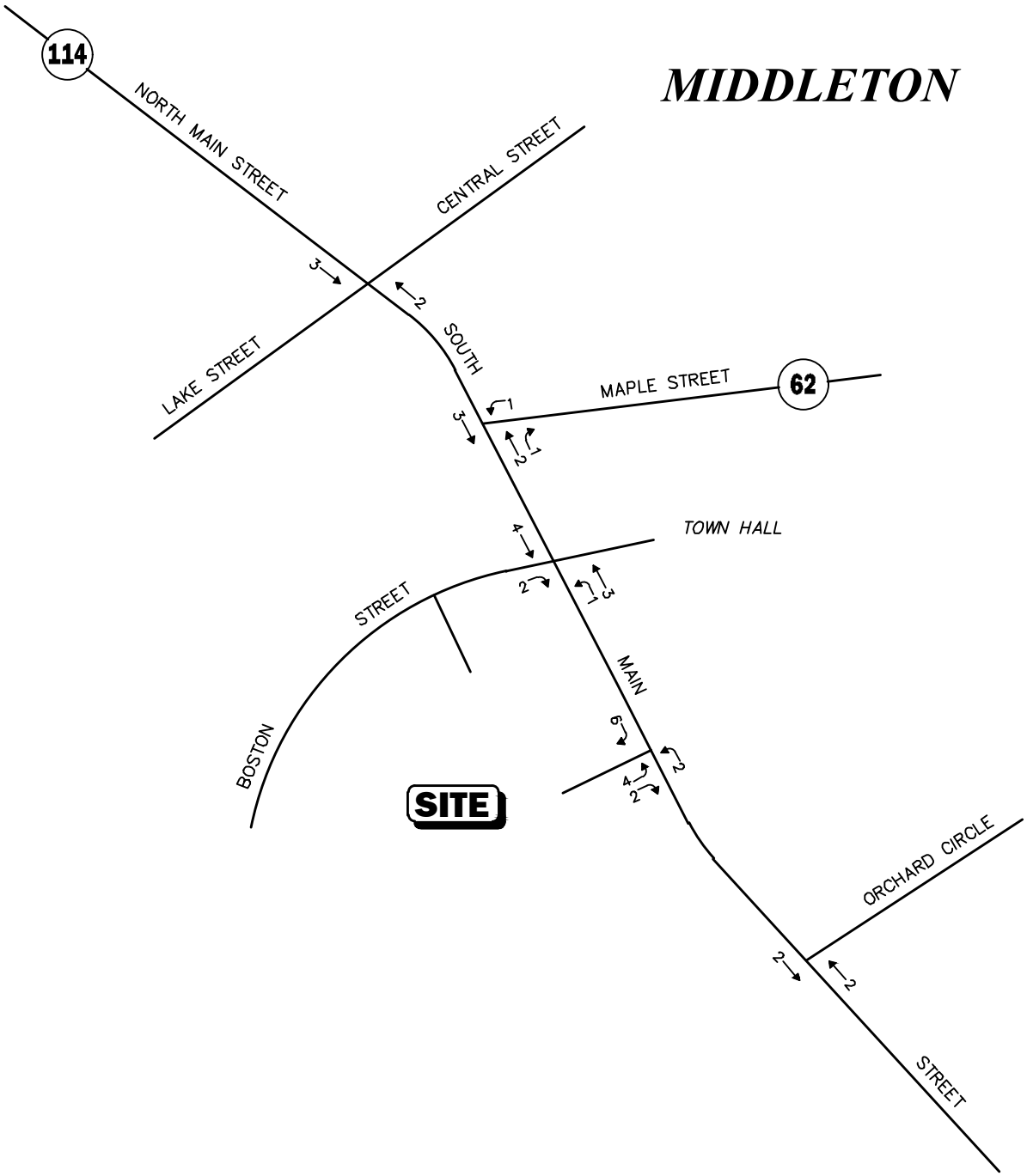
Figure A-5

59 South Main Street
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2022 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:05:42 PM, DWG To PDF.pc3



Not To Scale

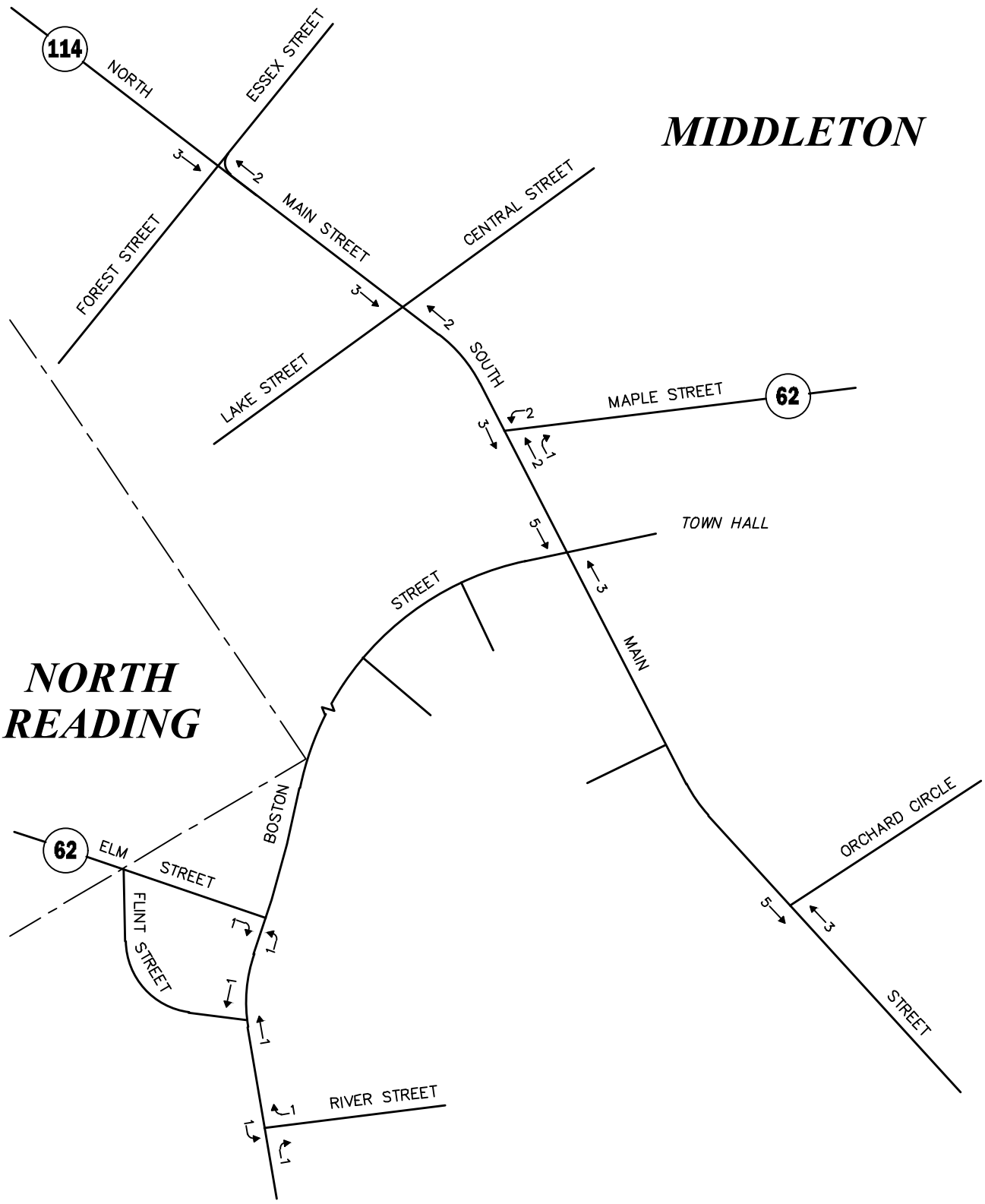
Figure A-6

59 South Main Street
Saturday Midday
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2022 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:05:49 PM, DWG To PDF.pc3



Not To Scale

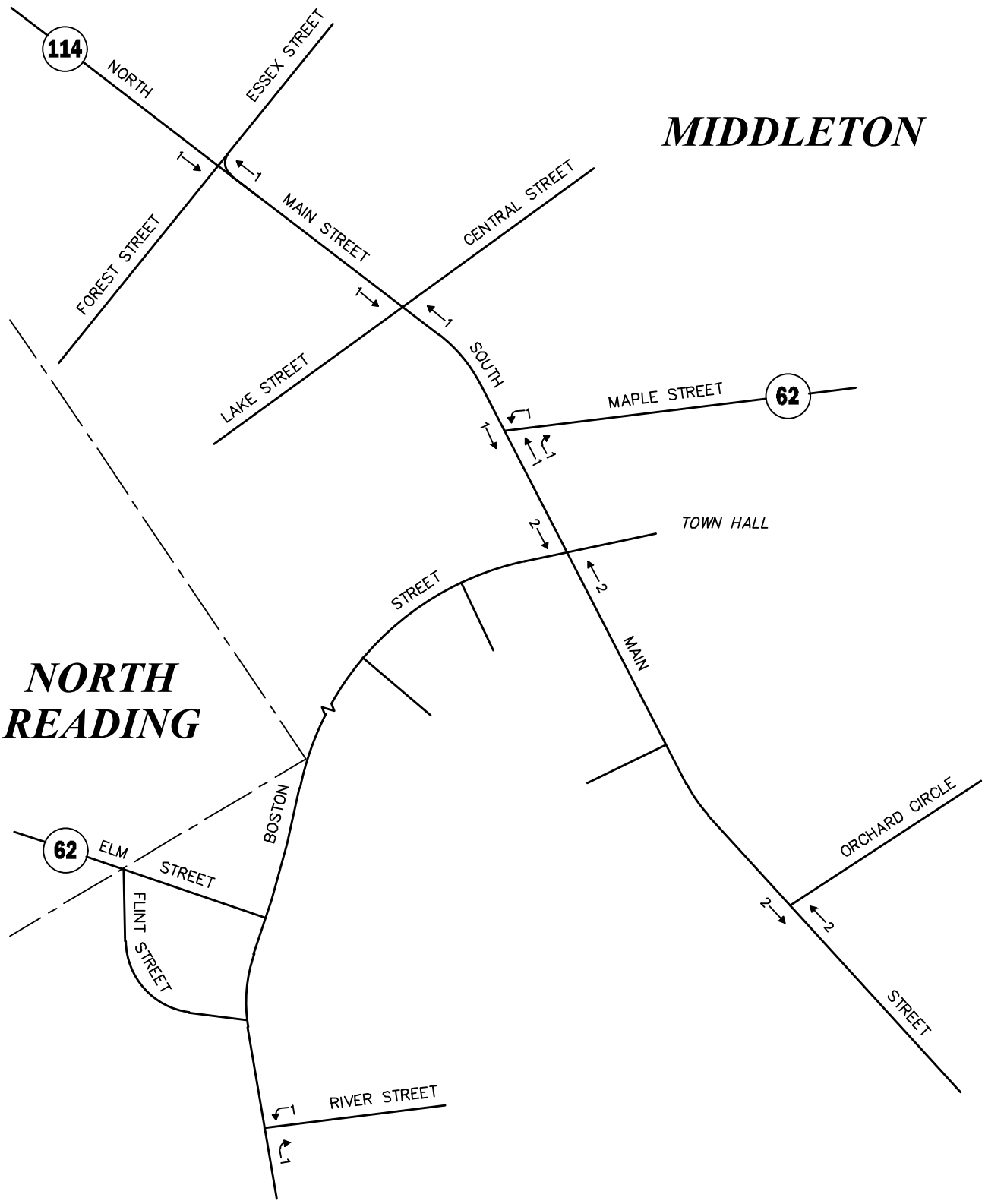
Figure A-7

Aroma Joe's Coffee Shop
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2022 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 7/18/2023 10:24:34 AM



Not To Scale

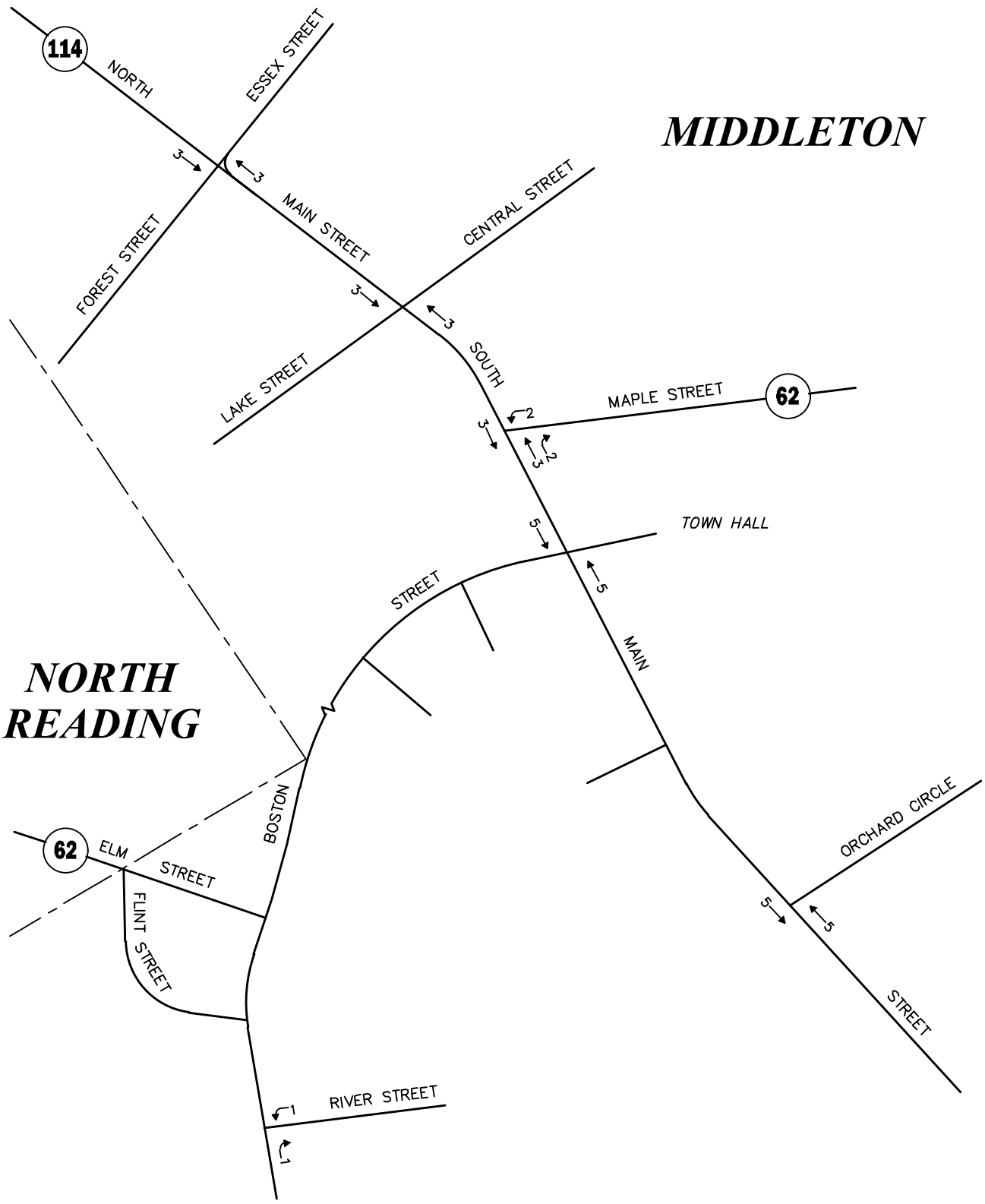
Figure A-8

Aroma Joe's Coffee Shop
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2022 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 7/18/2023 10:24:58 AM



Not To Scale

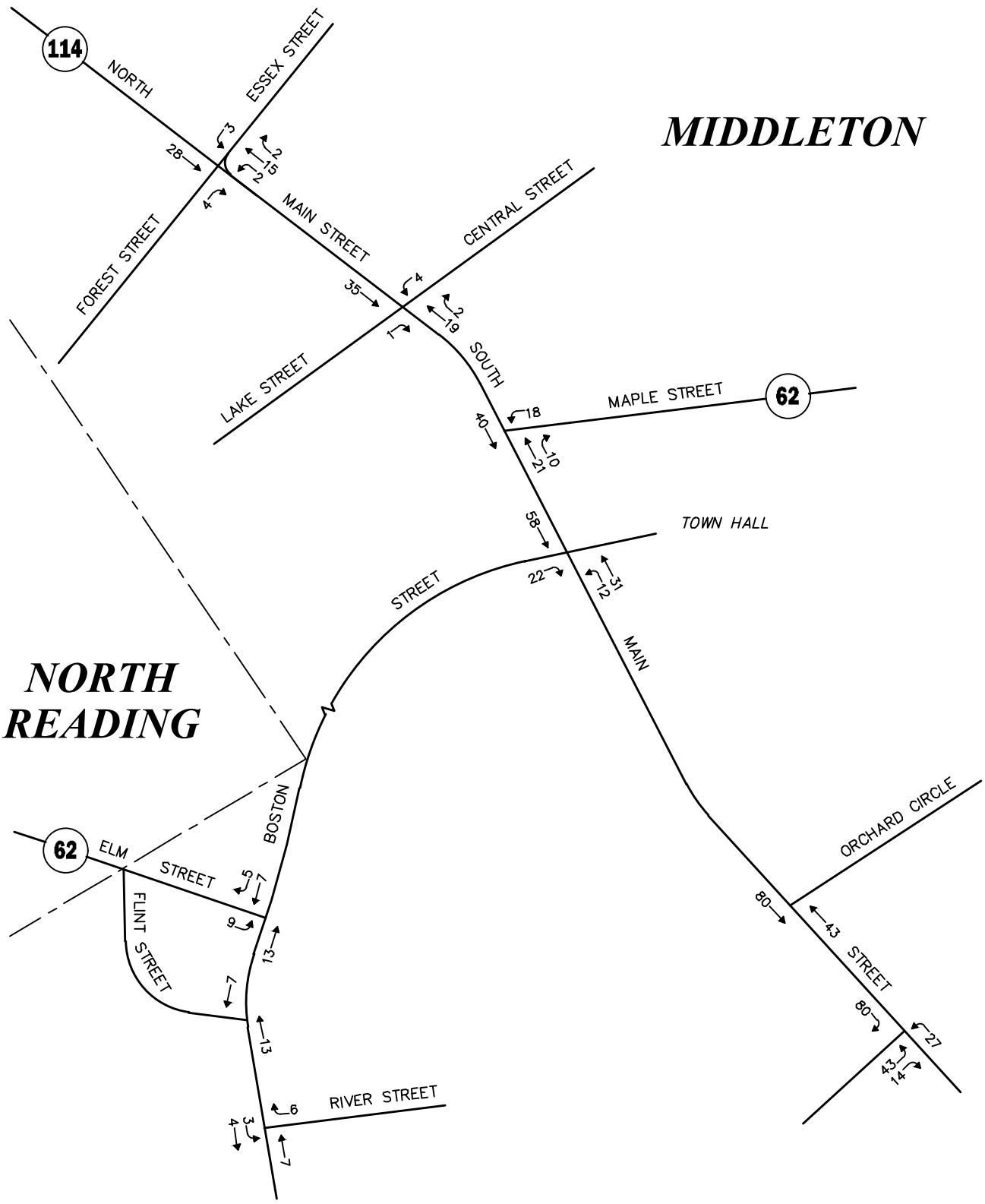
Figure A-9

Aroma Joe's Coffee Shop
Saturday Midday
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2022 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 7/18/2023 10:25:12 AM



Not To Scale

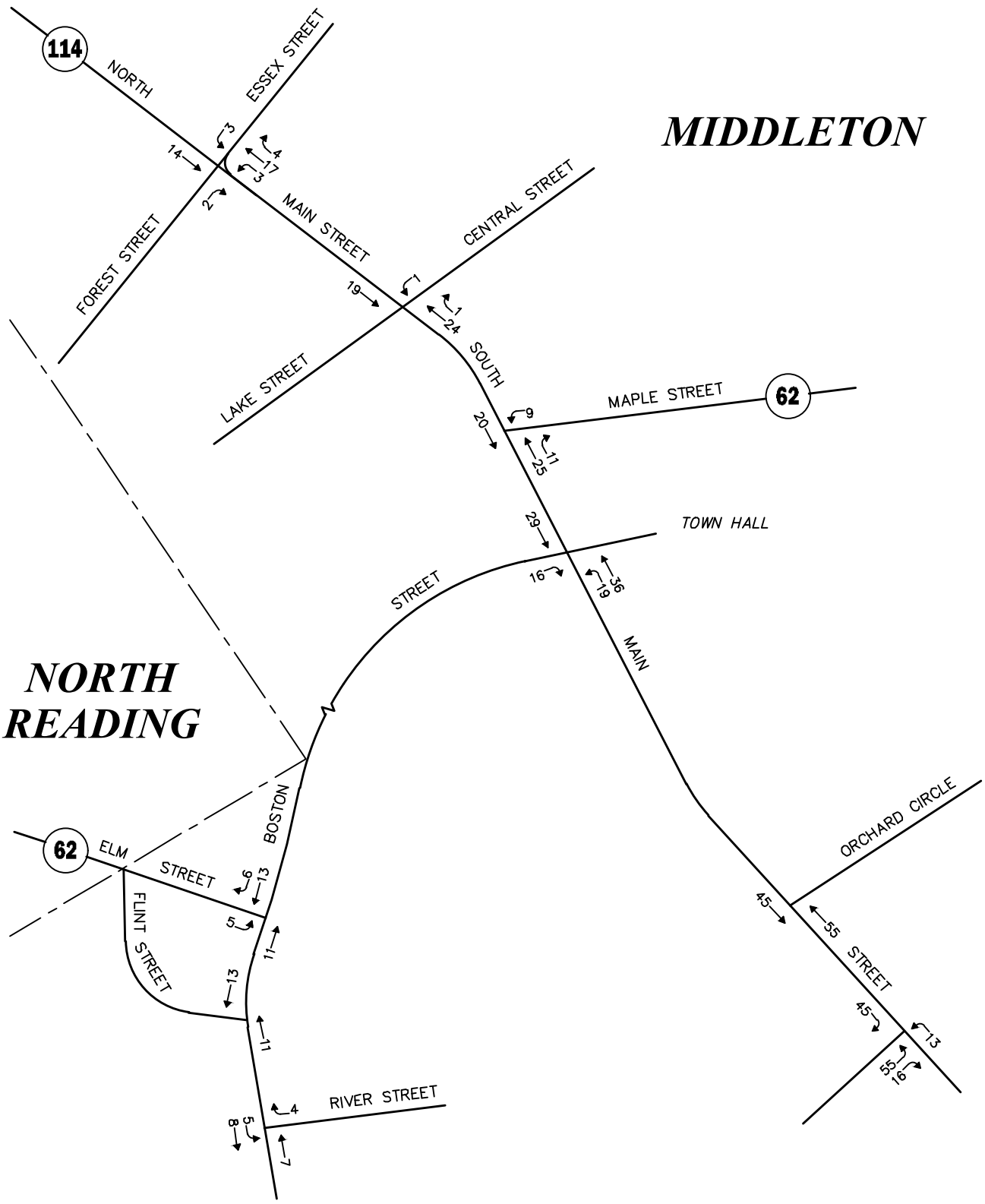
Figure A-10

Middleton Town Complex
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc

R:\9301\9301NT2.dwg, 7/18/2023 10:25:31 AM

Copyright © 2022 VAI. All Rights Reserved.



Not To Scale

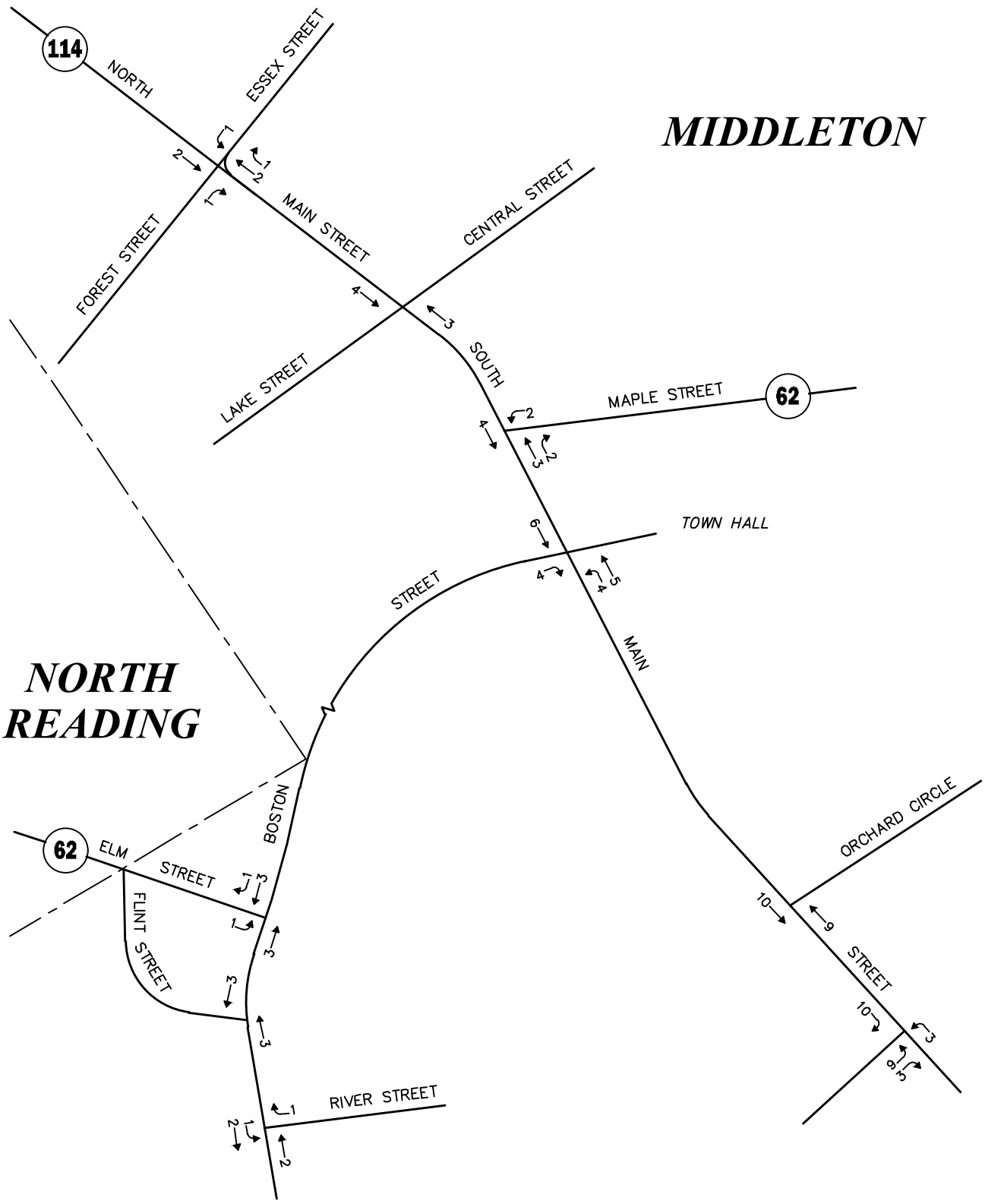
Figure A-11

Middleton Town Complex
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2022 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 7/18/2023 10:25:49 AM



Not To Scale

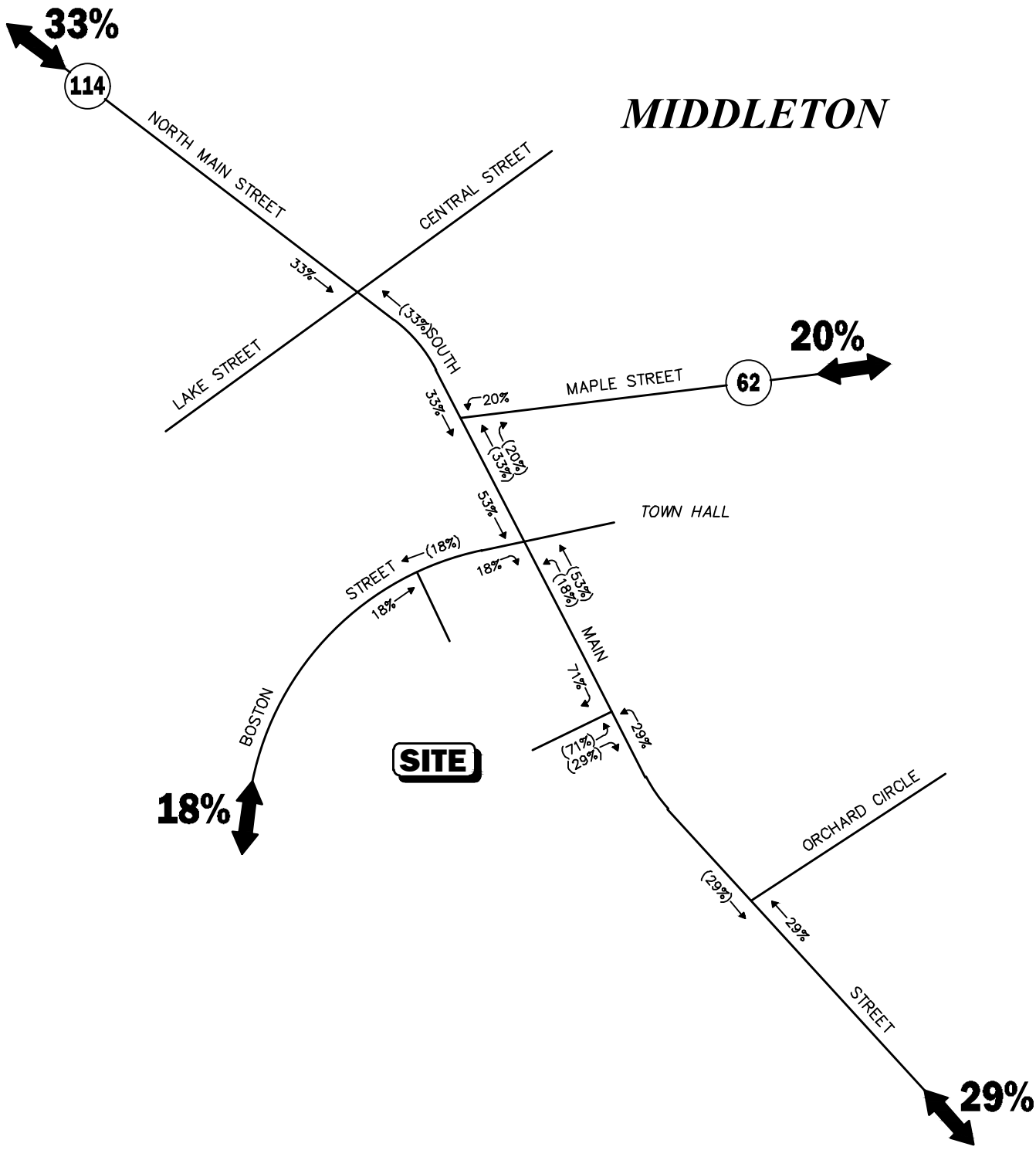
Figure A-12

Middleton Town Complex
Saturday Midday
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2022 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 7/18/2023 10:26:04 AM



Not To Scale

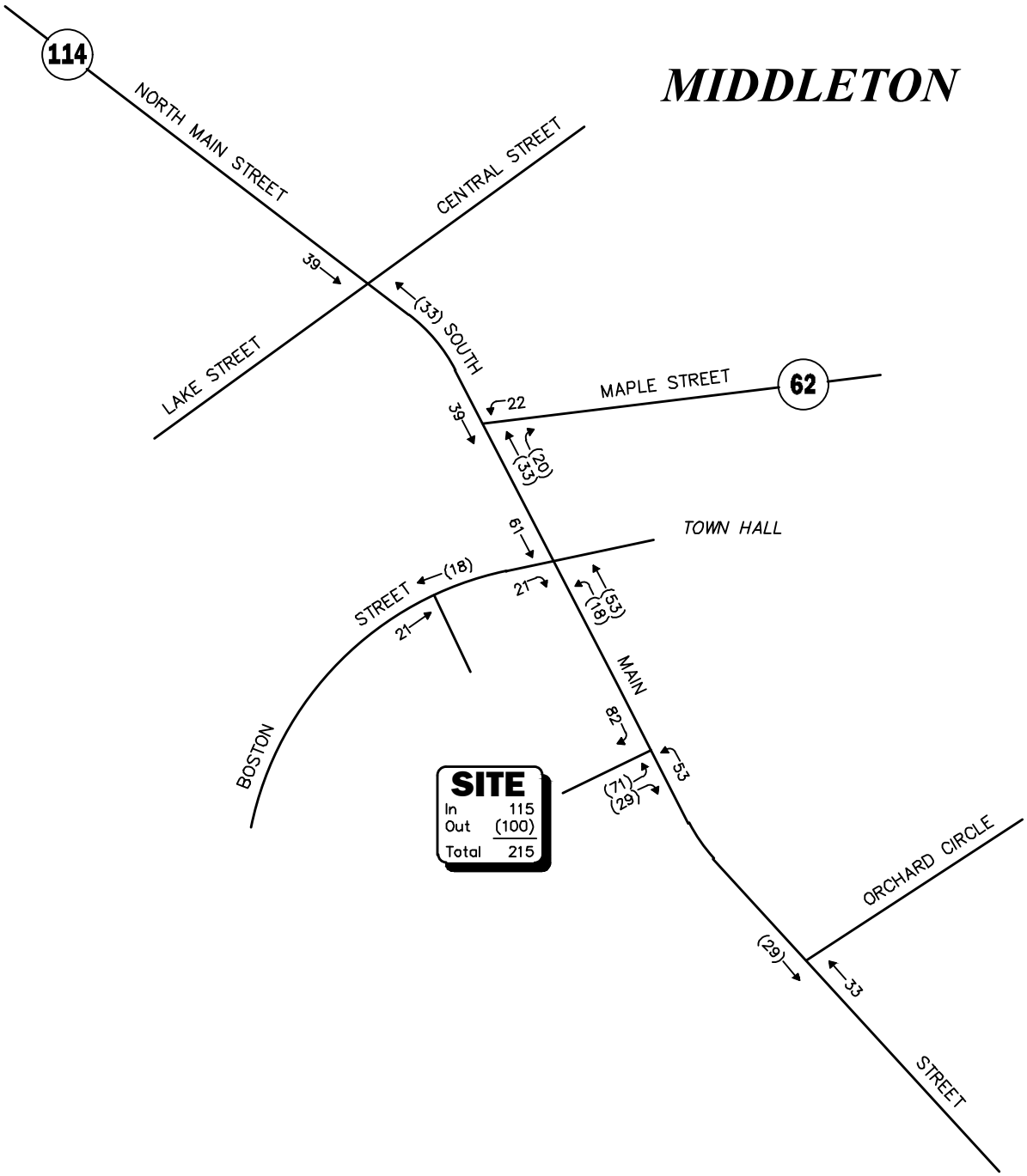
Figure A-13

Lot 3 Trip Distribution

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 7/18/2023 10:26:22 AM



Not To Scale

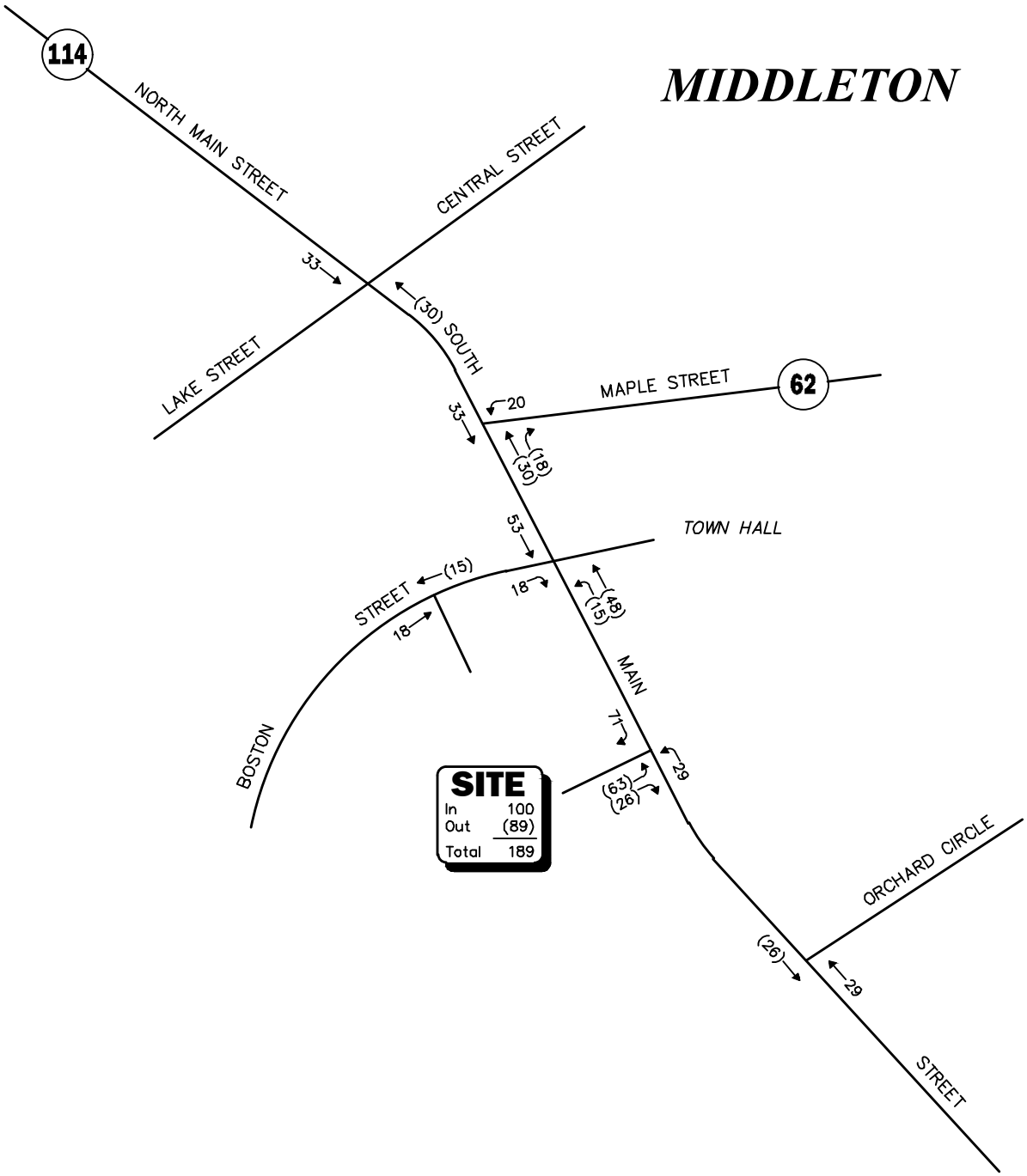
Figure A-14

Lot 3
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc

R:\9301\9301NT2.dwg, 7/18/2023 10:26:40 AM

Copyright © 2023 VAI. All Rights Reserved.



Not To Scale

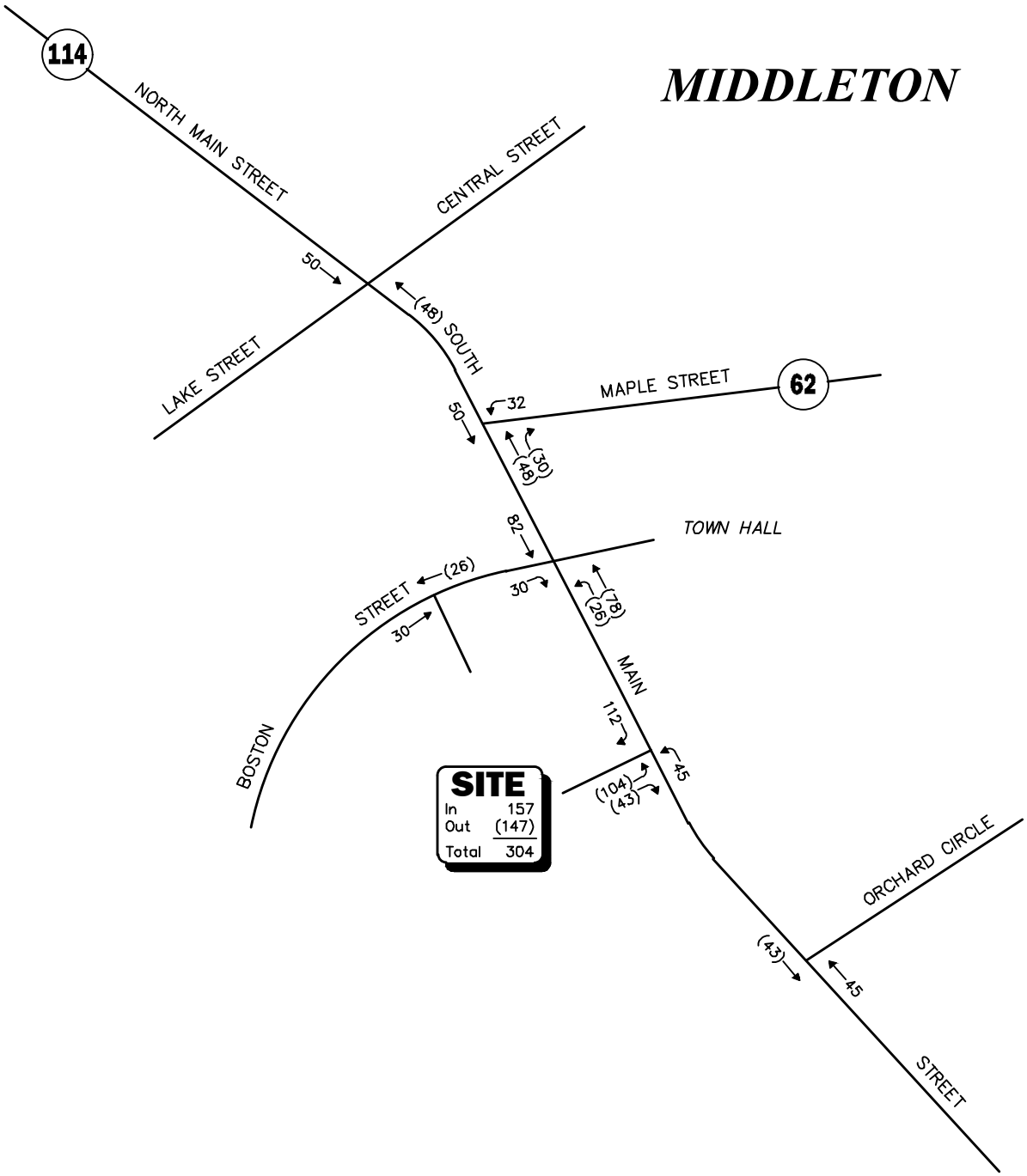
Figure A-15

Lot 3
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 7/18/2023 10:27:00 AM



Not To Scale

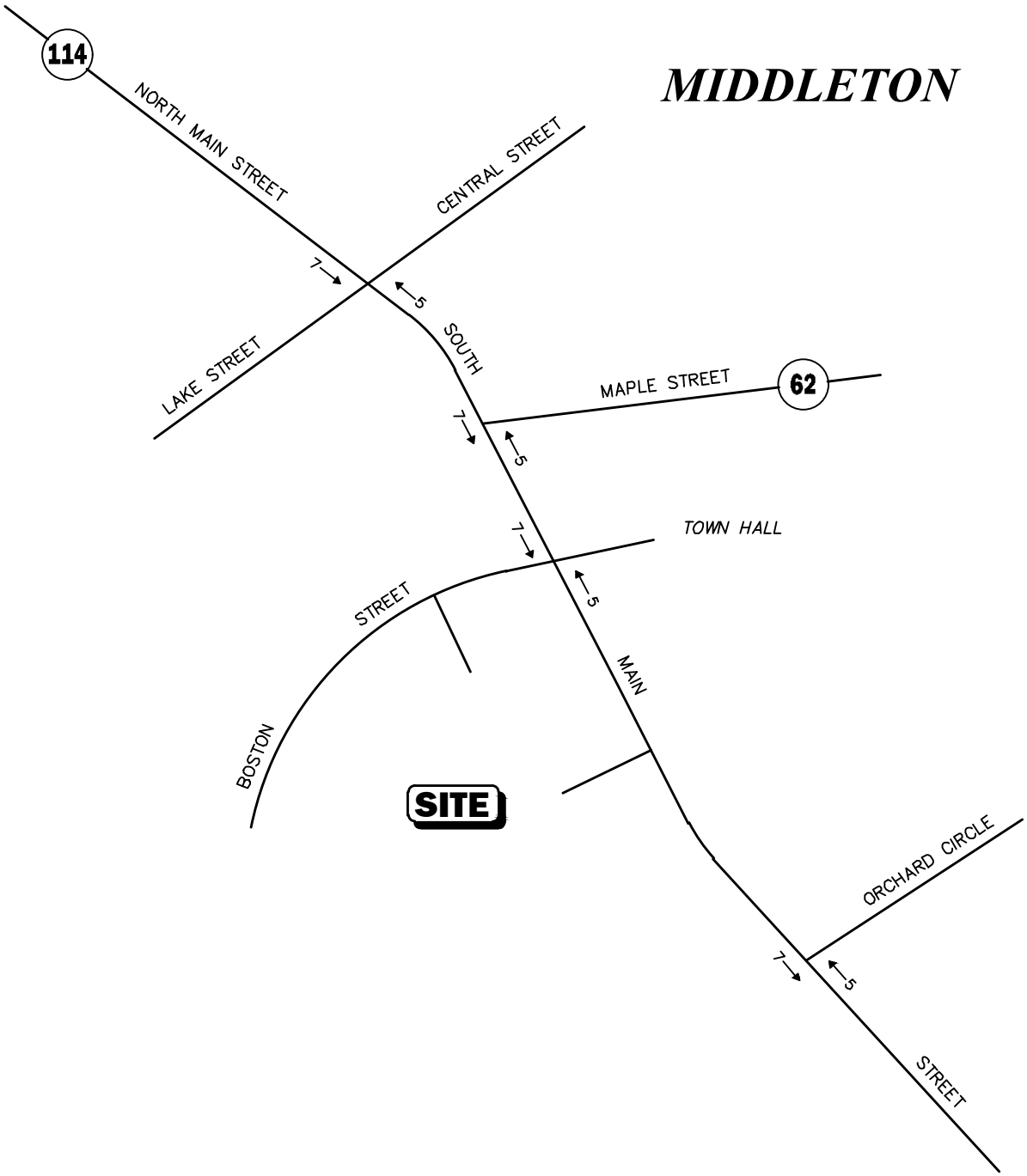
Figure A-16

Lot 3
Saturday Midday
Peak-Hour Traffic Volumes

Vanasse & Associates inc

R:\9301\9301NT2.dwg, 7/18/2023 10:27:16 AM

Copyright © 2023 VAI. All Rights Reserved.



