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Date: Thursday, December 15, 2016 2:19:48 PM

Dear Ms. Gosselin:

There were Comments which cited missing "Appendices" to the Traffic Study previously submitted. The Dropbox links below contain both the Traffic Study and the Appendices. Please let me know if there is anything else that you require. Thanks.

NEW ENGLAND TRANSRAIL, LLC.

Rob Jones
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Traffic Study

<https://www.dropbox.com/s/bjatig0r4l17nyb/TIAS%2007-22-16%20FINAL.pdf?dl=0>

Appendices

<https://www.dropbox.com/s/o8rlqrxse7wth6d/TS%20Appendix%2007-22-16.pdf?dl=0>

TRAFFIC IMPACT AND ACCESS STUDY



PROPOSED REDEVELOPMENT 51 EAMES STREET WILMINGTON, MA

PREPARED FOR:

NEW ENGLAND TRANSRAIL, LLC

JULY 22, 2016

PREPARED BY:



**600 UNICORN PARK DRIVE
WOBURN, MA 01801**

TRAFFIC IMPACT AND ACCESS STUDY

PROPOSED REDEVELOPMENT

51 Eames Street
Wilmington, Massachusetts

Prepared for:

New England Transrail, LLC

July 22, 2016

Prepared by:

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TABLE OF CONTENTS

Section	Title	Page
1	Executive Summary	1
2	Existing Traffic Conditions	11
	Study Area	11
	Field Survey	11
	Geometrics	12
	Traffic Volumes	14
	Motor Vehicle Crash Data	16
	Public Transportation	20
	Planned Roadway Improvements	20
3	Future No-Build and Build Future Conditions	21
	Future 2022 No-Build Traffic Volumes	21
	Future 2022 Build Conditions	25
4	Analysis	32
	Methodology	32
	Capacity Analysis Results	34
5	Recommendations and Conclusion	39
	Recommendations	39
	Conclusion	39
	Appendix	

TABLES

No.	Title	Page
1	Existing Weekday Traffic-Volume Summary	15
2	Motor Vehicle Crash Data Summary	19
3	Daily Trip Generation Estimates	26
4	Proposed Trip Generation Summary	27
5	Proposed Trip Distribution	28
6	Traffic-Volume Increases	29
7	Level-of-Service Criteria for Signalized Intersections	33
8	Level-of-Service Criteria for Unsignalized Intersections	34
9	2022 Signalized Level-of-Service Summary	35
10	2022 Unsignalized Level-of-Service Summary	37

FIGURES

No.	Title	Page
1	Site Location Map	2
2	Conceptual Site Plan	3
3	2015 Existing Weekday Morning Peak-Hour Traffic Volumes	17
4	2015 Existing Weekday Evening Peak-Hour Traffic Volumes	18
5	2022 No-Build Weekday Morning Peak-Hour Traffic Volumes	23
6	2022 No-Build Weekday Evening Peak-Hour Traffic Volumes	24
7	2022 Build Weekday Morning Peak-Hour Traffic Volumes	30
8	2022 Build Weekday Evening Peak-Hour Traffic Volumes	31

SECTION 1: EXECUTIVE SUMMARY

Bayside Engineering has prepared this study to assess the traffic impact and to evaluate the access requirements of the proposed industrial development to be located at 51 Eames Street in Wilmington, Massachusetts.

This report identifies existing traffic operating parameters on key roadways and intersections within the study area, evaluates the anticipated traffic volume increases as a result of the proposed project, analyzes the project's traffic-related impacts, determines the projects access/egress requirements and identifies appropriate mitigating measures designed to minimize the traffic-related impacts created by the project. The following provides a brief summary of the study findings.

PROJECT DESCRIPTION

The development is to be located along the south side of Eames Street west of the intersection with Woburn Street in Wilmington, Massachusetts. Currently, the site consists of a vacant warehouse and a vacant office building with associated off-street parking. Access is currently provided to the site by way of a driveway to Eames Street.

New England Transrail, LLC proposes to construct a railroad transportation facility that transloads (rail to truck) a broad array of products, including, palletized and bagged products through a cross-dock warehouse, bulk liquids from tank cars and granular materials from hopper cars. The transload facility will employ approximately 35 to 50 new employees. Employee shifts and site operations are scheduled each day for 5:00 AM to 1:00 PM, from 1:00 PM to 9:00 PM and from 9 p.m. to 5 a.m. The facility will be serviced by locomotives delivering inbound cargo primarily in box cars, tanker cars and hopper cars to the site and subsequently by trucks carrying materials and products away from the site to regional and local destinations. Box car cargo will be either direct loaded into trucks for continued transport to final destinations or staged or re-packaged within a cross-dock facility for subsequent truck pick-up. Bulk liquids cargo will be either directly loaded into tanker trucks or held within a throughput tank until truck pick-up and delivery to final destinations. Granular materials will be loaded directly into trucks or held in throughput tanks and bulk storage until truck pick-up and delivery.

Figure 1 shows the site location in relation to the surrounding area. Figure 2 shows the Conceptual Site Layout.



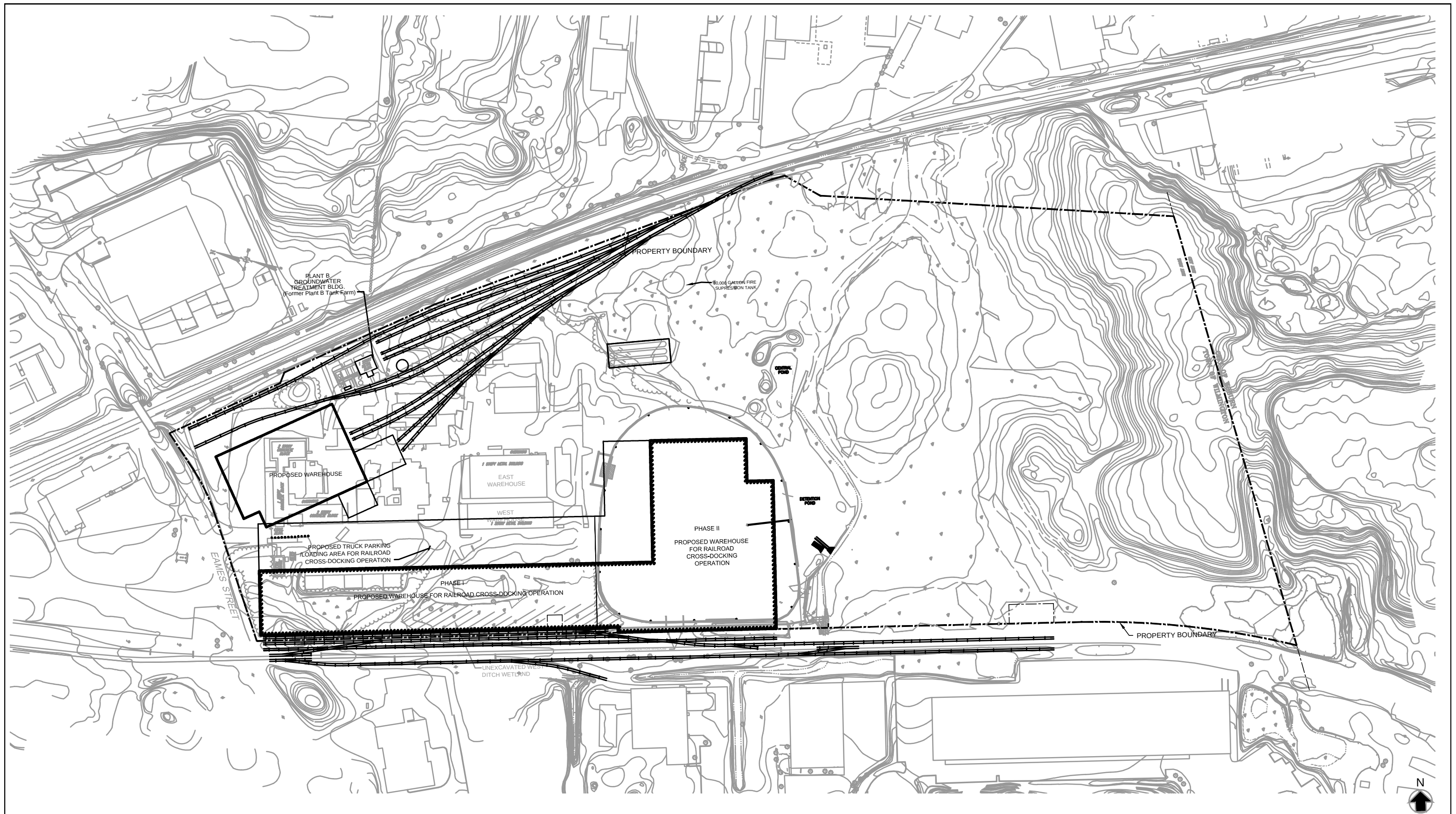
Figure 1
Site Location Map

STUDY METHODOLOGY

This study has been prepared in three stages. The first stage involved an assessment of existing conditions within the study area and included an inventory of roadway geometrics, pedestrian and bicycle facilities and public transportation services. Existing traffic counts were performed at the study area intersections.

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 proposed project. In accordance with Massachusetts Department of Transportation (MassDOT) guidelines, the year 2022 was selected as the basis for modeling future transportation impacts of the proposed development to reflect the opening year conditions and a seven-year planning horizon.

The third stage of the study presents and evaluates measures to address traffic issues, if any, and necessary improvements to accommodate the development.



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Proposed Redevelopment
 51 Eames Street
 WILMINGTON, MA

Figure 2
 Conceptual Site Plan



SCALE: 1" = 200'

STUDY AREA

Roadway geometry and traffic control information was collected for the following locations:

- Main Street and Eames Street
- Woburn Street, Eames Street, and Ox Bow Drive
- Woburn Street and Industrial Way
- Woburn Street at Presidential Way
- Lowell Street and Woburn Street
- Lowell Street and West Street

EXISTING CONDITIONS

Evaluation of existing conditions within the study area includes a description of roadway geometrics, traffic constraints, land uses at the intersections, and quantification of traffic volumes.

Existing Traffic Volumes

To establish base traffic conditions within the study area, manual turning movement and vehicle classification counts were obtained in June 2015. Peak-period turning movement counts were conducted during the weekday morning period (7:00 to 9:00 AM) and the weekday evening peak period (3:00 to 6:00 PM). Daily traffic counts were conducted on Eames Street for a two day period using automatic traffic recorders (ATR).

The traffic-volume data gathered as part of this study was collected during the month of June 2015. Data from the MassDOT was reviewed to determine the monthly variations of the traffic volumes. Based upon available data, June volumes are significantly higher than average month conditions. To be conservative, no downward adjustment has been made.

Eames Street was recorded to carry approximately 7,560 vehicles per day (vpd). During the weekday morning peak hour, approximately 650 vph were recorded on Eames Street and 795 vph were recorded during the weekday evening peak hour.

Motor Vehicle Crash Data

Motor vehicle crash data for the study area intersections and roadways were obtained from MassDOT from 2009 to 2013. The motor vehicle crash data was reviewed to determine crash trends in the study area. A total of fifty-one (51) crashes were reported during the five year interval. Most of the crashes occurred at the two intersections of Lowell Street/West Street and Lowell Street/Woburn Street (21 and 19 crashes, respectively). Of these crashes, 24 were rear-end type collisions and 12 were angle collisions. None of the intersections experienced a significant crash rate. No fatalities

were reported at any of the intersections.

PROBABLE IMPACTS OF THE PROJECT

No-Build Traffic Volumes

To determine the impact of site-generated traffic volumes on the roadway network under future conditions, baseline traffic volumes in the study area were projected to the year 2022. Traffic volumes on the roadway network at that time, in the absence of the proposed project, would include existing traffic, new traffic due to general background traffic growth, and traffic related to specific developments by others expected to be completed by 2022. A one (1.0) percent compounded growth rate was used to develop future No-Build conditions. Three projects were also identified (45 Industrial Way, 90 Eames Street and 203 Lowell Street) and their estimated traffic was included in the No-Build projections.

Build Traffic Volumes

In order to develop the traffic characteristics of the proposed project, available trip-generation statistics published by the Institute of Transportation Engineers (ITE) was researched and projected site operations and employee data were reviewed. The development will consist of the construction of a transload facility which features a Cross Dock Warehouse of up to 240,000 square feet to be built in multiple two (2) stages and also a bulk tank car area which will handle tank cars, flat cars, hopper cars, gondola cars, well cars and spine cars. Intermodal containers will also be transloaded on the property. This study analyzed the peak potential of the site.

The trip generation for the proposed transload facility was determined based on the expected number of employees and expected site operations and truck activities. The ITE *Trip Generation* manual¹ does not contain trip-generation data for this land use. Data provided by New England Transrail, LLC on the proposed usage of the site and expected site operations were used to develop the trip characteristics of the site. The rail transloading facility will employ approximately 35 to 50 new employees. Employee shifts are scheduled 5:00 AM to 1:00 PM a 1:00 PM to 9:00 PM shift and a 9:00PM to 5:00 AM shift. Employee vehicle trips will generally occur outside the commuter peak hours.

Site operations are expected to occur Monday through Friday from 5:00 AM to 6:30 PM, Saturday from 7:00 AM to 5:00 PM, and Sundays from 7:00 AM to 12:00 PM. The vehicles traveling to and from the site will primarily be oriented to Interstate 93 (I-93). Almost all traffic, except that for local deliveries in Wilmington, Woburn and Tewksbury will use Presidential Way to access the site. Deliveries typically occur outside the weekday morning and evening peak hours.

¹*Trip Generation*, Eighth Edition; Institute of Transportation Engineers; Eames, DC; 2009.

The facility will be serviced by rail, with materials going off site by truck. Ten (10) to twenty (20) ton capacity trucks and bulk liquid carriers will enter the site fully empty, take on their load and leave the site loaded.

The temporal distribution of traffic to the site was estimated based on existing traffic flow. It is expected that the proposed project will generate approximately 800 vehicle trips on an average weekday (400 vehicles entering and 400 vehicles exiting). During the weekday morning peak hour, 69 vehicle trips (36 vehicles entering and 33 vehicles exiting) are anticipated. During the weekday evening peak hour, 84 vehicle trips (40 vehicles entering and 44 vehicles exiting) are expected.

TRAFFIC OPERATIONS ANALYSIS

In order to assess the impacts of the proposed project on the roadway network, traffic operations analyses were performed at the study area intersections under 2015 Existing, 2022 No-Build and 2022 Build conditions. These analyses indicate that the proposed project will not result in a significant impact on traffic operations at the study area intersections over No-Build conditions. At the unsignalized intersections, based on existing intersection operations and observations, actual operations are better than the HCS methodology indicates.

Lowell Street and Woburn Street

Under 2015 Existing weekday morning conditions, this signalized intersection currently operates at level of service (LOS) E during the weekday morning peak hour and at LOS E during the weekday evening peak hour. Under future 2022 No-Build conditions, this intersection is projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 Build conditions, with the project, this intersection is projected to continue to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour.

Lowell Street and West Street

Under 2015 Existing weekday morning conditions, this signalized intersection currently operates at LOS C during the weekday morning peak hour and at LOS C during the weekday evening peak hour. Under future 2022 No-Build conditions, this intersection is projected to operate at LOS D during the weekday morning peak hour and at LOS D during the weekday evening peak hour. Under future 2022 Build conditions, with the project, this intersection is projected to operate at LOS D during the weekday morning peak hour and at LOS D during the weekday evening peak hour.

Woburn Street, Eames Street and Oxbow Drive

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Eames Street) are modeled to operate at LOS F during the weekday

morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 No-Build conditions, these critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 Build conditions, with the project, the critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour.

Woburn Street and Industrial Way

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Industrial Way) are modeled to operate at LOS C during the weekday morning peak hour and at LOS E during the weekday evening peak hour. Under future 2022 No-Build conditions, these critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 Build conditions, with the project, the critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour.

Woburn Street and Presidential Way

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Presidential Way) are modeled to operate at LOS C during the weekday morning peak hour and at LOS C during the weekday evening peak hour. Under future 2022 No-Build conditions, these critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 Build conditions, with the project, the critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour.

Eames Street and Site Driveway

Under 2015 Existing conditions, there are no vehicles entering or leaving the site. There are no conflicting turn movements at the site driveway under 2015 Existing conditions or under 2022 No-Build conditions. Under future 2022 Build conditions, with the project, the critical movements are projected to operate at LOS B during the weekday morning and the weekday evening peak hours.

Main Street and Eames Street

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Eames Street) are modeled to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 No-Build conditions, these critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 Build conditions, with the project, the critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F

during the weekday evening peak hour.

RECOMMENDATIONS

The final phase of the analysis process is to identify the mitigation measures necessary to minimize the impact of the project on the adjacent transportation system.

Non-Project Related Mitigation

The following intersections have been analyzed without the proposed project and have been determined to require potential modifications and improvements:

- Main Street and Eames Street
- Woburn Street, Eames Street and Oxbow Drive
- Lowell Street and Woburn Street
- Lowell Street and West Street

It should be clearly noted that any improvements to these intersections are precipitated by existing conditions and are not solely due to the project's impacts. Mitigation measures have been identified so that the community and local planning agencies have the tools to identify needed improvements.

Main Street and Eames Street

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Eames Street) are modeled to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. These critical movements are projected to continue to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour without the project. Review of existing peak hour operations indicate that a traffic signal would be warranted at this intersection. Installation of a traffic signal would provide the necessary gaps for vehicles to exit the minor street. With this measure, under future 2022 Build conditions, this intersection would operate at LOS C during the weekday morning and evening peak hours.

Woburn Street, Eames Street and Oxbow Drive

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Eames Street) are modeled to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. These critical movements are projected to continue to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour without the project. During off-peak hours, traffic operations are expected to be better and less congested. Possible improvements include traffic signalization and intersection geometry

improvements at the southwest corner to facilitate right turns from Eames Street, including providing an exclusive left-turn lane on Eames Street. With these measures, under future 2022 Build conditions, the intersection is projected to operate at LOS C or better during the weekday morning and evening peak hours.

Lowell Street and Woburn Street

Under 2022 No-Build conditions, during the peak hours, this signalized intersection is projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. The Town's consultant, TEC has developed a preliminary mitigation plan for this intersection which includes widening of all approaches to include exclusive left-turn lanes and upgrading the intersection signalization. With these potential improvements, the intersection is projected to operate at LOS C and LOS D or better during the weekday morning and weekday evening peak hours, respectively.

Project Related Mitigation

The following measures have been identified to mitigate the project's impacts and improve intersection operations. The project proponent is committed to working with the Town of Wilmington to implement these measures.

Site Access

The site driveway is recommended to be designed to handle large trucks with appropriate driveway radii (50 foot minimum) and width (24 foot minimum). The driveway should be placed under STOP sign control.

Transportation Demand Management

Transportation Demand Management (TDM) strategies generally work well with office/research and development type facilities. Due to the nature of the proposed project, TDM strategies do not typically work well. In an effort to maximize employee vehicle occupancy and thereby reduce vehicular demand to the site, the project proponent will encourage employees to rideshare. This will be accomplished through the provision of an on-site transportation coordinator to publicize and encourage ride-sharing and provide a ride-matching service. Coordination with MassRides is encouraged.

In addition, several TDM strategies can be employed:

- Variable shift schedules (to not impact peak hour traffic flow) are already proposed based on the projected shift scheduling.
- Direct deposit of payroll checks
- Provide a subsidized program for employees who will use the Regional Transportation Center (to the immediate south in Woburn).

SUMMARY

Review of the proposed project and the access plan shows that in relation to roadway capacity, traffic safety, and traffic impacts upon the surrounding roadway network, the proposed project will meet safety standards and have a minimal impact on existing traffic conditions. With the proposed access, and maintaining sight distances from the driveway (clear sight lines along frontage), safe and efficient access can be provided to the clientele of the proposed project and to the motoring public in the area.

SECTION 2: EXISTING TRAFFIC CONDITIONS

STUDY AREA

Roadway geometry and traffic control information was collected for the following locations:

- Main Street and Eames Street
- Woburn Street, Eames Street, and Ox Bow Drive
- Woburn Street and Industrial Way
- Woburn Street at Presidential Way
- Lowell Street and Woburn Street
- Lowell Street and West Street

FIELD SURVEY

A comprehensive field inventory of the proposed site was conducted in June 2015. The inventory included collection of existing roadway geometrics, traffic volumes, and safety data for the existing study area intersections and site access driveway locations. Traffic volumes were measured by means of automatic traffic recorder (ATR) counts and substantiated by manual turning movement counts (TMCs) conducted at the study area intersections.

GEOMETRICS

Primary study area roadways are described below.

Roadways

Lowell Street (Route 129)

Lowell Street is generally a two-lane east-west Urban Principal Arterial. The roadway is maintained by the Town of Wilmington from Main Street (Route 38) to West Street and maintained by MassDOT from West Street to the Reading Town Line. Throughout the Town of Wilmington, Lowell Street is designated as State Route 129 and is part of the National Highway System (NHS). Lowell Street provides a regional connection between Wilmington to the west, and Reading and Wakefield to the east. Between Main Street and the Reading Town Line, the posted speed limit along Lowell Street varies from 25 miles per hour (MPH) to 45 MPH. Cement concrete sidewalks are present along both sides of Lowell Street between Main Street and a point approximately 650-feet west of Woburn Street. Directional flow along Main Street is separated by a marked centerline.

Main Street (Route 38)

Main Street is generally a two-lane north-south urban principal arterial roadway maintained by MassDOT. Throughout the Town of Wilmington, Main Street is signed as State Route 38 (as well as State Route 129 between Lowell Street and Shawsheen Avenue). Main Street is also part of the NHS. Route 38 provides a regional connection between Lowell and Tewksbury to the north, and Woburn and Medford to the south. South of Lowell Street, the posted speed limit along Main Street varies from 30 MPH to 45 MPH. Sidewalks are generally not present along either side of Main Street. Directional flow along Main Street is separated by a marked centerline with sections of permitted two-way and one-way passing zones.

Woburn Street

Woburn Street, south of Lowell Street, is generally a two-lane north-south Urban Minor Arterial maintained by the Town of Wilmington. The roadway provides local connections between Concord Street to the north and Presidential Way to the south. South of Lowell Street, the posted speed limit along Woburn Street varies from 20 MPH to 35 MPH. An asphalt sidewalk is present along the west side of Woburn Street between Lowell Street and Eames Street. Directional flow along Woburn Street is separated by a marked centerline. There is currently an informal truck restriction along Woburn Street between Eames Street and Lowell Street.

Eames Street

Eames Street is a two-lane east-west Local Street maintained by the Town of Wilmington. The roadway connects Main Street to the west with Woburn Street to the

east. Within the study area, Eames Street provides one travel lane in each direction separated by a marked center line. Land use along Eames Street is primarily commercial. Sidewalks are not present along either side of Eames Street in the site vicinity.

Intersections

Lowell Street and Woburn Street

Woburn Street intersects Lowell Street from the north and south to form this four-legged, pre-timed signalized intersection. All four intersection approaches consist of a single general purpose travel lane with directional flow separated by a marked centerline. Sidewalks are present along the westerly side of Woburn Street and the northerly side of Lowell Street, east of Woburn Street. Crosswalks are provided across Lowell Street east of the intersection and across Woburn Street south of the intersection. Land uses on the corners of the intersection include a small retail center, a residence, a vacant lot, and a commercial building.

Lowell Street and West Street

West Street intersects Lowell Street from the north and south to form this four-legged, fully-actuated signalized intersection. The Lowell Street eastbound approach consists of a single general purpose travel lane, but widens at the intersection to provide storage for a single right-turning vehicle within a flared section marked with a right-turn arrow. The Lowell Street westbound approach consists of an exclusive left-turn lane and a shared through/right-turn lane. Directional flow along Lowell Street is separated by a marked centerline. The West Street northbound approach consists of a shared left-turn/through lane and an exclusive right-turn lane. The West Street southbound approach consists of an exclusive left-turn lane and a shared through/right-turn lane. Directional flow along West Street is separated by a marked centerline. Sidewalks are present along both sides of Lowell Street west of the intersection and along the westerly side of West Street south of the intersection. A crosswalk is provided across Lowell Street west of the intersection. Land uses on the corners of the intersection include a gas station, a daycare, a ticket sales booth, and a vacant, wooded lot.

Woburn Street, Eames Street and Oxbow Drive

Eames Street intersects Woburn Street from the west and Oxbow Drive intersects from the east to form this four-legged, unsignalized intersection. The Eames Street eastbound and Ox Bow Drive westbound approaches are under STOP-sign control. All four intersections approaches consist of single general purpose travel lanes with directional flow separated by a marked centerline. The Woburn Street southbound approach widens to nearly 55 feet at the intersection, providing sufficient space for through vehicles to bypass turning vehicles. There are no sidewalks or crosswalks located at the intersection. Land uses on the corners of the intersection consist primarily of residential homes.

Woburn Street and Industrial Way

Industrial Way intersects Woburn Street from the east to form this three-legged unsignalized intersection. The Industrial Way westbound approach is under STOP-sign control. All three intersection approaches consist of single general purpose travel lanes with directional flow separated by marked centerlines. However, the approaches are sufficiently wide to allow through and right turning vehicles to bypass left-turning vehicles. Land use in the vicinity of this intersection primarily consists of commercial/industrial properties.

Woburn Street and Presidential Way

Presidential Way intersects Woburn Street from the east to form this three-legged unsignalized intersection. The Woburn Street northbound approach consists of wide roadway, accommodating two travel lanes. The Woburn Street southbound approach consists of a single general purpose travel lane. Directional travel along Woburn Street is separated by a double-yellow centerline, north of the intersection. The Industrial Way westbound approach consists of a general purpose travel lane, under STOP-sign control. The posted speed limit on Presidential Way is 35 miles per hour (mph). Land use in the vicinity of this intersection primarily consists of commercial/industrial properties.

Main Street and Eames Street

Eames Street intersects Main Street from the east to form this three-legged, unsignalized intersection. The Eames Street westbound approach is under STOP-sign control. All three intersection approaches consist of a single general purpose travel lane with directional flow separated by a marked centerline. There are no sidewalks or crosswalks provided at the intersection. Land use in the vicinity of this intersection consists of residential and commercial properties.

TRAFFIC VOLUMES

Existing Traffic Volumes

To establish base traffic conditions within the study area, manual turning movement and vehicle classification counts were obtained in June 2015. Peak-period turning movement counts were conducted on June 10, 2015 during the weekday morning and evening peak periods (7:00 to 9:00 AM and 3:00 to 6:00 PM) at the following intersections:

- Main Street and Eames Street
- Woburn Street, Eames Street, and Ox Bow Drive
- Woburn Street and Industrial Way
- Woburn Street at Presidential Way
- Lowell Street and Woburn Street
- Lowell Street and West Street

Daily traffic counts were conducted on Eames Street for a two day period on June 10 and June 11, 2015 using automatic traffic recorders (ATR).

Analysis of the peak-period traffic counts indicated that the weekday morning commuter peak hour generally occurs between 7:30 AM and 8:30 AM and the weekday evening commuter peak hour generally occurs between 5:00 PM and 6:00 PM. The traffic count worksheets are provided in the Appendix.

Seasonal Adjustment

The traffic-volume data gathered as part of this study was collected during the month of June 2015. Data from the MassDOT was reviewed to determine the monthly variations of the traffic volumes. The traffic data showed June volumes to be slightly higher than average month conditions. Therefore, to be conservative, the June traffic volumes were not adjusted and were used to represent average month conditions. The 2015 existing weekday peak-hour and daily traffic volumes for average-month conditions are summarized below in Table 1. The 2015 Existing Weekday Morning and Weekday Evening Peak Hour traffic flow networks are shown graphically on Figures 2 and 3, respectively. The seasonal worksheets are provided in the Appendix.

TABLE 1
EXISTING WEEKDAY TRAFFIC-VOLUME SUMMARY^a

Location	Daily Traffic Volume ^b	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		Traffic Volume ^c	K Factor ^d	Directional Distribution ^e	Traffic Volume	K Factor	Directional Distribution
Eames Street	7,560	650	8.6	52.3% WB	795	10.5	52.2% EB

^aTwo-way traffic volume.

^bDaily traffic expressed in vehicles per day.

^cExpressed in vehicles per hour.

^dPercent of daily traffic volumes which occurs during the peak hour.

^ePercent of peak-hour volume in the predominant direction of travel.

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

Eames Street was recorded to carry approximately 7,560 vehicles per day (vpd). During the weekday morning peak hour, approximately 650 vehicles per hour (vph) were recorded on Eames Street and during the weekday evening peak hour, 795 vph were recorded.

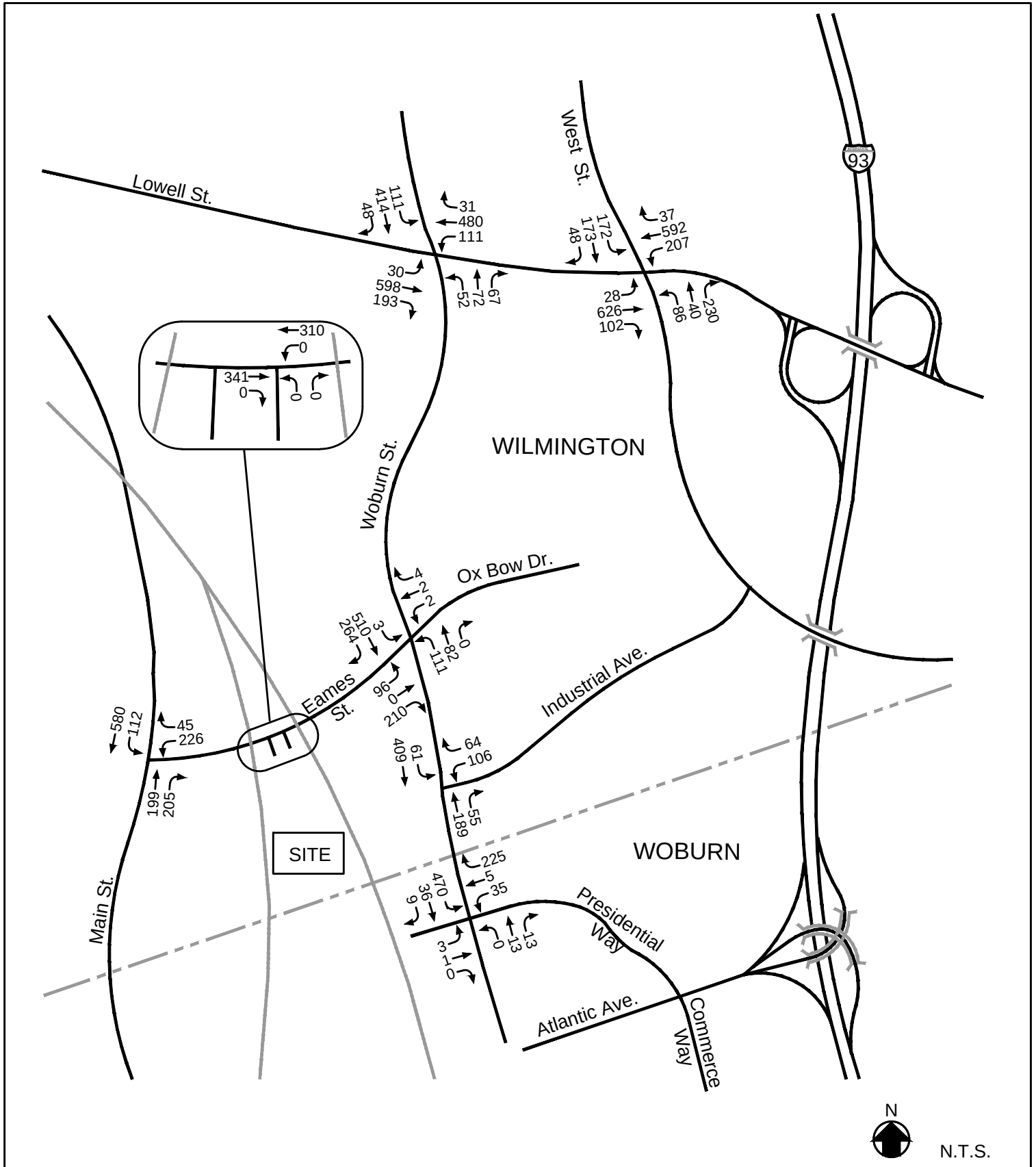
MOTOR VEHICLE CRASH DATA

Motor vehicle crash data for the study area intersections and roadways were obtained from MassDOT for 2009 through 2013. The motor vehicle crash data was reviewed to determine crash trends in the study area. A total of fifty-one (51) crashes were reported during the five year interval. The crash data is included in the Appendix. The crash data is summarized in Table 2.

Most of the crashes occurred at the two signalized intersections of Lowell Street at Woburn Street (19) and Lowell Street at West Street (21). Of these 40 crashes, 24 were rear-end type collisions and 12 were angle collisions. No fatalities were reported during the five-year analysis period.

In order to quantify and establish the significance of accidents at an intersection, the number of accidents must relate or be compared to the traffic volumes entering the intersection. A procedure used by MassDOT for this purpose is the calculation of an intersection accident (crash) rate, which is a measure of the frequency of accidents, compared to the intersection traffic volumes. The accident rate is based on accidents per million entering vehicles (A/MEV). MassDOT releases official Statewide and District rates that can be used as an effective tool to compare safety hazards at a specific intersection. The official Statewide and District 4 rates for the most recent calendar year for an unsignalized intersection are 0.60 and 0.58 A/MEV, respectively. Accident rates higher than these averages at an unsignalized intersection could indicate a potential safety issue.

The accident (crash) rate for all study intersection was calculated using the crash data from 2009 through 2013. The intersection crash rates range from a low of 0.11 A/MEV at Main Street and Eames Street to a high of 0.48 A/MEV at Lowell Street and Woburn Street. These are significantly lower than both the Statewide and District 4 average crash rates for an unsignalized intersection, an indication there are no significant safety issue.

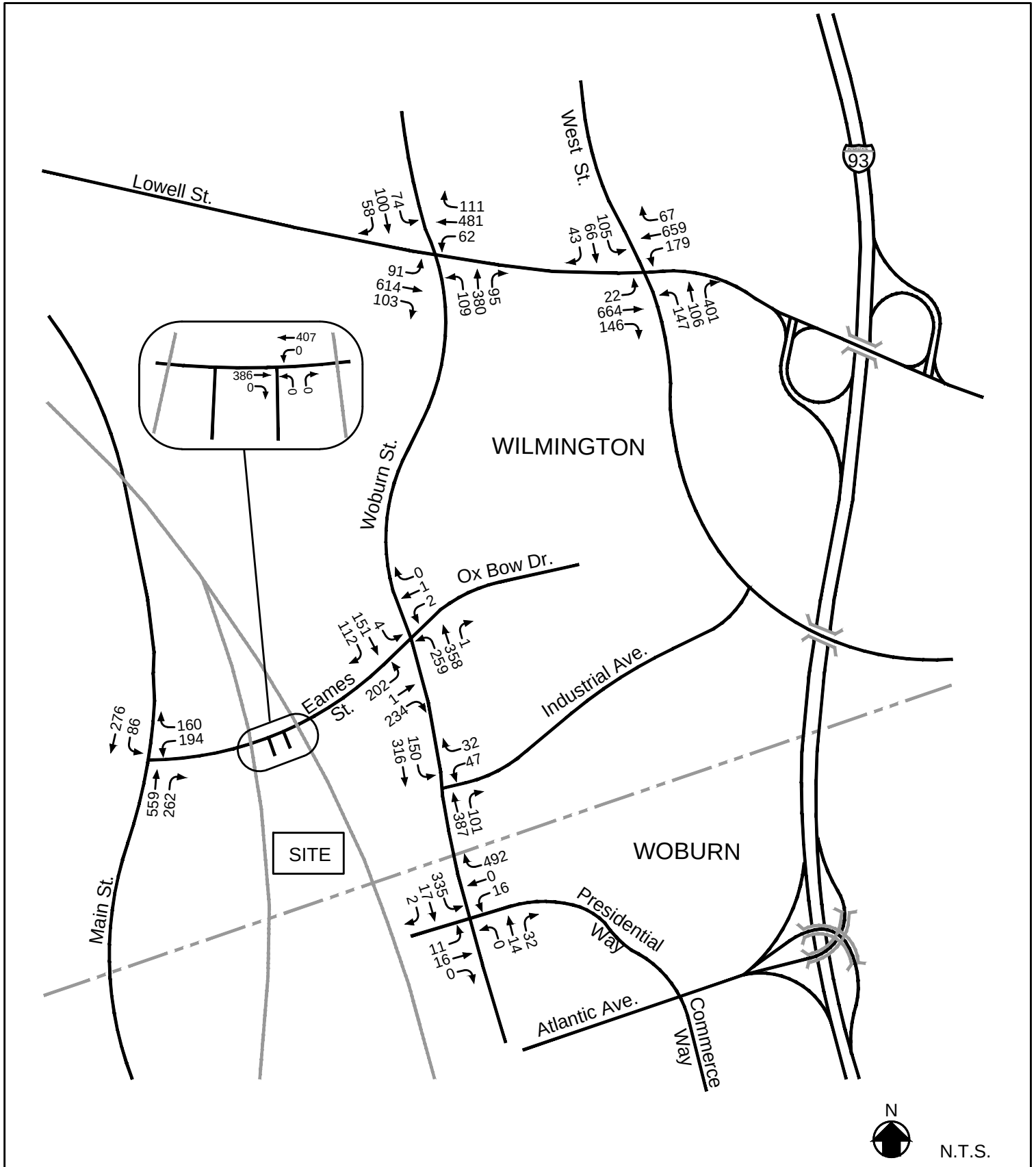


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Proposed Redevelopment
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Figure 3

2015 Existing
Weekday Morning
Peak Hour Traffic Volumes



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Figure 4

2015 Existing
Weekday Evening
Peak Hour Traffic Volumes

TABLE 2
MOTOR VEHICLE CRASH DATA SUMMARY^a

Scenario	Location					
	Lowell Street/ Woburn Street	Lowell Street/ West Street	Woburn Street/ Eames Street/ Oxbow Drive	Woburn Street/ Industrial Way	Woburn Street/ Presidential Way	Main Street/ Eames Street
<i>Year^b:</i>						
2009	4	5	1	2	0	0
2010	2	3	0	1	0	0
2011	4	3	2	0	0	3
2012	5	5	0	2	0	0
2013	<u>3</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	19	21	3	5	0	3
Average ^b	3.8	4.2	0.6	1.0	0.0	0.60
Crash Rate ^c	0.48	0.46	0.13	0.28	0.00	0.11
Significant ^d	No	No	No	No	No	No
<i>Type:</i>						
Angle	12	12	2	1	0	2
Rear-End	5	7	1	3	0	1
Sideswipe	0	0	0	0	0	0
Pedestrian	2	2	0	0	0	0
Bicycle	0	0	0	0	0	0
Single Vehicle Crash	0	0	0	0	0	0
<u>Unknown</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>
Total	19	21	3	5	0	3
<i>Time of Day:</i>						
Morning (7:00 to 9:00 AM)	2	5	1	1	0	0
Evening (4:00 to 6:00 PM)	2	4	2	0	0	1
<u>Remainder of Day</u>	<u>15</u>	<u>12</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>2</u>
Total	19	21	3	5	0	3
<i>Pavement Conditions:</i>						
Dry	17	15	3	5	0	2
Wet	2	2	0	0	0	1
Snow/Ice/Slush	0	4	0	0	0	0
<u>Unknown</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	19	21	3	5	0	3
<i>Severity:</i>						
Property Damage Only	16	18	2	4	0	2
Personal Injury	3	3	1	1	0	1
Fatal Accident	0	0	0	0	0	0
<u>Unknown</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	19	21	3	5	0	3

^aSource: Wilmington Police Department.

^bAverage crashes over analysis period.

^cCrash rate per million entering vehicles (mev).

^dSignalized intersections are significant if rate >0.77 crashes per million vehicles, and unsignalized intersections are significant if rate >0.58 crashes per million vehicles.

PUBLIC TRANSPORTATION

Both the Lowell Regional Transit Authority (LRTA) and the Massachusetts Bay Transit Authority (MBTA) were reviewed to determine any public transportation services within the study area. Currently, neither agency provides any transit service to this section of Wilmington.

PLANNED ROADWAY IMPROVEMENTS

Officials for the Town of Wilmington were contacted regarding roadway improvements planned for the study area intersections. No improvements are currently planned.

SECTION 3:

FUTURE NO-BUILD AND BUILD TRAFFIC CONDITIONS

To determine the impact of site-generated traffic volumes on the roadway network under future conditions, baseline traffic volumes in the study area were projected to the year 2022. Traffic volumes on the roadway network at that time, in the absence of the proposed project, would include existing traffic, new traffic due to general background traffic growth, and traffic related to specific developments by others expected to be completed by 2022. Consideration of these factors resulted in the development of 2022 No-Build traffic volumes. Anticipated site-generated traffic volumes were then superimposed upon these No-Build traffic flow networks to develop the 2022 Build conditions.

FUTURE 2022 NO-BUILD TRAFFIC VOLUMES

Traffic growth on area roadways is a function of the expected land development in the immediate area as well as 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 produces a more realistic estimate of growth for local traffic. However, the drawback of this procedure is that the potential growth in population and development external to the study area would not be accounted for in the traffic projections.

To provide a conservative analysis framework, both procedures were used.

Background Traffic Growth

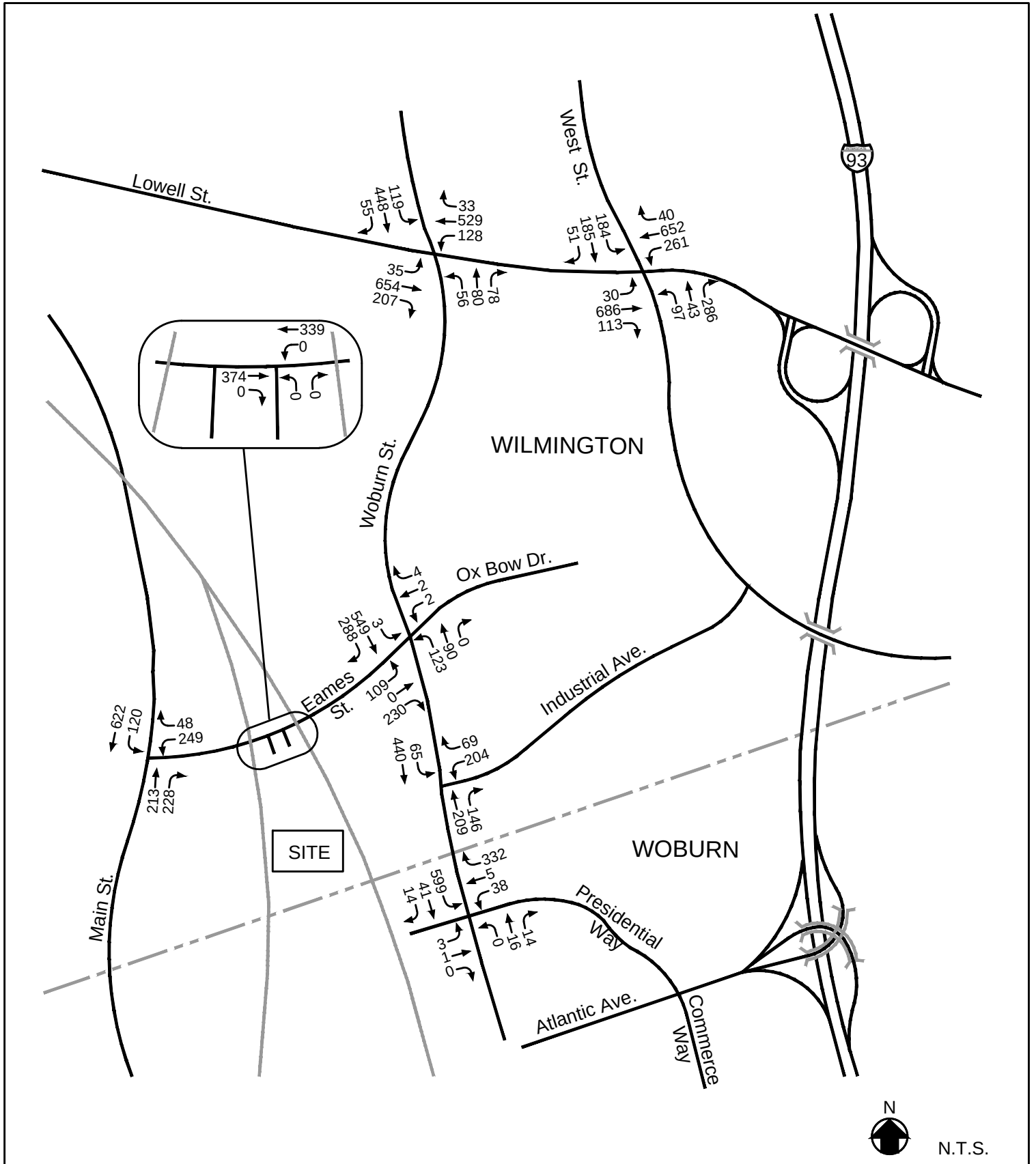
Traffic-volume data compiled by MassDOT from permanent count stations and historic traffic counts in the area were reviewed in order to determine traffic growth trends. Based on a review of this data, it was determined that traffic volumes within the study area have shown little growth or in some cases have generally decreased over the past several years. However, to provide a conservative growth estimate, a one (1.0) percent per year compounded annual background traffic growth rate was used to account for potential future traffic growth external to the study area and presently unforeseen development. The MassDOT data is contained in the Appendix.

Specific Development by Others

Traffic volumes generated by the specific local developments by others were included in the 2022 No-Build condition. The Town of Wilmington was contacted to identify specific planned developments. Based on these discussions, there are three projects that will impact future volumes. These include the proposed FedEx Ground distribution center at 45 Industrial Way, the Proposed Concrete Facility at 90 Eames Street and Proposed Mixed-Use Development at 203 Lowell Street. The traffic volume projections from these proposed, nearby developments were obtained from the traffic data submitted as part of each project's application and are included in the Appendix.

No-Build Condition Traffic Volumes

The 2022 No-Build weekday morning and weekday evening peak hour traffic volumes were developed by applying a compounded one (1) percent annual growth rate to the 2015 Existing peak hour traffic volumes and adding the generated traffic from the identified background project. The projected 2022 No-Build Weekday Morning and Weekday Evening Peak Hour Traffic Volumes used in the analysis of the No-Build conditions are shown in Figures 4 and 5.

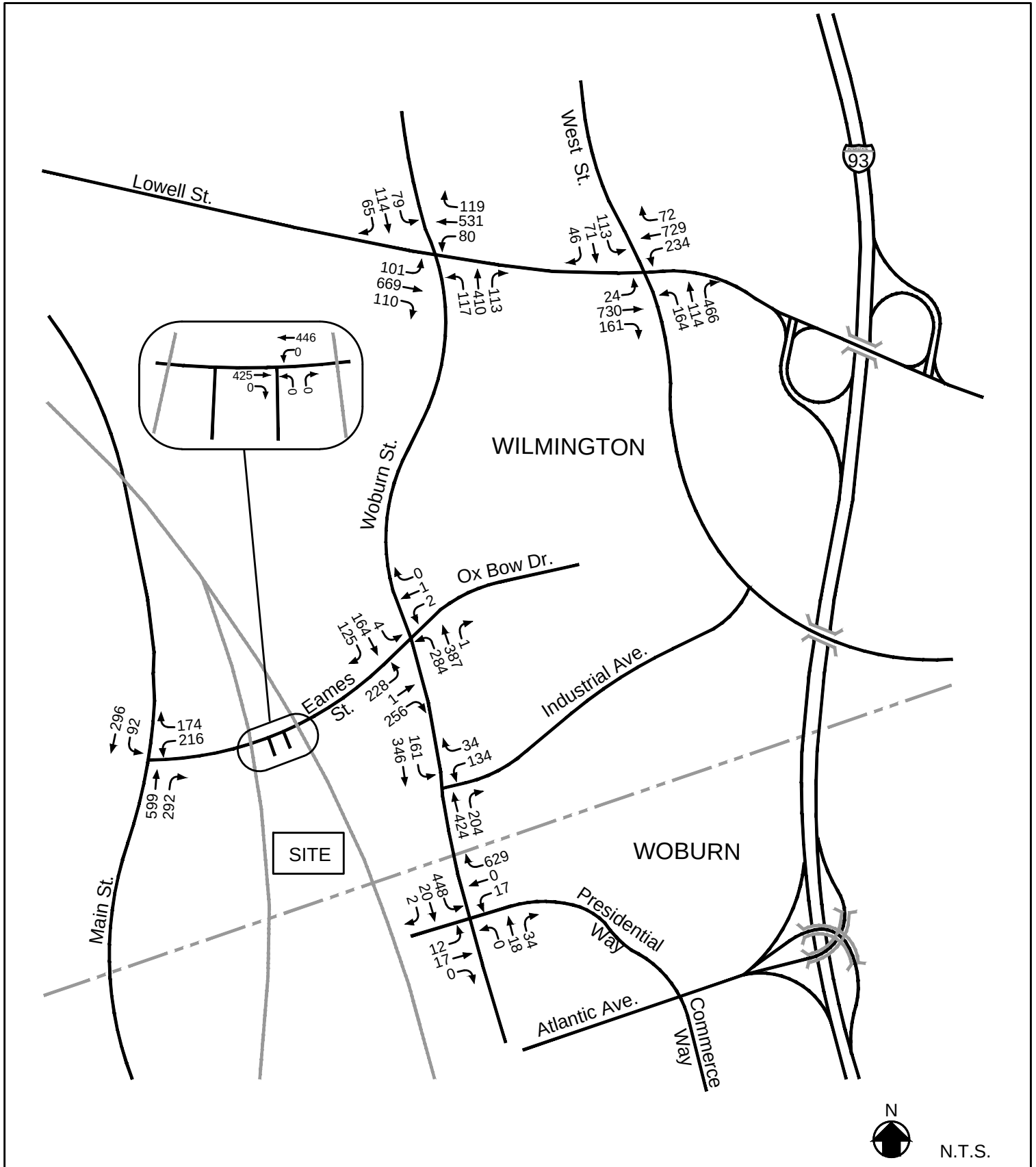


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Proposed Redevelopment
51 Eames Street
WILMINGTON, MA

Figure 5

2022 No-Build
Weekday Morning
Peak Hour Traffic Volumes



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Proposed Redevelopment
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Figure 6

2022 No-Build
Weekday Evening
Peak Hour Traffic Volumes

FUTURE BUILD CONDITIONS

Project Description

New England Transrail, LLC proposes to construct a railroad transportation facility that transloads (rail to truck) a broad array of products, including, palletized and bagged products through a cross-dock warehouse, bulk liquids from tank cars and granular materials from hopper cars. The transload facility will employ approximately 35 to 50 new employees. Employee shifts and site operations are scheduled each day for 5:00 AM to 1:00 PM, from 1:00 PM to 9:00 PM and from 9:00 PM to 5:00 AM. The facility will be serviced by locomotives delivering inbound cargo primarily in box cars, tanker cars and hopper cars to the site and subsequently by trucks carrying materials and products away from the site to regional and local destinations. Box car cargo will be either direct loaded into trucks for continued transport to final destinations or staged or re-packaged within a cross-dock facility for subsequent truck pick-up. Bulk liquids cargo will be either directly loaded into tanker trucks or held within a throughput tank until truck pick-up and delivery to final destinations. Granular materials will be loaded directly into trucks or held in throughput tanks and bulk storage until truck pick-up and delivery.

Site Traffic Generation

In order to develop the traffic characteristics of the proposed project, available trip-generation statistics published by ITE was researched. ITE does not contain trip-generation data for this land use. Trip generation for the proposed transload facility was determined based on the expected number of employees and expected site operations and truck activities. Data provided by New England Transrail, LLC on the proposed usage of the site and expected operations were used to develop the trip characteristics of the site. The transload facility will employ approximately 35 to 50 new employees. Employee shifts and site operations are scheduled each day for 5:00 AM to 1:00 PM, from 1:00 PM to 9:00 PM and from 9:00 PM to 5:00 AM. The employee vehicle trips will generally occur outside the commuter peak hours.

Almost all traffic, except that for local deliveries in Wilmington, Woburn, and Tewksbury will use Presidential Way to access the site. Truck deliveries typically will occur outside the weekday morning and evening peak hours. The expected estimated site generation is summarized in Table 3.