Not To Scale

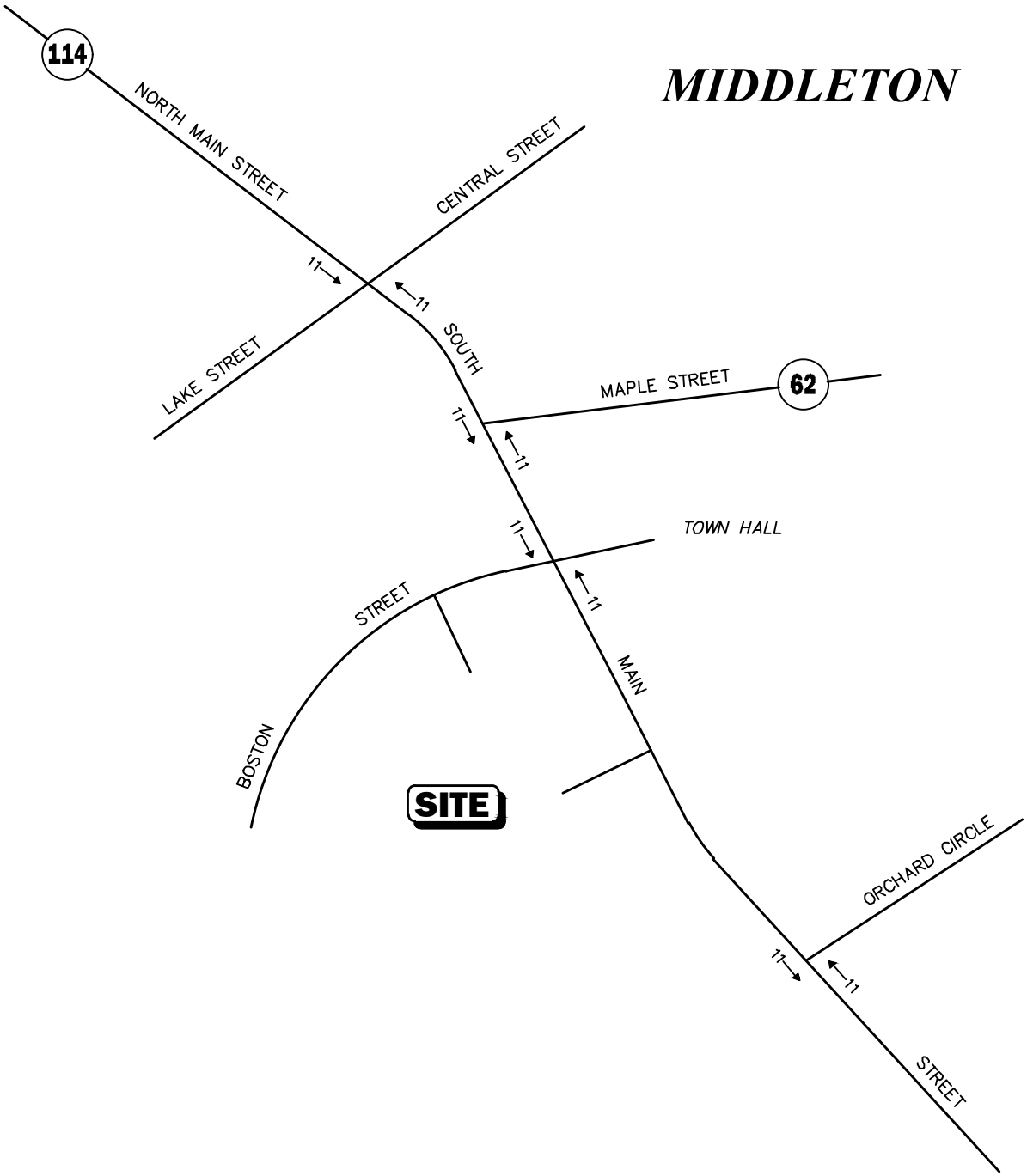
Figure A-17

247 South Main Street
Weekday Morning
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:07:14 PM, DWG To PDF.pc3



Not To Scale

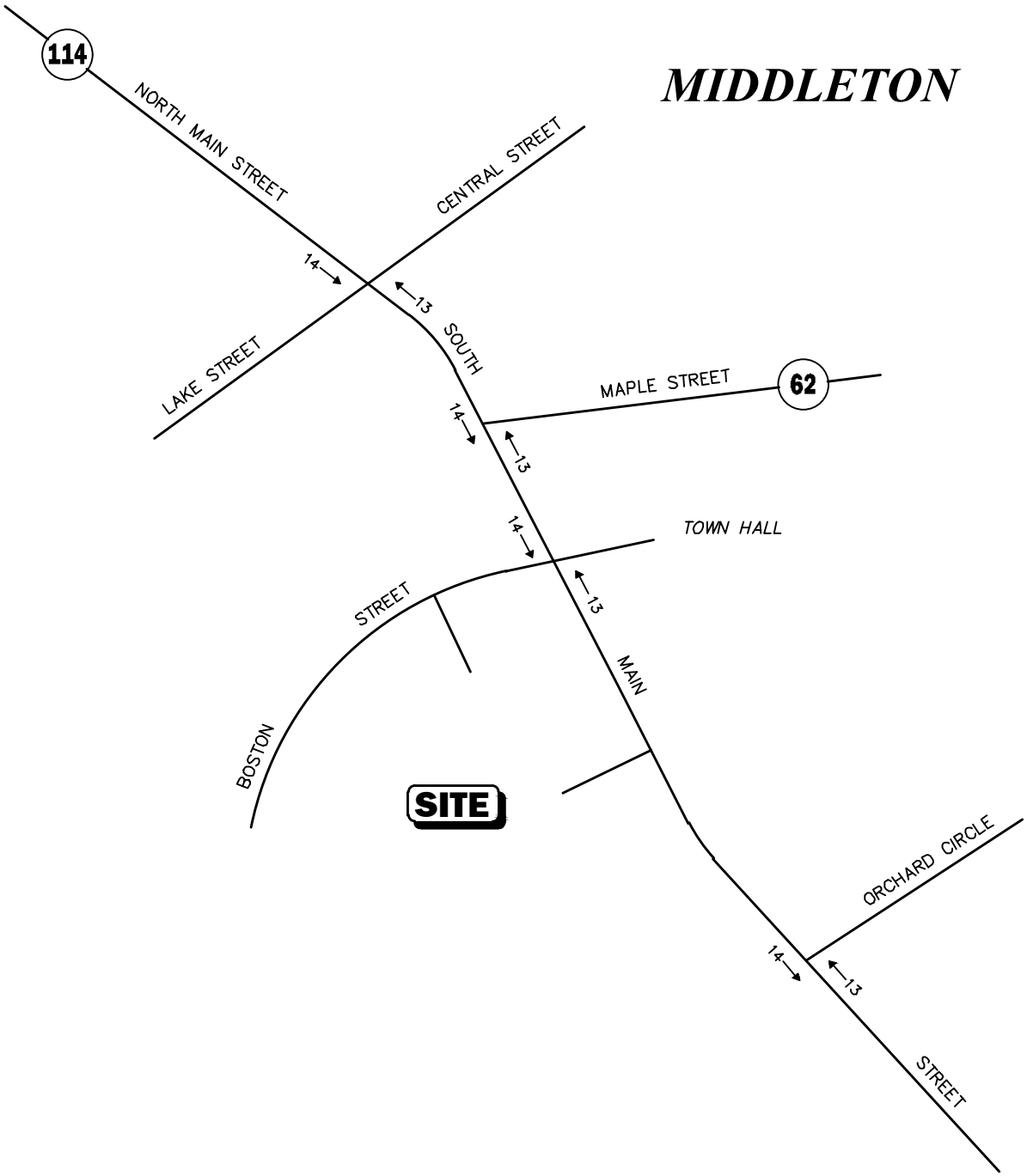
Figure A-18

247 South Main Street
Weekday Evening
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:07:21 PM, DWG To PDF.pc3



Not To Scale

Figure A-19

247 South Main Street
Saturday Midday
Peak-Hour Traffic Volumes

Vanasse & Associates inc

Copyright © 2023 VAI. All Rights Reserved.

R:\9301\9301NT2.dwg, 8/1/2023 4:07:27 PM, DWG To PDF.pc3

TRIP-GENERATION CALCULATIONS

Graph Look Up

Query | Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE :
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

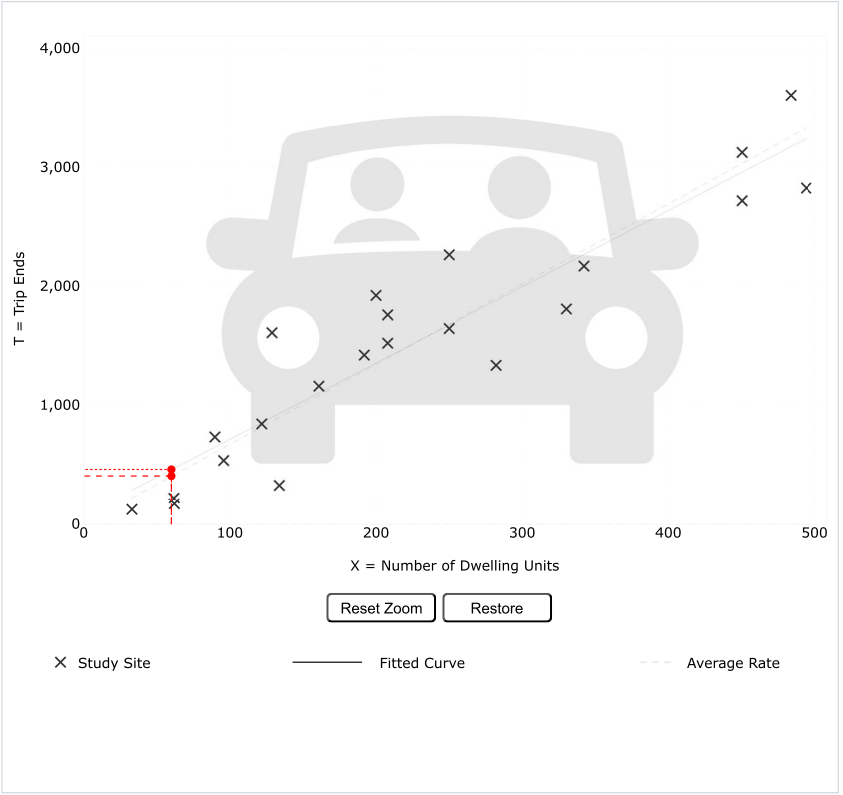
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
60 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:
Multifamily Housing (Low-Rise) - Not Close to Rail Transit (220) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Weekday

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
22

Avg. Num. of Dwelling Units:
229

Average Rate:
6.74

Range of Rates:
2.46 - 12.50

Standard Deviation:
1.79

Fitted Curve Equation:
T = 6.41(X) + 75.31

R^2:
0.86

Directional Distribution:
50% entering, 50% exiting

Calculated Trip Ends:
Average Rate: 404 (Total), 202 (Entry), 202 (Exit)
Fitted Curve: 460 (Total), 230 (Entry), 230 (Exit)

© COPYRIGHT 2023 | DEVELOPED IN COLLABORATION WITH TRANSOFT SOLUTIONS INC.

Graph Look Up

Query | Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE :
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

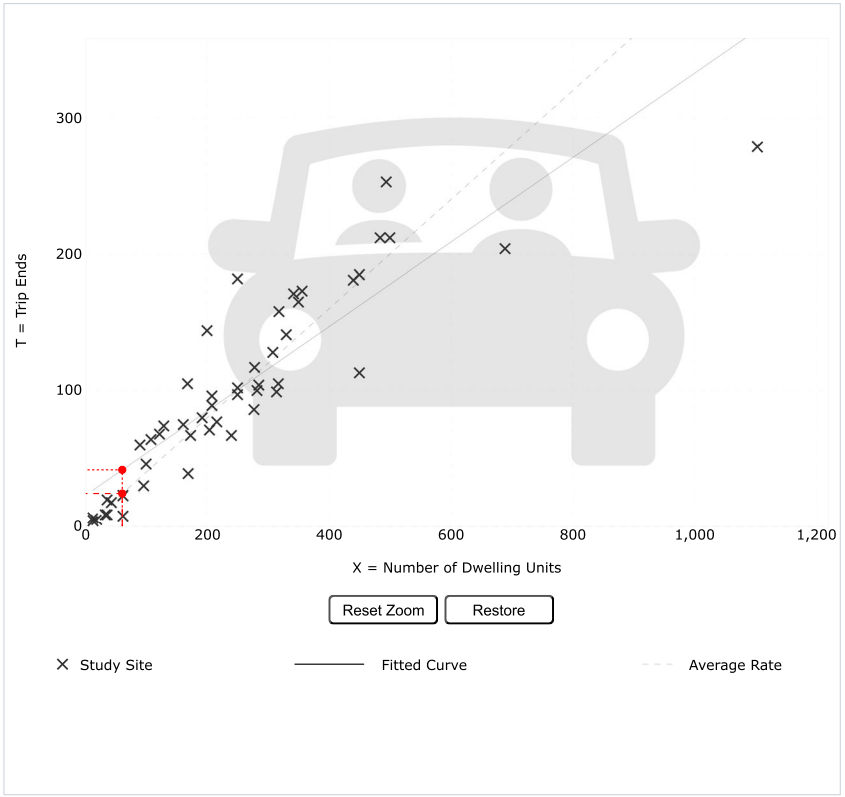
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
60 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:
Multifamily Housing (Low-Rise) - Not Close to Rail Transit (220) Click for Description and Data Plots

Independent Variable:
Dwelling Units

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:
49

Avg. Num. of Dwelling Units:
249

Average Rate:
0.40

Range of Rates:
0.13 - 0.73

Standard Deviation:
0.12

Fitted Curve Equation:
T = 0.31(X) + 22.85

R^2:
0.79

Directional Distribution:
24% entering, 76% exiting

Calculated Trip Ends:
Average Rate: 24 (Total), 6 (Entry), 18 (Exit)
Fitted Curve: 41 (Total), 10 (Entry), 31 (Exit)

© COPYRIGHT 2023 | DEVELOPED IN COLLABORATION WITH TRANSOFT SOLUTIONS INC.

Graph Look Up

Query | Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE :
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

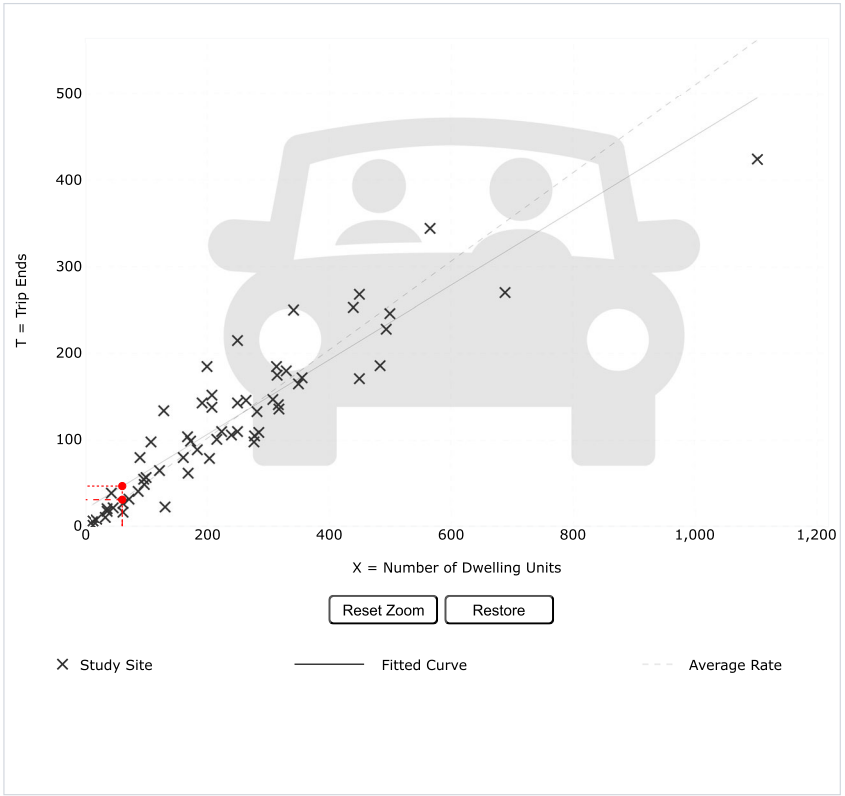
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
60 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:
Multifamily Housing (Low-Rise) - Not Close to Rail Transit (220) Click for Description and Data Plots

Independent Variable:
Dwelling Units

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:
59

Avg. Num. of Dwelling Units:
241

Average Rate:
0.51

Range of Rates:
0.08 - 1.04

Standard Deviation:
0.15

Fitted Curve Equation:
T = 0.43(X) + 20.55

R^2:
0.84

Directional Distribution:
63% entering, 37% exiting

Calculated Trip Ends:
Average Rate: 31 (Total), 19 (Entry), 12 (Exit)
Fitted Curve: 46 (Total), 29 (Entry), 17 (Exit)

© COPYRIGHT 2023 | DEVELOPED IN COLLABORATION WITH TRANSOFT SOLUTIONS INC.

Graph Look Up

Query | Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
220

LAND USE GROUP:
(200-299) Residential

LAND USE :
220 - Multifamily Housing (Low-Rise)

LAND USE SUBCATEGORY:
Not Close to Rail Transit

SETTING/LOCATION:
General Urban/Suburban

INDEPENDENT VARIABLE (IV):
Dwelling Units

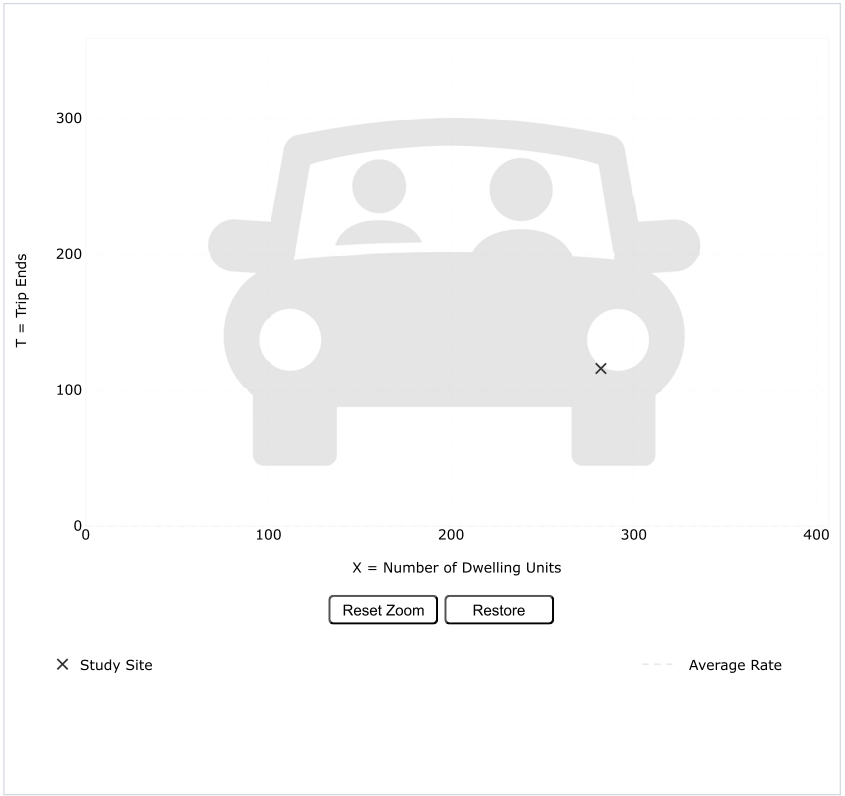
TIME PERIOD:
Saturday, Peak Hour of Generator

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
60 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:
Multifamily Housing (Low-Rise) - Not Close to Rail Transit (220) Click for Description and Data Plots

Independent Variable:
Dwelling Units

Time Period:
Saturday
Peak Hour of Generator

Setting/Location:
General Urban/Suburban

Trip Type:
Vehicle

Number of Studies:
1

Avg. Num. of Dwelling Units:
282

Average Rate:
0.41

Range of Rates:
0.41 - 0.41

Standard Deviation:
****

Fitted Curve Equation:
Not Given

R^2:
****

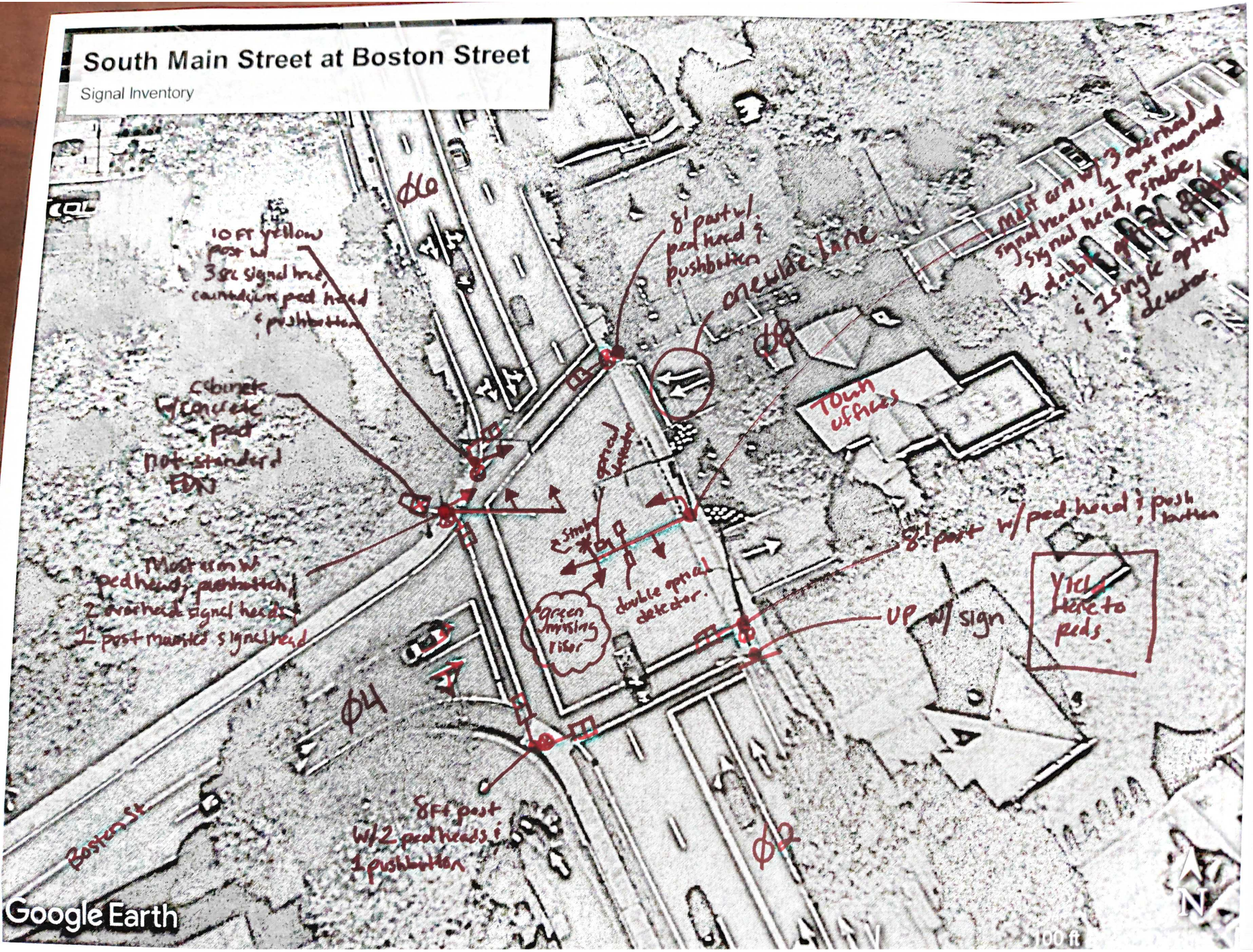
Directional Distribution:
Not available

Calculated Trip Ends:
Average Rate: 25 (Total)

© COPYRIGHT 2023 | DEVELOPED IN COLLABORATION WITH TRANSOFT SOLUTIONS INC.

TRAFFIC SIGNAL INVENTORIES

South Main Street at Boston Street


South Main Street at Boston Street
Signal Inventory
10 FT yellow post w/ 3 sec signal head, countdown ped head & pushbutton
cabinet w/ concrete pad
not standard FDN
Mast arm w/ ped head, pushbutton, 2 overhead signal heads, 1 post mounted signal head
8' post w/ ped head & pushbutton
one wide lane
Mast arm w/ 3 overhead signal heads, 1 post mounted signal head, strobe, 1 double optical detector & 1 single optical detector
Town offices
optical detector
strobe
double optical detector
green missing riser
8' post w/ ped head & push button
UP w/ sign
Yield Here to peds.
8 FT post w/ 2 ped heads & 1 pushbutton
Boston St.
Ø6
Ø8
Ø4
Ø2
Google Earth
100 ft

6/8/2022

S. Main St (Rt. 114) @ Boston St (Rt 62) Field Notes

- Naztec Series 900 controller, GPS. Receiver antenna on top of cabinet
- Boston St speed Limit - 25mph, S. Main St speed limit - 30mph.
- All push buttons working, all countdown heads, non APS buttons
- Loop detection - no faults, all working

Ø	2	4	6	8	9 (exclusive ped Ø)
min green	10	6	10	6	
Veh ext.	2	2	2	2	
max green 1	45	25	45	25	
max green 2	40	20	40	20	
yellow	3	3	3	3	
All red	1	2	1	1	3
WALK	—	—	—	—	5
FDW	—	—	—	—	20
Recall	MIN	off	MIN	off	off
Memory	N-L	N-L	N-L	N-L	LOCK

Ring 1	1	2	9	3	4
Ring 2	5	6	13	7	8

phasing sequence

Ø2+6 → Ø9 → Ø4+8

- permissive lefts
- exclusive ped Ø

Time-of-day coordination

Schedule: cycle 1: M-F 630-930 am & 345-7pm
cycle 2: Sat 1pm-7pm
Cycle 3: Sun 1pm-7pm

125 sec CL, offset (23)
125 sec CL, offset (120)
80 sec CL, offset (73)

Splits:	Ø2	Ø4	Ø6	Ø8	Ø9
cycle 1	55	45	55	45	25
2	55	45	55	45	10
3	40	30	40	30	10

HO? doesn't add up to 125.

Ø2+6 = coord phases.

Loop Det	Ø
1	6
2	6
3	2
4	2
5	4
6	4
7	8

Opticom emergency veh preemption - strobe working
preempt 3 = Ø6, exits Ø2+6
preempt 4 = Ø2, exits Ø2+6
preempt 5 = Ø4, exits Ø2+6.

- signal heads - all 3sec green, yellow & red balls.

no backplates
all tunnel visors, one green indication missing visor


BOSTON
WEST
62
HERE
ONE WAY
TOWN OFFICES
MIDDLETON
FRONTIER
LE 4X4
JOHN Deere
CAT

EAST WEST
62 114
DANVERS
ANDOVER
114 EAST
PEABODY
SALEM
DO NOT ENTER
TOWN OFFICES
MIDDLETON


ONE WAY
DO NOT ENTER
TOWN OFFICES
MIDDLETON
SALEM

Highway Tech
Signal Equipment Sales, Inc.
Tel. (207) 375-8248
Date:
Model No.
Serial Number:
Built By:

WARNING
DO NOT OPERATE CABINET WITHOUT CONFLICT MONITOR (CMU or MMU)

DANGER
115 VOLTS A.C.

NAZTEC, INC.
SUGAR LAND, TEXAS
SS#30568-4004 RE

Field Termination
Route 114 @ Boston Street - Middleton, Mass - Vigil Electric

CHANNEL	STREET	PHASE	SIGNAL	GRN	YEL	RED	G-trans	Y-trans	R-min	WALK	PW
1											
2	Route 114 NB	ø2	C,D	504	505	506					
3											
4	Boston Street EB	ø4	E,F	510	511	512					
5											
6	Route 114 SB	ø6	A,B	516	517	518					
7											
8	Town Office's Driveway WB	ø8	G,H	522	523	524					
9	Emlmwve Ped Crossing	ø9(PED)	P1-P6							525	
10											
11											
12											

Vehicle Detection

DETECTOR #	LOOP SIMULATION	STREET	PHASE	LOOP LOCATION	PANEL TERMINATION	DELAY	EXT	NOTES
1	1	Route 114 SB	ø6	Left Lane	DT2 1&2			
2	2	Route 114 SB	ø6	Right Lane	DT2 3&4			
3	3	Route 114 NB	ø2	Left Lane	DT2 5&6			
4	4	Route 114 NB	ø2	Right Lane	DT2 7&8			
5	5	Boston Street EB	ø4	Left Lane	DT2 9&10			
6	6	Boston Street EB	ø4	Right Lane	DT2 11&12			
7	7	Town Office's Driveway WB	ø8	Single Lane Approach	DT2 13&14			
8			"		DT2 15&16			
9			"		DT3 1&2			
10			"		DT3 3&4			
11			"		DT3 5&6			
12			"		DT3 7&8			
13			"		DT3 9&10			
14			"		DT3 11&12			
15			"		DT3 13&14			
16			"		DT3 15&16			

OVERLAPS
PREEMPTION
PED BUTTON HOOKUP
NOTES

	CH3 ø2	CH1 ø6	CH7 ø8	CH5 ø4	CH11 "	CH9 "	CH15 "	CH13 "
POWER								
TX/STATUS								
BUS INTERFACE UNIT	Route 114 NB	Route 114 SB	Town Office's Driveway WB	Boston Street EB				
	CH4 ø2	CH2 ø6	CH8 ø	CH6 ø4	CH12 "	CH10 "	CH16 "	CH14 "
	Route 114 NB	Route 114 SB		Boston Street EB				
BIU#9	C1	C2	C3	C4	C5	C6	C7	C8

DO NOT PLACE
ANYTHING IN THIS
BAG - LEAVE EMPTY
WHEN SHIPPING

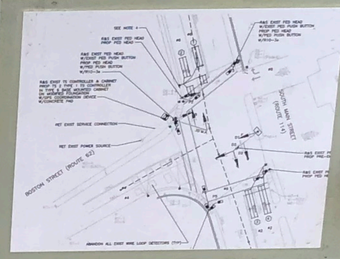
PLACE ALL PRINT,
DRAWINGS,
DOCUMENTS, ETC. IN
DOCUMENT DRAWER
ONLY

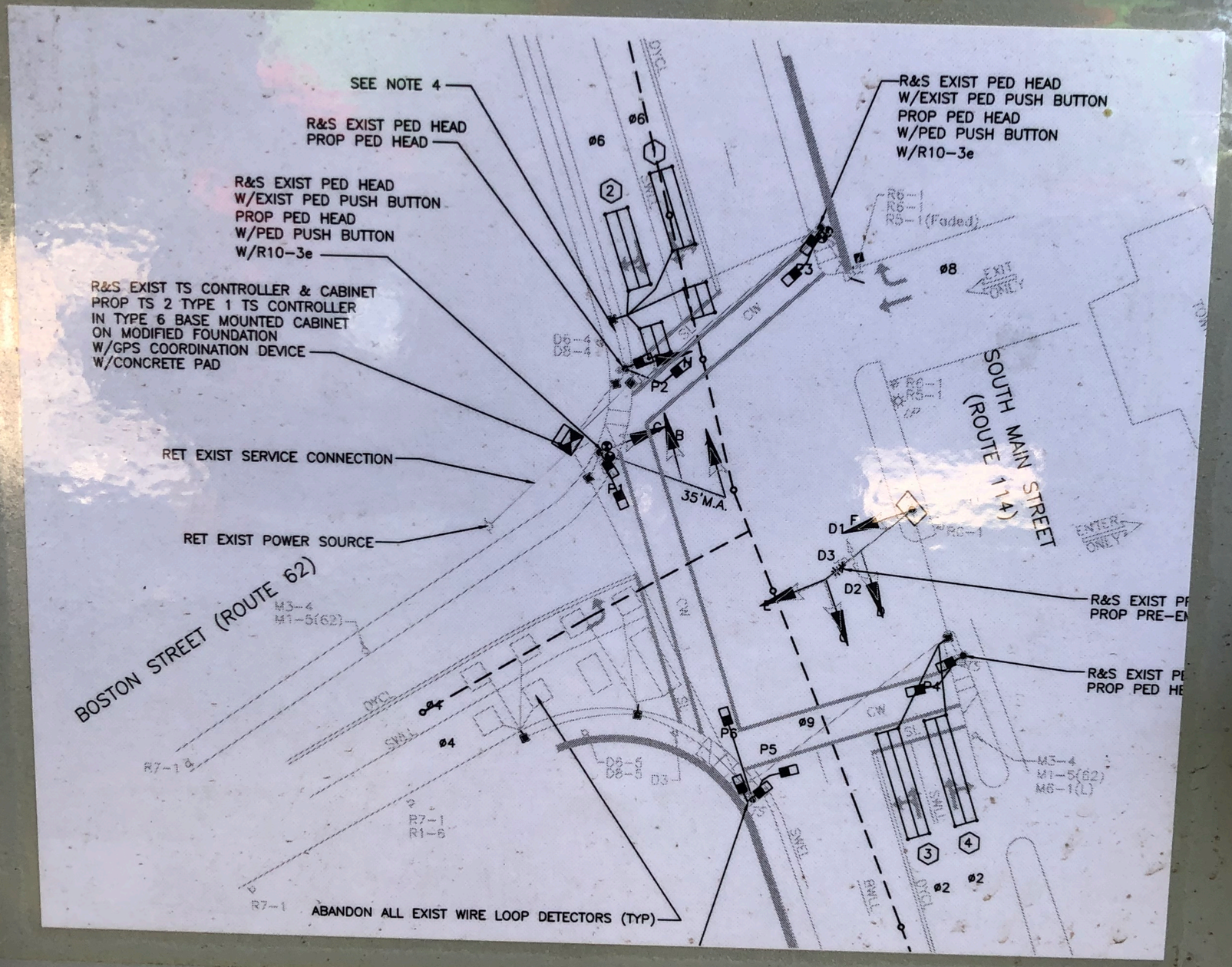
Intersection Timings
Route 114 @ Boston Street - Middleton, Mass - Vigil Electric

Permissives
Ring Structure
Special Functions

Controller Parameters

TB Case, Day Plan List [4.4]
TB Case, Action Table [4.5]
TB Case, Advanced Schedule 1-10 [4.3]




SEE NOTE 4
R&S EXIST PED HEAD
PROP PED HEAD
R&S EXIST PED HEAD
W/EXIST PED PUSH BUTTON
PROP PED HEAD
W/PED PUSH BUTTON
W/R10-3e
R&S EXIST TS CONTROLLER & CABINET
PROP TS 2 TYPE 1 TS CONTROLLER
IN TYPE 6 BASE MOUNTED CABINET
ON MODIFIED FOUNDATION
W/GPS COORDINATION DEVICE
W/CONCRETE PAD
RET EXIST SERVICE CONNECTION
RET EXIST POWER SOURCE
BOSTON STREET (ROUTE 62)
ABANDON ALL EXIST WIRE LOOP DETECTORS (TYP)
R&S EXIST PED HEAD
W/EXIST PED PUSH BUTTON
PROP PED HEAD
W/PED PUSH BUTTON
W/R10-3e
SOUTH MAIN STREET
(ROUTE 114)
35'M.A.
ø6
ø8
ø9
ø4
ø2
P1
P2
P3
P4
P5
P6
D1
D2
D3
D6-4
D8-4
D6-5
D8-5
M3-4
M1-5(62)
M6-1(L)
R7-1
R1-6
R6-1
R5-1(Faded)
EXIT ONLY
ENTER ONLY

Coordination Parameters

Coordination, Modes,+ [2.1]

Test OpMode	0
Correction	SHORT/LONG
Maximum	MAX INH
Force-Off	FLOAT

Close Loop	ON
External	OFF
Coor+Preempt	OFF
Stop-in-Walk	OFF
Walk Recycle	NO_RECYCLE

Auto Err Reset	ON
Leave Walk	
Before	TIMED
After	TIMED

Coordination, Pattern Table [2.4]

Pat#	Cycle	Offset	Split	Seqnc
1				1
2				1
3				1
4				1
5				1
6				1

Coord, Trans/CoorF+ 1-29 [2.5]

Pat#	Short	Long	Dwell	Disable Short F				Early Yld	Offset	RetHold
1	10	24							BegGRN	X
2	10	24							BegGRN	X
3	10	24							BegGRN	X
4		17							BegGRN	X
5		17							BegGRN	X
6		17							BegGRN	X

Coordination Trans/CoorF+ 1-29 [2.6]

Pat#	F Opt	F Time	DetGrp	Call/Inh	OL1 Off	OL2 Off	OL3 Off	OL4 Off	CIC	CNA1	Max2	Dia
1												DFT
2												DFT
3												DFT
4												DFT
5												DFT
6												DFT

TB Coor, Day Plan 1-4 [4.4]

	Day Plan 1 - Sunday-Saturday			Day Plan 2			Day Plan 3		
	Hour	Minute	Action	Hour	Minute	Action	Hour	Minute	Action
1	00	00	54						
2									
3									
4									
5									
6									
7									
8									

TB Coor, Action Table [4.5]

	Pattern	Aux 1	Spec 1
1			
2			
3			
54	254 (FREE)		
55			
56			

TB Coor, Advanced Schedule 1-10 [4.3]

#	Day S	M	T	W	T	F	S	Day Plan
1	X	X	X	X	X	X	X	1
2								2
3								3

Field Termination

Route 114 @ Boston Street - Middleton, Mass - Vigil Electric

CHANNEL	STREET	PHASE	SIGNAL	GRN	YEL	RED	G→←	Y→←	R→←	WALK	DW
1											
2	Route 114 NB	ø2	C,D	*504*	*505*	*506*					
3											
4	Boston Street EB	ø4	E,F	*510*	*511*	*512*					
5											
6	Route 114 SB	ø6	A,B	*516*	*517*	*518*					
7											
8	Town Office's Driveway WB	ø8	G,H	*522*	*523*	*524*					
9	Exclusive Ped Crossing	ø9PED	P1-P6							*525*	*527*
10											
11											
12											

Vehicle Detection

DETECTOR #	LOOP DESIGNATION	STREET	PHASE	LOOP LOCATION	PANEL TERMINATION	DELAY	EXT	NOTES
1	1	Route 114 SB	ø6	Left Lane	DT2 1&2			
2	2	Route 114 SB	ø6	Right Lane	DT2 3&4			
3	3	Route 114 NB	ø2	Left Lane	DT2 5&6			
4	4	Route 114 NB	ø2	Right Lane	DT2 7&8			
5	5	Boston Street EB	ø4	Left Lane	DT2 9&10			
6	6	Boston Street EB	ø4	Right Lane	DT2 11&12			
7	7	Town Office's Driveway WB	ø8	Single Lane Approach	DT2 13&14			
8			ø		DT2 15&16			
9			ø		DT3 1&2			
10			ø		DT3 3&4			
11			ø		DT3 5&6			
12			ø		DT3 7&8			
13			ø		DT3 9&10			
14			ø		DT3 11&12			
15			ø		DT3 13&14			
16			ø		DT3 15&16			

OVERLAPS
OLA=
OLB=
OLC=
OLD=
OLE=
OLF=

PREEMPTION
Pre1 =
Pre2=
CHANNEL A = Pre3 = ø6
CHANNEL B = Pre4 = ø2
CHANNEL C = Pre5 = ø4
CHANNEL D = Pre6 =

PED BUTTON HOOKUP
ø 1=
ø 9= DT1-2
ø 3=
ø 4=
ø 5=
ø 6=
ø 7=

NOTES

6	6	Boston Street EB	ø4	Right Lane	DT2 11&12			
7	7	Town Office's Driveway WB	ø8	Single Lane Approach	DT2 13&14			
8			ø		DT2 15&16			
9			ø		DT3 1&2			
10			ø		DT3 3&4			
11			ø		DT3 5&6			
12			ø		DT3 7&8			
13			ø		DT3 9&10			
14			ø		DT3 11&12			
15								
16								

OLD=
OLE=
OLF=

Pre1 =
Pre2=
CHANNEL A = Pre3 = ø6
CHANNEL B = Pre4 = ø2
CHANNEL C = Pre5 = ø4
CHANNEL D = Pre6 =

ø 1=
ø 9= DT1-2
ø 3=
ø 4=
ø 5=
ø 6=
ø 7=

NAZTEC

POWER

TX/STATUS

BUS
INTERFACE
UNIT

	CH3 ø2	CH1 ø6	CH7 ø8	CH5 ø4	CH11 ø	CH9 ø	CH15 ø	CH13 ø
	Route 114 NB	Route 114 SB	Town Office's Driveway WB	Boston Street EB				
	CH4 ø2	CH2 ø6	CH8 ø	CH6 ø4	CH12 ø	CH10 ø	CH16 ø	CH14 ø
	Route 114 NB	Route 114 SB		Boston Street EB				

BIU#9 C1 C2 C3 C4 C5 C6 C7 C8

BIU#9	C1	C2	C3	C4

Intersection Timings

Route 114 @ Boston Street - Middleton, Mass - Vigil Electric

PHASE	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8	ø9	ø10	ø11	ø12	ø13	ø14	ø15	ø16
MIN GRN		10		6		10		6								
GAP,EXT		2		2		2		2								
MAX I		30		20		30		20								
MAX II		30		20		30		20								
YEL CLR		3		4		3		4								
RED CLR		3		3		3		3	3							
WALK									7							
PED CLR									24							
RED REV																
ADD INIT																
MAX INIT																
GAP,REDU																
TIME B4																
CARS B4																
TIME TO																
REDUCBY																
MIN GAP																
DyMaxLim																
MAX Step																
RECALL																
MEMORY		MIN				MIN										

Permissives

LOAD SWITCH	LS1	LS2	LS3	LS4	LS5	LS6	LS7	LS8	LS9	LS10	LS11	LS12	LS13	LS14	LS15	LS16
DESIGNATION		ø2 Veh		ø4 Veh		ø6 Veh		ø8 Veh	ø9 Ped							
NOTES:																
		2--6		4--8												

	YELLOW CHANNEL DISABLE							
CH9								

HARDWIRE FLASH	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11	CH12	CH13	CH14	CH15	CH16
	RED	YEL	RED	RED	RED	YEL	RED	RED	NON	NON	NON	NON	NON	NON	NON	NON

Ring Structure

Ring Sequence [1.2.4]

Seq #	Ring
1	1
1	2
1	3
1	4

Sequence of Phases

1	2	9	3	4	
5	6	13	7	8	

Ring, Start, Concurrency [1.1.4]

ø	Ring	Start	Concurrent ø's			
1	1	RED	5	6	0	0
2	1	GRN	5	6	0	0
3	1	RED	7	8	0	0
4	1	RED	7	8	0	0
5	2	RED	1	2	0	0
6	2	GRN	1	2	0	0
7	2	RED	3	4	0	0
8	2	RED	3	4	0	0
9	1	RED	13	0	0	0
10	0	RED	0	0	0	0
11	0	RED	0	0	0	0
12	0	RED	0	0	0	0
13	2	RED	9	0	0	0
14	0	RED	0	0	0	0
15	0	RED	0	0	0	0
16	0	RED	0	0	0	0

Special Functions

SERIES 900 TS2

NAZTEC, INC.
NEMA TRAFFIC CONTROLLER

Trafficware

115VAC-1A

MMU 516

NAZTEC, INC.

760 Card Rack

3M 754 Opticom

LMD622t

NAZTEC

BUS INTERFACE UNIT

BIU9

C1 C2 C3 C4 C5 C6 C7 C8

NAZTEC, INC.
NEMA TS2
POWER SUPPLY

MODEL PS2D

SUGAR LAND, TEXAS, USA
SS#30501-4000F Rev.B

PORT 1 (SDLC) CABLE "P1" TERMINALS

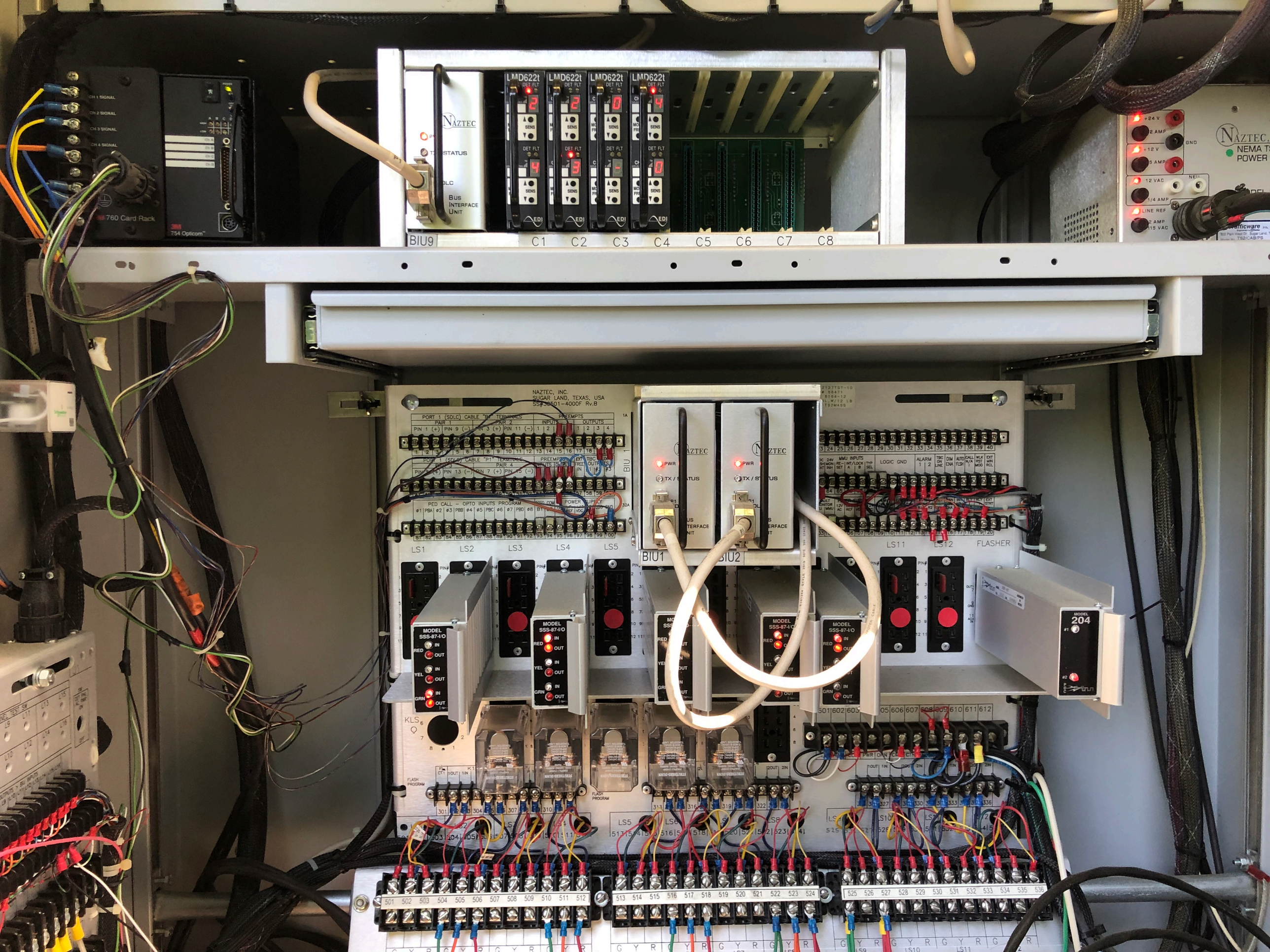
PORT 4 (SDLC) CABLE "P1" TERMINALS

PED CALL – OPTO INPUTS PROGRAMMING

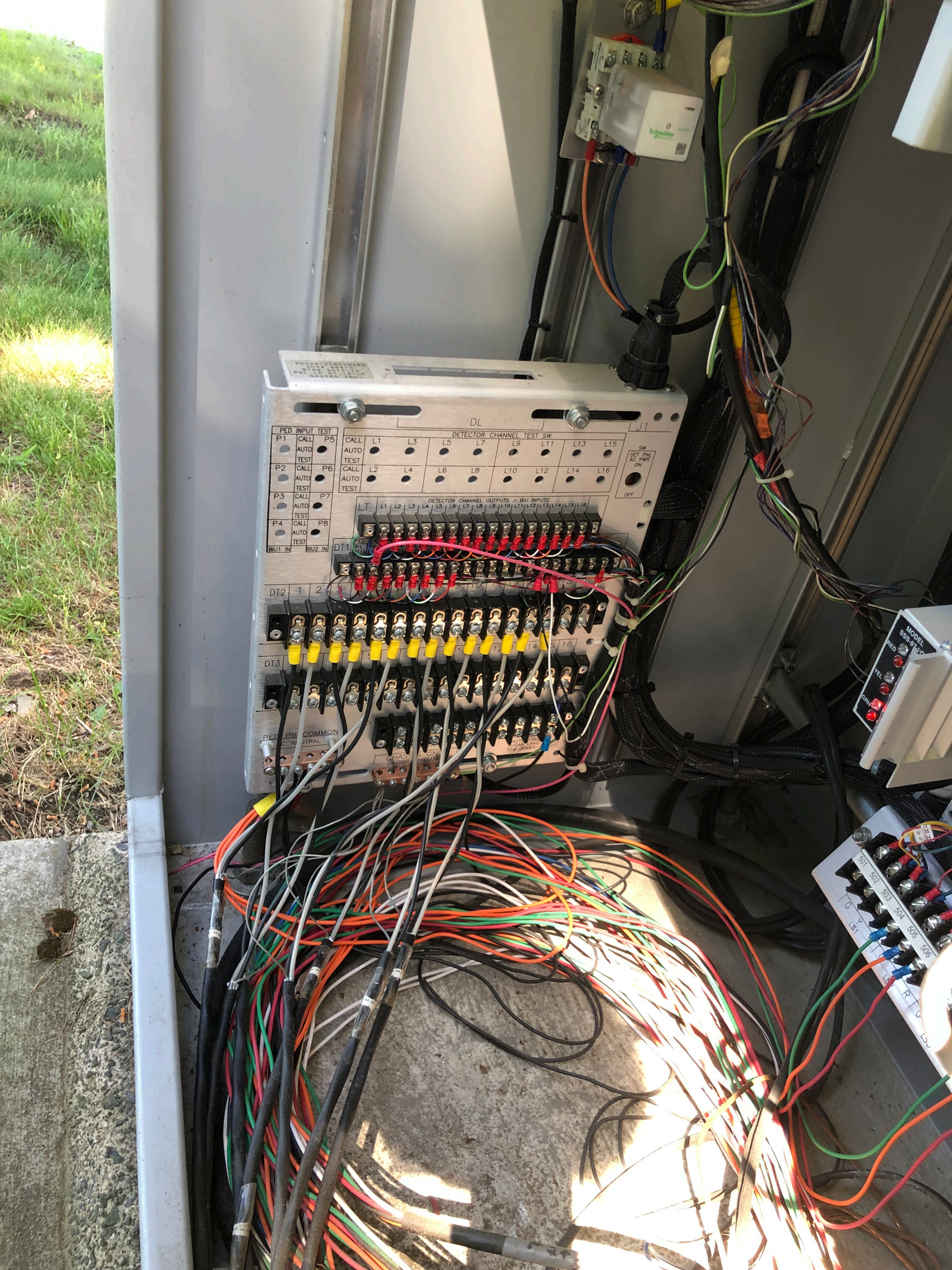
BIU 1

LS1 LS2 LS3 LS4 LS5

LS10 LS11 LS12 FLASHER



LMD622t
NAZTEC
BIU9
C1
C2
C3
C4
C5
C6
C7
C8
NAZTEC, INC.
SUGAR LAND, TEXAS, USA
BIU1
BIU2
LS1
LS2
LS3
LS4
LS5
LS11
LS12
FLASHER
MODEL
SSS-87-I/O
MODEL
204



DL
J1
PED INPUT TEST
P1
P2
P3
P4
P5
P6
P7
P8
CALL
AUTO
TEST
BIU1 IN
BIU2 IN
DETECTOR CHANNEL TEST SW
L1
L2
L3
L4
L5
L6
L7
L8
L9
L10
L11
L12
L13
L14
L15
L16
SW
DET PNL
AC PWR
ON
OFF
DETECTOR CHANNEL OUTPUTS > BIU INPUTS
LT
DT1
DT2
DT3
PED PB COMMON
MODEL
RED
YEL
GRN
501
502
503
504
505
506

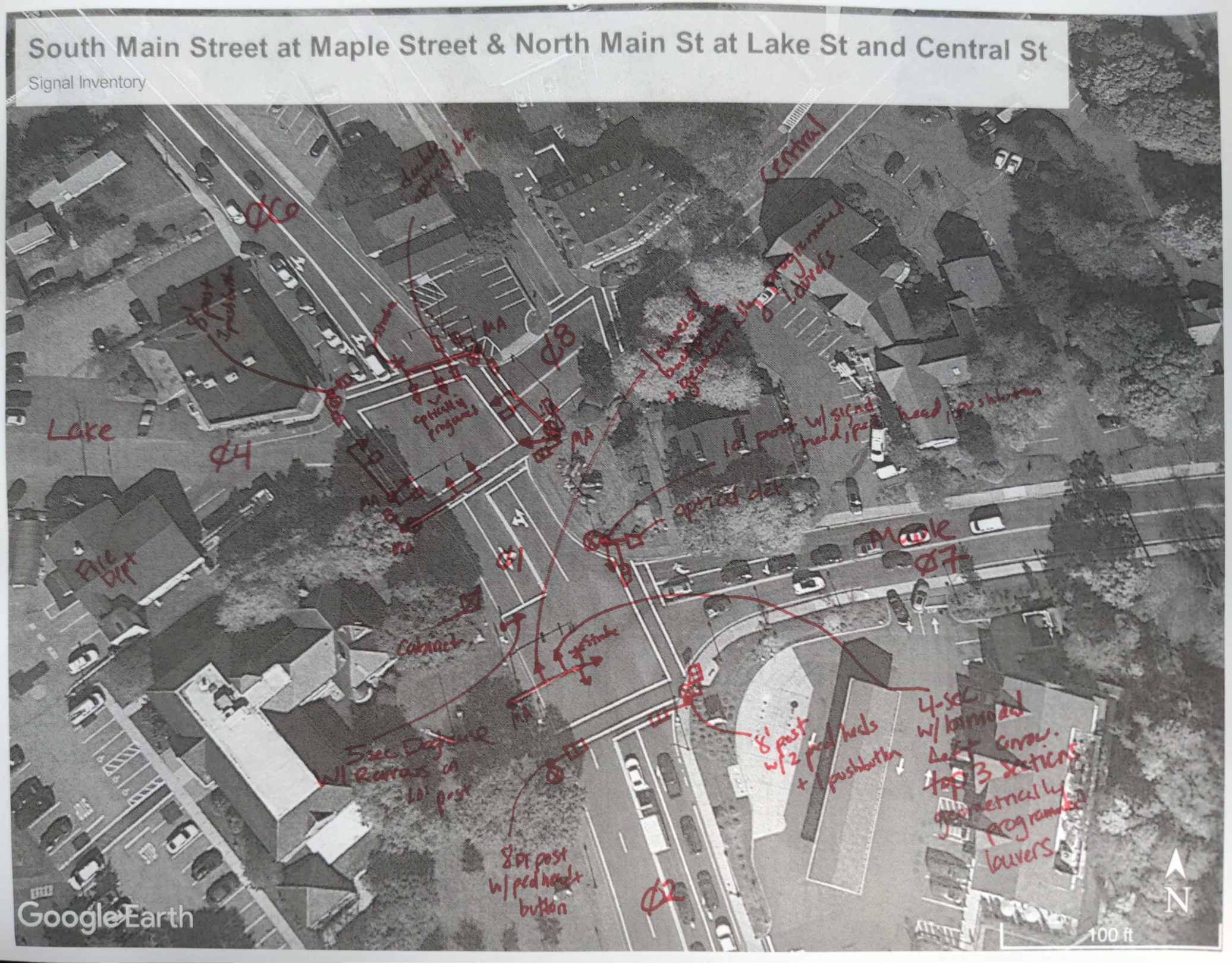

ONE WAY
ONE WAY
Angelica's


ONE WAY

South Main Street at Maple Street and North Main Street at Lake Street and Central Street

South Main Street at Maple Street & North Main St at Lake St and Central St

Signal Inventory



6/8/2022

S. Main St @ Lake/Central } controlled by same cabinet/controller
S. Main St @ Maple

- Naztec series 900 controller, GPS receiver on cabinet
- SMain/N. Main 30mph SL, Maple St 35mph SL

- loop detection all working, no faults.
- countdown ped w/ APS pushbuttons (one per corner)

↷ lag Left

∅	1	2	4	6	7	8	9
min green	10	6	6	5	6	5	exclusive
veh ext	2.5	2	2	2	2	2	ped
max green 1	20	40	10	50	20	15	∅
max green 2	20	35	10	50	20	25	All crossings
yellow	5	5	3	3.5	3	3.5	
all red	2	2	1	0.5	1	0.5	3
ped W	—	—	—	—	—	—	5
ped FDW	—	—	—	—	—	—	20
recall	off	MIN	off	MIN	off	off	off
memory	N-L	LOCK	N-L	LOCK	N-L	N-L	LOCK

Ring 1	2	1	9	4	7
Ring 2	5	6	13	8	3

preempt 3 = ∅1+6, exits 2+6
preempt 4 = ∅2, exits 2+6
preempt 5 = ∅7, exits 2+6
preempt 6 = ∅8, exits 2+6
- looks like a hardwire to Fire station

✓ CLA = ∅ 1, 2, 7
✓ CLB = ∅ 1, 7
✓ CLC = ∅ 6
✓ CLD = ∅ 4, 6, 8
✓ CLE = ∅ 1, 4, 8

coord ∅s 2+6
Force off: Float
Yield coord (permissive)

Time of day coord. schedule M-F 6:30-9:30 am, 3:45-7pm CYCLE 1

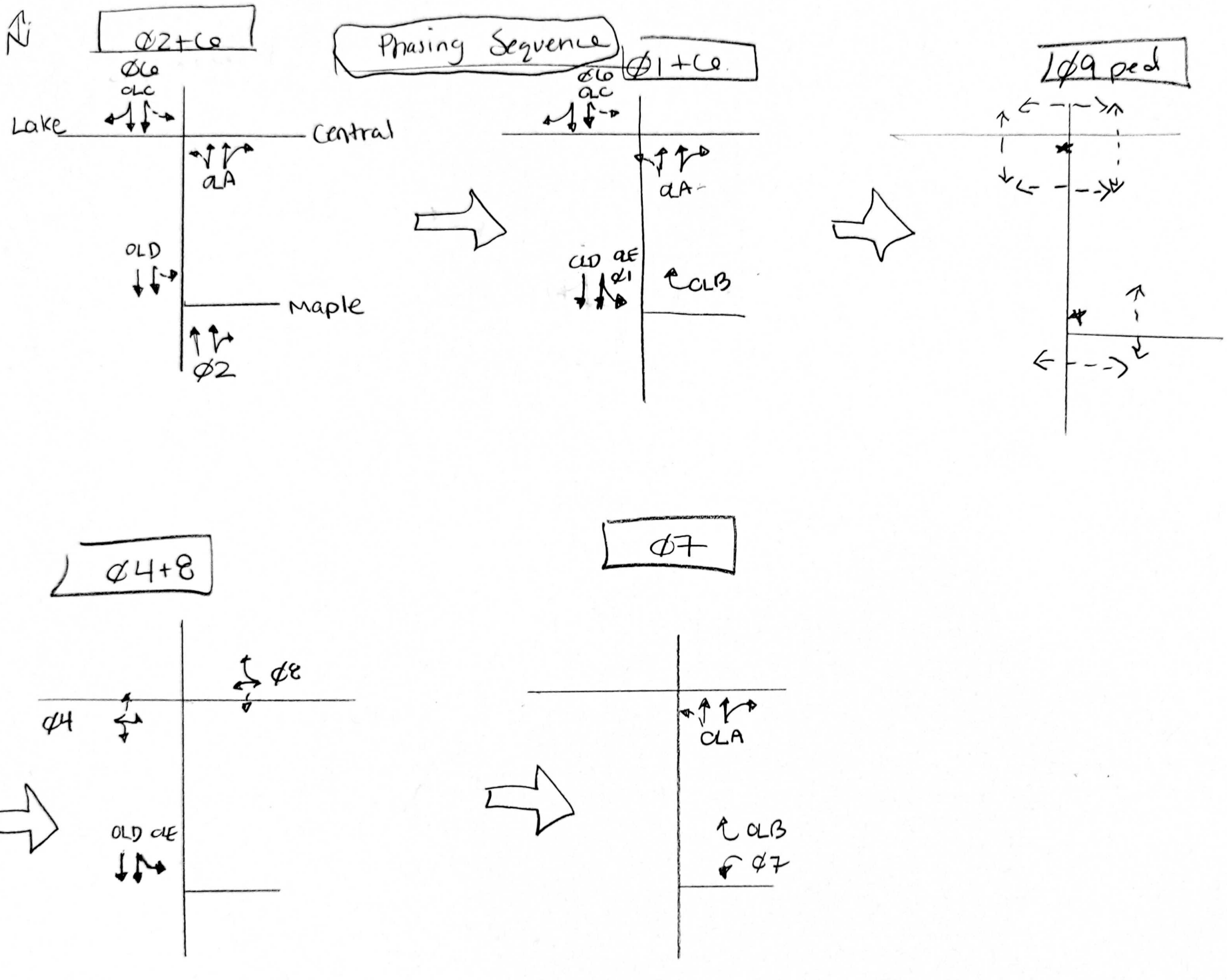
Sat/Sun schedule not set up here.

	∅1	∅2	∅4	∅6	∅7	∅8	∅9
cycle 1: 125 sec CL, offset 0	30	19	20	49	31	20	25
cycle 2: 125 sec CL, offset 0	19	31	20	50	22	20	25
cycle 3: 80 sec CL, offset 0	14	26	13	40	17	13	10

} splits

Det.	∅	Switch ∅
1	6	1
2	2	
3	4	
4	8	
5	7	
6	7	
7	1	

- All 3-sec signal heads plus one 5-sec Doghouse for Maple St right turn overlap.
- one 4-sec signal head for ∅1 w/ geometrically programmed arrows for top 3 sections and bottom bimodal arrow.
- NMain St NB has 2 optically programmed signal heads.
- all Tunnel visors and no backplates except 1 w/ geometrically programmed backplate


Phasing Sequence
Ø2+Ø6
ØL6
ØLC
Lake
Central
ØA
OLD
Maple
Ø2
Ø1+Ø6
ØL6
ØC
ØA
OLD
ØE
Ø1
ØLB
1Ø9 ped
Ø4+8
Ø8
Ø4
OLD
ØE
Ø7
ØLA
ØLB
Ø7


Massachusetts
RWP336
Preserve the Trust
FORESTER
NRT BUS


WEST
62
EAST
114
N. READING
PEABODY


NORTH MAIN ST
MIDDLETON FIRE DEPARTMENT


RAL ST


FOR
LEASE
NORTH MAIN





OLTS A.C.

Coordination Parameters

Coordination, Modes,+ [2.1]

Test OpMode	0
Correction	SHORT/LONG
Maximum	MAX INH
Force-Off	FLOAT

Close Loop	ON
External	OFF
Coor+Preempt	OFF
Stop-in-Walk	OFF
Walk Recycle	NO_RECYCLE

Auto Err Reset	ON
Leave Walk Before	TIMED
Leave Walk After	TIMED

Coordination, Pattern Table [2.4]

Pat#	Cycle	Offset	Split	Seqnc
1				1
2				1
3				1
4				1
5				1
6				1

Coord, Trans/CoorF+ 1-29 [2.5]

Pat#	Short	Long	Dwell	Disable Short F				EarlyYld	Offset	RetHold
1	10	24							BegGRN	X
2	10	24							BegGRN	X
3	10	24							BegGRN	X
4		17							BegGRN	X
5		17							BegGRN	X
6		17							BegGRN	X

Coordination Trans/CoorF+ 1-29 [2.6]

Pat#	F Opt	F Time	DetGrp	Call/Inh	OL1 Off	OL2 Off	OL3 Off	OL4 Off	CIC	CNA1	Max2	Dia
1												DFT
2												DFT
3												DFT
4												DFT
5												DFT
6												DFT

TB Coor, Day Plan 1-4 [4.4]

Day Plan 1 - Sunday-Saturday			
	Hour	Minute	Action
1	00	00	54
2			
3			
4			
5			
6			
7			
8			

Day Plan 2		
	Hour	Minute	Action
1			
2			
3			
4			
5			
6			
7			
8			

Day Plan 3		
	Hour	Minute	Action
1			
2			
3			
4			
5			
6			
7			
8			

TB Coor, Action Table [4.5]

Action	Pattern	Aux 1	Spec 1
1			
2			
3			
54	254 (FREE)		
55			
56			

TB Coor, Advanced Schedule 1-10 [4.3]

#	Day S	M	T	W	T	F	S	Day Plan
1	X	X	X	X	X	X	X	1
2								2
3								3

Highway Tech
Signal Equipment Sales, Inc.
Tel. (207) 375-8248

Date:
Model No.
Built By:
Serial Number:

Termination

Route 114 @ Maple Street / Lake Street / Central Street - Middleton, Mass - Vigil Electric

CHANNEL	STREET	PHASE	SIGNAL	GRN	YEL	RED	G→←	Y→←	R→←	WALK	DW
1	Route 114 SBLT @ Maple St	OLE= 1+4+8	C				← 501	← 502			
2	Route 114 NB @ Maple St	ø2	E,F	504	505	506					
3											
4	Lake St EB @ Route 114	ø4	M,N	510	511	512					
5	Route 114 NB @ Central St	OLA= 1+2+7	G,H	513	514	515					
6	Route 114 SB @ Central St	OLC= 6+7	A,B	516	517	518					
7	Maple St WB	ø7	J,P	519	520	521					
8	Central St WB	ø8	K,L	522	523	524					
9	Maple St WBRT	OLB= 1+7	J				525 →	526 →			
10	Route 114 SB @ Maple St	OLD= 4+6+8	C,D	528	529	530					
11	Exclusive Ped Crossing	ø9PED	P1-P12							531	533
12											

Vehicle Detection

DETECTOR #	LOOP DESIGNATION	STREET	PHASE	LOOP LOCATION	PANEL TERMINATION	DELAY	EXT	NOTES
1	1	Route 114 SB @ Central St	ø6	Thru Lanes	DT2 1&2			Sw. ø1
2	2	Route 114 NB @ Maple St	ø2	Thru Lanes	DT2 3&4			
3	3	Lake St EB @ Route 114	ø4	Single Lane Approach	DT2 5&6			
4	4	Central St WB	ø8	Single Lane Approach	DT2 7&8			
5	5	Maple St WB	ø7	Left Lane	DT2 9&10			
6	6	Maple St WB	ø7	Right Lane	DT2 11&12			
7	7	Route 114 SBLT @ Maple St	ø1	Left Lane	DT2 13&14			
8			ø		DT2 15&16			Sw. ø6
9			ø		DT3 1&2			
10			ø		DT3 3&4			
11			ø		DT3 5&6			
12			ø		DT3 7&8			
13			ø		DT3 9&10			
14			ø		DT3 11&12			
15			ø		DT3 13&14			
16			ø		DT3 15&16			

OVERLAPS
OLA= 1+2+7
OLB= 1+7
OLC= 6+7
OLD= 4+6+8
OLE= 1+4+8
OLF=

PREEMPTION
Pre1 =
CHANNEL A = Pre2= ø4&OLD&OLE
CHANNEL B = Pre3 = ø1&ø6&OLD&OLE&OLC
CHANNEL C = Pre4 = ø2&OLA
CHANNEL D = Pre5 = ø7&OLA
CHANNEL E = Pre6 = ø8&OLD&OLE

PED BUTTON HOOKUP
ø 1=
ø 9= DT1-2
ø 3=
ø 4=
ø 5=
ø 6=
ø 7=

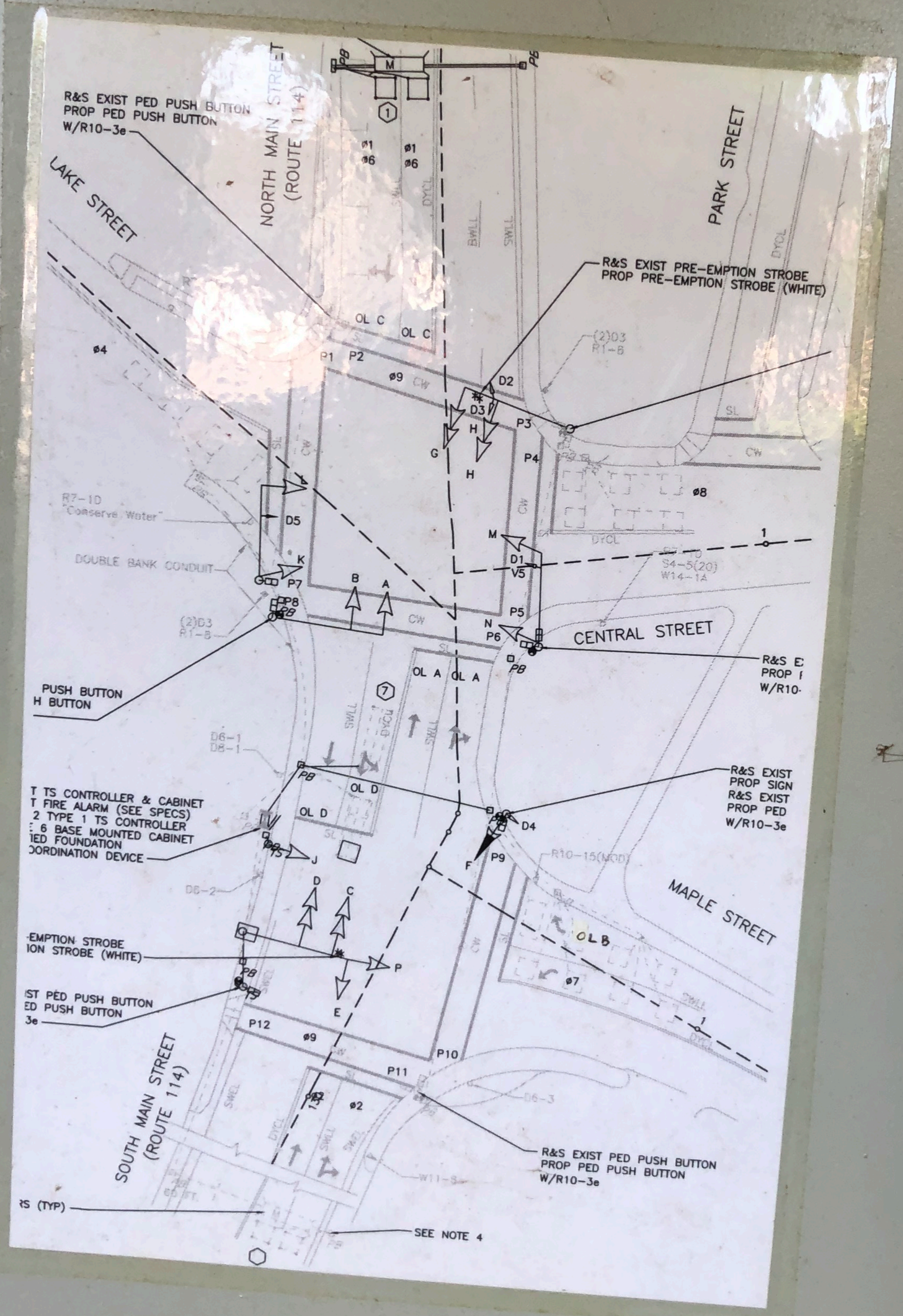
NOTES

NAZTEC

POWER

TX/STATUS

CH3 ø4	CH1 ø6	CH7 ø1	CH5 ø7	CH11 ø	CH9 ø	CH15 ø	CH13 ø
Lake St EB @ Route 114	Route 114 SB @ Central St	Route 114 SBLT @ Maple St	Maple St WB				


NORTH MAIN STREET
(ROUTE 114)
LAKE STREET
PARK STREET
CENTRAL STREET
MAPLE STREET
SOUTH MAIN STREET
(ROUTE 114)
R&S EXIST PED PUSH BUTTON
PROP PED PUSH BUTTON
W/R10-3e
R&S EXIST PRE-EMPTION STROBE
PROP PRE-EMPTION STROBE (WHITE)
R7-10
"Conserve Water"
DOUBLE BANK CONDUIT
(2)D3
R1-6
PUSH BUTTON
H BUTTON
T TS CONTROLLER & CABINET
T FIRE ALARM (SEE SPECS)
2 TYPE 1 TS CONTROLLER
6 BASE MOUNTED CABINET
IED FOUNDATION
DORDINATION DEVICE
-EMPTION STROBE
ION STROBE (WHITE)
IST PED PUSH BUTTON
ED PUSH BUTTON
3e
R&S EXIST
PROP SIGN
R&S EXIST
PROP PED
W/R10-3e
R&S EXIST PED PUSH BUTTON
PROP PED PUSH BUTTON
W/R10-3e
SEE NOTE 4
S4-5(20)
W14-1A
R10-15(MOD)
W11-3
OL A
OL B
OL C
OL D
ø1
ø2
ø4
ø6
ø7
ø8
ø9
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11
P12
D1
D2
D3
D4
D5
D6-1
D6-2
D6-3
D8-1
V5
PB
SL
CW
DYCL
SWLL
BWLL

4+6+8
= 1+4+8
F=

CHANNEL B = Pre3 = ø1&ø6&OLD&OLE&OLC
CHANNEL C = Pre4 = ø2&OLA
CHANNEL D = Pre5 = ø7&OLA
CHANNEL E = Pre6 = ø8&OLD&OLE

ø 4=
ø 5=
ø 6=
ø 7=

NAZTEC

POWER

TX/STATUS

BUS
INTERFACE
UNIT

CH3 ø4	CH1 ø6	CH7 ø1	CH5 ø7	CH11 ø	CH9 ø	CH15 ø	CH13 ø
Lake St EB @ Route 114	Route 114 SB @ Central St	Route 114 SBLT @ Maple St	Maple St WB				
CH4 ø8	CH2 ø2	CH8 ø	CH6 ø7	CH12 ø	CH10 ø	CH16 ø	CH14 ø
Central St WB	Route 114 NB @ Maple St		Maple St WB				

BIU#9

C1 C2 C3 C4 C5 C6 C7 C8

Intersection Timings

Route 114 @ Maple Street / Lake Street / Central Street - Middleton, Mass - Vigil Electric

PHASE	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8	ø9	ø10	ø11	ø12	ø13	ø14	ø15	ø16
MIN GRN	10	6		6		10	6	6								
GAP,EXT	2	2		2		2	2	2								
MAX I	15	30		10		50	20	10								
MAX II	15	30		10		50	20	10								
YEL CLR	4	4		4		4	4	4								
RED CLR	2	2		2				2	1							
WALK									7							
PED CLR									22							
RED REV																
ADD INIT																
MAX INIT																
GAP,REDU																
TIME B4																
CARS B4																
TIME TO																
REDUCBY																
MIN GAP																
DyMaxLim																
MAX Step																
RECALL		MIN				MIN										
MEMORY																

Permissives

LOAD SWITCH	LS1	LS2	LS3	LS4	LS5	LS6	LS7	LS8	LS9	LS10	LS11	LS12	LS13	LS14	LS15	LS16
DESIGNATION	OLE= 1+4+8	ø2 Veh		ø4 Veh	OLA= 1+2+7	OLC= 6+7	ø7 Veh	ø8 Veh	OLB= 1+7	OLD= 4+6+8	ø9 Ped					
NOTES:					5--6	6--7			9--10							
	1--4	2--5			5--7		7--9	8--10								
	1--5	2--6				6--9										
	1--6			4--8	5--9	6--10										
				4--10												
	1--8															
	1--9	2--10														
	1--10															

YELLOW CHANNEL DISABLE

		CH11					

HARDWIRE FLASH	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10	CH11	CH12	CH13	CH14	CH15	CH16
	RED	YEL	RED	RED	YEL	YEL	RED	RED	NON	YEL	NON	NON	NON	NON	NON	NON

Ring Structure

Ring Sequence [1.2.4]

Seq #	Ring
1	1
1	2
1	3
1	4

Sequence of Phases

1	2	9	4	7	
5	6	13	8	3	

Ring, Start, Concurrency [1.1.4]

ø	Ring	Start	Concurrent ø's			
1	1	RED	5	6	0	0
2	1	GRN	5	6	0	0
3	2	RED	7	0	0	0
4	1	RED	8	0	0	0
5	2	RED	1	2	0	0
6	2	GRN	1	2	0	0
7	1	RED	3	0	0	0
8	2	RED	4	0	0	0

ø	Ring	Start	Concurrent ø's			
9	1	RED	13	0	0	0
10	0	RED	0	0	0	0
11	0	RED	0	0	0	0
12	0	RED	0	0	0	0
13	2	RED	9	0	0	0
14	0	RED	0	0	0	0
15	0	RED	0	0	0	0
16	0	RED	0	0	0	0

Special Functions

SERIES 900 TS2

NAZTEC, INC.
NEMA TRAFFIC
CONTROLLER

OPERATION
1. PRESS ANY KEY TO ACTIVATE DISPLAY
2. PRESS MAIN MENU (DISP CTRL) FOR MAIN MENU
3. PRESS # KEY OF MAIN MENU ITEM TO SELECT
4. PRESS ALT FCN TWICE FOR HELP ft TO EXIT HELP

FUNCTIONS
ENTR — ENTER DATA OR EXECUTE COMMAND
ESC — ESCAPE TO PREVIOUS SCREEN/MENU
MAIN/DISP — IF NOT AT MAIN MENU, DISPLAY MAIN MENU IMMEDIATELY; IF AT MAIN MENU, TOGGLE BACKLIGHT ON/OFF

ALTERNATE FUNCTIONS
PRESS ALT FCN, THEN ONE OF THE FOLLOWING:
ESC — CLEAR ENTRY
ALT FCN — TOGGLE HELP
MAIN/DISP — TOGGLE BACKLIGHT
9 — LOG OFF

SYSTEM
P-A
PC/PRINT
E NET
FBK

Trafficware P/N 50099-22500-1
802 Park West Dr., Sugar Land, TX 77478
Model No. 980-A2500-1 Voltage 115VAC
Serial No. 1342-008-4529 Date 10/14/13

115VAC-1A

CONFLICT
RED FAIL
CVVM
24V-1
24V-2
RED+YEL CLR
CLEARANCE
DIAGNOSTICS
PORT 1
PRGM-CARD
INDICATION
FIELD CHECK
LOCAL FLASH
POWER
TYPE 12
RESET
PORT 1 SDLC
PORT 2 RS-232

MMU 516
NAZTEC, INC.