TABLE 3
DAILY TRIP GENERATION ESTIMATES

	Estimated Payload Per Truck (Tons/Gals.)	Estimated Daily (Max.) No. of Trucks
Tractor Trailer(s) [Outbound] (40' to 53' tractors w/trailers)	20 Tons	137
Straight Box Truck(s) [Outbound] (30' Straight Bed Trucks to 40' Tractor Trailers)	10 Tons	137
Bulk Liquids Tanker Truck(s) [Outbound] (28' to 53' tractor w/trailer)	3000 - 9500 Gallons	70
Miscellaneous [Inbound & Outbound]	10 - 20 Tons	15
Supply/Deliveries		6
Employee Vehicles		<u>35</u>
	TOTAL	400

The estimated daily number of delivery vehicles and employee vehicles is a total of 400 vehicles. Therefore, the expected daily traffic generation is estimated as 800 vehicle trip ends per day (400 vehicles entering and 400 vehicles exiting).

Using the employee shift data, expected delivery arrival data, the temporal flow of traffic within the study area, trips for the facility were determined, as shown in Table 4.

TABLE 4
PROPOSED TRIP-GENERATION SUMMARY

	Transload Facility ^a
Average Weekday Daily Traffic	800
<i>Weekday Morning Peak Hour:</i>	
Entering	36
<u>Exiting</u>	<u>33</u>
Total	69
<i>Weekday Evening Peak Hour:</i>	
Entering	40
<u>Exiting</u>	<u>44</u>
Total	84

^aBased on projected employee and truck delivery levels.

The detailed trip generation calculations are provided in the Appendix.

As shown in Table 4, the proposed project is expected to generate 800 vehicle trips (400 vehicles entering and 400 vehicles exiting). During the weekday morning peak hour, 69 vehicle trips (36 vehicles entering and 33 vehicles exiting) are expected. During the weekday evening peak hour, 84 vehicle trips (40 vehicles entering and 44 vehicles exiting) are expected.

Trip Distribution

The directional distribution of the vehicular traffic approaching and departing the site is a function of population densities, the location of employment, existing travel patterns, similar uses, and the efficiency of the existing roadway system. Existing traffic flows and trip assignments from the traffic studies for 321 Eames Street and 333 East Street were reviewed to determine the expected trip distribution pattern. Table 5 summarizes the expected trip distribution.

TABLE 5
PROPOSED TRIP DISTRIBUTION

Roadway	Direction	Percent of Trips
Main Street	North/South	1
Presidential Way	South	99
TOTAL		100

Future Traffic Volumes - Build Condition

The site-generated traffic was distributed within the study area according to the percentages summarized in Table 5. The site generated volumes were superimposed onto the 2022 No-Build traffic volumes to represent the 2022 Build traffic-volume conditions. The anticipated 2022 Build weekday morning and weekday evening traffic volumes are graphically presented in Figures 6 and 7. These volumes were used as the basis for all analysis as well as to identify potential mitigation measures to ameliorate the project's impacts.

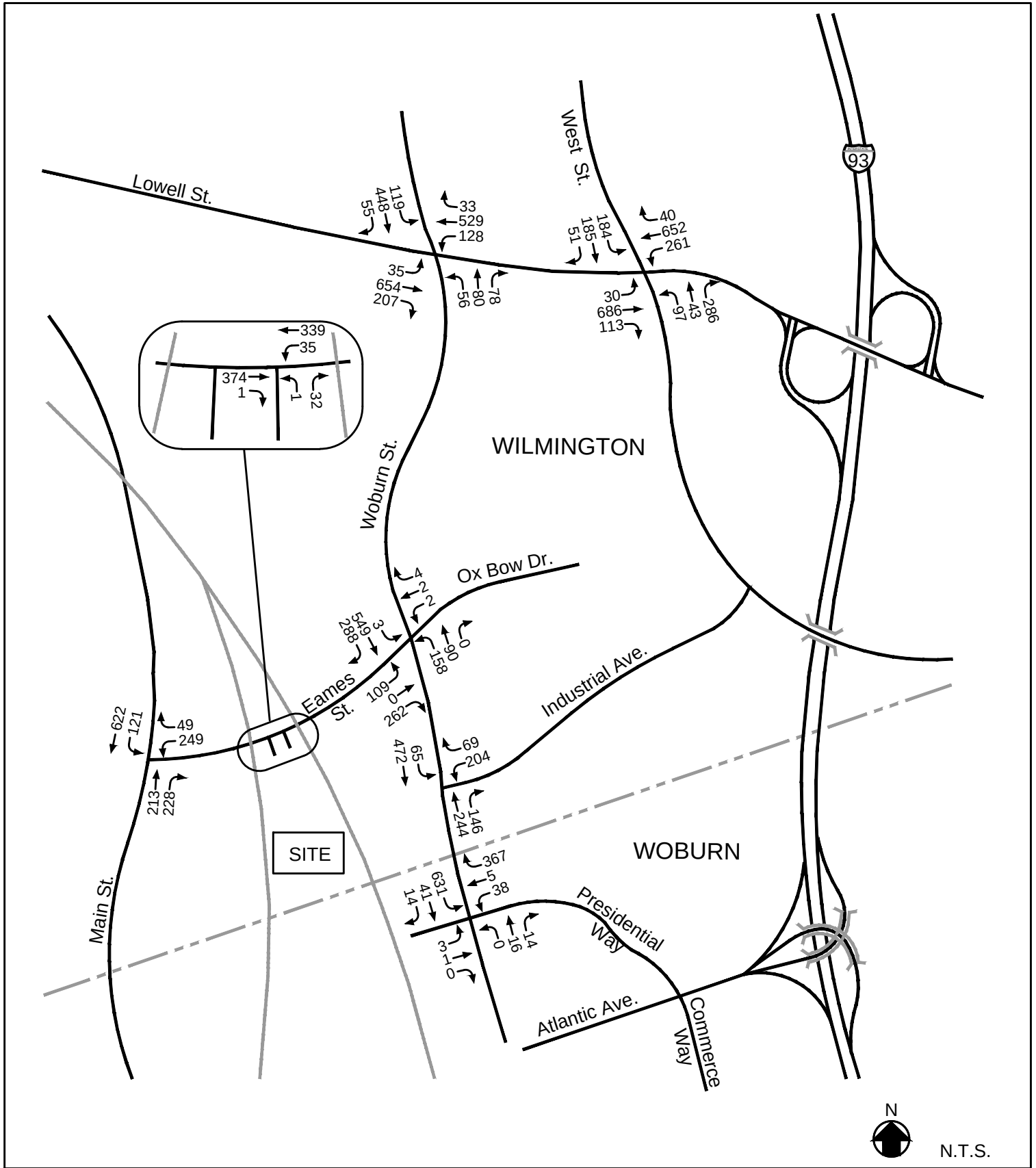
A summary of 2022 peak-hour projected traffic-volume changes in the site vicinity are shown in Table 6. These volumes are based on the expected increases from the site traffic generation.

TABLE 6
TRAFFIC-VOLUME INCREASES^a

Location/Peak Hour	2022 No-Build	2022 Build	Volume (%) Increase over No-Build
<i>Main Street, north of Eames Street</i>			
Weekday Morning	1003	1005	2 (0.2)
Weekday Evening	1161	1163	2 (0.2)
<i>Lowell Street, east of West Street</i>			
Weekday Morning	2109	2109	0 (0.0)
Weekday Evening	2344	2344	0 (0.0)
<i>Presidential Way, east of Woburn Street</i>			
Weekday Morning	989	1056	67 (6.8)
Weekday Evening	1145	1227	82 (7.2)

^aAll volumes are vehicles per hour, total of both directions.

As shown in Table 6, project-related increases are in the range of 67 and 82 bi-directional vehicles during the peak hours. This is approximately equivalent to one additional vehicle every 1.5 minutes or less per direction on average during the peak hours.

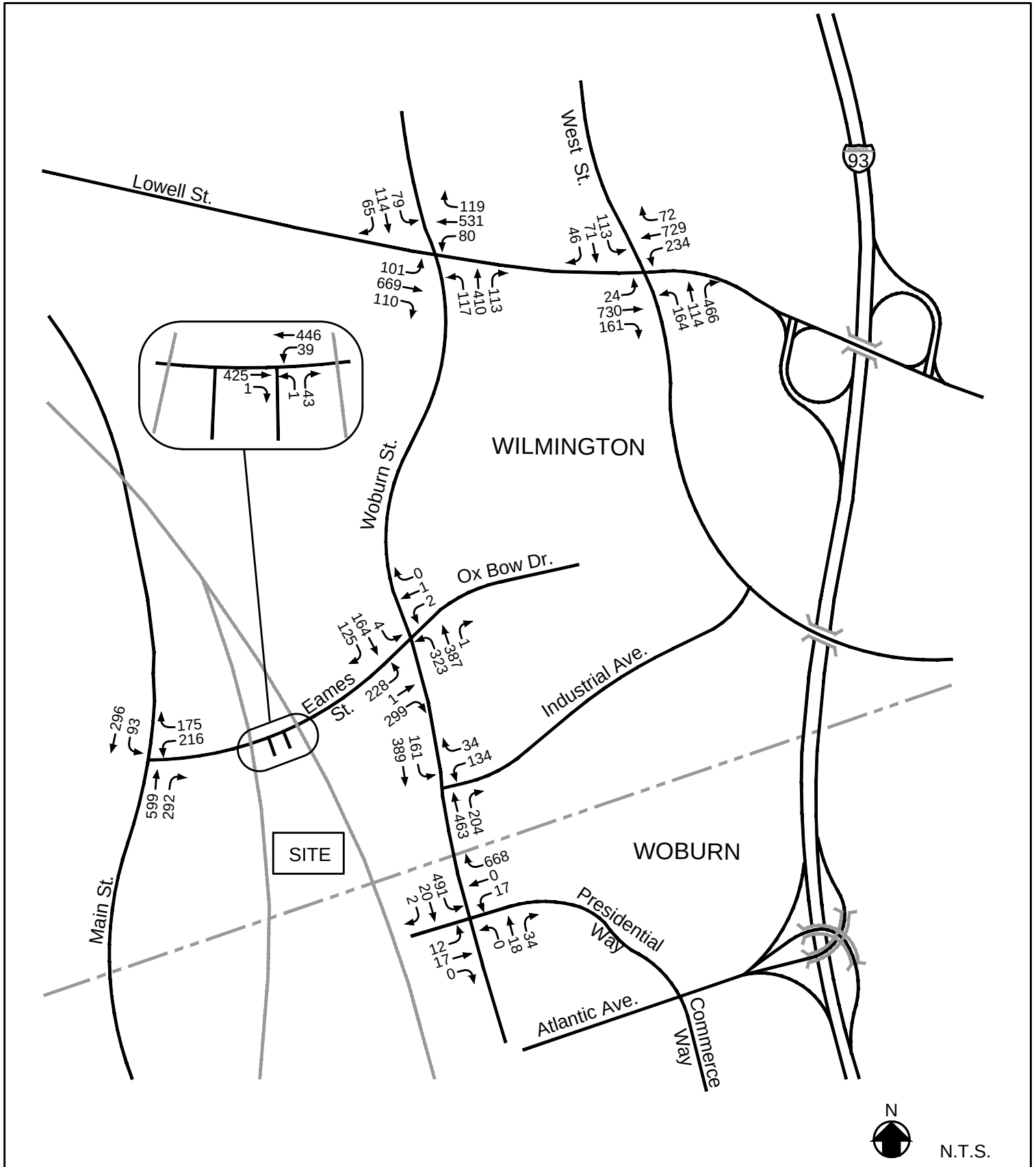


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Proposed Redevelopment
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Figure 7

2022 Build
Weekday Morning
Peak Hour Traffic Volumes



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Proposed Redevelopment
51 Eames Street
WILMINGTON, MA

Figure 8

2022 Build
Weekday Evening
Peak Hour Traffic Volumes

SECTION 4: ANALYSIS

To assess intersection operations, capacity analyses were conducted for Existing, No-Build, and Build traffic-volume conditions. Capacity analyses provide an indication of how well the study area intersections serve existing and projected traffic volumes. Vehicle queue analyses provide a secondary measure of the operational characteristics of an intersection or section of roadway under study in terms of lane use and demand.

METHODOLOGY

Levels of Service

Level of service (LOS) is a quantitative measure used to describe the operation of an intersection or roadway segment. The level of service definition is described by the quality of traffic flow and is primarily defined in terms of traffic delays. The primary result of capacity analyses² is the assignment of a level of service to traffic intersections or roadway segments under various traffic-flow conditions. Six levels of service are defined for traffic intersections and roadway segments. Levels of service range from LOS A to LOS F. LOS A represents very good operating conditions and LOS F represents very poor operating conditions.

Signalized Intersections

Levels of service for signalized intersections are calculated using the methodology and procedures described in the 2010 *Highway Capacity Manual*. The methodology assesses the intersection based on type of signal operation, signal timing and phasing, progression, vehicle mix, and intersection geometrics. Level-of-service designations are based on the delay per vehicle. Table 7 summarizes the relationship between level of service and delay. The calculated delay values result in level-of-service designations which are applied to individual lane groups, to individual intersection approaches, and to the entire

²The capacity analysis methodology is based on procedures presented in the *Highway Capacity Manual*; Transportation Research Board; Eames, DC; 2010.

intersection. In the 2010 HCM methodology, the critical lane group volume to capacity ratio is reported.

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

Delay per Vehicle (Seconds)	Resulting Level of Service $v/c^b < 1.0$	Resulting Level of Service $v/c^b > 1.0$
≤ 10.0	A	F
10.1 to 20.0	B	F
20.1 to 35.0	C	F
35.1 to 55.0	D	F
55.1 to 80.0	E	F
> 80.0	F	F

^a*Highway Capacity Manual*; Transportation Research Board; Eames, DC; 2010; page 18-6.

^bVolume to capacity ratio.

Unsignalized Intersections

The level of service for an unsignalized intersection is determined by the methodology and procedures described in the 2010 *Highway Capacity Manual*.³ The level of service for unsignalized intersections is measured in terms of average delay for the critical movements (typically side street turning movements or mainline turning movements). The delay for the critical movements is a function of the available capacity for the movement and the degree of saturation of the lane group containing the critical movement. The delay calculation 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. The definitions for level of service at unsignalized intersections are also provided in the 2010 *Highway Capacity Manual*. Table 8 summarizes the relationship between level of service and average control delay for the critical movements at unsignalized intersections.

³*Highway Capacity Manual*; Transportation Research Board; Eames, DC; 2010.

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

Average Delay (seconds per vehicle)	Resulting Level of Service $v/c^b < 1.0$	Resulting Level of Service $v/c > 1.0$
≤ 10.0	A	F
10.1 to 15.0	B	F
15.1 to 25.0	C	F
25.1 to 35.0	D	F
35.1 to 50.0	E	F
> 50.0	F	F

^aHighway Capacity Manual; Transportation Research Board; Elm, DC; 2010; page 19-2

^bVolume to capacity ratio.

The analytical methodologies used for the analysis of unsignalized intersections use conservative analysis parameters, such as high critical gaps. The critical gap is defined as the minimum time between successive main line vehicles for a side street vehicle to execute the appropriate turning maneuver. Actual field observations indicate that drivers on minor streets accept smaller gaps in traffic than those used in the analysis procedures and therefore experience less delay than calculated by the HCM methodology. **The analysis results overstate the actual delays experienced in the field.** It should be noted that the unsignalized intersections along heavily trafficked roadways operate at constrained levels and the resulting calculated results of the unsignalized intersection analyses should be considered highly conservative.

CAPACITY ANALYSIS RESULTS

Level-of-service analyses were conducted for 2015 Existing, 2022 No-Build, and 2022 Build conditions for the intersections within the study area. The results of the 2022 signalized analyses are summarized in Table 9 and the unsignalized analyses are summarized in Table 10. Detailed analysis sheets are presented in the Appendix.

TABLE 9
SIGNALIZED LEVEL-OF-SERVICE ANALYSIS SUMMARY

Signalized Intersection/ Peak Hour	2015 Existing			2022 No-Build			2022 Build		
	V/C ^a	Delay ^b	LOS ^c	V/C	Delay	LOS	V/C	Delay	LOS
<i>Lowell Street and Woburn Street</i>									
Weekday Morning									
Eastbound LT/TH/RT	1.05	64.9	E	1.15	>80.0	F	1.15	>80.0	F
Westbound LT/TH/RT	1.14	>80.0	F	1.40	>80.0	F	1.40	>80.0	F
Northbound LT/TH/RT	0.58	22.4	C	0.68	26.8	C	0.68	26.8	C
Southbound LT/TH/RT	1.10	>80.0	F	1.21	>80.0	F	1.21	>80.0	F
OVERALL		78.7	E		>80.0	F		>80.0	F
Weekday Evening									
Eastbound LT/TH/RT	1.17	>80.0	F	1.33	>80.0	F	1.33	>80.0	F
Westbound LT/TH/RT	0.98	48.4	D	1.18	>80.0	F	1.18	>80.0	F
Northbound LT/TH/RT	1.10	>80.0	F	1.22	>80.0	F	1.22	>80.0	F
Southbound LT/TH/RT	0.72	31.5	C	0.84	42.7	D	0.84	42.7	D
OVERALL		79.2	E		>80.0	F		>80.0	F
<i>Lowell Street and West Street</i>									
Weekday Morning									
Eastbound TH/LT	0.92	39.3	D	1.00	55.2	E	1.00	55.2	E
Eastbound RT	0.18	7.5	A	0.20	8.0	A	0.20	8.0	A
Westbound LT	0.70	21.9	C	0.90	49.9	D	0.90	49.9	D
Westbound TH/RT	0.60	11.3	B	0.64	12.1	B	0.64	12.1	B
Northbound TH/LT	0.70	48.2	D	0.93	86.8	F	0.93	86.8	F
Northbound RT	0.52	7.1	A	0.63	10.0	B	0.63	10.0	B
Southbound LT	0.72	45.2	D	0.87	64.6	E	0.87	64.6	E
Southbound TH/RT	0.58	31.3	C	0.65	34.8	C	0.65	34.8	C
OVERALL		25.7	C		36.7	D		36.7	D
Weekday Evening									
Eastbound TH/LT	0.92	39.5	D	1.01	57.6	E	1.01	57.6	E
Eastbound RT	0.23	8.5	A	0.25	9.10	A	0.25	9.10	A
Westbound LT	0.66	19.4	B	0.86	43.0	D	0.86	43.0	D
Westbound TH/RT	0.73	14.5	B	0.78	16.5	B	0.78	16.5	B
Northbound TH/LT	0.90	62.5	E	1.07	>80.0	F	1.07	>80.0	F
Northbound RT	0.78	18.4	B	0.95	40.2	D	0.95	40.2	D
Southbound LT	0.77	64.5	E	1.09	>80.0	F	1.09	>80.0	F
Southbound TH/RT	0.30	20.6	C	0.33	21.5	C	0.33	21.5	C
OVERALL		28.4	C		46.0	D		46.0	D

^aMaximum volume-to-capacity ratio.

^bDelay in seconds per vehicle.

^cLevel of service.

Lowell Street and Woburn Street

Under 2015 Existing weekday morning conditions, this signalized intersection currently operates at level of service (LOS) E during the weekday morning peak hour and at LOS E during the weekday evening peak hour. Under future 2022 No-Build conditions, this intersection is projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 Build conditions, with the project, this intersection is projected to continue to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. The proposed project is not projected to have any impact at this intersection as almost all truck traffic will be accessing the site from the south.

Lowell Street and West Street

Under 2015 Existing weekday morning conditions, this signalized intersection currently operates at LOS C during the weekday morning peak hour and at LOS C during the weekday evening peak hour. Under future 2022 No-Build conditions, this intersection is projected to operate at LOS D during the weekday morning peak hour and at LOS D during the weekday evening peak hour. Under future 2022 Build conditions, with the project, this intersection is projected to operate at LOS D during the weekday morning peak hour and at LOS D during the weekday evening peak hour. The proposed project is not projected to have any impact at this intersection as almost all truck traffic will be accessing the site from the south.

TABLE 10
2022 UNSIGNALIZED LEVEL-OF-SERVICE ANALYSIS SUMMARY

Critical Movement/ Peak Hour	2015 Existing				2022 No-Build				2022 Build			
	Demand ^a	V/C ^b	Delay ^c	LOS ^d	Demand	V/C	Delay	LOS	Demand	V/C	Delay	LOS
Woburn Street, Eames Street and Oxbow Drive												
<i>All movements from Eames Street:</i>												
Weekday Morning	306	1.16	>50.0	F	339	1.47	>50.0	F	371	1.74	>50.0	F
Weekday Evening	437	2.77	>50.0	F	485	3.96	>50.0	F	528	5.00	>50.0	F
Woburn Street and Industrial Way												
<i>All movements from Industrial Way:</i>												
Weekday Morning	170	0.54	24.0	C	273	1.12	>50.0	F	273	1.24	>50.0	F
Weekday Evening	79	0.50	38.7	E	168	1.75	>50.0	F	168	2.07	>50.0	F
Woburn Street and Presidential Way												
<i>All movements from Presidential Way:</i>												
Weekday Morning	265	0.60	23.1	C	375	1.08	>50.0	F	410	1.24	>50.0	F
Weekday Evening	508	0.76	20.2	C	646	1.07	>50.0	F	685	1.21	>50.0	F
Eames Street and Site Driveway												
<i>All movements from Site Driveway:</i>												
Weekday Morning	-	-	-	-	-	-	-	-	33	0.06	11.6	B
Weekday Evening	-	-	-	-	-	-	-	-	44	0.08	11.9	B
Main Street and Eames Street												
<i>All movements from Eames Street:</i>												
Weekday Morning	271	1.87	>50.0	F	297	2.43	>50.0	F	298	2.44	>50.0	F
Weekday Evening	354	1.60	>50.0	F	390	2.02	>50.0	F	391	2.04	>50.0	F

^aDemand of critical movements in vehicles per hour.

^bVolume-to-capacity ratio.

^cDelay in seconds per vehicle.

^dLevel of service.

^eDelay not representative of actual conditions when v/c is greater than 1.00.

Woburn Street, Eames Street and Oxbow Drive

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Eames Street) are modeled to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 No-Build conditions, these critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 Build conditions, with the project, the critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Based on existing intersection operations and observations, actual operations are better than the HCS methodology indicates.

Woburn Street and Industrial Way

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Industrial Way) are modeled to operate at LOS C during the weekday morning peak hour and at LOS E during the weekday evening peak hour. Under future 2022 No-Build conditions, these critical movements are projected to operate at LOS F

during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 Build conditions, with the project, the critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Based on existing intersection operations and observations, actual operations are better than the HCS methodology indicates.

Woburn Street and Presidential Way

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Presidential Way) are modeled to operate at LOS C during the weekday morning peak hour and at LOS C during the weekday evening peak hour. Under future 2022 No-Build conditions, these critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 Build conditions, with the project, the critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Based on existing intersection operations and observations, actual operations are better than the HCS methodology indicates.

Eames Street and Site Driveway

Under 2015 Existing conditions, there are no vehicles entering or leaving the site. There are no conflicting turn movements at the site driveway under 2015 Existing conditions or under 2022 No-Build conditions. Under future 2022 Build conditions, with the project, the critical movements are projected to operate at LOS B during the weekday morning and the weekday evening peak hours.

Main Street and Eames Street

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Eames Street) are modeled to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 No-Build conditions, these critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Under future 2022 Build conditions, with the project, the critical movements are projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. Based on existing intersection operations and observations, actual operations are better than the HCS methodology indicates.

SECTION 5: RECOMMENDATIONS AND CONCLUSION

RECOMMENDATIONS

The final phase of the analysis process is to identify the mitigation measures to minimize the impact of the project on the transportation system, if necessary.

Non-Project Related Mitigation

The following intersections have been analyzed without the proposed project and have been determined to require potential modifications and improvements:

- Main Street and Eames Street
- Woburn Street, Eames Street and Oxbow Drive
- Lowell Street and Woburn Street
- Lowell Street and West Street

It should be clearly noted that any improvements to these intersections are precipitated by existing conditions and are not solely due to the project's impacts. Mitigation measures have been identified so that the community and local planning agencies have the tools to identify needed improvements.

Main Street and Eames Street

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Eames Street) are modeled to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. These critical movements are projected to continue to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour without the project. Review of existing peak hour operations indicates that a traffic signal would be warranted at this intersection. Installation of a traffic signal would provide the necessary gaps for vehicles to exit the minor street. With this measure, under future 2022 Build conditions, this intersection would operate at LOS C during the weekday morning and evening peak hours.

Woburn Street, Eames Street and Oxbow Drive

Under 2015 Existing conditions, during the peak hours, the critical movements (all movements from Eames Street) are modeled to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. These critical movements are projected to continue to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour without the project. During off-peak hours, traffic operations are expected to be better and less congested. Possible improvements include traffic signalization and intersection geometry improvements at the southwest corner to facilitate right turns from Eames Street, including providing an exclusive left-turn lane on Eames Street. With these measures, under future 2022 Build conditions, the intersection is projected to operate at LOS C or better during the weekday morning and evening peak hours.

Lowell Street and Woburn Street

Under 2022 No-Build conditions, during the peak hours, this signalized intersection is projected to operate at LOS F during the weekday morning peak hour and at LOS F during the weekday evening peak hour. The Town's consultant, TEC has developed a preliminary mitigation plan for this intersection which includes widening of all approaches to include exclusive left-turn lanes and upgrading the intersection signalization. With these potential improvements, the intersection is projected to operate at LOS C and LOS D or better during the weekday morning and weekday evening peak hours, respectively.

Project Related Mitigation

The following measures have been identified to mitigate the project's impacts and improve intersection operations. The project proponent is committed to working with the Town of Wilmington to implement these measures.

Site Access

The site driveway is recommended to be designed to handle large trucks with appropriate driveway radii (50 foot minimum) and width (24 foot minimum). The driveway should be placed under STOP sign control.

Transportation Demand Management

Transportation Demand Management (TDM) strategies generally work well with office/research and development type facilities. Due to the nature of the proposed project, TDM strategies do not typically work well. In an effort to maximize employee vehicle occupancy and thereby reduce vehicular demand to the site, the project proponent will encourage employees to rideshare. This will be accomplished through the provision of an on-site transportation coordinator to publicize and encourage ride-sharing and

provide a ride-matching service. Coordination with MassRides is encouraged.

In addition, several TDM strategies can be employed:

- Variable shift schedules (to not impact peak hour traffic flow) are already proposed based on the projected shift scheduling.
- Direct deposit of payroll checks
- Provide a subsidized program for employees who will use the Regional Transportation Center (to the immediate south in Woburn).

CONCLUSION

The proposed industrial development is expected to generate approximately 800 vehicle trips on an average weekday (400 vehicles entering and 400 vehicles exiting), with approximately 69 vehicle trips (36 vehicles entering and 33 vehicles exiting) during the weekday morning peak hour and 84 vehicle trips (40 vehicles entering and 44 vehicles exiting) during the weekday evening peak hour. Based on a review of the anticipated traffic generation, peak-hour traffic-volume increases in the project vicinity are projected to increase between 67 and 82 bi-directional vehicles during the weekday morning and weekday evening peak hours.

An analysis and comparison of the 2022 No-Build and Build traffic operations indicates that these increases do not result in a significant impact on traffic operations within the study area, including the site driveway intersection with Eames Street. All movements exiting the proposed site driveway under 2022 Build conditions are expected to operate at LOS B during both peak periods.

Review of the proposed project and the access plan shows that in relation to roadway capacity, traffic safety, and traffic impacts upon the surrounding roadway network, the proposed project will meet safety standards and have a minimal impact on existing traffic conditions. With the proposed access, and maintaining sight distances from the driveway (clear sight lines along frontage), safe and efficient access can be provided to the residents of the proposed project and to the motoring public in the area.

APPENDIX

Traffic Count Data

Seasonal Adjustment Worksheets

Crash Data and Worksheets

Background Growth

Trip Generation Worksheets

Capacity Analysis Worksheets

Traffic Count Data

Eames Street
near Railroad Overpass
City, State: Wilmington, MA
Client: BEI/K.Cram



P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154463 A Class
Site Code: 2151944
Date Start: 10-Jun-15

WB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/10/1														
5	0	7	0	0	0	0	0	0	0	0	0	0	0	7
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	9	1	0	0	0	0	0	0	0	0	0	0	10
03:00	0	11	3	0	0	0	0	0	0	0	0	0	0	14
04:00	0	13	5	1	2	1	0	0	0	0	0	0	0	22
05:00	4	69	22	3	6	2	0	1	1	0	0	0	0	108
06:00	3	153	60	8	15	0	0	1	1	0	0	0	0	241
07:00	7	251	54	5	13	3	0	0	1	0	0	0	0	334
08:00	5	222	53	6	15	2	0	1	0	0	0	0	0	304
09:00	6	160	46	8	14	2	0	1	0	0	0	0	0	237
10:00	2	81	31	6	8	2	0	3	1	0	0	0	0	134
11:00	6	125	36	5	7	4	0	2	0	0	0	0	0	185
12 PM	5	160	43	7	17	3	0	0	2	1	0	0	0	238
13:00	2	102	38	7	10	3	0	3	1	0	0	0	0	166
14:00	3	145	42	4	12	3	0	1	1	0	0	0	0	211
15:00	1	186	47	5	12	1	0	2	0	0	0	0	0	254
16:00	5	209	46	3	11	4	0	3	1	0	0	0	0	282
17:00	4	322	46	2	6	0	0	0	0	0	0	0	0	380
18:00	3	175	41	1	2	1	0	0	1	0	0	0	0	224
19:00	7	75	14	0	0	1	0	0	0	0	0	0	0	97
20:00	3	81	14	1	3	0	0	1	0	0	0	0	0	103
21:00	0	47	10	1	3	0	0	0	0	0	0	0	0	61
22:00	1	23	2	0	1	0	0	0	0	0	0	0	0	27
23:00	1	20	4	0	1	0	0	0	0	0	0	0	0	26
Total	68	2649	658	73	158	32	0	19	10	1	0	0	0	3668
Percent	1.9%	72.2%	17.9%	2.0%	4.3%	0.9%	0.0%	0.5%	0.3%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	06:00	06:00	06:00	11:00		10:00	05:00					07:00
Vol.	7	251	60	8	15	4		3	1					334
PM Peak	19:00	17:00	15:00	12:00	12:00	16:00		13:00	12:00	12:00				17:00
Vol.	7	322	47	7	17	4		3	2	1				380

Eames Street
near Railroad Overpass
City, State: Wilmington, MA
Client: BEI/K.Cram



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154463 A Class
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WB

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06/11/1														
5	0	7	1	0	0	0	0	0	0	0	0	0	0	8
01:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
02:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
03:00	0	14	2	1	0	0	0	0	0	0	0	0	0	17
04:00	5	18	9	0	3	3	0	0	1	0	0	0	0	39
05:00	3	59	19	1	4	0	0	1	0	0	0	0	0	87
06:00	3	150	46	8	9	2	0	1	3	0	0	0	0	222
07:00	5	231	62	9	8	1	0	2	0	0	0	0	0	318
08:00	5	215	64	4	16	2	0	2	1	0	0	0	0	309
09:00	2	131	46	6	15	1	1	1	2	0	0	0	0	205
10:00	1	94	38	4	9	0	0	4	3	0	0	0	0	153
11:00	3	111	43	6	9	2	0	5	3	0	0	0	0	182
12 PM	2	138	52	7	13	1	0	2	5	0	0	0	0	220
13:00	1	134	41	6	15	0	1	2	2	0	0	0	0	202
14:00	6	150	45	6	7	5	0	4	1	0	0	0	0	224
15:00	7	183	50	3	8	2	1	2	1	0	0	0	0	257
16:00	5	233	58	1	6	5	0	0	0	0	0	0	0	308
17:00	7	306	55	3	6	1	0	1	1	0	0	0	0	380
18:00	3	187	25	1	5	1	0	0	0	0	0	0	0	222
19:00	4	101	22	2	2	1	0	0	0	0	0	0	0	132
20:00	1	47	14	2	5	0	0	0	1	0	0	0	0	70
21:00	2	42	10	0	0	0	0	0	0	0	0	0	0	54
22:00	0	22	5	0	0	0	0	0	0	0	0	0	0	27
23:00	2	24	1	0	0	0	0	0	0	0	0	0	0	27
Total	67	2607	708	70	140	27	3	27	24	0	0	0	0	3673
Percent	1.8%	71.0%	19.3%	1.9%	3.8%	0.7%	0.1%	0.7%	0.7%	0.0%	0.0%	0.0%	0.0%	
AM Peak	04:00	07:00	08:00	07:00	08:00	04:00	09:00	11:00	06:00					07:00
Vol.	5	231	64	9	16	3	1	5	3					318
PM Peak	15:00	17:00	16:00	12:00	13:00	14:00	13:00	14:00	12:00					17:00
Vol.	7	306	58	7	15	5	1	4	5					380
Total		5256	1366	143	298	59	3	46	34	1	0	0	0	7341

Eames Street
near Railroad Overpass
City, State: Wilmington, MA
Client: BEI/K.Cram



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Email: datarequests@pdillc.com

154463 A Class
Site Code: 2151944
Date Start: 10-Jun-15

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/10/1														
5	0	8	3	0	1	0	0	0	0	0	0	0	0	12
01:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
02:00	0	2	2	0	0	0	0	0	0	0	0	0	0	4
03:00	0	9	3	2	0	0	0	0	0	0	0	0	0	14
04:00	2	20	7	4	3	0	0	0	0	0	0	0	0	36
05:00	4	41	19	9	10	1	0	0	2	0	0	0	0	86
06:00	3	130	35	1	16	2	0	1	1	0	0	0	0	189
07:00	7	212	49	2	21	5	0	2	0	0	0	0	0	298
08:00	5	177	44	4	15	1	0	0	0	0	0	0	0	246
09:00	3	129	37	2	19	1	0	3	0	0	0	0	0	194
10:00	4	94	34	5	10	3	1	2	1	0	0	0	0	154
11:00	5	109	36	4	22	5	0	1	2	0	0	0	0	184
12 PM	2	138	46	6	17	2	0	4	1	0	0	0	0	216
13:00	3	158	42	10	21	4	0	2	2	0	0	0	0	242
14:00	3	143	44	12	33	2	0	2	2	0	0	0	0	241
15:00	3	162	65	8	24	0	0	2	2	0	0	0	0	266
16:00	6	270	64	1	35	2	0	2	0	0	0	0	0	380
17:00	4	320	54	2	24	2	0	1	1	0	0	0	0	408
18:00	0	235	42	1	20	1	0	0	1	0	0	0	0	300
19:00	5	98	28	0	11	1	0	0	0	0	0	0	0	143
20:00	0	70	15	0	9	0	0	1	0	0	0	0	0	95
21:00	2	44	12	0	0	0	0	0	0	0	0	0	0	58
22:00	0	27	5	0	0	0	0	0	1	0	0	0	0	33
23:00	0	11	0	0	0	0	0	0	1	0	0	0	0	12
Total	61	2612	687	73	311	32	1	23	17	0	0	0	0	3817
Percent	1.6%	68.4%	18.0%	1.9%	8.1%	0.8%	0.0%	0.6%	0.4%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	05:00	11:00	07:00	10:00	09:00	05:00					07:00
Vol.	7	212	49	9	22	5	1	3	2					298
PM Peak	16:00	17:00	15:00	14:00	16:00	13:00		12:00	13:00					17:00
Vol.	6	320	65	12	35	4		4	2					408

Eames Street
near Railroad Overpass
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Client: BEI/K.Cram



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154463 A Class
Site Code: 2151944
Date Start: 10-Jun-15

EB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
06/11/1														
5	0	5	1	0	0	0	0	0	0	0	0	0	0	6
01:00	0	6	2	0	0	0	0	0	0	0	0	0	0	8
02:00	3	8	2	1	1	0	0	0	0	0	0	0	0	15
03:00	1	7	2	4	0	0	0	0	0	0	0	0	0	14
04:00	2	22	8	2	2	0	0	0	0	0	0	0	0	36
05:00	0	41	17	9	15	0	0	1	1	0	0	0	0	84
06:00	1	133	34	3	11	4	0	1	1	0	0	0	0	188
07:00	8	199	45	5	24	2	0	1	1	0	0	0	0	285
08:00	5	196	40	3	14	0	0	1	1	0	0	0	0	260
09:00	4	140	32	2	22	2	0	3	1	0	0	0	0	206
10:00	2	103	34	7	14	3	0	2	2	0	0	0	0	167
11:00	1	107	50	8	26	2	0	2	1	0	0	0	0	197
12 PM	1	150	46	5	29	2	0	4	3	0	0	0	0	240
13:00	4	125	32	4	27	2	0	2	2	0	0	1	0	199
14:00	7	125	56	6	38	3	0	1	0	0	0	0	0	236
15:00	6	197	63	5	43	3	0	2	3	0	0	0	0	322
16:00	5	252	81	2	28	3	0	2	0	0	0	0	0	373
17:00	4	320	65	1	27	3	0	2	0	0	0	0	0	422
18:00	2	251	52	2	15	1	0	0	0	0	0	0	0	323
19:00	1	99	42	1	14	0	0	0	0	0	0	0	0	157
20:00	0	83	21	0	7	0	0	0	0	0	0	0	0	111
21:00	1	43	3	1	4	0	0	1	0	0	0	0	0	53
22:00	0	31	5	0	5	0	0	0	1	0	0	0	0	42
23:00	1	16	0	1	0	0	0	0	1	0	0	0	0	19
Total	59	2659	733	72	366	30	0	25	18	0	0	1	0	3963
Percent	1.5%	67.1%	18.5%	1.8%	9.2%	0.8%	0.0%	0.6%	0.5%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	11:00	05:00	11:00	06:00		09:00	10:00					07:00
Vol.	8	199	50	9	26	4		3	2					285
PM Peak	14:00	17:00	16:00	14:00	15:00	14:00		12:00	12:00			13:00		17:00
Vol.	7	320	81	6	43	3		4	3			1		422
Total		5271	1420	145	677	62	1	48	35	0	0	1	0	7780

Eames Street
near Railroad Overpass
City, State: Wilmington, MA
Client: BEI/K.Cram



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154463 A Speed
Site Code: 2151944
Date Start: 10-Jun-15

WB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
06/10/																
15	0	0	0	0	0	3	2	2	0	0	0	0	0	7	46	41
01:00	0	0	0	0	2	1	0	0	0	0	0	0	0	3	36	34
02:00	0	2	1	0	3	2	0	1	1	0	0	0	0	10	46	33
03:00	0	0	0	1	5	3	5	0	0	0	0	0	0	14	41	36
04:00	0	1	0	0	5	11	4	1	0	0	0	0	0	22	41	36
05:00	6	2	1	2	21	38	30	7	1	0	0	0	0	108	42	36
06:00	1	0	1	3	48	122	53	12	0	1	0	0	0	241	41	37
07:00	1	3	2	6	40	173	84	20	4	1	0	0	0	334	42	38
08:00	0	1	3	17	56	140	75	10	1	1	0	0	0	304	41	37
09:00	3	2	4	15	43	118	46	6	0	0	0	0	0	237	40	36
10:00	0	2	2	8	43	42	34	3	0	0	0	0	0	134	41	36
11:00	4	1	3	19	49	78	28	3	0	0	0	0	0	185	39	35
12 PM	0	3	6	23	71	84	44	6	1	0	0	0	0	238	40	35
13:00	0	0	1	16	32	74	39	4	0	0	0	0	0	166	41	36
14:00	1	1	4	11	39	97	48	9	1	0	0	0	0	211	41	37
15:00	0	3	2	9	43	123	63	10	1	0	0	0	0	254	41	37
16:00	0	2	0	15	65	121	70	7	1	0	0	0	1	282	41	37
17:00	0	1	1	17	62	181	103	14	1	0	0	0	0	380	41	37
18:00	0	0	5	15	36	110	48	9	0	0	0	0	1	224	41	37
19:00	0	0	1	4	18	56	15	2	1	0	0	0	0	97	40	37
20:00	1	0	0	4	18	48	27	3	2	0	0	0	0	103	42	37
21:00	0	0	1	1	19	23	13	4	0	0	0	0	0	61	42	37
22:00	0	0	2	0	8	9	6	2	0	0	0	0	0	27	42	36
23:00	0	0	1	2	7	12	2	2	0	0	0	0	0	26	39	35
Total	17	24	41	188	733	1669	839	137	15	3	0	0	2	3668		
%	0.5%	0.7%	1.1%	5.1%	20.0%	45.5%	22.9%	3.7%	0.4%	0.1%	0.0%	0.0%	0.1%			
AM Peak	05:00	07:00	09:00	08:00	08:00	07:00	07:00	07:00	07:00	06:00				07:00		
Vol.	6	3	4	17	56	173	84	20	4	1				334		
Midda y Peak	11:00	12:00	12:00	12:00	12:00	14:00	14:00	14:00	12:00					12:00		
Vol.	4	3	6	23	71	97	48	9	1					238		
PM Peak	20:00	15:00	18:00	17:00	16:00	17:00	17:00	17:00	20:00				16:00	17:00		
Vol.	1	3	5	17	65	181	103	14	2				1	380		
% ile				15th Percentile :		30 MPH										
				50th Percentile :		36 MPH										
				85th Percentile :		41 MPH										
				95th Percentile :		43 MPH										

Stats 10 MPH Pace Speed : 35-44 MPH
 Number in Pace : 2508
 Percent in Pace : 68.4%
 Number of Vehicles > 35 MPH : 2331
 Percent of Vehicles > 35 MPH : 63.6%
 Mean Speed(Average) : 37 MPH

Eames Street
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City, State: Wilmington, MA
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154463 A Speed
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Date Start: 10-Jun-15

WB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
06/11/																
15	0	0	0	0	0	4	3	1	0	0	0	0	0	8	43	40
01:00	0	0	0	1	0	4	0	0	0	0	0	0	0	5	38	35
02:00	0	0	0	0	2	1	1	1	0	0	0	0	0	5	45	38
03:00	0	2	2	2	4	4	3	0	0	0	0	0	0	17	39	31
04:00	4	4	0	2	12	10	6	1	0	0	0	0	0	39	39	31
05:00	1	3	1	1	14	41	20	5	1	0	0	0	0	87	42	37
06:00	0	0	0	9	39	117	47	10	0	0	0	0	0	222	41	37
07:00	3	0	3	13	60	142	75	18	4	0	0	0	0	318	42	37
08:00	0	2	3	9	60	157	71	6	1	0	0	0	0	309	41	37
09:00	0	0	1	9	55	105	32	3	0	0	0	0	0	205	39	36
10:00	0	1	1	5	52	66	24	4	0	0	0	0	0	153	40	36
11:00	0	1	1	11	61	76	29	3	0	0	0	0	0	182	39	35
12 PM	0	0	2	15	53	100	38	9	3	0	0	0	0	220	41	36
13:00	0	1	6	18	44	86	41	6	0	0	0	0	0	202	41	36
14:00	0	0	4	15	67	86	43	8	0	1	0	0	0	224	41	36
15:00	2	2	2	16	43	125	61	4	2	0	0	0	0	257	41	36
16:00	1	2	1	10	59	149	74	12	0	0	0	0	0	308	41	37
17:00	1	1	5	16	64	197	84	10	2	0	0	0	0	380	41	37
18:00	0	0	2	5	40	111	48	13	2	1	0	0	0	222	42	38
19:00	0	1	1	4	19	61	39	7	0	0	0	0	0	132	42	38
20:00	0	0	0	3	19	35	12	1	0	0	0	0	0	70	40	36
21:00	0	1	0	3	14	32	4	0	0	0	0	0	0	54	38	35
22:00	0	0	0	2	11	11	2	1	0	0	0	0	0	27	38	35
23:00	0	0	0	1	8	11	6	1	0	0	0	0	0	27	41	37
Total	12	21	35	170	800	1731	763	124	15	2	0	0	0	3673		
%	0.3%	0.6%	1.0%	4.6%	21.8%	47.1%	20.8%	3.4%	0.4%	0.1%	0.0%	0.0%	0.0%			
AM Peak	04:00	04:00	07:00	07:00	07:00	08:00	07:00	07:00	07:00					07:00		
Vol.	4	4	3	13	60	157	75	18	4					318		
Midday Peak		11:00	13:00	13:00	14:00	12:00	14:00	12:00	12:00	14:00				14:00		
Vol.		1	6	18	67	100	43	9	3	1				224		
PM Peak	15:00	15:00	17:00	15:00	17:00	17:00	17:00	18:00	15:00	18:00				17:00		
Vol.	2	2	5	16	64	197	84	13	2	1				380		
% ile			15th Percentile :			30 MPH										
			50th Percentile :			36 MPH										
			85th Percentile :			41 MPH										
			95th Percentile :			43 MPH										

Stats 10 MPH Pace Speed : 30-39 MPH
 Number in Pace : 2531
 Percent in Pace : 68.9%
 Number of Vehicles > 35 MPH : 2289
 Percent of Vehicles > 35 MPH : 62.3%
 Mean Speed(Average) : 37 MPH

Eames Street
near Railroad Overpass
City, State: Wilmington, MA
Client: BEI/K.Cram



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154463 A Speed
Site Code: 2151944
Date Start: 10-Jun-15

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
06/10/																
15	0	0	0	1	3	4	4	0	0	0	0	0	0	12	41	37
01:00	0	0	0	0	1	0	4	1	0	0	0	0	0	6	44	41
02:00	0	0	0	0	1	2	1	0	0	0	0	0	0	4	41	37
03:00	0	0	1	1	1	5	4	2	0	0	0	0	0	14	43	38
04:00	3	0	2	2	7	14	6	1	1	0	0	0	0	36	41	34
05:00	0	0	3	0	16	26	30	10	1	0	0	0	0	86	43	39
06:00	3	3	2	4	25	50	82	18	1	0	1	0	0	189	43	39
07:00	0	1	1	13	52	106	98	26	1	0	0	0	0	298	43	38
08:00	3	0	0	16	38	117	56	13	3	0	0	0	0	246	42	37
09:00	1	0	3	6	40	84	47	12	1	0	0	0	0	194	42	37
10:00	2	2	7	8	32	52	35	13	3	0	0	0	0	154	42	36
11:00	6	6	3	6	46	55	50	12	0	0	0	0	0	184	42	36
12 PM	0	3	3	8	35	84	62	17	4	0	0	0	0	216	43	38
13:00	2	2	3	7	31	96	79	21	1	0	0	0	0	242	43	38
14:00	1	4	6	11	31	105	65	14	2	1	1	0	0	241	42	37
15:00	1	2	2	8	27	81	103	38	3	1	0	0	0	266	44	39
16:00	0	1	7	1	36	148	149	37	1	0	0	0	0	380	43	39
17:00	0	1	1	7	25	131	178	57	8	0	0	0	0	408	44	40
18:00	0	0	0	1	20	98	128	45	8	0	0	0	0	300	44	41
19:00	0	0	0	2	9	50	61	20	1	0	0	0	0	143	43	40
20:00	0	0	0	0	15	41	29	7	3	0	0	0	0	95	43	39
21:00	0	0	0	1	4	23	28	2	0	0	0	0	0	58	42	39
22:00	0	0	0	1	4	14	11	2	0	0	0	1	0	33	43	39
23:00	0	0	0	1	2	2	5	1	1	0	0	0	0	12	44	40
Total	22	25	44	105	501	1388	1315	369	43	2	2	1	0	3817		
%	0.6%	0.7%	1.2%	2.8%	13.1%	36.4%	34.5%	9.7%	1.1%	0.1%	0.1%	0.0%	0.0%			
AM Peak	04:00	06:00	05:00	08:00	07:00	08:00	07:00	07:00	08:00		06:00			07:00		
Vol.	3	3	3	16	52	117	98	26	3		1			298		
Midda y Peak	11:00	11:00	14:00	14:00	11:00	14:00	13:00	13:00	12:00	14:00	14:00			13:00		
Vol.	6	6	6	11	46	105	79	21	4	1	1			242		
PM Peak	15:00	15:00	16:00	15:00	16:00	16:00	17:00	17:00	17:00	15:00		22:00		17:00		
Vol.	1	2	7	8	36	148	178	57	8	1		1		408		
% ile				15th Percentile :			32 MPH									
				50th Percentile :			38 MPH									
				85th Percentile :			43 MPH									
				95th Percentile :			47 MPH									

Stats 10 MPH Pace Speed : 35-44 MPH
 Number in Pace : 2703
 Percent in Pace : 70.8%
 Number of Vehicles > 35 MPH : 2842
 Percent of Vehicles > 35 MPH : 74.5%
 Mean Speed(Average) : 38 MPH

Eames Street
near Railroad Overpass
City, State: Wilmington, MA
Client: BEI/K.Cram



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154463 A Speed
Site Code: 2151944
Date Start: 10-Jun-15

EB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
06/11/																
15	0	0	0	0	1	2	2	1	0	0	0	0	0	6	44	40
01:00	0	0	0	0	0	1	5	2	0	0	0	0	0	8	46	43
02:00	3	0	0	0	1	6	5	0	0	0	0	0	0	15	41	32
03:00	0	0	1	0	3	4	2	3	0	1	0	0	0	14	47	39
04:00	1	0	1	4	10	13	5	2	0	0	0	0	0	36	40	35
05:00	0	0	2	2	14	28	31	3	3	1	0	0	0	84	43	39
06:00	0	0	1	1	19	76	66	23	2	0	0	0	0	188	43	40
07:00	3	1	4	13	41	115	80	22	6	0	0	0	0	285	43	38
08:00	0	1	2	5	29	121	78	22	2	0	0	0	0	260	43	39
09:00	0	2	3	6	49	87	47	11	1	0	0	0	0	206	41	37
10:00	1	6	3	5	33	75	37	7	0	0	0	0	0	167	41	36
11:00	0	1	2	5	34	79	57	18	0	1	0	0	0	197	43	38
12 PM	0	5	4	7	43	101	65	12	3	0	0	0	0	240	42	37
13:00	1	2	6	6	43	78	46	16	1	0	0	0	0	199	42	37
14:00	2	3	3	9	29	81	70	34	3	1	1	0	0	236	44	39
15:00	0	4	2	7	41	132	104	26	6	0	0	0	0	322	43	39
16:00	1	2	6	3	27	135	140	54	5	0	0	0	0	373	44	40
17:00	0	0	0	7	40	119	203	42	9	2	0	0	0	422	43	40
18:00	0	0	4	1	23	120	124	42	8	1	0	0	0	323	44	40
19:00	0	0	0	1	11	58	67	19	1	0	0	0	0	157	43	40
20:00	0	0	0	0	24	45	36	4	2	0	0	0	0	111	42	38
21:00	0	0	2	1	6	24	15	3	1	1	0	0	0	53	43	38
22:00	0	0	0	0	8	13	16	3	1	0	0	0	1	42	43	39
23:00	0	0	0	0	2	10	3	2	1	1	0	0	0	19	46	40
Total	12	27	46	83	531	1523	1304	371	55	9	1	0	1	3963		
%	0.3%	0.7%	1.2%	2.1%	13.4%	38.4%	32.9%	9.4%	1.4%	0.2%	0.0%	0.0%	0.0%			
AM Peak	02:00	09:00	07:00	07:00	09:00	08:00	07:00	06:00	07:00	03:00				07:00		
Vol.	3	2	4	13	49	121	80	23	6	1				285		
Midda y Peak	14:00	12:00	13:00	14:00	12:00	12:00	14:00	14:00	12:00	11:00	14:00			12:00		
Vol.	2	5	6	9	43	101	70	34	3	1	1			240		
PM Peak	16:00	15:00	16:00	15:00	15:00	16:00	17:00	16:00	17:00	17:00			22:00	17:00		
Vol.	1	4	6	7	41	135	203	54	9	2			1	422		
% ile				15th Percentile :		33 MPH										
				50th Percentile :		38 MPH										
				85th Percentile :		43 MPH										
				95th Percentile :		47 MPH										

Stats 10 MPH Pace Speed : 35-44 MPH
 Number in Pace : 2827
 Percent in Pace : 71.4%
 Number of Vehicles > 35 MPH : 2959
 Percent of Vehicles > 35 MPH : 74.7%
 Mean Speed(Average) : 39 MPH

Eames Street
near Railroad Overpass
City, State: Wilmington, MA
Client: BEI/K.Cram



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154463 A Volume
Site Code: 2151944
Date Start: 10-Jun-15