LMD622t DET FLT
LMD622t DET FLT
LMD622t DET FLT
LMD622t DET FLT

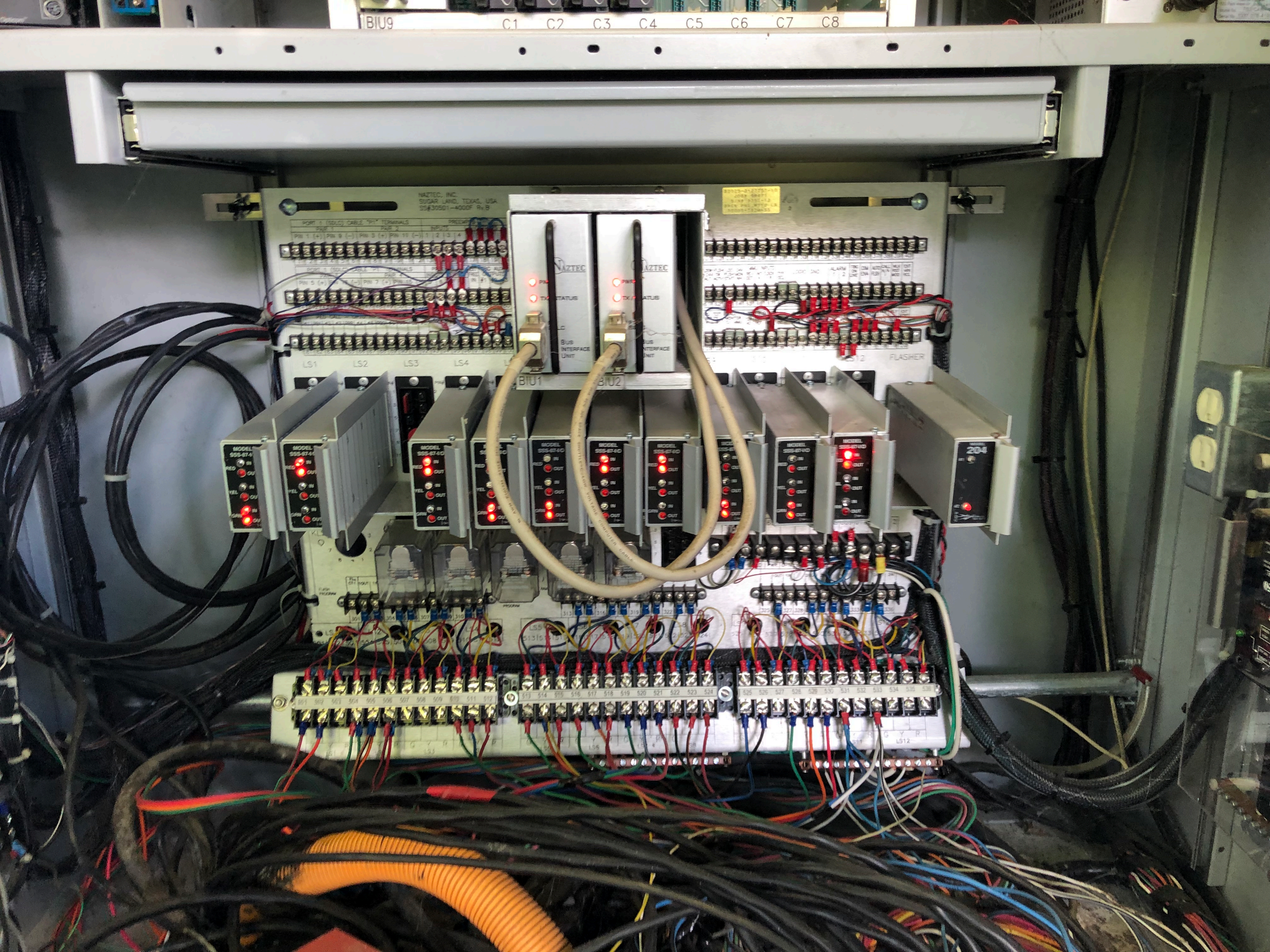
NAZTEC
STATUS
BUS INTERFACE UNIT

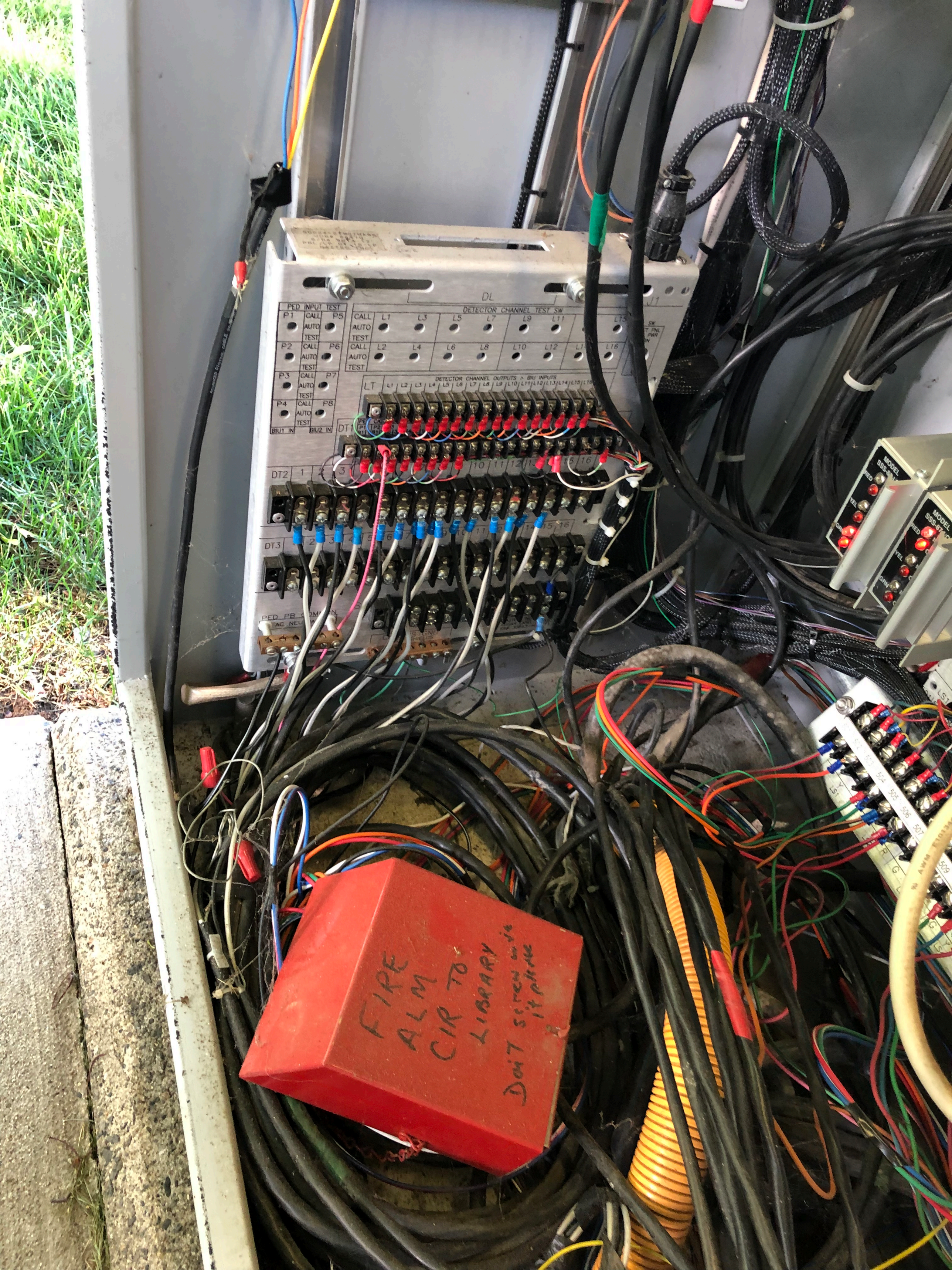
BIU9
C1 C2 C3 C4 C5 C6 C7 C8

+24 V 2 AMP
+12 V 5 AMP
12 VAC 1/4 AMP
GND
NEU
LINE REF
2 AMP 115 VAC

LS1 LS2 LS3 LS4
LS9 LS10 LS11 LS12 FLASHER

MODEL 204


BIU9
C1
C2
C3
C4
C5
C6
C7
C8
NAZTEC, INC.
SUGAR LAND, TEXAS, USA
NAZTEC
BIU1
BIU2
LS1
LS2
LS3
LS4
FLASHER
204


DL
J1
PED INPUT TEST
DETECTOR CHANNEL TEST SW
DETECTOR CHANNEL OUTPUTS > BIU INPUTS
DT1
DT2
DT3
BIU1 IN
BIU2 IN
FIRE
ALM
CIR TO
LIBRARY
Don't screw with it please


CENTRAL
NORTH MAI

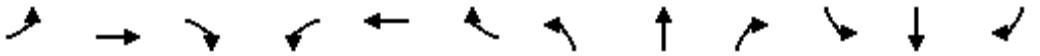

CENTRAL
NORTH MAIN ST
MIDDLETON FIRE DEPARTMENT
MacDonald & Pangione Insurance
MacDonald & Pangione Insurance


WARNING

CAPACITY ANALYSIS WORKSHEETS

South Main Street (Route 114) at Boston Street (Route 62) and the Town Hall Driveways
South Main Street (Route 114) at Maple Street (Route 62)
North Main Street (Route 114) and South Main Street (Route 114) at Central Street and Lake Street
South Main Street (Route 114) at Orchard Circle
Boston Street at the Northbound Project Site Driveway
South Main Street at the Eastbound Project Site Driveway

South Main Street (Route 114) at Boston Street (Route 62) and the Town Hall Driveways



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	6	72	1	0	5	57	828	2	6	874	285
Future Volume (vph)	230	6	72	1	0	5	57	828	2	6	874	285
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.862			0.890						0.963	
Flt Protected	0.950				0.991			0.997				
Satd. Flow (prot)	1547	1508	0	0	1899	0	0	3461	0	0	3488	0
Flt Permitted	0.747				0.971			0.738			0.951	
Satd. Flow (perm)	1217	1508	0	0	1861	0	0	2562	0	0	3317	0
Satd. Flow (RTOR)		84			52						42	
Adj. Flow (vph)	267	7	84	3	0	13	63	920	2	6	920	300
Lane Group Flow (vph)	267	91	0	0	16	0	0	985	0	0	1226	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	45.0	45.0		45.0	45.0		55.0	55.0		55.0	55.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%		44.0%	44.0%		44.0%	44.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	0.0			-1.0			0.0			0.0	
Total Lost Time (s)	4.0	5.0			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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.82	0.20			0.03			0.58			0.55	
Control Delay	61.6	8.4			0.2			14.3			15.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	61.6	8.4			0.2			14.3			15.8	
Queue Length 50th (ft)	202	4			0			210			362	
Queue Length 95th (ft)	258	37			0			345			m434	
Internal Link Dist (ft)		1938			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	405	547			655			1709			2227	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.66	0.17			0.02			0.58			0.55	

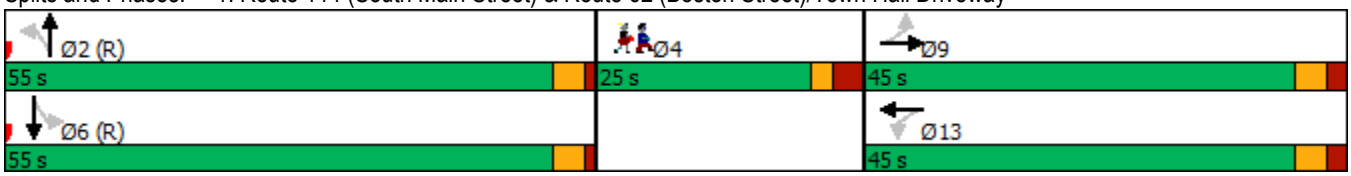
Intersection Summary
Cycle Length: 125

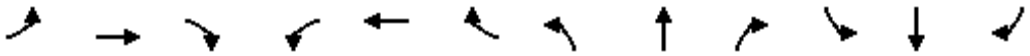
Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 125
Offset: 23 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway

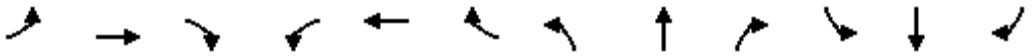




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	230	6	72	1	0	5	57	828	2	6	874	285
Future Volume (vph)	230	6	72	1	0	5	57	828	2	6	874	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	5.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.86			0.89			1.00			0.96	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1547	1507			1899			3459			3488	
Flt Permitted	0.75	1.00			0.97			0.74			0.95	
Satd. Flow (perm)	1217	1507			1861			2559			3316	
Peak-hour factor, PHF	0.86	0.86	0.86	0.38	0.38	0.38	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	267	7	84	3	0	13	63	920	2	6	920	300
RTOR Reduction (vph)	0	62	0	0	12	0	0	0	0	0	14	0
Lane Group Flow (vph)	267	29	0	0	4	0	0	985	0	0	1212	0
Heavy Vehicles (%)	5%	5%	5%	0%	0%	0%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	32.6	32.6			32.6			83.4			83.4	
Effective Green, g (s)	33.6	32.6			33.6			83.4			83.4	
Actuated g/C Ratio	0.27	0.26			0.27			0.67			0.67	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	327	393			500			1707			2212	
v/s Ratio Prot		0.02										
v/s Ratio Perm	c0.22				0.00			c0.38			0.37	
v/c Ratio	0.82	0.07			0.01			0.58			0.55	
Uniform Delay, d1	42.8	34.8			33.5			11.3			10.9	
Progression Factor	1.00	1.00			1.00			1.00			1.29	
Incremental Delay, d2	14.5	0.1			0.0			1.4			0.6	
Delay (s)	57.3	34.9			33.5			12.7			14.7	
Level of Service	E	C			C			B			B	
Approach Delay (s)		51.6			33.5			12.7			14.7	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	312	4	124	3	3	5	81	913	6	11	807	252
Future Volume (vph)	312	4	124	3	3	5	81	913	6	11	807	252
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.855			0.936			0.999			0.965	
Flt Protected	0.950				0.987			0.996			0.999	
Satd. Flow (prot)	1608	1555	0	0	1989	0	0	3592	0	0	3561	0
Flt Permitted	0.745				0.950			0.653			0.938	
Satd. Flow (perm)	1261	1555	0	0	1915	0	0	2355	0	0	3343	0
Satd. Flow (RTOR)		146			9			1			39	
Adj. Flow (vph)	367	5	146	5	5	9	91	1026	7	12	859	268
Lane Group Flow (vph)	367	151	0	0	19	0	0	1124	0	0	1139	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	45.0	45.0		45.0	45.0		55.0	55.0		55.0	55.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%		44.0%	44.0%		44.0%	44.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-2.0			-1.0			0.0			0.0	
Total Lost Time (s)	4.0	3.0			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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.85	0.24			0.03			0.81			0.57	
Control Delay	56.1	5.1			16.3			26.9			11.3	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	56.1	5.1			16.3			26.9			11.3	
Queue Length 50th (ft)	268	3			5			364			93	
Queue Length 95th (ft)	344	37			11			514			288	
Internal Link Dist (ft)		1938			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	451	661			691			1396			1997	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.81	0.23			0.03			0.81			0.57	

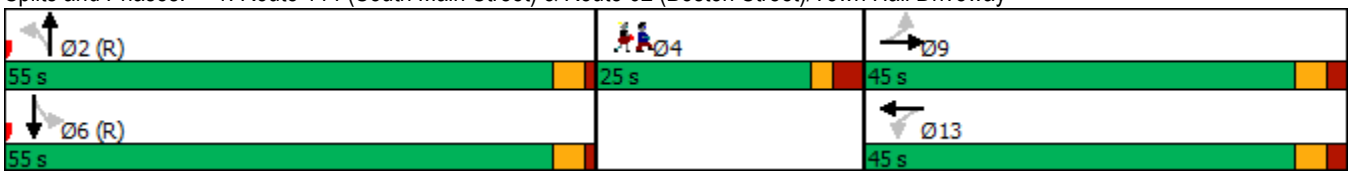
Intersection Summary
Cycle Length: 125

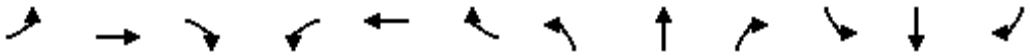
Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 125
Offset: 23 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway

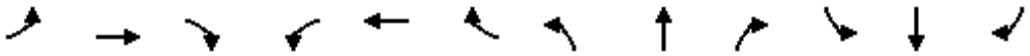




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	312	4	124	3	3	5	81	913	6	11	807	252
Future Volume (vph)	312	4	124	3	3	5	81	913	6	11	807	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	3.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.85			0.94			1.00			0.96	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1608	1555			1989			3592			3561	
Flt Permitted	0.75	1.00			0.95			0.65			0.94	
Satd. Flow (perm)	1261	1555			1915			2355			3342	
Peak-hour factor, PHF	0.85	0.85	0.85	0.55	0.55	0.55	0.89	0.89	0.89	0.94	0.94	0.94
Adj. Flow (vph)	367	5	146	5	5	9	91	1026	7	12	859	268
RTOR Reduction (vph)	0	95	0	0	6	0	0	0	0	0	16	0
Lane Group Flow (vph)	367	56	0	0	13	0	0	1124	0	0	1123	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	41.9	41.9			41.9			74.1			74.1	
Effective Green, g (s)	42.9	43.9			42.9			74.1			74.1	
Actuated g/C Ratio	0.34	0.35			0.34			0.59			0.59	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	432	546			657			1396			1981	
v/s Ratio Prot		0.04										
v/s Ratio Perm	c0.29				0.01			c0.48			0.34	
v/c Ratio	0.85	0.10			0.02			0.80			0.57	
Uniform Delay, d1	38.1	27.3			27.1			19.8			15.6	
Progression Factor	1.00	1.00			1.00			1.00			0.65	
Incremental Delay, d2	14.4	0.1			0.0			5.0			0.9	
Delay (s)	52.5	27.4			27.2			24.8			10.9	
Level of Service	D	C			C			C			B	
Approach Delay (s)		45.2			27.2			24.8			10.9	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	4	124	1	1	1	86	857	3	14	835	207
Future Volume (vph)	226	4	124	1	1	1	86	857	3	14	835	207
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.855			0.955						0.971	
Flt Protected	0.950				0.984			0.995			0.999	
Satd. Flow (prot)	1608	1555	0	0	2024	0	0	3556	0	0	3583	0
Flt Permitted	0.752				0.943			0.687			0.935	
Satd. Flow (perm)	1273	1555	0	0	1939	0	0	2456	0	0	3353	0
Satd. Flow (RTOR)		141			3						29	
Adj. Flow (vph)	257	5	141	3	3	3	91	902	3	15	879	218
Lane Group Flow (vph)	257	146	0	0	9	0	0	996	0	0	1112	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	45.0	45.0		45.0	45.0		55.0	55.0		55.0	55.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%		44.0%	44.0%		44.0%	44.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)	4.0	4.0			4.0			3.0			3.0	
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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.80	0.29			0.02			0.59			0.48	
Control Delay	61.3	7.0			24.7			13.1			16.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	61.3	7.0			24.7			13.1			16.8	
Queue Length 50th (ft)	195	3			4			200			347	
Queue Length 95th (ft)	259	46			5			339			m413	
Internal Link Dist (ft)		929			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	419	607			641			1697			2326	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.61	0.24			0.01			0.59			0.48	

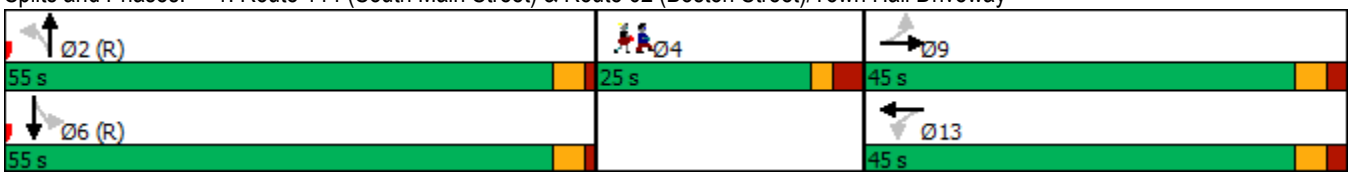
Intersection Summary
Cycle Length: 125

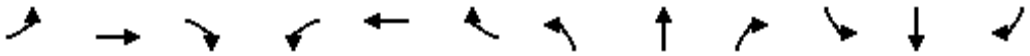
Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 125
Offset: 23 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway

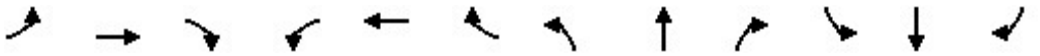




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	4	124	1	1	1	86	857	3	14	835	207
Future Volume (vph)	226	4	124	1	1	1	86	857	3	14	835	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	4.0			4.0			3.0			3.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.86			0.95			1.00			0.97	
Flt Protected	0.95	1.00			0.98			1.00			1.00	
Satd. Flow (prot)	1608	1555			2023			3556			3582	
Flt Permitted	0.75	1.00			0.94			0.69			0.93	
Satd. Flow (perm)	1273	1555			1939			2453			3351	
Peak-hour factor, PHF	0.88	0.88	0.88	0.38	0.38	0.38	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	257	5	141	3	3	3	91	902	3	15	879	218
RTOR Reduction (vph)	0	105	0	0	2	0	0	0	0	0	9	0
Lane Group Flow (vph)	257	41	0	0	7	0	0	996	0	0	1103	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	30.6	30.6			30.6			85.4			85.4	
Effective Green, g (s)	31.6	31.6			31.6			86.4			86.4	
Actuated g/C Ratio	0.25	0.25			0.25			0.69			0.69	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	321	393			490			1695			2316	
v/s Ratio Prot		0.03										
v/s Ratio Perm	c0.20				0.00			c0.41			0.33	
v/c Ratio	0.80	0.10			0.01			0.59			0.48	
Uniform Delay, d1	43.7	35.8			35.0			10.0			8.9	
Progression Factor	1.00	1.00			1.00			1.00			1.68	
Incremental Delay, d2	13.3	0.1			0.0			1.5			0.4	
Delay (s)	57.1	35.9			35.0			11.5			15.4	
Level of Service	E	D			D			B			B	
Approach Delay (s)		49.4			35.0			11.5			15.4	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	6	126	1	0	5	95	1014	2	6	1103	318
Future Volume (vph)	260	6	126	1	0	5	95	1014	2	6	1103	318
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.857			0.890						0.967	
Flt Protected	0.950				0.991			0.996				
Satd. Flow (prot)	1547	1499	0	0	1899	0	0	3457	0	0	3502	0
Flt Permitted	0.747				0.967			0.563			0.950	
Satd. Flow (perm)	1217	1499	0	0	1853	0	0	1954	0	0	3327	0
Satd. Flow (RTOR)		147			52						36	
Adj. Flow (vph)	302	7	147	3	0	13	106	1127	2	6	1161	335
Lane Group Flow (vph)	302	154	0	0	16	0	0	1235	0	0	1502	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	45.0	45.0		45.0	45.0		55.0	55.0		55.0	55.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%		44.0%	44.0%		44.0%	44.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	0.0			-1.0			0.0			0.0	
Total Lost Time (s)	4.0	5.0			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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.83	0.29			0.03			0.99			0.70	
Control Delay	59.8	6.4			0.2			47.4			21.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	59.8	6.4			0.2			47.4			21.8	
Queue Length 50th (ft)	227	4			0			487			454	
Queue Length 95th (ft)	288	43			0			#746			m577	
Internal Link Dist (ft)		1938			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	414	596			664			1246			2135	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.73	0.26			0.02			0.99			0.70	

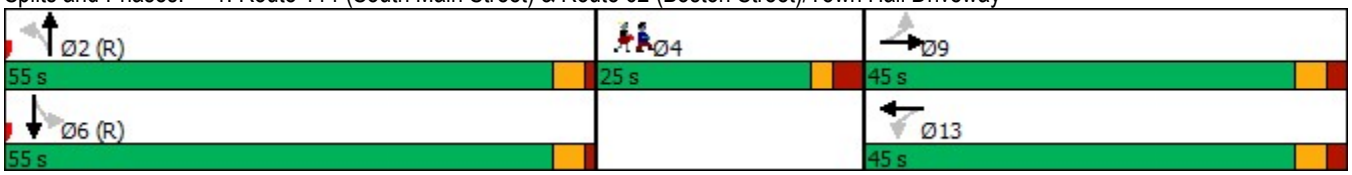
Intersection Summary
Cycle Length: 125

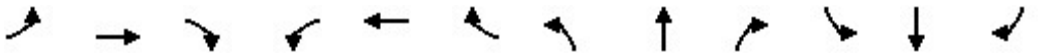
Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 125
Offset: 23 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway

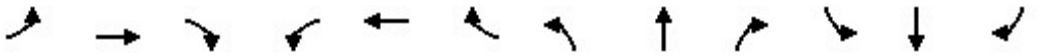




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	6	126	1	0	5	95	1014	2	6	1103	318
Future Volume (vph)	260	6	126	1	0	5	95	1014	2	6	1103	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	5.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.86			0.89			1.00			0.97	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1547	1499			1899			3455			3500	
Flt Permitted	0.75	1.00			0.97			0.56			0.95	
Satd. Flow (perm)	1217	1499			1854			1954			3325	
Peak-hour factor, PHF	0.86	0.86	0.86	0.38	0.38	0.38	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	302	7	147	3	0	13	106	1127	2	6	1161	335
RTOR Reduction (vph)	0	104	0	0	11	0	0	0	0	0	13	0
Lane Group Flow (vph)	302	50	0	0	5	0	0	1235	0	0	1489	0
Heavy Vehicles (%)	5%	5%	5%	0%	0%	0%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	36.2	36.2			36.2			79.8			79.8	
Effective Green, g (s)	37.2	36.2			37.2			79.8			79.8	
Actuated g/C Ratio	0.30	0.29			0.30			0.64			0.64	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	362	434			551			1247			2122	
v/s Ratio Prot		0.03										
v/s Ratio Perm	c0.25				0.00			c0.63			0.45	
v/c Ratio	0.83	0.11			0.01			0.99			0.70	
Uniform Delay, d1	41.0	32.6			30.9			22.2			14.8	
Progression Factor	1.00	1.00			1.00			1.00			1.30	
Incremental Delay, d2	15.1	0.1			0.0			23.3			0.7	
Delay (s)	56.2	32.7			30.9			45.5			20.0	
Level of Service	E	C			C			D			B	
Approach Delay (s)		48.3			30.9			45.5			20.0	
Approach LOS		D			C			D			B	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	349	4	176	3	3	5	127	1113	6	11	994	286
Future Volume (vph)	349	4	176	3	3	5	127	1113	6	11	994	286
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.854			0.936			0.999			0.967	
Flt Protected	0.950				0.987			0.995				
Satd. Flow (prot)	1608	1553	0	0	1989	0	0	3588	0	0	3572	0
Flt Permitted	0.745				0.945			0.506			0.935	
Satd. Flow (perm)	1261	1553	0	0	1905	0	0	1825	0	0	3339	0
Satd. Flow (RTOR)		207			9						35	
Adj. Flow (vph)	411	5	207	5	5	9	143	1251	7	12	1057	304
Lane Group Flow (vph)	411	212	0	0	19	0	0	1401	0	0	1373	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	45.0	45.0		45.0	45.0		55.0	55.0		55.0	55.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%		44.0%	44.0%		44.0%	44.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-2.0			-1.0			0.0			0.0	
Total Lost Time (s)	4.0	3.0			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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.81	0.28			0.02			1.52dl			0.77	
Control Delay	46.2	3.9			13.9			231.9			20.1	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	46.2	3.9			13.9			231.9			20.1	
Queue Length 50th (ft)	290	2			5			~809			166	
Queue Length 95th (ft)	361	37			10			#974			m251	
Internal Link Dist (ft)		1938			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	508	761			774			971			1793	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.81	0.28			0.02			1.44			0.77	

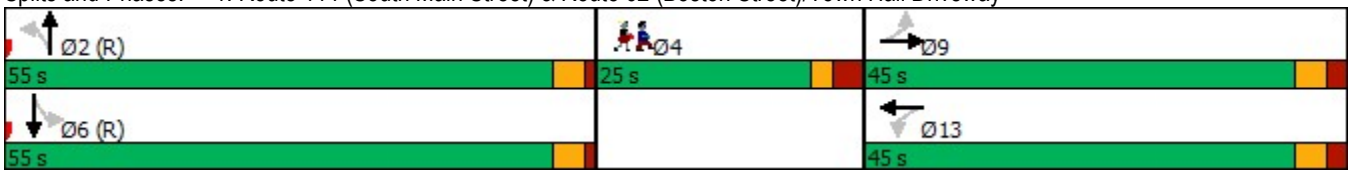
Intersection Summary
Cycle Length: 125

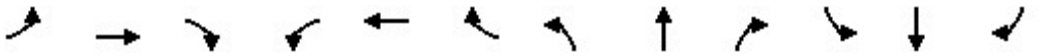
Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 125
Offset: 23 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway



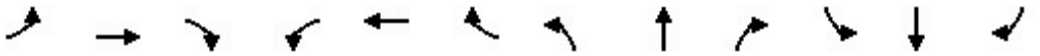


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	349	4	176	3	3	5	127	1113	6	11	994	286
Future Volume (vph)	349	4	176	3	3	5	127	1113	6	11	994	286
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	3.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.85			0.94			1.00			0.97	
Flt Protected	0.95	1.00			0.99			0.99			1.00	
Satd. Flow (prot)	1608	1552			1989			3589			3569	
Flt Permitted	0.75	1.00			0.95			0.51			0.93	
Satd. Flow (perm)	1261	1552			1906			1824			3338	
Peak-hour factor, PHF	0.85	0.85	0.85	0.55	0.55	0.55	0.89	0.89	0.89	0.94	0.94	0.94
Adj. Flow (vph)	411	5	207	5	5	9	143	1251	7	12	1057	304
RTOR Reduction (vph)	0	122	0	0	5	0	0	0	0	0	16	0
Lane Group Flow (vph)	411	90	0	0	14	0	0	1401	0	0	1357	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	49.5	49.5			49.5			66.5			66.5	
Effective Green, g (s)	50.5	51.5			50.5			66.5			66.5	
Actuated g/C Ratio	0.40	0.41			0.40			0.53			0.53	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	509	639			770			970			1775	
v/s Ratio Prot		0.06										
v/s Ratio Perm	c0.33				0.01			c0.77			0.41	
v/c Ratio	0.81	0.14			0.02			1.52dl			0.76	
Uniform Delay, d1	32.9	22.9			22.4			29.2			23.1	
Progression Factor	1.00	1.00			1.00			1.00			0.78	
Incremental Delay, d2	9.1	0.1			0.0			205.8			1.8	
Delay (s)	42.1	23.0			22.4			235.1			19.7	
Level of Service	D	C			C			F			B	
Approach Delay (s)		35.6			22.4			235.1			19.7	
Approach LOS		D			C			F			B	

Intersection Summary			
HCM 2000 Control Delay	111.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	107.6%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	4	176	1	1	1	129	1055	3	14	1038	234
Future Volume (vph)	255	4	176	1	1	1	129	1055	3	14	1038	234
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.854			0.955						0.973	
Flt Protected	0.950				0.984			0.995			0.999	
Satd. Flow (prot)	1608	1553	0	0	2024	0	0	3556	0	0	3590	0
Flt Permitted	0.752				0.938			0.562			0.932	
Satd. Flow (perm)	1273	1553	0	0	1929	0	0	2009	0	0	3349	0
Satd. Flow (RTOR)		200			3						26	
Adj. Flow (vph)	290	5	200	3	3	3	136	1111	3	15	1093	246
Lane Group Flow (vph)	290	205	0	0	9	0	0	1250	0	0	1354	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	45.0	45.0		45.0	45.0		55.0	55.0		55.0	55.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%		44.0%	44.0%		44.0%	44.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)	4.0	4.0			4.0			3.0			3.0	
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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.82	0.36			0.02			0.93			0.60	
Control Delay	60.3	6.0			23.0			34.0			20.4	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	60.3	6.0			23.0			34.0			20.4	
Queue Length 50th (ft)	220	3			4			433			463	
Queue Length 95th (ft)	286	50			5			#725			m448	
Internal Link Dist (ft)		929			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	425	652			646			1339			2240	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.68	0.31			0.01			0.93			0.60	

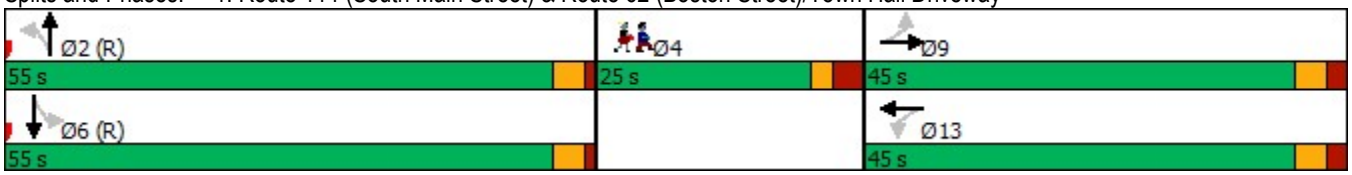
Intersection Summary
Cycle Length: 125

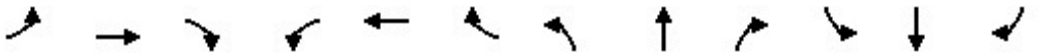
Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 125
Offset: 23 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway

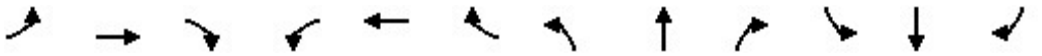




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	4	176	1	1	1	129	1055	3	14	1038	234
Future Volume (vph)	255	4	176	1	1	1	129	1055	3	14	1038	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	4.0			4.0			3.0			3.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.85			0.95			1.00			0.97	
Flt Protected	0.95	1.00			0.98			0.99			1.00	
Satd. Flow (prot)	1608	1552			2023			3554			3591	
Flt Permitted	0.75	1.00			0.94			0.56			0.93	
Satd. Flow (perm)	1273	1552			1929			2007			3347	
Peak-hour factor, PHF	0.88	0.88	0.88	0.38	0.38	0.38	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	290	5	200	3	3	3	136	1111	3	15	1093	246
RTOR Reduction (vph)	0	144	0	0	2	0	0	0	0	0	9	0
Lane Group Flow (vph)	290	61	0	0	7	0	0	1250	0	0	1345	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	33.7	33.7			33.7			82.3			82.3	
Effective Green, g (s)	34.7	34.7			34.7			83.3			83.3	
Actuated g/C Ratio	0.28	0.28			0.28			0.67			0.67	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	353	430			535			1337			2230	
v/s Ratio Prot		0.04										
v/s Ratio Perm	c0.23				0.00			c0.62			0.40	
v/c Ratio	0.82	0.14			0.01			0.93			0.60	
Uniform Delay, d1	42.3	33.9			32.7			18.5			11.6	
Progression Factor	1.00	1.00			1.00			1.00			1.56	
Incremental Delay, d2	14.2	0.2			0.0			13.3			0.4	
Delay (s)	56.5	34.1			32.7			31.8			18.6	
Level of Service	E	C			C			C			B	
Approach Delay (s)		47.2			32.7			31.8			18.6	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	271	6	127	1	0	5	96	1015	2	6	1105	319
Future Volume (vph)	271	6	127	1	0	5	96	1015	2	6	1105	319
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.857			0.890						0.967	
Flt Protected	0.950				0.991			0.996				
Satd. Flow (prot)	1547	1499	0	0	1899	0	0	3457	0	0	3502	0
Flt Permitted	0.747				0.967			0.557			0.950	
Satd. Flow (perm)	1217	1499	0	0	1853	0	0	1933	0	0	3327	0
Satd. Flow (RTOR)		148			52						36	
Adj. Flow (vph)	315	7	148	3	0	13	107	1128	2	6	1163	336
Lane Group Flow (vph)	315	155	0	0	16	0	0	1237	0	0	1505	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	45.0	45.0		45.0	45.0		55.0	55.0		55.0	55.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%		44.0%	44.0%		44.0%	44.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	0.0			-1.0			0.0			0.0	
Total Lost Time (s)	4.0	5.0			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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.84	0.28			0.03			1.02			0.72	
Control Delay	59.2	6.2			0.0			56.0			22.9	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	59.2	6.2			0.0			56.0			22.9	
Queue Length 50th (ft)	235	4			0			~563			467	
Queue Length 95th (ft)	301	42			0			#758			m582	
Internal Link Dist (ft)		360			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	418	601			671			1212			2100	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.75	0.26			0.02			1.02			0.72	

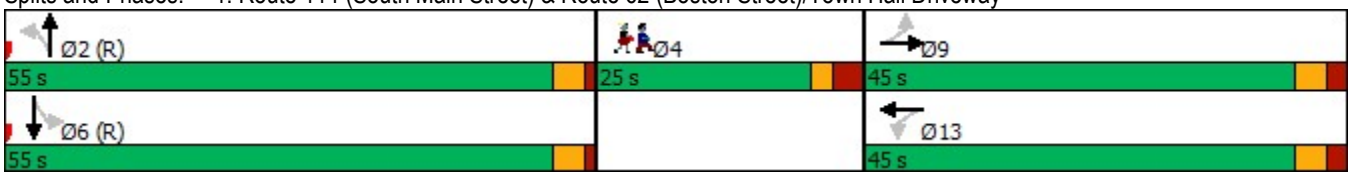
Intersection Summary
Cycle Length: 125

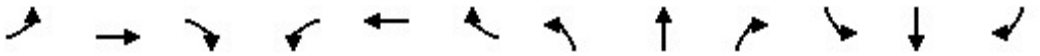
Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 125
Offset: 23 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway

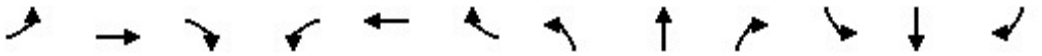




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	271	6	127	1	0	5	96	1015	2	6	1105	319
Future Volume (vph)	271	6	127	1	0	5	96	1015	2	6	1105	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	5.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.86			0.89			1.00			0.97	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1547	1499			1899			3455			3500	
Flt Permitted	0.75	1.00			0.97			0.56			0.95	
Satd. Flow (perm)	1217	1499			1855			1933			3325	
Peak-hour factor, PHF	0.86	0.86	0.86	0.38	0.38	0.38	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	315	7	148	3	0	13	107	1128	2	6	1163	336
RTOR Reduction (vph)	0	103	0	0	11	0	0	0	0	0	13	0
Lane Group Flow (vph)	315	52	0	0	5	0	0	1237	0	0	1492	0
Heavy Vehicles (%)	5%	5%	5%	0%	0%	0%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	37.6	37.6			37.6			78.4			78.4	
Effective Green, g (s)	38.6	37.6			38.6			78.4			78.4	
Actuated g/C Ratio	0.31	0.30			0.31			0.63			0.63	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	375	450			572			1212			2085	
v/s Ratio Prot		0.03										
v/s Ratio Perm	c0.26				0.00			c0.64			0.45	
v/c Ratio	0.84	0.11			0.01			1.02			0.72	
Uniform Delay, d1	40.3	31.6			29.9			23.3			15.8	
Progression Factor	1.00	1.00			1.00			1.00			1.29	
Incremental Delay, d2	15.2	0.1			0.0			31.2			0.8	
Delay (s)	55.5	31.8			29.9			54.5			21.1	
Level of Service	E	C			C			D			C	
Approach Delay (s)		47.7			29.9			54.5			21.1	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	355	4	177	3	3	5	129	1114	6	11	1000	291
Future Volume (vph)	355	4	177	3	3	5	129	1114	6	11	1000	291
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.854			0.936			0.999			0.966	
Flt Protected	0.950				0.987			0.995				
Satd. Flow (prot)	1608	1553	0	0	1989	0	0	3588	0	0	3568	0
Flt Permitted	0.745				0.946			0.498			0.924	
Satd. Flow (perm)	1261	1553	0	0	1907	0	0	1796	0	0	3297	0
Satd. Flow (RTOR)		208			9						36	
Adj. Flow (vph)	418	5	208	5	5	9	145	1252	7	12	1064	310
Lane Group Flow (vph)	418	213	0	0	19	0	0	1404	0	0	1386	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	45.0	45.0		45.0	45.0		55.0	55.0		55.0	55.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%		44.0%	44.0%		44.0%	44.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-2.0			-1.0			0.0			0.0	
Total Lost Time (s)	4.0	3.0			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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.79	0.27			0.02			1.79dl			0.80	
Control Delay	43.9	3.7			13.5			261.0			22.1	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	43.9	3.7			13.5			261.0			22.1	
Queue Length 50th (ft)	295	2			5			~824			173	
Queue Length 95th (ft)	359	36			9			#992			m256	
Internal Link Dist (ft)		360			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	526	780			801			931			1726	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.79	0.27			0.02			1.51			0.80	

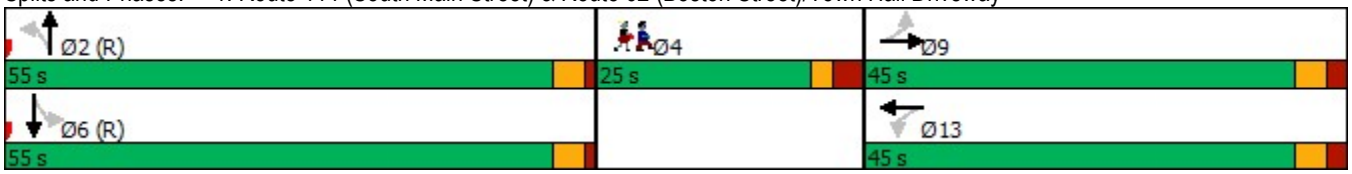
Intersection Summary
Cycle Length: 125

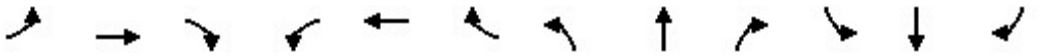
Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 125
Offset: 23 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway



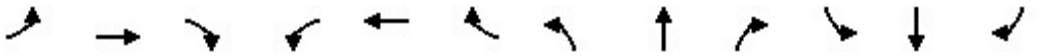


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	355	4	177	3	3	5	129	1114	6	11	1000	291
Future Volume (vph)	355	4	177	3	3	5	129	1114	6	11	1000	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	3.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.85			0.94			1.00			0.97	
Flt Protected	0.95	1.00			0.99			0.99			1.00	
Satd. Flow (prot)	1608	1552			1989			3589			3568	
Flt Permitted	0.75	1.00			0.95			0.50			0.92	
Satd. Flow (perm)	1261	1552			1906			1796			3300	
Peak-hour factor, PHF	0.85	0.85	0.85	0.55	0.55	0.55	0.89	0.89	0.89	0.94	0.94	0.94
Adj. Flow (vph)	418	5	208	5	5	9	145	1252	7	12	1064	310
RTOR Reduction (vph)	0	119	0	0	5	0	0	0	0	0	17	0
Lane Group Flow (vph)	418	94	0	0	14	0	0	1404	0	0	1369	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	51.2	51.2			51.2			64.8			64.8	
Effective Green, g (s)	52.2	53.2			52.2			64.8			64.8	
Actuated g/C Ratio	0.42	0.43			0.42			0.52			0.52	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	526	660			795			931			1710	
v/s Ratio Prot		0.06										
v/s Ratio Perm	c0.33				0.01			c0.78			0.41	
v/c Ratio	0.79	0.14			0.02			1.79dl			0.80	
Uniform Delay, d1	31.7	21.9			21.4			30.1			24.8	
Progression Factor	1.00	1.00			1.00			1.00			0.78	
Incremental Delay, d2	8.1	0.1			0.0			234.2			2.3	
Delay (s)	39.8	22.0			21.4			264.3			21.6	
Level of Service	D	C			C			F			C	
Approach Delay (s)		33.8			21.4			264.3			21.6	
Approach LOS		C			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	122.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	108.3%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	4	177	1	1	1	130	1056	3	14	1040	236
Future Volume (vph)	259	4	177	1	1	1	130	1056	3	14	1040	236
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.854			0.955						0.973	
Flt Protected	0.950				0.984			0.995			0.999	
Satd. Flow (prot)	1608	1553	0	0	2024	0	0	3556	0	0	3590	0
Flt Permitted	0.752				0.938			0.559			0.932	
Satd. Flow (perm)	1273	1553	0	0	1929	0	0	1998	0	0	3349	0
Satd. Flow (RTOR)		201			3						26	
Adj. Flow (vph)	294	5	201	3	3	3	137	1112	3	15	1095	248
Lane Group Flow (vph)	294	206	0	0	9	0	0	1252	0	0	1358	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	45.0	45.0		45.0	45.0		55.0	55.0		55.0	55.0	
Total Split (%)	36.0%	36.0%		36.0%	36.0%		44.0%	44.0%		44.0%	44.0%	
Maximum Green (s)	40.0	40.0		40.0	40.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)	4.0	4.0			4.0			3.0			3.0	
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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.83	0.36			0.02			0.94			0.61	
Control Delay	60.3	5.9			22.7			35.8			20.7	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	60.3	5.9			22.7			35.8			20.7	
Queue Length 50th (ft)	222	3			4			444			468	
Queue Length 95th (ft)	290	50			5			#731			m450	
Internal Link Dist (ft)		300			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	426	653			647			1326			2231	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.69	0.32			0.01			0.94			0.61	