Start		WB				EB				Combin ed		10-Jun- 15 Wed	
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		
12:00	5		52		3		48		8		100		
12:15	2		72		1		55		3		127		
12:30	0		53		7		68		7		121		
12:45	0	7	61	238	1	12	45	216	1	19	106	454	
01:00	2		42		0		65		2		107		
01:15	0		39		5		57		5		96		
01:30	0		50		0		54		0		104		
01:45	1	3	35	166	1	6	66	242	2	9	101	408	
02:00	7		53		1		66		8		119		
02:15	2		57		1		60		3		117		
02:30	0		60		1		51		1		111		
02:45	1	10	41	211	1	4	64	241	2	14	105	452	
03:00	3		66		3		51		6		117		
03:15	1		64		3		68		4		132		
03:30	4		53		5		88		9		141		
03:45	6	14	71	254	3	14	59	266	9	28	130	520	
04:00	3		74		4		91		7		165		
04:15	2		65		4		86		6		151		
04:30	5		68		8		106		13		174		
04:45	12	22	75	282	20	36	97	380	32	58	172	662	
05:00	15		103		10		87		25		190		
05:15	27		110		25		102		52		212		
05:30	27		86		23		116		50		202		
05:45	39	108	81	380	28	86	103	408	67	194	184	788	
06:00	45		81		40		107		85		188		
06:15	64		57		51		82		115		139		
06:30	58		44		55		63		113		107		
06:45	74	241	42	224	43	189	48	300	117	430	90	524	
07:00	74		28		55		41		129		69		
07:15	75		18		65		35		140		53		
07:30	83		31		79		35		162		66		
07:45	102	334	20	97	99	298	32	143	201	632	52	240	
08:00	92		30		62		18		154		48		
08:15	74		31		74		18		148		49		
08:30	78		23		54		32		132		55		
08:45	60	304	19	103	56	246	27	95	116	550	46	198	
09:00	77		12		52		24		129		36		
09:15	52		17		54		13		106		30		
09:30	61		21		48		16		109		37		
09:45	47	237	11	61	40	194	5	58	87	431	16	119	
10:00	30		9		42		9		72		18		
10:15	40		8		29		6		69		14		
10:30	27		8		48		5		75		13		
10:45	37	134	2	27	35	154	13	33	72	288	15	60	
11:00	42		3		38		6		80		9		
11:15	32		6		47		2		79		8		
11:30	47		8		55		2		102		10		
11:45	64	185	9	26	44	184	2	12	108	369	11	38	
Total	1599		2069		1423		2394		3022		4463		
Percent	52.9%		46.4%		47.1%		53.6%						
Day Total		3668			3817				7485				
Peak	07:15	-	05:00	-	07:30	-	05:15	-	07:30	-	05:00	-	-
Vol.	352	-	380	-	314	-	428	-	665	-	788	-	-
P.H.F.	0.863		0.864		0.793		0.922		0.827		0.929		

Eames Street
near Railroad Overpass
City, State: Wilmington, MA
Client: BEI/K.Cram



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

154463 A Volume
Site Code: 2151944
Date Start: 10-Jun-15

Start	WB		EB		Combin		ed		11-Jun-
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	15
12:00	4	69	2	55	6	124			Thu
12:15	1	55	1	59	2	114			
12:30	2	44	3	68	5	112			
12:45	1	52	0	58	1	110	14	460	
01:00	2	54	4	57	6	111			
01:15	2	46	2	49	4	95			
01:30	0	56	1	46	1	102			
01:45	1	46	1	47	2	93	13	401	
02:00	1	56	2	62	3	118			
02:15	2	56	7	54	9	110			
02:30	2	61	2	61	4	122			
02:45	0	51	4	59	4	110	20	460	
03:00	9	66	3	69	12	135			
03:15	3	57	6	72	9	129			
03:30	1	59	1	86	2	145			
03:45	4	75	4	95	8	170	31	579	
04:00	5	73	6	89	11	162			
04:15	7	83	8	81	15	164			
04:30	7	59	8	98	15	157			
04:45	20	93	14	105	34	198	75	681	
05:00	8	139	17	112	25	251			
05:15	15	83	10	95	25	178			
05:30	31	71	25	112	56	183			
05:45	33	87	32	103	65	190	171	802	
06:00	42	88	32	83	74	171			
06:15	58	51	50	112	108	163			
06:30	49	47	49	72	98	119			
06:45	73	222	57	188	130	92	410	545	
07:00	78	29	43	50	121	79			
07:15	84	38	71	28	155	66			
07:30	85	31	71	22	156	53			
07:45	71	318	34	100	171	91	603	289	
08:00	100	15	57	43	157	58			
08:15	72	23	78	22	150	45			
08:30	56	18	65	29	121	47			
08:45	81	309	14	260	17	31	569	181	
09:00	64	23	52	17	116	40			
09:15	52	11	52	14	104	25			
09:30	41	10	55	15	96	25			
09:45	48	205	10	206	95	17	411	107	
10:00	44	10	47	14	91	24			
10:15	35	5	40	11	75	16			
10:30	34	4	40	8	74	12			
10:45	40	153	40	167	9	17	320	69	
11:00	46	8	41	6	87	14			
11:15	33	10	46	3	79	13			
11:30	36	4	54	6	90	10			
11:45	67	182	5	197	123	9	379	46	
Total	1550	2123	1466	2497	3016	4620			
Percent	51.4%	46.0%	48.6%	54.0%					
Day Total		3673		3963		7636			
Peak	07:15	-	04:45	-	07:15	-	04:45	-	-
Vol.	340	-	386	-	639	-	810	-	-
P.H.F.	0.850	-	0.694	-	0.934	-	0.807	-	-



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: West Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 A
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	West Street From North				Lowell Street (Route 129) From East				West Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	11	50	53	0	12	114	47	0	62	8	20	0	17	147	4	0	545
07:15 AM	8	38	40	0	9	141	39	0	47	6	20	0	25	168	3	0	544
07:30 AM	9	42	51	0	6	144	47	0	77	5	22	0	32	168	8	0	611
07:45 AM	10	60	43	0	8	136	59	0	49	12	31	0	34	164	11	0	617
Total	38	190	187	0	35	535	192	0	235	31	93	0	108	647	26	0	2317
08:00 AM	14	34	41	0	9	158	50	0	56	13	20	0	18	140	5	0	558
08:15 AM	15	37	37	0	14	154	51	0	48	10	13	0	18	154	4	0	555
08:30 AM	15	20	39	0	14	121	44	0	50	14	18	0	14	136	5	0	490
08:45 AM	14	27	36	0	6	130	49	0	43	6	16	0	25	154	7	0	513
Total	58	118	153	0	43	563	194	0	197	43	67	0	75	584	21	0	2116
Grand Total	96	308	340	0	78	1098	386	0	432	74	160	0	183	1231	47	0	4433
Apprch %	12.9	41.4	45.7	0	5	70.3	24.7	0	64.9	11.1	24	0	12.5	84.3	3.2	0	
Total %	2.2	6.9	7.7	0	1.8	24.8	8.7	0	9.7	1.7	3.6	0	4.1	27.8	1.1	0	
Cars	93	303	328	0	71	1042	359	0	387	70	156	0	170	1165	45	0	4189
% Cars	96.9	98.4	96.5	0	91	94.9	93	0	89.6	94.6	97.5	0	92.9	94.6	95.7	0	94.5
Heavy Vehicles	3	5	12	0	7	56	27	0	45	4	4	0	13	66	2	0	244
% Heavy Vehicles	3.1	1.6	3.5	0	9	5.1	7	0	10.4	5.4	2.5	0	7.1	5.4	4.3	0	5.5

	West Street From North					Lowell Street (Route 129) From East					West Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	9	42	51	0	102	6	144	47	0	197	77	5	22	0	104	32	168	8	0	208	611
07:45 AM	10	60	43	0	113	8	136	59	0	203	49	12	31	0	92	34	164	11	0	209	617
08:00 AM	14	34	41	0	89	9	158	50	0	217	56	13	20	0	89	18	140	5	0	163	558
08:15 AM	15	37	37	0	89	14	154	51	0	219	48	10	13	0	71	18	154	4	0	176	555
Total Volume	48	173	172	0	393	37	592	207	0	836	230	40	86	0	356	102	626	28	0	756	2341
% App. Total	12.2	44	43.8	0		4.4	70.8	24.8	0		64.6	11.2	24.2	0		13.5	82.8	3.7	0		
PHF	.800	.721	.843	.000	.869	.661	.937	.877	.000	.954	.747	.769	.694	.000	.856	.750	.932	.636	.000	.904	.949
Cars	47	170	165	0	382	33	562	194	0	789	212	38	84	0	334	97	595	27	0	719	2224
% Cars	97.9	98.3	95.9	0	97.2	89.2	94.9	93.7	0	94.4	92.2	95.0	97.7	0	93.8	95.1	95.0	96.4	0	95.1	95.0
Heavy Vehicles	1	3	7	0	11	4	30	13	0	47	18	2	2	0	22	5	31	1	0	37	117
% Heavy Vehicles	2.1	1.7	4.1	0	2.8	10.8	5.1	6.3	0	5.6	7.8	5.0	2.3	0	6.2	4.9	5.0	3.6	0	4.9	5.0



PRECISION
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INDUSTRIES, LLC

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Groups Printed- Cars

File Name : 154463 A
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

N/S: West Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

	West Street From North				Lowell Street (Route 129) From East				West Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	11	48	52	0	10	108	45	0	56	8	20	0	14	135	4	0	511
07:15 AM	7	38	39	0	9	135	38	0	44	5	20	0	23	156	2	0	516
07:30 AM	9	40	49	0	5	141	45	0	73	5	21	0	30	161	8	0	587
07:45 AM	10	59	42	0	7	125	54	0	47	12	31	0	33	153	10	0	583
Total	37	185	182	0	31	509	182	0	220	30	92	0	100	605	24	0	2197
08:00 AM	14	34	40	0	7	149	47	0	50	11	19	0	17	136	5	0	529
08:15 AM	14	37	34	0	14	147	48	0	42	10	13	0	17	145	4	0	525
08:30 AM	15	20	38	0	14	114	39	0	41	13	16	0	13	131	5	0	459
08:45 AM	13	27	34	0	5	123	43	0	34	6	16	0	23	148	7	0	479
Total	56	118	146	0	40	533	177	0	167	40	64	0	70	560	21	0	1992
Grand Total	93	303	328	0	71	1042	359	0	387	70	156	0	170	1165	45	0	4189
Apprch %	12.8	41.9	45.3	0	4.8	70.8	24.4	0	63.1	11.4	25.4	0	12.3	84.4	3.3	0	
Total %	2.2	7.2	7.8	0	1.7	24.9	8.6	0	9.2	1.7	3.7	0	4.1	27.8	1.1	0	

	West Street From North					Lowell Street (Route 129) From East					West Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	9	40	49	0	98	5	141	45	0	191	73	5	21	0	99	30	161	8	0	199	587
07:45 AM	10	59	42	0	111	7	125	54	0	186	47	12	31	0	90	33	153	10	0	196	583
08:00 AM	14	34	40	0	88	7	149	47	0	203	50	11	19	0	80	17	136	5	0	158	529
08:15 AM	14	37	34	0	85	14	147	48	0	209	42	10	13	0	65	17	145	4	0	166	525
Total Volume	47	170	165	0	382	33	562	194	0	789	212	38	84	0	334	97	595	27	0	719	2224
% App. Total	12.3	44.5	43.2	0		4.2	71.2	24.6	0		63.5	11.4	25.1	0		13.5	82.8	3.8	0		
PHF	.839	.720	.842	.000	.860	.589	.943	.898	.000	.944	.726	.792	.677	.000	.843	.735	.924	.675	.000	.903	.947



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Groups Printed- Heavy Vehicles

File Name : 154463 A
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

N/S: West Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

	West Street From North				Lowell Street (Route 129) From East				West Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	2	1	0	2	6	2	0	6	0	0	0	3	12	0	0	34
07:15 AM	1	0	1	0	0	6	1	0	3	1	0	0	2	12	1	0	28
07:30 AM	0	2	2	0	1	3	2	0	4	0	1	0	2	7	0	0	24
07:45 AM	0	1	1	0	1	11	5	0	2	0	0	0	1	11	1	0	34
Total	1	5	5	0	4	26	10	0	15	1	1	0	8	42	2	0	120
08:00 AM	0	0	1	0	2	9	3	0	6	2	1	0	1	4	0	0	29
08:15 AM	1	0	3	0	0	7	3	0	6	0	0	0	1	9	0	0	30
08:30 AM	0	0	1	0	0	7	5	0	9	1	2	0	1	5	0	0	31
08:45 AM	1	0	2	0	1	7	6	0	9	0	0	0	2	6	0	0	34
Total	2	0	7	0	3	30	17	0	30	3	3	0	5	24	0	0	124
Grand Total	3	5	12	0	7	56	27	0	45	4	4	0	13	66	2	0	244
Apprch %	15	25	60	0	7.8	62.2	30	0	84.9	7.5	7.5	0	16	81.5	2.5	0	
Total %	1.2	2	4.9	0	2.9	23	11.1	0	18.4	1.6	1.6	0	5.3	27	0.8	0	

	West Street From North					Lowell Street (Route 129) From East					West Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	1	1	0	2	1	11	5	0	17	2	0	0	0	2	1	11	1	0	13	34
08:00 AM	0	0	1	0	1	2	9	3	0	14	6	2	1	0	9	1	4	0	0	5	29
08:15 AM	1	0	3	0	4	0	7	3	0	10	6	0	0	0	6	1	9	0	0	10	30
08:30 AM	0	0	1	0	1	0	7	5	0	12	9	1	2	0	12	1	5	0	0	6	31
Total Volume	1	1	6	0	8	3	34	16	0	53	23	3	3	0	29	4	29	1	0	34	124
% App. Total	12.5	12.5	75	0		5.7	64.2	30.2	0		79.3	10.3	10.3	0		11.8	85.3	2.9	0		
PHF	.250	.250	.500	.000	.500	.375	.773	.800	.000	.779	.639	.375	.375	.000	.604	1.00	.659	.250	.000	.654	.912



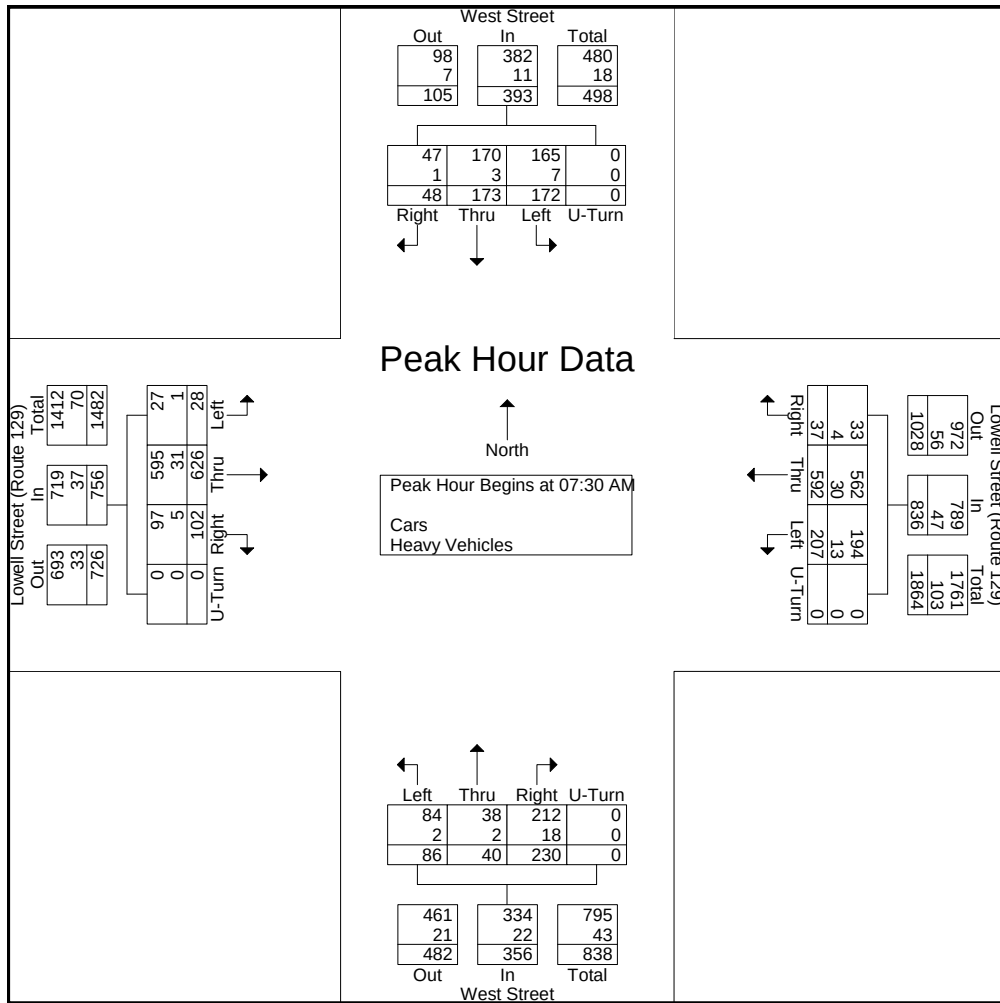
PRECISION
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INDUSTRIES, LLC

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N/S: West Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 A
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	West Street From North					Lowell Street (Route 129) From East					West Street From South					Lowell Street (Route 129) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	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	9	42	51	0	102	6	144	47	0	197	77	5	22	0	104	32	168	8	0	208	611
07:45 AM	10	60	43	0	113	8	136	59	0	203	49	12	31	0	92	34	164	11	0	209	617
08:00 AM	14	34	41	0	89	9	158	50	0	217	56	13	20	0	89	18	140	5	0	163	558
08:15 AM	15	37	37	0	89	14	154	51	0	219	48	10	13	0	71	18	154	4	0	176	555
Total Volume	48	173	172	0	393	37	592	207	0	836	230	40	86	0	356	102	626	28	0	756	2341
% App. Total	12.2	44	43.8	0		4.4	70.8	24.8	0		64.6	11.2	24.2	0		13.5	82.8	3.7	0		
PHF	.800	.721	.843	.000	.869	.661	.937	.877	.000	.954	.747	.769	.694	.000	.856	.750	.932	.636	.000	.904	.949
Cars	47	170	165	0	382	33	562	194	0	789	212	38	84	0	334	97	595	27	0	719	2224
% Cars	97.9	98.3	95.9	0	97.2	89.2	94.9	93.7	0	94.4	92.2	95.0	97.7	0	93.8	95.1	95.0	96.4	0	95.1	95.0
Heavy Vehicles	1	3	7	0	11	4	30	13	0	47	18	2	2	0	22	5	31	1	0	37	117
% Heavy Vehicles	2.1	1.7	4.1	0	2.8	10.8	5.1	6.3	0	5.6	7.8	5.0	2.3	0	6.2	4.9	5.0	3.6	0	4.9	5.0





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N/S: Woburn Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 B
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Woburn Street From North				Lowell Street (Route 129) From East				Woburn Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	10	83	33	0	9	105	24	0	15	20	13	0	30	127	1	0	470
07:15 AM	10	103	29	0	12	122	17	0	13	10	12	0	39	162	13	0	542
07:30 AM	16	100	36	0	4	109	32	0	14	15	18	0	51	162	5	0	562
07:45 AM	12	99	23	0	5	130	30	0	19	21	6	0	61	149	7	0	562
Total	48	385	121	0	30	466	103	0	61	66	49	0	181	600	26	0	2136
08:00 AM	10	112	23	0	10	119	32	0	21	26	16	0	42	125	5	0	541
08:15 AM	9	79	26	0	5	106	33	0	13	9	18	0	50	134	9	0	491
08:30 AM	13	86	36	0	8	98	39	0	15	21	8	0	26	134	8	0	492
08:45 AM	16	75	25	0	11	110	27	0	6	14	17	0	50	136	7	0	494
Total	48	352	110	0	34	433	131	0	55	70	59	0	168	529	29	0	2018
Grand Total	96	737	231	0	64	899	234	0	116	136	108	0	349	1129	55	0	4154
Apprch %	9	69.3	21.7	0	5.3	75.1	19.5	0	32.2	37.8	30	0	22.8	73.6	3.6	0	
Total %	2.3	17.7	5.6	0	1.5	21.6	5.6	0	2.8	3.3	2.6	0	8.4	27.2	1.3	0	
Cars	94	725	230	0	62	857	224	0	106	129	100	0	337	1070	53	0	3987
% Cars	97.9	98.4	99.6	0	96.9	95.3	95.7	0	91.4	94.9	92.6	0	96.6	94.8	96.4	0	96
Heavy Vehicles	2	12	1	0	2	42	10	0	10	7	8	0	12	59	2	0	167
% Heavy Vehicles	2.1	1.6	0.4	0	3.1	4.7	4.3	0	8.6	5.1	7.4	0	3.4	5.2	3.6	0	4

	Woburn Street From North					Lowell Street (Route 129) From East					Woburn Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	10	103	29	0	142	12	122	17	0	151	13	10	12	0	35	39	162	13	0	214	542
07:30 AM	16	100	36	0	152	4	109	32	0	145	14	15	18	0	47	51	162	5	0	218	562
07:45 AM	12	99	23	0	134	5	130	30	0	165	19	21	6	0	46	61	149	7	0	217	562
08:00 AM	10	112	23	0	145	10	119	32	0	161	21	26	16	0	63	42	125	5	0	172	541
Total Volume	48	414	111	0	573	31	480	111	0	622	67	72	52	0	191	193	598	30	0	821	2207
% App. Total	8.4	72.3	19.4	0		5	77.2	17.8	0		35.1	37.7	27.2	0		23.5	72.8	3.7	0		
PHF	.750	.924	.771	.000	.942	.646	.923	.867	.000	.942	.798	.692	.722	.000	.758	.791	.923	.577	.000	.942	.982
Cars	46	407	110	0	563	31	459	107	0	597	63	70	50	0	183	186	567	29	0	782	2125
% Cars	95.8	98.3	99.1	0	98.3	100	95.6	96.4	0	96.0	94.0	97.2	96.2	0	95.8	96.4	94.8	96.7	0	95.2	96.3
Heavy Vehicles	2	7	1	0	10	0	21	4	0	25	4	2	2	0	8	7	31	1	0	39	82
% Heavy Vehicles	4.2	1.7	0.9	0	1.7	0	4.4	3.6	0	4.0	6.0	2.8	3.8	0	4.2	3.6	5.2	3.3	0	4.8	3.7



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Groups Printed- Cars

N/S: Woburn Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 B
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North				Lowell Street (Route 129) From East				Woburn Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	10	83	33	0	9	101	24	0	12	20	12	0	28	117	1	0	450
07:15 AM	10	100	29	0	12	115	17	0	12	10	12	0	39	150	13	0	519
07:30 AM	15	99	35	0	4	107	32	0	14	15	17	0	49	153	4	0	544
07:45 AM	11	98	23	0	5	121	28	0	17	20	6	0	60	142	7	0	538
Total	46	380	120	0	30	444	101	0	55	65	47	0	176	562	25	0	2051
08:00 AM	10	110	23	0	10	116	30	0	20	25	15	0	38	122	5	0	524
08:15 AM	9	78	26	0	5	101	30	0	12	9	16	0	49	125	9	0	469
08:30 AM	13	83	36	0	7	91	38	0	13	16	8	0	26	130	8	0	469
08:45 AM	16	74	25	0	10	105	25	0	6	14	14	0	48	131	6	0	474
Total	48	345	110	0	32	413	123	0	51	64	53	0	161	508	28	0	1936
Grand Total	94	725	230	0	62	857	224	0	106	129	100	0	337	1070	53	0	3987
Apprch %	9	69.1	21.9	0	5.4	75	19.6	0	31.6	38.5	29.9	0	23.1	73.3	3.6	0	
Total %	2.4	18.2	5.8	0	1.6	21.5	5.6	0	2.7	3.2	2.5	0	8.5	26.8	1.3	0	

	Woburn Street From North					Lowell Street (Route 129) From East					Woburn Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	10	100	29	0	139	12	115	17	0	144	12	10	12	0	34	39	150	13	0	202	519
07:30 AM	15	99	35	0	149	4	107	32	0	143	14	15	17	0	46	49	153	4	0	206	544
07:45 AM	11	98	23	0	132	5	121	28	0	154	17	20	6	0	43	60	142	7	0	209	538
08:00 AM	10	110	23	0	143	10	116	30	0	156	20	25	15	0	60	38	122	5	0	165	524
Total Volume	46	407	110	0	563	31	459	107	0	597	63	70	50	0	183	186	567	29	0	782	2125
% App. Total	8.2	72.3	19.5	0		5.2	76.9	17.9	0		34.4	38.3	27.3	0		23.8	72.5	3.7	0		
PHF	.767	.925	.786	.000	.945	.646	.948	.836	.000	.957	.788	.700	.735	.000	.763	.775	.926	.558	.000	.935	.977



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File Name : 154463 B
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

N/S: Woburn Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

Groups Printed- Heavy Vehicles

	Woburn Street From North				Lowell Street (Route 129) From East				Woburn Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	0	0	0	0	4	0	0	3	0	1	0	2	10	0	0	20
07:15 AM	0	3	0	0	0	7	0	0	1	0	0	0	0	12	0	0	23
07:30 AM	1	1	1	0	0	2	0	0	0	0	1	0	2	9	1	0	18
07:45 AM	1	1	0	0	0	9	2	0	2	1	0	0	1	7	0	0	24
Total	2	5	1	0	0	22	2	0	6	1	2	0	5	38	1	0	85
08:00 AM	0	2	0	0	0	3	2	0	1	1	1	0	4	3	0	0	17
08:15 AM	0	1	0	0	0	5	3	0	1	0	2	0	1	9	0	0	22
08:30 AM	0	3	0	0	1	7	1	0	2	5	0	0	0	4	0	0	23
08:45 AM	0	1	0	0	1	5	2	0	0	0	3	0	2	5	1	0	20
Total	0	7	0	0	2	20	8	0	4	6	6	0	7	21	1	0	82
Grand Total	2	12	1	0	2	42	10	0	10	7	8	0	12	59	2	0	167
Apprch %	13.3	80	6.7	0	3.7	77.8	18.5	0	40	28	32	0	16.4	80.8	2.7	0	
Total %	1.2	7.2	0.6	0	1.2	25.1	6	0	6	4.2	4.8	0	7.2	35.3	1.2	0	

	Woburn Street From North					Lowell Street (Route 129) From East					Woburn Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	1	1	0	0	2	0	9	2	0	11	2	1	0	0	3	1	7	0	0	8	24
08:00 AM	0	2	0	0	2	0	3	2	0	5	1	1	1	0	3	4	3	0	0	7	17
08:15 AM	0	1	0	0	1	0	5	3	0	8	1	0	2	0	3	1	9	0	0	10	22
08:30 AM	0	3	0	0	3	1	7	1	0	9	2	5	0	0	7	0	4	0	0	4	23
Total Volume	1	7	0	0	8	1	24	8	0	33	6	7	3	0	16	6	23	0	0	29	86
% App. Total	12.5	87.5	0	0		3	72.7	24.2	0		37.5	43.8	18.8	0		20.7	79.3	0	0		
PHF	.250	.583	.000	.000	.667	.250	.667	.667	.000	.750	.750	.350	.375	.000	.571	.375	.639	.000	.000	.725	.896



PRECISION
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Groups Printed- Peds and Bikes

N/S: Woburn Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 B
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Start Time	Woburn Street From North					Lowell Street (Route 129) From East					Woburn Street From South					Lowell Street (Route 129) From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	3
07:15 AM	0	0	0	0	0	0	1	0	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	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	0	0
Total	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	4
08:00 AM	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	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	0	0
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	2	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	5
Apprch %	0	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0	0	0	100	
Total %	0	40	0	0	0	0	20	0	0	0	0	20	0	0	0	0	0	0	0	20	

	Woburn Street From North						Lowell Street (Route 129) From East						Woburn Street From South						Lowell Street (Route 129) From West							
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	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	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	1	3
07:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	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	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	0	0	0	0	0	0	0
Total Volume	0	1	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	1	1	1	4
% App. Total	0	100	0	0	0		0	100	0	0	0		0	100	0	0	0		0	0	0	0	100			
PHF	.000	.250	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250	.000	.000	.000	.000	.250	.250		.333



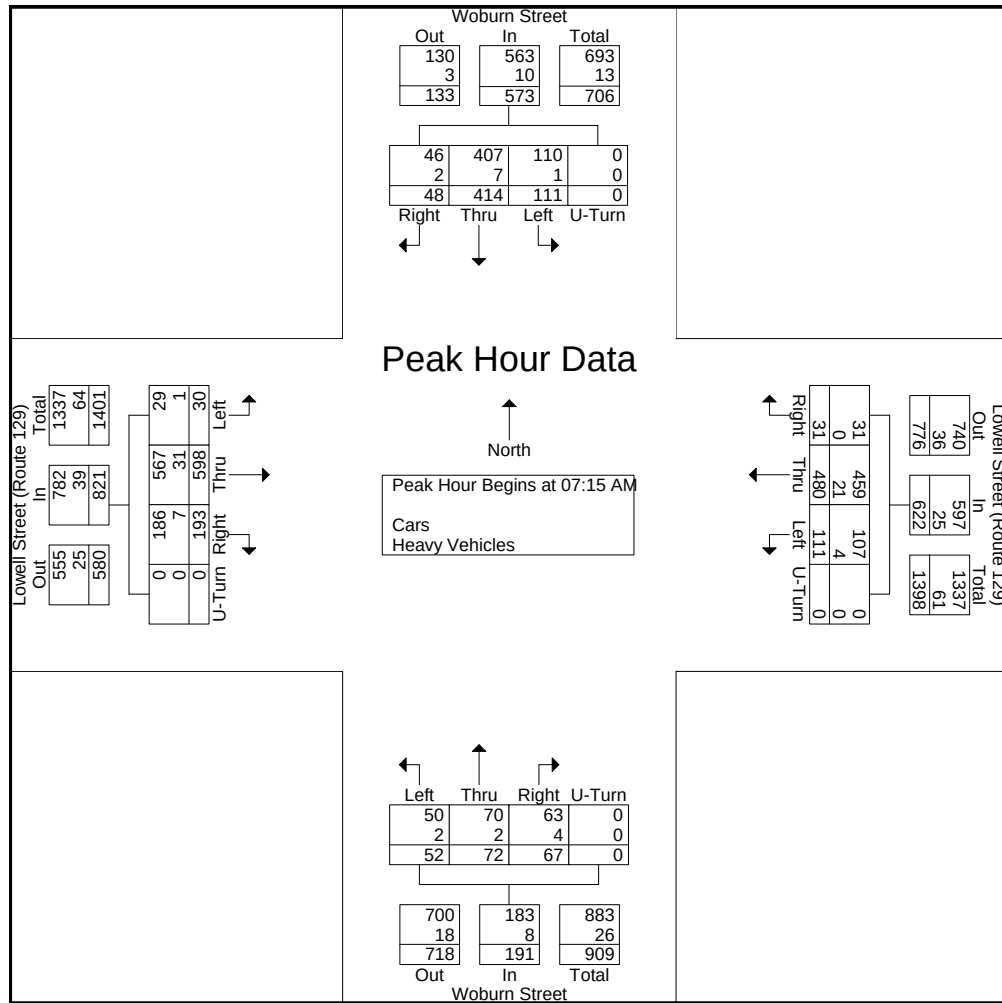
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N/S: Woburn Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 B
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North					Lowell Street (Route 129) From East					Woburn Street From South					Lowell Street (Route 129) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	10	103	29	0	142	12	122	17	0	151	13	10	12	0	35	39	162	13	0	214	542
07:30 AM	16	100	36	0	152	4	109	32	0	145	14	15	18	0	47	51	162	5	0	218	562
07:45 AM	12	99	23	0	134	5	130	30	0	165	19	21	6	0	46	61	149	7	0	217	562
08:00 AM	10	112	23	0	145	10	119	32	0	161	21	26	16	0	63	42	125	5	0	172	541
Total Volume	48	414	111	0	573	31	480	111	0	622	67	72	52	0	191	193	598	30	0	821	2207
% App. Total	8.4	72.3	19.4	0		5	77.2	17.8	0		35.1	37.7	27.2	0		23.5	72.8	3.7	0		
PHF	.750	.924	.771	.000	.942	.646	.923	.867	.000	.942	.798	.692	.722	.000	.758	.791	.923	.577	.000	.942	.982
Cars	46	407	110	0	563	31	459	107	0	597	63	70	50	0	183	186	567	29	0	782	2125
% Cars	95.8	98.3	99.1	0	98.3	100	95.6	96.4	0	96.0	94.0	97.2	96.2	0	95.8	96.4	94.8	96.7	0	95.2	96.3
Heavy Vehicles	2	7	1	0	10	0	21	4	0	25	4	2	2	0	8	7	31	1	0	39	82
% Heavy Vehicles	4.2	1.7	0.9	0	1.7	0	4.4	3.6	0	4.0	6.0	2.8	3.8	0	4.2	3.6	5.2	3.3	0	4.8	3.7





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N/S: Woburn Street
E/W: Ox Bow Drive/ Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 C
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Woburn Street From North				Ox Bow Drive From East				Woburn Street From South				Eames Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	59	97	0	0	1	0	0	0	0	23	20	0	32	1	14	0	247
07:15 AM	58	107	1	0	3	4	0	0	0	17	24	0	46	0	17	0	277
07:30 AM	64	123	1	0	1	1	2	0	0	20	23	0	44	0	26	0	305
07:45 AM	74	139	2	0	2	1	0	0	0	13	29	0	55	0	33	0	348
Total	255	466	4	0	7	6	2	0	0	73	96	0	177	1	90	0	1177
08:00 AM	71	124	0	0	1	0	0	0	0	21	33	0	55	0	22	0	327
08:15 AM	55	124	0	0	0	0	0	0	0	28	26	0	56	0	15	0	304
08:30 AM	53	112	1	0	2	0	1	0	0	19	25	0	36	0	17	0	266
08:45 AM	40	119	1	0	1	1	1	0	0	23	23	0	45	0	11	0	265
Total	219	479	2	0	4	1	2	0	0	91	107	0	192	0	65	0	1162
Grand Total	474	945	6	0	11	7	4	0	0	164	203	0	369	1	155	0	2339
Apprch %	33.3	66.3	0.4	0	50	31.8	18.2	0	0	44.7	55.3	0	70.3	0.2	29.5	0	
Total %	20.3	40.4	0.3	0	0.5	0.3	0.2	0	0	7	8.7	0	15.8	0	6.6	0	
Cars	459	929	4	0	10	6	4	0	0	140	176	0	355	1	150	0	2234
% Cars	96.8	98.3	66.7	0	90.9	85.7	100	0	0	85.4	86.7	0	96.2	100	96.8	0	95.5
Heavy Vehicles	15	16	2	0	1	1	0	0	0	24	27	0	14	0	5	0	105
% Heavy Vehicles	3.2	1.7	33.3	0	9.1	14.3	0	0	0	14.6	13.3	0	3.8	0	3.2	0	4.5

	Woburn Street From North					Ox Bow Drive From East					Woburn Street From South					Eames Street From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	64	123	1	0	188	1	1	2	0	4	0	20	23	0	43	44	0	26	0	70	305
07:45 AM	74	139	2	0	215	2	1	0	0	3	0	13	29	0	42	55	0	33	0	88	348
08:00 AM	71	124	0	0	195	1	0	0	0	1	0	21	33	0	54	55	0	22	0	77	327
08:15 AM	55	124	0	0	179	0	0	0	0	0	0	28	26	0	54	56	0	15	0	71	304
Total Volume	264	510	3	0	777	4	2	2	0	8	0	82	111	0	193	210	0	96	0	306	1284
% App. Total	34	65.6	0.4	0		50	25	25	0		0	42.5	57.5	0		68.6	0	31.4	0		
PHF	.892	.917	.375	.000	.903	.500	.500	.250	.000	.500	.000	.732	.841	.000	.894	.938	.000	.727	.000	.869	.922
Cars	256	503	2	0	761	3	2	2	0	7	0	69	100	0	169	204	0	95	0	299	1236
% Cars	97.0	98.6	66.7	0	97.9	75.0	100	100	0	87.5	0	84.1	90.1	0	87.6	97.1	0	99.0	0	97.7	96.3
Heavy Vehicles	8	7	1	0	16	1	0	0	0	1	0	13	11	0	24	6	0	1	0	7	48
% Heavy Vehicles	3.0	1.4	33.3	0	2.1	25.0	0	0	0	12.5	0	15.9	9.9	0	12.4	2.9	0	1.0	0	2.3	3.7



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Groups Printed- Cars

N/S: Woburn Street
E/W: Ox Bow Drive/ Eames Street
City, State: Wilmington, MA
Client: BaySide/ K. Cram

File Name : 154463 C
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North				Ox Bow Drive From East				Woburn Street From South				Eames Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	57	96	0	0	1	0	0	0	0	19	17	0	30	1	12	0	233
07:15 AM	57	104	0	0	3	3	0	0	0	14	19	0	44	0	17	0	261
07:30 AM	64	120	1	0	1	1	2	0	0	17	20	0	42	0	26	0	294
07:45 AM	73	138	1	0	1	1	0	0	0	10	29	0	53	0	33	0	339
Total	251	458	2	0	6	5	2	0	0	60	85	0	169	1	88	0	1127
08:00 AM	65	123	0	0	1	0	0	0	0	18	30	0	54	0	21	0	312
08:15 AM	54	122	0	0	0	0	0	0	0	24	21	0	55	0	15	0	291
08:30 AM	51	108	1	0	2	0	1	0	0	16	21	0	34	0	15	0	249
08:45 AM	38	118	1	0	1	1	1	0	0	22	19	0	43	0	11	0	255
Total	208	471	2	0	4	1	2	0	0	80	91	0	186	0	62	0	1107
Grand Total	459	929	4	0	10	6	4	0	0	140	176	0	355	1	150	0	2234
Apprch %	33	66.7	0.3	0	50	30	20	0	0	44.3	55.7	0	70.2	0.2	29.6	0	
Total %	20.5	41.6	0.2	0	0.4	0.3	0.2	0	0	6.3	7.9	0	15.9	0	6.7	0	

	Woburn Street From North					Ox Bow Drive From East					Woburn Street From South					Eames Street From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	64	120	1	0	185	1	1	2	0	4	0	17	20	0	37	42	0	26	0	68	294
07:45 AM	73	138	1	0	212	1	1	0	0	2	0	10	29	0	39	53	0	33	0	86	339
08:00 AM	65	123	0	0	188	1	0	0	0	1	0	18	30	0	48	54	0	21	0	75	312
08:15 AM	54	122	0	0	176	0	0	0	0	0	0	24	21	0	45	55	0	15	0	70	291
Total Volume	256	503	2	0	761	3	2	2	0	7	0	69	100	0	169	204	0	95	0	299	1236
% App. Total	33.6	66.1	0.3	0		42.9	28.6	28.6	0		0	40.8	59.2	0		68.2	0	31.8	0		
PHF	.877	.911	.500	.000	.897	.750	.500	.250	.000	.438	.000	.719	.833	.000	.880	.927	.000	.720	.000	.869	.912



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N/S: Woburn Street
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City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 C
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Woburn Street From North				Ox Bow Drive From East				Woburn Street From South				Eames Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	2	1	0	0	0	0	0	0	0	4	3	0	2	0	2	0	14
07:15 AM	1	3	1	0	0	1	0	0	0	3	5	0	2	0	0	0	16
07:30 AM	0	3	0	0	0	0	0	0	0	3	3	0	2	0	0	0	11
07:45 AM	1	1	1	0	1	0	0	0	0	3	0	0	2	0	0	0	9
Total	4	8	2	0	1	1	0	0	0	13	11	0	8	0	2	0	50
08:00 AM	6	1	0	0	0	0	0	0	0	3	3	0	1	0	1	0	15
08:15 AM	1	2	0	0	0	0	0	0	0	4	5	0	1	0	0	0	13
08:30 AM	2	4	0	0	0	0	0	0	0	3	4	0	2	0	2	0	17
08:45 AM	2	1	0	0	0	0	0	0	0	1	4	0	2	0	0	0	10
Total	11	8	0	0	0	0	0	0	0	11	16	0	6	0	3	0	55
Grand Total	15	16	2	0	1	1	0	0	0	24	27	0	14	0	5	0	105
Apprch %	45.5	48.5	6.1	0	50	50	0	0	0	47.1	52.9	0	73.7	0	26.3	0	
Total %	14.3	15.2	1.9	0	1	1	0	0	0	22.9	25.7	0	13.3	0	4.8	0	

	Woburn Street From North					Ox Bow Drive From East					Woburn Street From South					Eames Street From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	6	1	0	0	7	0	0	0	0	0	0	3	3	0	6	1	0	1	0	2	15
08:15 AM	1	2	0	0	3	0	0	0	0	0	0	4	5	0	9	1	0	0	0	1	13
08:30 AM	2	4	0	0	6	0	0	0	0	0	0	3	4	0	7	2	0	2	0	4	17
08:45 AM	2	1	0	0	3	0	0	0	0	0	0	1	4	0	5	2	0	0	0	2	10
Total Volume	11	8	0	0	19	0	0	0	0	0	0	11	16	0	27	6	0	3	0	9	55
% App. Total	57.9	42.1	0	0		0	0	0	0		0	40.7	59.3	0		66.7	0	33.3	0		
PHF	.458	.500	.000	.000	.679	.000	.000	.000	.000	.000	.000	.688	.800	.000	.750	.750	.000	.375	.000	.563	.809



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Groups Printed- Peds and Bikes

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City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 C
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Start Time	Woburn Street From North					Ox Bow Drive From East					Woburn Street From South					Eames Street From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	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	0	0	0	0	0	0	0	0	1	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
08:45 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	2	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	5
Grand Total	2	1	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	0	0	7
Apprch %	66.7	33.3	0	0	0	0	0	0	0	100	0	100	0	0	0	50	0	50	0	0	
Total %	28.6	14.3	0	0	0	0	0	0	0	14.3	0	14.3	0	0	0	14.3	0	14.3	0	0	

	Woburn Street From North						Ox Bow Drive From East						Woburn Street From South						Eames Street From West							
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	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 08:00 AM																										
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
08:15 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	2	
08:45 AM	1	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	
Total Volume	2	0	0	0	0	2	0	0	0	0	1	1	0	1	0	0	0	1	1	0	0	0	0	1	5	
% App. Total	100	0	0	0	0		0	0	0	0	100		0	100	0	0	0		100	0	0	0	0			
PHF	.500	.000	.000	.000	.000	.500	.000	.000	.000	.000	.250	.250	.000	.250	.000	.000	.000	.250	.250	.000	.000	.000	.000	.250	.625	



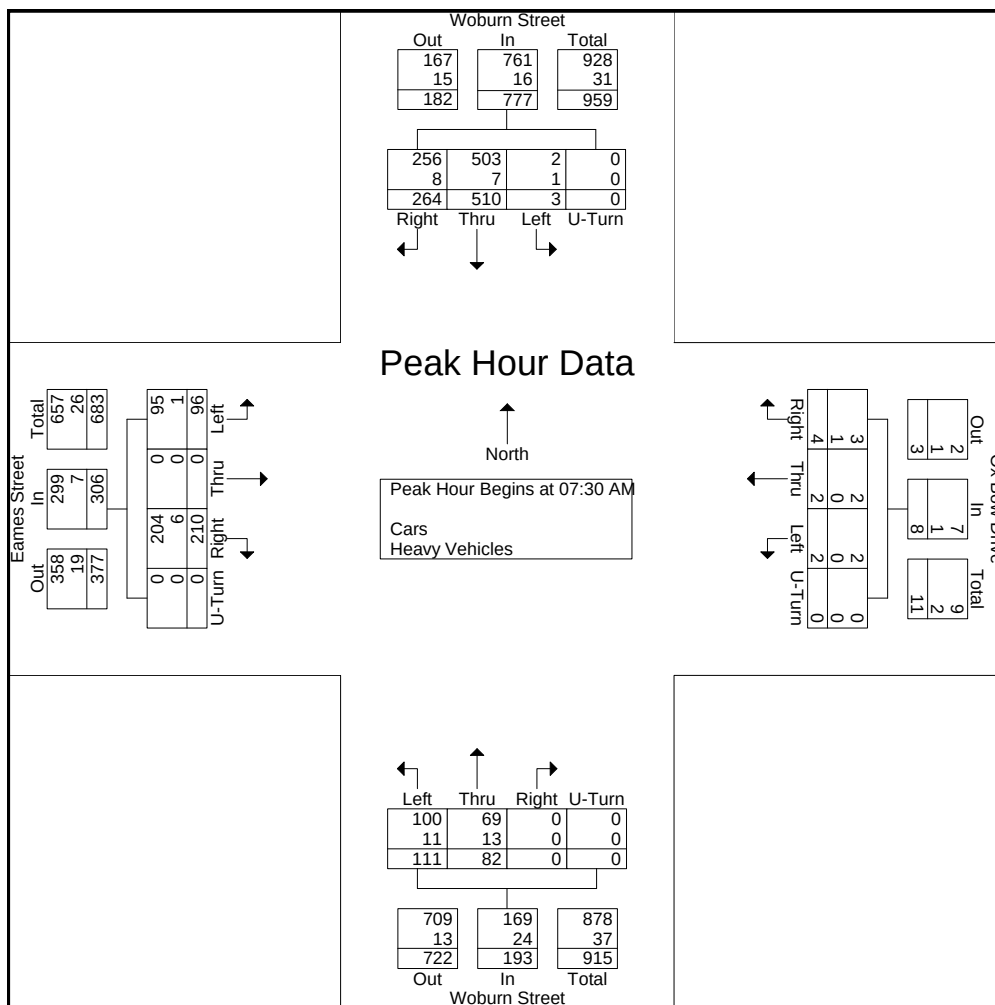
PRECISION
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N/S: Woburn Street
E/W: Ox Bow Drive/ Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 C
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North					Ox Bow Drive From East					Woburn Street From South					Eames Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	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	64	123	1	0	188	1	1	2	0	4	0	20	23	0	43	44	0	26	0	70	305
07:45 AM	74	139	2	0	215	2	1	0	0	3	0	13	29	0	42	55	0	33	0	88	348
08:00 AM	71	124	0	0	195	1	0	0	0	1	0	21	33	0	54	55	0	22	0	77	327
08:15 AM	55	124	0	0	179	0	0	0	0	0	0	28	26	0	54	56	0	15	0	71	304
Total Volume	264	510	3	0	777	4	2	2	0	8	0	82	111	0	193	210	0	96	0	306	1284
% App. Total	34	65.6	0.4	0		50	25	25	0		0	42.5	57.5	0		68.6	0	31.4	0		
PHF	.892	.917	.375	.000	.903	.500	.500	.250	.000	.500	.000	.732	.841	.000	.894	.938	.000	.727	.000	.869	.922
Cars	256	503	2	0	761	3	2	2	0	7	0	69	100	0	169	204	0	95	0	299	1236
% Cars	97.0	98.6	66.7	0	97.9	75.0	100	100	0	87.5	0	84.1	90.1	0	87.6	97.1	0	99.0	0	97.7	96.3
Heavy Vehicles	8	7	1	0	16	1	0	0	0	1	0	13	11	0	24	6	0	1	0	7	48
% Heavy Vehicles	3.0	1.4	33.3	0	2.1	25.0	0	0	0	12.5	0	15.9	9.9	0	12.4	2.9	0	1.0	0	2.3	3.7





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N/S: Woburn Street
E/W: Industrial Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 D
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Woburn Street From North				Industrial Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	83	13	0	12	0	17	0	9	38	0	0	0	0	0	0	172
07:15 AM	0	90	19	0	10	0	15	0	13	44	0	0	0	0	0	0	191
07:30 AM	0	89	23	0	16	0	21	0	17	50	0	0	0	0	0	0	216
07:45 AM	0	113	14	0	13	0	40	0	5	39	0	0	0	0	0	0	224
Total	0	375	69	0	51	0	93	0	44	171	0	0	0	0	0	0	803
08:00 AM	0	99	14	0	19	0	27	0	21	39	0	0	0	0	0	0	219
08:15 AM	0	108	10	0	16	0	18	0	12	61	0	0	0	0	0	0	225
08:30 AM	0	78	11	0	7	0	26	0	10	44	0	0	0	0	0	0	176
08:45 AM	0	86	16	0	20	0	23	0	11	60	0	0	0	0	0	0	216
Total	0	371	51	0	62	0	94	0	54	204	0	0	0	0	0	0	836
Grand Total	0	746	120	0	113	0	187	0	98	375	0	0	0	0	0	0	1639
Apprch %	0	86.1	13.9	0	37.7	0	62.3	0	20.7	79.3	0	0	0	0	0	0	
Total %	0	45.5	7.3	0	6.9	0	11.4	0	6	22.9	0	0	0	0	0	0	
Cars	0	722	110	0	93	0	168	0	87	352	0	0	0	0	0	0	1532
% Cars	0	96.8	91.7	0	82.3	0	89.8	0	88.8	93.9	0	0	0	0	0	0	93.5
Heavy Vehicles	0	24	10	0	20	0	19	0	11	23	0	0	0	0	0	0	107
% Heavy Vehicles	0	3.2	8.3	0	17.7	0	10.2	0	11.2	6.1	0	0	0	0	0	0	6.5

	Woburn Street From North					Industrial Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	89	23	0	112	16	0	21	0	37	17	50	0	0	67	0	0	0	0	0	216
07:45 AM	0	113	14	0	127	13	0	40	0	53	5	39	0	0	44	0	0	0	0	0	224
08:00 AM	0	99	14	0	113	19	0	27	0	46	21	39	0	0	60	0	0	0	0	0	219
08:15 AM	0	108	10	0	118	16	0	18	0	34	12	61	0	0	73	0	0	0	0	0	225
Total Volume	0	409	61	0	470	64	0	106	0	170	55	189	0	0	244	0	0	0	0	0	884
% App. Total	0	87	13	0		37.6	0	62.4	0		22.5	77.5	0	0		0	0	0	0		
PHF	.000	.905	.663	.000	.925	.842	.000	.663	.000	.802	.655	.775	.000	.000	.836	.000	.000	.000	.000	.000	.982
Cars	0	398	59	0	457	54	0	101	0	155	49	180	0	0	229	0	0	0	0	0	841
% Cars	0	97.3	96.7	0	97.2	84.4	0	95.3	0	91.2	89.1	95.2	0	0	93.9	0	0	0	0	0	95.1
Heavy Vehicles	0	11	2	0	13	10	0	5	0	15	6	9	0	0	15	0	0	0	0	0	43
% Heavy Vehicles	0	2.7	3.3	0	2.8	15.6	0	4.7	0	8.8	10.9	4.8	0	0	6.1	0	0	0	0	0	4.9



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Groups Printed- Cars

N/S: Woburn Street
E/W: Industrial Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 D
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North				Industrial Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	82	11	0	8	0	13	0	9	35	0	0	0	0	0	0	158
07:15 AM	0	84	15	0	9	0	11	0	13	40	0	0	0	0	0	0	172
07:30 AM	0	85	22	0	14	0	20	0	15	47	0	0	0	0	0	0	203
07:45 AM	0	110	14	0	11	0	38	0	5	38	0	0	0	0	0	0	216
Total	0	361	62	0	42	0	82	0	42	160	0	0	0	0	0	0	749
08:00 AM	0	98	13	0	15	0	25	0	18	37	0	0	0	0	0	0	206
08:15 AM	0	105	10	0	14	0	18	0	11	58	0	0	0	0	0	0	216
08:30 AM	0	75	9	0	4	0	23	0	7	40	0	0	0	0	0	0	158
08:45 AM	0	83	16	0	18	0	20	0	9	57	0	0	0	0	0	0	203
Total	0	361	48	0	51	0	86	0	45	192	0	0	0	0	0	0	783
Grand Total	0	722	110	0	93	0	168	0	87	352	0	0	0	0	0	0	1532
Apprch %	0	86.8	13.2	0	35.6	0	64.4	0	19.8	80.2	0	0	0	0	0	0	
Total %	0	47.1	7.2	0	6.1	0	11	0	5.7	23	0	0	0	0	0	0	

	Woburn Street From North					Industrial Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	85	22	0	107	14	0	20	0	34	15	47	0	0	62	0	0	0	0	0	203
07:45 AM	0	110	14	0	124	11	0	38	0	49	5	38	0	0	43	0	0	0	0	0	216
08:00 AM	0	98	13	0	111	15	0	25	0	40	18	37	0	0	55	0	0	0	0	0	206
08:15 AM	0	105	10	0	115	14	0	18	0	32	11	58	0	0	69	0	0	0	0	0	216
Total Volume	0	398	59	0	457	54	0	101	0	155	49	180	0	0	229	0	0	0	0	0	841
% App. Total	0	87.1	12.9	0		34.8	0	65.2	0		21.4	78.6	0	0		0	0	0	0		
PHF	.000	.905	.670	.000	.921	.900	.000	.664	.000	.791	.681	.776	.000	.000	.830	.000	.000	.000	.000	.000	.973



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Groups Printed- Heavy Vehicles

N/S: Woburn Street
E/W: Industrial Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 D
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North				Industrial Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	1	2	0	4	0	4	0	0	3	0	0	0	0	0	0	14
07:15 AM	0	6	4	0	1	0	4	0	0	4	0	0	0	0	0	0	19
07:30 AM	0	4	1	0	2	0	1	0	2	3	0	0	0	0	0	0	13
07:45 AM	0	3	0	0	2	0	2	0	0	1	0	0	0	0	0	0	8
Total	0	14	7	0	9	0	11	0	2	11	0	0	0	0	0	0	54
08:00 AM	0	1	1	0	4	0	2	0	3	2	0	0	0	0	0	0	13
08:15 AM	0	3	0	0	2	0	0	0	1	3	0	0	0	0	0	0	9
08:30 AM	0	3	2	0	3	0	3	0	3	4	0	0	0	0	0	0	18
08:45 AM	0	3	0	0	2	0	3	0	2	3	0	0	0	0	0	0	13
Total	0	10	3	0	11	0	8	0	9	12	0	0	0	0	0	0	53
Grand Total	0	24	10	0	20	0	19	0	11	23	0	0	0	0	0	0	107
Apprch %	0	70.6	29.4	0	51.3	0	48.7	0	32.4	67.6	0	0	0	0	0	0	
Total %	0	22.4	9.3	0	18.7	0	17.8	0	10.3	21.5	0	0	0	0	0	0	

	Woburn Street From North					Industrial Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	1	2	0	3	4	0	4	0	8	0	3	0	0	3	0	0	0	0	0	14
07:15 AM	0	6	4	0	10	1	0	4	0	5	0	4	0	0	4	0	0	0	0	0	19
07:30 AM	0	4	1	0	5	2	0	1	0	3	2	3	0	0	5	0	0	0	0	0	13
07:45 AM	0	3	0	0	3	2	0	2	0	4	0	1	0	0	1	0	0	0	0	0	8
Total Volume	0	14	7	0	21	9	0	11	0	20	2	11	0	0	13	0	0	0	0	0	54
% App. Total	0	66.7	33.3	0		45	0	55	0		15.4	84.6	0	0		0	0	0	0		
PHF	.000	.583	.438	.000	.525	.563	.000	.688	.000	.625	.250	.688	.000	.000	.650	.000	.000	.000	.000	.000	.711



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Groups Printed- Peds and Bikes

N/S: Woburn Street
E/W: Industrial Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 D
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Start Time	Woburn Street From North					Industrial Way From East					Woburn Street From South					Driveway From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
08:15 AM	0	0	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	1	0	0	0	0	0	0	1	0	2
08:45 AM	0	0	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	1	2	0	0	0	0	0	0	1	0	4
Grand Total	0	0	0	0	0	0	0	1	0	0	2	2	0	0	0	0	0	0	1	0	6
Apprch %	0	0	0	0	0	0	0	100	0	0	50	50	0	0	0	0	0	0	100	0	
Total %	0	0	0	0	0	0	0	16.7	0	0	33.3	33.3	0	0	0	0	0	0	16.7	0	

	Woburn Street From North						Industrial Way From East						Woburn Street From South						Driveway From West							
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	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	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	2	
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0	0	0	0	2	
08:15 AM	0	0	0	0	0	0	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	0	0	1	0	0	0	1	0	0	0	1	0	1	2	
Total Volume	0	0	0	0	0	0	0	0	1	0	0	1	2	2	0	0	0	4	0	0	0	1	0	1	6	
% App. Total	0	0	0	0	0		0	0	100	0	0		50	50	0	0	0		0	0	0	100	0			
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.500	.500	.000	.000	.000	.500	.000	.000	.000	.250	.000	.250	.750	



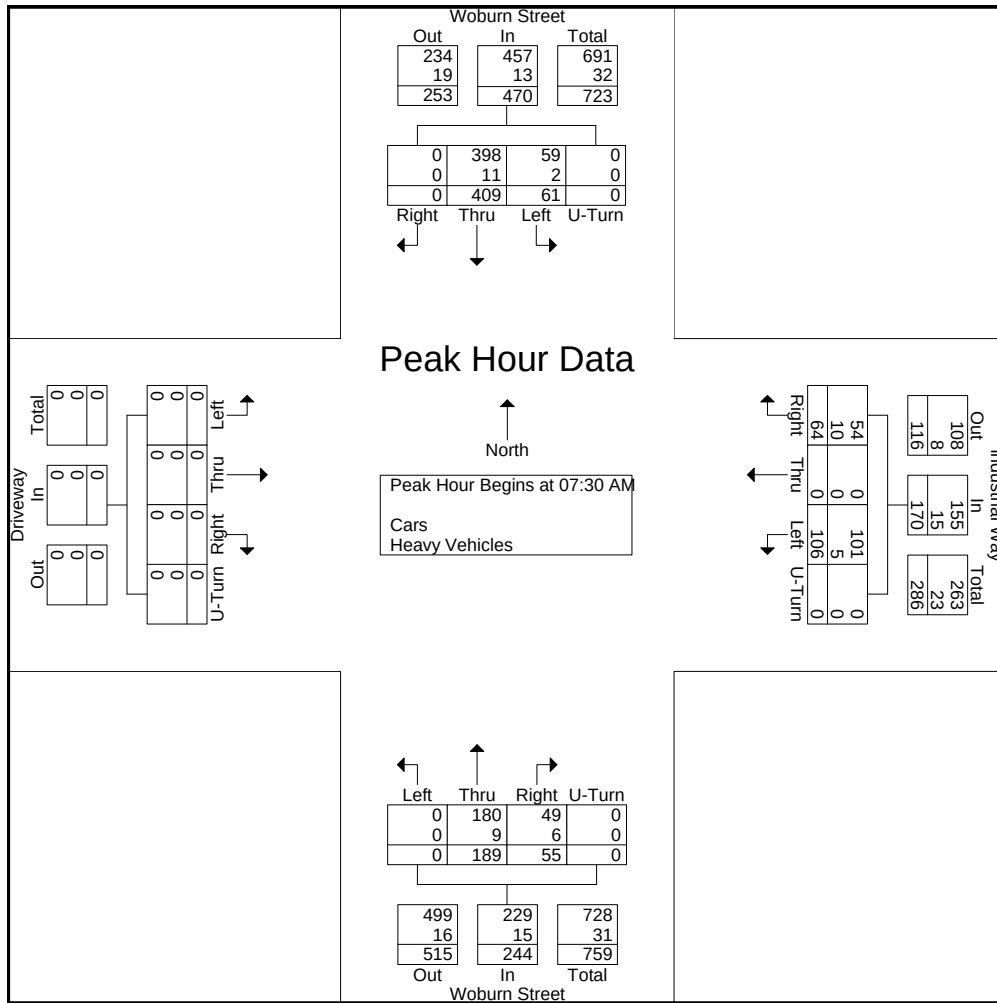
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N/S: Woburn Street
E/W: Industrial Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 D
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North					Industrial Way From East					Woburn Street From South					Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	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	89	23	0	112	16	0	21	0	37	17	50	0	0	67	0	0	0	0	0	216
07:45 AM	0	113	14	0	127	13	0	40	0	53	5	39	0	0	44	0	0	0	0	0	224
08:00 AM	0	99	14	0	113	19	0	27	0	46	21	39	0	0	60	0	0	0	0	0	219
08:15 AM	0	108	10	0	118	16	0	18	0	34	12	61	0	0	73	0	0	0	0	0	225
Total Volume	0	409	61	0	470	64	0	106	0	170	55	189	0	0	244	0	0	0	0	0	884
% App. Total	0	87	13	0		37.6	0	62.4	0		22.5	77.5	0	0		0	0	0	0		
PHF	.000	.905	.663	.000	.925	.842	.000	.663	.000	.802	.655	.775	.000	.000	.836	.000	.000	.000	.000	.000	.982
Cars	0	398	59	0	457	54	0	101	0	155	49	180	0	0	229	0	0	0	0	0	841
% Cars	0	97.3	96.7	0	97.2	84.4	0	95.3	0	91.2	89.1	95.2	0	0	93.9	0	0	0	0	0	95.1
Heavy Vehicles	0	11	2	0	13	10	0	5	0	15	6	9	0	0	15	0	0	0	0	0	43
% Heavy Vehicles	0	2.7	3.3	0	2.8	15.6	0	4.7	0	8.8	10.9	4.8	0	0	6.1	0	0	0	0	0	4.9





PRECISION
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N/S: Woburn Street
E/W: Presidential Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 E
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Woburn Street From North				Presidential Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	9	90	0	43	0	7	0	6	3	0	0	0	0	0	0	158
07:15 AM	0	5	101	0	58	0	11	0	5	2	0	0	0	0	0	0	182
07:30 AM	2	9	99	0	60	1	5	0	7	5	0	0	0	0	0	0	188
07:45 AM	4	10	134	0	45	1	14	0	3	1	0	0	0	1	0	0	213
Total	6	33	424	0	206	2	37	0	21	11	0	0	0	1	0	0	741
08:00 AM	2	10	117	0	59	2	10	1	1	4	0	0	0	0	1	0	207
08:15 AM	1	7	120	0	61	1	6	0	2	3	0	0	0	0	2	0	203
08:30 AM	0	6	95	0	53	0	9	0	4	2	0	0	0	0	1	0	170
08:45 AM	2	4	103	0	69	0	4	0	2	1	0	0	0	0	1	0	186
Total	5	27	435	0	242	3	29	1	9	10	0	0	0	0	5	0	766
Grand Total	11	60	859	0	448	5	66	1	30	21	0	0	0	1	5	0	1507
Apprch %	1.2	6.5	92.4	0	86.2	1	12.7	0.2	58.8	41.2	0	0	0	16.7	83.3	0	
Total %	0.7	4	57	0	29.7	0.3	4.4	0.1	2	1.4	0	0	0	0.1	0.3	0	
Cars	9	58	819	0	417	4	60	1	26	18	0	0	0	0	2	0	1414
% Cars	81.8	96.7	95.3	0	93.1	80	90.9	100	86.7	85.7	0	0	0	0	40	0	93.8
Heavy Vehicles	2	2	40	0	31	1	6	0	4	3	0	0	0	1	3	0	93
% Heavy Vehicles	18.2	3.3	4.7	0	6.9	20	9.1	0	13.3	14.3	0	0	0	100	60	0	6.2

	Woburn Street From North					Presidential Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	9	99	0	110	60	1	5	0	66	7	5	0	0	12	0	0	0	0	0	188
07:45 AM	4	10	134	0	148	45	1	14	0	60	3	1	0	0	4	0	1	0	0	1	213
08:00 AM	2	10	117	0	129	59	2	10	1	72	1	4	0	0	5	0	0	1	0	1	207
08:15 AM	1	7	120	0	128	61	1	6	0	68	2	3	0	0	5	0	0	2	0	2	203
Total Volume	9	36	470	0	515	225	5	35	1	266	13	13	0	0	26	0	1	3	0	4	811
% App. Total	1.7	7	91.3	0		84.6	1.9	13.2	0.4		50	50	0	0		0	25	75	0		
PHF	.563	.900	.877	.000	.870	.922	.625	.625	.250	.924	.464	.650	.000	.000	.542	.000	.250	.375	.000	.500	.952
Cars	8	35	455	0	498	211	4	33	1	249	12	11	0	0	23	0	0	2	0	2	772
% Cars	88.9	97.2	96.8	0	96.7	93.8	80.0	94.3	100	93.6	92.3	84.6	0	0	88.5	0	0	66.7	0	50.0	95.2
Heavy Vehicles	1	1	15	0	17	14	1	2	0	17	1	2	0	0	3	0	1	1	0	2	39
% Heavy Vehicles	11.1	2.8	3.2	0	3.3	6.2	20.0	5.7	0	6.4	7.7	15.4	0	0	11.5	0	100	33.3	0	50.0	4.8



PRECISION
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Groups Printed- Cars

N/S: Woburn Street
E/W: Presidential Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 E
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North				Presidential Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	8	87	0	40	0	6	0	5	2	0	0	0	0	0	0	148
07:15 AM	0	5	90	0	54	0	10	0	3	2	0	0	0	0	0	0	164
07:30 AM	2	9	94	0	56	1	4	0	6	3	0	0	0	0	0	0	175
07:45 AM	4	9	131	0	43	0	13	0	3	1	0	0	0	0	0	0	204
Total	6	31	402	0	193	1	33	0	17	8	0	0	0	0	0	0	691
08:00 AM	2	10	112	0	54	2	10	1	1	4	0	0	0	0	0	0	196
08:15 AM	0	7	118	0	58	1	6	0	2	3	0	0	0	0	2	0	197
08:30 AM	0	6	90	0	47	0	8	0	4	2	0	0	0	0	0	0	157
08:45 AM	1	4	97	0	65	0	3	0	2	1	0	0	0	0	0	0	173
Total	3	27	417	0	224	3	27	1	9	10	0	0	0	0	2	0	723
Grand Total	9	58	819	0	417	4	60	1	26	18	0	0	0	0	2	0	1414
Apprch %	1	6.5	92.4	0	86.5	0.8	12.4	0.2	59.1	40.9	0	0	0	0	100	0	
Total %	0.6	4.1	57.9	0	29.5	0.3	4.2	0.1	1.8	1.3	0	0	0	0	0.1	0	

	Woburn Street From North					Presidential Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	9	94	0	105	56	1	4	0	61	6	3	0	0	9	0	0	0	0	0	175
07:45 AM	4	9	131	0	144	43	0	13	0	56	3	1	0	0	4	0	0	0	0	0	204
08:00 AM	2	10	112	0	124	54	2	10	1	67	1	4	0	0	5	0	0	0	0	0	196
08:15 AM	0	7	118	0	125	58	1	6	0	65	2	3	0	0	5	0	0	2	0	2	197
Total Volume	8	35	455	0	498	211	4	33	1	249	12	11	0	0	23	0	0	2	0	2	772
% App. Total	1.6	7	91.4	0		84.7	1.6	13.3	0.4		52.2	47.8	0	0		0	0	100	0		
PHF	.500	.875	.868	.000	.865	.909	.500	.635	.250	.929	.500	.688	.000	.000	.639	.000	.000	.250	.000	.250	.946



PRECISION
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Groups Printed- Heavy Vehicles

N/S: Woburn Street
E/W: Presidential Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 E
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North				Presidential Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	1	3	0	3	0	1	0	1	1	0	0	0	0	0	0	10
07:15 AM	0	0	11	0	4	0	1	0	2	0	0	0	0	0	0	0	18
07:30 AM	0	0	5	0	4	0	1	0	1	2	0	0	0	0	0	0	13
07:45 AM	0	1	3	0	2	1	1	0	0	0	0	0	0	1	0	0	9
Total	0	2	22	0	13	1	4	0	4	3	0	0	0	1	0	0	50
08:00 AM	0	0	5	0	5	0	0	0	0	0	0	0	0	0	1	0	11
08:15 AM	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	6
08:30 AM	0	0	5	0	6	0	1	0	0	0	0	0	0	0	1	0	13
08:45 AM	1	0	6	0	4	0	1	0	0	0	0	0	0	0	1	0	13
Total	2	0	18	0	18	0	2	0	0	0	0	0	0	0	3	0	43
Grand Total	2	2	40	0	31	1	6	0	4	3	0	0	0	1	3	0	93
Apprch %	4.5	4.5	90.9	0	81.6	2.6	15.8	0	57.1	42.9	0	0	0	25	75	0	
Total %	2.2	2.2	43	0	33.3	1.1	6.5	0	4.3	3.2	0	0	0	1.1	3.2	0	

	Woburn Street From North					Presidential Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	11	0	11	4	0	1	0	5	2	0	0	0	2	0	0	0	0	0	18
07:30 AM	0	0	5	0	5	4	0	1	0	5	1	2	0	0	3	0	0	0	0	0	13
07:45 AM	0	1	3	0	4	2	1	1	0	4	0	0	0	0	0	0	1	0	0	1	9
08:00 AM	0	0	5	0	5	5	0	0	0	5	0	0	0	0	0	0	0	1	0	1	11
Total Volume	0	1	24	0	25	15	1	3	0	19	3	2	0	0	5	0	1	1	0	2	51
% App. Total	0	4	96	0		78.9	5.3	15.8	0		60	40	0	0		0	50	50	0		
PHF	.000	.250	.545	.000	.568	.750	.250	.750	.000	.950	.375	.250	.000	.000	.417	.000	.250	.250	.000	.500	.708



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Groups Printed- Peds and Bikes

N/S: Woburn Street
E/W: Presidential Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 E
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Start Time	Woburn Street From North					Presidential Way From East					Woburn Street From South					Driveway From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
Total	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
08:15 AM	0	0	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	1	0	0	0	0	0	0	1	0	2
08:45 AM	0	0	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	3	0	0	0	0	0	0	1	0	4
Grand Total	0	0	1	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	1	0	6
Apprch %	0	0	100	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	100	0	
Total %	0	0	16.7	0	0	0	0	0	0	0	0	66.7	0	0	0	0	0	0	16.7	0	

	Woburn Street From North						Presidential Way From East						Woburn Street From South						Driveway From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	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	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	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	0	0	1	0	0	0	1	0	0	0	1	0	1	2
Total Volume	0	0	1	0	0	1	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	1	0	1	6
% App. Total	0	0	100	0	0		0	0	0	0	0		0	100	0	0	0		0	0	0	100	0		
PHF	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.500	.000	.000	.000	.500	.000	.000	.000	.250	.000	.250	.750



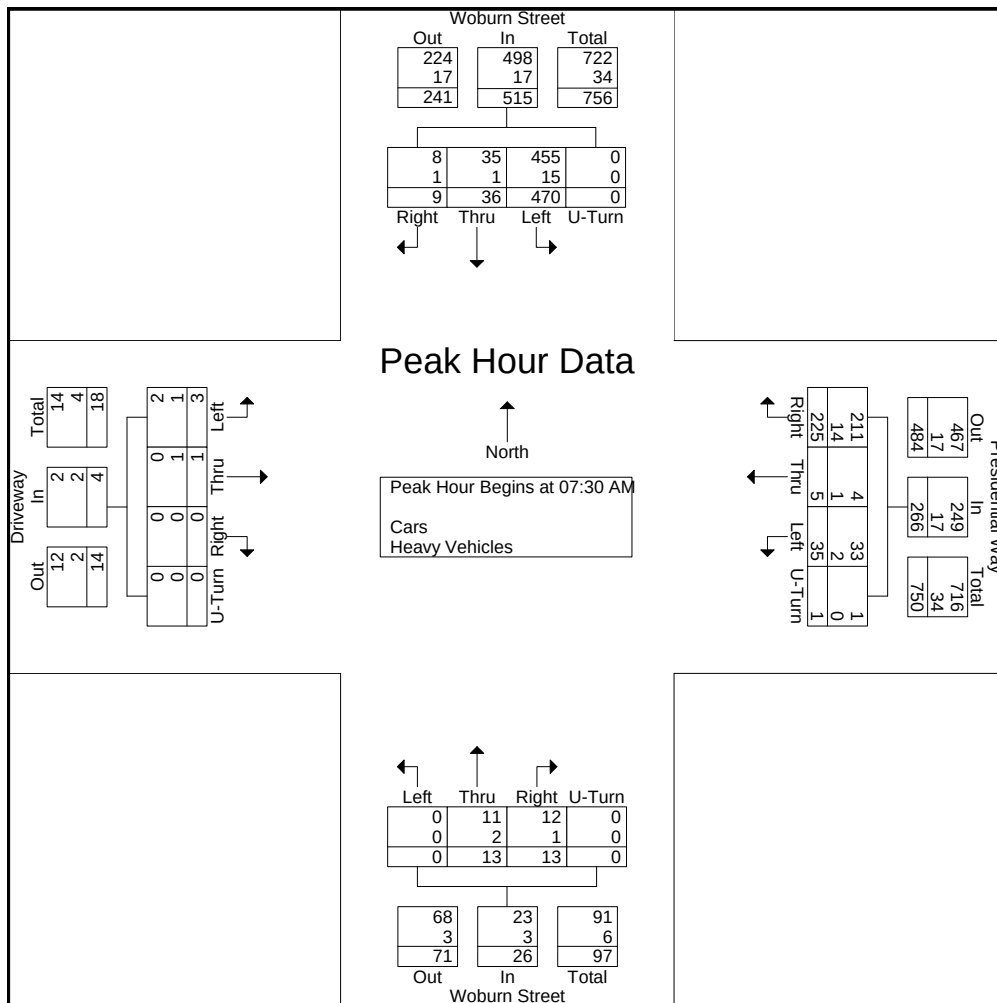
PRECISION
D A T A
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N/S: Woburn Street
E/W: Presidential Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 E
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North					Presidential Way From East					Woburn Street From South					Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	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	2	9	99	0	110	60	1	5	0	66	7	5	0	0	12	0	0	0	0	0	188
07:45 AM	4	10	134	0	148	45	1	14	0	60	3	1	0	0	4	0	1	0	0	1	213
08:00 AM	2	10	117	0	129	59	2	10	1	72	1	4	0	0	5	0	0	1	0	1	207
08:15 AM	1	7	120	0	128	61	1	6	0	68	2	3	0	0	5	0	0	2	0	2	203
Total Volume	9	36	470	0	515	225	5	35	1	266	13	13	0	0	26	0	1	3	0	4	811
% App. Total	1.7	7	91.3	0		84.6	1.9	13.2	0.4		50	50	0	0		0	25	75	0		
PHF	.563	.900	.877	.000	.870	.922	.625	.625	.250	.924	.464	.650	.000	.000	.542	.000	.250	.375	.000	.500	.952
Cars	8	35	455	0	498	211	4	33	1	249	12	11	0	0	23	0	0	2	0	2	772
% Cars	88.9	97.2	96.8	0	96.7	93.8	80.0	94.3	100	93.6	92.3	84.6	0	0	88.5	0	0	66.7	0	50.0	95.2
Heavy Vehicles	1	1	15	0	17	14	1	2	0	17	1	2	0	0	3	0	1	1	0	2	39
% Heavy Vehicles	11.1	2.8	3.2	0	3.3	6.2	20.0	5.7	0	6.4	7.7	15.4	0	0	11.5	0	100	33.3	0	50.0	4.8





PRECISION
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N/S: Main Street
E/W: Eames Street/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 F
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Main Street From North				Eames Street From East				Main Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	161	18	0	9	0	50	0	33	41	0	0	0	0	0	0	312
07:15 AM	0	137	32	0	9	0	47	0	40	44	0	0	0	0	0	0	309
07:30 AM	0	155	25	0	6	0	57	0	57	49	0	0	0	0	0	0	349
07:45 AM	0	160	32	1	11	0	62	0	66	61	0	0	0	0	0	0	393
Total	0	613	107	1	35	0	216	0	196	195	0	0	0	0	0	0	1363
08:00 AM	0	128	23	0	19	0	60	0	42	45	0	0	0	0	0	0	317
08:15 AM	0	113	24	0	12	0	54	0	48	58	0	0	0	0	0	0	309
08:30 AM	0	114	17	0	15	0	51	0	41	59	0	0	0	0	0	0	297
08:45 AM	0	104	20	0	7	0	36	0	40	60	0	0	0	0	0	0	267
Total	0	459	84	0	53	0	201	0	171	222	0	0	0	0	0	0	1190
Grand Total	0	1072	191	1	88	0	417	0	367	417	0	0	0	0	0	0	2553
Apprch %	0	84.8	15.1	0.1	17.4	0	82.6	0	46.8	53.2	0	0	0	0	0	0	
Total %	0	42	7.5	0	3.4	0	16.3	0	14.4	16.3	0	0	0	0	0	0	
Cars	0	1035	184	1	80	0	374	0	354	384	0	0	0	0	0	0	2412
% Cars	0	96.5	96.3	100	90.9	0	89.7	0	96.5	92.1	0	0	0	0	0	0	94.5
Heavy Vehicles	0	37	7	0	8	0	43	0	13	33	0	0	0	0	0	0	141
% Heavy Vehicles	0	3.5	3.7	0	9.1	0	10.3	0	3.5	7.9	0	0	0	0	0	0	5.5

	Main Street From North					Eames Street From East					Main Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	137	32	0	169	9	0	47	0	56	40	44	0	0	84	0	0	0	0	0	309
07:30 AM	0	155	25	0	180	6	0	57	0	63	57	49	0	0	106	0	0	0	0	0	349
07:45 AM	0	160	32	1	193	11	0	62	0	73	66	61	0	0	127	0	0	0	0	0	393
08:00 AM	0	128	23	0	151	19	0	60	0	79	42	45	0	0	87	0	0	0	0	0	317
Total Volume	0	580	112	1	693	45	0	226	0	271	205	199	0	0	404	0	0	0	0	0	1368
% App. Total	0	83.7	16.2	0.1		16.6	0	83.4	0		50.7	49.3	0	0		0	0	0	0		
PHF	.000	.906	.875	.250	.898	.592	.000	.911	.000	.858	.777	.816	.000	.000	.795	.000	.000	.000	.000	.000	.870
Cars	0	562	110	1	673	40	0	210	0	250	200	186	0	0	386	0	0	0	0	0	1309
% Cars	0	96.9	98.2	100	97.1	88.9	0	92.9	0	92.3	97.6	93.5	0	0	95.5	0	0	0	0	0	95.7
Heavy Vehicles	0	18	2	0	20	5	0	16	0	21	5	13	0	0	18	0	0	0	0	0	59
% Heavy Vehicles	0	3.1	1.8	0	2.9	11.1	0	7.1	0	7.7	2.4	6.5	0	0	4.5	0	0	0	0	0	4.3



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Groups Printed- Cars

N/S: Main Street
E/W: Eames Street/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 F
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Main Street From North				Eames Street From East				Main Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	154	17	0	8	0	39	0	29	37	0	0	0	0	0	0	284
07:15 AM	0	134	31	0	9	0	42	0	39	43	0	0	0	0	0	0	298
07:30 AM	0	151	25	0	3	0	53	0	55	44	0	0	0	0	0	0	331
07:45 AM	0	154	32	1	11	0	57	0	66	57	0	0	0	0	0	0	378
Total	0	593	105	1	31	0	191	0	189	181	0	0	0	0	0	0	1291
08:00 AM	0	123	22	0	17	0	58	0	40	42	0	0	0	0	0	0	302
08:15 AM	0	111	24	0	11	0	47	0	46	54	0	0	0	0	0	0	293
08:30 AM	0	110	16	0	14	0	45	0	39	54	0	0	0	0	0	0	278
08:45 AM	0	98	17	0	7	0	33	0	40	53	0	0	0	0	0	0	248
Total	0	442	79	0	49	0	183	0	165	203	0	0	0	0	0	0	1121
Grand Total	0	1035	184	1	80	0	374	0	354	384	0	0	0	0	0	0	2412
Apprch %	0	84.8	15.1	0.1	17.6	0	82.4	0	48	52	0	0	0	0	0	0	
Total %	0	42.9	7.6	0	3.3	0	15.5	0	14.7	15.9	0	0	0	0	0	0	

	Main Street From North					Eames Street From East					Main Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	134	31	0	165	9	0	42	0	51	39	43	0	0	82	0	0	0	0	0	298
07:30 AM	0	151	25	0	176	3	0	53	0	56	55	44	0	0	99	0	0	0	0	0	331
07:45 AM	0	154	32	1	187	11	0	57	0	68	66	57	0	0	123	0	0	0	0	0	378
08:00 AM	0	123	22	0	145	17	0	58	0	75	40	42	0	0	82	0	0	0	0	0	302
Total Volume	0	562	110	1	673	40	0	210	0	250	200	186	0	0	386	0	0	0	0	0	1309
% App. Total	0	83.5	16.3	0.1		16	0	84	0		51.8	48.2	0	0		0	0	0	0		
PHF	.000	.912	.859	.250	.900	.588	.000	.905	.000	.833	.758	.816	.000	.000	.785	.000	.000	.000	.000	.000	.866



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File Name : 154463 F
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

N/S: Main Street
E/W: Eames Street/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

Groups Printed- Heavy Vehicles

	Main Street From North				Eames Street From East				Main Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
07:00 AM	0	7	1	0	1	0	11	0	4	4	0	0	0	0	0	0	28
07:15 AM	0	3	1	0	0	0	5	0	1	1	0	0	0	0	0	0	11
07:30 AM	0	4	0	0	3	0	4	0	2	5	0	0	0	0	0	0	18
07:45 AM	0	6	0	0	0	0	5	0	0	4	0	0	0	0	0	0	15
Total	0	20	2	0	4	0	25	0	7	14	0	0	0	0	0	0	72
08:00 AM	0	5	1	0	2	0	2	0	2	3	0	0	0	0	0	0	15
08:15 AM	0	2	0	0	1	0	7	0	2	4	0	0	0	0	0	0	16
08:30 AM	0	4	1	0	1	0	6	0	2	5	0	0	0	0	0	0	19
08:45 AM	0	6	3	0	0	0	3	0	0	7	0	0	0	0	0	0	19
Total	0	17	5	0	4	0	18	0	6	19	0	0	0	0	0	0	69
Grand Total	0	37	7	0	8	0	43	0	13	33	0	0	0	0	0	0	141
Apprch %	0	84.1	15.9	0	15.7	0	84.3	0	28.3	71.7	0	0	0	0	0	0	
Total %	0	26.2	5	0	5.7	0	30.5	0	9.2	23.4	0	0	0	0	0	0	

	Main Street From North					Eames Street From East					Main Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	7	1	0	8	1	0	11	0	12	4	4	0	0	8	0	0	0	0	0	28
07:15 AM	0	3	1	0	4	0	0	5	0	5	1	1	0	0	2	0	0	0	0	0	11
07:30 AM	0	4	0	0	4	3	0	4	0	7	2	5	0	0	7	0	0	0	0	0	18
07:45 AM	0	6	0	0	6	0	0	5	0	5	0	4	0	0	4	0	0	0	0	0	15
Total Volume	0	20	2	0	22	4	0	25	0	29	7	14	0	0	21	0	0	0	0	0	72
% App. Total	0	90.9	9.1	0		13.8	0	86.2	0		33.3	66.7	0	0		0	0	0	0		
PHF	.000	.714	.500	.000	.688	.333	.000	.568	.000	.604	.438	.700	.000	.000	.656	.000	.000	.000	.000	.000	.643



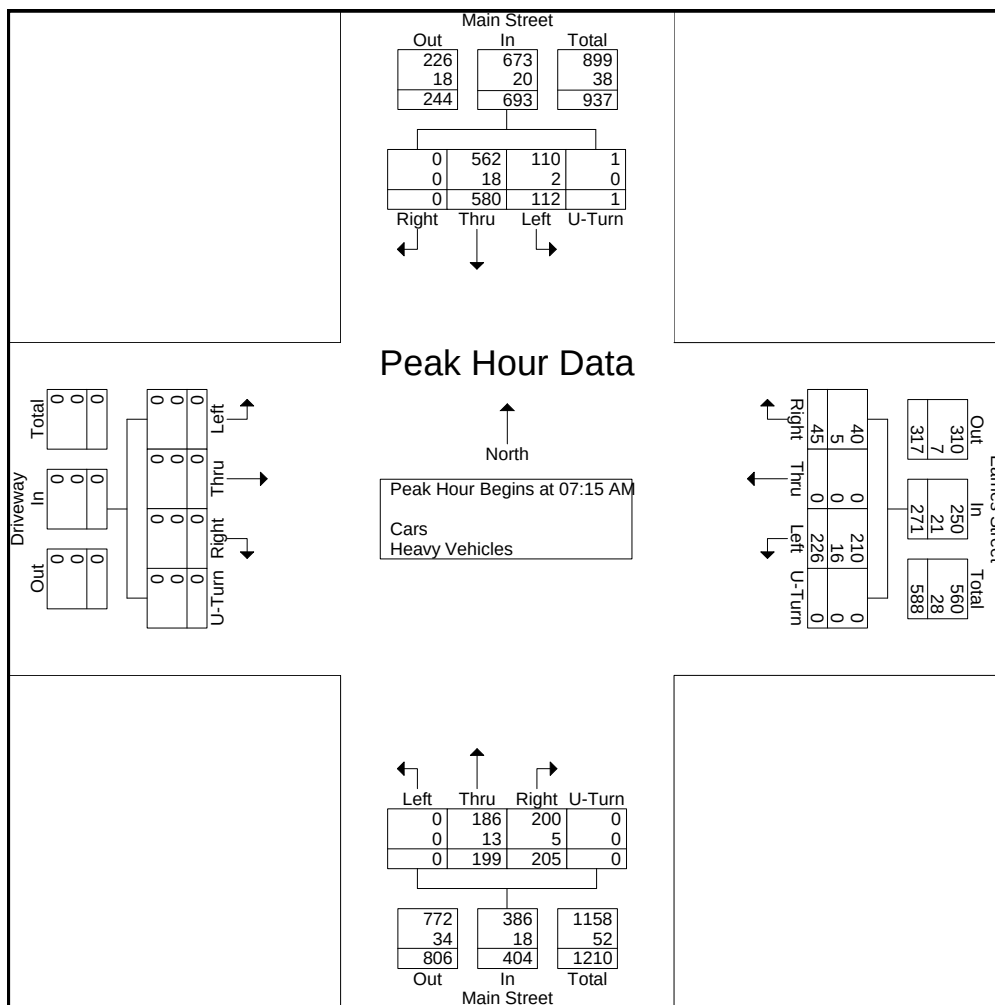
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N/S: Main Street
E/W: Eames Street/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 F
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Main Street From North					Eames Street From East					Main Street From South					Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	137	32	0	169	9	0	47	0	56	40	44	0	0	84	0	0	0	0	0	309
07:30 AM	0	155	25	0	180	6	0	57	0	63	57	49	0	0	106	0	0	0	0	0	349
07:45 AM	0	160	32	1	193	11	0	62	0	73	66	61	0	0	127	0	0	0	0	0	393
08:00 AM	0	128	23	0	151	19	0	60	0	79	42	45	0	0	87	0	0	0	0	0	317
Total Volume	0	580	112	1	693	45	0	226	0	271	205	199	0	0	404	0	0	0	0	0	1368
% App. Total	0	83.7	16.2	0.1		16.6	0	83.4	0		50.7	49.3	0	0		0	0	0	0		
PHF	.000	.906	.875	.250	.898	.592	.000	.911	.000	.858	.777	.816	.000	.000	.795	.000	.000	.000	.000	.000	.870
Cars	0	562	110	1	673	40	0	210	0	250	200	186	0	0	386	0	0	0	0	0	1309
% Cars	0	96.9	98.2	100	97.1	88.9	0	92.9	0	92.3	97.6	93.5	0	0	95.5	0	0	0	0	0	95.7
Heavy Vehicles	0	18	2	0	20	5	0	16	0	21	5	13	0	0	18	0	0	0	0	0	59
% Heavy Vehicles	0	3.1	1.8	0	2.9	11.1	0	7.1	0	7.7	2.4	6.5	0	0	4.5	0	0	0	0	0	4.3





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N: #51 Eames Street Driveway
E/W: Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 G
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	#51 Eames Street Driveway From North			Eames Street From East			Eames Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	71	0	53	0	0	124
07:15 AM	0	0	0	0	74	0	66	0	0	140
07:30 AM	0	0	0	0	79	0	81	0	0	160
07:45 AM	0	0	0	0	99	0	95	0	0	194
Total	0	0	0	0	323	0	295	0	0	618
08:00 AM	0	0	0	0	90	0	64	0	0	154
08:15 AM	0	0	0	0	73	0	70	0	0	143
08:30 AM	0	0	0	0	78	0	55	0	0	133
08:45 AM	0	0	0	0	57	0	58	0	0	115
Total	0	0	0	0	298	0	247	0	0	545
Grand Total	0	0	0	0	621	0	542	0	0	1163
Apprch %	0	0	0	0	100	0	100	0	0	
Total %	0	0	0	0	53.4	0	46.6	0	0	
Cars	0	0	0	0	575	0	518	0	0	1093
% Cars	0	0	0	0	92.6	0	95.6	0	0	94
Heavy Vehicles	0	0	0	0	46	0	24	0	0	70
% Heavy Vehicles	0	0	0	0	7.4	0	4.4	0	0	6

	#51 Eames Street Driveway From North				Eames Street From East				Eames Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	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	0	0	0	0	79	0	79	81	0	0	81	160
07:45 AM	0	0	0	0	0	99	0	99	95	0	0	95	194
08:00 AM	0	0	0	0	0	90	0	90	64	0	0	64	154
08:15 AM	0	0	0	0	0	73	0	73	70	0	0	70	143
Total Volume	0	0	0	0	0	341	0	341	310	0	0	310	651
% App. Total	0	0	0		0	100	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.861	.000	.861	.816	.000	.000	.816	.839
Cars	0	0	0	0	0	318	0	318	299	0	0	299	617
% Cars	0	0	0	0	0	93.3	0	93.3	96.5	0	0	96.5	94.8
Heavy Vehicles	0	0	0	0	0	23	0	23	11	0	0	11	34
% Heavy Vehicles	0	0	0	0	0	6.7	0	6.7	3.5	0	0	3.5	5.2



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Groups Printed- Cars

N: #51 Eames Street Driveway
E/W: Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 G
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	#51 Eames Street Driveway From North			Eames Street From East			Eames Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	65	0	48	0	0	113
07:15 AM	0	0	0	0	69	0	64	0	0	133
07:30 AM	0	0	0	0	75	0	78	0	0	153
07:45 AM	0	0	0	0	96	0	93	0	0	189
Total	0	0	0	0	305	0	283	0	0	588
08:00 AM	0	0	0	0	82	0	62	0	0	144
08:15 AM	0	0	0	0	65	0	66	0	0	131
08:30 AM	0	0	0	0	72	0	51	0	0	123
08:45 AM	0	0	0	0	51	0	56	0	0	107
Total	0	0	0	0	270	0	235	0	0	505
Grand Total	0	0	0	0	575	0	518	0	0	1093
Apprch %	0	0	0	0	100	0	100	0	0	
Total %	0	0	0	0	52.6	0	47.4	0	0	

	#51 Eames Street Driveway From North				Eames Street From East				Eames Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	0	0	0	0	0	69	0	69	64	0	0	64	133
07:30 AM	0	0	0	0	0	75	0	75	78	0	0	78	153
07:45 AM	0	0	0	0	0	96	0	96	93	0	0	93	189
08:00 AM	0	0	0	0	0	82	0	82	62	0	0	62	144
Total Volume	0	0	0	0	0	322	0	322	297	0	0	297	619
% App. Total	0	0	0	0	0	100	0	100	100	0	0	100	
PHF	.000	.000	.000	.000	.000	.839	.000	.839	.798	.000	.000	.798	.819



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Groups Printed- Heavy Vehicles

N: #51 Eames Street Driveway
E/W: Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 G
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	#51 Eames Street Driveway From North			Eames Street From East			Eames Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	6	0	5	0	0	11
07:15 AM	0	0	0	0	5	0	2	0	0	7
07:30 AM	0	0	0	0	4	0	3	0	0	7
07:45 AM	0	0	0	0	3	0	2	0	0	5
Total	0	0	0	0	18	0	12	0	0	30
08:00 AM	0	0	0	0	8	0	2	0	0	10
08:15 AM	0	0	0	0	8	0	4	0	0	12
08:30 AM	0	0	0	0	6	0	4	0	0	10
08:45 AM	0	0	0	0	6	0	2	0	0	8
Total	0	0	0	0	28	0	12	0	0	40
Grand Total	0	0	0	0	46	0	24	0	0	70
Apprch %	0	0	0	0	100	0	100	0	0	
Total %	0	0	0	0	65.7	0	34.3	0	0	

	#51 Eames Street Driveway From North				Eames Street From East				Eames Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	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 08:00 AM													
08:00 AM	0	0	0	0	0	8	0	8	2	0	0	2	10
08:15 AM	0	0	0	0	0	8	0	8	4	0	0	4	12
08:30 AM	0	0	0	0	0	6	0	6	4	0	0	4	10
08:45 AM	0	0	0	0	0	6	0	6	2	0	0	2	8
Total Volume	0	0	0	0	0	28	0	28	12	0	0	12	40
% App. Total	0	0	0		0	100	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.875	.000	.875	.750	.000	.000	.750	.833



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Groups Printed- Peds and Bikes

N: #51 Eames Street Driveway
E/W: Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 G
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	#51 Eames Street Driveway From North				Eames Street From East				Eames Street From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
07:00 AM	0	0	0	0	0	1	0	0	1	0	0	0	2
07:15 AM	0	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	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	1	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
08:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
08:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	1	0	0	1	3
Grand Total	0	0	0	0	0	2	0	0	2	0	0	1	5
Apprch %	0	0	0	0	0	100	0	0	66.7	0	0	33.3	
Total %	0	0	0	0	0	40	0	0	40	0	0	20	

	#51 Eames Street Driveway From North					Eames Street From East					Eames Street From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	1	0	0	1	1	0	0	1	2	3
% App. Total	0	0	0	0	0	0	100	0	0	50	50	0	0	50		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.250	.000	.000	.250	.500	.750



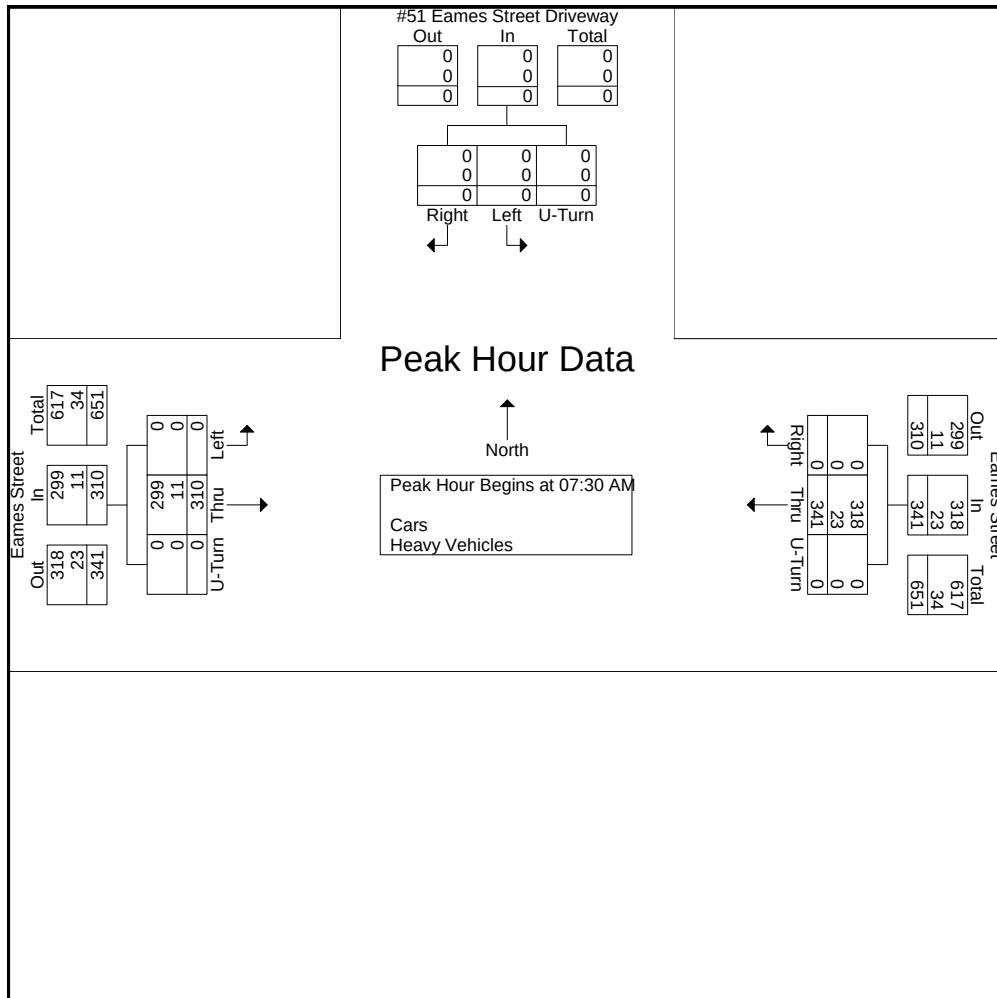
PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N: #51 Eames Street Driveway
E/W: Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 G
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	#51 Eames Street Driveway From North				Eames Street From East				Eames Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	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	0	0	0	0	79	0	79	81	0	0	81	160
07:45 AM	0	0	0	0	0	99	0	99	95	0	0	95	194
08:00 AM	0	0	0	0	0	90	0	90	64	0	0	64	154
08:15 AM	0	0	0	0	0	73	0	73	70	0	0	70	143
Total Volume	0	0	0	0	0	341	0	341	310	0	0	310	651
% App. Total	0	0	0		0	100	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.861	.000	.861	.816	.000	.000	.816	.839
Cars	0	0	0	0	0	318	0	318	299	0	0	299	617
% Cars	0	0	0	0	0	93.3	0	93.3	96.5	0	0	96.5	94.8
Heavy Vehicles	0	0	0	0	0	23	0	23	11	0	0	11	34
% Heavy Vehicles	0	0	0	0	0	6.7	0	6.7	3.5	0	0	3.5	5.2





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N/S: West Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 AA
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	West Street From North				Lowell Street (Route 129) From East				West Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	11	11	37	0	17	136	29	0	71	21	29	0	21	154	15	0	552
03:15 PM	10	8	26	0	12	118	30	0	103	11	28	0	19	168	12	0	545
03:30 PM	14	7	49	0	17	157	28	0	83	21	23	0	22	170	8	0	599
03:45 PM	10	9	35	0	21	148	25	0	66	21	23	0	26	177	11	0	572
Total	45	35	147	0	67	559	112	0	323	74	103	0	88	669	46	0	2268
04:00 PM	8	11	29	0	15	140	38	0	85	12	29	0	21	158	7	0	553
04:15 PM	11	19	30	0	22	136	32	0	84	19	25	0	21	170	5	0	574
04:30 PM	6	8	34	0	17	138	30	0	106	17	34	0	22	179	10	0	601
04:45 PM	11	10	23	0	13	168	42	0	109	24	35	0	42	164	5	0	646
Total	36	48	116	0	67	582	142	0	384	72	123	0	106	671	27	0	2374
05:00 PM	8	18	28	0	16	155	36	0	122	25	43	0	37	158	4	0	650
05:15 PM	13	18	27	0	18	179	51	0	101	29	40	0	32	162	4	0	674
05:30 PM	11	20	27	0	20	157	50	0	69	28	29	0	35	180	9	0	635
05:45 PM	9	15	30	0	10	142	37	0	58	25	27	0	30	175	6	0	564
Total	41	71	112	0	64	633	174	0	350	107	139	0	134	675	23	0	2523
Grand Total	122	154	375	0	198	1774	428	0	1057	253	365	0	328	2015	96	0	7165
Apprch %	18.7	23.7	57.6	0	8.2	73.9	17.8	0	63.1	15.1	21.8	0	13.4	82.6	3.9	0	
Total %	1.7	2.1	5.2	0	2.8	24.8	6	0	14.8	3.5	5.1	0	4.6	28.1	1.3	0	
Cars	118	151	363	0	195	1710	385	0	1014	253	356	0	324	1971	95	0	6935
% Cars	96.7	98.1	96.8	0	98.5	96.4	90	0	95.9	100	97.5	0	98.8	97.8	99	0	96.8
Heavy Vehicles	4	3	12	0	3	64	43	0	43	0	9	0	4	44	1	0	230
% Heavy Vehicles	3.3	1.9	3.2	0	1.5	3.6	10	0	4.1	0	2.5	0	1.2	2.2	1	0	3.2

	West Street From North					Lowell Street (Route 129) From East					West Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	11	10	23	0	44	13	168	42	0	223	109	24	35	0	168	42	164	5	0	211	646
05:00 PM	8	18	28	0	54	16	155	36	0	207	122	25	43	0	190	37	158	4	0	199	650
05:15 PM	13	18	27	0	58	18	179	51	0	248	101	29	40	0	170	32	162	4	0	198	674
05:30 PM	11	20	27	0	58	20	157	50	0	227	69	28	29	0	126	35	180	9	0	224	635
Total Volume	43	66	105	0	214	67	659	179	0	905	401	106	147	0	654	146	664	22	0	832	2605
% App. Total	20.1	30.8	49.1	0		7.4	72.8	19.8	0		61.3	16.2	22.5	0		17.5	79.8	2.6	0		
PHF	.827	.825	.938	.000	.922	.838	.920	.877	.000	.912	.822	.914	.855	.000	.861	.869	.922	.611	.000	.929	.966
Cars	42	65	102	0	209	65	640	169	0	874	388	106	146	0	640	145	652	22	0	819	2542
% Cars	97.7	98.5	97.1	0	97.7	97.0	97.1	94.4	0	96.6	96.8	100	99.3	0	97.9	99.3	98.2	100	0	98.4	97.6
Heavy Vehicles	1	1	3	0	5	2	19	10	0	31	13	0	1	0	14	1	12	0	0	13	63
% Heavy Vehicles	2.3	1.5	2.9	0	2.3	3.0	2.9	5.6	0	3.4	3.2	0	0.7	0	2.1	0.7	1.8	0	0	1.6	2.4



PRECISION
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N/S: West Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 AA
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars

	West Street From North				Lowell Street (Route 129) From East				West Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	10	11	36	0	17	126	24	0	67	21	27	0	20	148	15	0	522
03:15 PM	10	8	25	0	12	117	24	0	98	11	27	0	19	162	11	0	524
03:30 PM	14	7	46	0	16	152	23	0	78	21	23	0	22	165	8	0	575
03:45 PM	10	8	35	0	21	141	22	0	65	21	22	0	26	173	11	0	555
Total	44	34	142	0	66	536	93	0	308	74	99	0	87	648	45	0	2176
04:00 PM	8	11	28	0	15	131	28	0	81	12	27	0	20	156	7	0	524
04:15 PM	10	18	28	0	22	128	30	0	77	19	24	0	20	167	5	0	548
04:30 PM	5	8	33	0	17	135	28	0	103	17	33	0	22	173	10	0	584
04:45 PM	11	10	22	0	13	163	39	0	102	24	35	0	42	161	5	0	627
Total	34	47	111	0	67	557	125	0	363	72	119	0	104	657	27	0	2283
05:00 PM	7	18	26	0	16	149	33	0	120	25	42	0	37	155	4	0	632
05:15 PM	13	17	27	0	16	178	49	0	100	29	40	0	31	159	4	0	663
05:30 PM	11	20	27	0	20	150	48	0	66	28	29	0	35	177	9	0	620
05:45 PM	9	15	30	0	10	140	37	0	57	25	27	0	30	175	6	0	561
Total	40	70	110	0	62	617	167	0	343	107	138	0	133	666	23	0	2476
Grand Total	118	151	363	0	195	1710	385	0	1014	253	356	0	324	1971	95	0	6935
Apprch %	18.7	23.9	57.4	0	8.5	74.7	16.8	0	62.5	15.6	21.9	0	13.6	82.5	4	0	
Total %	1.7	2.2	5.2	0	2.8	24.7	5.6	0	14.6	3.6	5.1	0	4.7	28.4	1.4	0	

	West Street From North					Lowell Street (Route 129) From East					West Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	11	10	22	0	43	13	163	39	0	215	102	24	35	0	161	42	161	5	0	208	627
05:00 PM	7	18	26	0	51	16	149	33	0	198	120	25	42	0	187	37	155	4	0	196	632
05:15 PM	13	17	27	0	57	16	178	49	0	243	100	29	40	0	169	31	159	4	0	194	663
05:30 PM	11	20	27	0	58	20	150	48	0	218	66	28	29	0	123	35	177	9	0	221	620
Total Volume	42	65	102	0	209	65	640	169	0	874	388	106	146	0	640	145	652	22	0	819	2542
% App. Total	20.1	31.1	48.8	0		7.4	73.2	19.3	0		60.6	16.6	22.8	0		17.7	79.6	2.7	0		
PHF	.808	.813	.944	.000	.901	.813	.899	.862	.000	.899	.808	.914	.869	.000	.856	.863	.921	.611	.000	.926	.959



PRECISION
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N/S: West Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 AA
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Heavy Vehicles