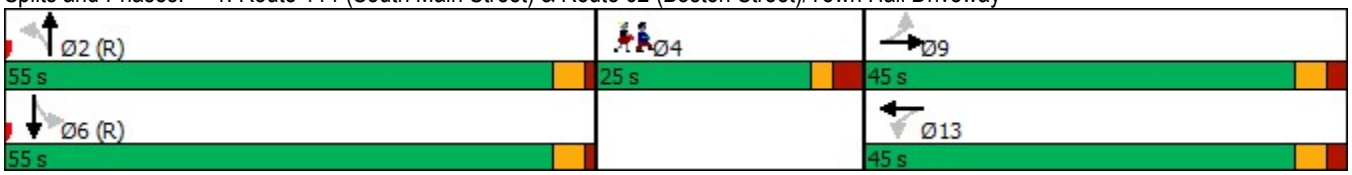
Intersection Summary
Cycle Length: 125

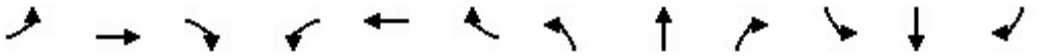
Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	20%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 125
Offset: 23 (18%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway

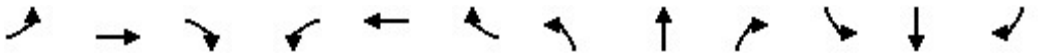




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	4	177	1	1	1	130	1056	3	14	1040	236
Future Volume (vph)	259	4	177	1	1	1	130	1056	3	14	1040	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	4.0			4.0			3.0			3.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.85			0.95			1.00			0.97	
Flt Protected	0.95	1.00			0.98			0.99			1.00	
Satd. Flow (prot)	1608	1552			2023			3554			3590	
Flt Permitted	0.75	1.00			0.94			0.56			0.93	
Satd. Flow (perm)	1273	1552			1929			1999			3347	
Peak-hour factor, PHF	0.88	0.88	0.88	0.38	0.38	0.38	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	294	5	201	3	3	3	137	1112	3	15	1095	248
RTOR Reduction (vph)	0	145	0	0	2	0	0	0	0	0	9	0
Lane Group Flow (vph)	294	61	0	0	7	0	0	1252	0	0	1349	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	34.0	34.0			34.0			82.0			82.0	
Effective Green, g (s)	35.0	35.0			35.0			83.0			83.0	
Actuated g/C Ratio	0.28	0.28			0.28			0.66			0.66	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	356	434			540			1327			2222	
v/s Ratio Prot		0.04										
v/s Ratio Perm	c0.23				0.00			c0.63			0.40	
v/c Ratio	0.83	0.14			0.01			0.94			0.61	
Uniform Delay, d1	42.1	33.7			32.5			18.9			11.8	
Progression Factor	1.00	1.00			1.00			1.00			1.55	
Incremental Delay, d2	14.4	0.1			0.0			14.4			0.4	
Delay (s)	56.6	33.9			32.5			33.3			18.8	
Level of Service	E	C			C			C			B	
Approach Delay (s)		47.2			32.5			33.3			18.8	
Approach LOS		D			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	271	6	127	1	0	5	96	1015	2	6	1105	319
Future Volume (vph)	271	6	127	1	0	5	96	1015	2	6	1105	319
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.857			0.890						0.967	
Flt Protected	0.950				0.991			0.996				
Satd. Flow (prot)	1547	1499	0	0	1899	0	0	3457	0	0	3502	0
Flt Permitted	0.747				0.968			0.558			0.950	
Satd. Flow (perm)	1217	1499	0	0	1855	0	0	1937	0	0	3327	0
Satd. Flow (RTOR)		148			55						38	
Adj. Flow (vph)	315	7	148	3	0	13	107	1128	2	6	1163	336
Lane Group Flow (vph)	315	155	0	0	16	0	0	1237	0	0	1505	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	40.0	40.0		40.0	40.0		55.0	55.0		55.0	55.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		45.8%	45.8%		45.8%	45.8%	
Maximum Green (s)	35.0	35.0		35.0	35.0		51.0	51.0		51.0	51.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	0.0			-1.0			0.0			0.0	
Total Lost Time (s)	4.0	5.0			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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.82	0.28			0.03			1.03			0.73	
Control Delay	55.5	6.1			0.0			59.2			14.7	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	55.5	6.1			0.0			59.2			14.7	
Queue Length 50th (ft)	222	4			0			~548			337	
Queue Length 95th (ft)	295	42			0			#728			m228	
Internal Link Dist (ft)		140			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	403	584			651			1198			2074	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.78	0.27			0.02			1.03			0.73	

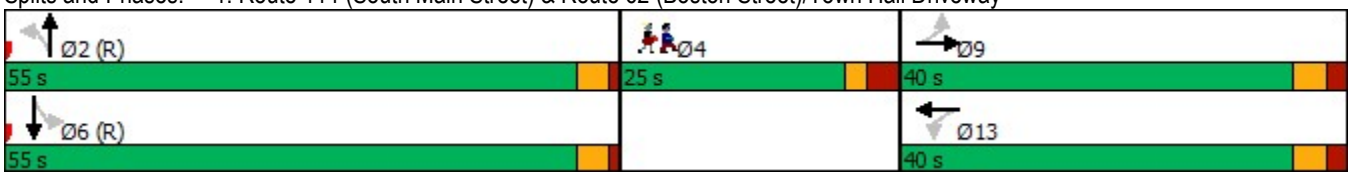
Intersection Summary
Cycle Length: 120

Lane Group	Ø4
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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	21%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 120
Offset: 74 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

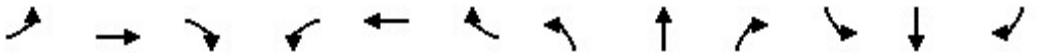
Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	271	6	127	1	0	5	96	1015	2	6	1105	319
Future Volume (vph)	271	6	127	1	0	5	96	1015	2	6	1105	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	5.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.86			0.89			1.00			0.97	
Flt Protected	0.95	1.00			0.99			1.00			1.00	
Satd. Flow (prot)	1547	1499			1899			3455			3500	
Flt Permitted	0.75	1.00			0.97			0.56			0.95	
Satd. Flow (perm)	1217	1499			1855			1938			3325	
Peak-hour factor, PHF	0.86	0.86	0.86	0.38	0.38	0.38	0.90	0.90	0.90	0.95	0.95	0.95
Adj. Flow (vph)	315	7	148	3	0	13	107	1128	2	6	1163	336
RTOR Reduction (vph)	0	103	0	0	11	0	0	0	0	0	14	0
Lane Group Flow (vph)	315	52	0	0	5	0	0	1237	0	0	1491	0
Heavy Vehicles (%)	5%	5%	5%	0%	0%	0%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	36.7	36.7			36.7			74.3			74.3	
Effective Green, g (s)	37.7	36.7			37.7			74.3			74.3	
Actuated g/C Ratio	0.31	0.31			0.31			0.62			0.62	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	382	458			582			1199			2058	
v/s Ratio Prot		0.03										
v/s Ratio Perm	c0.26				0.00			c0.64			0.45	
v/c Ratio	0.82	0.11			0.01			1.03			0.72	
Uniform Delay, d1	38.1	30.0			28.3			22.9			15.8	
Progression Factor	1.00	1.00			1.00			1.00			0.86	
Incremental Delay, d2	13.5	0.1			0.0			34.5			0.2	
Delay (s)	51.6	30.1			28.3			57.3			13.7	
Level of Service	D	C			C			E			B	
Approach Delay (s)		44.5			28.3			57.3			13.7	
Approach LOS		D			C			E			B	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	355	4	177	3	3	5	129	1114	6	11	1000	291
Future Volume (vph)	355	4	177	3	3	5	129	1114	6	11	1000	291
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.854			0.936			0.999			0.966	
Flt Protected	0.950				0.987			0.995				
Satd. Flow (prot)	1608	1553	0	0	1989	0	0	3588	0	0	3568	0
Flt Permitted	0.745				0.946			0.504			0.935	
Satd. Flow (perm)	1261	1553	0	0	1907	0	0	1818	0	0	3336	0
Satd. Flow (RTOR)		208			9						36	
Adj. Flow (vph)	418	5	208	5	5	9	145	1252	7	12	1064	310
Lane Group Flow (vph)	418	213	0	0	19	0	0	1404	0	0	1386	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	45.0	45.0		45.0	45.0		50.0	50.0		50.0	50.0	
Total Split (%)	37.5%	37.5%		37.5%	37.5%		41.7%	41.7%		41.7%	41.7%	
Maximum Green (s)	40.0	40.0		40.0	40.0		46.0	46.0		46.0	46.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-2.0			-1.0			0.0			0.0	
Total Lost Time (s)	4.0	3.0			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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.82	0.28			0.02			1.63dl			0.78	
Control Delay	46.1	3.8			13.4			237.7			21.9	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	46.1	3.8			13.4			237.7			21.9	
Queue Length 50th (ft)	283	2			5			~786			339	
Queue Length 95th (ft)	355	36			10			#946			m294	
Internal Link Dist (ft)		140			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	508	761			774			963			1785	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.82	0.28			0.02			1.46			0.78	

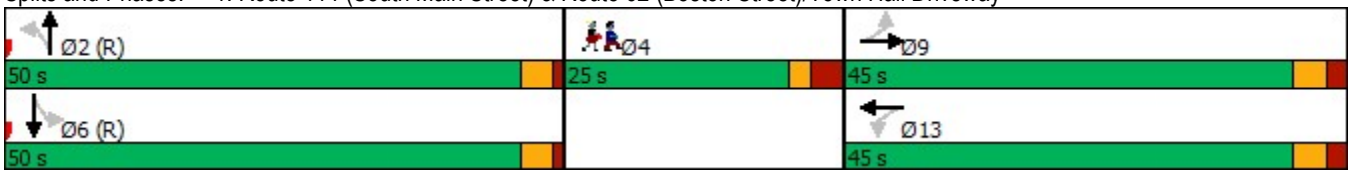
Intersection Summary
Cycle Length: 120

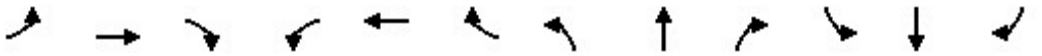
Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	21%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 120
Offset: 82 (68%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway



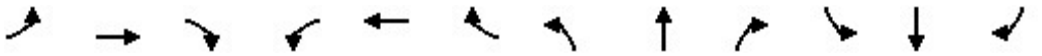


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	355	4	177	3	3	5	129	1114	6	11	1000	291
Future Volume (vph)	355	4	177	3	3	5	129	1114	6	11	1000	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	3.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.85			0.94			1.00			0.97	
Flt Protected	0.95	1.00			0.99			0.99			1.00	
Satd. Flow (prot)	1608	1552			1989			3589			3568	
Flt Permitted	0.75	1.00			0.95			0.50			0.94	
Satd. Flow (perm)	1261	1552			1906			1818			3338	
Peak-hour factor, PHF	0.85	0.85	0.85	0.55	0.55	0.55	0.89	0.89	0.89	0.94	0.94	0.94
Adj. Flow (vph)	418	5	208	5	5	9	145	1252	7	12	1064	310
RTOR Reduction (vph)	0	122	0	0	5	0	0	0	0	0	17	0
Lane Group Flow (vph)	418	91	0	0	14	0	0	1404	0	0	1369	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	47.4	47.4			47.4			63.6			63.6	
Effective Green, g (s)	48.4	49.4			48.4			63.6			63.6	
Actuated g/C Ratio	0.40	0.41			0.40			0.53			0.53	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	508	638			768			963			1769	
v/s Ratio Prot		0.06										
v/s Ratio Perm	c0.33				0.01			c0.77			0.41	
v/c Ratio	0.82	0.14			0.02			1.63dl			0.77	
Uniform Delay, d1	32.0	22.1			21.5			28.2			22.5	
Progression Factor	1.00	1.00			1.00			1.00			0.93	
Incremental Delay, d2	10.4	0.1			0.0			211.9			0.3	
Delay (s)	42.3	22.2			21.5			240.1			21.2	
Level of Service	D	C			C			F			C	
Approach Delay (s)		35.5			21.5			240.1			21.2	
Approach LOS		D			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	113.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	108.3%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	4	177	1	1	1	130	1056	3	14	1040	236
Future Volume (vph)	259	4	177	1	1	1	130	1056	3	14	1040	236
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.854			0.955						0.973	
Flt Protected	0.950				0.984			0.995			0.999	
Satd. Flow (prot)	1608	1553	0	0	2024	0	0	3556	0	0	3590	0
Flt Permitted	0.752				0.940			0.565			0.934	
Satd. Flow (perm)	1273	1553	0	0	1933	0	0	2019	0	0	3356	0
Satd. Flow (RTOR)		201			3						49	
Adj. Flow (vph)	294	5	201	3	3	3	137	1112	3	15	1095	248
Lane Group Flow (vph)	294	206	0	0	9	0	0	1252	0	0	1358	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Detector Phase	9	9		13	13		2	2		6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	11.0		11.0	11.0		14.0	14.0		14.0	14.0	
Total Split (s)	11.0	11.0		11.0	11.0		64.0	64.0		64.0	64.0	
Total Split (%)	11.0%	11.0%		11.0%	11.0%		64.0%	64.0%		64.0%	64.0%	
Maximum Green (s)	6.0	6.0		6.0	6.0		60.0	60.0		60.0	60.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	-1.0	-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)	4.0	4.0			4.0			3.0			3.0	
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		C-Min	C-Min		C-Min	C-Min	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.72	0.33			0.01			1.02			0.66	
Control Delay	41.9	5.5			20.0			50.9			12.3	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	41.9	5.5			20.0			50.9			12.3	
Queue Length 50th (ft)	165	2			3			~415			200	
Queue Length 95th (ft)	258	49			5			#579			m167	
Internal Link Dist (ft)		110			321			400			660	
Turn Bay Length (ft)	50											
Base Capacity (vph)	407	633			620			1231			2066	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.72	0.33			0.01			1.02			0.66	

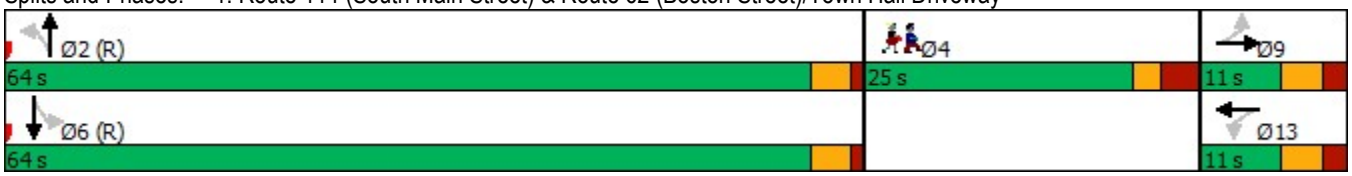
Intersection Summary
Cycle Length: 100

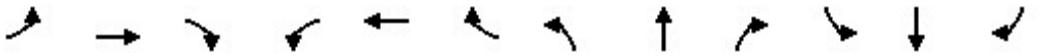
Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Satd. Flow (RTOR)	
Adj. Flow (vph)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	25.0
Total Split (s)	25.0
Total Split (%)	25%
Maximum Green (s)	20.0
Yellow Time (s)	2.0
All-Red Time (s)	3.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	5.0
Flash Dont Walk (s)	15.0
Pedestrian Calls (#/hr)	0
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: 100
Offset: 62 (62%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Route 114 (South Main Street) & Route 62 (Boston Street)/Town Hall Driveway



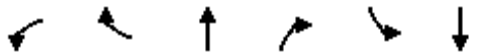


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	259	4	177	1	1	1	130	1056	3	14	1040	236
Future Volume (vph)	259	4	177	1	1	1	130	1056	3	14	1040	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	11	11	16	16	16	13	12	12	12	13	13
Total Lost time (s)	4.0	4.0			4.0			3.0			3.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frt	1.00	0.85			0.95			1.00			0.97	
Flt Protected	0.95	1.00			0.98			0.99			1.00	
Satd. Flow (prot)	1608	1552			2023			3554			3590	
Flt Permitted	0.75	1.00			0.94			0.56			0.93	
Satd. Flow (perm)	1273	1552			1932			2019			3355	
Peak-hour factor, PHF	0.88	0.88	0.88	0.38	0.38	0.38	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	294	5	201	3	3	3	137	1112	3	15	1095	248
RTOR Reduction (vph)	0	137	0	0	2	0	0	0	0	0	19	0
Lane Group Flow (vph)	294	69	0	0	7	0	0	1252	0	0	1339	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		9			13			2			6	
Permitted Phases	9			13			2			6		
Actuated Green, G (s)	31.0	31.0			31.0			60.0			60.0	
Effective Green, g (s)	32.0	32.0			32.0			61.0			61.0	
Actuated g/C Ratio	0.32	0.32			0.32			0.61			0.61	
Clearance Time (s)	5.0	5.0			5.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	407	496			618			1231			2046	
v/s Ratio Prot		0.04										
v/s Ratio Perm	c0.23				0.00			c0.62			0.40	
v/c Ratio	0.72	0.14			0.01			1.02			0.65	
Uniform Delay, d1	30.1	24.2			23.2			19.5			12.7	
Progression Factor	1.00	1.00			1.00			1.00			0.98	
Incremental Delay, d2	6.2	0.1			0.0			30.0			0.1	
Delay (s)	36.3	24.3			23.2			49.5			12.5	
Level of Service	D	C			C			D			B	
Approach Delay (s)		31.4			23.2			49.5			12.5	
Approach LOS		C			C			D			B	

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

South Main Street (Route 114) at Maple Street (Route 62)

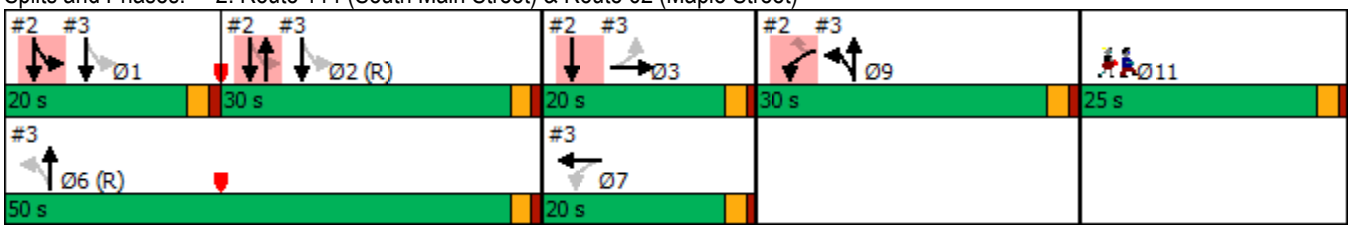


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	317	309	790	209	409	846				
Future Volume (vph)	317	309	790	209	409	846				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.969							
Flt Protected	0.950					0.984				
Satd. Flow (prot)	1711	1531	3332	0	0	3449				
Flt Permitted	0.950					0.521				
Satd. Flow (perm)	1711	1531	3332	0	0	1826				
Satd. Flow (RTOR)		332	24							
Adj. Flow (vph)	341	332	929	246	431	891				
Lane Group Flow (vph)	341	332	1175	0	0	1322				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		4.0		4.0	5.5	4.0	25.0
Total Split (s)	30.0	30.0	30.0		20.0		20.0	50.0	20.0	25.0
Total Split (%)	24.0%	24.0%	24.0%		16.0%		16%	40%	16%	20%
Maximum Green (s)	27.0	27.0	27.0		17.0		17.0	47.0	17.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lag		Lead					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		None	C-Max	None	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	0.92	0.56	1.59			0.72				
Control Delay	79.5	8.3	303.8			3.6				
Queue Delay	0.0	1.1	1.4			1.7				
Total Delay	79.5	9.4	305.2			5.4				
Queue Length 50th (ft)	272	0	~565			18				
Queue Length 95th (ft)	#453	81	#775			m59				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	369	590	738			1845				
Starvation Cap Reductn	0	0	0			339				
Spillback Cap Reductn	0	101	138			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	0.92	0.68	1.96			0.88				

Intersection Summary
Cycle Length: 125

Actuated Cycle Length: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 114 (South Main Street) & Route 62 (Maple Street)

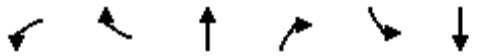




Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	317	309	790	209	409	846
Future Volume (vph)	317	309	790	209	409	846
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1711	1531	3330			3449
Flt Permitted	0.95	1.00	1.00			0.52
Satd. Flow (perm)	1711	1531	3330			1828
Peak-hour factor, PHF	0.93	0.93	0.85	0.85	0.95	0.95
Adj. Flow (vph)	341	332	929	246	431	891
RTOR Reduction (vph)	0	260	19	0	0	0
Lane Group Flow (vph)	341	72	1156	0	0	1322
Heavy Vehicles (%)	2%	2%	5%	5%	3%	3%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	27.0	27.0	27.0			89.0
Effective Green, g (s)	27.0	27.0	27.0			89.0
Actuated g/C Ratio	0.22	0.22	0.22			0.71
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	369	330	719			1846
v/s Ratio Prot	c0.20		c0.35			c0.24
v/s Ratio Perm		0.05				c0.27
v/c Ratio	0.92	0.22	1.61			0.72
Uniform Delay, d1	48.0	40.3	49.0			10.6
Progression Factor	1.00	1.00	0.97			0.30
Incremental Delay, d2	28.3	0.3	278.9			0.8
Delay (s)	76.3	40.6	326.4			4.0
Level of Service	E	D	F			A
Approach Delay (s)	58.7		326.4			4.0
Approach LOS	E		F			A

Intersection Summary			
HCM 2000 Control Delay	135.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

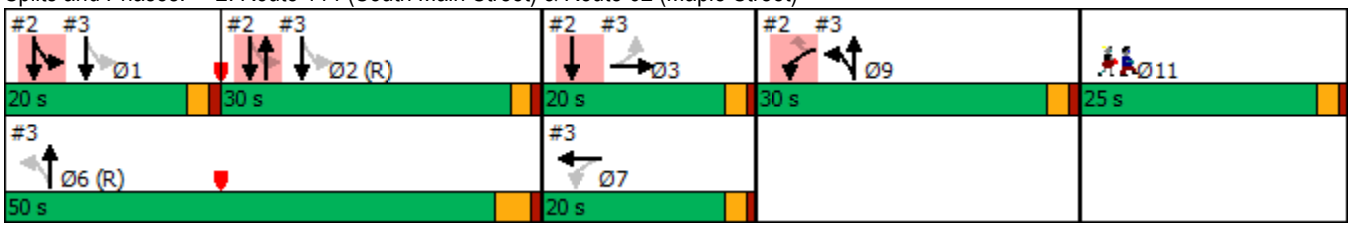


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	249	371	872	352	381	796				
Future Volume (vph)	249	371	872	352	381	796				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.957							
Flt Protected	0.950					0.984				
Satd. Flow (prot)	1728	1546	3421	0	0	3517				
Flt Permitted	0.950					0.524				
Satd. Flow (perm)	1728	1546	3421	0	0	1873				
Satd. Flow (RTOR)		436	44							
Adj. Flow (vph)	293	436	948	383	397	829				
Lane Group Flow (vph)	293	436	1331	0	0	1226				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	5.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		4.0		4.0	9.5	4.0	25.0
Total Split (s)	30.0	30.0	30.0		20.0		20.0	50.0	20.0	25.0
Total Split (%)	24.0%	24.0%	24.0%		16.0%		16%	40%	16%	20%
Maximum Green (s)	27.0	27.0	27.0		17.0		17.0	45.5	17.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	3.5	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lag		Lead					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		Max	C-Max	Max	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	0.79	0.65	1.72			0.65				
Control Delay	62.2	8.7	356.2			2.0				
Queue Delay	0.0	2.2	1.6			0.6				
Total Delay	62.2	10.9	357.8			2.6				
Queue Length 50th (ft)	226	0	~840			4				
Queue Length 95th (ft)	#312	62	#967			13				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	373	675	773			1885				
Starvation Cap Reductn	0	0	0			298				
Spillback Cap Reductn	0	125	171			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	0.79	0.79	2.21			0.77				

Intersection Summary
Cycle Length: 125

Actuated Cycle Length: 125
Offset: 50 (40%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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: 2: Route 114 (South Main Street) & Route 62 (Maple Street)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	249	371	872	352	381	796
Future Volume (vph)	249	371	872	352	381	796
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.96			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1728	1546	3420			3517
Flt Permitted	0.95	1.00	1.00			0.52
Satd. Flow (perm)	1728	1546	3420			1873
Peak-hour factor, PHF	0.85	0.85	0.92	0.92	0.96	0.96
Adj. Flow (vph)	293	436	948	383	397	829
RTOR Reduction (vph)	0	342	34	0	0	0
Lane Group Flow (vph)	293	94	1297	0	0	1226
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	27.0	27.0	27.0			89.0
Effective Green, g (s)	27.0	27.0	27.0			89.0
Actuated g/C Ratio	0.22	0.22	0.22			0.71
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	373	333	738			1885
v/s Ratio Prot	c0.17		c0.38			c0.22
v/s Ratio Perm		0.06				c0.24
v/c Ratio	0.79	0.28	1.76			0.65
Uniform Delay, d1	46.3	40.9	49.0			9.7
Progression Factor	1.00	1.00	0.87			0.09
Incremental Delay, d2	10.4	0.5	343.7			0.6
Delay (s)	56.7	41.4	386.6			1.5
Level of Service	E	D	F			A
Approach Delay (s)	47.5		386.6			1.5
Approach LOS	D		F			A

Intersection Summary			
HCM 2000 Control Delay	167.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

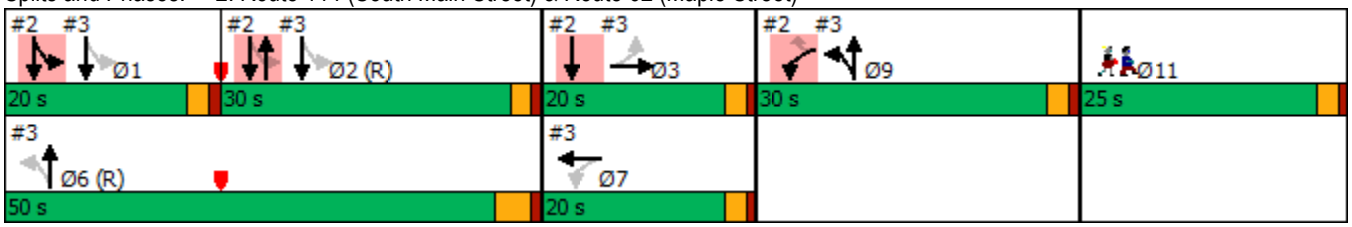


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	330	314	672	348	336	731				
Future Volume (vph)	330	314	672	348	336	731				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.949							
Flt Protected	0.950					0.985				
Satd. Flow (prot)	1728	1546	3426	0	0	3521				
Flt Permitted	0.950					0.519				
Satd. Flow (perm)	1728	1546	3426	0	0	1855				
Satd. Flow (RTOR)		383	68							
Adj. Flow (vph)	402	383	747	387	365	795				
Lane Group Flow (vph)	402	383	1134	0	0	1160				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	5.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		5.5		4.0	22.5	4.0	25.0
Total Split (s)	30.0	30.0	30.0		20.0		20.0	50.0	20.0	25.0
Total Split (%)	24.0%	24.0%	24.0%		16.0%		16%	40%	16%	20%
Maximum Green (s)	27.0	27.0	27.0		17.0		17.0	45.5	17.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	3.5	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lag		Lead					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		None	C-Min	None	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	1.08	0.60	1.43			0.62				
Control Delay	115.2	8.5	232.9			1.5				
Queue Delay	0.0	0.9	0.3			0.4				
Total Delay	115.2	9.4	233.2			1.9				
Queue Length 50th (ft)	~362	0	~486			4				
Queue Length 95th (ft)	#485	49	#770			4				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	373	634	793			1880				
Starvation Cap Reductn	0	0	0			269				
Spillback Cap Reductn	0	83	40			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	1.08	0.70	1.51			0.72				

Intersection Summary
Cycle Length: 125

Actuated Cycle Length: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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: 2: Route 114 (South Main Street) & Route 62 (Maple Street)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	330	314	672	348	336	731
Future Volume (vph)	330	314	672	348	336	731
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.95			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1728	1546	3425			3519
Flt Permitted	0.95	1.00	1.00			0.52
Satd. Flow (perm)	1728	1546	3425			1856
Peak-hour factor, PHF	0.82	0.82	0.90	0.90	0.92	0.92
Adj. Flow (vph)	402	383	747	387	365	795
RTOR Reduction (vph)	0	300	53	0	0	0
Lane Group Flow (vph)	402	83	1081	0	0	1160
Heavy Vehicles (%)	1%	1%	0%	0%	1%	1%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	27.0	27.0	27.0			89.0
Effective Green, g (s)	27.0	27.0	27.0			89.0
Actuated g/C Ratio	0.22	0.22	0.22			0.71
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	373	333	739			1880
v/s Ratio Prot	c0.23		c0.32			c0.21
v/s Ratio Perm		0.05				c0.23
v/c Ratio	1.08	0.25	1.46			0.62
Uniform Delay, d1	49.0	40.6	49.0			9.2
Progression Factor	1.00	1.00	0.95			0.04
Incremental Delay, d2	68.9	0.4	214.1			0.5
Delay (s)	117.9	41.0	260.8			0.9
Level of Service	F	D	F			A
Approach Delay (s)	80.4		260.8			0.9
Approach LOS	F		F			A

Intersection Summary			
HCM 2000 Control Delay	116.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

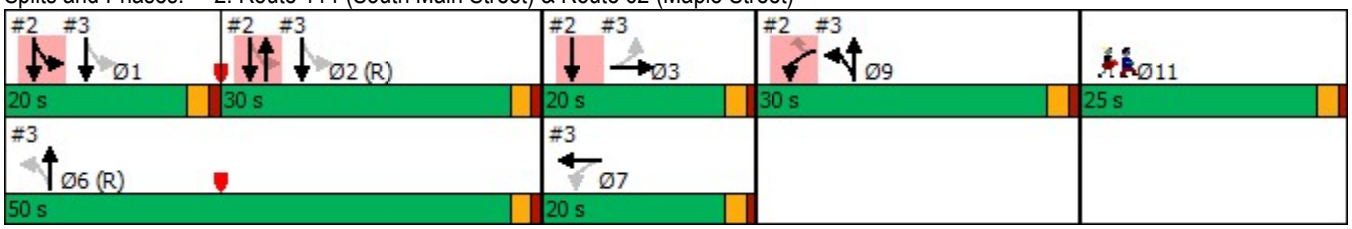


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	396	343	943	266	454	1030				
Future Volume (vph)	396	343	943	266	454	1030				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.967							
Flt Protected	0.950					0.985				
Satd. Flow (prot)	1711	1531	3325	0	0	3452				
Flt Permitted	0.950					0.523				
Satd. Flow (perm)	1711	1531	3325	0	0	1833				
Satd. Flow (RTOR)		350	26							
Adj. Flow (vph)	426	369	1109	313	478	1084				
Lane Group Flow (vph)	426	369	1422	0	0	1562				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		4.0		4.0	5.5	4.0	25.0
Total Split (s)	30.0	30.0	30.0		20.0		20.0	50.0	20.0	25.0
Total Split (%)	24.0%	24.0%	24.0%		16.0%		16%	40%	16%	20%
Maximum Green (s)	27.0	27.0	27.0		17.0		17.0	47.0	17.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lag		Lead					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		None	C-Max	None	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	1.15	0.61	1.93			0.84				
Control Delay	139.7	10.2	448.1			8.5				
Queue Delay	0.0	1.8	2.6			25.0				
Total Delay	139.7	12.0	450.7			33.5				
Queue Length 50th (ft)	~406	12	~931			84				
Queue Length 95th (ft)	#609	105	m#950			m101				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	369	605	738			1849				
Starvation Cap Reductn	0	0	0			354				
Spillback Cap Reductn	0	113	225			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	1.15	0.75	2.77			1.04				

Intersection Summary
Cycle Length: 125

Actuated Cycle Length: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 114 (South Main Street) & Route 62 (Maple Street)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	396	343	943	266	454	1030
Future Volume (vph)	396	343	943	266	454	1030
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1711	1531	3325			3452
Flt Permitted	0.95	1.00	1.00			0.52
Satd. Flow (perm)	1711	1531	3325			1833
Peak-hour factor, PHF	0.93	0.93	0.85	0.85	0.95	0.95
Adj. Flow (vph)	426	369	1109	313	478	1084
RTOR Reduction (vph)	0	274	20	0	0	0
Lane Group Flow (vph)	426	95	1402	0	0	1562
Heavy Vehicles (%)	2%	2%	5%	5%	3%	3%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	27.0	27.0	27.0			89.0
Effective Green, g (s)	27.0	27.0	27.0			89.0
Actuated g/C Ratio	0.22	0.22	0.22			0.71
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	369	330	718			1849
v/s Ratio Prot	c0.25		c0.42			c0.28
v/s Ratio Perm		0.06				c0.32
v/c Ratio	1.15	0.29	1.95			0.84
Uniform Delay, d1	49.0	41.0	49.0			13.0
Progression Factor	1.00	1.00	1.12			0.75
Incremental Delay, d2	95.9	0.5	430.3			1.3
Delay (s)	144.9	41.4	485.0			11.1
Level of Service	F	D	F			B
Approach Delay (s)	96.9		485.0			11.1
Approach LOS	F		F			B

Intersection Summary			
HCM 2000 Control Delay	207.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	108.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

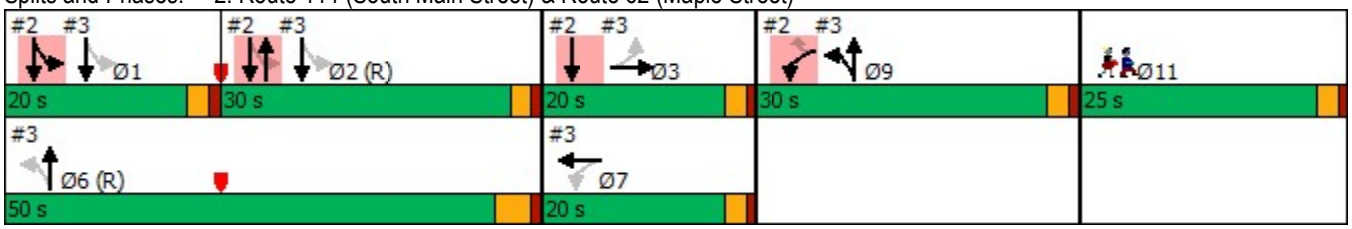


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	309	412	1039	423	423	955				
Future Volume (vph)	309	412	1039	423	423	955				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.957							
Flt Protected	0.950					0.985				
Satd. Flow (prot)	1728	1546	3421	0	0	3521				
Flt Permitted	0.950					0.526				
Satd. Flow (perm)	1728	1546	3421	0	0	1880				
Satd. Flow (RTOR)		485	45							
Adj. Flow (vph)	364	485	1129	460	441	995				
Lane Group Flow (vph)	364	485	1589	0	0	1436				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	5.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		4.0		4.0	9.5	4.0	25.0
Total Split (s)	30.0	30.0	30.0		20.0		20.0	50.0	20.0	25.0
Total Split (%)	24.0%	24.0%	24.0%		16.0%		16%	40%	16%	20%
Maximum Green (s)	27.0	27.0	27.0		17.0		17.0	45.5	17.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	3.5	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lag		Lead					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		Max	C-Max	Max	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	0.98	0.68	2.05			0.76				
Control Delay	89.9	9.0	498.5			4.4				
Queue Delay	0.0	3.8	2.8			2.3				
Total Delay	89.9	12.8	501.4			6.7				
Queue Length 50th (ft)	295	0	~1056			4				
Queue Length 95th (ft)	#446	63	m#762			102				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	373	714	774			1889				
Starvation Cap Reductn	0	0	0			310				
Spillback Cap Reductn	0	149	259			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	0.98	0.86	3.09			0.91				

Intersection Summary
Cycle Length: 125

Actuated Cycle Length: 125
Offset: 50 (40%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 114 (South Main Street) & Route 62 (Maple Street)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	309	412	1039	423	423	955
Future Volume (vph)	309	412	1039	423	423	955
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.96			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1728	1546	3419			3520
Flt Permitted	0.95	1.00	1.00			0.53
Satd. Flow (perm)	1728	1546	3419			1881
Peak-hour factor, PHF	0.85	0.85	0.92	0.92	0.96	0.96
Adj. Flow (vph)	364	485	1129	460	441	995
RTOR Reduction (vph)	0	380	35	0	0	0
Lane Group Flow (vph)	364	105	1554	0	0	1436
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	27.0	27.0	27.0			89.0
Effective Green, g (s)	27.0	27.0	27.0			89.0
Actuated g/C Ratio	0.22	0.22	0.22			0.71
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	373	333	738			1889
v/s Ratio Prot	c0.21		c0.45			c0.26
v/s Ratio Perm		0.07				c0.29
v/c Ratio	0.98	0.31	2.11			0.76
Uniform Delay, d1	48.7	41.2	49.0			11.3
Progression Factor	1.00	1.00	0.85			0.34
Incremental Delay, d2	39.8	0.5	497.8			1.1
Delay (s)	88.5	41.8	539.5			5.0
Level of Service	F	D	F			A
Approach Delay (s)	61.8		539.5			5.0
Approach LOS	E		F			A

Intersection Summary			
HCM 2000 Control Delay	236.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	108.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

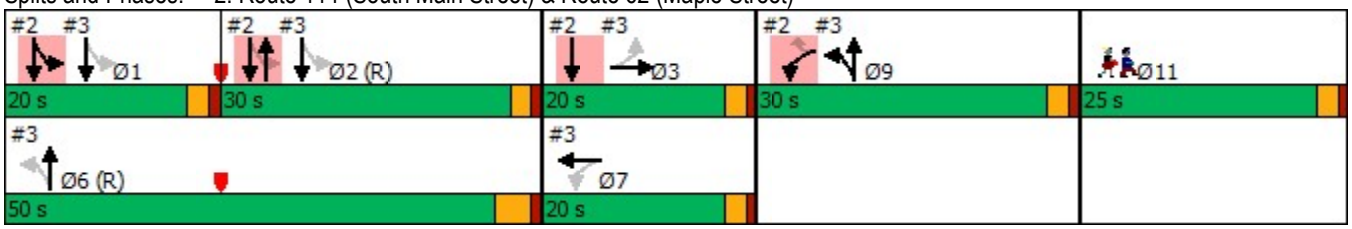


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	405	348	817	423	373	887				
Future Volume (vph)	405	348	817	423	373	887				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.949							
Flt Protected	0.950					0.985				
Satd. Flow (prot)	1728	1546	3426	0	0	3521				
Flt Permitted	0.950					0.521				
Satd. Flow (perm)	1728	1546	3426	0	0	1862				
Satd. Flow (RTOR)		347	68							
Adj. Flow (vph)	494	424	908	470	405	964				
Lane Group Flow (vph)	494	424	1378	0	0	1369				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	5.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		5.5		4.0	22.5	4.0	25.0
Total Split (s)	30.0	30.0	30.0		20.0		20.0	50.0	20.0	25.0
Total Split (%)	24.0%	24.0%	24.0%		16.0%		16%	40%	16%	20%
Maximum Green (s)	27.0	27.0	27.0		17.0		17.0	45.5	17.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	3.5	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lag		Lead					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		None	C-Min	None	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	1.32	0.70	1.74			0.73				
Control Delay	202.6	16.1	365.0			3.0				
Queue Delay	0.0	3.2	1.2			1.0				
Total Delay	202.6	19.3	366.3			4.0				
Queue Length 50th (ft)	~517	52	~856			4				
Queue Length 95th (ft)	#638	120	m#952			4				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	373	605	793			1883				
Starvation Cap Reductn	0	0	0			264				
Spillback Cap Reductn	0	101	142			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	1.32	0.84	2.12			0.85				

Intersection Summary
Cycle Length: 125

Actuated Cycle Length: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 114 (South Main Street) & Route 62 (Maple Street)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	405	348	817	423	373	887
Future Volume (vph)	405	348	817	423	373	887
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.95			1.00
Flt Protected	0.95	1.00	1.00			0.99
Satd. Flow (prot)	1728	1546	3425			3522
Flt Permitted	0.95	1.00	1.00			0.52
Satd. Flow (perm)	1728	1546	3425			1862
Peak-hour factor, PHF	0.82	0.82	0.90	0.90	0.92	0.92
Adj. Flow (vph)	494	424	908	470	405	964
RTOR Reduction (vph)	0	272	53	0	0	0
Lane Group Flow (vph)	494	152	1325	0	0	1369
Heavy Vehicles (%)	1%	1%	0%	0%	1%	1%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	27.0	27.0	27.0			89.0
Effective Green, g (s)	27.0	27.0	27.0			89.0
Actuated g/C Ratio	0.22	0.22	0.22			0.71
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	373	333	739			1883
v/s Ratio Prot	c0.29		c0.39			c0.24
v/s Ratio Perm		0.10				c0.27
v/c Ratio	1.32	0.46	1.79			0.73
Uniform Delay, d1	49.0	42.6	49.0			10.7
Progression Factor	1.00	1.00	1.08			0.16
Incremental Delay, d2	163.6	1.0	359.1			1.0
Delay (s)	212.6	43.6	412.0			2.7
Level of Service	F	D	F			A
Approach Delay (s)	134.5		412.0			2.7
Approach LOS	F		F			A

Intersection Summary			
HCM 2000 Control Delay	189.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	103.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

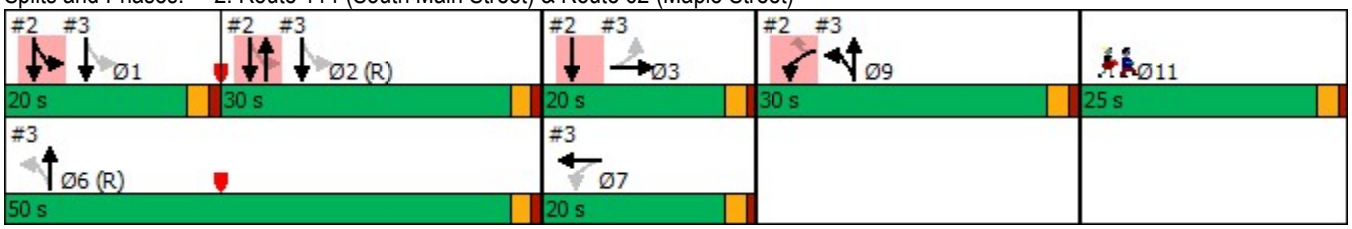


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	398	343	948	273	454	1031				
Future Volume (vph)	398	343	948	273	454	1031				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.966							
Flt Protected	0.950					0.985				
Satd. Flow (prot)	1711	1531	3321	0	0	3452				
Flt Permitted	0.950					0.523				
Satd. Flow (perm)	1711	1531	3321	0	0	1833				
Satd. Flow (RTOR)		348	27							
Adj. Flow (vph)	428	369	1115	321	478	1085				
Lane Group Flow (vph)	428	369	1436	0	0	1563				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		4.0		4.0	5.5	4.0	25.0
Total Split (s)	30.0	30.0	30.0		20.0		20.0	50.0	20.0	25.0
Total Split (%)	24.0%	24.0%	24.0%		16.0%		16%	40%	16%	20%
Maximum Green (s)	27.0	27.0	27.0		17.0		17.0	47.0	17.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lag		Lead					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		None	C-Max	None	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	1.16	0.61	1.95			0.85				
Control Delay	141.5	10.4	456.3			8.5				
Queue Delay	0.0	1.9	2.6			25.2				
Total Delay	141.5	12.2	458.9			33.8				
Queue Length 50th (ft)	~409	14	~944			85				
Queue Length 95th (ft)	#614	107	m#934			m101				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	369	603	738			1849				
Starvation Cap Reductn	0	0	0			354				
Spillback Cap Reductn	0	113	227			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	1.16	0.75	2.81			1.05				