	West Street From North				Lowell Street (Route 129) From East				West Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	1	0	1	0	0	10	5	0	4	0	2	0	1	6	0	0	30
03:15 PM	0	0	1	0	0	1	6	0	5	0	1	0	0	6	1	0	21
03:30 PM	0	0	3	0	1	5	5	0	5	0	0	0	0	5	0	0	24
03:45 PM	0	1	0	0	0	7	3	0	1	0	1	0	0	4	0	0	17
Total	1	1	5	0	1	23	19	0	15	0	4	0	1	21	1	0	92
04:00 PM	0	0	1	0	0	9	10	0	4	0	2	0	1	2	0	0	29
04:15 PM	1	1	2	0	0	8	2	0	7	0	1	0	1	3	0	0	26
04:30 PM	1	0	1	0	0	3	2	0	3	0	1	0	0	6	0	0	17
04:45 PM	0	0	1	0	0	5	3	0	7	0	0	0	0	3	0	0	19
Total	2	1	5	0	0	25	17	0	21	0	4	0	2	14	0	0	91
05:00 PM	1	0	2	0	0	6	3	0	2	0	1	0	0	3	0	0	18
05:15 PM	0	1	0	0	2	1	2	0	1	0	0	0	1	3	0	0	11
05:30 PM	0	0	0	0	0	7	2	0	3	0	0	0	0	3	0	0	15
05:45 PM	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3
Total	1	1	2	0	2	16	7	0	7	0	1	0	1	9	0	0	47
Grand Total	4	3	12	0	3	64	43	0	43	0	9	0	4	44	1	0	230
Apprch %	21.1	15.8	63.2	0	2.7	58.2	39.1	0	82.7	0	17.3	0	8.2	89.8	2	0	
Total %	1.7	1.3	5.2	0	1.3	27.8	18.7	0	18.7	0	3.9	0	1.7	19.1	0.4	0	

	West Street From North					Lowell Street (Route 129) From East					West Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	0	0	3	0	3	1	5	5	0	11	5	0	0	0	5	0	5	0	0	5	24
03:45 PM	0	1	0	0	1	0	7	3	0	10	1	0	1	0	2	0	4	0	0	4	17
04:00 PM	0	0	1	0	1	0	9	10	0	19	4	0	2	0	6	1	2	0	0	3	29
04:15 PM	1	1	2	0	4	0	8	2	0	10	7	0	1	0	8	1	3	0	0	4	26
Total Volume	1	2	6	0	9	1	29	20	0	50	17	0	4	0	21	2	14	0	0	16	96
% App. Total	11.1	22.2	66.7	0		2	58	40	0		81	0	19	0		12.5	87.5	0	0		
PHF	.250	.500	.500	.000	.563	.250	.806	.500	.000	.658	.607	.000	.500	.000	.656	.500	.700	.000	.000	.800	.828



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N/S: West Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 AA
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Peds and Bikes

Start Time	West Street From North					Lowell Street (Route 129) From East					West Street From South					Lowell Street (Route 129) From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
03:15 PM	0	0	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	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	3
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	4
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	0	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	0	0
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	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	1	0	0	0	0	1	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	4
Grand Total	0	1	0	1	0	0	0	0	0	0	1	1	1	0	0	1	1	0	2	2	11
Apprch %	0	50	0	50	0	0	0	0	0	0	33.3	33.3	33.3	0	0	16.7	16.7	0	33.3	33.3	
Total %	0	9.1	0	9.1	0	0	0	0	0	0	9.1	9.1	9.1	0	0	9.1	9.1	0	18.2	18.2	

Start Time	West Street From North						Lowell Street (Route 129) From East						West Street From South						Lowell Street (Route 129) From West						Int. Total
	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 03:30 PM																									
03:30 PM	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0	2	3
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
04:15 PM	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	1	0	1	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	1	3	6
% App. Total	0	50	0	50	0		0	0	0	0	0		0	0	100	0	0		0	0	0	66.7	33.3		
PHF	.000	.250	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.250	.250	.375	.500



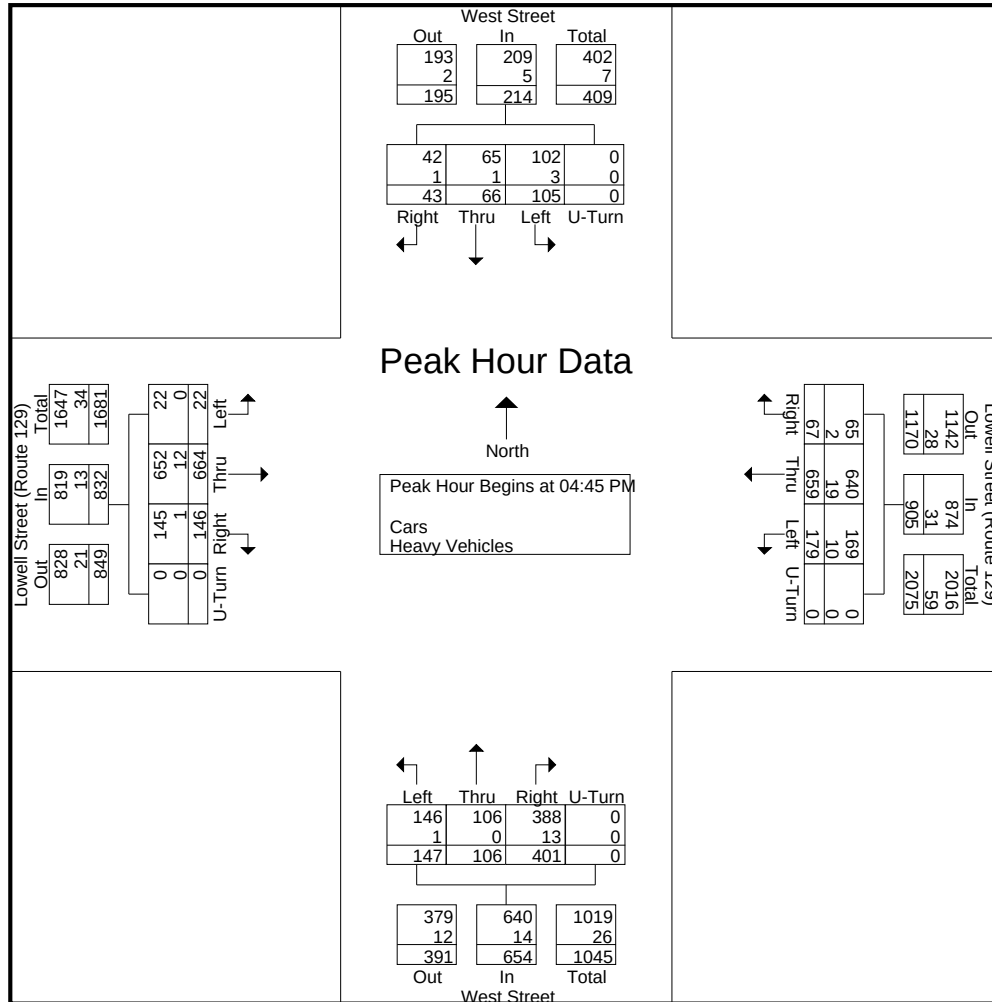
PRECISION
D A T A
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City, State: Wilmington, MA
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File Name : 154463 AA
Site Code : 2151944
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Page No : 1

	West Street From North					Lowell Street (Route 129) From East					West Street From South					Lowell Street (Route 129) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	11	10	23	0	44	13	168	42	0	223	109	24	35	0	168	42	164	5	0	211	646
05:00 PM	8	18	28	0	54	16	155	36	0	207	122	25	43	0	190	37	158	4	0	199	650
05:15 PM	13	18	27	0	58	18	179	51	0	248	101	29	40	0	170	32	162	4	0	198	674
05:30 PM	11	20	27	0	58	20	157	50	0	227	69	28	29	0	126	35	180	9	0	224	635
Total Volume	43	66	105	0	214	67	659	179	0	905	401	106	147	0	654	146	664	22	0	832	2605
% App. Total	20.1	30.8	49.1	0		7.4	72.8	19.8	0		61.3	16.2	22.5	0		17.5	79.8	2.6	0		
PHF	.827	.825	.938	.000	.922	.838	.920	.877	.000	.912	.822	.914	.855	.000	.861	.869	.922	.611	.000	.929	.966
Cars	42	65	102	0	209	65	640	169	0	874	388	106	146	0	640	145	652	22	0	819	2542
% Cars	97.7	98.5	97.1	0	97.7	97.0	97.1	94.4	0	96.6	96.8	100	99.3	0	97.9	99.3	98.2	100	0	98.4	97.6
Heavy Vehicles	1	1	3	0	5	2	19	10	0	31	13	0	1	0	14	1	12	0	0	13	63
% Heavy Vehicles	2.3	1.5	2.9	0	2.3	3.0	2.9	5.6	0	3.4	3.2	0	0.7	0	2.1	0.7	1.8	0	0	1.6	2.4





PRECISION
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INDUSTRIES, LLC

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N/S: Woburn Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 BB
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Woburn Street From North				Lowell Street (Route 129) From East				Woburn Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	10	26	22	0	27	120	14	0	30	54	30	0	18	134	20	0	505
03:15 PM	8	20	10	0	31	93	18	0	34	60	28	0	16	135	8	0	461
03:30 PM	7	18	29	0	30	128	17	0	39	75	21	0	22	127	14	0	527
03:45 PM	13	28	26	0	38	119	18	0	33	59	23	0	14	127	18	0	516
Total	38	92	87	0	126	460	67	0	136	248	102	0	70	523	60	0	2009
04:00 PM	8	19	13	0	30	126	13	0	30	85	24	0	10	131	18	0	507
04:15 PM	16	30	14	0	30	105	16	0	30	85	27	0	12	146	19	0	530
04:30 PM	9	14	13	0	35	108	16	0	26	102	25	0	17	155	20	0	540
04:45 PM	13	22	8	0	34	137	15	0	19	103	30	0	24	155	20	0	580
Total	46	85	48	0	129	476	60	0	105	375	106	0	63	587	77	0	2157
05:00 PM	11	25	25	0	27	120	12	0	23	89	28	0	24	155	28	0	567
05:15 PM	22	28	21	0	28	117	18	0	25	96	31	0	21	146	20	0	573
05:30 PM	12	25	20	0	22	107	17	0	28	92	20	0	34	158	23	0	558
05:45 PM	11	27	20	0	38	83	11	0	23	95	32	0	18	155	23	0	536
Total	56	105	86	0	115	427	58	0	99	372	111	0	97	614	94	0	2234
Grand Total	140	282	221	0	370	1363	185	0	340	995	319	0	230	1724	231	0	6400
Apprch %	21.8	43.9	34.4	0	19.3	71.1	9.6	0	20.6	60.2	19.3	0	10.5	78.9	10.6	0	
Total %	2.2	4.4	3.5	0	5.8	21.3	2.9	0	5.3	15.5	5	0	3.6	26.9	3.6	0	
Cars	139	274	218	0	362	1325	170	0	333	980	312	0	221	1686	227	0	6247
% Cars	99.3	97.2	98.6	0	97.8	97.2	91.9	0	97.9	98.5	97.8	0	96.1	97.8	98.3	0	97.6
Heavy Vehicles	1	8	3	0	8	38	15	0	7	15	7	0	9	38	4	0	153
% Heavy Vehicles	0.7	2.8	1.4	0	2.2	2.8	8.1	0	2.1	1.5	2.2	0	3.9	2.2	1.7	0	2.4

	Woburn Street From North					Lowell Street (Route 129) From East					Woburn Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	22	8	0	43	34	137	15	0	186	19	103	30	0	152	24	155	20	0	199	580
05:00 PM	11	25	25	0	61	27	120	12	0	159	23	89	28	0	140	24	155	28	0	207	567
05:15 PM	22	28	21	0	71	28	117	18	0	163	25	96	31	0	152	21	146	20	0	187	573
05:30 PM	12	25	20	0	57	22	107	17	0	146	28	92	20	0	140	34	158	23	0	215	558
Total Volume	58	100	74	0	232	111	481	62	0	654	95	380	109	0	584	103	614	91	0	808	2278
% App. Total	25	43.1	31.9	0		17	73.5	9.5	0		16.3	65.1	18.7	0		12.7	76	11.3	0		
PHF	.659	.893	.740	.000	.817	.816	.878	.861	.000	.879	.848	.922	.879	.000	.961	.757	.972	.813	.000	.940	.982
Cars	58	97	74	0	229	107	475	57	0	639	95	374	107	0	576	98	603	91	0	792	2236
% Cars	100	97.0	100	0	98.7	96.4	98.8	91.9	0	97.7	100	98.4	98.2	0	98.6	95.1	98.2	100	0	98.0	98.2
Heavy Vehicles	0	3	0	0	3	4	6	5	0	15	0	6	2	0	8	5	11	0	0	16	42
% Heavy Vehicles	0	3.0	0	0	1.3	3.6	1.2	8.1	0	2.3	0	1.6	1.8	0	1.4	4.9	1.8	0	0	2.0	1.8



PRECISION
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N/S: Woburn Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 BB
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars

	Woburn Street From North				Lowell Street (Route 129) From East				Woburn Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	10	26	20	0	26	110	12	0	29	52	29	0	18	129	19	0	480
03:15 PM	7	18	10	0	31	91	16	0	32	60	27	0	15	130	8	0	445
03:30 PM	7	18	29	0	29	127	16	0	39	74	20	0	21	124	14	0	518
03:45 PM	13	27	25	0	38	115	17	0	32	59	22	0	14	124	17	0	503
Total	37	89	84	0	124	443	61	0	132	245	98	0	68	507	58	0	1946
04:00 PM	8	19	13	0	29	119	11	0	29	83	23	0	10	128	18	0	490
04:15 PM	16	30	14	0	29	100	15	0	30	83	27	0	12	142	19	0	517
04:30 PM	9	13	13	0	35	107	15	0	24	100	25	0	16	153	20	0	530
04:45 PM	13	21	8	0	34	135	14	0	19	98	30	0	21	151	20	0	564
Total	46	83	48	0	127	461	55	0	102	364	105	0	59	574	77	0	2101
05:00 PM	11	25	25	0	26	118	10	0	23	89	27	0	22	152	28	0	556
05:15 PM	22	26	21	0	27	117	18	0	25	96	31	0	21	144	20	0	568
05:30 PM	12	25	20	0	20	105	15	0	28	91	19	0	34	156	23	0	548
05:45 PM	11	26	20	0	38	81	11	0	23	95	32	0	17	153	21	0	528
Total	56	102	86	0	111	421	54	0	99	371	109	0	94	605	92	0	2200
Grand Total	139	274	218	0	362	1325	170	0	333	980	312	0	221	1686	227	0	6247
Apprch %	22	43.4	34.5	0	19.5	71.4	9.2	0	20.5	60.3	19.2	0	10.4	79	10.6	0	
Total %	2.2	4.4	3.5	0	5.8	21.2	2.7	0	5.3	15.7	5	0	3.5	27	3.6	0	

	Woburn Street From North					Lowell Street (Route 129) From East					Woburn Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	21	8	0	42	34	135	14	0	183	19	98	30	0	147	21	151	20	0	192	564
05:00 PM	11	25	25	0	61	26	118	10	0	154	23	89	27	0	139	22	152	28	0	202	556
05:15 PM	22	26	21	0	69	27	117	18	0	162	25	96	31	0	152	21	144	20	0	185	568
05:30 PM	12	25	20	0	57	20	105	15	0	140	28	91	19	0	138	34	156	23	0	213	548
Total Volume	58	97	74	0	229	107	475	57	0	639	95	374	107	0	576	98	603	91	0	792	2236
% App. Total	25.3	42.4	32.3	0		16.7	74.3	8.9	0		16.5	64.9	18.6	0		12.4	76.1	11.5	0		
PHF	.659	.933	.740	.000	.830	.787	.880	.792	.000	.873	.848	.954	.863	.000	.947	.721	.966	.813	.000	.930	.984



PRECISION
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N/S: Woburn Street
E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 BB
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Woburn Street From North				Lowell Street (Route 129) From East				Woburn Street From South				Lowell Street (Route 129) From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	0	0	2	0	1	10	2	0	1	2	1	0	0	5	1	0	25
03:15 PM	1	2	0	0	0	2	2	0	2	0	1	0	1	5	0	0	16
03:30 PM	0	0	0	0	1	1	1	0	0	1	1	0	1	3	0	0	9
03:45 PM	0	1	1	0	0	4	1	0	1	0	1	0	0	3	1	0	13
Total	1	3	3	0	2	17	6	0	4	3	4	0	2	16	2	0	63
04:00 PM	0	0	0	0	1	7	2	0	1	2	1	0	0	3	0	0	17
04:15 PM	0	0	0	0	1	5	1	0	0	2	0	0	0	4	0	0	13
04:30 PM	0	1	0	0	0	1	1	0	2	2	0	0	1	2	0	0	10
04:45 PM	0	1	0	0	0	2	1	0	0	5	0	0	3	4	0	0	16
Total	0	2	0	0	2	15	5	0	3	11	1	0	4	13	0	0	56
05:00 PM	0	0	0	0	1	2	2	0	0	0	1	0	2	3	0	0	11
05:15 PM	0	2	0	0	1	0	0	0	0	0	0	0	0	2	0	0	5
05:30 PM	0	0	0	0	2	2	2	0	0	1	1	0	0	2	0	0	10
05:45 PM	0	1	0	0	0	2	0	0	0	0	0	0	1	2	2	0	8
Total	0	3	0	0	4	6	4	0	0	1	2	0	3	9	2	0	34
Grand Total	1	8	3	0	8	38	15	0	7	15	7	0	9	38	4	0	153
Apprch %	8.3	66.7	25	0	13.1	62.3	24.6	0	24.1	51.7	24.1	0	17.6	74.5	7.8	0	
Total %	0.7	5.2	2	0	5.2	24.8	9.8	0	4.6	9.8	4.6	0	5.9	24.8	2.6	0	

	Woburn Street From North					Lowell Street (Route 129) From East					Woburn Street From South					Lowell Street (Route 129) From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	0	0	2	0	2	1	10	2	0	13	1	2	1	0	4	0	5	1	0	6	25
03:15 PM	1	2	0	0	3	0	2	2	0	4	2	0	1	0	3	1	5	0	0	6	16
03:30 PM	0	0	0	0	0	1	1	1	0	3	0	1	1	0	2	1	3	0	0	4	9
03:45 PM	0	1	1	0	2	0	4	1	0	5	1	0	1	0	2	0	3	1	0	4	13
Total Volume	1	3	3	0	7	2	17	6	0	25	4	3	4	0	11	2	16	2	0	20	63
% App. Total	14.3	42.9	42.9	0		8	68	24	0		36.4	27.3	36.4	0		10	80	10	0		
PHF	.250	.375	.375	.000	.583	.500	.425	.750	.000	.481	.500	.375	1.00	.000	.688	.500	.800	.500	.000	.833	.630



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E/W: Lowell Street (Route 129)
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 BB
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Peds and Bikes

Start Time	Woburn Street From North					Lowell Street (Route 129) From East					Woburn Street From South					Lowell Street (Route 129) From West					Int. Total
	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	
03:00 PM	0	0	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	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	0	0
03:45 PM	0	0	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	0	0
04:00 PM	0	0	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	0	0	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	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
Total	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
05:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	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	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	2	0	0	0	5
Grand Total	0	0	0	1	1	1	0	0	0	0	0	1	0	0	0	0	3	0	0	0	7
Apprch %	0	0	0	50	50	100	0	0	0	0	0	100	0	0	0	0	100	0	0	0	
Total %	0	0	0	14.3	14.3	14.3	0	0	0	0	0	14.3	0	0	0	0	42.9	0	0	0	

	Woburn Street From North						Lowell Street (Route 129) From East						Woburn Street From South						Lowell Street (Route 129) From West							
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 04:45 PM																										
04:45 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	
05:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
05:15 PM	0	0	0	0	0	0	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	1	0	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	1	3	
Total Volume	0	0	0	1	1	2	1	0	0	0	0	1	0	1	0	0	0	1	0	2	0	0	0	2	6	
% App. Total	0	0	0	50	50		100	0	0	0	0		0	100	0	0	0		0	100	0	0	0			
PHF	.000	.000	.000	.250	.250	.500	.250	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250	.000	.500	.000	.000	.500	.500		



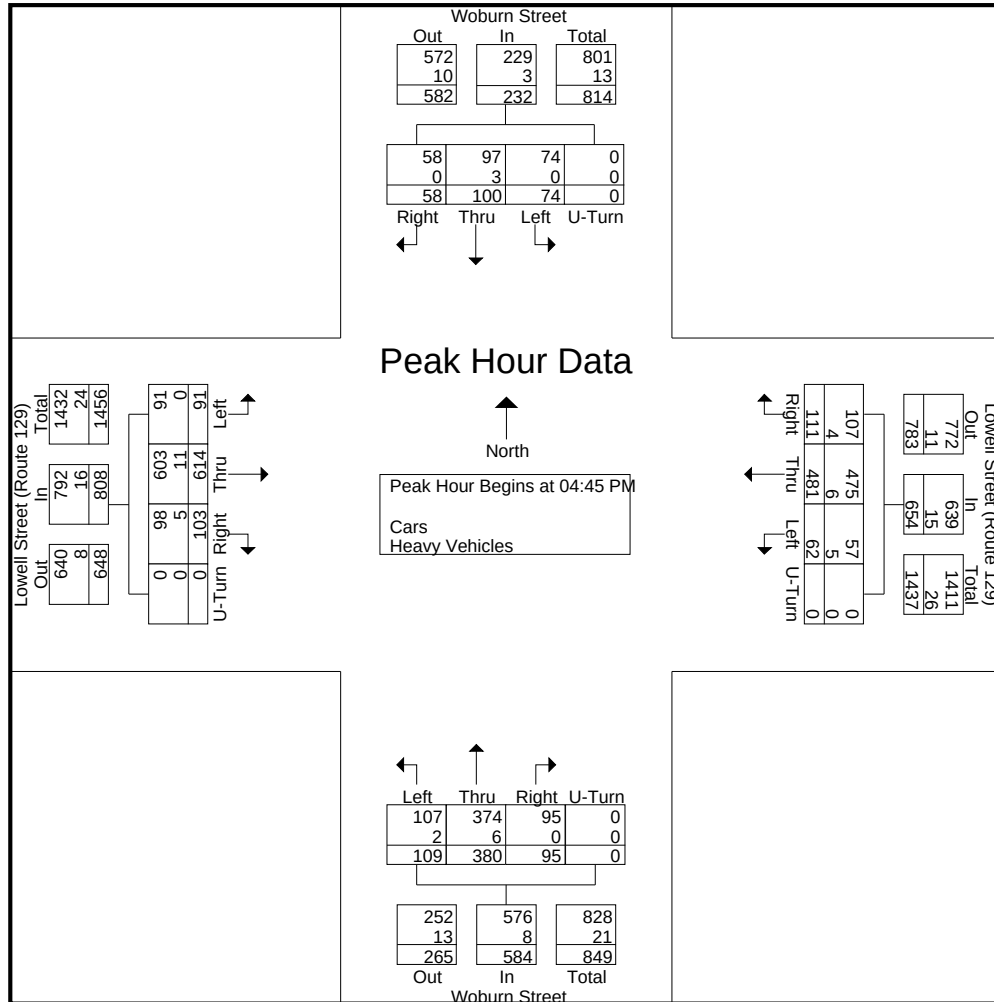
PRECISION
D A T A
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	Woburn Street From North					Lowell Street (Route 129) From East					Woburn Street From South					Lowell Street (Route 129) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	22	8	0	43	34	137	15	0	186	19	103	30	0	152	24	155	20	0	199	580
05:00 PM	11	25	25	0	61	27	120	12	0	159	23	89	28	0	140	24	155	28	0	207	567
05:15 PM	22	28	21	0	71	28	117	18	0	163	25	96	31	0	152	21	146	20	0	187	573
05:30 PM	12	25	20	0	57	22	107	17	0	146	28	92	20	0	140	34	158	23	0	215	558
Total Volume	58	100	74	0	232	111	481	62	0	654	95	380	109	0	584	103	614	91	0	808	2278
% App. Total	25	43.1	31.9	0		17	73.5	9.5	0		16.3	65.1	18.7	0		12.7	76	11.3	0		
PHF	.659	.893	.740	.000	.817	.816	.878	.861	.000	.879	.848	.922	.879	.000	.961	.757	.972	.813	.000	.940	.982
Cars	58	97	74	0	229	107	475	57	0	639	95	374	107	0	576	98	603	91	0	792	2236
% Cars	100	97.0	100	0	98.7	96.4	98.8	91.9	0	97.7	100	98.4	98.2	0	98.6	95.1	98.2	100	0	98.0	98.2
Heavy Vehicles	0	3	0	0	3	4	6	5	0	15	0	6	2	0	8	5	11	0	0	16	42
% Heavy Vehicles	0	3.0	0	0	1.3	3.6	1.2	8.1	0	2.3	0	1.6	1.8	0	1.4	4.9	1.8	0	0	2.0	1.8





PRECISION
D A T A
INDUSTRIES, LLC

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N/S: Woburn Street
E/W: Ox Bow Drive/ Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 CC
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Woburn Street From North				Ox Bow Drive From East				Woburn Street From South				Eames Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	32	24	2	0	3	0	0	0	0	65	35	0	26	0	36	0	223
03:15 PM	31	27	0	0	0	1	0	0	0	74	36	0	26	1	47	0	243
03:30 PM	17	32	1	0	1	0	1	0	0	77	31	0	35	0	55	0	250
03:45 PM	38	31	0	0	1	0	0	0	2	53	37	0	33	0	40	0	235
Total	118	114	3	0	5	1	1	0	2	269	139	0	120	1	178	0	951
04:00 PM	19	20	0	0	1	0	0	0	0	93	49	0	38	1	53	0	274
04:15 PM	27	30	1	0	1	0	0	0	1	86	40	0	38	0	63	0	287
04:30 PM	20	19	1	0	0	0	0	0	3	99	40	0	53	0	58	0	293
04:45 PM	25	24	3	0	2	0	2	0	2	96	50	0	50	0	56	0	310
Total	91	93	5	0	4	0	2	0	6	374	179	0	179	1	230	0	1164
05:00 PM	23	40	0	0	0	0	1	0	0	118	77	0	52	0	44	0	355
05:15 PM	31	27	1	0	0	1	1	0	1	76	75	0	64	0	48	0	325
05:30 PM	33	46	1	0	0	0	0	0	0	64	52	0	63	0	52	0	311
05:45 PM	25	38	2	0	0	0	0	0	0	100	55	0	55	1	58	0	334
Total	112	151	4	0	0	1	2	0	1	358	259	0	234	1	202	0	1325
Grand Total	321	358	12	0	9	2	5	0	9	1001	577	0	533	3	610	0	3440
Apprch %	46.5	51.8	1.7	0	56.2	12.5	31.2	0	0.6	63.1	36.4	0	46.5	0.3	53.2	0	
Total %	9.3	10.4	0.3	0	0.3	0.1	0.1	0	0.3	29.1	16.8	0	15.5	0.1	17.7	0	
Cars	307	340	11	0	8	2	5	0	9	984	554	0	494	3	598	0	3315
% Cars	95.6	95	91.7	0	88.9	100	100	0	100	98.3	96	0	92.7	100	98	0	96.4
Heavy Vehicles	14	18	1	0	1	0	0	0	0	17	23	0	39	0	12	0	125
% Heavy Vehicles	4.4	5	8.3	0	11.1	0	0	0	0	1.7	4	0	7.3	0	2	0	3.6

	Woburn Street From North					Ox Bow Drive From East					Woburn Street From South					Eames Street From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	23	40	0	0	63	0	0	1	0	1	0	118	77	0	195	52	0	44	0	96	355
05:15 PM	31	27	1	0	59	0	1	1	0	2	1	76	75	0	152	64	0	48	0	112	325
05:30 PM	33	46	1	0	80	0	0	0	0	0	0	64	52	0	116	63	0	52	0	115	311
05:45 PM	25	38	2	0	65	0	0	0	0	0	0	100	55	0	155	55	1	58	0	114	334
Total Volume	112	151	4	0	267	0	1	2	0	3	1	358	259	0	618	234	1	202	0	437	1325
% App. Total	41.9	56.6	1.5	0		0	33.3	66.7	0		0.2	57.9	41.9	0		53.5	0.2	46.2	0		
PHF	.848	.821	.500	.000	.834	.000	.250	.500	.000	.375	.250	.758	.841	.000	.792	.914	.250	.871	.000	.950	.933
Cars	109	144	4	0	257	0	1	2	0	3	1	356	256	0	613	223	1	201	0	425	1298
% Cars	97.3	95.4	100	0	96.3	0	100	100	0	100	100	99.4	98.8	0	99.2	95.3	100	99.5	0	97.3	98.0
Heavy Vehicles	3	7	0	0	10	0	0	0	0	0	0	2	3	0	5	11	0	1	0	12	27
% Heavy Vehicles	2.7	4.6	0	0	3.7	0	0	0	0	0	0	0.6	1.2	0	0.8	4.7	0	0.5	0	2.7	2.0



PRECISION
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N/S: Woburn Street
E/W: Ox Bow Drive/ Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 CC
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars

	Woburn Street From North				Ox Bow Drive From East				Woburn Street From South				Eames Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	31	24	1	0	2	0	0	0	0	63	33	0	23	0	35	0	212
03:15 PM	31	24	0	0	0	1	0	0	0	74	34	0	23	1	46	0	234
03:30 PM	16	32	1	0	1	0	1	0	0	75	27	0	28	0	55	0	236
03:45 PM	37	27	0	0	1	0	0	0	2	51	34	0	28	0	39	0	219
Total	115	107	2	0	4	1	1	0	2	263	128	0	102	1	175	0	901
04:00 PM	18	20	0	0	1	0	0	0	0	91	44	0	36	1	52	0	263
04:15 PM	26	28	1	0	1	0	0	0	1	83	38	0	34	0	62	0	274
04:30 PM	18	17	1	0	0	0	0	0	3	96	39	0	50	0	56	0	280
04:45 PM	21	24	3	0	2	0	2	0	2	95	49	0	49	0	52	0	299
Total	83	89	5	0	4	0	2	0	6	365	170	0	169	1	222	0	1116
05:00 PM	23	36	0	0	0	0	1	0	0	118	77	0	49	0	44	0	348
05:15 PM	30	26	1	0	0	1	1	0	1	74	75	0	61	0	47	0	317
05:30 PM	33	45	1	0	0	0	0	0	0	64	49	0	62	0	52	0	306
05:45 PM	23	37	2	0	0	0	0	0	0	100	55	0	51	1	58	0	327
Total	109	144	4	0	0	1	2	0	1	356	256	0	223	1	201	0	1298
Grand Total	307	340	11	0	8	2	5	0	9	984	554	0	494	3	598	0	3315
Apprch %	46.7	51.7	1.7	0	53.3	13.3	33.3	0	0.6	63.6	35.8	0	45.1	0.3	54.6	0	
Total %	9.3	10.3	0.3	0	0.2	0.1	0.2	0	0.3	29.7	16.7	0	14.9	0.1	18	0	

	Woburn Street From North					Ox Bow Drive From East					Woburn Street From South					Eames Street From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	23	36	0	0	59	0	0	1	0	1	0	118	77	0	195	49	0	44	0	93	348
05:15 PM	30	26	1	0	57	0	1	1	0	2	1	74	75	0	150	61	0	47	0	108	317
05:30 PM	33	45	1	0	79	0	0	0	0	0	0	64	49	0	113	62	0	52	0	114	306
05:45 PM	23	37	2	0	62	0	0	0	0	0	0	100	55	0	155	51	1	58	0	110	327
Total Volume	109	144	4	0	257	0	1	2	0	3	1	356	256	0	613	223	1	201	0	425	1298
% App. Total	42.4	56	1.6	0		0	33.3	66.7	0		0.2	58.1	41.8	0		52.5	0.2	47.3	0		
PHF	.826	.800	.500	.000	.813	.000	.250	.500	.000	.375	.250	.754	.831	.000	.786	.899	.250	.866	.000	.932	.932



PRECISION
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N/S: Woburn Street
E/W: Ox Bow Drive/ Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 CC
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Woburn Street From North				Ox Bow Drive From East				Woburn Street From South				Eames Street From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	1	0	1	0	1	0	0	0	0	2	2	0	3	0	1	0	11
03:15 PM	0	3	0	0	0	0	0	0	0	0	2	0	3	0	1	0	9
03:30 PM	1	0	0	0	0	0	0	0	0	2	4	0	7	0	0	0	14
03:45 PM	1	4	0	0	0	0	0	0	0	2	3	0	5	0	1	0	16
Total	3	7	1	0	1	0	0	0	0	6	11	0	18	0	3	0	50
04:00 PM	1	0	0	0	0	0	0	0	0	2	5	0	2	0	1	0	11
04:15 PM	1	2	0	0	0	0	0	0	0	3	2	0	4	0	1	0	13
04:30 PM	2	2	0	0	0	0	0	0	0	3	1	0	3	0	2	0	13
04:45 PM	4	0	0	0	0	0	0	0	0	1	1	0	1	0	4	0	11
Total	8	4	0	0	0	0	0	0	0	9	9	0	10	0	8	0	48
05:00 PM	0	4	0	0	0	0	0	0	0	0	0	0	3	0	0	0	7
05:15 PM	1	1	0	0	0	0	0	0	0	2	0	0	3	0	1	0	8
05:30 PM	0	1	0	0	0	0	0	0	0	0	3	0	1	0	0	0	5
05:45 PM	2	1	0	0	0	0	0	0	0	0	0	0	4	0	0	0	7
Total	3	7	0	0	0	0	0	0	0	2	3	0	11	0	1	0	27
Grand Total	14	18	1	0	1	0	0	0	0	17	23	0	39	0	12	0	125
Apprch %	42.4	54.5	3	0	100	0	0	0	0	42.5	57.5	0	76.5	0	23.5	0	
Total %	11.2	14.4	0.8	0	0.8	0	0	0	0	13.6	18.4	0	31.2	0	9.6	0	

	Woburn Street From North					Ox Bow Drive From East					Woburn Street From South					Eames Street From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	1	0	0	0	1	0	0	0	0	0	0	2	4	0	6	7	0	0	0	7	14
03:45 PM	1	4	0	0	5	0	0	0	0	0	0	2	3	0	5	5	0	1	0	6	16
04:00 PM	1	0	0	0	1	0	0	0	0	0	0	2	5	0	7	2	0	1	0	3	11
04:15 PM	1	2	0	0	3	0	0	0	0	0	0	3	2	0	5	4	0	1	0	5	13
Total Volume	4	6	0	0	10	0	0	0	0	0	0	9	14	0	23	18	0	3	0	21	54
% App. Total	40	60	0	0		0	0	0	0		0	39.1	60.9	0		85.7	0	14.3	0		
PHF	1.00	.375	.000	.000	.500	.000	.000	.000	.000	.000	.000	.750	.700	.000	.821	.643	.000	.750	.000	.750	.844



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City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 CC
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Peds and Bikes

	Woburn Street From North					Ox Bow Drive From East					Woburn Street From South					Eames Street From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
03:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	6
04:00 PM	0	0	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	0	0	0	0	0	1	0	0	0	0	0	0	0	1
04:30 PM	0	0	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	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
05:00 PM	0	0	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	1	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	3
Grand Total	0	0	0	1	1	0	0	0	0	3	0	0	2	0	0	0	0	1	0	2	10
Apprch %	0	0	0	50	50	0	0	0	0	100	0	0	100	0	0	0	0	33.3	0	66.7	
Total %	0	0	0	10	10	0	0	0	0	30	0	0	20	0	0	0	0	10	0	20	

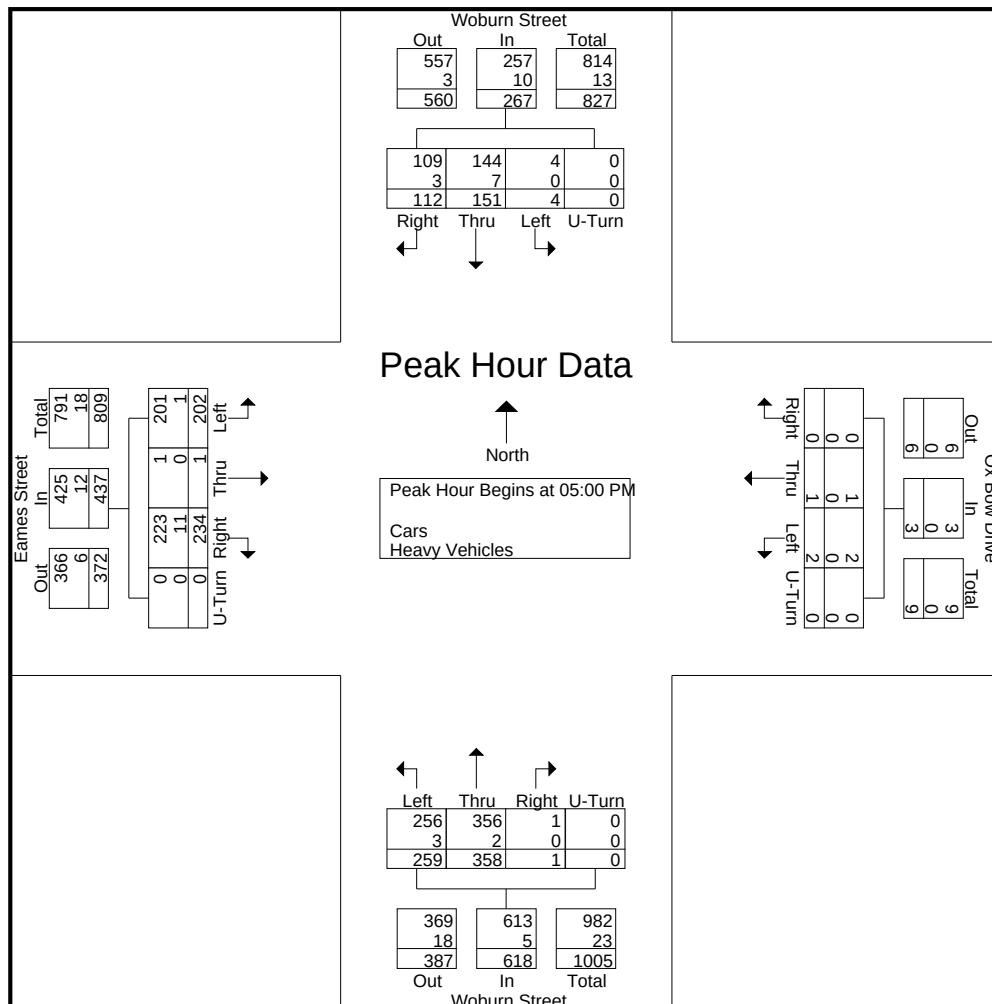
	Woburn Street From North						Ox Bow Drive From East						Woburn Street From South						Eames Street From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 03:00 PM																									
03:00 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	3
03:30 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	1	2	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	2	2	2	6
% App. Total	0	0	0	50	50		0	0	0	0	100		0	0	0	0	0		0	0	0	100			
PHF	.000	.000	.000	.250	.250	.500	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.500	



N/S: Woburn Street
E/W: Ox Bow Drive/ Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 CC
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North					Ox Bow Drive From East					Woburn Street From South					Eames Street From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	23	40	0	0	63	0	0	1	0	1	0	118	77	0	195	52	0	44	0	96	355
05:15 PM	31	27	1	0	59	0	1	1	0	2	1	76	75	0	152	64	0	48	0	112	325
05:30 PM	33	46	1	0	80	0	0	0	0	0	0	64	52	0	116	63	0	52	0	115	311
05:45 PM	25	38	2	0	65	0	0	0	0	0	0	100	55	0	155	55	1	58	0	114	334
Total Volume	112	151	4	0	267	0	1	2	0	3	1	358	259	0	618	234	1	202	0	437	1325
% App. Total	41.9	56.6	1.5	0		0	33.3	66.7	0		0.2	57.9	41.9	0		53.5	0.2	46.2	0		
PHF	.848	.821	.500	.000	.834	.000	.250	.500	.000	.375	.250	.758	.841	.000	.792	.914	.250	.871	.000	.950	.933
Cars	109	144	4	0	257	0	1	2	0	3	1	356	256	0	613	223	1	201	0	425	1298
% Cars	97.3	95.4	100	0	96.3	0	100	100	0	100	100	99.4	98.8	0	99.2	95.3	100	99.5	0	97.3	98.0
Heavy Vehicles	3	7	0	0	10	0	0	0	0	0	0	2	3	0	5	11	0	1	0	12	27
% Heavy Vehicles	2.7	4.6	0	0	3.7	0	0	0	0	0	0	0.6	1.2	0	0.8	4.7	0	0.5	0	2.7	2.0





PRECISION
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N/S: Woburn Street
E/W: Industrial Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 DD
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Woburn Street From North				Industrial Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	0	39	14	0	9	0	12	0	16	59	0	0	0	0	0	0	149
03:15 PM	0	39	9	0	19	0	14	0	7	68	0	0	0	0	0	0	156
03:30 PM	0	60	25	0	8	0	10	0	13	66	0	0	0	0	0	0	182
03:45 PM	0	50	15	0	10	0	14	0	18	63	0	0	0	0	0	0	170
Total	0	188	63	0	46	0	50	0	54	256	0	0	0	0	0	0	657
04:00 PM	0	51	22	0	16	0	11	0	14	91	0	0	0	0	0	0	205
04:15 PM	0	60	23	0	13	0	12	0	16	72	0	0	0	0	0	0	196
04:30 PM	0	75	34	0	12	0	11	0	19	75	0	0	0	0	0	0	226
04:45 PM	0	76	40	0	16	0	30	0	19	82	0	0	0	0	0	0	263
Total	0	262	119	0	57	0	64	0	68	320	0	0	0	0	0	0	890
05:00 PM	0	90	35	0	11	0	15	0	25	102	0	0	0	0	0	0	278
05:15 PM	0	82	39	0	8	0	15	0	30	78	0	0	0	0	0	0	252
05:30 PM	0	79	37	0	9	0	13	0	22	71	0	0	0	0	0	0	231
05:45 PM	0	65	39	0	4	0	4	0	24	136	0	0	0	0	0	0	272
Total	0	316	150	0	32	0	47	0	101	387	0	0	0	0	0	0	1033
Grand Total	0	766	332	0	135	0	161	0	223	963	0	0	0	0	0	0	2580
Apprch %	0	69.8	30.2	0	45.6	0	54.4	0	18.8	81.2	0	0	0	0	0	0	
Total %	0	29.7	12.9	0	5.2	0	6.2	0	8.6	37.3	0	0	0	0	0	0	
Cars	0	747	303	0	124	0	139	0	192	913	0	0	0	0	0	0	2418
% Cars	0	97.5	91.3	0	91.9	0	86.3	0	86.1	94.8	0	0	0	0	0	0	93.7
Heavy Vehicles	0	19	29	0	11	0	22	0	31	50	0	0	0	0	0	0	162
% Heavy Vehicles	0	2.5	8.7	0	8.1	0	13.7	0	13.9	5.2	0	0	0	0	0	0	6.3

	Woburn Street From North					Industrial Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	90	35	0	125	11	0	15	0	26	25	102	0	0	127	0	0	0	0	0	278
05:15 PM	0	82	39	0	121	8	0	15	0	23	30	78	0	0	108	0	0	0	0	0	252
05:30 PM	0	79	37	0	116	9	0	13	0	22	22	71	0	0	93	0	0	0	0	0	231
05:45 PM	0	65	39	0	104	4	0	4	0	8	24	136	0	0	160	0	0	0	0	0	272
Total Volume	0	316	150	0	466	32	0	47	0	79	101	387	0	0	488	0	0	0	0	0	1033
% App. Total	0	67.8	32.2	0		40.5	0	59.5	0		20.7	79.3	0	0		0	0	0	0		
PHF	.000	.878	.962	.000	.932	.727	.000	.783	.000	.760	.842	.711	.000	.000	.763	.000	.000	.000	.000	.000	.929
Cars	0	311	143	0	454	30	0	42	0	72	95	380	0	0	475	0	0	0	0	0	1001
% Cars	0	98.4	95.3	0	97.4	93.8	0	89.4	0	91.1	94.1	98.2	0	0	97.3	0	0	0	0	0	96.9
Heavy Vehicles	0	5	7	0	12	2	0	5	0	7	6	7	0	0	13	0	0	0	0	0	32
% Heavy Vehicles	0	1.6	4.7	0	2.6	6.3	0	10.6	0	8.9	5.9	1.8	0	0	2.7	0	0	0	0	0	3.1



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N/S: Woburn Street
E/W: Industrial Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 DD
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars

	Woburn Street From North				Industrial Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	0	39	11	0	9	0	10	0	11	55	0	0	0	0	0	0	135
03:15 PM	0	35	7	0	17	0	14	0	4	65	0	0	0	0	0	0	142
03:30 PM	0	56	21	0	7	0	8	0	10	57	0	0	0	0	0	0	159
03:45 PM	0	49	10	0	9	0	12	0	14	57	0	0	0	0	0	0	151
Total	0	179	49	0	42	0	44	0	39	234	0	0	0	0	0	0	587
04:00 PM	0	51	20	0	14	0	8	0	11	85	0	0	0	0	0	0	189
04:15 PM	0	58	21	0	12	0	10	0	13	67	0	0	0	0	0	0	181
04:30 PM	0	73	32	0	11	0	8	0	18	70	0	0	0	0	0	0	212
04:45 PM	0	75	38	0	15	0	27	0	16	77	0	0	0	0	0	0	248
Total	0	257	111	0	52	0	53	0	58	299	0	0	0	0	0	0	830
05:00 PM	0	89	31	0	11	0	14	0	23	100	0	0	0	0	0	0	268
05:15 PM	0	80	39	0	8	0	14	0	28	76	0	0	0	0	0	0	245
05:30 PM	0	79	36	0	8	0	10	0	20	70	0	0	0	0	0	0	223
05:45 PM	0	63	37	0	3	0	4	0	24	134	0	0	0	0	0	0	265
Total	0	311	143	0	30	0	42	0	95	380	0	0	0	0	0	0	1001
Grand Total	0	747	303	0	124	0	139	0	192	913	0	0	0	0	0	0	2418
Apprch %	0	71.1	28.9	0	47.1	0	52.9	0	17.4	82.6	0	0	0	0	0	0	
Total %	0	30.9	12.5	0	5.1	0	5.7	0	7.9	37.8	0	0	0	0	0	0	

	Woburn Street From North					Industrial Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	89	31	0	120	11	0	14	0	25	23	100	0	0	123	0	0	0	0	0	268
05:15 PM	0	80	39	0	119	8	0	14	0	22	28	76	0	0	104	0	0	0	0	0	245
05:30 PM	0	79	36	0	115	8	0	10	0	18	20	70	0	0	90	0	0	0	0	0	223
05:45 PM	0	63	37	0	100	3	0	4	0	7	24	134	0	0	158	0	0	0	0	0	265
Total Volume	0	311	143	0	454	30	0	42	0	72	95	380	0	0	475	0	0	0	0	0	1001
% App. Total	0	68.5	31.5	0		41.7	0	58.3	0		20	80	0	0		0	0	0	0		
PHF	.000	.874	.917	.000	.946	.682	.000	.750	.000	.720	.848	.709	.000	.000	.752	.000	.000	.000	.000	.000	.934



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N/S: Woburn Street
E/W: Industrial Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 DD
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Woburn Street From North				Industrial Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	0	0	3	0	0	0	2	0	5	4	0	0	0	0	0	0	14
03:15 PM	0	4	2	0	2	0	0	0	3	3	0	0	0	0	0	0	14
03:30 PM	0	4	4	0	1	0	2	0	3	9	0	0	0	0	0	0	23
03:45 PM	0	1	5	0	1	0	2	0	4	6	0	0	0	0	0	0	19
Total	0	9	14	0	4	0	6	0	15	22	0	0	0	0	0	0	70
04:00 PM	0	0	2	0	2	0	3	0	3	6	0	0	0	0	0	0	16
04:15 PM	0	2	2	0	1	0	2	0	3	5	0	0	0	0	0	0	15
04:30 PM	0	2	2	0	1	0	3	0	1	5	0	0	0	0	0	0	14
04:45 PM	0	1	2	0	1	0	3	0	3	5	0	0	0	0	0	0	15
Total	0	5	8	0	5	0	11	0	10	21	0	0	0	0	0	0	60
05:00 PM	0	1	4	0	0	0	1	0	2	2	0	0	0	0	0	0	10
05:15 PM	0	2	0	0	0	0	1	0	2	2	0	0	0	0	0	0	7
05:30 PM	0	0	1	0	1	0	3	0	2	1	0	0	0	0	0	0	8
05:45 PM	0	2	2	0	1	0	0	0	0	2	0	0	0	0	0	0	7
Total	0	5	7	0	2	0	5	0	6	7	0	0	0	0	0	0	32
Grand Total	0	19	29	0	11	0	22	0	31	50	0	0	0	0	0	0	162
Apprch %	0	39.6	60.4	0	33.3	0	66.7	0	38.3	61.7	0	0	0	0	0	0	
Total %	0	11.7	17.9	0	6.8	0	13.6	0	19.1	30.9	0	0	0	0	0	0	

	Woburn Street From North					Industrial Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	0	4	4	0	8	1	0	2	0	3	3	9	0	0	12	0	0	0	0	0	23
03:45 PM	0	1	5	0	6	1	0	2	0	3	4	6	0	0	10	0	0	0	0	0	19
04:00 PM	0	0	2	0	2	2	0	3	0	5	3	6	0	0	9	0	0	0	0	0	16
04:15 PM	0	2	2	0	4	1	0	2	0	3	3	5	0	0	8	0	0	0	0	0	15
Total Volume	0	7	13	0	20	5	0	9	0	14	13	26	0	0	39	0	0	0	0	0	73
% App. Total	0	35	65	0		35.7	0	64.3	0		33.3	66.7	0	0		0	0	0	0		
PHF	.000	.438	.650	.000	.625	.625	.000	.750	.000	.700	.813	.722	.000	.000	.813	.000	.000	.000	.000	.000	.793



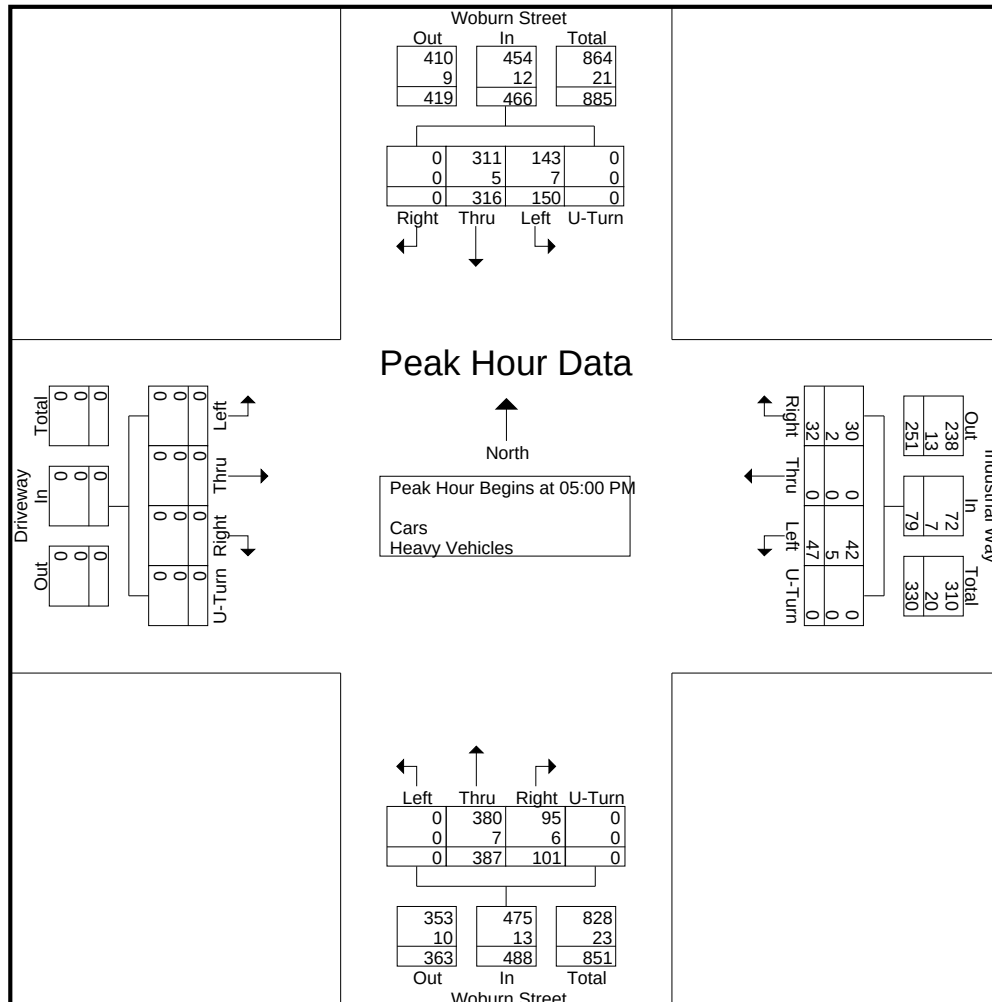
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N/S: Woburn Street
E/W: Industrial Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 DD
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North					Industrial Way From East					Woburn Street From South					Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	90	35	0	125	11	0	15	0	26	25	102	0	0	127	0	0	0	0	0	278
05:15 PM	0	82	39	0	121	8	0	15	0	23	30	78	0	0	108	0	0	0	0	0	252
05:30 PM	0	79	37	0	116	9	0	13	0	22	22	71	0	0	93	0	0	0	0	0	231
05:45 PM	0	65	39	0	104	4	0	4	0	8	24	136	0	0	160	0	0	0	0	0	272
Total Volume	0	316	150	0	466	32	0	47	0	79	101	387	0	0	488	0	0	0	0	0	1033
% App. Total	0	67.8	32.2	0		40.5	0	59.5	0		20.7	79.3	0	0		0	0	0	0	0	
PHF	.000	.878	.962	.000	.932	.727	.000	.783	.000	.760	.842	.711	.000	.000	.763	.000	.000	.000	.000	.000	.929
Cars	0	311	143	0	454	30	0	42	0	72	95	380	0	0	475	0	0	0	0	0	1001
% Cars	0	98.4	95.3	0	97.4	93.8	0	89.4	0	91.1	94.1	98.2	0	0	97.3	0	0	0	0	0	96.9
Heavy Vehicles	0	5	7	0	12	2	0	5	0	7	6	7	0	0	13	0	0	0	0	0	32
% Heavy Vehicles	0	1.6	4.7	0	2.6	6.3	0	10.6	0	8.9	5.9	1.8	0	0	2.7	0	0	0	0	0	3.1





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City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 EE
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Woburn Street From North				Presidential Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	0	6	44	0	57	1	4	0	12	16	0	0	0	0	0	0	140
03:15 PM	0	8	44	0	74	0	6	0	10	3	0	0	0	0	0	0	145
03:30 PM	1	2	67	0	74	1	4	0	12	8	1	0	0	1	1	0	172
03:45 PM	0	6	51	0	79	0	4	0	7	6	0	0	1	6	4	0	164
Total	1	22	206	0	284	2	18	0	41	33	1	0	1	7	5	0	621
04:00 PM	0	5	56	0	94	0	5	0	14	8	0	0	0	2	1	0	185
04:15 PM	0	2	68	0	89	0	5	0	13	4	0	0	0	2	0	0	183
04:30 PM	0	4	78	0	84	0	6	0	17	12	0	0	0	0	2	0	203
04:45 PM	3	4	99	0	97	0	4	0	13	6	0	0	0	4	1	0	231
Total	3	15	301	0	364	0	20	0	57	30	0	0	0	8	4	0	802
05:00 PM	0	4	102	0	116	0	9	0	8	7	0	0	0	1	2	0	249
05:15 PM	0	4	91	0	101	0	3	0	8	4	0	0	0	1	0	0	212
05:30 PM	0	4	87	0	107	0	3	0	5	0	0	0	0	3	1	0	210
05:45 PM	2	5	55	0	168	0	1	0	11	3	0	0	0	11	8	0	264
Total	2	17	335	0	492	0	16	0	32	14	0	0	0	16	11	0	935
Grand Total	6	54	842	0	1140	2	54	0	130	77	1	0	1	31	20	0	2358
Apprch %	0.7	6	93.3	0	95.3	0.2	4.5	0	62.5	37	0.5	0	1.9	59.6	38.5	0	
Total %	0.3	2.3	35.7	0	48.3	0.1	2.3	0	5.5	3.3	0	0	0	1.3	0.8	0	
Cars	4	48	81.1	0	1073	2	49	0	127	75	0	0	1	31	17	0	2238
% Cars	66.7	88.9	96.3	0	94.1	100	90.7	0	97.7	97.4	0	0	100	100	85	0	94.9
Heavy Vehicles	2	6	31	0	67	0	5	0	3	2	1	0	0	0	3	0	120
% Heavy Vehicles	33.3	11.1	3.7	0	5.9	0	9.3	0	2.3	2.6	100	0	0	0	15	0	5.1

	Woburn Street From North					Presidential Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	4	102	0	106	116	0	9	0	125	8	7	0	0	15	0	1	2	0	3	249
05:15 PM	0	4	91	0	95	101	0	3	0	104	8	4	0	0	12	0	1	0	0	1	212
05:30 PM	0	4	87	0	91	107	0	3	0	110	5	0	0	0	5	0	3	1	0	4	210
05:45 PM	2	5	55	0	62	168	0	1	0	169	11	3	0	0	14	0	11	8	0	19	264
Total Volume	2	17	335	0	354	492	0	16	0	508	32	14	0	0	46	0	16	11	0	27	935
% App. Total	0.6	4.8	94.6	0		96.9	0	3.1	0		69.6	30.4	0	0		0	59.3	40.7	0		
PHF	.250	.850	.821	.000	.835	.732	.000	.444	.000	.751	.727	.500	.000	.000	.767	.000	.364	.344	.000	.355	.885
Cars	2	14	328	0	344	479	0	13	0	492	32	13	0	0	45	0	16	11	0	27	908
% Cars	100	82.4	97.9	0	97.2	97.4	0	81.3	0	96.9	100	92.9	0	0	97.8	0	100	100	0	100	97.1
Heavy Vehicles	0	3	7	0	10	13	0	3	0	16	0	1	0	0	1	0	0	0	0	0	27
% Heavy Vehicles	0	17.6	2.1	0	2.8	2.6	0	18.8	0	3.1	0	7.1	0	0	2.2	0	0	0	0	0	2.9



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N/S: Woburn Street
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Client: Bayside/ K. Cram

File Name : 154463 EE
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars

	Woburn Street From North				Presidential Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	0	5	43	0	50	1	4	0	11	15	0	0	0	0	0	0	129
03:15 PM	0	7	41	0	69	0	5	0	9	3	0	0	0	0	0	0	134
03:30 PM	0	2	62	0	65	1	4	0	12	8	0	0	0	1	0	0	155
03:45 PM	0	6	49	0	71	0	4	0	7	6	0	0	1	6	3	0	153
Total	0	20	195	0	255	2	17	0	39	32	0	0	1	7	3	0	571
04:00 PM	0	5	53	0	87	0	5	0	14	8	0	0	0	2	1	0	175
04:15 PM	0	2	65	0	82	0	5	0	13	4	0	0	0	2	0	0	173
04:30 PM	0	4	74	0	80	0	5	0	17	12	0	0	0	0	1	0	193
04:45 PM	2	3	96	0	90	0	4	0	12	6	0	0	0	4	1	0	218
Total	2	14	288	0	339	0	19	0	56	30	0	0	0	8	3	0	759
05:00 PM	0	3	100	0	112	0	8	0	8	7	0	0	0	1	2	0	241
05:15 PM	0	3	89	0	98	0	2	0	8	3	0	0	0	1	0	0	204
05:30 PM	0	3	85	0	102	0	2	0	5	0	0	0	0	3	1	0	201
05:45 PM	2	5	54	0	167	0	1	0	11	3	0	0	0	11	8	0	262
Total	2	14	328	0	479	0	13	0	32	13	0	0	0	16	11	0	908
Grand Total	4	48	811	0	1073	2	49	0	127	75	0	0	1	31	17	0	2238
Apprch %	0.5	5.6	94	0	95.5	0.2	4.4	0	62.9	37.1	0	0	2	63.3	34.7	0	
Total %	0.2	2.1	36.2	0	47.9	0.1	2.2	0	5.7	3.4	0	0	0	1.4	0.8	0	

	Woburn Street From North					Presidential Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	3	100	0	103	112	0	8	0	120	8	7	0	0	15	0	1	2	0	3	241
05:15 PM	0	3	89	0	92	98	0	2	0	100	8	3	0	0	11	0	1	0	0	1	204
05:30 PM	0	3	85	0	88	102	0	2	0	104	5	0	0	0	5	0	3	1	0	4	201
05:45 PM	2	5	54	0	61	167	0	1	0	168	11	3	0	0	14	0	11	8	0	19	262
Total Volume	2	14	328	0	344	479	0	13	0	492	32	13	0	0	45	0	16	11	0	27	908
% App. Total	0.6	4.1	95.3	0		97.4	0	2.6	0		71.1	28.9	0	0		0	59.3	40.7	0		
PHF	.250	.700	.820	.000	.835	.717	.000	.406	.000	.732	.727	.464	.000	.000	.750	.000	.364	.344	.000	.355	.866



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N/S: Woburn Street
E/W: Presidential Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 EE
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Woburn Street From North				Presidential Way From East				Woburn Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	0	1	1	0	7	0	0	0	1	1	0	0	0	0	0	0	11
03:15 PM	0	1	3	0	5	0	1	0	1	0	0	0	0	0	0	0	11
03:30 PM	1	0	5	0	9	0	0	0	0	0	1	0	0	0	1	0	17
03:45 PM	0	0	2	0	8	0	0	0	0	0	0	0	0	0	1	0	11
Total	1	2	11	0	29	0	1	0	2	1	1	0	0	0	2	0	50
04:00 PM	0	0	3	0	7	0	0	0	0	0	0	0	0	0	0	0	10
04:15 PM	0	0	3	0	7	0	0	0	0	0	0	0	0	0	0	0	10
04:30 PM	0	0	4	0	4	0	1	0	0	0	0	0	0	0	1	0	10
04:45 PM	1	1	3	0	7	0	0	0	1	0	0	0	0	0	0	0	13
Total	1	1	13	0	25	0	1	0	1	0	0	0	0	0	1	0	43
05:00 PM	0	1	2	0	4	0	1	0	0	0	0	0	0	0	0	0	8
05:15 PM	0	1	2	0	3	0	1	0	0	1	0	0	0	0	0	0	8
05:30 PM	0	1	2	0	5	0	1	0	0	0	0	0	0	0	0	0	9
05:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	3	7	0	13	0	3	0	0	1	0	0	0	0	0	0	27
Grand Total	2	6	31	0	67	0	5	0	3	2	1	0	0	0	3	0	120
Apprch %	5.1	15.4	79.5	0	93.1	0	6.9	0	50	33.3	16.7	0	0	0	100	0	
Total %	1.7	5	25.8	0	55.8	0	4.2	0	2.5	1.7	0.8	0	0	0	2.5	0	

	Woburn Street From North					Presidential Way From East					Woburn Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	0	1	1	0	2	7	0	0	0	7	1	1	0	0	2	0	0	0	0	0	11
03:15 PM	0	1	3	0	4	5	0	1	0	6	1	0	0	0	1	0	0	0	0	0	11
03:30 PM	1	0	5	0	6	9	0	0	0	9	0	0	1	0	1	0	0	1	0	1	17
03:45 PM	0	0	2	0	2	8	0	0	0	8	0	0	0	0	0	0	0	1	0	1	11
Total Volume	1	2	11	0	14	29	0	1	0	30	2	1	1	0	4	0	0	2	0	2	50
% App. Total	7.1	14.3	78.6	0		96.7	0	3.3	0		50	25	25	0		0	0	100	0		
PHF	.250	.500	.550	.000	.583	.806	.000	.250	.000	.833	.500	.250	.250	.000	.500	.000	.000	.500	.000	.500	.735



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E/W: Presidential Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 EE
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Peds and Bikes

	Woburn Street From North					Presidential Way From East					Woburn Street From South					Driveway From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
03:00 PM	0	0	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	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	0	0
03:45 PM	0	0	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	0	0
04:00 PM	0	0	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	0	0	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	0	0	0	0	0	0	0	0	0
04:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Grand Total	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5
Apprch %	0	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	100	
Total %	0	60	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	20	

	Woburn Street From North						Presidential Way From East						Woburn Street From South						Driveway From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 04:30 PM																									
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	2	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	4	4
% App. Total	0	100	0	0	0		100	0	0	0	0		0	0	0	0	0		0	0	0	100			
PHF	.000	.500	.000	.000	.000	.500	.250	.000	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.500	



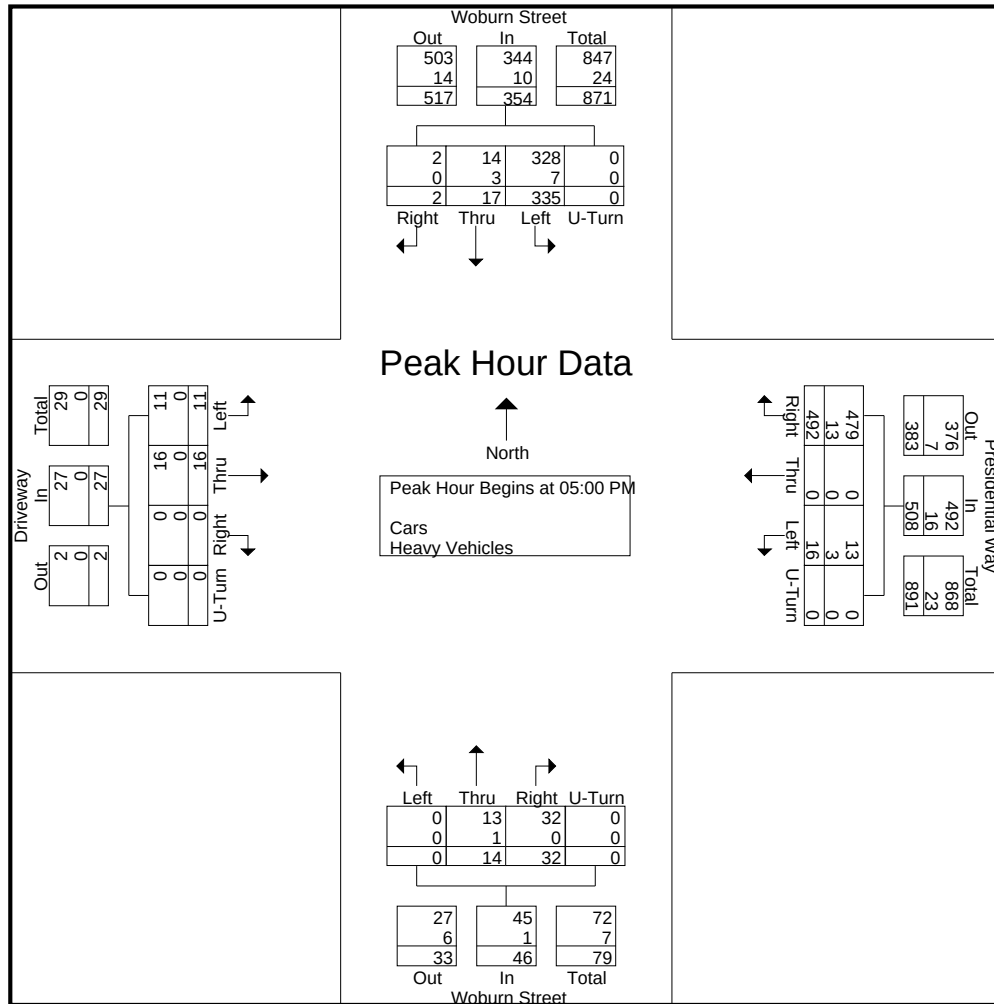
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E/W: Presidential Way/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 EE
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Woburn Street From North					Presidential Way From East					Woburn Street From South					Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	4	102	0	106	116	0	9	0	125	8	7	0	0	15	0	1	2	0	3	249
05:15 PM	0	4	91	0	95	101	0	3	0	104	8	4	0	0	12	0	1	0	0	1	212
05:30 PM	0	4	87	0	91	107	0	3	0	110	5	0	0	0	5	0	3	1	0	4	210
05:45 PM	2	5	55	0	62	168	0	1	0	169	11	3	0	0	14	0	11	8	0	19	264
Total Volume	2	17	335	0	354	492	0	16	0	508	32	14	0	0	46	0	16	11	0	27	935
% App. Total	0.6	4.8	94.6	0		96.9	0	3.1	0		69.6	30.4	0	0		0	59.3	40.7	0		
PHF	.250	.850	.821	.000	.835	.732	.000	.444	.000	.751	.727	.500	.000	.000	.767	.000	.364	.344	.000	.355	.885
Cars	2	14	328	0	344	479	0	13	0	492	32	13	0	0	45	0	16	11	0	27	908
% Cars	100	82.4	97.9	0	97.2	97.4	0	81.3	0	96.9	100	92.9	0	0	97.8	0	100	100	0	100	97.1
Heavy Vehicles	0	3	7	0	10	13	0	3	0	16	0	1	0	0	1	0	0	0	0	0	27
% Heavy Vehicles	0	17.6	2.1	0	2.8	2.6	0	18.8	0	3.1	0	7.1	0	0	2.2	0	0	0	0	0	2.9





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N/S: Main Street
E/W: Eames Street/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 FF
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Main Street From North				Eames Street From East				Main Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	0	90	7	0	22	0	40	0	29	83	0	0	0	0	0	0	271
03:15 PM	0	73	7	0	22	0	29	0	48	119	0	0	0	0	0	0	298
03:30 PM	0	82	10	0	23	0	33	0	48	113	0	0	0	0	0	0	309
03:45 PM	0	77	13	0	27	0	31	0	38	121	0	0	0	0	0	0	307
Total	0	322	37	0	94	0	133	0	163	436	0	0	0	0	0	0	1185
04:00 PM	0	84	13	0	30	0	43	0	55	112	0	0	0	0	0	0	337
04:15 PM	0	67	23	0	28	0	30	0	61	157	0	0	0	0	0	0	366
04:30 PM	0	63	20	0	36	0	35	0	73	152	0	0	0	0	0	0	379
04:45 PM	0	60	11	0	37	0	36	0	66	136	0	0	0	0	0	0	346
Total	0	274	67	0	131	0	144	0	255	557	0	0	0	0	0	0	1428
05:00 PM	0	65	15	0	40	0	54	0	58	153	0	0	0	0	0	0	385
05:15 PM	0	70	30	0	43	0	50	0	55	149	0	0	0	0	0	0	397
05:30 PM	0	59	22	0	43	0	49	0	70	144	0	0	0	0	0	0	387
05:45 PM	0	82	19	0	34	0	41	0	79	113	0	0	0	0	0	0	368
Total	0	276	86	0	160	0	194	0	262	559	0	0	0	0	0	0	1537
Grand Total	0	872	190	0	385	0	471	0	680	1552	0	0	0	0	0	0	4150
Apprch %	0	82.1	17.9	0	45	0	55	0	30.5	69.5	0	0	0	0	0	0	
Total %	0	21	4.6	0	9.3	0	11.3	0	16.4	37.4	0	0	0	0	0	0	
Cars	0	834	184	0	373	0	451	0	636	1504	0	0	0	0	0	0	3982
% Cars	0	95.6	96.8	0	96.9	0	95.8	0	93.5	96.9	0	0	0	0	0	0	96
Heavy Vehicles	0	38	6	0	12	0	20	0	44	48	0	0	0	0	0	0	168
% Heavy Vehicles	0	4.4	3.2	0	3.1	0	4.2	0	6.5	3.1	0	0	0	0	0	0	4

	Main Street From North					Eames Street From East					Main Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	65	15	0	80	40	0	54	0	94	58	153	0	0	211	0	0	0	0	0	385
05:15 PM	0	70	30	0	100	43	0	50	0	93	55	149	0	0	204	0	0	0	0	0	397
05:30 PM	0	59	22	0	81	43	0	49	0	92	70	144	0	0	214	0	0	0	0	0	387
05:45 PM	0	82	19	0	101	34	0	41	0	75	79	113	0	0	192	0	0	0	0	0	368
Total Volume	0	276	86	0	362	160	0	194	0	354	262	559	0	0	821	0	0	0	0	0	1537
% App. Total	0	76.2	23.8	0		45.2	0	54.8	0		31.9	68.1	0	0		0	0	0	0		
PHF	.000	.841	.717	.000	.896	.930	.000	.898	.000	.941	.829	.913	.000	.000	.959	.000	.000	.000	.000	.000	.968
Cars	0	269	85	0	354	158	0	192	0	350	252	545	0	0	797	0	0	0	0	0	1501
% Cars	0	97.5	98.8	0	97.8	98.8	0	99.0	0	98.9	96.2	97.5	0	0	97.1	0	0	0	0	0	97.7
Heavy Vehicles	0	7	1	0	8	2	0	2	0	4	10	14	0	0	24	0	0	0	0	0	36
% Heavy Vehicles	0	2.5	1.2	0	2.2	1.3	0	1.0	0	1.1	3.8	2.5	0	0	2.9	0	0	0	0	0	2.3



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City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 FF
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars

	Main Street From North				Eames Street From East				Main Street From South				Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
03:00 PM	0	83	6	0	21	0	36	0	26	83	0	0	0	0	0	0	255
03:15 PM	0	69	7	0	22	0	29	0	41	114	0	0	0	0	0	0	282
03:30 PM	0	77	10	0	22	0	33	0	42	106	0	0	0	0	0	0	290
03:45 PM	0	70	13	0	25	0	29	0	34	116	0	0	0	0	0	0	287
Total	0	299	36	0	90	0	127	0	143	419	0	0	0	0	0	0	1114
04:00 PM	0	82	12	0	29	0	41	0	53	110	0	0	0	0	0	0	327
04:15 PM	0	65	22	0	28	0	29	0	56	150	0	0	0	0	0	0	350
04:30 PM	0	60	18	0	33	0	30	0	71	146	0	0	0	0	0	0	358
04:45 PM	0	59	11	0	35	0	32	0	61	134	0	0	0	0	0	0	332
Total	0	266	63	0	125	0	132	0	241	540	0	0	0	0	0	0	1367
05:00 PM	0	62	15	0	40	0	54	0	57	149	0	0	0	0	0	0	377
05:15 PM	0	69	29	0	43	0	50	0	52	145	0	0	0	0	0	0	388
05:30 PM	0	58	22	0	41	0	49	0	70	141	0	0	0	0	0	0	381
05:45 PM	0	80	19	0	34	0	39	0	73	110	0	0	0	0	0	0	355
Total	0	269	85	0	158	0	192	0	252	545	0	0	0	0	0	0	1501
Grand Total	0	834	184	0	373	0	451	0	636	1504	0	0	0	0	0	0	3982
Apprch %	0	81.9	18.1	0	45.3	0	54.7	0	29.7	70.3	0	0	0	0	0	0	
Total %	0	20.9	4.6	0	9.4	0	11.3	0	16	37.8	0	0	0	0	0	0	

	Main Street From North					Eames Street From East					Main Street From South					Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	62	15	0	77	40	0	54	0	94	57	149	0	0	206	0	0	0	0	0	377
05:15 PM	0	69	29	0	98	43	0	50	0	93	52	145	0	0	197	0	0	0	0	0	388
05:30 PM	0	58	22	0	80	41	0	49	0	90	70	141	0	0	211	0	0	0	0	0	381
05:45 PM	0	80	19	0	99	34	0	39	0	73	73	110	0	0	183	0	0	0	0	0	355
Total Volume	0	269	85	0	354	158	0	192	0	350	252	545	0	0	797	0	0	0	0	0	1501
% App. Total	0	76	24	0		45.1	0	54.9	0		31.6	68.4	0	0		0	0	0	0		
PHF	.000	.841	.733	.000	.894	.919	.000	.889	.000	.931	.863	.914	.000	.000	.944	.000	.000	.000	.000	.000	.967



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Email: datarequests@pdillc.com

N/S: Main Street
E/W: Eames Street/ Driveway
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 FF
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Heavy Vehicles

	Main Street From North				Eames Street From East				Main Street From South				Driveway From West				Int. Total
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	
03:00 PM	0	7	1	0	1	0	4	0	3	0	0	0	0	0	0	0	16
03:15 PM	0	4	0	0	0	0	0	0	7	5	0	0	0	0	0	0	16
03:30 PM	0	5	0	0	1	0	0	0	6	7	0	0	0	0	0	0	19
03:45 PM	0	7	0	0	2	0	2	0	4	5	0	0	0	0	0	0	20
Total	0	23	1	0	4	0	6	0	20	17	0	0	0	0	0	0	71
04:00 PM	0	2	1	0	1	0	2	0	2	2	0	0	0	0	0	0	10
04:15 PM	0	2	1	0	0	0	1	0	5	7	0	0	0	0	0	0	16
04:30 PM	0	3	2	0	3	0	5	0	2	6	0	0	0	0	0	0	21
04:45 PM	0	1	0	0	2	0	4	0	5	2	0	0	0	0	0	0	14
Total	0	8	4	0	6	0	12	0	14	17	0	0	0	0	0	0	61
05:00 PM	0	3	0	0	0	0	0	0	1	4	0	0	0	0	0	0	8
05:15 PM	0	1	1	0	0	0	0	0	3	4	0	0	0	0	0	0	9
05:30 PM	0	1	0	0	2	0	0	0	0	3	0	0	0	0	0	0	6
05:45 PM	0	2	0	0	0	0	2	0	6	3	0	0	0	0	0	0	13
Total	0	7	1	0	2	0	2	0	10	14	0	0	0	0	0	0	36
Grand Total	0	38	6	0	12	0	20	0	44	48	0	0	0	0	0	0	168
Apprch %	0	86.4	13.6	0	37.5	0	62.5	0	47.8	52.2	0	0	0	0	0	0	
Total %	0	22.6	3.6	0	7.1	0	11.9	0	26.2	28.6	0	0	0	0	0	0	

	Main Street From North					Eames Street From East					Main Street From South					Driveway From West					Int. Total
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	0	7	1	0	8	1	0	4	0	5	3	0	0	0	3	0	0	0	0	0	16
03:15 PM	0	4	0	0	4	0	0	0	0	0	7	5	0	0	12	0	0	0	0	0	16
03:30 PM	0	5	0	0	5	1	0	0	0	1	6	7	0	0	13	0	0	0	0	0	19
03:45 PM	0	7	0	0	7	2	0	2	0	4	4	5	0	0	9	0	0	0	0	0	20
Total Volume	0	23	1	0	24	4	0	6	0	10	20	17	0	0	37	0	0	0	0	0	71
% App. Total	0	95.8	4.2	0		40	0	60	0		54.1	45.9	0	0		0	0	0	0		
PHF	.000	.821	.250	.000	.750	.500	.000	.375	.000	.500	.714	.607	.000	.000	.712	.000	.000	.000	.000	.000	.888



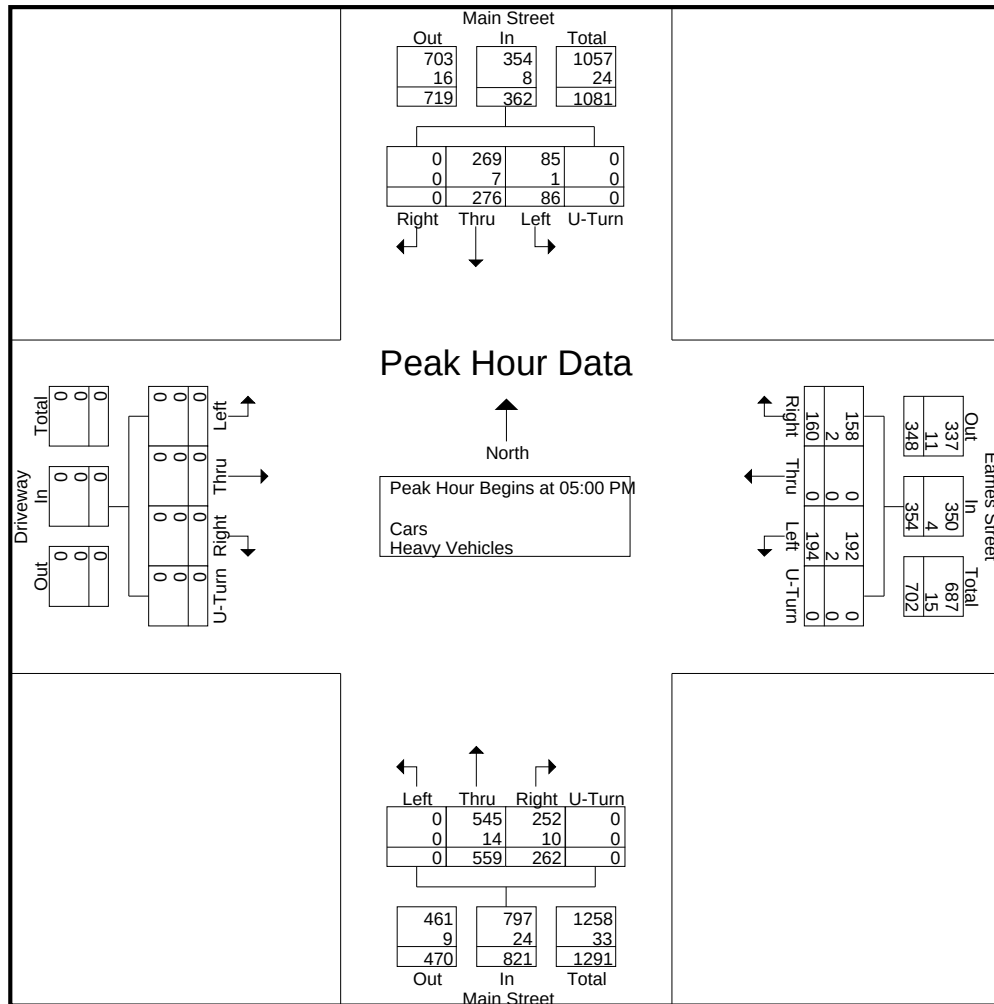
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N/S: Main Street
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City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 FF
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

	Main Street From North					Eames Street From East					Main Street From South					Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	65	15	0	80	40	0	54	0	94	58	153	0	0	211	0	0	0	0	0	385
05:15 PM	0	70	30	0	100	43	0	50	0	93	55	149	0	0	204	0	0	0	0	0	397
05:30 PM	0	59	22	0	81	43	0	49	0	92	70	144	0	0	214	0	0	0	0	0	387
05:45 PM	0	82	19	0	101	34	0	41	0	75	79	113	0	0	192	0	0	0	0	0	368
Total Volume	0	276	86	0	362	160	0	194	0	354	262	559	0	0	821	0	0	0	0	0	1537
% App. Total	0	76.2	23.8	0		45.2	0	54.8	0		31.9	68.1	0	0		0	0	0	0	0	
PHF	.000	.841	.717	.000	.896	.930	.000	.898	.000	.941	.829	.913	.000	.000	.959	.000	.000	.000	.000	.000	.968
Cars	0	269	85	0	354	158	0	192	0	350	252	545	0	0	797	0	0	0	0	0	1501
% Cars	0	97.5	98.8	0	97.8	98.8	0	99.0	0	98.9	96.2	97.5	0	0	97.1	0	0	0	0	0	97.7
Heavy Vehicles	0	7	1	0	8	2	0	2	0	4	10	14	0	0	24	0	0	0	0	0	36
% Heavy Vehicles	0	2.5	1.2	0	2.2	1.3	0	1.0	0	1.1	3.8	2.5	0	0	2.9	0	0	0	0	0	2.3





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N: #51 Eames Street Driveway
E/W: Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 GG
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	#51 Eames Street Driveway From North			Eames Street From East			Eames Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
03:00 PM	0	0	0	0	67	0	50	0	0	117
03:15 PM	0	0	0	0	67	0	67	0	0	134
03:30 PM	0	0	0	0	58	0	80	0	0	138
03:45 PM	0	0	0	0	72	0	61	0	0	133
Total	0	0	0	0	264	0	258	0	0	522
04:00 PM	0	0	0	0	72	0	91	0	0	163
04:15 PM	0	0	0	0	63	0	89	0	0	152
04:30 PM	0	0	0	0	71	0	109	0	0	180
04:45 PM	0	0	0	0	74	0	94	0	0	168
Total	0	0	0	0	280	0	383	0	0	663
05:00 PM	0	0	0	0	105	0	89	0	0	194
05:15 PM	0	0	0	0	110	0	102	0	0	212
05:30 PM	0	0	0	0	91	0	115	0	0	206
05:45 PM	0	0	0	0	80	0	101	0	0	181
Total	0	0	0	0	386	0	407	0	0	793
Grand Total	0	0	0	0	930	0	1048	0	0	1978
Apprch %	0	0	0	0	100	0	100	0	0	
Total %	0	0	0	0	47	0	53	0	0	
Cars	0	0	0	0	894	0	992	0	0	1886
% Cars	0	0	0	0	96.1	0	94.7	0	0	95.3
Heavy Vehicles	0	0	0	0	36	0	56	0	0	92
% Heavy Vehicles	0	0	0	0	3.9	0	5.3	0	0	4.7

	#51 Eames Street Driveway From North				Eames Street From East				Eames Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	0	0	0	0	105	0	105	89	0	0	89	194
05:15 PM	0	0	0	0	0	110	0	110	102	0	0	102	212
05:30 PM	0	0	0	0	0	91	0	91	115	0	0	115	206
05:45 PM	0	0	0	0	0	80	0	80	101	0	0	101	181
Total Volume	0	0	0	0	0	386	0	386	407	0	0	407	793
% App. Total	0	0	0		0	100	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.877	.000	.877	.885	.000	.000	.885	.935
Cars	0	0	0	0	0	380	0	380	397	0	0	397	777
% Cars	0	0	0	0	0	98.4	0	98.4	97.5	0	0	97.5	98.0
Heavy Vehicles	0	0	0	0	0	6	0	6	10	0	0	10	16
% Heavy Vehicles	0	0	0	0	0	1.6	0	1.6	2.5	0	0	2.5	2.0



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N: #51 Eames Street Driveway
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City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 GG
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Cars

	#51 Eames Street Driveway From North			Eames Street From East			Eames Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
03:00 PM	0	0	0	0	64	0	45	0	0	109
03:15 PM	0	0	0	0	66	0	61	0	0	127
03:30 PM	0	0	0	0	54	0	72	0	0	126
03:45 PM	0	0	0	0	68	0	56	0	0	124
Total	0	0	0	0	252	0	234	0	0	486
04:00 PM	0	0	0	0	65	0	86	0	0	151
04:15 PM	0	0	0	0	61	0	84	0	0	145
04:30 PM	0	0	0	0	66	0	103	0	0	169
04:45 PM	0	0	0	0	70	0	88	0	0	158
Total	0	0	0	0	262	0	361	0	0	623
05:00 PM	0	0	0	0	104	0	87	0	0	191
05:15 PM	0	0	0	0	109	0	99	0	0	208
05:30 PM	0	0	0	0	88	0	114	0	0	202
05:45 PM	0	0	0	0	79	0	97	0	0	176
Total	0	0	0	0	380	0	397	0	0	777
Grand Total	0	0	0	0	894	0	992	0	0	1886
Apprch %	0	0	0	0	100	0	100	0	0	
Total %	0	0	0	0	47.4	0	52.6	0	0	

	#51 Eames Street Driveway From North				Eames Street From East				Eames Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	0	0	0	0	104	0	104	87	0	0	87	191
05:15 PM	0	0	0	0	0	109	0	109	99	0	0	99	208
05:30 PM	0	0	0	0	0	88	0	88	114	0	0	114	202
05:45 PM	0	0	0	0	0	79	0	79	97	0	0	97	176
Total Volume	0	0	0	0	0	380	0	380	397	0	0	397	777
% App. Total	0	0	0		0	100	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.872	.000	.872	.871	.000	.000	.871	.934



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Client: Bayside/ K. Cram

File Name : 154463 GG
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Heavy Vehicles

	#51 Eames Street Driveway From North			Eames Street From East			Eames Street From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
03:00 PM	0	0	0	0	3	0	5	0	0	8
03:15 PM	0	0	0	0	1	0	6	0	0	7
03:30 PM	0	0	0	0	4	0	8	0	0	12
03:45 PM	0	0	0	0	4	0	5	0	0	9
Total	0	0	0	0	12	0	24	0	0	36
04:00 PM	0	0	0	0	7	0	5	0	0	12
04:15 PM	0	0	0	0	2	0	5	0	0	7
04:30 PM	0	0	0	0	5	0	6	0	0	11
04:45 PM	0	0	0	0	4	0	6	0	0	10
Total	0	0	0	0	18	0	22	0	0	40
05:00 PM	0	0	0	0	1	0	2	0	0	3
05:15 PM	0	0	0	0	1	0	3	0	0	4
05:30 PM	0	0	0	0	3	0	1	0	0	4
05:45 PM	0	0	0	0	1	0	4	0	0	5
Total	0	0	0	0	6	0	10	0	0	16
Grand Total	0	0	0	0	36	0	56	0	0	92
Apprch %	0	0	0	0	100	0	100	0	0	
Total %	0	0	0	0	39.1	0	60.9	0	0	

	#51 Eames Street Driveway From North				Eames Street From East				Eames Street From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:15 PM													
03:15 PM	0	0	0	0	0	1	0	1	6	0	0	6	7
03:30 PM	0	0	0	0	0	4	0	4	8	0	0	8	12
03:45 PM	0	0	0	0	0	4	0	4	5	0	0	5	9
04:00 PM	0	0	0	0	0	7	0	7	5	0	0	5	12
Total Volume	0	0	0	0	0	16	0	16	24	0	0	24	40
% App. Total	0	0	0		0	100	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.571	.000	.571	.750	.000	.000	.750	.833



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E/W: Eames Street
City, State: Wilmington, MA
Client: Bayside/ K. Cram

File Name : 154463 GG
Site Code : 2151944
Start Date : 6/10/2015
Page No : 1

Groups Printed- Peds and Bikes

	#51 Eames Street Driveway From North				Eames Street From East				Eames Street From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
03:15 PM	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
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	0	1
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
04:30 PM	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
Total	0	0	0	0	0	1	0	0	0	0	0	0	1
05:00 PM	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
05:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	0	1
Grand Total	0	0	0	0	0	1	0	0	2	0	0	0	3
Apprch %	0	0	0	0	0	100	0	0	100	0	0	0	
Total %	0	0	0	0	0	33.3	0	0	66.7	0	0	0	

	#51 Eames Street Driveway From North					Eames Street From East					Eames Street From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 03:00 PM																
03:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
03:15 PM	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
03:45 PM	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	1	0	0	0	1	1
% App. Total	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.250



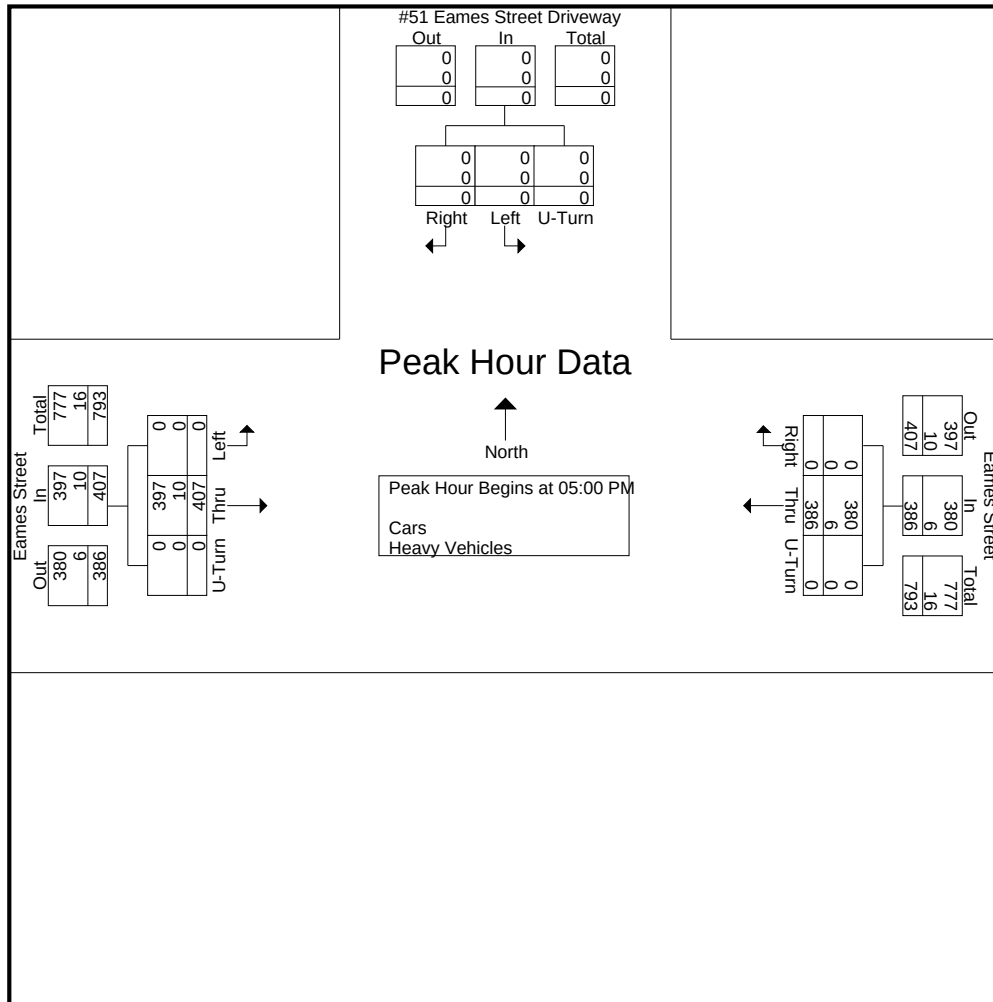
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Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	0	0	0	0	105	0	105	89	0	0	89	194
05:15 PM	0	0	0	0	0	110	0	110	102	0	0	102	212
05:30 PM	0	0	0	0	0	91	0	91	115	0	0	115	206
05:45 PM	0	0	0	0	0	80	0	80	101	0	0	101	181
Total Volume	0	0	0	0	0	386	0	386	407	0	0	407	793
% App. Total	0	0	0	0	0	100	0	100	100	0	0	100	
PHF	.000	.000	.000	.000	.000	.877	.000	.877	.885	.000	.000	.885	.935
Cars	0	0	0	0	0	380	0	380	397	0	0	397	777
% Cars	0	0	0	0	0	98.4	0	98.4	97.5	0	0	97.5	98.0
Heavy Vehicles	0	0	0	0	0	6	0	6	10	0	0	10	16
% Heavy Vehicles	0	0	0	0	0	1.6	0	1.6	2.5	0	0	2.5	2.0



Seasonal Adjustment Worksheets

MASSACHUSETTS HIGHWAY DEPARTMENT - STATEWIDE TRAFFIC DATA COLLECTION

* Note: These are weekday factors. The average of the factors for the year will not equal 1, as weekend data are not considered.

2010 WEEKDAY SEASONAL FACTORS *

FACTOR GROUP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
GROUP 1 - WEST INTERSTATE	0.97	0.93	0.89	0.88	0.89	0.87	0.91	0.89	0.89	0.90	0.93	0.95
Use group 2 for R5, R6, & R0												
GROUP 2 - RURAL MAJOR COLLECTOR (R-5)	1.11	1.10	1.07	1.00	0.91	0.89	0.87	0.86	0.90	0.92	1.02	1.06
GROUP 3A - RECREATIONAL ** (1-4) See below	1.26	1.25	1.19	1.08	0.95	0.88	0.77	0.76	0.93	1.00	1.08	1.15
GROUP 3B - RECREATIONAL *** (5) See below	1.25	1.23	1.16	1.10	0.96	0.90	0.75	0.73	0.93	0.99	1.13	1.16
GROUP 4 - I-495 INTERSTATE	1.02	0.99	0.98	0.95	0.92	0.88	0.86	0.84	0.93	0.95	0.99	1.03
GROUP 5 - EAST INTERSTATE	1.04	1.00	0.97	0.93	0.92	0.91	0.92	0.89	0.92	0.93	0.97	1.01
GROUP 6: Use group 6 for U2, U3, U5, U6, U0, R2, & R3												
URBAN ARTERIALS, COLLECTORS & RURAL ARTERIALS (R-2, R-3)	1.01	1.00	0.96	0.93	0.91	0.90	0.91	0.90	0.92	0.93	0.97	0.99
GROUP 7 - I-84 PROXIMITY (STA. 17, 3921)	1.21	1.20	1.11	1.06	1.00	1.01	0.95	0.90	1.06	1.06	1.06	1.14
GROUP 8 - I-295 PROXIMITY (STA. 6590)	1.00	0.99	0.95	0.92	0.88	0.87	0.92	0.88	0.91	0.91	0.92	0.94
GROUP 9 - I-195 PROXIMITY (STA. 7)	1.10	1.05	1.03	0.96	0.90	0.86	0.85	0.79	0.88	0.93	0.99	1.04

RECREATIONAL: (ALL YEARS)

**GROUP 3A:

1. CAPE COD (ALL TOWNS)

2. PLYMOUTH (SOUTH OF RTE. 3A)

7014, 7079, 7080, 7090, 7091, 7092, 7093, 7094, 7095, 7096, 7097, 7108, 7178

3. MARTHA'S VINEYARD

4. NANTUCKET

***GROUP 3B:

5. PERMANENTS 2 & 189

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, 2198

2010 AXLE CORRECTION FACTORS

ROAD INVENTORY

FUNCTIONAL CLASSIFICATION

AXLE CORRECTION FACTOR	
RURAL	
1	0.93
2	0.97
3	0.98
0,5,6	0.98
URBAN	
1	0.96
2,3	0.97
5	0.98
0,6	0.98
I-84	0.78

ROUND OFF

0 - 999.....10

> 1,000.....100

Apply I-84 factor to stations:

3290, 3921, 3929

Crash Data and Worksheets

MassDOT Crash Report for WILMINGTON for the year 2009																							
Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Injured Vehicles	Number of Fatal Injuries	Year of Report	Month of Collision	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Direction	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambered Light	Weather Condition	All Roadway Intersection	Distance from Nearest Roadway Intersection	Distance from Nearest Intersecting Roadway	Distance from Nearest Intersection	Non-Motorist Type	X Coordinate	Y Coordinate
2472487	WILMINGTON	26-Apr-2009	11:03 AM	Property damage only (non-fatal)	2	0	0	0	0	Side-swipe same direction	V1: Turning right / V2: Turning right	V1: Southbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Two-wheeled motor vehicle	Dry	Daylight	Clear	LOWELL STREET / WEST STREET			229897.1997		920942.2502
24727146	WILMINGTON	16-Mar-2009	6:57 PM	Property damage only (non-fatal)	2	0	0	0	0	Head-on	V1: Turning left / V2: Traveling straight ahead	V1: Westbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Cloudy	LOWELL STREET / WEST STREET			229897.1997		920942.2502
24729347	WILMINGTON	15-Feb-2009	6:15 PM	Property damage only (non-fatal)	1	0	0	0	0	Rear-end	V1: Slowing or stopped in traffic	V1: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car	Dry	Dark - Night	Clear	LOWELL STREET / WOBURN STREET			229813.7656		921952.3148
24813983	WILMINGTON	04-Jun-2009	7:23 AM	Non-fatal injury	2	1	0	0	0	Acute	V1: Traveling straight ahead / V2: Slowing or stopped in traffic	V1: Eastbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Light truck	Dry	Daylight	Clear	LOWELL STREET / WOBURN STREET			229813.7656	P: Pedestrian (Bicycle helmet, correct head gear)	921952.3148
25142927	WILMINGTON	26-Apr-2009	6:41 AM	Property damage only (non-fatal)	2	0	0	0	0	Acute	V1: Traveling straight ahead / V2: Turning left	V1: Eastbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear	LOWELL STREET / WOBURN STREET			229813.7656		921952.3148
24729733	WILMINGTON	20-Feb-2009	8:11 AM	Property damage only (non-fatal)	2	0	0	0	0	Acute	V1: Traveling straight ahead / V2: Turning right	V1: Eastbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Ice	Daylight	Cloudy	LOWELL STREET / WEST STREET			229897.1997		920942.2502
25245893	WILMINGTON	26-Dec-2009	6:11 AM	Non-fatal injury	2	1	0	0	0	Acute	V1: Traveling straight ahead / V2: Turning left	V1: Eastbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Wet	Daylight	Cloudy	LOWELL STREET / WOBURN STREET			229813.7656		921952.3148
24851327	WILMINGTON	23-Apr-2009	2:34 PM	Property damage only (non-fatal)	2	0	0	0	0	Acute	V1: Traveling straight ahead / V2: Slowing or stopped in traffic	V1: Northbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear	LOWELL STREET / WOBURN STREET	LOWELL STREET / WOBURN STREET		229813.7656	921952.3148	
24862976	WILMINGTON	24-Mar-2009	7:13 PM	Non-fatal injury	1	1	0	0	0	Side-swipe right	V1: Traveling straight ahead / V2: Slowing or stopped in traffic	V1: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car	Dry	Daylight	Cloudy	LOWELL STREET / WOBURN STREET	LOWELL STREET / WOBURN STREET		229813.7656	921952.3148	
25114559	WILMINGTON	04-Jun-2009	4:42 PM	Property damage only (non-fatal)	2	0	0	0	0	Rear-end	V1: Traveling straight ahead / V2: Slowing or stopped in traffic	V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car	Dry	Daylight	Clear	LOWELL STREET / WOBURN STREET	150 feet E from intersection		229897.1997	920942.2502	
25133291	WILMINGTON	19-Apr-2009	12:59 PM	Property damage only (non-fatal)	2	0	0	0	0	Rear-end	V1: Turning left / V2: Turning left	V1: Northbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear	INDUSTRIAL WAY / WOBURN STREET	150 feet E from intersection		229897.1997	920942.2502	
24814296	WILMINGTON	26-Apr-2009	8:42 PM	Property damage only (non-fatal)	2	0	0	0	0	Acute	V1: Traveling straight ahead / V2: Slowing or stopped in traffic	V1: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car	Wet	Daylight	Cloudy	LOWELL STREET / WOBURN STREET	150 feet E from intersection		229813.7656	921952.3148	

MassDOT

MassDOT Crash Report for WILMINGTON for the year 2010

Crash Number	Crash Location	Crash Date	Crash Time	Crash Severity	Number of Fatalities	Number of Injuries	Number of Property Damage	Direction of Collision	Motorist Action Prior to Crash	Vehicle Type Involved	Crash Type	Vehicle Configuration	Road Surface	Lighting	Weather	Crash Location	Distance from Nearest Roadway	Distance from Nearest Hospital	Distance from Nearest Fire Station	Distance from Nearest Police Station
207750	WILMINGTON	05-Feb-2010	10:28 PM	Property damage only (none injured)	2	0	0	Side-sway opposite	V1: Traveling straight ahead / V2: Traveling straight ahead	V1: Westbound / V2: Eastbound	Head-on	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear	LOWELL STREET / Rte 129 / W. KES. STREET				
207743	WILMINGTON	12-Feb-2010	3:53 PM	Property damage only (none injured)	2	0	0	Head-on	V1: Turning right / V2: Turning right	V1: Eastbound / V2: Eastbound	Head-on	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear	LOWELL STREET / WEST STREET				
208185	WILMINGTON	31-Mar-2010	7:58 AM	Property damage only (none injured)	2	0	0	Angle	V1: Traveling straight ahead / V2: Entering traffic lane	V1: Westbound / V2: Southbound	Angle	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Wet	Daylight	Rain	100 feet E from intersection LOWELL ST / 210 WEST STREET				
208195	WILMINGTON	11-Mar-2010	09:59 AM	Property damage only (none injured)	2	0	0	Head-on	V1: Stopping or stopped in traffic / V2: Traveling straight ahead	V1: Westbound / V2: Westbound	Head-on	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear	LOWELL ST / WOBURN ST				
208244	WILMINGTON	10-Sep-2010	1:48 PM	Property damage only (none injured)	2	0	0	Head-on	V1: Stopping or stopped in traffic / V2: Traveling straight ahead	V1: Eastbound / V2: Eastbound	Head-on	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Daylight	Clear	WOBURN ST / EMMES ST				
207735	WILMINGTON	12-Nov-2010	3:45 PM	Property damage only (none injured)	1	0	0	Angle	V1: Traveling straight ahead	V1: Westbound	Angle	V1: Collision with motor vehicle in traffic	Dry	Daylight	Clear	LOWELL ST / 211 WOBURN STREET				
208262	WILMINGTON	12-Dec-2010	7:16 AM	Property damage only (none injured)	3	0	0	Angle	V1: Stopping or stopped in traffic / V2: Traveling straight ahead	V1: Eastbound / V2: Southbound	Angle	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	Dry	Daylight	Cloudy/Slack, but no rain	LOWELL ST / WEST ST				