Intersection Summary
Cycle Length: 125

Actuated Cycle Length: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 114 (South Main Street) & Route 62 (Maple Street)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	398	343	948	273	454	1031
Future Volume (vph)	398	343	948	273	454	1031
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1711	1531	3323			3452
Flt Permitted	0.95	1.00	1.00			0.52
Satd. Flow (perm)	1711	1531	3323			1834
Peak-hour factor, PHF	0.93	0.93	0.85	0.85	0.95	0.95
Adj. Flow (vph)	428	369	1115	321	478	1085
RTOR Reduction (vph)	0	273	21	0	0	0
Lane Group Flow (vph)	428	96	1415	0	0	1563
Heavy Vehicles (%)	2%	2%	5%	5%	3%	3%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	27.0	27.0	27.0			89.0
Effective Green, g (s)	27.0	27.0	27.0			89.0
Actuated g/C Ratio	0.22	0.22	0.22			0.71
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	369	330	717			1849
v/s Ratio Prot	c0.25		c0.43			c0.28
v/s Ratio Perm		0.06				c0.32
v/c Ratio	1.16	0.29	1.97			0.85
Uniform Delay, d1	49.0	41.0	49.0			13.0
Progression Factor	1.00	1.00	1.13			0.76
Incremental Delay, d2	97.9	0.5	439.6			1.3
Delay (s)	146.9	41.5	495.1			11.1
Level of Service	F	D	F			B
Approach Delay (s)	98.1		495.1			11.1
Approach LOS	F		F			B

Intersection Summary			
HCM 2000 Control Delay	212.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	108.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

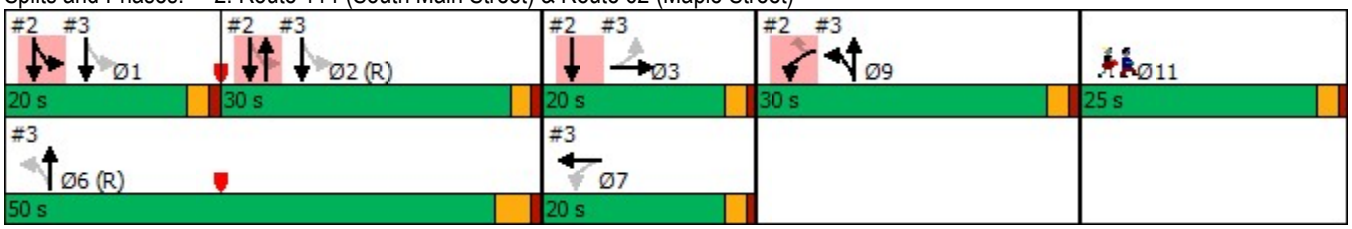


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	315	412	1042	427	423	960				
Future Volume (vph)	315	412	1042	427	423	960				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.956							
Flt Protected	0.950					0.985				
Satd. Flow (prot)	1728	1546	3417	0	0	3521				
Flt Permitted	0.950					0.526				
Satd. Flow (perm)	1728	1546	3417	0	0	1880				
Satd. Flow (RTOR)		485	45							
Adj. Flow (vph)	371	485	1133	464	441	1000				
Lane Group Flow (vph)	371	485	1597	0	0	1441				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	5.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		4.0		4.0	9.5	4.0	25.0
Total Split (s)	30.0	30.0	30.0		20.0		20.0	50.0	20.0	25.0
Total Split (%)	24.0%	24.0%	24.0%		16.0%		16%	40%	16%	20%
Maximum Green (s)	27.0	27.0	27.0		17.0		17.0	45.5	17.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	3.5	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lag		Lead					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		Max	C-Max	Max	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	0.99	0.68	2.07			0.76				
Control Delay	94.4	9.0	504.2			4.5				
Queue Delay	0.0	3.8	2.9			2.4				
Total Delay	94.4	12.8	507.1			6.9				
Queue Length 50th (ft)	302	0	~1063			5				
Queue Length 95th (ft)	#460	63	m#736			104				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	373	714	773			1889				
Starvation Cap Reductn	0	0	0			309				
Spillback Cap Reductn	0	150	261			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	0.99	0.86	3.12			0.91				

Intersection Summary
Cycle Length: 125

Actuated Cycle Length: 125
Offset: 50 (40%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 114 (South Main Street) & Route 62 (Maple Street)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	315	412	1042	427	423	960
Future Volume (vph)	315	412	1042	427	423	960
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.96			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1728	1546	3418			3520
Flt Permitted	0.95	1.00	1.00			0.53
Satd. Flow (perm)	1728	1546	3418			1881
Peak-hour factor, PHF	0.85	0.85	0.92	0.92	0.96	0.96
Adj. Flow (vph)	371	485	1133	464	441	1000
RTOR Reduction (vph)	0	380	35	0	0	0
Lane Group Flow (vph)	371	105	1562	0	0	1441
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	27.0	27.0	27.0			89.0
Effective Green, g (s)	27.0	27.0	27.0			89.0
Actuated g/C Ratio	0.22	0.22	0.22			0.71
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	373	333	738			1889
v/s Ratio Prot	c0.21		c0.46			c0.26
v/s Ratio Perm		0.07				c0.29
v/c Ratio	0.99	0.31	2.12			0.76
Uniform Delay, d1	48.9	41.2	49.0			11.3
Progression Factor	1.00	1.00	0.85			0.35
Incremental Delay, d2	44.9	0.5	502.7			1.1
Delay (s)	93.8	41.8	544.2			5.1
Level of Service	F	D	F			A
Approach Delay (s)	64.3		544.2			5.1
Approach LOS	E		F			A

Intersection Summary			
HCM 2000 Control Delay	239.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	108.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

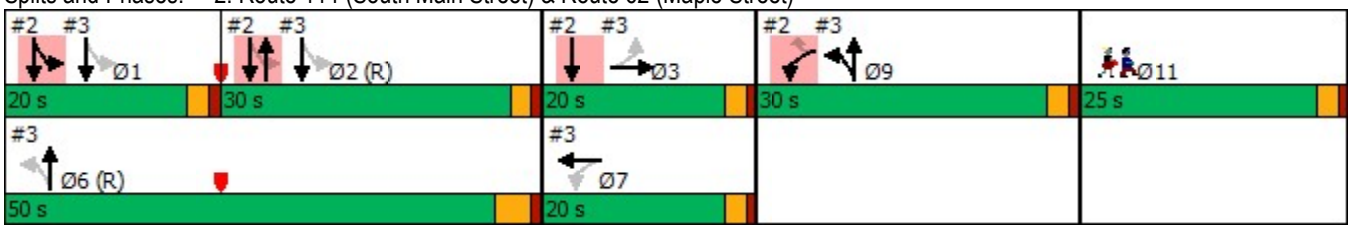


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	407	348	819	426	373	889				
Future Volume (vph)	407	348	819	426	373	889				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.949							
Flt Protected	0.950					0.985				
Satd. Flow (prot)	1728	1546	3426	0	0	3521				
Flt Permitted	0.950					0.521				
Satd. Flow (perm)	1728	1546	3426	0	0	1862				
Satd. Flow (RTOR)		345	68							
Adj. Flow (vph)	496	424	910	473	405	966				
Lane Group Flow (vph)	496	424	1383	0	0	1371				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	5.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		5.5		4.0	22.5	4.0	25.0
Total Split (s)	30.0	30.0	30.0		20.0		20.0	50.0	20.0	25.0
Total Split (%)	24.0%	24.0%	24.0%		16.0%		16%	40%	16%	20%
Maximum Green (s)	27.0	27.0	27.0		17.0		17.0	45.5	17.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	3.5	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lag		Lead					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		None	C-Min	None	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	1.33	0.70	1.74			0.73				
Control Delay	204.7	16.3	367.8			3.0				
Queue Delay	0.0	3.3	1.2			1.0				
Total Delay	204.7	19.6	369.0			4.0				
Queue Length 50th (ft)	~520	53	~861			4				
Queue Length 95th (ft)	#641	122	m#945			4				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	373	604	793			1883				
Starvation Cap Reductn	0	0	0			264				
Spillback Cap Reductn	0	101	140			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	1.33	0.84	2.12			0.85				

Intersection Summary
Cycle Length: 125

Actuated Cycle Length: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Route 114 (South Main Street) & Route 62 (Maple Street)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	407	348	819	426	373	889
Future Volume (vph)	407	348	819	426	373	889
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.95			1.00
Flt Protected	0.95	1.00	1.00			0.99
Satd. Flow (prot)	1728	1546	3425			3522
Flt Permitted	0.95	1.00	1.00			0.52
Satd. Flow (perm)	1728	1546	3425			1862
Peak-hour factor, PHF	0.82	0.82	0.90	0.90	0.92	0.92
Adj. Flow (vph)	496	424	910	473	405	966
RTOR Reduction (vph)	0	270	53	0	0	0
Lane Group Flow (vph)	496	154	1330	0	0	1371
Heavy Vehicles (%)	1%	1%	0%	0%	1%	1%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	27.0	27.0	27.0			89.0
Effective Green, g (s)	27.0	27.0	27.0			89.0
Actuated g/C Ratio	0.22	0.22	0.22			0.71
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	373	333	739			1883
v/s Ratio Prot	c0.29		c0.39			c0.24
v/s Ratio Perm		0.10				c0.27
v/c Ratio	1.33	0.46	1.80			0.73
Uniform Delay, d1	49.0	42.7	49.0			10.8
Progression Factor	1.00	1.00	1.09			0.16
Incremental Delay, d2	165.8	1.0	362.0			1.0
Delay (s)	214.8	43.7	415.3			2.8
Level of Service	F	D	F			A
Approach Delay (s)	135.9		415.3			2.8
Approach LOS	F		F			A

Intersection Summary			
HCM 2000 Control Delay	191.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	104.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

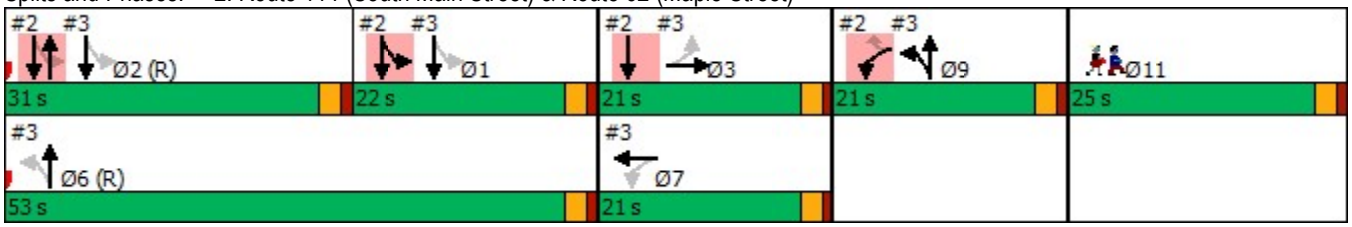


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	398	343	948	273	454	1031				
Future Volume (vph)	398	343	948	273	454	1031				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.966							
Flt Protected	0.950					0.985				
Satd. Flow (prot)	1711	1531	3321	0	0	3452				
Flt Permitted	0.950					0.510				
Satd. Flow (perm)	1711	1531	3321	0	0	1787				
Satd. Flow (RTOR)		335	29							
Adj. Flow (vph)	428	369	1115	321	478	1085				
Lane Group Flow (vph)	428	369	1436	0	0	1563				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		4.0		4.0	5.5	4.0	25.0
Total Split (s)	21.0	21.0	31.0		22.0		21.0	53.0	21.0	25.0
Total Split (%)	17.5%	17.5%	25.8%		18.3%		18%	44%	18%	21%
Maximum Green (s)	18.0	18.0	28.0		19.0		18.0	50.0	18.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	2.0	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lead		Lag					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		None	C-Max	None	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	1.67	0.72	0.97			1.37dl				
Control Delay	351.6	16.1	36.0			20.8				
Queue Delay	0.0	0.0	0.0			21.7				
Total Delay	351.6	16.1	36.0			42.5				
Queue Length 50th (ft)	~483	23	579			227				
Queue Length 95th (ft)	#685	129	m560			m#280				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	256	514	1482			1603				
Starvation Cap Reductn	0	0	0			118				
Spillback Cap Reductn	0	0	0			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	1.67	0.72	0.97			1.05				

Intersection Summary
Cycle Length: 120

Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 2: Route 114 (South Main Street) & Route 62 (Maple Street)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	398	343	948	273	454	1031
Future Volume (vph)	398	343	948	273	454	1031
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.97			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1711	1531	3323			3452
Flt Permitted	0.95	1.00	1.00			0.51
Satd. Flow (perm)	1711	1531	3323			1786
Peak-hour factor, PHF	0.93	0.93	0.85	0.85	0.95	0.95
Adj. Flow (vph)	428	369	1115	321	478	1085
RTOR Reduction (vph)	0	285	16	0	0	0
Lane Group Flow (vph)	428	84	1420	0	0	1563
Heavy Vehicles (%)	2%	2%	5%	5%	3%	3%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	18.0	18.0	53.0			90.0
Effective Green, g (s)	18.0	18.0	53.0			90.0
Actuated g/C Ratio	0.15	0.15	0.44			0.75
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	256	229	1467			1603
v/s Ratio Prot	c0.25		0.43			c0.15
v/s Ratio Perm		0.06				c0.58
v/c Ratio	1.67	0.37	0.97			1.37dl
Uniform Delay, d1	51.0	45.9	32.7			14.0
Progression Factor	1.00	1.00	0.88			0.63
Incremental Delay, d2	318.9	1.0	7.1			10.3
Delay (s)	369.9	46.9	35.9			19.1
Level of Service	F	D	D			B
Approach Delay (s)	220.4		35.9			19.1
Approach LOS	F		D			B

Intersection Summary			
HCM 2000 Control Delay	67.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	108.7%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

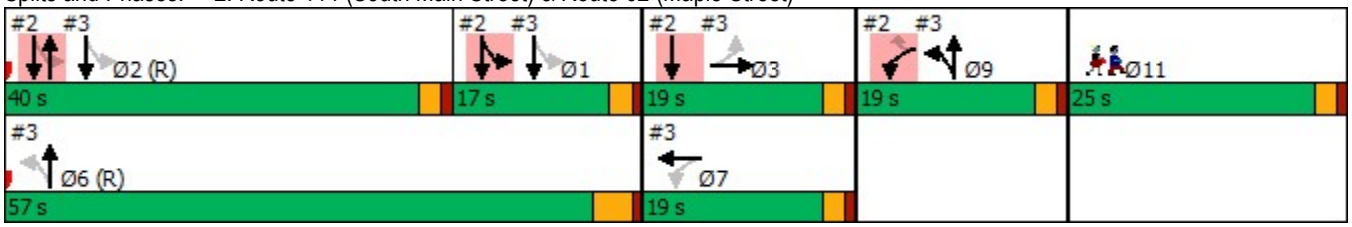


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	315	412	1042	427	423	960				
Future Volume (vph)	315	412	1042	427	423	960				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.956							
Flt Protected	0.950					0.985				
Satd. Flow (prot)	1728	1546	3417	0	0	3521				
Flt Permitted	0.950					0.508				
Satd. Flow (perm)	1728	1546	3417	0	0	1816				
Satd. Flow (RTOR)		485	53							
Adj. Flow (vph)	371	485	1133	464	441	1000				
Lane Group Flow (vph)	371	485	1597	0	0	1441				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	5.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		4.0		4.0	9.5	4.0	25.0
Total Split (s)	19.0	19.0	40.0		17.0		19.0	57.0	19.0	25.0
Total Split (%)	15.8%	15.8%	33.3%		14.2%		16%	48%	16%	21%
Maximum Green (s)	16.0	16.0	37.0		14.0		16.0	52.5	16.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	3.5	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lead		Lag					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		Max	C-Max	Max	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	1.61	0.77	0.89			1.56dl				
Control Delay	329.2	13.7	19.7			17.3				
Queue Delay	0.0	0.0	0.0			2.0				
Total Delay	329.2	13.7	19.7			19.3				
Queue Length 50th (ft)	~412	0	148			170				
Queue Length 95th (ft)	#561	73	m109			#225				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	230	626	1791			1591				
Starvation Cap Reductn	0	0	0			66				
Spillback Cap Reductn	0	0	0			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	1.61	0.77	0.89			0.94				

Intersection Summary
Cycle Length: 120

Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 2: Route 114 (South Main Street) & Route 62 (Maple Street)





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	315	412	1042	427	423	960
Future Volume (vph)	315	412	1042	427	423	960
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.96			1.00
Flt Protected	0.95	1.00	1.00			0.98
Satd. Flow (prot)	1728	1546	3418			3520
Flt Permitted	0.95	1.00	1.00			0.51
Satd. Flow (perm)	1728	1546	3418			1815
Peak-hour factor, PHF	0.85	0.85	0.92	0.92	0.96	0.96
Adj. Flow (vph)	371	485	1133	464	441	1000
RTOR Reduction (vph)	0	420	26	0	0	0
Lane Group Flow (vph)	371	65	1571	0	0	1441
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	16.0	16.0	62.0			92.0
Effective Green, g (s)	16.0	16.0	62.0			92.0
Actuated g/C Ratio	0.13	0.13	0.52			0.77
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	230	206	1765			1590
v/s Ratio Prot	c0.21		0.46			c0.11
v/s Ratio Perm		0.04				c0.59
v/c Ratio	1.61	0.31	0.89			1.56dl
Uniform Delay, d1	52.0	47.0	26.0			10.7
Progression Factor	1.00	1.00	0.73			0.98
Incremental Delay, d2	295.1	0.9	0.7			5.7
Delay (s)	347.1	47.9	19.8			16.2
Level of Service	F	D	B			B
Approach Delay (s)	177.6		19.8			16.2
Approach LOS	F		B			B

Intersection Summary			
HCM 2000 Control Delay	53.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	108.7%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

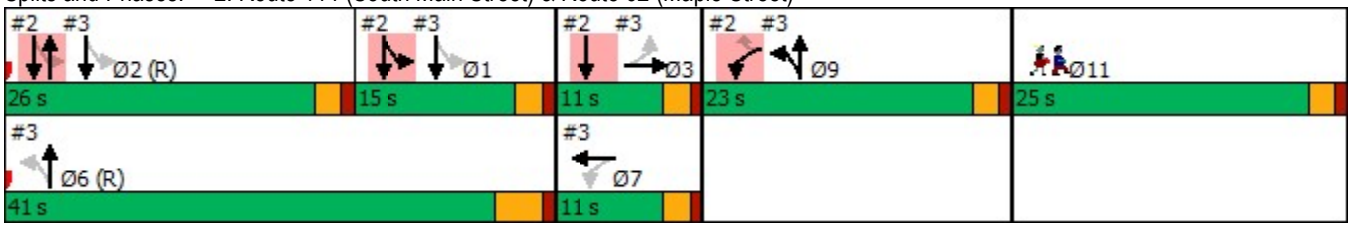


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø3	Ø6	Ø7	Ø11
Lane Configurations										
Traffic Volume (vph)	407	348	819	426	373	889				
Future Volume (vph)	407	348	819	426	373	889				
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95				
Frt		0.850	0.949							
Flt Protected	0.950					0.985				
Satd. Flow (prot)	1728	1546	3426	0	0	3521				
Flt Permitted	0.950					0.513				
Satd. Flow (perm)	1728	1546	3426	0	0	1834				
Satd. Flow (RTOR)		423	87							
Adj. Flow (vph)	496	424	910	473	405	966				
Lane Group Flow (vph)	496	424	1383	0	0	1371				
Turn Type	Prot	Perm	NA		D.P+P	NA				
Protected Phases	9		2		1	1 2 3	3	6	7	11
Permitted Phases		9			2					
Detector Phase	9	9	2		1	1 2 3				
Switch Phase										
Minimum Initial (s)	1.0	1.0	1.0		1.0		1.0	5.0	1.0	1.0
Minimum Split (s)	4.0	4.0	4.0		5.5		4.0	22.5	4.0	25.0
Total Split (s)	23.0	23.0	26.0		15.0		11.0	41.0	11.0	25.0
Total Split (%)	23.0%	23.0%	26.0%		15.0%		11%	41%	11%	25%
Maximum Green (s)	20.0	20.0	23.0		12.0		8.0	36.5	8.0	22.0
Yellow Time (s)	2.0	2.0	2.0		2.0		2.0	3.5	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0							
Total Lost Time (s)	3.0	3.0	3.0							
Lead/Lag			Lead		Lag					
Lead-Lag Optimize?			Yes		Yes					
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Min		None		None	C-Min	None	None
Walk Time (s)										5.0
Flash Dont Walk (s)										17.0
Pedestrian Calls (#/hr)										0
v/c Ratio	1.44	0.66	0.82			1.35dl				
Control Delay	244.9	9.0	18.7			23.3				
Queue Delay	0.0	0.0	0.0			0.9				
Total Delay	244.9	9.0	18.7			24.2				
Queue Length 50th (ft)	~431	1	282			164				
Queue Length 95th (ft)	#553	50	m292			#228				
Internal Link Dist (ft)	1612		660			97				
Turn Bay Length (ft)	85									
Base Capacity (vph)	345	647	1689			1449				
Starvation Cap Reductn	0	0	0			16				
Spillback Cap Reductn	0	0	0			0				
Storage Cap Reductn	0	0	0			0				
Reduced v/c Ratio	1.44	0.66	0.82			0.96				

Intersection Summary
Cycle Length: 100

Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 2: Route 114 (South Main Street) & Route 62 (Maple Street)





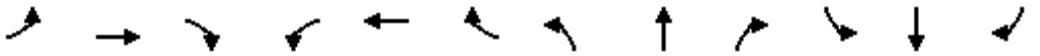
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	407	348	819	426	373	889
Future Volume (vph)	407	348	819	426	373	889
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	13	13	12
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	1.00	1.00	0.95			0.95
Frt	1.00	0.85	0.95			1.00
Flt Protected	0.95	1.00	1.00			0.99
Satd. Flow (prot)	1728	1546	3425			3522
Flt Permitted	0.95	1.00	1.00			0.51
Satd. Flow (perm)	1728	1546	3425			1835
Peak-hour factor, PHF	0.82	0.82	0.90	0.90	0.92	0.92
Adj. Flow (vph)	496	424	910	473	405	966
RTOR Reduction (vph)	0	338	45	0	0	0
Lane Group Flow (vph)	496	86	1338	0	0	1371
Heavy Vehicles (%)	1%	1%	0%	0%	1%	1%
Turn Type	Prot	Perm	NA		D.P+P	NA
Protected Phases	9		2		1	1 2 3
Permitted Phases		9			2	
Actuated Green, G (s)	20.0	20.0	48.0			68.0
Effective Green, g (s)	20.0	20.0	48.0			68.0
Actuated g/C Ratio	0.20	0.20	0.48			0.68
Clearance Time (s)	3.0	3.0	3.0			
Vehicle Extension (s)	3.0	3.0	3.0			
Lane Grp Cap (vph)	345	309	1644			1450
v/s Ratio Prot	c0.29		0.39			c0.11
v/s Ratio Perm		0.06				c0.53
v/c Ratio	1.44	0.28	0.81			1.35dl
Uniform Delay, d1	40.0	33.9	22.2			14.3
Progression Factor	1.00	1.00	0.81			0.78
Incremental Delay, d2	212.8	0.5	1.5			10.6
Delay (s)	252.8	34.4	19.5			21.7
Level of Service	F	C	B			C
Approach Delay (s)	152.1		19.5			21.7
Approach LOS	F		B			C

Intersection Summary			
HCM 2000 Control Delay	53.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	104.2%	ICU Level of Service	G
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

North Main Street (Route 114) and South Main Street (Route 114) at Central Street and Lake Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	3	23	91	1	35	3	1028	68	40	1141	2
Future Volume (vph)	4	3	23	91	1	35	3	1028	68	40	1141	2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.897			0.963			0.991				
Flt Protected		0.994			0.965						0.998	
Satd. Flow (prot)	0	1864	0	0	1906	0	0	3440	0	0	3381	0
Flt Permitted		0.978			0.757			0.955			0.854	
Satd. Flow (perm)	0	1834	0	0	1495	0	0	3285	0	0	2893	0
Satd. Flow (RTOR)		35			13			9				
Adj. Flow (vph)	6	5	35	163	2	63	3	1094	72	43	1227	2
Lane Group Flow (vph)	0	46	0	0	228	0	0	1169	0	0	1272	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	20.0	20.0		20.0	20.0		30.0					
Total Split (%)	16.0%	16.0%		16.0%	16.0%		24.0%					
Maximum Green (s)	17.0	17.0		17.0	17.0		27.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	None	None		None	None		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.16			1.07			0.44			0.76	
Control Delay		21.8			128.1			10.1			23.9	
Queue Delay		0.0			0.0			11.0			0.2	
Total Delay		21.8			128.1			21.1			24.1	
Queue Length 50th (ft)		8			~194			169			390	
Queue Length 95th (ft)		25			154			m56			484	
Internal Link Dist (ft)		1568			1629			97			626	
Turn Bay Length (ft)												
Base Capacity (vph)		279			214			2637			1666	
Starvation Cap Reductn		0			0			1450			0	
Spillback Cap Reductn		0			0			0			54	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.16			1.07			0.98			0.79	

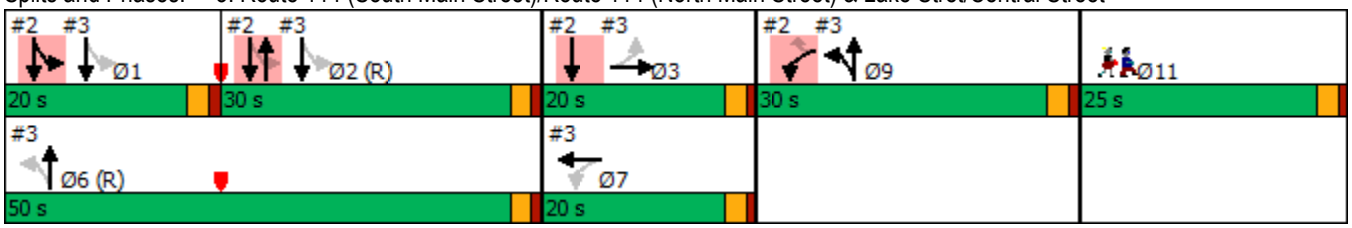
Intersection Summary
Cycle Length: 125

Lane Group	Ø1	Ø2	Ø6	Ø11
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	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	5.5	25.0
Total Split (s)	20.0	30.0	50.0	25.0
Total Split (%)	16%	24%	40%	20%
Maximum Green (s)	17.0	27.0	47.0	22.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Max	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

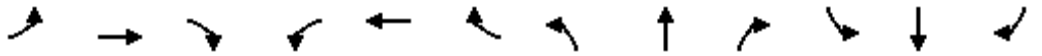
Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	3	23	91	1	35	3	1028	68	40	1141	2
Future Volume (vph)	4	3	23	91	1	35	3	1028	68	40	1141	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.90			0.96			0.99			1.00	
Flt Protected		0.99			0.97			1.00			1.00	
Satd. Flow (prot)		1864			1906			3439			3382	
Flt Permitted		0.98			0.76			0.95			0.85	
Satd. Flow (perm)		1835			1494			3284			2894	
Peak-hour factor, PHF	0.66	0.66	0.66	0.56	0.56	0.56	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	6	5	35	162	2	62	3	1094	72	43	1227	2
RTOR Reduction (vph)	0	30	0	0	11	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	16	0	0	217	0	0	1167	0	0	1272	0
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		17.0			17.0			99.0			72.0	
Effective Green, g (s)		17.0			17.0			99.0			72.0	
Actuated g/C Ratio		0.14			0.14			0.79			0.58	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		249			203			2634			1666	
v/s Ratio Prot								c0.10				
v/s Ratio Perm		0.01			c0.15			0.26			c0.44	
v/c Ratio		0.06			1.07			0.44			0.76	
Uniform Delay, d1		47.1			54.0			4.2			20.1	
Progression Factor		1.00			1.00			3.08			1.00	
Incremental Delay, d2		0.1			82.3			0.0			2.1	
Delay (s)		47.2			136.3			12.8			22.2	
Level of Service		D			F			B			C	
Approach Delay (s)		47.2			136.3			12.8			22.2	
Approach LOS		D			F			B			C	

Intersection Summary			
HCM 2000 Control Delay	28.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2	12	70	5	43	2	1197	44	22	1095	5
Future Volume (vph)	4	2	12	70	5	43	2	1197	44	22	1095	5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.911			0.951			0.995			0.999	
Flt Protected		0.989			0.971						0.999	
Satd. Flow (prot)	0	1940	0	0	1988	0	0	3556	0	0	3448	0
Flt Permitted		0.943			0.823			0.955			0.904	
Satd. Flow (perm)	0	1850	0	0	1685	0	0	3396	0	0	3120	0
Satd. Flow (RTOR)		23			19			5				
Adj. Flow (vph)	8	4	23	104	7	64	2	1234	45	23	1165	5
Lane Group Flow (vph)	0	35	0	0	175	0	0	1281	0	0	1193	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	20.0	20.0		20.0	20.0		30.0					
Total Split (%)	16.0%	16.0%		16.0%	16.0%		24.0%					
Maximum Green (s)	17.0	17.0		17.0	17.0		27.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	Max	Max		Max	Max		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.13			0.71			0.49			0.66	
Control Delay		25.7			62.9			10.8			20.5	
Queue Delay		0.0			0.0			49.3			0.0	
Total Delay		25.7			62.9			60.1			20.5	
Queue Length 50th (ft)		9			122			203			332	
Queue Length 95th (ft)		17			141			m81			407	
Internal Link Dist (ft)		1568			1629			97			1332	
Turn Bay Length (ft)												
Base Capacity (vph)		271			245			2641			1797	
Starvation Cap Reductn		0			0			1476			0	
Spillback Cap Reductn		0			0			0			8	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.13			0.71			1.10			0.67	

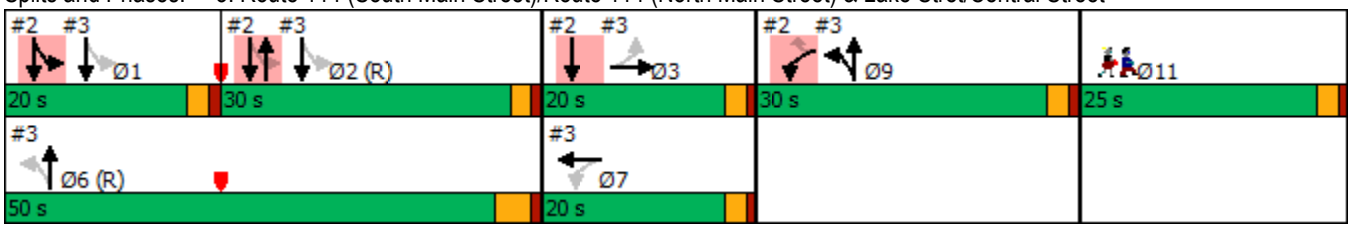
Intersection Summary
Cycle Length: 125

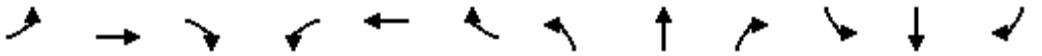
Lane Group	Ø1	Ø2	Ø6	Ø11
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Adj. Flow (vph)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	5.0	1.0
Minimum Split (s)	4.0	4.0	9.5	25.0
Total Split (s)	20.0	30.0	50.0	25.0
Total Split (%)	16%	24%	40%	20%
Maximum Green (s)	17.0	27.0	45.5	22.0
Yellow Time (s)	2.0	2.0	3.5	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Max	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 125
Offset: 50 (40%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	2	12	70	5	43	2	1197	44	22	1095	5
Future Volume (vph)	4	2	12	70	5	43	2	1197	44	22	1095	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			4.5			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.91			0.95			0.99			1.00	
Flt Protected		0.99			0.97			1.00			1.00	
Satd. Flow (prot)		1940			1988			3555			3450	
Flt Permitted		0.94			0.82			0.95			0.90	
Satd. Flow (perm)		1850			1684			3395			3123	
Peak-hour factor, PHF	0.53	0.53	0.53	0.67	0.67	0.67	0.97	0.97	0.97	0.94	0.94	0.94
Adj. Flow (vph)	8	4	23	104	7	64	2	1234	45	23	1165	5
RTOR Reduction (vph)	0	20	0	0	16	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	15	0	0	159	0	0	1280	0	0	1193	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		17.0			17.0			97.5			72.0	
Effective Green, g (s)		17.0			17.0			97.5			72.0	
Actuated g/C Ratio		0.14			0.14			0.78			0.58	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		251			229			2682			1798	
v/s Ratio Prot								c0.10				
v/s Ratio Perm		0.01			c0.09			0.27			c0.38	
v/c Ratio		0.06			0.69			0.48			0.66	
Uniform Delay, d1		47.0			51.5			4.8			18.2	
Progression Factor		1.00			1.00			2.74			1.00	
Incremental Delay, d2		0.5			15.9			0.0			0.9	
Delay (s)		47.5			67.4			13.2			19.1	
Level of Service		D			E			B			B	
Approach Delay (s)		47.5			67.4			13.2			19.1	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	21	23	1	11	7	960	19	9	1023	1
Future Volume (vph)	0	0	21	23	1	11	7	960	19	9	1023	1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.865			0.957			0.997				
Flt Protected					0.968							
Satd. Flow (prot)	0	1774	0	0	1995	0	0	3564	0	0	3490	0
Flt Permitted					0.833			0.953			0.944	
Satd. Flow (perm)	0	1774	0	0	1717	0	0	3396	0	0	3294	0
Satd. Flow (RTOR)		593			15			2				
Adj. Flow (vph)	0	0	30	31	1	15	8	1032	20	10	1124	1
Lane Group Flow (vph)	0	30	0	0	47	0	0	1060	0	0	1135	0
Turn Type		NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	20.0	20.0		20.0	20.0		30.0					
Total Split (%)	16.0%	16.0%		16.0%	16.0%		24.0%					
Maximum Green (s)	17.0	17.0		17.0	17.0		27.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	None	None		None	None		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.04			0.19			0.40			0.60	
Control Delay		0.1			37.7			5.8			18.8	
Queue Delay		0.0			0.0			6.0			0.0	
Total Delay		0.1			37.7			11.7			18.8	
Queue Length 50th (ft)		0			23			98			297	
Queue Length 95th (ft)		0			49			m75			364	
Internal Link Dist (ft)		1568			1629			97			1332	
Turn Bay Length (ft)												
Base Capacity (vph)		753			246			2642			1897	
Starvation Cap Reductn		0			0			1514			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.04			0.19			0.94			0.60	

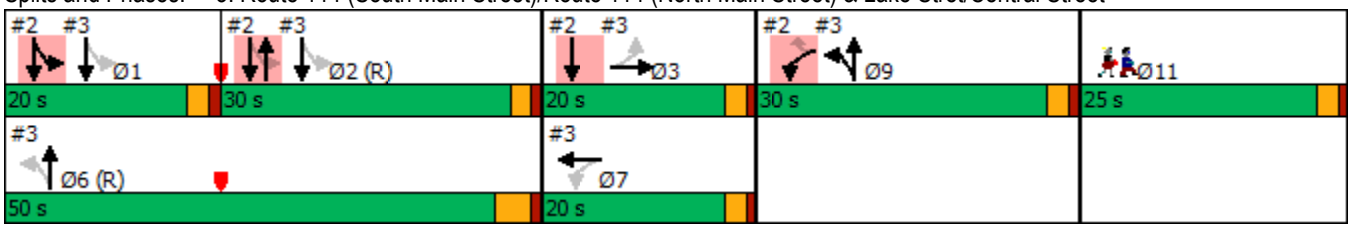
Intersection Summary
Cycle Length: 125

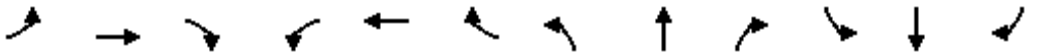
Lane Group	Ø1	Ø2	Ø6	Ø11
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Adj. Flow (vph)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	5.0	1.0
Minimum Split (s)	5.5	4.0	22.5	25.0
Total Split (s)	20.0	30.0	50.0	25.0
Total Split (%)	16%	24%	40%	20%
Maximum Green (s)	17.0	27.0	45.5	22.0
Yellow Time (s)	2.0	2.0	3.5	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street

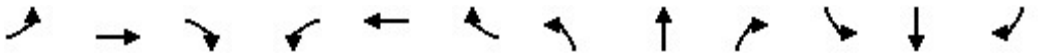




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	21	23	1	11	7	960	19	9	1023	1
Future Volume (vph)	0	0	21	23	1	11	7	960	19	9	1023	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			4.5			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.86			0.96			1.00			1.00	
Flt Protected		1.00			0.97			1.00			1.00	
Satd. Flow (prot)		1774			1995			3563			3488	
Flt Permitted		1.00			0.83			0.95			0.94	
Satd. Flow (perm)		1774			1716			3396			3292	
Peak-hour factor, PHF	0.71	0.71	0.71	0.75	0.75	0.75	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	0	0	30	31	1	15	8	1032	20	10	1124	1
RTOR Reduction (vph)	0	26	0	0	13	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	4	0	0	34	0	0	1060	0	0	1135	0
Heavy Vehicles (%)	5%	5%	5%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type		NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		17.0			17.0			97.5			72.0	
Effective Green, g (s)		17.0			17.0			97.5			72.0	
Actuated g/C Ratio		0.14			0.14			0.78			0.58	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		241			233			2684			1896	
v/s Ratio Prot		0.00						c0.09				
v/s Ratio Perm					c0.02			0.22			c0.34	
v/c Ratio		0.02			0.15			0.39			0.60	
Uniform Delay, d1		46.8			47.6			4.4			17.1	
Progression Factor		1.00			1.00			1.61			1.00	
Incremental Delay, d2		0.0			0.3			0.0			0.5	
Delay (s)		46.8			47.9			7.0			17.7	
Level of Service		D			D			A			B	
Approach Delay (s)		46.8			47.9			7.0			17.7	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	27	105	1	38	3	1206	77	44	1352	2
Future Volume (vph)	5	3	27	105	1	38	3	1206	77	44	1352	2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.897			0.964			0.991				
Flt Protected		0.993			0.965						0.998	
Satd. Flow (prot)	0	1862	0	0	1908	0	0	3440	0	0	3381	0
Flt Permitted		0.974			0.724			0.955			0.832	
Satd. Flow (perm)	0	1827	0	0	1431	0	0	3285	0	0	2819	0
Satd. Flow (RTOR)		41			12			9				
Adj. Flow (vph)	8	5	41	188	2	68	3	1283	82	47	1454	2
Lane Group Flow (vph)	0	54	0	0	258	0	0	1368	0	0	1503	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	20.0	20.0		20.0	20.0		30.0					
Total Split (%)	16.0%	16.0%		16.0%	16.0%		24.0%					
Maximum Green (s)	17.0	17.0		17.0	17.0		27.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	None	None		None	None		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.19			1.26			0.52			0.93	
Control Delay		21.2			193.8			15.1			35.3	
Queue Delay		0.1			1.6			49.3			19.3	
Total Delay		21.4			195.4			64.4			54.5	
Queue Length 50th (ft)		9			~254			263			553	
Queue Length 95th (ft)		28			#196			m58			#751	
Internal Link Dist (ft)		1568			1629			97			626	
Turn Bay Length (ft)												
Base Capacity (vph)		283			204			2637			1623	
Starvation Cap Reductn		0			0			1449			0	
Spillback Cap Reductn		30			20			0			170	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.21			1.40			1.15			1.03	

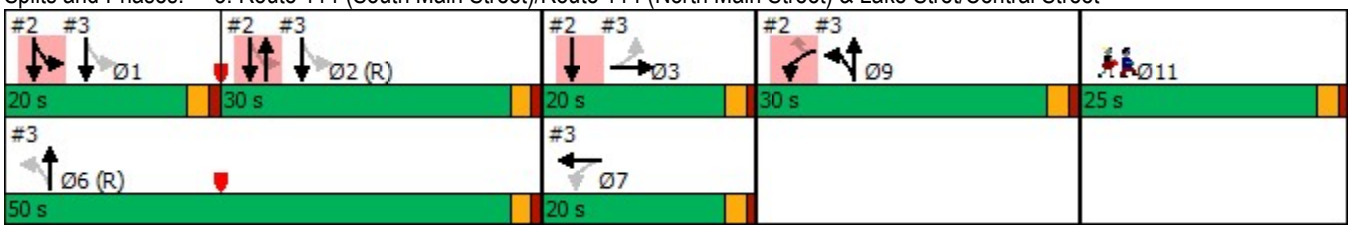
Intersection Summary
Cycle Length: 125

Lane Group	Ø1	Ø2	Ø6	Ø11
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	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	5.5	25.0
Total Split (s)	20.0	30.0	50.0	25.0
Total Split (%)	16%	24%	40%	20%
Maximum Green (s)	17.0	27.0	47.0	22.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Max	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

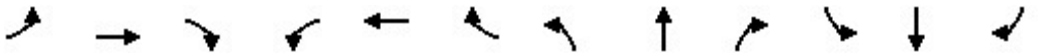
Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	27	105	1	38	3	1206	77	44	1352	2
Future Volume (vph)	5	3	27	105	1	38	3	1206	77	44	1352	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.90			0.96			0.99			1.00	
Flt Protected		0.99			0.96			1.00			1.00	
Satd. Flow (prot)		1863			1908			3440			3382	
Flt Permitted		0.97			0.72			0.95			0.83	
Satd. Flow (perm)		1828			1433			3285			2820	
Peak-hour factor, PHF	0.66	0.66	0.66	0.56	0.56	0.56	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	8	5	41	188	2	68	3	1283	82	47	1454	2
RTOR Reduction (vph)	0	35	0	0	10	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	19	0	0	248	0	0	1366	0	0	1503	0
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		17.0			17.0			99.0			72.0	
Effective Green, g (s)		17.0			17.0			99.0			72.0	
Actuated g/C Ratio		0.14			0.14			0.79			0.58	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		248			194			2635			1624	
v/s Ratio Prot								c0.11				
v/s Ratio Perm		0.01			c0.17			0.30			c0.53	
v/c Ratio		0.07			1.28			0.52			0.93	
Uniform Delay, d1		47.1			54.0			4.6			24.1	
Progression Factor		1.00			1.00			4.17			1.00	
Incremental Delay, d2		0.1			158.1			0.0			9.4	
Delay (s)		47.3			212.1			19.1			33.4	
Level of Service		D			F			B			C	
Approach Delay (s)		47.3			212.1			19.1			33.4	
Approach LOS		D			F			B			C	