MassDOT MassDOT Crash Report for WILMINGTON for the year 2011

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Nonfatal Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection
2696723	WILMINGTON	16-Jan-2011	4:36 PM	Non-fatal injury	2	1	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: Westbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Wet	Daylight	Clear		100 feet N from Intersection WEST ST / 08 LOWELL STREET Rte 129
2729138	WILMINGTON	08-Feb-2011	8:17 AM	Non-fatal injury	2	2	0	Rear-end	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Snow	Daylight	Rain/Snow	WEST ST / LOWELL ST	
2729139	WILMINGTON	09-Feb-2011	6:22 AM	Property damage only (none injured)	2	0	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: Eastbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car	Dry	Daylight	Cloudy	LOWELL ST Rte 129 / WOBURN ST	
2729142	WILMINGTON	10-Feb-2011	3:54 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2: Turning left	V1: Northbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car	Dry	Daylight	Cloudy	MAIN ST Rte 38 N / EAMES ST	
2729111	WILMINGTON	22-Apr-2011	11:37 AM	Property damage only (none injured)	2	0	0	Angle	V1: Slowing or stopped in traffic / V2: Turning right	V1: Westbound / V2: Eastbound	V1: Cargo/equipment loss or shift / V2: Cargo/equipment loss or shift	V1: Passenger car / V2: Truck/trailer	Dry	Daylight	Cloudy	LOWELL ST / WOBURN ST	
2788278	WILMINGTON	30-Jun-2011	7:34 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Travelling straight ahead / V2: Turning right	V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Single-unit truck (5-or-more axes)	Dry	Daylight	Clear		LOWELL ST / 211 WOBURN STREET
2789053	WILMINGTON	18-Aug-2011	9:06 PM	Non-fatal injury	2	2	0	Angle	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1: Southbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Dark - lighted roadway	Clear	LOWELL STREET Rte 129 / WOBURN STREET	
2789316	WILMINGTON	06-Sep-2011	4:25 PM	Non-fatal injury	3	1	0	Rear-end	V1: Travelling straight ahead / V2: Slowing or stopped in traffic	V1: Southbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car / V3: Passenger car	Wet	Daylight	Rain	MAIN STREET / EAMES STREET	
2814135	WILMINGTON	18-Oct-2011	9:02 AM	Property damage only (none injured)	2	0	0	Angle	V1: Turning left / V2: Slowing or stopped in traffic	V1: Northbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Unknown heavy truck, cannot classify / V2: Passenger car	Dry	Daylight	Clear		LOWELL STREET / WEST STREET
2853173	WILMINGTON	22-Dec-2011	7:54 AM	Property damage only (none injured)	2	0	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: Southbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Wet	Daylight	Clear	LOWELL ST / WEST ST	
2853180	WILMINGTON	20-Dec-2011	1:30 PM	Property damage only (none injured)	2	0	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: Southbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires / V2: Passenger car	Dry	Daylight	Clear	MAIN ST Rte 38 S / EAMES ST	

MassDOT Crash Report for WILMINGTON for the year 2012

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Number of Injuries	Total Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection
2090665	WILMINGTON	27-Jan-2012	2:55 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Traveling straight ahead / V2: Stopping or stopped in traffic	V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Light truck (van, panel, pickup, sport utility) with only four tires	Wet	Daylight	Cloudy/Rain	LOWELL ST / WOBURN ST	
2034801	WILMINGTON	10-Feb-2012	10:10 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Stopping or stopped in traffic / V2: Turning right	V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear	INDUSTRIAL WAY / WOBURN STREET	
2034781	WILMINGTON	22-Feb-2012	10:43 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Traveling straight ahead / V2: Stopping or stopped in traffic	V1: Southbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear	LOWELL ST / Rte 128 S / WEST ST	
2034807	WILMINGTON	22-Feb-2012	9:46 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Stopping or stopped in traffic / V2: Stopping or stopped in traffic	V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Dark - lighted roadway	Clear	WOBURN ST / INDUSTRIAL WAY	
2034783	WILMINGTON	25-Feb-2012	4:30 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Stopping or stopped in traffic / V2: Traveling straight ahead	V1: Southbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires / V2: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Dark	Clear	LOWELL STREET / WEST STREET	
3020058	WILMINGTON	12-Mar-2012	7:30 AM	Property damage only (none injured)	2	0	0	Angle	V1: Traveling straight ahead / V2: Entering traffic lane	V1: Southbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear	WEST STREET / LOWELL STREET	
3007066	WILMINGTON	14-Apr-2012	00:00 AM	Property damage only (none injured)	3	0	0	Rear-end	V1: Stopping or stopped in traffic / V2: Stopping or stopped in traffic / V3: Traveling straight ahead	V1: Eastbound / V2: Eastbound / V3: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car / V3: Passenger car	Dry	Dark - lighted roadway	Clear/Cloudy	LOWELL ST / Rte 128 E / WOBURN ST	
3116412	WILMINGTON	24-Apr-2012	1:16 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Stopping or stopped in traffic / V2: Stopping or stopped in traffic	V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Cloudy	LOWELL STREET / WOBURN STREET	
3116415	WILMINGTON	03-May-2012	3:52 PM	Property damage only (none injured)	2	0	0	Angle	V1: Backing / V2: Entering traffic lane	V1: Northbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear	LOWELL ST / 316 WEST STREET	
3116416	WILMINGTON	04-May-2012	5:08 PM	Property damage only (none injured)	2	0	0	Angle	V1: Turning left / V2: Traveling straight ahead	V1: Eastbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Light truck (van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	LOWELL ST / WOBURN ST	
3230321	WILMINGTON	04-Jun-2012	2:54 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	V1: Turning left / V2: Traveling straight ahead	V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Wet	Daylight	Cloudy/Rain	LOWELL ST / 316 WEST STREET	
3263801	WILMINGTON	10-Sep-2012	8:23 AM	Property damage only (none injured)	2	0	0	Angle	V1: Traveling straight ahead / V2: Turning left	V1: Northbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Truck/trailer / V2: Passenger car	Dry	Daylight	Clear	EMMES STREET / WOBURN STREET	
3263506	WILMINGTON	17-Sep-2012	11:48 AM	Property damage only (none injured)	2	0	0	Angle	V1: Traveling straight ahead / V2: Turning left	V1: Westbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear	WOBURN ST / LOWELL ST	
3290015	WILMINGTON	28-Nov-2012	4:35 PM	Non-fatal injury	2	2	0	Angle	V1: Traveling straight ahead / V2: Entering traffic lane	V1: Southbound / V2: Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Dark	Clear	EMMES ST / WOBURN ST	

MassDOT Crash Report for WILMINGTON for the year 2013

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	Number of Vehicles	Total Fatal Injuries	Total Nonfatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection
3387406	WILMINGTON	11-Jan-2013	10:38 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2: Turning left	V1: Northbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Wet	Dark - lighted roadway	Rain	LOWELL ST / WEST ST
3389178	WILMINGTON	02-Feb-2013	7:37 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2: Turning left	V1: Westbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Dark - lighted roadway	Cloudy	LOWELL ST / WEST ST
3413608	WILMINGTON	05-Mar-2013	11:45 AM	Non-fatal injury	2	3	0	Angle	V1: Travelling straight ahead / V2: Turning left	V1: Westbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear	LOWELL ST / WOBURN ST
3602407	WILMINGTON	13-Aug-2013	2:41 PM	Property damage only (none injured)	1	0	0	Angle	V1: Turning right	V1: Eastbound	V1: Collision with light pole or other post/support	V1: Tractor/semi-trailer	Dry	Daylight	Cloudy	LOWELL ST Rte 128 E / WOBURN ST
3602521	WILMINGTON	06-Sep-2013	5:18 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2: Slowing or stopped in traffic	V1: Eastbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Clear	LOWELL ST / WEST ST
3602870	WILMINGTON	25-Sep-2013	1:33 PM	Property damage only (none injured)	1	0	0	Sideswipe, same direction	V1: Turning left	V1: Southbound	V1: Collision with light pole or other post/support	V1: Tractor/semi-trailer	Dry	Daylight	Clear	LOWELL STREET Rte 128 E / WOBURN STREET
3705602	WILMINGTON	10-Oct-2013	4:01 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2: Turning left	V1: Southbound / V2: Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Daylight	Cloudy	
3705669	WILMINGTON	13-Oct-2013	6:52 PM	Non-fatal injury	2	3	0	Angle	V1: Turning left / V2: Travelling straight ahead	V1: Westbound / V2: Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Dry	Dark - lighted roadway	Cloudy	LOWELL ST Rte 128 E / WOBURN ST
3827862	WILMINGTON	17-Dec-2013	6:33 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2: Entering traffic lane	V1: Westbound / V2: Westbound	V1: Collision with motor vehicle in traffic	V1: Passenger car / V2: Passenger car	Snow	Dark - lighted roadway	Snow/Blowing sand, snow	LOWELL ST / WEST ST

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Wilmington COUNT DATE : Jun-15

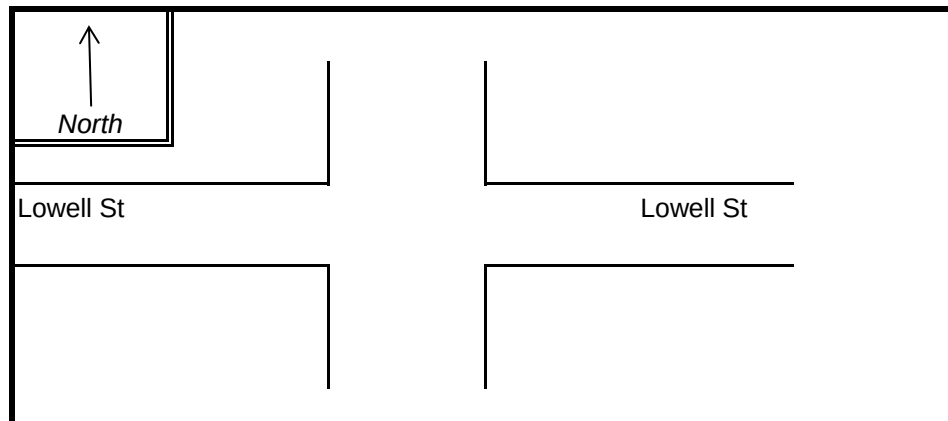
DISTRICT : 4 UNSIGNALIZED : ☐ SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Lowell Street (Route 129)

MINOR STREET(S) : West Street

INTERSECTION
DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4		Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	SB	NB		
PEAK HOURLY VOLUMES (PM) :	832	905	214	654		2,605

" K " FACTOR :

0.105

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

24,810

TOTAL # OF CRASHES :

21

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

4.20

CRASH RATE CALCULATION :

0.46

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

Comments : District 4 Averg = 0.77@ Signalized Inters & 0.58 @ Unsignalized Inters.

Project Title & Date : Traffic Impact and Access Study - August 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Wilmington COUNT DATE : Jun-15

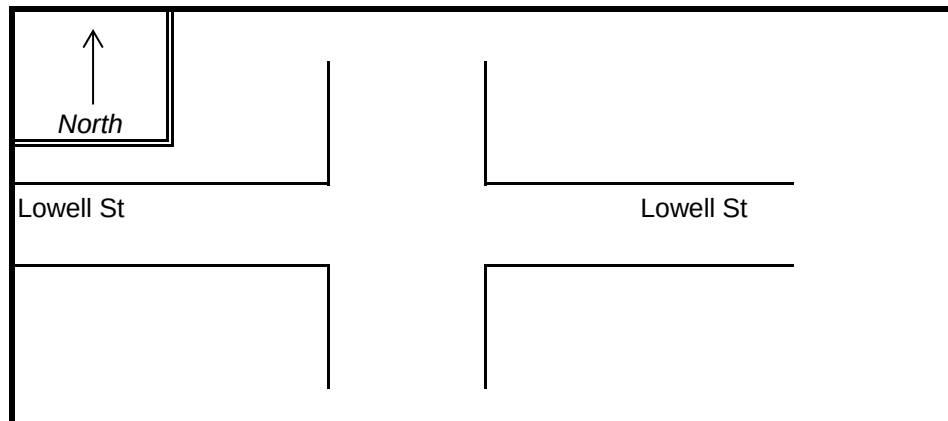
DISTRICT : 4 UNSIGNALIZED : ☐ SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Lowell Street (Route 129)

MINOR STREET(S) : Woburn Street

INTERSECTION
DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4		Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	SB	NB		
PEAK HOURLY VOLUMES (PM) :	808	654	232	584		2,278

" K " FACTOR :

0.105

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

21,695

TOTAL # OF CRASHES :

19

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

3.80

CRASH RATE CALCULATION :

0.48

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

Comments : District 4 Averg = 0.77 @ Signalized Inters & 0.58 @ Unsignaized Inters

Project Title & Date : Traffic Impact and Acess Study - August 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Wilmington COUNT DATE : Jun-15

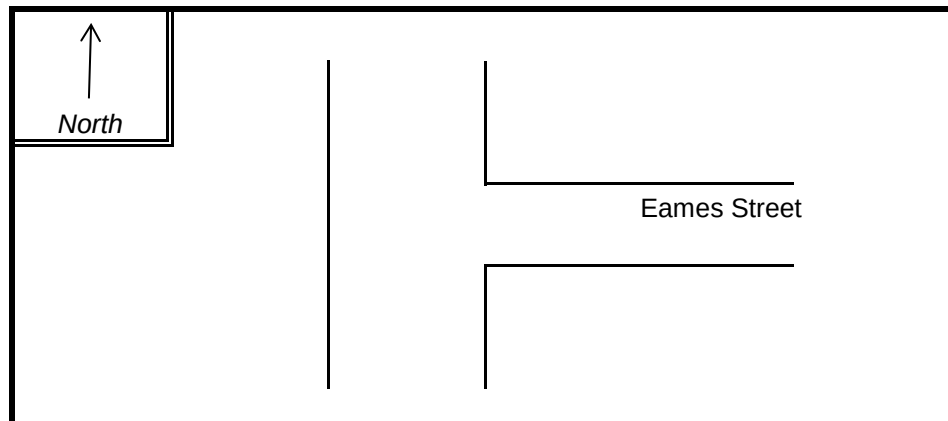
DISTRICT : 4 UNSIGNALIZED : ☒ X SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Main Street

MINOR STREET(S) : Eames Street

INTERSECTION
DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3			Total Peak Hourly Approach Volume
DIRECTION :	SB	NB	WB			
PEAK HOURLY VOLUMES (PM) :	362	821	354			1,537

" K " FACTOR :

0.105

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

14,638

TOTAL # OF CRASHES :

3

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

0.60

CRASH RATE CALCULATION :

0.11

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

Comments : District 4 Averg = 0.77 @ Signalized Inters & 0.58 @ Unsignalized Inters

Project Title & Date : Traffic Impact and Access Study - August 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Wilmington COUNT DATE : Jun-15

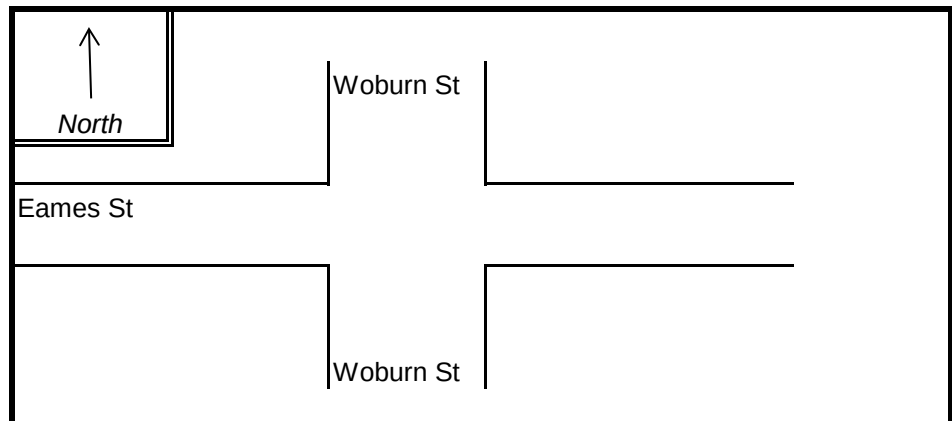
DISTRICT : 4 UNSIGNALIZED : ☒ X SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Woburn Street

MINOR STREET(S) : Eames Street

INTERSECTION
DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4		Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	SB	NB		
PEAK HOURLY VOLUMES (PM) :	437	3	267	618		1,325

" K " FACTOR :

0.105

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

12,619

TOTAL # OF CRASHES :

3

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

0.60

CRASH RATE CALCULATION :

0.13

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

Comments : District 4 Averg = 0.77 @ Signalized Inters & 0.58 @ Unsignalized Inters

Project Title & Date : Traffic Impact and Access Study - August 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Wilmington COUNT DATE : Jun-15

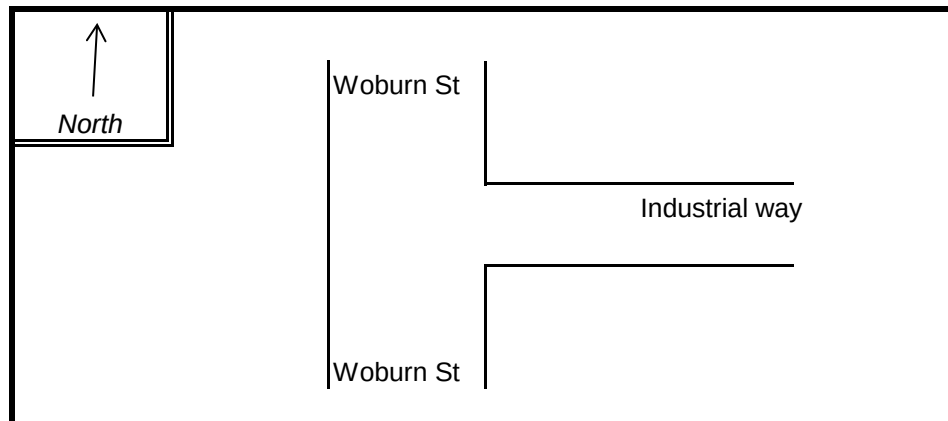
DISTRICT : 4 UNSIGNALIZED : ☒ X SIGNALIZED : ☐

~ INTERSECTION DATA ~

MAJOR STREET : Woburn Street

MINOR STREET(S) : Industrial way

INTERSECTION
DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	SB	NB	WB			
PEAK HOURLY VOLUMES (PM) :	466	488	79			1,033

" K " FACTOR :

0.105

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

9,838

TOTAL # OF CRASHES :

5

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

1.00

CRASH RATE CALCULATION :

0.28

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

Comments : District 4 Averg = 0.77 @ Signalized Inters & 0.58 @ Unsignalized Inters

Project Title & Date : Traffic Impact and Access Study - August 2015

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : _____ COUNT DATE : _____

DISTRICT : _____ UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : _____

MINOR STREET(S) : _____

**INTERSECTION
DIAGRAM**
(Label Approaches)

North	
-------	--

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :						
PEAK HOURLY VOLUMES (AM/PM) :						

" K " FACTOR :

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

TOTAL # OF CRASHES :

OF
YEARS :

AVERAGE # OF
CRASHES PER YEAR (A) :

CRASH RATE CALCULATION :

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

Comments : _____

Project Title & Date: _____

Background Growth

SECTION I - CONTINUOUS COUNTING STATION MONTHLY AVERAGE DAILY TRAFFIC

STATION 4121 - WAKEFIELD - RTE.I-95 (128) - NORTH OF MAIN ST.,LYNNFIELD

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
05	121,000	123,706	126,123	131,584	133,994	141,724	141,915	144,207	132,848	129,681	127,645	120,655	131,257
	-1%	-2%	2%	-3%	0%	-2%	-1%	1%	3%	5%	2%	7%	1%
06	119,913	120,945	129,096	127,666	133,642	139,442	140,232	144,990	137,237	136,029	129,586	128,662	132,287
	3%	0%	-2%	2%	3%	1%	-1%	-1%	-1%	1%	0%	-8%	0%
07	123,351	120,806	126,808	129,816	137,203	140,469	139,311	143,711	136,527	136,892	129,084	118,600	131,882
	-3%	-1%	-5%	1%	-3%	-4%	-2%	-3%	-4%	-6%	-4%	3%	-3%
08	119,901	119,664	121,000	130,595	132,990	135,156	137,048	138,854	131,468	129,000	124,118	121,830	128,469
	4%	6%	2%	2%	1%	2%	1%	2%	3%	4%	8%	-5%	2%
09	124,527	126,780	123,641	132,958	133,890	137,601	138,343	141,803	135,433	134,159	134,042	116,082	131,605
						138,898							131,100

STATION 4137 - WAKEFIELD - RTE.I-95 (128) - NORTH OF NORTH AVE.

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
05	118,727	126,910	129,258	136,509	136,783	145,778	144,912	148,291	137,450	133,920	132,474	127,126	134,845
	5%	-1%	4%	-1%	1%	-1%	-1%	1%	3%	5%	1%	3%	1%
06	124,459	125,589	133,858	134,582	137,621	143,836	144,029	149,082	141,313	140,199	134,165	131,263	136,666
	2%	0%	-2%	0%	3%	1%	0%	0%	0%	1%	0%	-7%	0%
07	127,096	125,439	131,570	134,687	141,920	145,302	143,828	148,817	141,304	141,239	134,058	121,771	136,419
	-2%	-1%	-3%	1%	-1%	-2%	-1%	-3%	-3%	-5%	-3%	0%	-2%
08	124,292	123,717	128,000	136,452	140,058	141,736	142,892	144,448	137,319	134,000	130,162	121,944	133,752
	-7%	4%	1%	2%	0%	1%	0%	2%	2%	3%	0%	-1%	0%
09	115,181	128,242	129,381	138,540	139,380	142,563	142,655	146,628	139,988	138,521	130,676	120,698	134,371
						143,843							135,211

Essentially
Same.
(No change)

STATION 5127 - ANDOVER - RTE.125 - SOUTH OF RTE.28

15,047
-2%
14,766
14,040 (1.7)
14,618
down

SECTION I - CONTINUOUS COUNTING STATION MONTHLY AVERAGE DAILY TRAFFIC

STATION 502 - NORTH ANDOVER - RTE.114 - NORTH OF THE ANDOVER BY-PASS

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
06	38,235	38,132	40,430	39,649	39,116	41,101	37,278	41,551	42,384	41,218	39,684	38,077	39,738
	-1%	-4%	-4%	-2%	5%	1%	3%	0%	0%	0%	-2%	-6%	-1%
07	37,668	36,760	38,763	38,810	41,163	41,337	38,481	41,551	42,384	41,231	38,852	35,916	39,410
	-1%	2%	-2%	2%	-5%	-6%	-3%	-11%	-8%	-2%	-4%	1%	-3%
08	37,247	37,312	38,138	39,502	39,130	38,882	37,160	37,013	38,849	40,258	37,331	36,110	38,078
	-6%	-1%	0%	-3%	0%	0%	1%	-1%	0%	-1%	0%	2%	-1%
09	34,917	37,098	38,237	38,216	37,958	38,986	37,402	36,661	38,802	39,841	37,200	36,802	37,677
						40,077							38,726
													(-2061)
													down

SECTION I - CONTINUOUS COUNTING STATION MONTHLY AVERAGE DAILY TRAFFIC

STATION 4391 - WILMINGTON - RTE.1-93 - NORTH OF CONCORD ST.

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
05	142,000 1%	144,887 -1%	147,080 4%	149,780 -1%	150,721 -2%	159,857 -8%	150,673 -3%	155,329 1%	153,971 -1%	146,469 4%	146,421 1%	140,689 2%	148,990 0%
06	143,268 0%	143,788 -1%	152,255 -2%	149,031 -1%	148,406 3%	147,848 6%	146,888 4%	156,683 1%	151,871 0%	152,120 2%	148,046 -1%	144,175 -3%	148,698 1%
07	142,892 -2%	142,922 0%	148,571 0%	148,195 2%	152,838 -2%	157,439 -3%	152,546 -1%	158,330 -4%	151,739 -1%	155,736 0%	146,435 -2%	139,469 -2%	149,759 -1%
08	140,236 -8%	142,450 -6%	149,000 -11%	151,631 0%	150,517 0%	153,257 4%	150,882 2%	152,025 2%	150,811 2%	155,790 -1%	143,470 1%	136,622 4%	148,058 -1%
09	128,406	133,487	133,199	151,715	149,805	159,403	154,074	154,405	153,873	153,510	145,354	142,073	146,609

(-23%)
down

SECTION I - CONTINUOUS COUNTING STATION MONTHLY AVERAGE DAILY TRAFFIC

STATION 407 - STONEHAM - RTE.28 - SOUTH OF THE READING T.I.L.

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
05	24,692 0%	25,048 0%	25,554 1%	26,393 -1%	27,399 -1%	28,075 -2%	27,036 -6%	26,807 1%	26,827 2%	26,455 1%	25,775 1%	26,238 5%	26,358 0%
06	24,794 -2%	24,974 -4%	25,912 -3%	26,170 -3%	27,152 0%	27,647 -1%	25,416 0%	27,000 -2%	27,303 -6%	26,745 -3%	26,032 -3%	27,473 -7%	26,385 -3%
07	24,339 -2%	24,072 -2%	25,117 -4%	25,508 -10%	27,159 -5%	27,355 -6%	25,461 -4%	26,342 -7%	25,778 -3%	25,865 -2%	25,342 0%	25,426 -4%	25,647 -4%
08	23,897 -10%	23,709 -2%	24,028 -2%	22,893 8%	25,770 -3%	25,669 0%	24,456 2%	24,404 2%	25,003 -1%	25,300 0%	25,300 0%	24,296 3%	24,560 0%
09	21,518	23,353	23,554	24,826	25,021	25,667	24,960	24,938	24,654	25,210	25,210	24,994	24,492

(-1866)
down

As shown, the ITE trip rates would produce substantially lower traffic generation than expected by FedEx Ground. This is the result of the limitations of the ITE database, where the proposed use does not fit with the ITE land use code description, as noted above. The FedEx Ground volume projections were therefore assumed to accurately reflect the anticipated traffic generation. The breakdown of the number of passenger cars, pick-up and delivery vans, and trucks is provided in Table 2.

Table 2
Trip Generation By Vehicle Type ^a

Time Period	Cars	Vans	Tractor Trailers	Tandem Trailers	Total
Weekday Daily	934	312	24	36	1,306
AM Peak Hour					
Enter	97	28	0	0	125
Exit	79	50	0	0	129
Total	176	78	0	0	254
PM Peak Hour					
Enter	85	50	1	1	137
Exit	116	0	2	2	120
Total	201	50	3	3	257

^a Based on volume projections supplied by FedEx Ground for the Wilmington site.

The peak hour volumes shown in Table 2 are from 7:00 to 8:00 AM and from 5:00 to 6:00 PM on a typical weekday. These hours are expected to correspond with peak commuter hours on the adjacent streets. As shown, almost all of the peak hour traffic to be generated by FedEx Ground will be comprised of passenger cars and pick-up/delivery vans. Of the total daily traffic generation, less than 5 percent will be tractor trailers (24 vehicles) and tandem trailers (36 vehicles). Based on FedEx Ground projections, 75 percent of all truck traffic will occur during the off-peak hours of 7:00 PM to 7:00 AM.

TRUCK ROUTE EVALUATION

Design Vehicle

FedEx proposes to use 28.5-foot tandem trailer trucks (WB67D) and 53-foot tractor trailer trucks (WB-67) at the facility. The dimensions of these trucks are shown on Figures 1 and 2 below and the turning paths of each truck are shown on Figures 3 and 4.

FedEx Ground
Full Phase Expected Traffic Flows
21

	Automobile Full Phase		P&D Van Full Phase		Spot Trailers Full Phase		Linehaul Full Phase		Total Vehicle Flow Full Phase		
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	
00:01 - 01:00	6						3	1	9	1	00:01 - 01:00
01:01 - 02:00	6	6					1	1	7	7	01:01 - 02:00
02:01 - 03:00	85						1	0	86	0	02:01 - 03:00
03:01 - 04:00		6					1		1	6	03:01 - 04:00
04:01 - 05:00	6						2	1	2	1	04:01 - 05:00
05:01 - 06:00							1	1	7	1	05:01 - 06:00
06:01 - 07:00	85	12		50			2	1	87	62	06:01 - 07:00
07:01 - 08:00	98	79	28	50			0		125	129	07:01 - 08:00
08:01 - 09:00	30	12	28	28					58	40	08:01 - 09:00
09:01 - 10:00				28						28	09:01 - 10:00
10:01 - 11:00											10:01 - 11:00
11:01 - 12:00		12								12	11:01 - 12:00
12:01 - 13:00		18								18	12:01 - 13:00
13:01 - 14:00		18				1				19	13:01 - 14:00
14:01 - 15:00		6				2				8	14:01 - 15:00
15:01 - 16:00	12				1	1			13	1	15:01 - 16:00
16:01 - 17:00	18	79	50		1				69	81	16:01 - 17:00
17:01 - 18:00	85	116	50		1	2	1		137	120	17:01 - 18:00
18:01 - 19:00	18	12			2	2			18	15	18:01 - 19:00
19:01 - 20:00		6			2	2	0		3	10	19:01 - 20:00
20:01 - 21:00					2	1	1		3	4	20:01 - 21:00
21:01 - 22:00	12				4		2		18	2	21:01 - 22:00
22:01 - 23:00		79			1		1		3	81	22:01 - 23:00
23:01 - 24:00	6	6					3	2	9	8	23:01 - 24:00
Total	469	469	154	154	13	13	18	18	654	654	Total

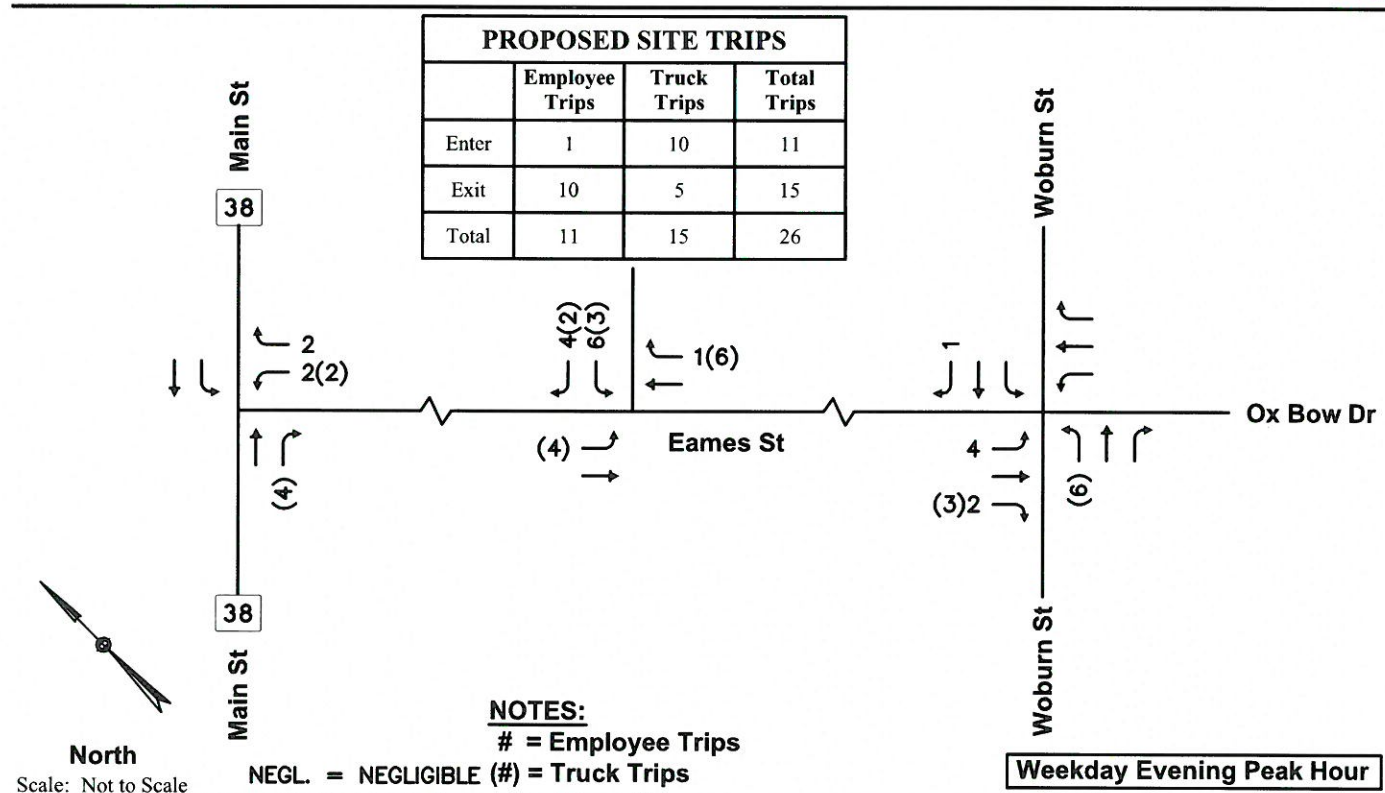
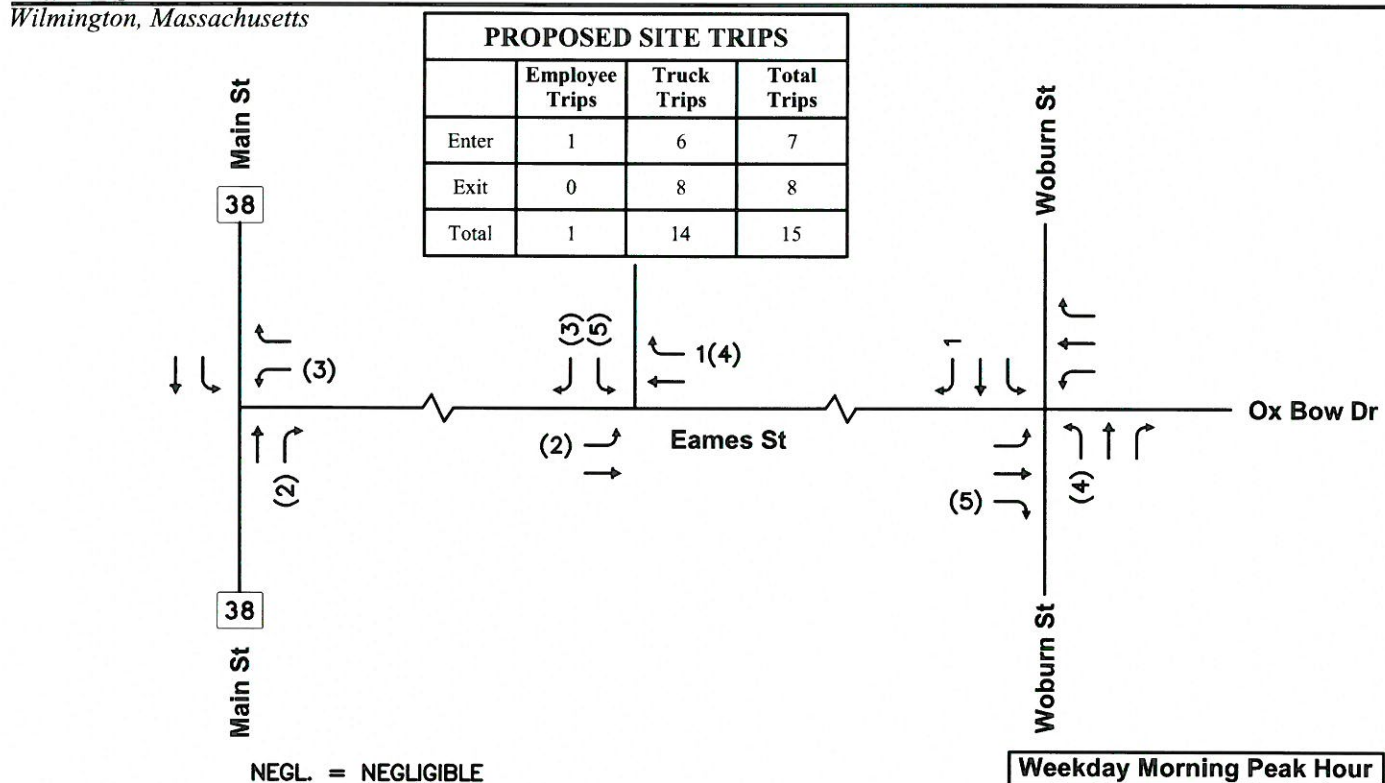


Figure 6

**Site-Generated Trips
(Peak Operation)
Peak Hour Traffic Volumes**

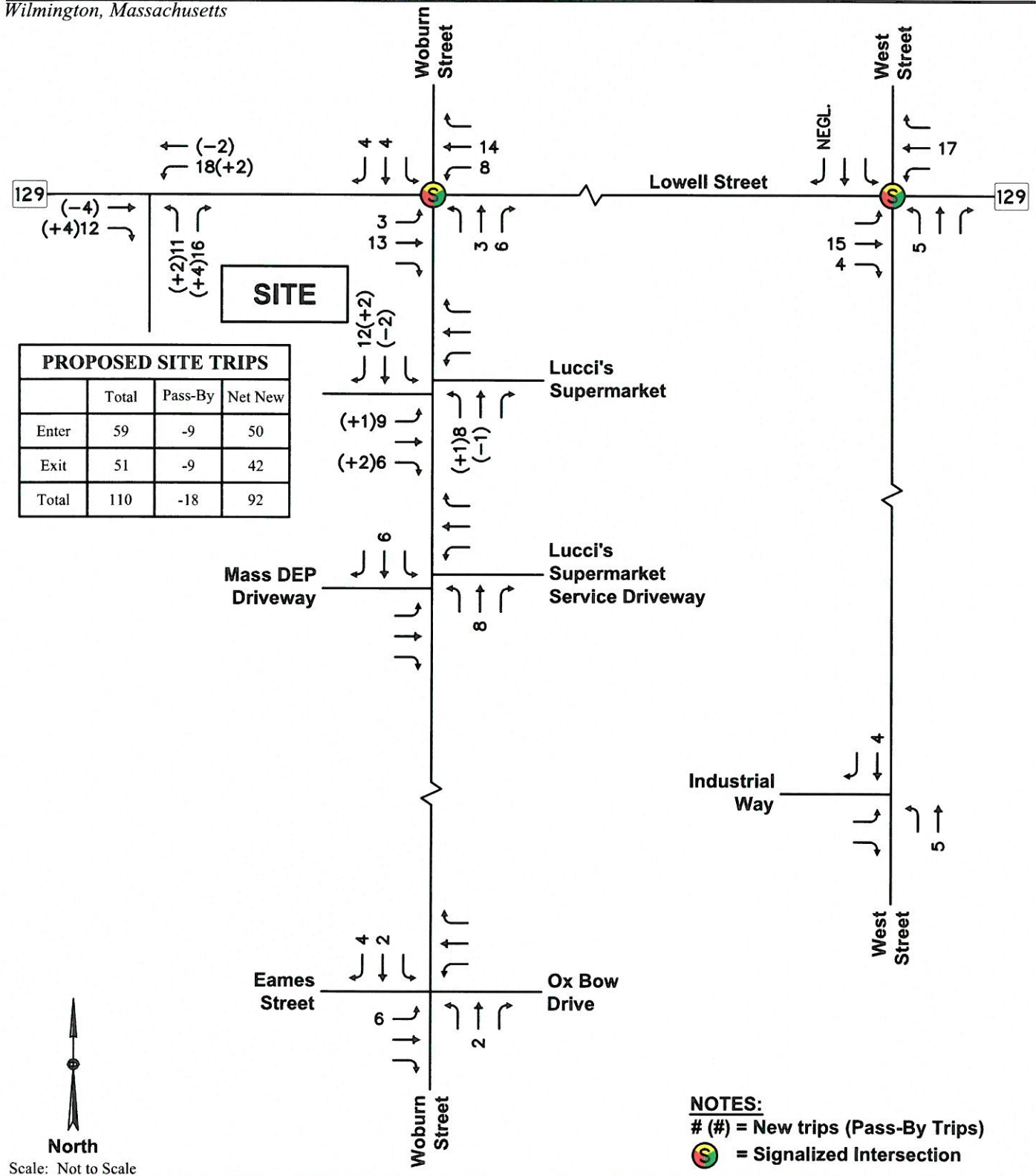


Figure 10

Site Generated Trips Weekday Morning Peak Hour Traffic Volumes

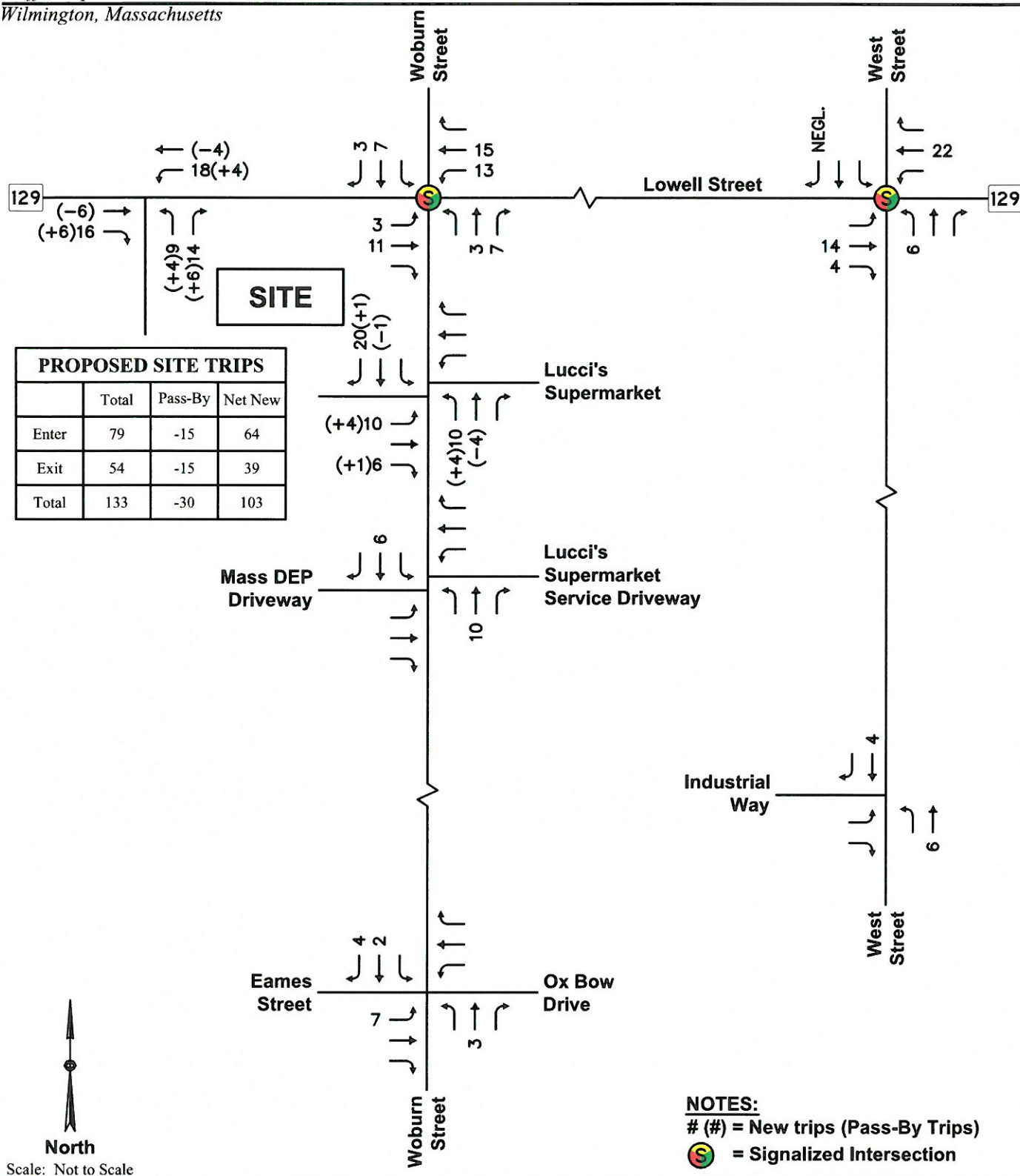


Figure 11

Trip Generation Worksheets

At 90 Railcars [Max/Surge]

	Estimated Payload Per Truck (Tons/Gals.)	Estimated Daily (Max.) No. of Trucks	
Tractor Trailer(s) [Outbound]	20 Tons	137	40' to 53' foot tractors w/trailers
Straight Box Truck(s) [Outbound]	10 Tons	137	30' Straight Bed Trucks to 40' Tractor Trailers
Bulk Liquids Tanker Truck(s) [Outbound]	3000 - 9500 Gallons	70	28' to 53' tractor with trailer
Miscellaneous [Inbound & Outbound]	10 - 20 Tons	15	
Supply/Deliveries		6	
Employee Vehicles		35	
TOTAL			400 Vehicles/Day

Volume

File Name: C:\Users\Owner\Desktop\PDI 2015 Jobs\154463-Wilmington (Bayside)\154463 A Volume.tf2

Start Date: 6/10/2015

Start Time: 12:00:00 AM

Site Code: 2151944

Location 1: Eames Street

Location 2: near Railroad Overpass

Latitude: 0' 0.0000 Undefined

Date		Time		WB	EB	Date		Time		WB	EB	Date		Time		WB	EB	Average		Combined		2-Way		2-Way		Daily Trip Gen Sum	
6/10/2015		12:00 AM		5	3	6/11/2015		12:00 AM		4	2	6/11/2015		12:00 AM		4.5	2.5	7		0.09		7		0.09		1	
6/10/2015		12:15 AM		2	1	6/11/2015		12:15 AM		1	1	6/11/2015		12:15 AM		1.5	1	2.5		0.03		2.5		0.03		0	
6/10/2015		12:30 AM		0	7	6/11/2015		12:30 AM		2	3	6/11/2015		12:30 AM		1	5	6		0.08		6		0.08		1	
6/10/2015		12:45 AM		0	1	6/11/2015		12:45 AM		1	0	6/11/2015		12:45 AM		0.5	0.5	1		0.01		1		0.01		0	
6/10/2015		01:00 AM		2	0	6/11/2015		01:00 AM		2	4	6/11/2015		01:00 AM		2	2	4		0.05		4		0.05		0	
6/10/2015		01:15 AM		0	5	6/11/2015		01:15 AM		2	2	6/11/2015		01:15 AM		1	3.5	4.5		0.06		4.5		0.06		0	
6/10/2015		01:30 AM		0	0	6/11/2015		01:30 AM		0	1	6/11/2015		01:30 AM		0	0.5	0.5		0.01		0.5		0.01		0	
6/10/2015		01:45 AM		1	1	6/11/2015		01:45 AM		1	1	6/11/2015		01:45 AM		1	1	2		0.03		2		0.03		0	
6/10/2015		02:00 AM		7	1	6/11/2015		02:00 AM		1	2	6/11/2015		02:00 AM		4	1.5	5.5		0.07		5.5		0.07		1	
6/10/2015		02:15 AM		2	1	6/11/2015		02:15 AM		2	7	6/11/2015		02:15 AM		2	4	6		0.08		6		0.08		1	
6/10/2015		02:30 AM		0	1	6/11/2015		02:30 AM		2	2	6/11/2015		02:30 AM		1	1.5	2.5		0.03		2.5		0.03		0	
6/10/2015		02:45 AM		1	1	6/11/2015		02:45 AM		0	4	6/11/2015		02:45 AM		0.5	2.5	3		0.04		3		0.04		0	
6/10/2015		03:00 AM		3	3	6/11/2015		03:00 AM		9	3	6/11/2015		03:00 AM		6	3	9		0.12		9		0.12		1	
6/10/2015		03:15 AM		1	3	6/11/2015		03:15 AM		3	6	6/11/2015		03:15 AM		2	4.5	6.5		0.09		6.5		0.09		1	
6/10/2015		03:30 AM		4	5	6/11/2015		03:30 AM		1	1	6/11/2015		03:30 AM		2.5	3	5.5		0.07		5.5		0.07		1	
6/10/2015		03:45 AM		6	3	6/11/2015		03:45 AM		4	4	6/11/2015		03:45 AM		5	3.5	8.5		0.11		8.5		0.11		1	
6/10/2015		04:00 AM		3	4	6/11/2015		04:00 AM		5	6	6/11/2015		04:00 AM		4	5	9		0.12		9		0.12		1	
6/10/2015		04:15 AM		2	4	6/11/2015		04:15 AM		7	8	6/11/2015		04:15 AM		4.5	6	10.5		0.14		10.5		0.14		1	
6/10/2015		04:30 AM		5	8	6/11/2015		04:30 AM		7	8	6/11/2015		04:30 AM		6	8	14		0.19		14		0.19		1	
6/10/2015		04:45 AM		12	20	6/11/2015		04:45 AM		20	14	6/11/2015		04:45 AM		16	17	33		0.44		33		0.44		3	
6/10/2015		05:00 AM		15	10	6/11/2015		05:00 AM		8	17	6/11/2015		05:00 AM		11.5	13.5	25		0.33		25		0.33		2	
6/10/2015		05:15 AM		27	25	6/11/2015		05:15 AM		15	10	6/11/2015		05:15 AM		21	17.5	38.5		0.51		38.5		0.51		4	
6/10/2015		05:30 AM		27	23	6/11/2015		05:30 AM		31	25	6/11/2015		05:30 AM		29	24	53		0.70		53		0.70		5	
6/10/2015		05:45 AM		39	28	6/11/2015		05:45 AM		33	32	6/11/2015		05:45 AM		36	30	66		0.87		66		0.87		7	
6/10/2015		06:00 AM		45	40	6/11/2015		06:00 AM		42	32	6/11/2015		06:00 AM		43.5	36	79.5		1.05		79.5		1.05		8	
6/10/2015		06:15 AM		64	51	6/11/2015		06:15 AM		58	50	6/11/2015		06:15 AM		61	50.5	111.5		1.47		111.5		1.47		11	
6/10/2015		06:30 AM		58	55	6/11/2015		06:30 AM		49	49	6/11/2015		06:30 AM		53.5	52	105.5		1.40		105.5		1.40		10	
6/10/2015		06:45 AM		74	43	6/11/2015		06:45 AM		73	57	6/11/2015		06:45 AM		73.5	50	123.5		1.63		123.5		1.63		12	
6/10/2015		07:00 AM		74	55	6/11/2015		07:00 AM		78	43	6/11/2015		07:00 AM		76	49	125		1.65		125		1.65		12	
6/10/2015		07:15 AM		75	65	6/11/2015		07:15 AM		84	71	6/11/2015		07:15 AM		79.5	68	147.5		1.95		147.5		1.95		15	
6/10/2015		07:30 AM		83	79	6/11/2015		07:30 AM		85	71	6/11/2015		07:30 AM		84	75	159		2.10		159		2.10		16	
6/10/2015		07:45 AM		102	99	6/11/2015		07:45 AM		71	100	6/11/2015		07:45 AM		86.5	99.5	186		2.46		186		2.46		18	
6/10/2015		08:00 AM		92	62	6/11/2015		08:00 AM		100	57	6/11/2015		08:00 AM		96	59.5	155.5		2.06		155.5		2.06		15	
6/10/2015		08:15 AM		74	74	6/11/2015		08:15 AM		72	78	6/11/2015		08:15 AM		73	76	149		1.97		149		1.97		15	
6/10/2015		08:30 AM		78	54	6/11/2015		08:30 AM		56	65	6/11/2015		08:30 AM		67	59.5	126.5		1.67		126.5		1.67		13	
6/10/2015		08:45 AM		60	56	6/11/2015		08:45 AM		81	60	6/11/2015		08:45 AM		70.5	58	128.5		1.70		128.5		1.70		13	
6/10/2015		09:00 AM		77	52	6/11/2015		09:00 AM		64	52	6/11/2015		09:00 AM		70.5	52	122.5		1.62		122.5		1.62		12	
6/10/2015		09:15 AM		52	54	6/11/2015		09:15 AM		52	52	6/11/2015		09:15 AM		52	53	105		1.39		105		1.39		10	
6/10/2015		09:30 AM		61	48	6/11/2015		09:30 AM		41	55	6/11/2015		09:30 AM		51	51.5	102.5		1.36		102.5		1.36		10	
6/10/2015		09:45 AM		47	40	6/11/2015		09:45 AM		48	47	6/11/2015		09:45 AM		47.5	43.5	91		1.20		91		1.20		9	
6/10/2015		10:00 AM		30	42	6/11/2015		10:00 AM		44	47	6/11/2015		10:00 AM		37	44.5	81.5		1.08		81.5		1.08		8	
6/10/2015		10:15 AM		40	29	6/11/2015		10:15 AM		35	40	6/11/2015		10:15 AM		37.5	34.5	72		0.95		72		0.95		7	