Intersection Summary			
HCM 2000 Control Delay	42.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	2	13	79	6	48	2	1400	49	24	1286	6
Future Volume (vph)	5	2	13	79	6	48	2	1400	49	24	1286	6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.911			0.951			0.995			0.999	
Flt Protected		0.988			0.971						0.999	
Satd. Flow (prot)	0	1938	0	0	1988	0	0	3556	0	0	3448	0
Flt Permitted		0.933			0.816			0.955			0.889	
Satd. Flow (perm)	0	1830	0	0	1671	0	0	3396	0	0	3069	0
Satd. Flow (RTOR)		25			19			5				
Adj. Flow (vph)	9	4	25	118	9	72	2	1443	51	26	1368	6
Lane Group Flow (vph)	0	38	0	0	199	0	0	1496	0	0	1400	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	20.0	20.0		20.0	20.0		30.0					
Total Split (%)	16.0%	16.0%		16.0%	16.0%		24.0%					
Maximum Green (s)	17.0	17.0		17.0	17.0		27.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	Max	Max		Max	Max		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.14			0.82			0.57			0.79	
Control Delay		25.2			73.5			15.9			24.9	
Queue Delay		0.0			0.0			49.3			0.4	
Total Delay		25.2			73.5			65.1			25.3	
Queue Length 50th (ft)		9			144			301			442	
Queue Length 95th (ft)		17			160			m86			543	
Internal Link Dist (ft)		1568			1629			97			1332	
Turn Bay Length (ft)												
Base Capacity (vph)		270			243			2641			1767	
Starvation Cap Reductn		0			0			1453			0	
Spillback Cap Reductn		0			0			0			83	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.14			0.82			1.26			0.83	

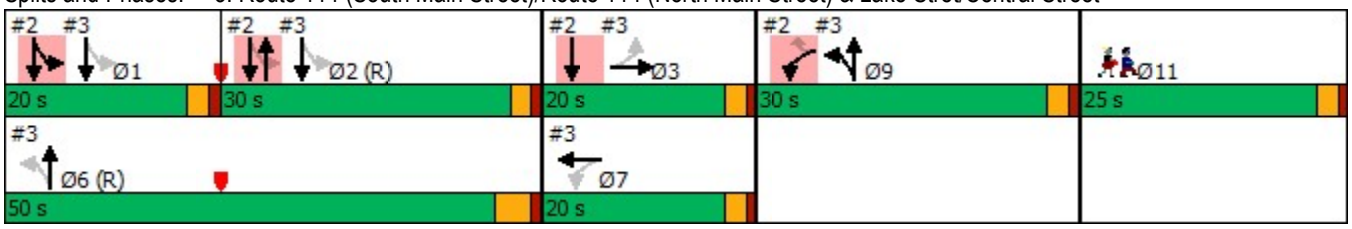
Intersection Summary
Cycle Length: 125

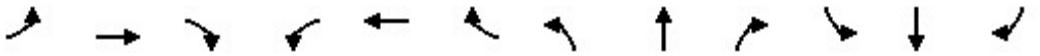
Lane Group	Ø1	Ø2	Ø6	Ø11
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Adj. Flow (vph)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	5.0	1.0
Minimum Split (s)	4.0	4.0	9.5	25.0
Total Split (s)	20.0	30.0	50.0	25.0
Total Split (%)	16%	24%	40%	20%
Maximum Green (s)	17.0	27.0	45.5	22.0
Yellow Time (s)	2.0	2.0	3.5	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Max	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 125
Offset: 50 (40%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	2	13	79	6	48	2	1400	49	24	1286	6
Future Volume (vph)	5	2	13	79	6	48	2	1400	49	24	1286	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			4.5			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.91			0.95			0.99			1.00	
Flt Protected		0.99			0.97			1.00			1.00	
Satd. Flow (prot)		1939			1989			3556			3450	
Flt Permitted		0.93			0.82			0.95			0.89	
Satd. Flow (perm)		1830			1670			3396			3068	
Peak-hour factor, PHF	0.53	0.53	0.53	0.67	0.67	0.67	0.97	0.97	0.97	0.94	0.94	0.94
Adj. Flow (vph)	9	4	25	118	9	72	2	1443	51	26	1368	6
RTOR Reduction (vph)	0	22	0	0	16	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	16	0	0	183	0	0	1495	0	0	1400	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		17.0			17.0			97.5			72.0	
Effective Green, g (s)		17.0			17.0			97.5			72.0	
Actuated g/C Ratio		0.14			0.14			0.78			0.58	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		248			227			2683			1767	
v/s Ratio Prot								c0.12				
v/s Ratio Perm		0.01			c0.11			0.31			c0.46	
v/c Ratio		0.07			0.80			0.56			0.79	
Uniform Delay, d1		47.1			52.4			5.4			20.7	
Progression Factor		1.00			1.00			3.63			1.00	
Incremental Delay, d2		0.5			25.3			0.0			2.5	
Delay (s)		47.6			77.7			19.5			23.2	
Level of Service		D			E			B			C	
Approach Delay (s)		47.6			77.7			19.5			23.2	
Approach LOS		D			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	23	26	1	12	8	1136	21	10	1211	1
Future Volume (vph)	0	0	23	26	1	12	8	1136	21	10	1211	1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.865			0.958			0.997				
Flt Protected					0.967							
Satd. Flow (prot)	0	1774	0	0	1995	0	0	3564	0	0	3490	0
Flt Permitted					0.823			0.951			0.941	
Satd. Flow (perm)	0	1774	0	0	1698	0	0	3389	0	0	3284	0
Satd. Flow (RTOR)		588			15			2				
Adj. Flow (vph)	0	0	32	35	1	16	9	1222	23	11	1331	1
Lane Group Flow (vph)	0	32	0	0	52	0	0	1254	0	0	1343	0
Turn Type		NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	20.0	20.0		20.0	20.0		30.0					
Total Split (%)	16.0%	16.0%		16.0%	16.0%		24.0%					
Maximum Green (s)	17.0	17.0		17.0	17.0		27.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	None	None		None	None		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.04			0.21			0.48			0.71	
Control Delay		0.1			38.9			9.2			21.7	
Queue Delay		0.0			0.0			49.6			0.0	
Total Delay		0.1			38.9			58.9			21.7	
Queue Length 50th (ft)		0			27			188			390	
Queue Length 95th (ft)		0			53			m75			474	
Internal Link Dist (ft)		1568			1629			97			1332	
Turn Bay Length (ft)												
Base Capacity (vph)		749			243			2638			1891	
Starvation Cap Reductn		0			0			1523			0	
Spillback Cap Reductn		3			0			0			21	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.04			0.21			1.12			0.72	

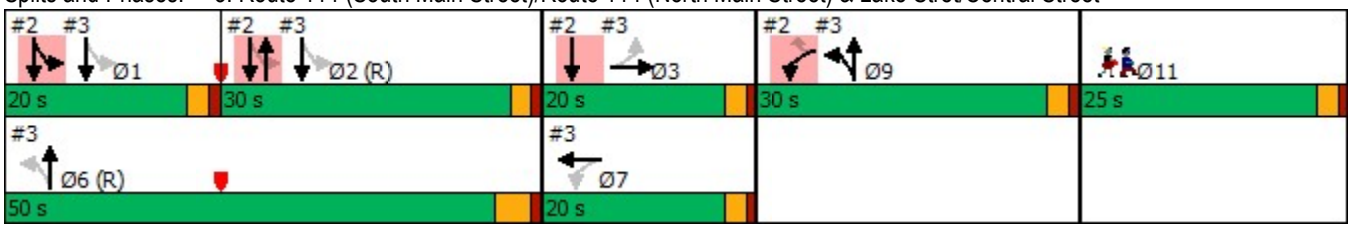
Intersection Summary
Cycle Length: 125

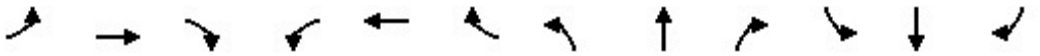
Lane Group	Ø1	Ø2	Ø6	Ø11
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Adj. Flow (vph)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	5.0	1.0
Minimum Split (s)	5.5	4.0	22.5	25.0
Total Split (s)	20.0	30.0	50.0	25.0
Total Split (%)	16%	24%	40%	20%
Maximum Green (s)	17.0	27.0	45.5	22.0
Yellow Time (s)	2.0	2.0	3.5	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street

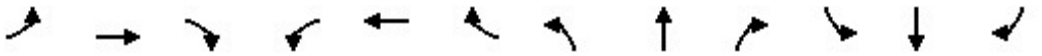




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	23	26	1	12	8	1136	21	10	1211	1
Future Volume (vph)	0	0	23	26	1	12	8	1136	21	10	1211	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			4.5			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.86			0.96			1.00			1.00	
Flt Protected		1.00			0.97			1.00			1.00	
Satd. Flow (prot)		1774			1997			3563			3488	
Flt Permitted		1.00			0.82			0.95			0.94	
Satd. Flow (perm)		1774			1699			3391			3282	
Peak-hour factor, PHF	0.71	0.71	0.71	0.75	0.75	0.75	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	0	0	32	35	1	16	9	1222	23	11	1331	1
RTOR Reduction (vph)	0	28	0	0	13	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	4	0	0	39	0	0	1254	0	0	1343	0
Heavy Vehicles (%)	5%	5%	5%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type		NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		17.0			17.0			97.5			72.0	
Effective Green, g (s)		17.0			17.0			97.5			72.0	
Actuated g/C Ratio		0.14			0.14			0.78			0.58	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		241			231			2682			1890	
v/s Ratio Prot		0.00						c0.10				
v/s Ratio Perm					c0.02			0.26			c0.41	
v/c Ratio		0.02			0.17			0.47			0.71	
Uniform Delay, d1		46.8			47.8			4.8			19.0	
Progression Factor		1.00			1.00			2.37			1.00	
Incremental Delay, d2		0.0			0.3			0.0			1.3	
Delay (s)		46.8			48.1			11.3			20.3	
Level of Service		D			D			B			C	
Approach Delay (s)		46.8			48.1			11.3			20.3	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	27	105	1	38	3	1211	77	44	1353	2
Future Volume (vph)	5	3	27	105	1	38	3	1211	77	44	1353	2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.897			0.964			0.991				
Flt Protected		0.993			0.965						0.998	
Satd. Flow (prot)	0	1862	0	0	1908	0	0	3440	0	0	3381	0
Flt Permitted		0.974			0.724			0.955			0.832	
Satd. Flow (perm)	0	1827	0	0	1431	0	0	3285	0	0	2819	0
Satd. Flow (RTOR)		41			12			9				
Adj. Flow (vph)	8	5	41	188	2	68	3	1288	82	47	1455	2
Lane Group Flow (vph)	0	54	0	0	258	0	0	1373	0	0	1504	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	20.0	20.0		20.0	20.0		30.0					
Total Split (%)	16.0%	16.0%		16.0%	16.0%		24.0%					
Maximum Green (s)	17.0	17.0		17.0	17.0		27.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	None	None		None	None		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.19			1.26			0.52			0.93	
Control Delay		21.2			193.8			15.2			35.4	
Queue Delay		0.1			1.6			49.3			19.5	
Total Delay		21.4			195.4			64.5			54.8	
Queue Length 50th (ft)		9			~254			265			554	
Queue Length 95th (ft)		28			#196			m57			#751	
Internal Link Dist (ft)		1568			1629			97			626	
Turn Bay Length (ft)												
Base Capacity (vph)		283			204			2637			1623	
Starvation Cap Reductn		0			0			1453			0	
Spillback Cap Reductn		30			20			0			170	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.21			1.40			1.16			1.04	

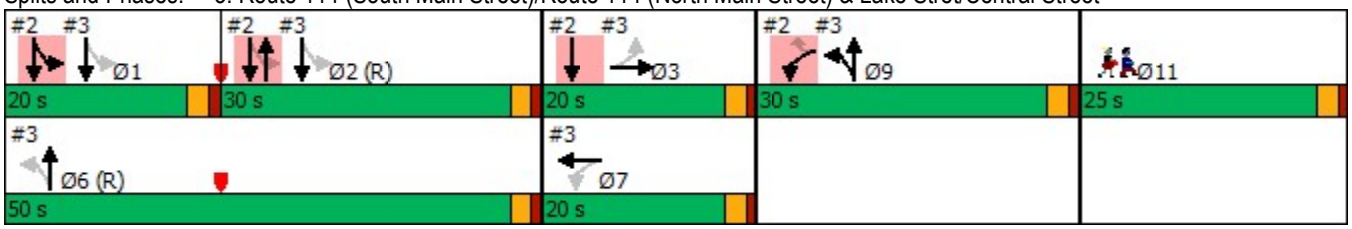
Intersection Summary
Cycle Length: 125

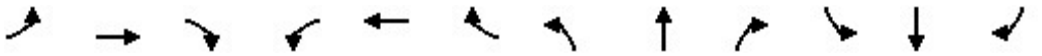
Lane Group	Ø1	Ø2	Ø6	Ø11
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Adj. Flow (vph)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	5.5	25.0
Total Split (s)	20.0	30.0	50.0	25.0
Total Split (%)	16%	24%	40%	20%
Maximum Green (s)	17.0	27.0	47.0	22.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Max	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street

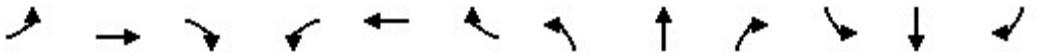




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	27	105	1	38	3	1211	77	44	1353	2
Future Volume (vph)	5	3	27	105	1	38	3	1211	77	44	1353	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.90			0.96			0.99			1.00	
Flt Protected		0.99			0.96			1.00			1.00	
Satd. Flow (prot)		1863			1908			3440			3382	
Flt Permitted		0.97			0.72			0.95			0.83	
Satd. Flow (perm)		1828			1433			3285			2818	
Peak-hour factor, PHF	0.66	0.66	0.66	0.56	0.56	0.56	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	8	5	41	188	2	68	3	1288	82	47	1455	2
RTOR Reduction (vph)	0	35	0	0	10	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	19	0	0	248	0	0	1371	0	0	1504	0
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		17.0			17.0			99.0			72.0	
Effective Green, g (s)		17.0			17.0			99.0			72.0	
Actuated g/C Ratio		0.14			0.14			0.79			0.58	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		248			194			2635			1623	
v/s Ratio Prot								c0.11				
v/s Ratio Perm		0.01			c0.17			0.30			c0.53	
v/c Ratio		0.07			1.28			0.52			0.93	
Uniform Delay, d1		47.1			54.0			4.6			24.1	
Progression Factor		1.00			1.00			4.19			1.00	
Incremental Delay, d2		0.1			158.1			0.0			9.5	
Delay (s)		47.3			212.1			19.3			33.6	
Level of Service		D			F			B			C	
Approach Delay (s)		47.3			212.1			19.3			33.6	
Approach LOS		D			F			B			C	

Intersection Summary			
HCM 2000 Control Delay	42.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	2	13	79	6	48	2	1403	49	24	1291	6
Future Volume (vph)	5	2	13	79	6	48	2	1403	49	24	1291	6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.911			0.951			0.995			0.999	
Flt Protected		0.988			0.971						0.999	
Satd. Flow (prot)	0	1938	0	0	1988	0	0	3556	0	0	3448	0
Flt Permitted		0.933			0.816			0.955			0.889	
Satd. Flow (perm)	0	1830	0	0	1671	0	0	3396	0	0	3069	0
Satd. Flow (RTOR)		25			19			5				
Adj. Flow (vph)	9	4	25	118	9	72	2	1446	51	26	1373	6
Lane Group Flow (vph)	0	38	0	0	199	0	0	1499	0	0	1405	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	20.0	20.0		20.0	20.0		30.0					
Total Split (%)	16.0%	16.0%		16.0%	16.0%		24.0%					
Maximum Green (s)	17.0	17.0		17.0	17.0		27.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	Max	Max		Max	Max		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.14			0.82			0.57			0.80	
Control Delay		25.2			73.5			16.0			25.0	
Queue Delay		0.0			0.0			49.3			0.5	
Total Delay		25.2			73.5			65.3			25.5	
Queue Length 50th (ft)		9			144			302			445	
Queue Length 95th (ft)		17			160			m86			547	
Internal Link Dist (ft)		1568			1629			97			1332	
Turn Bay Length (ft)												
Base Capacity (vph)		270			243			2641			1767	
Starvation Cap Reductn		0			0			1454			0	
Spillback Cap Reductn		0			0			0			91	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.14			0.82			1.26			0.84	

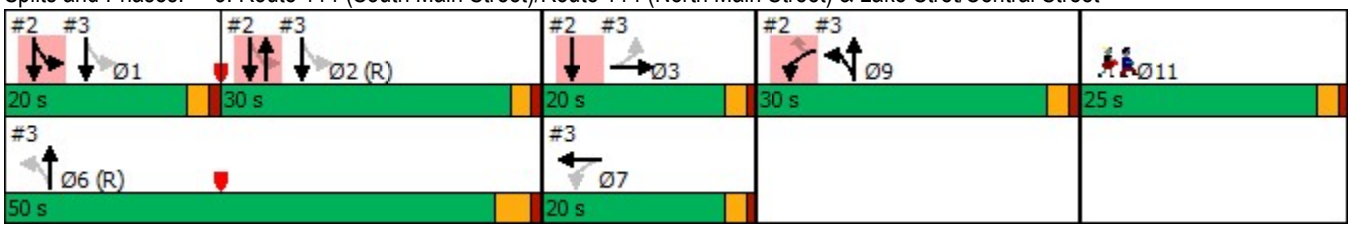
Intersection Summary
Cycle Length: 125

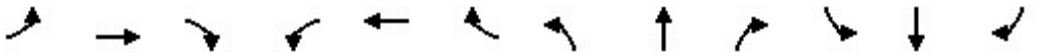
Lane Group	Ø1	Ø2	Ø6	Ø11
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Adj. Flow (vph)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	5.0	1.0
Minimum Split (s)	4.0	4.0	9.5	25.0
Total Split (s)	20.0	30.0	50.0	25.0
Total Split (%)	16%	24%	40%	20%
Maximum Green (s)	17.0	27.0	45.5	22.0
Yellow Time (s)	2.0	2.0	3.5	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Max	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 125
Offset: 50 (40%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	2	13	79	6	48	2	1403	49	24	1291	6
Future Volume (vph)	5	2	13	79	6	48	2	1403	49	24	1291	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			4.5			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.91			0.95			0.99			1.00	
Flt Protected		0.99			0.97			1.00			1.00	
Satd. Flow (prot)		1939			1989			3556			3450	
Flt Permitted		0.93			0.82			0.95			0.89	
Satd. Flow (perm)		1830			1670			3396			3068	
Peak-hour factor, PHF	0.53	0.53	0.53	0.67	0.67	0.67	0.97	0.97	0.97	0.94	0.94	0.94
Adj. Flow (vph)	9	4	25	118	9	72	2	1446	51	26	1373	6
RTOR Reduction (vph)	0	22	0	0	16	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	16	0	0	183	0	0	1498	0	0	1405	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		17.0			17.0			97.5			72.0	
Effective Green, g (s)		17.0			17.0			97.5			72.0	
Actuated g/C Ratio		0.14			0.14			0.78			0.58	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		248			227			2683			1767	
v/s Ratio Prot								c0.12				
v/s Ratio Perm		0.01			c0.11			0.31			c0.46	
v/c Ratio		0.07			0.80			0.56			0.80	
Uniform Delay, d1		47.1			52.4			5.4			20.7	
Progression Factor		1.00			1.00			3.65			1.00	
Incremental Delay, d2		0.5			25.3			0.0			2.6	
Delay (s)		47.6			77.7			19.6			23.3	
Level of Service		D			E			B			C	
Approach Delay (s)		47.6			77.7			19.6			23.3	
Approach LOS		D			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	23	26	1	12	8	1138	21	10	1213	1
Future Volume (vph)	0	0	23	26	1	12	8	1138	21	10	1213	1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.865			0.958			0.997				
Flt Protected					0.967							
Satd. Flow (prot)	0	1774	0	0	1995	0	0	3564	0	0	3490	0
Flt Permitted					0.823			0.951			0.941	
Satd. Flow (perm)	0	1774	0	0	1698	0	0	3389	0	0	3284	0
Satd. Flow (RTOR)		588			15			2				
Adj. Flow (vph)	0	0	32	35	1	16	9	1224	23	11	1333	1
Lane Group Flow (vph)	0	32	0	0	52	0	0	1256	0	0	1345	0
Turn Type		NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	20.0	20.0		20.0	20.0		30.0					
Total Split (%)	16.0%	16.0%		16.0%	16.0%		24.0%					
Maximum Green (s)	17.0	17.0		17.0	17.0		27.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	None	None		None	None		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.04			0.21			0.48			0.71	
Control Delay		0.1			38.9			9.2			21.7	
Queue Delay		0.0			0.0			49.6			0.0	
Total Delay		0.1			38.9			58.9			21.7	
Queue Length 50th (ft)		0			27			190			391	
Queue Length 95th (ft)		0			53			m75			475	
Internal Link Dist (ft)		1568			1629			97			1332	
Turn Bay Length (ft)												
Base Capacity (vph)		749			243			2638			1891	
Starvation Cap Reductn		0			0			1525			0	
Spillback Cap Reductn		3			0			0			21	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.04			0.21			1.13			0.72	

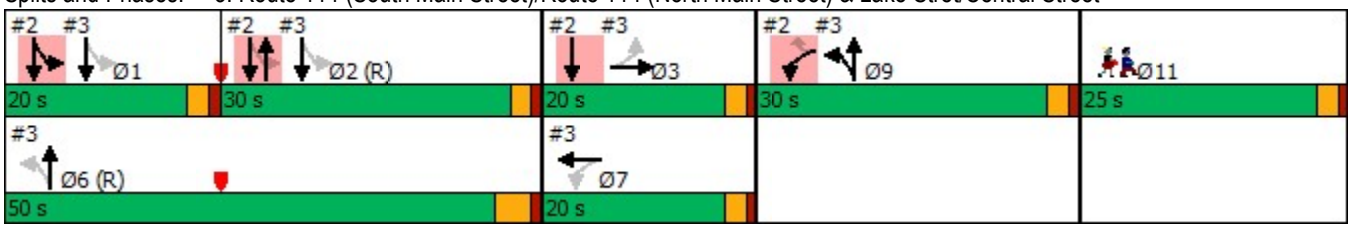
Intersection Summary
Cycle Length: 125

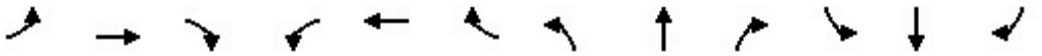
Lane Group	Ø1	Ø2	Ø6	Ø11
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Adj. Flow (vph)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	5.0	1.0
Minimum Split (s)	5.5	4.0	22.5	25.0
Total Split (s)	20.0	30.0	50.0	25.0
Total Split (%)	16%	24%	40%	20%
Maximum Green (s)	17.0	27.0	45.5	22.0
Yellow Time (s)	2.0	2.0	3.5	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 125
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street

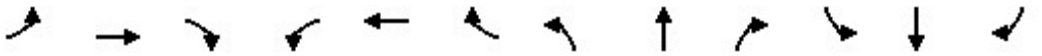




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	23	26	1	12	8	1138	21	10	1213	1
Future Volume (vph)	0	0	23	26	1	12	8	1138	21	10	1213	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			4.5			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.86			0.96			1.00			1.00	
Flt Protected		1.00			0.97			1.00			1.00	
Satd. Flow (prot)		1774			1997			3563			3488	
Flt Permitted		1.00			0.82			0.95			0.94	
Satd. Flow (perm)		1774			1699			3391			3282	
Peak-hour factor, PHF	0.71	0.71	0.71	0.75	0.75	0.75	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	0	0	32	35	1	16	9	1224	23	11	1333	1
RTOR Reduction (vph)	0	28	0	0	13	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	4	0	0	39	0	0	1256	0	0	1345	0
Heavy Vehicles (%)	5%	5%	5%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type		NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		17.0			17.0			97.5			72.0	
Effective Green, g (s)		17.0			17.0			97.5			72.0	
Actuated g/C Ratio		0.14			0.14			0.78			0.58	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		241			231			2682			1890	
v/s Ratio Prot		0.00						c0.10				
v/s Ratio Perm					c0.02			0.26			c0.41	
v/c Ratio		0.02			0.17			0.47			0.71	
Uniform Delay, d1		46.8			47.8			4.8			19.0	
Progression Factor		1.00			1.00			2.37			1.00	
Incremental Delay, d2		0.0			0.3			0.0			1.3	
Delay (s)		46.8			48.1			11.3			20.3	
Level of Service		D			D			B			C	
Approach Delay (s)		46.8			48.1			11.3			20.3	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	125.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	27	105	1	38	3	1211	77	44	1353	2
Future Volume (vph)	5	3	27	105	1	38	3	1211	77	44	1353	2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.897			0.964			0.991				
Flt Protected		0.993			0.965						0.998	
Satd. Flow (prot)	0	1862	0	0	1908	0	0	3440	0	0	3381	0
Flt Permitted		0.975			0.736			0.955			0.835	
Satd. Flow (perm)	0	1828	0	0	1455	0	0	3285	0	0	2829	0
Satd. Flow (RTOR)		41			13			9				
Adj. Flow (vph)	8	5	41	188	2	68	3	1288	82	47	1455	2
Lane Group Flow (vph)	0	54	0	0	258	0	0	1373	0	0	1504	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	21.0	21.0		21.0	21.0		21.0					
Total Split (%)	17.5%	17.5%		17.5%	17.5%		17.5%					
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	None	None		None	None		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.17			1.13			0.53			0.85	
Control Delay		19.7			141.8			0.9			24.1	
Queue Delay		0.1			1.1			1.2			47.3	
Total Delay		19.8			143.0			2.1			71.4	
Queue Length 50th (ft)		9			~223			23			458	
Queue Length 95th (ft)		26			167			m17			579	
Internal Link Dist (ft)		1568			1629			97			626	
Turn Bay Length (ft)												
Base Capacity (vph)		309			229			2571			1768	
Starvation Cap Reductn		0			0			897			0	
Spillback Cap Reductn		27			17			0			407	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.19			1.22			0.82			1.11	

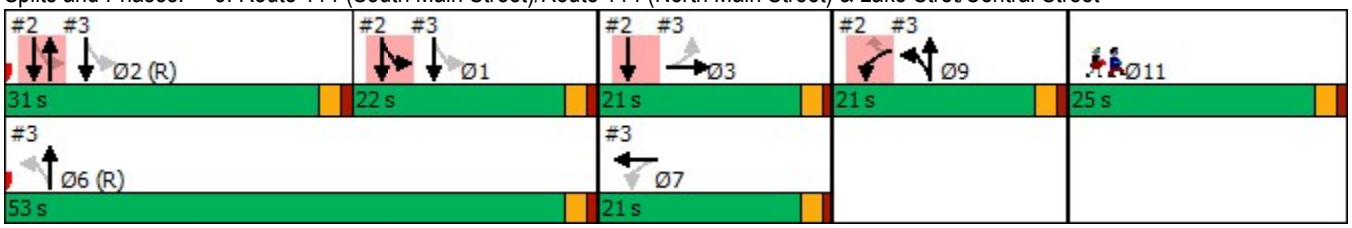
Intersection Summary
Cycle Length: 120

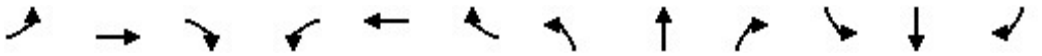
Lane Group	Ø1	Ø2	Ø6	Ø11
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Adj. Flow (vph)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	4.0	4.0	5.5	25.0
Total Split (s)	22.0	31.0	53.0	25.0
Total Split (%)	18%	26%	44%	21%
Maximum Green (s)	19.0	28.0	50.0	22.0
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Max	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 120
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street

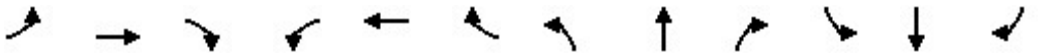




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	27	105	1	38	3	1211	77	44	1353	2
Future Volume (vph)	5	3	27	105	1	38	3	1211	77	44	1353	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			3.0			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.90			0.96			0.99			1.00	
Flt Protected		0.99			0.96			1.00			1.00	
Satd. Flow (prot)		1863			1908			3440			3382	
Flt Permitted		0.98			0.74			0.95			0.83	
Satd. Flow (perm)		1830			1455			3285			2828	
Peak-hour factor, PHF	0.66	0.66	0.66	0.56	0.56	0.56	0.94	0.94	0.94	0.93	0.93	0.93
Adj. Flow (vph)	8	5	41	188	2	68	3	1288	82	47	1455	2
RTOR Reduction (vph)	0	35	0	0	11	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	19	0	0	247	0	0	1371	0	0	1504	0
Heavy Vehicles (%)	3%	3%	3%	5%	5%	5%	4%	4%	4%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		18.0			18.0			93.0			75.0	
Effective Green, g (s)		18.0			18.0			93.0			75.0	
Actuated g/C Ratio		0.15			0.15			0.78			0.62	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		274			218			2569			1767	
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.01			c0.17			0.33			c0.53	
v/c Ratio		0.07			1.13			0.53			0.85	
Uniform Delay, d1		43.8			51.0			5.2			18.0	
Progression Factor		1.00			1.00			0.15			1.00	
Incremental Delay, d2		0.1			101.3			0.1			4.2	
Delay (s)		43.9			152.3			0.8			22.2	
Level of Service		D			F			A			C	
Approach Delay (s)		43.9			152.3			0.8			22.2	
Approach LOS		D			F			A			C	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	2	13	79	6	48	2	1403	49	24	1291	6
Future Volume (vph)	5	2	13	79	6	48	2	1403	49	24	1291	6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.911			0.951			0.995			0.999	
Flt Protected		0.988			0.971						0.999	
Satd. Flow (prot)	0	1938	0	0	1988	0	0	3556	0	0	3448	0
Flt Permitted		0.932			0.820			0.955			0.891	
Satd. Flow (perm)	0	1828	0	0	1679	0	0	3396	0	0	3075	0
Satd. Flow (RTOR)		25			20			5				
Adj. Flow (vph)	9	4	25	118	9	72	2	1446	51	26	1373	6
Lane Group Flow (vph)	0	38	0	0	199	0	0	1499	0	0	1405	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	19.0	19.0		19.0	19.0		19.0					
Total Split (%)	15.8%	15.8%		15.8%	15.8%		15.8%					
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	Max	Max		Max	Max		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.14			0.83			0.57			0.69	
Control Delay		24.8			72.6			1.3			15.2	
Queue Delay		0.1			3.4			1.0			1.5	
Total Delay		24.9			76.0			2.3			16.7	
Queue Length 50th (ft)		9			137			35			331	
Queue Length 95th (ft)		17			154			30			410	
Internal Link Dist (ft)		1568			1629			97			1332	
Turn Bay Length (ft)												
Base Capacity (vph)		265			241			2624			2024	
Starvation Cap Reductn		0			0			785			0	
Spillback Cap Reductn		13			12			0			404	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.15			0.87			0.82			0.87	

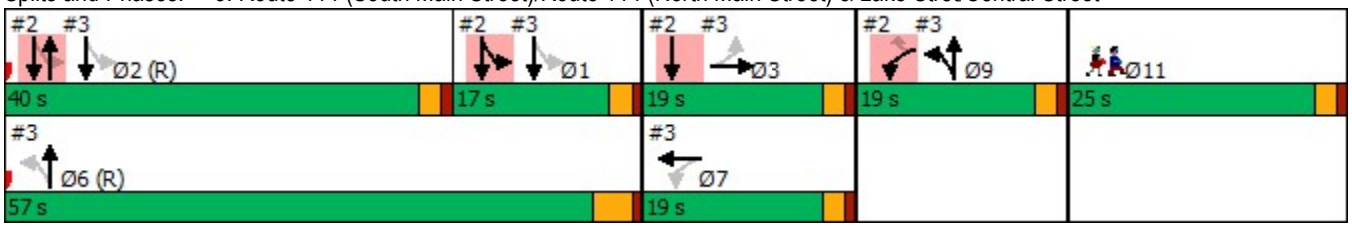
Intersection Summary
Cycle Length: 120

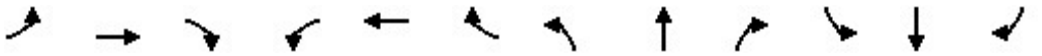
Lane Group	Ø1	Ø2	Ø6	Ø11
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Adj. Flow (vph)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	5.0	1.0
Minimum Split (s)	4.0	4.0	9.5	25.0
Total Split (s)	17.0	40.0	57.0	25.0
Total Split (%)	14%	33%	48%	21%
Maximum Green (s)	14.0	37.0	52.5	22.0
Yellow Time (s)	2.0	2.0	3.5	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Max	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 120
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street

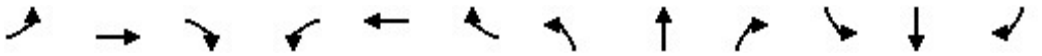




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	2	13	79	6	48	2	1403	49	24	1291	6
Future Volume (vph)	5	2	13	79	6	48	2	1403	49	24	1291	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			4.5			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.91			0.95			0.99			1.00	
Flt Protected		0.99			0.97			1.00			1.00	
Satd. Flow (prot)		1939			1989			3556			3450	
Flt Permitted		0.93			0.82			0.95			0.89	
Satd. Flow (perm)		1830			1679			3396			3075	
Peak-hour factor, PHF	0.53	0.53	0.53	0.67	0.67	0.67	0.97	0.97	0.97	0.94	0.94	0.94
Adj. Flow (vph)	9	4	25	118	9	72	2	1446	51	26	1373	6
RTOR Reduction (vph)	0	22	0	0	17	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	16	0	0	182	0	0	1498	0	0	1405	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		16.0			16.0			93.5			79.0	
Effective Green, g (s)		16.0			16.0			93.5			79.0	
Actuated g/C Ratio		0.13			0.13			0.78			0.66	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		244			223			2667			2024	
v/s Ratio Prot								c0.07				
v/s Ratio Perm		0.01			c0.11			0.36			c0.46	
v/c Ratio		0.07			0.81			0.56			0.69	
Uniform Delay, d1		45.5			50.6			5.2			12.9	
Progression Factor		1.00			1.00			0.18			1.00	
Incremental Delay, d2		0.5			26.8			0.1			1.0	
Delay (s)		46.0			77.4			1.1			13.9	
Level of Service		D			E			A			B	
Approach Delay (s)		46.0			77.4			1.1			13.9	
Approach LOS		D			E			A			B	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	23	26	1	12	8	1138	21	10	1213	1
Future Volume (vph)	0	0	23	26	1	12	8	1138	21	10	1213	1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Frt		0.865			0.958			0.997				
Flt Protected					0.967							
Satd. Flow (prot)	0	1774	0	0	1995	0	0	3564	0	0	3490	0
Flt Permitted					0.790			0.951			0.942	
Satd. Flow (perm)	0	1774	0	0	1630	0	0	3389	0	0	3287	0
Satd. Flow (RTOR)		611			16			3				
Adj. Flow (vph)	0	0	32	35	1	16	9	1224	23	11	1333	1
Lane Group Flow (vph)	0	32	0	0	52	0	0	1256	0	0	1345	0
Turn Type		NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Detector Phase	3	3		7	7		9	6 9		1 2	1 2	
Switch Phase												
Minimum Initial (s)	1.0	1.0		1.0	1.0		1.0					
Minimum Split (s)	4.0	4.0		4.0	4.0		4.0					
Total Split (s)	11.0	11.0		11.0	11.0		23.0					
Total Split (%)	11.0%	11.0%		11.0%	11.0%		23.0%					
Maximum Green (s)	8.0	8.0		8.0	8.0		20.0					
Yellow Time (s)	2.0	2.0		2.0	2.0		2.0					
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0					
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		3.0			3.0							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0					
Recall Mode	None	None		None	None		None					
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio		0.05			0.36			0.46			0.65	
Control Delay		0.1			40.2			0.8			13.5	
Queue Delay		0.0			1.7			0.5			1.7	
Total Delay		0.2			41.9			1.3			15.1	
Queue Length 50th (ft)		0			22			17			258	
Queue Length 95th (ft)		0			48			14			326	
Internal Link Dist (ft)		1568			1629			97			1332	
Turn Bay Length (ft)												
Base Capacity (vph)		704			145			2744			2070	
Starvation Cap Reductn		0			0			941			0	
Spillback Cap Reductn		184			30			0			517	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.06			0.45			0.70			0.87	

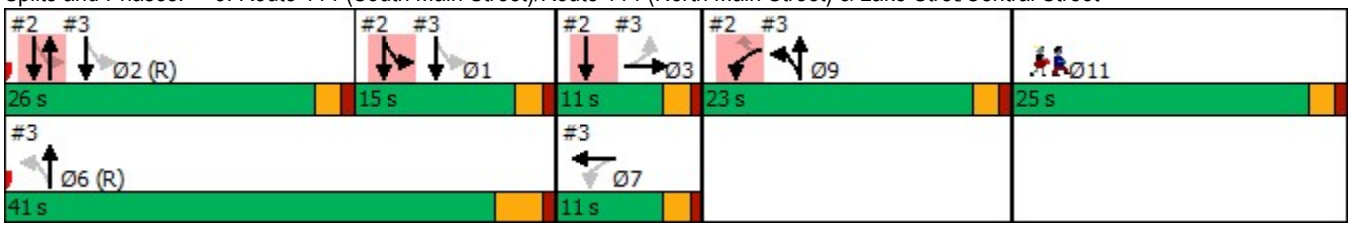
Intersection Summary
Cycle Length: 100

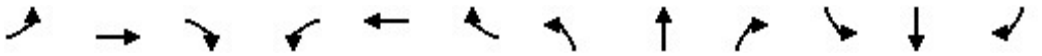
Lane Group	Ø1	Ø2	Ø6	Ø11
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Adj. Flow (vph)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	6	11
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	5.0	1.0
Minimum Split (s)	5.5	4.0	22.5	25.0
Total Split (s)	15.0	26.0	41.0	25.0
Total Split (%)	15%	26%	41%	25%
Maximum Green (s)	12.0	23.0	36.5	22.0
Yellow Time (s)	2.0	2.0	3.5	2.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None
Walk Time (s)				5.0
Flash Dont Walk (s)				17.0
Pedestrian Calls (#/hr)				0
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: 100
Offset: 0 (0%), Referenced to phase 2:NBSB and 6:, Start of Green, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 3: Route 114 (South Main Street)/Route 114 (North Main Street) & Lake Stret/Central Street



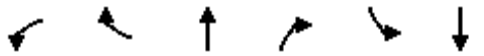


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	23	26	1	12	8	1138	21	10	1213	1
Future Volume (vph)	0	0	23	26	1	12	8	1138	21	10	1213	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	16	16	16	16	16	16	12	12	12	11	11	11
Total Lost time (s)		3.0			3.0			4.5			3.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.86			0.96			1.00			1.00	
Flt Protected		1.00			0.97			1.00			1.00	
Satd. Flow (prot)		1774			1997			3563			3488	
Flt Permitted		1.00			0.79			0.95			0.94	
Satd. Flow (perm)		1774			1631			3391			3288	
Peak-hour factor, PHF	0.71	0.71	0.71	0.75	0.75	0.75	0.93	0.93	0.93	0.91	0.91	0.91
Adj. Flow (vph)	0	0	32	35	1	16	9	1224	23	11	1333	1
RTOR Reduction (vph)	0	29	0	0	15	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	3	0	0	37	0	0	1255	0	0	1345	0
Heavy Vehicles (%)	5%	5%	5%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type		NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		3			7		9	6 9			1 2	
Permitted Phases	3			7			6 9			1 2		
Actuated Green, G (s)		8.0			8.0			81.5			63.0	
Effective Green, g (s)		8.0			8.0			81.5			63.0	
Actuated g/C Ratio		0.08			0.08			0.82			0.63	
Clearance Time (s)		3.0			3.0							
Vehicle Extension (s)		3.0			3.0							
Lane Grp Cap (vph)		141			130			2798			2071	
v/s Ratio Prot		0.00						c0.09				
v/s Ratio Perm					c0.02			0.28			c0.41	
v/c Ratio		0.02			0.29			0.45			0.65	
Uniform Delay, d1		42.4			43.3			2.7			11.6	
Progression Factor		1.00			1.00			0.24			1.00	
Incremental Delay, d2		0.1			1.2			0.1			0.7	
Delay (s)		42.4			44.5			0.7			12.3	
Level of Service		D			D			A			B	
Approach Delay (s)		42.4			44.5			0.7			12.3	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

South Main Street (Route 114) at Orchard Circle

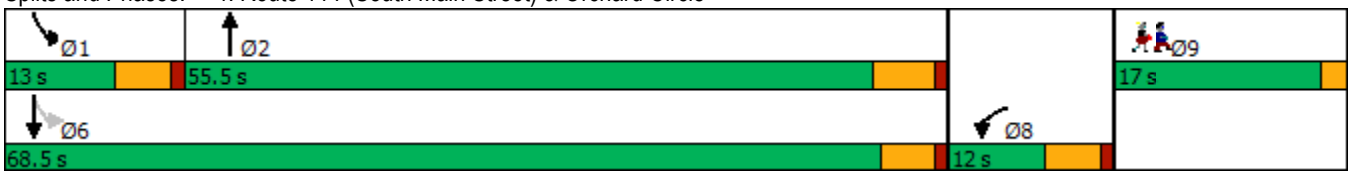


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	5	1	875	2	1	953	
Future Volume (vph)	5	1	875	2	1	953	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.983						
Flt Protected	0.958				0.950		
Satd. Flow (prot)	1730	0	1870	0	1736	1888	
Flt Permitted	0.958				0.202		
Satd. Flow (perm)	1730	0	1870	0	369	1888	
Satd. Flow (RTOR)	1						
Adj. Flow (vph)	7	1	983	2	1	1095	
Lane Group Flow (vph)	8	0	985	0	1	1095	
Turn Type	Prot		NA		pm+pt	NA	
Protected Phases	8		2		1	6	9
Permitted Phases					6		
Detector Phase	8		2		1	6	
Switch Phase							
Minimum Initial (s)	1.0		1.0		1.0	5.0	1.0
Minimum Split (s)	6.0		6.5		6.0	22.5	17.0
Total Split (s)	12.0		55.5		13.0	68.5	17.0
Total Split (%)	12.3%		56.9%		13.3%	70.3%	17%
Maximum Green (s)	7.0		50.0		8.0	63.5	15.0
Yellow Time (s)	4.0		4.5		4.0	4.0	2.0
All-Red Time (s)	1.0		1.0		1.0	1.0	0.0
Lost Time Adjust (s)	-1.0		-1.0		0.0	0.0	
Total Lost Time (s)	4.0		4.5		5.0	5.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		None	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							8.0
Pedestrian Calls (#/hr)							0
v/c Ratio	0.04		0.56		0.00	0.60	
Control Delay	29.5		4.1		1.0	2.8	
Queue Delay	0.0		0.0		0.0	0.0	
Total Delay	29.5		4.1		1.0	2.8	
Queue Length 50th (ft)	2		0		0	0	
Queue Length 95th (ft)	16		446		1	279	
Internal Link Dist (ft)	934		3867			550	
Turn Bay Length (ft)					45		
Base Capacity (vph)	235		1723		513	1821	
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	0.03		0.57		0.00	0.60	

Intersection Summary
Cycle Length: 97.5

Actuated Cycle Length: 62.3
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Route 114 (South Main Street) & Orchard Circle

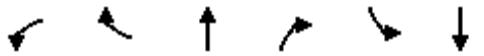




Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	1	875	2	1	953
Future Volume (vph)	5	1	875	2	1	953
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	13	13	12	13
Total Lost time (s)	4.0		4.5		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.98		1.00		1.00	1.00
Flt Protected	0.96		1.00		0.95	1.00
Satd. Flow (prot)	1730		1869		1736	1888
Flt Permitted	0.96		1.00		0.20	1.00
Satd. Flow (perm)	1730		1869		370	1888
Peak-hour factor, PHF	0.75	0.75	0.89	0.89	0.87	0.87
Adj. Flow (vph)	7	1	983	2	1	1095
RTOR Reduction (vph)	1	0	0	0	0	0
Lane Group Flow (vph)	7	0	985	0	1	1095
Heavy Vehicles (%)	0%	0%	5%	5%	4%	4%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Actuated Green, G (s)	0.9		53.6		59.8	59.8
Effective Green, g (s)	1.9		54.6		59.8	59.8
Actuated g/C Ratio	0.03		0.77		0.85	0.85
Clearance Time (s)	5.0		5.5		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	46		1443		326	1596
v/s Ratio Prot	c0.00		0.53		0.00	c0.58
v/s Ratio Perm					0.00	
v/c Ratio	0.15		0.68		0.00	0.69
Uniform Delay, d1	33.6		3.9		3.7	2.0
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	1.5		1.4		0.0	1.2
Delay (s)	35.2		5.2		3.7	3.2
Level of Service	D		A		A	A
Approach Delay (s)	35.2		5.2			3.2
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	15.5
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

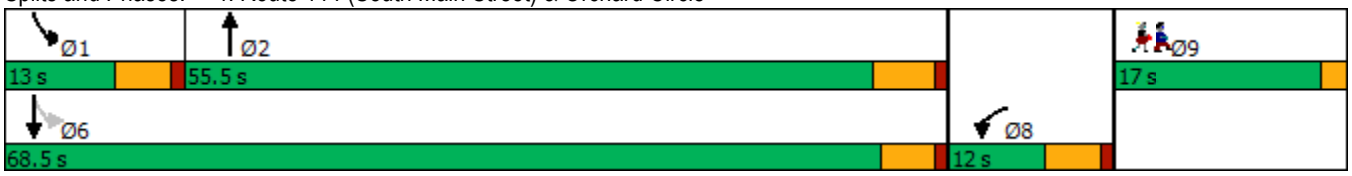


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	5	0	1013	3	6	938	
Future Volume (vph)	5	0	1013	3	6	938	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt							
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1745	0	1963	0	1787	1944	
Flt Permitted	0.950				0.155		
Satd. Flow (perm)	1745	0	1963	0	292	1944	
Satd. Flow (RTOR)							
Adj. Flow (vph)	8	0	1126	3	6	998	
Lane Group Flow (vph)	8	0	1129	0	6	998	
Turn Type	Prot		NA		pm+pt	NA	
Protected Phases	8		2		1	6	9
Permitted Phases					6		
Detector Phase	8		2		1	6	
Switch Phase							
Minimum Initial (s)	1.0		1.0		1.0	5.0	1.0
Minimum Split (s)	6.0		6.5		6.0	22.5	17.0
Total Split (s)	12.0		55.5		13.0	68.5	17.0
Total Split (%)	12.3%		56.9%		13.3%	70.3%	17%
Maximum Green (s)	7.0		50.0		8.0	63.5	15.0
Yellow Time (s)	4.0		4.5		4.0	4.0	2.0
All-Red Time (s)	1.0		1.0		1.0	1.0	0.0
Lost Time Adjust (s)	-1.0		-1.0		0.0	0.0	
Total Lost Time (s)	4.0		4.5		5.0	5.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		None	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							8.0
Pedestrian Calls (#/hr)							0
v/c Ratio	0.05		0.61		0.02	0.53	
Control Delay	32.6		5.0		1.0	2.2	
Queue Delay	0.0		0.0		0.0	0.0	
Total Delay	32.6		5.0		1.0	2.2	
Queue Length 50th (ft)	3		0		0	0	
Queue Length 95th (ft)	13		604		2	234	
Internal Link Dist (ft)	934		3867			550	
Turn Bay Length (ft)					45		
Base Capacity (vph)	200		1848		434	1867	
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	0.04		0.61		0.01	0.53	

Intersection Summary
Cycle Length: 97.5

Actuated Cycle Length: 71.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Route 114 (South Main Street) & Orchard Circle





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	0	1013	3	6	938
Future Volume (vph)	5	0	1013	3	6	938
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	13	13	12	13
Total Lost time (s)	4.0		4.5		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	1.00		1.00		1.00	1.00
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	1745		1963		1787	1944
Flt Permitted	0.95		1.00		0.16	1.00
Satd. Flow (perm)	1745		1963		292	1944
Peak-hour factor, PHF	0.63	0.63	0.90	0.90	0.94	0.94
Adj. Flow (vph)	8	0	1126	3	6	998
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	8	0	1129	0	6	998
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Actuated Green, G (s)	1.1		62.3		68.7	68.7
Effective Green, g (s)	2.1		63.3		68.7	68.7
Actuated g/C Ratio	0.03		0.79		0.86	0.86
Clearance Time (s)	5.0		5.5		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	45		1557		268	1673
v/s Ratio Prot	c0.00		c0.58		0.00	c0.51
v/s Ratio Perm					0.02	
v/c Ratio	0.18		0.73		0.02	0.60
Uniform Delay, d1	38.0		4.0		5.8	1.6
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	1.9		1.7		0.0	0.6
Delay (s)	39.9		5.7		5.9	2.2
Level of Service	D		A		A	A
Approach Delay (s)	39.9		5.7			2.2
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	15.5
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

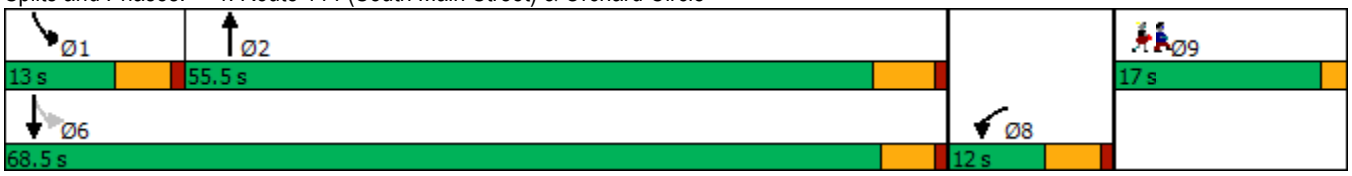


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	4	7	916	10	3	961	
Future Volume (vph)	4	7	916	10	3	961	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.916		0.998				
Flt Protected	0.982				0.950		
Satd. Flow (prot)	1652	0	1940	0	1787	1944	
Flt Permitted	0.982				0.192		
Satd. Flow (perm)	1652	0	1940	0	361	1944	
Satd. Flow (RTOR)	15		1				
Adj. Flow (vph)	9	15	964	11	3	1068	
Lane Group Flow (vph)	24	0	975	0	3	1068	
Turn Type	Prot		NA		pm+pt	NA	
Protected Phases	8		2		1	6	9
Permitted Phases					6		
Detector Phase	8		2		1	6	
Switch Phase							
Minimum Initial (s)	1.0		1.0		1.0	5.0	1.0
Minimum Split (s)	6.0		6.5		6.0	22.5	17.0
Total Split (s)	12.0		55.5		13.0	68.5	17.0
Total Split (%)	12.3%		56.9%		13.3%	70.3%	17%
Maximum Green (s)	7.0		50.0		8.0	63.5	15.0
Yellow Time (s)	4.0		4.5		4.0	4.0	2.0
All-Red Time (s)	1.0		1.0		1.0	1.0	0.0
Lost Time Adjust (s)	-1.0		-1.0		0.0	0.0	
Total Lost Time (s)	4.0		4.5		5.0	5.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		None	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							8.0
Pedestrian Calls (#/hr)							0
v/c Ratio	0.11		0.56		0.01	0.60	
Control Delay	23.4		5.0		1.7	3.9	
Queue Delay	0.0		0.0		0.0	0.0	
Total Delay	23.4		5.0		1.7	3.9	
Queue Length 50th (ft)	2		0		0	0	
Queue Length 95th (ft)	11		427		1	277	
Internal Link Dist (ft)	934		3867			550	
Turn Bay Length (ft)					45		
Base Capacity (vph)	252		1743		514	1811	
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	0.10		0.56		0.01	0.59	

Intersection Summary
Cycle Length: 97.5

Actuated Cycle Length: 60.7
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Route 114 (South Main Street) & Orchard Circle





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	916	10	3	961
Future Volume (vph)	4	7	916	10	3	961
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	13	13	12	13
Total Lost time (s)	4.0		4.5		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.92		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1651		1941		1787	1944
Flt Permitted	0.98		1.00		0.19	1.00
Satd. Flow (perm)	1651		1941		362	1944
Peak-hour factor, PHF	0.46	0.46	0.95	0.95	0.90	0.90
Adj. Flow (vph)	9	15	964	11	3	1068
RTOR Reduction (vph)	14	0	0	0	0	0
Lane Group Flow (vph)	10	0	975	0	3	1068
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Actuated Green, G (s)	2.0		49.8		56.0	56.0
Effective Green, g (s)	3.0		50.8		56.0	56.0
Actuated g/C Ratio	0.04		0.75		0.82	0.82
Clearance Time (s)	5.0		5.5		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	72		1450		312	1600
v/s Ratio Prot	c0.01		0.50		0.00	c0.55
v/s Ratio Perm					0.01	
v/c Ratio	0.13		0.67		0.01	0.67
Uniform Delay, d1	31.3		4.4		4.3	2.4
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	0.9		1.2		0.0	1.1
Delay (s)	32.1		5.6		4.3	3.4
Level of Service	C		A		A	A
Approach Delay (s)	32.1		5.6			3.4
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	4.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

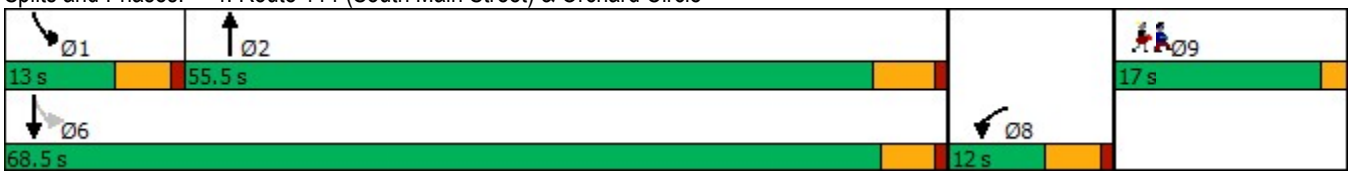


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	5	1	1057	2	1	1183	
Future Volume (vph)	5	1	1057	2	1	1183	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.983						
Flt Protected	0.958				0.950		
Satd. Flow (prot)	1730	0	1870	0	1736	1888	
Flt Permitted	0.958				0.149		
Satd. Flow (perm)	1730	0	1870	0	272	1888	
Satd. Flow (RTOR)	1						
Adj. Flow (vph)	7	1	1188	2	1	1360	
Lane Group Flow (vph)	8	0	1190	0	1	1360	
Turn Type	Prot		NA		pm+pt	NA	
Protected Phases	8		2		1	6	9
Permitted Phases					6		
Detector Phase	8		2		1	6	
Switch Phase							
Minimum Initial (s)	1.0		1.0		1.0	5.0	1.0
Minimum Split (s)	6.0		6.5		6.0	22.5	17.0
Total Split (s)	12.0		55.5		13.0	68.5	17.0
Total Split (%)	12.3%		56.9%		13.3%	70.3%	17%
Maximum Green (s)	7.0		50.0		8.0	63.5	15.0
Yellow Time (s)	4.0		4.5		4.0	4.0	2.0
All-Red Time (s)	1.0		1.0		1.0	1.0	0.0
Lost Time Adjust (s)	-1.0		-1.0		0.0	0.0	
Total Lost Time (s)	4.0		4.5		5.0	5.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		None	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							8.0
Pedestrian Calls (#/hr)							0
v/c Ratio	0.06		0.67		0.00	0.75	
Control Delay	37.0		6.4		1.0	5.7	
Queue Delay	0.0		0.0		0.0	0.0	
Total Delay	37.0		6.4		1.0	5.7	
Queue Length 50th (ft)	3		0		0	0	
Queue Length 95th (ft)	16		#807		1	574	
Internal Link Dist (ft)	934		3867			550	
Turn Bay Length (ft)					45		
Base Capacity (vph)	162		1764		385	1821	
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	0.05		0.67		0.00	0.75	

Intersection Summary
Cycle Length: 97.5

Actuated Cycle Length: 85.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 114 (South Main Street) & Orchard Circle





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	1	1057	2	1	1183
Future Volume (vph)	5	1	1057	2	1	1183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	13	13	12	13
Total Lost time (s)	4.0		4.5		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.98		1.00		1.00	1.00
Flt Protected	0.96		1.00		0.95	1.00
Satd. Flow (prot)	1730		1869		1736	1888
Flt Permitted	0.96		1.00		0.15	1.00
Satd. Flow (perm)	1730		1869		273	1888
Peak-hour factor, PHF	0.75	0.75	0.89	0.89	0.87	0.87
Adj. Flow (vph)	7	1	1188	2	1	1360
RTOR Reduction (vph)	1	0	0	0	0	0
Lane Group Flow (vph)	7	0	1190	0	1	1360
Heavy Vehicles (%)	0%	0%	5%	5%	4%	4%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Actuated Green, G (s)	1.3		76.3		82.8	82.8
Effective Green, g (s)	2.3		77.3		82.8	82.8
Actuated g/C Ratio	0.02		0.82		0.88	0.88
Clearance Time (s)	5.0		5.5		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	42		1535		255	1661
v/s Ratio Prot	c0.00		0.64		0.00	c0.72
v/s Ratio Perm					0.00	
v/c Ratio	0.17		0.78		0.00	0.82
Uniform Delay, d1	45.0		4.1		6.6	2.4
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	1.9		2.5		0.0	3.3
Delay (s)	46.8		6.6		6.6	5.7
Level of Service	D		A		A	A
Approach Delay (s)	46.8		6.6			5.7
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	94.1	Sum of lost time (s)	15.5
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

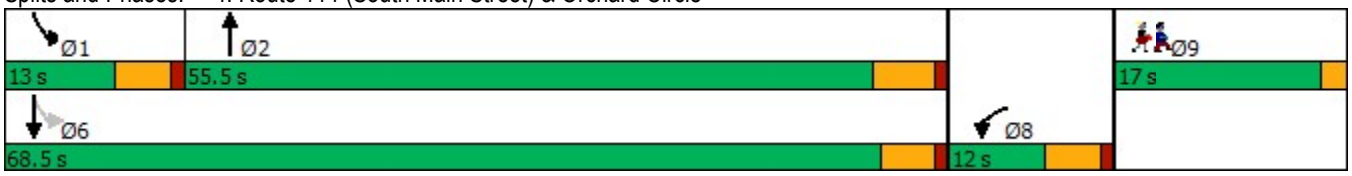


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	5	0	1224	3	6	1128	
Future Volume (vph)	5	0	1224	3	6	1128	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt							
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1745	0	1963	0	1787	1944	
Flt Permitted	0.950				0.059		
Satd. Flow (perm)	1745	0	1963	0	111	1944	
Satd. Flow (RTOR)							
Adj. Flow (vph)	8	0	1360	3	6	1200	
Lane Group Flow (vph)	8	0	1363	0	6	1200	
Turn Type	Prot		NA		pm+pt	NA	
Protected Phases	8		2		1	6	9
Permitted Phases					6		
Detector Phase	8		2		1	6	
Switch Phase							
Minimum Initial (s)	1.0		1.0		1.0	5.0	1.0
Minimum Split (s)	6.0		6.5		6.0	22.5	17.0
Total Split (s)	12.0		55.5		13.0	68.5	17.0
Total Split (%)	12.3%		56.9%		13.3%	70.3%	17%
Maximum Green (s)	7.0		50.0		8.0	63.5	15.0
Yellow Time (s)	4.0		4.5		4.0	4.0	2.0
All-Red Time (s)	1.0		1.0		1.0	1.0	0.0
Lost Time Adjust (s)	-1.0		-1.0		0.0	0.0	
Total Lost Time (s)	4.0		4.5		5.0	5.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		None	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							8.0
Pedestrian Calls (#/hr)							0
v/c Ratio	0.05		0.74		0.03	0.64	
Control Delay	35.6		7.7		1.2	3.2	
Queue Delay	0.0		0.0		0.0	0.0	
Total Delay	35.6		7.7		1.2	3.2	
Queue Length 50th (ft)	3		0		0	0	
Queue Length 95th (ft)	13		#1094		2	379	
Internal Link Dist (ft)	934		3867			550	
Turn Bay Length (ft)					45		
Base Capacity (vph)	188		1851		281	1875	
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	0.04		0.74		0.02	0.64	

Intersection Summary
Cycle Length: 97.5

Actuated Cycle Length: 75.5
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: 4: Route 114 (South Main Street) & Orchard Circle





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	0	1224	3	6	1128
Future Volume (vph)	5	0	1224	3	6	1128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	13	13	12	13
Total Lost time (s)	4.0		4.5		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	1.00		1.00		1.00	1.00
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	1745		1963		1787	1944
Flt Permitted	0.95		1.00		0.06	1.00
Satd. Flow (perm)	1745		1963		111	1944
Peak-hour factor, PHF	0.63	0.63	0.90	0.90	0.94	0.94
Adj. Flow (vph)	8	0	1360	3	6	1200
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	8	0	1363	0	6	1200
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Actuated Green, G (s)	1.1		66.3		72.7	72.7
Effective Green, g (s)	2.1		67.3		72.7	72.7
Actuated g/C Ratio	0.03		0.80		0.87	0.87
Clearance Time (s)	5.0		5.5		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	43		1576		114	1686
v/s Ratio Prot	c0.00		c0.69		0.00	c0.62
v/s Ratio Perm					0.05	
v/c Ratio	0.19		0.86		0.05	0.71
Uniform Delay, d1	40.0		5.3		17.1	1.9
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	2.1		5.2		0.2	1.4
Delay (s)	42.1		10.5		17.3	3.4
Level of Service	D		B		B	A
Approach Delay (s)	42.1		10.5			3.4
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	15.5
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

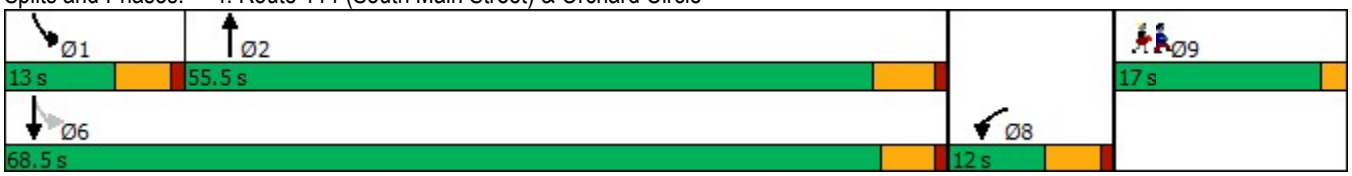


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	4	7	1093	10	3	1143	
Future Volume (vph)	4	7	1093	10	3	1143	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.916		0.999				
Flt Protected	0.982				0.950		
Satd. Flow (prot)	1652	0	1942	0	1787	1944	
Flt Permitted	0.982				0.145		
Satd. Flow (perm)	1652	0	1942	0	273	1944	
Satd. Flow (RTOR)	15		1				
Adj. Flow (vph)	9	15	1151	11	3	1270	
Lane Group Flow (vph)	24	0	1162	0	3	1270	
Turn Type	Prot		NA		pm+pt	NA	
Protected Phases	8		2		1	6	9
Permitted Phases					6		
Detector Phase	8		2		1	6	
Switch Phase							
Minimum Initial (s)	1.0		1.0		1.0	5.0	1.0
Minimum Split (s)	6.0		6.5		6.0	22.5	17.0
Total Split (s)	12.0		55.5		13.0	68.5	17.0
Total Split (%)	12.3%		56.9%		13.3%	70.3%	17%
Maximum Green (s)	7.0		50.0		8.0	63.5	15.0
Yellow Time (s)	4.0		4.5		4.0	4.0	2.0
All-Red Time (s)	1.0		1.0		1.0	1.0	0.0
Lost Time Adjust (s)	-1.0		-1.0		0.0	0.0	
Total Lost Time (s)	4.0		4.5		5.0	5.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		None	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							8.0
Pedestrian Calls (#/hr)							0
v/c Ratio	0.15		0.66		0.01	0.70	
Control Delay	26.5		6.5		1.3	5.3	
Queue Delay	0.0		0.0		0.0	0.0	
Total Delay	26.5		6.5		1.3	5.3	
Queue Length 50th (ft)	4		0		0	0	
Queue Length 95th (ft)	11		658		1	459	
Internal Link Dist (ft)	934		3867			550	
Turn Bay Length (ft)					45		
Base Capacity (vph)	181		1765		395	1806	
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	0.13		0.66		0.01	0.70	

Intersection Summary
Cycle Length: 97.5

Actuated Cycle Length: 80.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Route 114 (South Main Street) & Orchard Circle





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	1093	10	3	1143
Future Volume (vph)	4	7	1093	10	3	1143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	13	13	12	13
Total Lost time (s)	4.0		4.5		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.92		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1651		1941		1787	1944
Flt Permitted	0.98		1.00		0.14	1.00
Satd. Flow (perm)	1651		1941		273	1944
Peak-hour factor, PHF	0.46	0.46	0.95	0.95	0.90	0.90
Adj. Flow (vph)	9	15	1151	11	3	1270
RTOR Reduction (vph)	14	0	0	0	0	0
Lane Group Flow (vph)	10	0	1162	0	3	1270
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Actuated Green, G (s)	2.3		69.0		75.4	75.4
Effective Green, g (s)	3.3		70.0		75.4	75.4
Actuated g/C Ratio	0.04		0.80		0.86	0.86
Clearance Time (s)	5.0		5.5		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	62		1549		250	1671
v/s Ratio Prot	c0.01		0.60		0.00	c0.65
v/s Ratio Perm					0.01	
v/c Ratio	0.15		0.75		0.01	0.76
Uniform Delay, d1	40.8		4.5		7.0	2.5
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	1.2		2.1		0.0	2.1
Delay (s)	42.0		6.5		7.0	4.6
Level of Service	D		A		A	A
Approach Delay (s)	42.0		6.5			4.6
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	15.5
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

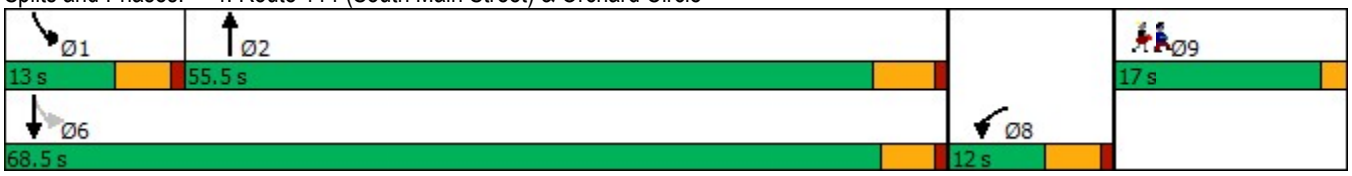


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	5	1	1061	2	1	1195	
Future Volume (vph)	5	1	1061	2	1	1195	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.983						
Flt Protected	0.958				0.950		
Satd. Flow (prot)	1730	0	1870	0	1736	1888	
Flt Permitted	0.958				0.148		
Satd. Flow (perm)	1730	0	1870	0	270	1888	
Satd. Flow (RTOR)	1						
Adj. Flow (vph)	7	1	1192	2	1	1374	
Lane Group Flow (vph)	8	0	1194	0	1	1374	
Turn Type	Prot		NA		pm+pt	NA	
Protected Phases	8		2		1	6	9
Permitted Phases					6		
Detector Phase	8		2		1	6	
Switch Phase							
Minimum Initial (s)	1.0		1.0		1.0	5.0	1.0
Minimum Split (s)	6.0		6.5		6.0	22.5	17.0
Total Split (s)	12.0		55.5		13.0	68.5	17.0
Total Split (%)	12.3%		56.9%		13.3%	70.3%	17%
Maximum Green (s)	7.0		50.0		8.0	63.5	15.0
Yellow Time (s)	4.0		4.5		4.0	4.0	2.0
All-Red Time (s)	1.0		1.0		1.0	1.0	0.0
Lost Time Adjust (s)	-1.0		-1.0		0.0	0.0	
Total Lost Time (s)	4.0		4.5		5.0	5.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		None	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							8.0
Pedestrian Calls (#/hr)							0
v/c Ratio	0.06		0.68		0.00	0.75	
Control Delay	37.0		6.4		1.0	5.9	
Queue Delay	0.0		0.0		0.0	0.0	
Total Delay	37.0		6.4		1.0	5.9	
Queue Length 50th (ft)	3		0		0	0	
Queue Length 95th (ft)	16		#893		1	599	
Internal Link Dist (ft)	934		3867			400	
Turn Bay Length (ft)					45		
Base Capacity (vph)	162		1764		384	1821	
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	0.05		0.68		0.00	0.75	

Intersection Summary
Cycle Length: 97.5

Actuated Cycle Length: 85.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Route 114 (South Main Street) & Orchard Circle





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	1	1061	2	1	1195
Future Volume (vph)	5	1	1061	2	1	1195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	13	13	12	13
Total Lost time (s)	4.0		4.5		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.98		1.00		1.00	1.00
Flt Protected	0.96		1.00		0.95	1.00
Satd. Flow (prot)	1730		1869		1736	1888
Flt Permitted	0.96		1.00		0.15	1.00
Satd. Flow (perm)	1730		1869		270	1888
Peak-hour factor, PHF	0.75	0.75	0.89	0.89	0.87	0.87
Adj. Flow (vph)	7	1	1192	2	1	1374
RTOR Reduction (vph)	1	0	0	0	0	0
Lane Group Flow (vph)	7	0	1194	0	1	1374
Heavy Vehicles (%)	0%	0%	5%	5%	4%	4%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Actuated Green, G (s)	1.3		76.3		82.8	82.8
Effective Green, g (s)	2.3		77.3		82.8	82.8
Actuated g/C Ratio	0.02		0.82		0.88	0.88
Clearance Time (s)	5.0		5.5		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	42		1535		253	1661
v/s Ratio Prot	c0.00		0.64		0.00	c0.73
v/s Ratio Perm					0.00	
v/c Ratio	0.17		0.78		0.00	0.83
Uniform Delay, d1	45.0		4.2		6.7	2.5
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	1.9		2.6		0.0	3.5
Delay (s)	46.8		6.7		6.7	6.0
Level of Service	D		A		A	A
Approach Delay (s)	46.8		6.7			6.0
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	94.1	Sum of lost time (s)	15.5
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

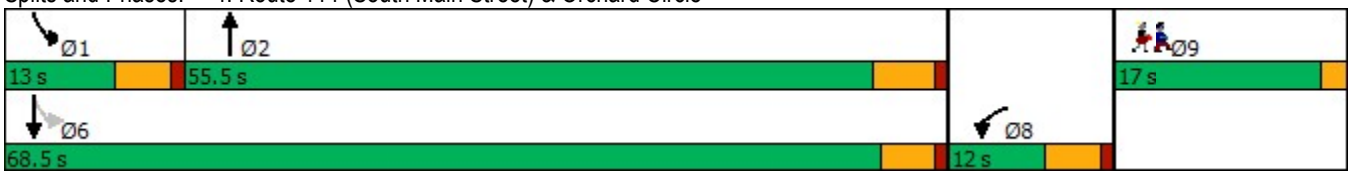


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	5	0	1235	3	6	1134	
Future Volume (vph)	5	0	1235	3	6	1134	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt							
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1745	0	1963	0	1787	1944	
Flt Permitted	0.950				0.056		
Satd. Flow (perm)	1745	0	1963	0	105	1944	
Satd. Flow (RTOR)							
Adj. Flow (vph)	8	0	1372	3	6	1206	
Lane Group Flow (vph)	8	0	1375	0	6	1206	
Turn Type	Prot		NA		pm+pt	NA	
Protected Phases	8		2		1	6	9
Permitted Phases					6		
Detector Phase	8		2		1	6	
Switch Phase							
Minimum Initial (s)	1.0		1.0		1.0	5.0	1.0
Minimum Split (s)	6.0		6.5		6.0	22.5	17.0
Total Split (s)	12.0		55.5		13.0	68.5	17.0
Total Split (%)	12.3%		56.9%		13.3%	70.3%	17%
Maximum Green (s)	7.0		50.0		8.0	63.5	15.0
Yellow Time (s)	4.0		4.5		4.0	4.0	2.0
All-Red Time (s)	1.0		1.0		1.0	1.0	0.0
Lost Time Adjust (s)	-1.0		-1.0		0.0	0.0	
Total Lost Time (s)	4.0		4.5		5.0	5.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		None	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							8.0
Pedestrian Calls (#/hr)							0
v/c Ratio	0.05		0.74		0.03	0.64	
Control Delay	35.6		7.9		1.2	3.3	
Queue Delay	0.0		0.0		0.0	0.0	
Total Delay	35.6		7.9		1.2	3.3	
Queue Length 50th (ft)	3		0		0	0	
Queue Length 95th (ft)	13		#1110		2	386	
Internal Link Dist (ft)	934		3867			410	
Turn Bay Length (ft)					45		
Base Capacity (vph)	188		1851		276	1875	
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	0.04		0.74		0.02	0.64	

Intersection Summary
Cycle Length: 97.5

Actuated Cycle Length: 75.5
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: 4: Route 114 (South Main Street) & Orchard Circle





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	0	1235	3	6	1134
Future Volume (vph)	5	0	1235	3	6	1134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	13	13	12	13
Total Lost time (s)	4.0		4.5		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	1.00		1.00		1.00	1.00
Flt Protected	0.95		1.00		0.95	1.00
Satd. Flow (prot)	1745		1963		1787	1944
Flt Permitted	0.95		1.00		0.06	1.00
Satd. Flow (perm)	1745		1963		105	1944
Peak-hour factor, PHF	0.63	0.63	0.90	0.90	0.94	0.94
Adj. Flow (vph)	8	0	1372	3	6	1206
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	8	0	1375	0	6	1206
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Actuated Green, G (s)	1.1		66.3		72.7	72.7
Effective Green, g (s)	2.1		67.3		72.7	72.7
Actuated g/C Ratio	0.03		0.80		0.87	0.87
Clearance Time (s)	5.0		5.5		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	43		1576		109	1686
v/s Ratio Prot	c0.00		c0.70		0.00	c0.62
v/s Ratio Perm					0.05	
v/c Ratio	0.19		0.87		0.06	0.72
Uniform Delay, d1	40.0		5.4		18.3	1.9
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	2.1		5.6		0.2	1.5
Delay (s)	42.1		11.1		18.5	3.4
Level of Service	D		B		B	A
Approach Delay (s)	42.1		11.1			3.5
Approach LOS	D		B			A

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	15.5
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

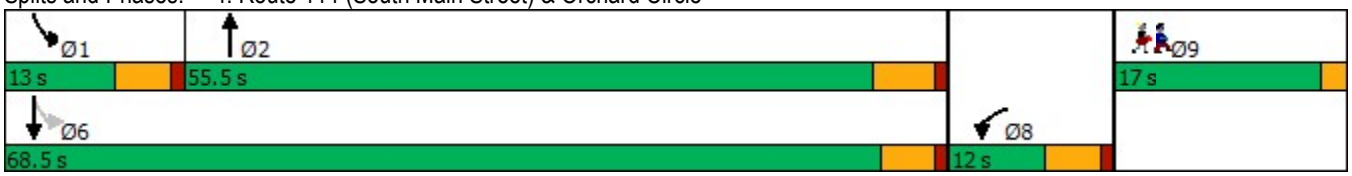


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	4	7	1098	10	3	1148	
Future Volume (vph)	4	7	1098	10	3	1148	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.916		0.999				
Flt Protected	0.982				0.950		
Satd. Flow (prot)	1652	0	1942	0	1787	1944	
Flt Permitted	0.982				0.143		
Satd. Flow (perm)	1652	0	1942	0	269	1944	
Satd. Flow (RTOR)	15		1				
Adj. Flow (vph)	9	15	1156	11	3	1276	
Lane Group Flow (vph)	24	0	1167	0	3	1276	
Turn Type	Prot		NA		pm+pt	NA	
Protected Phases	8		2		1	6	9
Permitted Phases					6		
Detector Phase	8		2		1	6	
Switch Phase							
Minimum Initial (s)	1.0		1.0		1.0	5.0	1.0
Minimum Split (s)	6.0		6.5		6.0	22.5	17.0
Total Split (s)	12.0		55.5		13.0	68.5	17.0
Total Split (%)	12.3%		56.9%		13.3%	70.3%	17%
Maximum Green (s)	7.0		50.0		8.0	63.5	15.0
Yellow Time (s)	4.0		4.5		4.0	4.0	2.0
All-Red Time (s)	1.0		1.0		1.0	1.0	0.0
Lost Time Adjust (s)	-1.0		-1.0		0.0	0.0	
Total Lost Time (s)	4.0		4.5		5.0	5.0	
Lead/Lag			Lag		Lead		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		None	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							8.0
Pedestrian Calls (#/hr)							0
v/c Ratio	0.15		0.66		0.01	0.71	
Control Delay	26.5		6.6		1.3	5.4	
Queue Delay	0.0		0.0		0.0	0.0	
Total Delay	26.5		6.6		1.3	5.4	
Queue Length 50th (ft)	4		0		0	0	
Queue Length 95th (ft)	11		668		1	467	
Internal Link Dist (ft)	934		3867			400	
Turn Bay Length (ft)					45		
Base Capacity (vph)	180		1765		392	1806	
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	0.13		0.66		0.01	0.71	

Intersection Summary
Cycle Length: 97.5

Actuated Cycle Length: 80.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 4: Route 114 (South Main Street) & Orchard Circle





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	7	1098	10	3	1148
Future Volume (vph)	4	7	1098	10	3	1148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	11	13	13	12	13
Total Lost time (s)	4.0		4.5		5.0	5.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.92		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1651		1941		1787	1944
Flt Permitted	0.98		1.00		0.14	1.00
Satd. Flow (perm)	1651		1941		269	1944
Peak-hour factor, PHF	0.46	0.46	0.95	0.95	0.90	0.90
Adj. Flow (vph)	9	15	1156	11	3	1276
RTOR Reduction (vph)	14	0	0	0	0	0
Lane Group Flow (vph)	10	0	1167	0	3	1276
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%
Turn Type	Prot		NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases					6	
Actuated Green, G (s)	2.4		69.4		75.8	75.8
Effective Green, g (s)	3.4		70.4		75.8	75.8
Actuated g/C Ratio	0.04		0.80		0.86	0.86
Clearance Time (s)	5.0		5.5		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	63		1549		246	1670
v/s Ratio Prot	c0.01		0.60		0.00	c0.66
v/s Ratio Perm					0.01	
v/c Ratio	0.15		0.75		0.01	0.76
Uniform Delay, d1	41.0		4.5		7.2	2.5
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	1.1		2.1		0.0	2.1
Delay (s)	42.1		6.6		7.2	4.7
Level of Service	D		A		A	A
Approach Delay (s)	42.1		6.6			4.7
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	6.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	88.2	Sum of lost time (s)	15.5
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Boston Street at the Northbound Project Site Driveway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	392	3	2	413	7	12
Future Volume (vph)	392	3	2	413	7	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.916	
Flt Protected					0.981	
Satd. Flow (prot)	1861	0	0	1863	1674	0
Flt Permitted					0.981	
Satd. Flow (perm)	1861	0	0	1863	1674	0
Adj. Flow (vph)	426	3	2	449	8	13
Lane Group Flow (vph)	429	0	0	451	21	0
Sign Control	Free			Free	Stop	

Intersection Summary
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	392	3	2	413	7	12
Future Vol, veh/h	392	3	2	413	7	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	426	3	2	449	8	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	429	0	881	428
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	453	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1130	-	317	627
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	640	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1130	-	316	627
Mov Cap-2 Maneuver	-	-	-	-	316	-
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	639	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	460	-	-	1130	-
HCM Lane V/C Ratio	0.045	-	-	0.002	-
HCM Control Delay (s)	13.2	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	529	7	7	416	4	7
Future Volume (vph)	529	7	7	416	4	7
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.910	
Flt Protected				0.999	0.984	
Satd. Flow (prot)	1859	0	0	1861	1668	0
Flt Permitted				0.999	0.984	
Satd. Flow (perm)	1859	0	0	1861	1668	0
Adj. Flow (vph)	575	8	8	452	4	8
Lane Group Flow (vph)	583	0	0	460	12	0
Sign Control	Free			Free	Stop	

Intersection Summary
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	529	7	7	416	4	7
Future Vol, veh/h	529	7	7	416	4	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	575	8	8	452	4	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	583	0	1047	579
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	468	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	991	-	253	515
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	630	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	991	-	250	515
Mov Cap-2 Maneuver	-	-	-	-	250	-
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	623	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	372	-	-	991	-
HCM Lane V/C Ratio	0.032	-	-	0.008	-
HCM Control Delay (s)	15	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	435	3	3	364	3	5
Future Volume (vph)	435	3	3	364	3	5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.916	
Flt Protected					0.982	
Satd. Flow (prot)	1861	0	0	1863	1676	0
Flt Permitted					0.982	
Satd. Flow (perm)	1861	0	0	1863	1676	0
Adj. Flow (vph)	473	3	3	396	3	5
Lane Group Flow (vph)	476	0	0	399	8	0
Sign Control	Free			Free	Stop	

Intersection Summary
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	435	3	3	364	3	5
Future Vol, veh/h	435	3	3	364	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	473	3	3	396	3	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	476	0	877	475
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	402	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1086	-	319	590
Stage 1	-	-	-	-	626	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1086	-	318	590
Mov Cap-2 Maneuver	-	-	-	-	318	-
Stage 1	-	-	-	-	626	-
Stage 2	-	-	-	-	673	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	447	-	-	1086	-
HCM Lane V/C Ratio	0.019	-	-	0.003	-
HCM Control Delay (s)	13.2	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

South Main Street at the Eastbound Project Site Driveway



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	11	3	1112	1231	2
Future Volume (vph)	1	11	3	1112	1231	2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.875					
Flt Protected	0.996					
Satd. Flow (prot)	1623	0	0	2111	2111	0
Flt Permitted	0.996					
Satd. Flow (perm)	1623	0	0	2111	2111	0
Adj. Flow (vph)	1	12	3	1209	1338	2
Lane Group Flow (vph)	13	0	0	1212	1340	0
Sign Control	Stop			Free	Free	

Intersection Summary
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	11	3	1112	1231	2
Future Vol, veh/h	1	11	3	1112	1231	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	12	3	1209	1338	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2554	1339	1340	0	-	0
Stage 1	1339	-	-	-	-	-
Stage 2	1215	-	-	-	-	-
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	29	187	514	-	-	-
Stage 1	244	-	-	-	-	-
Stage 2	281	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	28	187	514	-	-	-
Mov Cap-2 Maneuver	28	-	-	-	-	-
Stage 1	240	-	-	-	-	-
Stage 2	281	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	36.6	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	514	-	127	-	-
HCM Lane V/C Ratio	0.006	-	0.103	-	-
HCM Control Delay (s)	12	0	36.6	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	5	9	1248	1174	6
Future Volume (vph)	1	5	9	1248	1174	6
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.887				0.999	
Flt Protected	0.992					
Satd. Flow (prot)	1639	0	0	2111	2109	0
Flt Permitted	0.992					
Satd. Flow (perm)	1639	0	0	2111	2109	0
Adj. Flow (vph)	1	5	10	1357	1276	7
Lane Group Flow (vph)	6	0	0	1367	1283	0
Sign Control	Stop			Free	Free	

Intersection Summary
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	5	9	1248	1174	6
Future Vol, veh/h	1	5	9	1248	1174	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	10	1357	1276	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2657	1280	1283	0	-	0
Stage 1	1280	-	-	-	-	-
Stage 2	1377	-	-	-	-	-
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	25	202	541	-	-	-
Stage 1	261	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	23	202	541	-	-	-
Mov Cap-2 Maneuver	23	-	-	-	-	-
Stage 1	241	-	-	-	-	-
Stage 2	234	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	49.2	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	541	-	88	-	-
HCM Lane V/C Ratio	0.018	-	0.074	-	-
HCM Control Delay (s)	11.8	0	49.2	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	4	4	1188	1216	2
Future Volume (vph)	1	4	4	1188	1216	2
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.892					
Flt Protected	0.990					
Satd. Flow (prot)	1645	0	0	2111	2111	0
Flt Permitted	0.990					
Satd. Flow (perm)	1645	0	0	2111	2111	0
Adj. Flow (vph)	1	4	4	1291	1322	2
Lane Group Flow (vph)	5	0	0	1295	1324	0
Sign Control	Stop			Free	Free	

Intersection Summary
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	4	4	1188	1216	2
Future Vol, veh/h	1	4	4	1188	1216	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	4	4	1291	1322	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2622	1323	1324	0	-	0
Stage 1	1323	-	-	-	-	-
Stage 2	1299	-	-	-	-	-
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	26	191	522	-	-	-
Stage 1	249	-	-	-	-	-
Stage 2	256	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	25	191	522	-	-	-
Mov Cap-2 Maneuver	25	-	-	-	-	-
Stage 1	242	-	-	-	-	-
Stage 2	256	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	52	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	522	-	82	-	-
HCM Lane V/C Ratio	0.008	-	0.066	-	-
HCM Control Delay (s)	12	0	52	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-