ENTERING SITE

EXITING SITE

400

375 Veh/Day X 2 =

800

750 Veh Trips

339.5

52.27

34

310

47.73

31

699.5

8.59

X 800

= 69 AM

ENT X 52.27 = 36

EXIT X 47.73 = 33

69

6/10/2015 10:30 AM	27	48	6/11/2015 10:30 AM	34	40	10:30 AM	30.5	44	74.5	0.99	7
6/10/2015 10:45 AM	37	35	6/11/2015 10:45 AM	40	40	10:45 AM	38.5	37.5	76	1.01	8
6/10/2015 11:00 AM	42	38	6/11/2015 11:00 AM	46	41	11:00 AM	44	39.5	83.5	1.10	8
6/10/2015 11:15 AM	32	47	6/11/2015 11:15 AM	33	46	11:15 AM	32.5	46.5	79	1.04	8
6/10/2015 11:30 AM	47	55	6/11/2015 11:30 AM	36	54	11:30 AM	41.5	54.5	96	1.27	10
6/10/2015 11:45 AM	64	44	6/11/2015 11:45 AM	67	56	11:45 AM	65.5	50	115.5	1.53	11
6/10/2015 12:00 PM	52	48	6/11/2015 12:00 PM	69	55	12:00 PM	60.5	51.5	112	1.48	11
6/10/2015 12:15 PM	72	55	6/11/2015 12:15 PM	55	59	12:15 PM	63.5	57	120.5	1.59	12
6/10/2015 12:30 PM	53	68	6/11/2015 12:30 PM	44	68	12:30 PM	48.5	68	116.5	1.54	12
6/10/2015 12:45 PM	61	45	6/11/2015 12:45 PM	52	58	12:45 PM	56.5	51.5	108	1.43	11
6/10/2015 01:00 PM	42	65	6/11/2015 01:00 PM	54	57	01:00 PM	48	61	109	1.44	11
6/10/2015 01:15 PM	39	57	6/11/2015 01:15 PM	46	49	01:15 PM	42.5	53	95.5	1.26	9
6/10/2015 01:30 PM	50	54	6/11/2015 01:30 PM	56	46	01:30 PM	53	50	103	1.36	10
6/10/2015 01:45 PM	35	66	6/11/2015 01:45 PM	46	47	01:45 PM	40.5	56.5	97	1.28	10
6/10/2015 02:00 PM	53	66	6/11/2015 02:00 PM	56	62	02:00 PM	54.5	64	118.5	1.57	12
6/10/2015 02:15 PM	57	60	6/11/2015 02:15 PM	56	54	02:15 PM	56.5	57	113.5	1.50	11
6/10/2015 02:30 PM	60	51	6/11/2015 02:30 PM	61	61	02:30 PM	60.5	56	116.5	1.54	12
6/10/2015 02:45 PM	41	64	6/11/2015 02:45 PM	51	59	02:45 PM	46	61.5	107.5	1.42	11
6/10/2015 03:00 PM	66	51	6/11/2015 03:00 PM	66	69	03:00 PM	66	60	126	1.67	12
6/10/2015 03:15 PM	64	68	6/11/2015 03:15 PM	57	72	03:15 PM	60.5	70	130.5	1.73	13
6/10/2015 03:30 PM	53	88	6/11/2015 03:30 PM	59	86	03:30 PM	56	87	143	1.89	14
6/10/2015 03:45 PM	71	59	6/11/2015 03:45 PM	75	95	03:45 PM	73	77	150	1.98	15
6/10/2015 04:00 PM	74	91	6/11/2015 04:00 PM	73	89	04:00 PM	73.5	90	163.5	2.16	16
6/10/2015 04:15 PM	65	86	6/11/2015 04:15 PM	83	81	04:15 PM	74	83.5	157.5	2.08	16
6/10/2015 04:30 PM	68	106	6/11/2015 04:30 PM	59	98	04:30 PM	63.5	102	165.5	2.19	16
6/10/2015 04:45 PM	75	97	6/11/2015 04:45 PM	93	105	04:45 PM	84	101	185	2.45	18
6/10/2015 05:00 PM	103	87	6/11/2015 05:00 PM	139	112	05:00 PM	121	99.5	220.5	2.92	22
6/10/2015 05:15 PM	110	102	6/11/2015 05:15 PM	83	95	05:15 PM	96.5	98.5	195	2.58	19
6/10/2015 05:30 PM	86	116	6/11/2015 05:30 PM	71	112	05:30 PM	78.5	114	192.5	2.55	19
6/10/2015 05:45 PM	81	103	6/11/2015 05:45 PM	87	103	05:45 PM	84	103	187	2.47	19
6/10/2015 06:00 PM	81	107	6/11/2015 06:00 PM	88	83	06:00 PM	84.5	95	179.5	2.37	18
6/10/2015 06:15 PM	57	82	6/11/2015 06:15 PM	51	112	06:15 PM	54	97	151	2.00	15
6/10/2015 06:30 PM	44	63	6/11/2015 06:30 PM	47	72	06:30 PM	45.5	67.5	113	1.49	11
6/10/2015 06:45 PM	42	48	6/11/2015 06:45 PM	36	56	06:45 PM	39	52	91	1.20	9
6/10/2015 07:00 PM	28	41	6/11/2015 07:00 PM	29	50	07:00 PM	28.5	45.5	74	0.98	7
6/10/2015 07:15 PM	18	35	6/11/2015 07:15 PM	38	28	07:15 PM	28	31.5	59.5	0.79	6
6/10/2015 07:30 PM	31	35	6/11/2015 07:30 PM	31	22	07:30 PM	31	28.5	59.5	0.79	6
6/10/2015 07:45 PM	20	32	6/11/2015 07:45 PM	34	57	07:45 PM	27	44.5	71.5	0.95	7
6/10/2015 08:00 PM	30	18	6/11/2015 08:00 PM	15	43	08:00 PM	22.5	30.5	53	0.70	5
6/10/2015 08:15 PM	31	18	6/11/2015 08:15 PM	23	22	08:15 PM	27	20	47	0.62	5
6/10/2015 08:30 PM	23	32	6/11/2015 08:30 PM	18	29	08:30 PM	20.5	30.5	51	0.67	5
6/10/2015 08:45 PM	19	27	6/11/2015 08:45 PM	14	17	08:45 PM	16.5	22	38.5	0.51	4
6/10/2015 09:00 PM	12	24	6/11/2015 09:00 PM	23	17	09:00 PM	17.5	20.5	38	0.50	4
6/10/2015 09:15 PM	17	13	6/11/2015 09:15 PM	11	14	09:15 PM	14	13.5	27.5	0.36	3
6/10/2015 09:30 PM	21	16	6/11/2015 09:30 PM	10	15	09:30 PM	15.5	15.5	31	0.41	3
6/10/2015 09:45 PM	11	5	6/11/2015 09:45 PM	10	7	09:45 PM	10.5	6	16.5	0.22	2
6/10/2015 10:00 PM	9	9	6/11/2015 10:00 PM	10	14	10:00 PM	9.5	11.5	21	0.28	2
6/10/2015 10:15 PM	8	6	6/11/2015 10:15 PM	5	11	10:15 PM	6.5	8.5	15	0.20	1
6/10/2015 10:30 PM	8	5	6/11/2015 10:30 PM	4	8	10:30 PM	6	6.5	12.5	0.17	1
6/10/2015 10:45 PM	2	13	6/11/2015 10:45 PM	8	9	10:45 PM	5	11	16	0.21	2
6/10/2015 11:00 PM	3	6	6/11/2015 11:00 PM	8	6	11:00 PM	5.5	6	11.5	0.15	1
6/10/2015 11:15 PM	6	2	6/11/2015 11:15 PM	10	3	11:15 PM	8	2.5	10.5	0.14	1

10.52

X 800 = 84

= 84 PM
 = 40
 ENT X
 EXIT X 52.2 = 44
 84

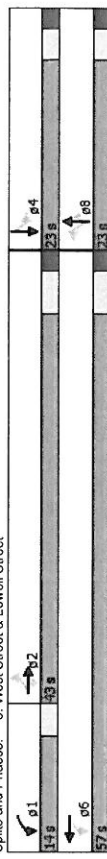
6/10/2015 11:30 PM	8	2	6/11/2015 11:30 PM	4	6	11:30 PM	6	4	10	0.13	1
6/10/2015 11:45 PM	9	2	6/11/2015 11:45 PM	5	4	11:45 PM	7	3	10	0.13	1
									7560.5		750.00

Capacity Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4	4		4	4		4		4	4	
Volume (vph)	28	626	102	207	592	37	86	40	230	172	173	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	40	100	0	0	0	150	60	0	0	0	0
Storage Lanes	0	1	1	0	0	0	1	1	1	1	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected		0.998	0.850	0.950	0.991		0.967	0.850	0.950	0.968		
Satd. Flow (prot)	0	1806	1538	1703	1776	0	1784	1495	1736	1803	0	
Flt Permitted		0.956	0.130	0.130	0.130		0.485	0.657	0.657			
Satd. Flow (perm)	0	1730	1538	233	1776	0	895	1495	1200	1803	0	
Right Turn on Red		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)		68	8	8	8		307	307	307	307	16	
Link Speed (mph)		30	30	30	30		30	30	30	30	30	
Link Distance (ft)		2609	700	700	700		863	863	863	425		
Travel Time (s)		59.3	15.9	15.9	15.9		19.6	19.6	19.6	9.7		
Peak Hour Factor	0.90	0.90	0.75	0.88	0.95	0.95	0.86	0.86	0.75	0.84	0.87	0.87
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	3%	3%	8%	4%	2%	2%
Adj. Flow (vph)	31	696	136	235	623	39	100	47	307	205	199	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	727	136	235	662	0	0	147	307	205	254	0
Turn Type	Perm	NA	Perm	pm-pt	NA	Perm	NA	Perm	NA	Perm	NA	NA
Protected Phases		2	2	6	6		8	8	8	4	4	
Permitted Phases		2	2	2	2	1	6	6	6	6	6	6
Detector Phase		2	2	2	2	1	6	6	6	6	6	6
Switch Phase		4	4	4	4	4	4	4	4	4	4	4
Minimum Initial (s)	22.0	22.0	22.0	8.0	22.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Minimum Split (s)	43.0	43.0	43.0	14.0	57.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	53.8%	53.8%	53.8%	17.5%	71.3%	28.8%	28.8%	28.8%	28.8%	28.8%	28.8%	28.8%
Total Split (%)	37.0	37.0	37.0	11.0	51.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Maximum Green (s)	4.0	4.0	4.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Yellow Time (s)	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.0	6.0	6.0	3.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost Time (s)												
Lead/Lag	Lag	Lag	Lag	Lead	Lead							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None							
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effect Green (s)	34.9	34.9	50.4	47.3	47.3	18.1	18.1	18.1	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.46	0.46	0.66	0.62	0.62	0.24	0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.92	0.18	0.70	0.60	0.60	0.70	0.52	0.72	0.58	0.58	0.58	0.58
Control Delay	39.3	7.5	21.9	11.3	11.3	48.2	7.1	45.2	31.3	31.3	31.3	31.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.3	7.5	21.9	11.3	11.3	48.2	7.1	45.2	31.3	31.3	31.3	31.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	D	D	A	C	B	B	D	D	A	D	C	C
Approach Delay	34.3			14.1			20.4				37.5	
Approach LOS	C			B			C				D	
Queue Length 50th (ft)	311		18	39	166		67		0	94	104	
Queue Length 95th (ft)	#552		37	109	258		#149		28	#180	175	
Internal Link Dist (ft)	2529			620			783				345	
Turn Bay Length (ft)			40	100					150	60		
Base Capacity (vph)	841		762	365	1193		211		588	284	439	
Slantation Cap Reductn	0		0	0	0		0		0	0	0	
Spillback Cap Reductn	0		0	0	0		0		0	0	0	
Storage Cap Reductn	0		0	0	0		0		0	0	0	
Reduced v/c Ratio	0.86		0.17	0.64	0.55		0.70		0.52	0.72	0.58	
Intersection Summary												
Area Type:	Other											
Cycle Length:	80											
Actuated Cycle Length:	76.5											
Natural Cycle:	65											
Control Type:	Semi Act-Uncoordinated											
Maximum v/c Ratio:	0.92											
Intersection Signal Delay:	25.7											
Intersection Capacity Utilization:	105.1%											
Analysis Period (min):	15											
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Spills and Phases: 3: West Street & Lowell Street



Wilmington, MA
6: Woburn Street & Lowell Street

8/25/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	30	598	193	111	480	31	52	72	67	111	414	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.968	0.998	0.991	0.991	0.987	0.987	0.987	0.987	0.987	0.987	0.987	0.987
Fit Protected	0	1748	0	0	1738	0	0	1718	0	0	1824	0
Satd. Flow (prot)	0	0.962	0	0	0.654	0	0	0.671	0	0	0.863	0
Right Turn on Red	0	1685	0	0	1186	0	0	1168	0	0	1590	0
Satd. Flow (RTOR)	30	30	5	5	41	30	30	7	30	30	7	30
Link Speed (mph)	1206	1206	2609	2609	2429	55.2	55.2	9.5	55.2	55.2	9.5	55.2
Travel Time (s)	27.4	27.4	0.94	0.94	0.94	0.94	0.76	0.76	0.76	0.94	0.94	0.94
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.76	0.76	0.76	0.94	0.94	0.94
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	32	636	205	118	511	33	68	95	88	118	440	51
Shared Lane Traffic (%)	0	873	0	0	662	0	0	251	0	0	609	0
Lane Group Flow (vph)	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Turn Type	2	2	6	8	8	4	4	4	4	4	4	4
Protected Phases	2	2	6	8	8	4	4	4	4	4	4	4
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
Total Split (%)	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%
Maximum Green (s)	35.0	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Cals (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effect Green (s)	35.0	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.49	0.35	0.35	0.35	0.35	0.35	0.35	0.35
w/c Ratio	1.05	1.05	1.05	1.05	1.05	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Control Delay	64.9	64.9	64.9	64.9	64.9	92.7	92.7	92.7	92.7	92.7	92.7	92.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.9	64.9	64.9	64.9	64.9	92.7	92.7	92.7	92.7	92.7	92.7	92.7
LOS	E	E	E	E	E	F	F	F	F	F	F	F
Approach Delay	64.9	64.9	64.9	64.9	64.9	92.7	92.7	92.7	92.7	92.7	92.7	92.7
Approach LOS	E	E	E	E	E	F	F	F	F	F	F	F
Queue Length 50th (ft)	~424	~353	~353	~353	~353	74	74	74	74	74	74	74
Queue Length 95th (ft)	#640	#640	#640	#640	#640	113	113	113	113	113	113	113
Internal Link Dist (ft)	1126	1126	1126	1126	1126	2349	2349	2349	2349	2349	2349	2349
Turn Bay Length (ft)												
Base Capacity (vph)	834	834	834	834	834	579	579	579	579	579	579	579

2015 Volumes
Timing Plan: AM Peak Hr.

Synchro 8 Report
Page 3

Wilmington, MA
6: Woburn Street & Lowell Street

8/25/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced w/c Ratio	1.05	1.05	1.05	1.14	1.14	1.14	0.58	0.58	0.58	1.10	1.10	1.10
Intersection Summary	Other											
Area Type	Other											
Cycle Length	72											
Actuated Cycle Length	72											
Offset	41 (57%), Referenced to phase 4 SBT, and 8 NBT, Start of Green											
Natural Cycle	110											
Control Type	Pretimed											
Maximum w/c Ratio	1.14											
Intersection Signal Delay	78.7											
Intersection Capacity Utilization	124.1%											
Analysis Period (min)	15											
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:	6: Woburn Street & Lowell Street											

2015 Volumes
Timing Plan: AM Peak Hr.

Synchro 8 Report
Page 4

Intersection													
Int Delay, s/veh													
34.3													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR				
Vol. veh/h	96	0	210	2	2	4	111	82	0				
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0				
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free				
RT Channelized	-	-	None	-	-	None	-	-	None				
Storage Length	-	-	-	-	-	-	-	-	-				
Veh in Median Storage. #	-	-	-	-	-	-	-	-	-				
Grade, %	-	0	-	-	0	-	-	0	-				
Peak Hour Factor	92	92	92	50	50	50	89	89	89				
Heavy Vehicles, %	2	2	2	12	12	12	12	12	12				
Mvmt Flow	104	0	228	4	4	8	125	92	0				
Major/Minor	Minor2						Major1						
Conflicting Flow All	1068	1062	713	1176	1209	92	860	0	0				
Stage 1	720	720	-	342	342	-	-	-	-				
Stage 2	348	342	-	834	867	-	-	-	-				
Critical Hdwy	7.12	6.52	6.22	7.22	6.62	6.32	4.22	-	-				
Critical Hdwy Stg 1	6.12	5.52	-	6.22	5.62	-	-	-	-				
Critical Hdwy Stg 2	6.12	5.52	-	6.22	5.62	-	-	-	-				
Follow-up Hdwy	3.518	4.018	3.318	3.608	4.108	3.408	2.308	-	-				
Pot Cap-1 Maneuver	199	223	432	161	175	939	740	-	-				
Stage 1	419	432	-	653	621	-	-	-	-				
Stage 2	668	638	-	348	357	-	-	-	-				
Platoon blocked, %	166	183	432	65	143	939	740	-	-				
Mov Cap-1 Maneuver	166	183	-	65	143	-	-	-	-				
Mov Cap-2 Maneuver	344	430	-	537	510	-	-	-	-				
Stage 1	540	524	-	163	356	-	-	-	-				
Stage 2	-	-	-	-	-	-	-	-	-				
Approach	EB						WB						NB
HCM Control Delay, s	141.7						29.5						6.2
HCM LOS	F						D						
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	740	-	-	287	163	1503	-	-					
HCM Lane V/C Ratio	0.169	-	-	1.159	0.098	0.002	-	-					
HCM Control Delay (s)	10.8	0	-	141.7	29.5	7.4	0	-					
HCM Lane LOS	B	A	-	F	D	A	A	-					
HCM 95th %ile Q(veh)	0.6	-	-	14.4	0.3	0	-	-					

Intersection			
Int Delay, s/veh			
Movement	SBL	SBT	SBR
Vol. veh/h	3	510	264
Conflicting Peds. #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	90	90	90
Heavy Vehicles, %	2	2	2
Mvmt Flow	3	567	293
Major/Minor			
Major2	92	0	0
Conflicting Flow All	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1503	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1503	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Approach			
SB	0		
HCM Control Delay, s	0		
HCM LOS			
Minor Lane/Major Mvmt			

Wilmington, MA
16: Site Driveway & Eames Street

8/28/2015

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	341	0	0	310	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	86	86	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mmt Flow	416	0	0	360	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	416	776
Stage 1	-	-	416
Stage 2	-	-	360
Critical Hdwy	-	4.12	6.42
Critical Hdwy Sig 1	-	-	6.22
Critical Hdwy Sig 2	-	-	5.42
Follow-up Hdwy	-	2.218	3.518
Pot Cap-1 Maneuver	-	1143	366
Stage 1	-	-	666
Stage 2	-	-	706
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1143	366
Mov Cap-2 Maneuver	-	-	366
Stage 1	-	-	666
Stage 2	-	-	706

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane	Major Mmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1143	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0	-
HCM Lane LOS	A	-	-	-	A	-
HCM 95th %ile Q(veh)	-	-	-	-	0	-

Intersection									
Int Delay, s/veh 91.3									
Movement	WBL	WBR	NBT	NBR	SBL	SBT			
Vol, veh/h	226	45	199	205	112	580			
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	86	86	80	80	90	90			
Heavy Vehicles, %	8	8	5	5	3	3			
Mvmt Flow	263	52	249	256	124	644			
Major/Minor	Minor1	Major1	Major2						
Conflicting Flow All	1270	377	0	0	505	0			
Stage 1	377	-	-	-	-	-			
Stage 2	883	-	-	-	-	-			
Critical Hdwy	6.48	6.28	-	-	4.13	-			
Critical Hdwy Stg 1	5.48	-	-	-	-	-			
Critical Hdwy Stg 2	5.48	-	-	-	-	-			
Follow-up Hdwy	3.572	3.372	-	-	2.227	-			
Pot Cap-1 Maneuver	~180	656	-	-	1055	-			
Stage 1	681	-	-	-	-	-			
Stage 2	390	-	-	-	-	-			
Platoon blocked, %	-	-	-	-	-	-			
Mov Cap-1 Maneuver	~147	656	-	-	1055	-			
Mov Cap-2 Maneuver	~147	-	-	-	-	-			
Stage 1	681	-	-	-	-	-			
Stage 2	319	-	-	-	-	-			
Approach	WB	NB	SB						
HCM Control Delay, s	\$ 456.9	0	1.4						
HCM LOS	F								
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT				
Capacity (veh/h)	-	-	169	1055	-				
HCM Lane V/C Ratio	-	-	1.865	0.118	-				
HCM Control Delay (s)	-	-	\$ 456.9	8.9	0				
HCM Lane LOS	-	-	F	A	A				
HCM 95th %ile Q(veh)	-	-	23.3	0.4	-				
Notes									
~: Volume exceeds capacity \$: Delay exceeds 300s *: Computation Not Defined **: All major volume in platoon									

Wilmington, MA
12. Woburn Street & Industrial Way

8/28/2015

Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	106	64	189	55	61	409
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	-	-	-	-	-
Van in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	-	-	-	0
Peak Hour Factor	80	80	84	84	93	93
Heavy Vehicles, %	9	9	6	6	3	3
Wmt Flow	132	80	225	65	66	440

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	829	258	290
Stage 1	258	-	-
Stage 2	571	-	-
Critical Hwy	6.49	6.29	4.13
Critical Hwy Sig 1	5.49	-	-
Critical Hwy Sig 2	5.49	-	-
Follow-up Hwy	3.581	3.381	2.227
Pot Cap-1 Maneuver	331	764	1266
Stage 1	769	-	-
Stage 2	552	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	308	764	1266
Mov Cap-2 Maneuver	308	-	-
Stage 1	769	-	-
Stage 2	514	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	397	1266	-
HCM Lane V/C Ratio	-	-	0.536	0.062	-
HCM Control Delay (s)	-	-	24	8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %ile Q(veh)	-	-	3.1	0.2	-

Intersection														
Int Delay, s/veh														
12.5														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR					
Vol, veh/h	3	1	0	35	5	225	0	13	13					
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0					
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	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	50	50	50	92	92	92	54	54	54					
Heavy Vehicles, %	2	2	2	6	6	6	12	12	12					
Mvmt Flow	6	2	0	38	5	245	0	24	24					
Major/Minor	Minor2						Minor1						Major1	
Conflicting Flow All	1288	1175	47	1164	1168	36	52	0	0					
Stage 1	1127	1127	-	36	36	-	-	-	-					
Stage 2	161	48	-	1128	1132	-	-	-	-					
Critical Hdwy	7.12	6.52	6.22	7.16	6.56	6.26	4.22	-	-					
Critical Hdwy Stg 1	6.12	5.52	-	6.16	5.56	-	-	-	-					
Critical Hdwy Stg 2	6.12	5.52	-	6.16	5.56	-	-	-	-					
Follow-up Hdwy	3.518	4.018	3.318	3.554	4.054	3.354	2.308	-	-					
Pot Cap-1 Maneuver	141	192	1022	168	190	1025	1492	-	-					
Stage 1	249	280	-	969	857	-	-	-	-					
Stage 2	841	855	-	244	273	-	-	-	-					
Platoon blocked, %	-	-	-	-	-	-	-	-	-					
Mov Cap-1 Maneuver	75	123	1022	120	122	1025	1492	-	-					
Mov Cap-2 Maneuver	75	123	-	120	122	-	-	-	-					
Stage 1	249	180	-	969	857	-	-	-	-					
Stage 2	636	855	-	155	175	-	-	-	-					
Approach	EB			WB			NB							
HCM Control Delay, s	52.9			23.1			0							
HCM LOS	F			C										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1492	-	-	83	-	480	1553	-	-					
HCM Lane V/C Ratio	-	-	-	0.096	-	0.6	0.348	-	-					
HCM Control Delay (s)	0	-	-	52.9	0	23.1	8.5	0	-					
HCM Lane LOS	A	-	-	F	A	C	A	A	-					
HCM 95th %ile Q(veh)	0	-	-	0.3	-	3.9	1.6	-	-					

Intersection			
Int Delay, s/veh			
Movement	SBL	SBT	SBR
Vol, veh/h	470	36	9
Conflicting Peds. #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	87	87	87
Heavy Vehicles, %	3	3	3
Mvmt Flow	540	41	10
Major/Minor	Major2		
Conflicting Flow All	48	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	1553	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1553	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Approach	SB		
HCM Control Delay, s	7.8		
HCM LOS			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	22	664	146	179	659	67	147	106	401	105	66	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	40	100	0	0	0	0	150	60	0	0	0
Storage Lanes	0	1	1	0	0	0	0	1	1	0	0	0
Taper Length (ft)	25	0	25	25	100	100	100	100	100	25	100	100
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.986	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Flt Protected	0	1806	1538	1703	1767	0	0	1793	1495	1562	1753	0
Satd Flow (prot)	0.962	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Flt Permitted	0	1741	1538	224	1767	0	0	1378	1495	618	1753	0
Satd Flow (perm)	0	1741	1538	224	1767	0	0	1378	1495	618	1753	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd Flow (RTOR)	68	13	30	30	30	30	30	30	30	30	30	30
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	2609	700	700	700	700	700	700	700	700	700	700	700
Travel Time (s)	59.3	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
Peak Hour Factor	0.93	0.93	0.87	0.84	0.91	0.91	0.86	0.86	0.82	0.94	0.83	0.83
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	3%	3%	8%	4%	2%	2%
Parking (#/hr)	24	714	168	213	724	74	171	123	489	112	80	52
Adj. Flow (vph)	0	738	168	213	798	0	0	294	489	112	132	0
Shared Lane Traffic (%)	0	738	168	213	798	0	0	294	489	112	132	0
Lane Group Flow (vph)	Perm	NA	Perm	pm+pt	NA	Perm	NA	Perm	NA	Perm	NA	NA
Turn Type	2	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2	2
Detector Phase	2	2	2	2	2	2	2	2	2	2	2	2
Switch Phase	2	2	2	2	2	2	2	2	2	2	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	8.0	22.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	43.0	43.0	43.0	14.0	57.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (%)	53.8%	53.8%	53.8%	17.5%	71.3%	28.8%	28.8%	28.8%	28.8%	28.8%	28.8%	28.8%
Maximum Green (s)	37.0	37.0	37.0	11.0	51.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	3.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Eff Green (s)	35.0	35.0	35.0	50.2	47.2	18.1	18.1	18.1	18.1	18.1	18.1	18.1
Actuated g/C Ratio	0.46	0.46	0.46	0.66	0.62	0.24	0.24	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.92	0.23	0.66	0.73	0.73	0.90	0.78	0.77	0.77	0.77	0.77	0.77
Control Delay	39.5	8.5	19.4	14.5	14.5	62.5	18.4	64.5	20.6	20.6	20.6	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	39.5	8.5	19.4	14.5	14.5	62.5	18.4	64.5	20.6	20.6	20.6	20.6
LOS	D	A	A	B	B	E	B	E	B	E	C	C
Approach Delay	33.8	26	34	228	141	53	52	37	40.7	40.7	40.7	40.7
Approach LOS	C	C	C	B	B	C	C	C	D	D	D	D
Queue Length 50th (ft)	#561	60	87	362	228	141	53	52	37	37	37	37
Queue Length 95th (ft)	2529	60	87	362	620	783	132	144	77	77	77	77
Internal Link Dist (ft)	848	783	361	1190	326	629	146	444	444	444	444	444
Turn Bay Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.21	0.59	0.67	0.90	0.78	0.77	0.30	0.30	0.30	0.30	0.30

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 76.3

Natural Cycle: 70

Control Type: Semi Act-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 28.4

Intersection Capacity Utilization: 100.5%

Analysis Period (min): 15

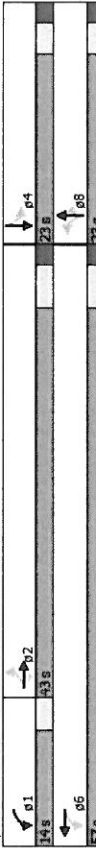
Intersection LOS: C

ICU Level of Service: H

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: West Street & Lowell Street



Wilmington, MA
6: Woburn Street & Lowell Street

8/25/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	91	614	103	62	481	111	109	380	95	74	100	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.983	0.994	0.995	0.995	0.991	0.978	0.991	0.984	0.985	0.984	0.966	0.966
Fit Protected	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (prot)	0	1820	0	1811	0	1823	0	1788	0	1788	0	1788
Flt. Permitted	0	0.819	0	0.847	0	0.855	0	0.593	0	0.593	0	0.593
Satd. Flow (perm)	0	1500	0	1541	0	1573	0	1078	0	1078	0	1078
Right Turn on Red			Yes		Yes		Yes		Yes		Yes	
Satd. Flow (RTOR)		14		20		15		30		26		30
Link Speed (mph)		30		30		30		30		30		30
Link Distance (ft)		1206		2609		2429		420		420		420
Travel Time (s)		27.4		59.3		55.2		9.5		9.5		9.5
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.96	0.96	0.96	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	97	653	110	70	547	126	114	396	99	90	122	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	860	0	743	0	609	0	283	0	283	0	283
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	2	2	6	8	8	4	4	4	4	4	4	4
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
Total Split (%)	56.9%	56.9%	56.9%	56.9%	56.9%	56.9%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%
Maximum Green (s)	35.0	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead/Lag Optimize?												
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	35.0	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.49	0.35	0.35	0.35	0.35	0.35	0.35	0.35
v/c Ratio	1.17	1.17	1.17	0.98	0.98	1.10	1.10	0.72	0.72	0.72	0.72	0.72
Control Delay	111.6	111.6	111.6	48.4	48.4	93.1	93.1	31.5	31.5	31.5	31.5	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.6	111.6	111.6	48.4	48.4	93.1	93.1	31.5	31.5	31.5	31.5	31.5
LOS	F	F	F	D	D	F	F	C	C	C	C	C
Approach Delay												
Approach LOS												
Queue Length 50th (ft)												
Queue Length 95th (ft)												
Internal Link Dist (ft)												
Turn Bay Length (ft)												
Base Capacity (vph)												

2015 Volumes
Timing Plan: PM Peak Hr.

Synchro 8 Report
Page 3

Wilmington, MA
6: Woburn Street & Lowell Street

8/25/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillover Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.17	1.17	1.17	0.98	0.98	1.10	1.10	0.72	0.72	0.72	0.72	0.72
Intersection Summary												
Area Type:	Other											
Cycle Length:	72											
Actuated Cycle Length:	72											
Offset:	41 (57%), Referenced to phase 4/SBTL and 8/NBTL. Start of Green											
Natural Cycle:	90											
Control Type:	Pretimed											
Maximum v/c Ratio:	1.17											
Intersection Signal Delay:	79.2											
Intersection Capacity Utilization:	107.0%											
ICU Level of Service:	G											
Analysis Period (min):	15											
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:	6: Woburn Street & Lowell Street											
	62	62	62	62	62	62	62	62	62	62	62	62
	66	66	66	66	66	66	66	66	66	66	66	66

2015 Volumes
Timing Plan: PM Peak Hr.

Synchro 8 Report
Page 4

Intersection													
Int Delay, s/veh													
252.8													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR				
Vol. veh/h	202	1	234	2	1	0	259	358	1				
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0				
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free				
RT Channelized	-	-	None	-	-	None	-	-	None				
Storage Length	-	-	-	-	-	-	-	-	-				
Veh in Median Storage #	-	0	-	-	0	-	-	0	-				
Grade, %	-	0	-	-	0	-	-	0	-				
Peak Hour Factor	95	95	95	38	38	38	79	79	79				
Heavy Vehicles, %	3	3	3	0	0	0	1	1	1				
Mvmt Flow	213	1	246	5	3	0	328	453	1				
Major/Minor	Minor2						Minor1						
Conflicting Flow All	1370	1369	249	1492	1436	454	317	0	0				
Stage 1	259	259	-	1109	1109	-	-	-	-				
Stage 2	1111	1110	-	383	327	-	-	-	-				
Critical Hdwy	7.13	6.53	6.23	7.1	6.5	6.2	4.11	-	-				
Critical Hdwy Stg 1	6.13	5.53	-	6.1	5.5	-	-	-	-				
Critical Hdwy Stg 2	6.13	5.53	-	6.1	5.5	-	-	-	-				
Follow-up Hdwy	3.527	4.027	3.327	3.5	4	3.3	2.209	-	-				
Pot Cap-1 Maneuver	~123	146	787	103	135	610	1249	-	-				
Stage 1	744	692	-	257	288	-	-	-	-				
Stage 2	253	284	-	644	651	-	-	-	-				
Platoon blocked, %	-	-	-	-	-	-	-	-	-				
Mov Cap-1 Maneuver	~87	94	787	51	87	610	1249	-	-				
Mov Cap-2 Maneuver	~87	94	-	51	87	-	-	-	-				
Stage 1	483	688	-	167	187	-	-	-	-				
Stage 2	~162	184	-	439	647	-	-	-	-				
Approach	EB						WB						
HCM Control Delay, s	\$ 856.3						75.2						
HCM LOS	F						F						
							NB						
							3.7						
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1249	-	-	166	59	1096	-	-					
HCM Lane V/C Ratio	0.262	-	-	2.771	0.134	0.004	-	-					
HCM Control Delay (s)	8.9	0	-	\$ 856.3	75.2	8.3	0	-					
HCM Lane LOS	A	A	-	F	F	A	A	-					
HCM 95th %ile Q(veh)	1.1	-	-	41	0.4	0	-	-					
Notes	Volume exceeds capacity \$: Delay exceeds 300s *: Computation Not Defined *: All major volume in platoon												

Intersection			
Int Delay, s/veh			
Movement	SBL	SBT	SBR
Vol. veh/h	4	151	112
Conflicting Peds. #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	83	83	83
Heavy Vehicles, %	4	4	4
Mvmt Flow	5	182	135
Major/Minor	Major2		
Conflicting Flow All	454	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.236	-	-
Pot Cap-1 Maneuver	1096	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1096	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Approach	SB		
HCM Control Delay, s	0.1		
HCM LOS			
Minor Lane/Major Mvmt			

Wilmington, MA
16. Site Driveway & Eames Street

8/28/2015

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	386	0	0	407	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Van in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	88	88	92	92
Heavy Vehicles, %	3	3	2	2	2	2
Mount Flow	434	0	0	462	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	434	897
Stage 1	-	-	434
Stage 2	-	-	463
Critical Hdwy	-	-	6.42
Critical Hdwy Stg 1	-	4.12	6.22
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	2.218	3.318
Pot Cap-1 Maneuver	-	1126	310
Stage 1	-	-	653
Stage 2	-	-	634
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1126	310
Mov Cap-2 Maneuver	-	-	310
Stage 1	-	-	653
Stage 2	-	-	634

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mount	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1126	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %ile Q(veh)	-	-	-	0	-

Wilmington, MA
11: Main Street & Eames Street

8/28/2015

Intersection						
Int Delay, s/veh						
76						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol. veh/h	194	160	559	262	86	276
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	94	94	96	96	90	90
Heavy Vehicles, %	1	1	3	3	2	2
Mvmt Flow	206	170	582	273	96	307
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1217	719	0	0	855	0
Stage 1	719	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	~ 201	430	-	-	785	-
Stage 1	484	-	-	-	-	-
Stage 2	613	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 171	430	-	-	785	-
Mov Cap-2 Maneuver	~ 171	-	-	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	\$ 327.4	0		2.4		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	235	785	-	
HCM Lane V/C Ratio	-	-	1.603	0.122	-	
HCM Control Delay (s)	-	-	\$ 327.4	10.2	0	
HCM Lane LOS	-	-	F	B	A	
HCM 95th %ile Q(veh)	-	-	23.7	0.4	-	
Notes						
Volume exceeds capacity		\$ Delay exceeds 300s		+/- Computation Not Defined		
				*: All major volume in platoon		

Wilmington, MA
12. Woburn Street & Industrial Way

8/28/2015

Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	47	32	387	101	150	316
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Vel in Median Storage, #	0	0	0	-	-	0
Grade, %	0	-	-	-	-	0
Peak Hour Factor	76	76	76	76	93	93
Heavy Vehicles, %	9	9	3	3	3	3
Wmt Flow	62	42	509	133	161	340

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1238	576	642
Stage 1	576	-	-
Stage 2	662	-	-
Critical Hdwy	6.49	6.29	4.13
Critical Hdwy Stg 1	5.49	-	-
Critical Hdwy Stg 2	5.49	-	-
Follow-up Hdwy	3.581	3.381	2.227
Pot Cap-1 Maneuver	188	504	938
Stage 1	549	-	-
Stage 2	500	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	148	504	938
Mov Cap-2 Maneuver	148	-	-
Stage 1	549	-	-
Stage 2	394	-	-

Approach	WB	NB	SB
HCM Control Delay, s	38.7	0	3.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	207	938	-	-
HCM Lane V/C Ratio	-	0.502	0.172	-	-
HCM Control Delay (s)	-	38.7	9.6	0	-
HCM Lane LOS	-	E	A	A	-
HCM 95th %ile Q(veh)	-	2.5	0.6	-	-

Intersection		22.2											
Int Delay, s/veh													

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol. veh/h	11	16	0	16	0	492	0	14	32
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	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	36	36	36	75	75	75	77	77	77
Heavy Vehicles, %	0	0	0	3	3	3	2	2	2
Mvmt Flow	31	44	0	21	0	656	0	18	42

Major/Minor	Minor1						Major1		
Conflicting Flow All	1186	879	21	880	859	39	23	0	0
Stage 1	819	819	-	39	39	-	-	-	-
Stage 2	367	60	-	841	820	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.13	6.53	6.23	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.53	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.53	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.527	4.027	3.327	2.218	-	-
Pot Cap-1 Maneuver	167	288	1062	267	293	1030	1592	-	-
Stage 1	372	392	-	973	860	-	-	-	-
Stage 2	657	849	-	358	388	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	48	212	1062	180	216	1030	1592	-	-
Mov Cap-2 Maneuver	48	212	-	180	216	-	-	-	-
Stage 1	372	289	-	973	860	-	-	-	-
Stage 2	239	849	-	223	286	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	138.9	20.2	0
HCM LOS	F	C	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1592	-	-	89	-	897	1537	-	-
HCM Lane V/C Ratio	-	-	-	0.843	-	0.755	0.259	-	-
HCM Control Delay (s)	0	-	-	138.9	0	20.2	8.2	0	-
HCM Lane LOS	A	-	-	F	A	C	A	A	-
HCM 95th %ile Q(veh)	0	-	-	4.5	-	7.3	1	-	-

Intersection													
Int Delay, s/veh													

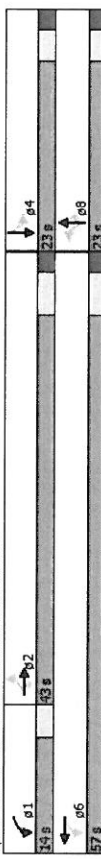
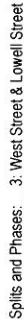
Movement	SBL	SBT	SBR
Vol. veh/h	335	17	2
Conflicting Peds. #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	84	84	84
Heavy Vehicles, %	3	3	3
Mvmt Flow	399	20	2

Major/Minor	Major2		
Conflicting Flow All	60	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	1537	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1537	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	7.7
HCM LOS	-

Minor Lane/Major Mvmt	
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Lane Group		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	30	686	113	261	↖	↗	↘	↙	43	286	184	185	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	40	100	0	0	0	0	0	0	150	60	0	0
Storage Lanes	0	1	1	1	0	0	0	0	0	1	1	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.991		0.991			0.966	0.850		0.967	
FR Protected													
Said. Flow (prot)	0	1806	1538	1703	1776	0	0	1782	1495	1736	1801	0	0
FR Permitted		0.952		0.100				0.422		0.611			
Said. Flow (perm)													
Right Turn on Red	0	1723	1538	179	1776	0	0	778	1495	1116	1801	0	0
Said. Flow (RTOR)		Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes
Link Speed (mph)		68		8		8			345		16		
Link Distance (ft)		30		30		30		30		30		30	
Travel Time (s)		2609		700		700		863		425		425	
Peak Hour Factor		59.3		15.9		15.9		19.6		9.7		9.7	
Heavy Vehicles (%)	0.90	0.90	0.75	0.88	0.95	0.95	0.86	0.86	0.75	0.84	0.87	0.87	0.87
Adt. Flow (vph)	5%	5%	5%	6%	6%	6%	3%	3%	3%	8%	4%	2%	2%
Shared Lane Traffic (%)	33	762	151	297	686	42	113	50	381	219	213	59	59
Lane Group Flow (vph)													
Turn Type	0	795	151	297	728	0	0	163	381	219	272	0	0
Protected Phases	Perm	NA	Perm	pm-pt	NA		Perm	NA	Perm	Perm	NA		
Permitted Phases	2	2	2	1	6		8	8	8	4	4		
Detector Phase	2	2	2	1	6		8	8	8	4	4		
Switch Phase													
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0		
Minimum Split (s)	22.0	22.0	22.0	8.0	22.0		21.0	21.0	21.0	21.0	21.0		
Total Split (s)	43.0	43.0	43.0	14.0	57.0		23.0	23.0	23.0	23.0	23.0		
Total Split (%)	53.8%	53.8%	53.8%	17.5%	71.3%		28.8%	28.8%	28.8%	28.8%	28.8%		
Maximum Green (s)	37.0	37.0	37.0	11.0	51.0		18.0	18.0	18.0	18.0	18.0		
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0		3.0	3.0	3.0	3.0	3.0		
All-Red Time (s)	2.0	2.0	2.0	0.0	2.0		2.0	2.0	2.0	2.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	6.0	3.0	6.0		5.0	5.0	5.0	5.0	5.0		
Lead/Lag	Lag	Lag	Lag	Lead									
Lead-Lag Optimize?	Yes	Yes	Yes	Yes									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0		
Recall Mode	None	None	None	None	None		Max	Max	Max	Max	Max		
Walk Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0		
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0	0	0	0		
Act Effct Green (s)	37.0	37.0	37.0	54.0	51.0		18.0	18.0	18.0	18.0	18.0		
Actuated g/C Ratio	0.46	0.46	0.68	0.64	0.64		0.22	0.22	0.22	0.22	0.22		
v/c Ratio	1.00	0.20	0.90	0.64	0.64		0.93	0.63	0.87	0.87	0.65		
Control Delay	55.2	8.0	49.9	12.1	12.1		86.8	10.0	64.6	34.8	34.8		
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Delay	55.2	8.0	49.9	12.1	12.1		86.8	10.0	64.6	34.8	34.8		

[illegible]

8/25/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SRB
Lane Configurations	4	4	2	4	4	4	4	4	4	4	4	4
Idea Volume (vph)	35	654	207	128	529	33	56	80	78	119	448	55
Volume Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969			0.994			0.951				0.968	
Flt Protected	0.998			0.991			0.987				0.991	
Satd Flow (prot)	0	1750	0	0	1800	0	0	1715	0	0	1824	0
Flt Permitted	0	957	0	0	952	0	0	0	0	0	949	0
Satd Flow (perm)	0	967	0	0	1075	0	0	1115	0	0	1562	0
Right Turn on Red Satd Flow (RTOR)			Yes			Yes			Yes			Yes
Link Speed (mph)	29	30		5	30		44		30		7	30
Travel Time (ft)	1206	27.4		2609	59.3		2429		420		9.5	420
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.76	0.76	0.76	0.94	0.94	0.94
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	37	656	220	136	563	35	74	105	103	127	477	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	953	0	0	734	0	0	282	0	0	663	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	2			6			8				4	
Permitted Phases	2			6			8				4	
Minimum Split (s)	22.0	22.0	41.0	22.0	41.0	31.0	31.0	22.0	31.0	22.0	31.0	22.0
Total Split (s)	41.0	41.0	56.9%	41.0	56.9%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%
Total Split (%)	56.9%	56.9%		56.9%	56.9%		56.9%	56.9%	56.9%		56.9%	56.9%
Maximum Green (s)	35.0	35.0	35.0	35.0	35.0	25.0	25.0	4.0	4.0	4.0	25.0	4.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0			6.0			6.0				6.0	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	35.0			35.0			25.0			25.0		25.0
Actuated g/C Ratio	0.49			0.49			0.35			0.35		0.35
v/c Ratio	1.15			1.40			0.68			1.21		1.21
Control Delay	101.7			212.2			26.8			137.7		137.7
Queue Delay	0.0			0.0			0.0			0.0		0.0
Total Delay	101.7			212.2			26.8			137.7		137.7
LOS	F			C			C			F		F
Approach Delay	101.7			212.2			26.8			137.7		137.7
Approach LOS	F			F			C			F		F
Queue Length 50th (ft)	-504			-450			88			-369		-369
Queue Length 95th (ft)	#726			#654			132			#668		#668
Internal Link Dist (ft)	1126			2529			2349			340		340
Turn Bay Length (ft)												
Lane Capacity (vph)	830			525			415			546		546

8/25/2015

Area Type:	Other	Intersection Summary															
Cycle Length:	72																
Activated Cycle Length:	72																
Offset:	41 (57%)	Referenced to phase 4 SRTL and 8 NRTL, Start of Green															
Natural Cycle:	150																
Control Type:	Pretimed																
Maximum v/c Ratio:	1.40																
Intersection Signal Delay:	133.6	Intersection LOS: F															
Intersection Capacity Utilization:	136.4%	ICU Level of Service: H															
Analysis Period (min):	15																
~ 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: 6- Woburn Street & Lowell Street																	

Intersection	
Int Delay, s/veh	65.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol, veh/h	109	0	230	2	2	4	123	90	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	50	50	50	89	89	89
Heavy Vehicles, %	2	2	2	12	12	12	12	12	12
Mvmt Flow	118	0	250	4	4	8	138	101	0

Major/Minor	Minor1						Major1		
Conflicting Flow All	1161	1155	770	1280	1315	101	930	0	0
Stage 1	777	777	-	378	378	-	-	-	-
Stage 2	384	378	-	902	937	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.22	6.62	6.32	4.22	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.22	5.62	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.22	5.62	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.608	4.108	3.408	2.308	-	-
Pot Cap-1 Maneuver	172	197	401	136	151	928	696	-	-
Stage 1	390	407	-	624	598	-	-	-	-
Stage 2	639	615	-	319	330	-	-	-	-
Platoon blocked, %	139	155	401	43	119	928	696	-	-
Mov Cap-1 Maneuver	139	155	-	43	119	-	-	-	-
Mov Cap-2 Maneuver	308	405	-	493	472	-	-	-	-
Stage 1	496	486	-	120	329	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	270.7	40.2	6.6
HCM LOS	F	E	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	696	-	-	250	118	1491	-	-
HCM Lane V/C Ratio	0.199	-	-	1.474	0.136	0.002	-	-
HCM Control Delay (s)	11.4	0	-	270.7	40.2	7.4	0	-
HCM Lane LOS	B	A	-	F	E	A	A	-
HCM 95th %ile Q(veh)	0.7	-	-	21.3	0.5	0	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol, veh/h	3	549	288
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	90	90	90
Heavy Vehicles, %	2	2	2
Mvmt Flow	3	610	320

Major/Minor	Major2		
Conflicting Flow All	101	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1491	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1491	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	SB
HCM Control Delay, s	0
HCM LOS	-

Minor Lane/Major Mvmt

Wilmington, MA
16: Site Driveway & Eames Street

8/28/2015

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	374	0	0	339	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Vel in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	86	86	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	456	0	0	394	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	456	850
Stage 1	-	-	456
Stage 2	-	-	394
Critical Hdwy	-	-	6.42
Critical Hdwy Sig 1	-	4.12	6.22
Critical Hdwy Sig 2	-	-	5.42
Follow-up Hdwy	-	2.218	3.518
Pot Cap-1 Maneuver	-	1105	331
Stage 1	-	-	638
Stage 2	-	-	681
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1105	331
Mov Cap-2 Maneuver	-	-	331
Stage 1	-	-	638
Stage 2	-	-	681

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1105	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %ile Q(veh)	-	-	-	0	-

Intersection									
Int Delay, s/veh									
144.3									
Movement	WBL	WBR	NBT	NBR	SBL	SBT			
Vol, veh/h	249	48	213	228	120	622			
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	-	-	-			
Grade, %	0	-	0	-	-	0			
Peak Hour Factor	86	86	80	80	90	90			
Heavy Vehicles, %	8	8	5	5	3	3			
Mvmt Flow	290	56	266	285	133	691			
Major/Minor	Minor1	Major1	Major2						
Conflicting Flow All	1367	409	0	0	551	0			
Stage 1	409	-	-	-	-	-			
Stage 2	958	-	-	-	-	-			
Critical Hdwy	6.48	6.28	-	-	4.13	-			
Critical Hdwy Stg 1	5.48	-	-	-	-	-			
Critical Hdwy Stg 2	5.48	-	-	-	-	-			
Follow-up Hdwy	3.572	3.372	-	-	2.227	-			
Pot Cap-1 Maneuver	~157	630	-	-	1014	-			
Stage 1	658	-	-	-	-	-			
Stage 2	363	-	-	-	-	-			
Platoon blocked, %	-	-	-	-	-	-			
Mov Cap-1 Maneuver	~124	630	-	-	1014	-			
Mov Cap-2 Maneuver	~124	-	-	-	-	-			
Stage 1	658	-	-	-	-	-			
Stage 2	~286	-	-	-	-	-			
Approach	WB	NB	SB						
HCM Control Delay, s	\$ 715.3	0	1.5						
HCM LOS	F								
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT				
Capacity (veh/h)	-	-	142	1014	-				
HCM Lane V/C Ratio	-	-	2.432	0.131	-				
HCM Control Delay (s)	-	-	\$ 715.3	9.1	0				
HCM Lane LOS	-	-	F	A	A				
HCM 95th %ile Q(veh)	-	-	29.8	0.5	-				
Notes									
~: Volume exceeds capacity \$: Delay exceeds 300s -: Computation Not Defined *: All major volume in platoon									

Wilmington, MA
12. Woburn Street & Industrial Way

8/28/2015

Intersection									
Int Delay, s/veh 33.1									
Movement	WBL	WBR	NBT	NBR	SBL	SBT	Major/Minor	Major1	Major2
Vol, veh/h	204	69	209	146	65	440		0	423
Conflicting Peds, #/hr	0	0	0	0	0	0		-	-
Sign Control	Stop	Stop	Free	Free	Free	Free		-	-
RT Channelized	-	None	-	None	-	None		-	-
Storage Length	0	0	-	-	-	-		-	-
Van in Median Storage, #	0	0	0	-	-	0		-	0
Grade, %	0	-	-	-	-	-		-	-
Peak Hour Factor	80	80	84	84	93	93		-	-
Heavy Vehicles, %	9	9	6	6	3	3		-	-
Mvmt Flow	255	86	249	174	70	473		-	-
Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	949	336	0	0	423	0			
Stage 1	336	-	-	-	-	-			
Stage 2	613	-	-	-	-	-			
Critical Hdwy	6.49	6.29	-	-	4.13	-			
Critical Hdwy Sig 1	5.49	-	-	-	-	-			
Critical Hdwy Sig 2	5.49	-	-	-	-	-			
Follow-up Hdwy	3.581	3.381	-	-	2.227	-			
Pot Cap-1 Maneuver	281	690	-	-	1131	-			
Stage 1	708	-	-	-	-	-			
Stage 2	527	-	-	-	-	-			
Platoon blocked, %	-	-	-	-	-	-			
Mov Cap-1 Maneuver	257	690	-	-	1131	-			
Mov Cap-2 Maneuver	257	-	-	-	-	-			
Stage 1	708	-	-	-	-	-			
Stage 2	483	-	-	-	-	-			
Approach	WB		NB		SB				
HCM Control Delay, s	125.1		0		1.1				
HCM LOS	F								
Minor Lane/Minor Mvmt	NBT	NBR	WBL	SBL	SBT				
Capacity (veh/h)	-	305	1131	-	-				
HCM Lane V/C Ratio	-	1.119	0.062	-	-				
HCM Control Delay (s)	-	125.1	8.4	0	0				
HCM Lane LOS	-	F	A	A	A				
HCM 95th %ile Q(veh)	-	13.8	0.2	-	-				

Intersection	
Int Delay, s/veh	40.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR
Vol. veh/h	3	1	0	38	5	332	0	16	14
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	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	50	50	50	92	92	92	54	54	54
Heavy Vehicles, %	2	2	2	6	6	6	12	12	12
Mvmt Flow	6	2	0	41	5	361	0	30	26

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	1658	1488	55	1476	1483	43	63	0	0
Stage 1	1432	1432	-	43	43	-	-	-	-
Stage 2	226	56	-	1433	1440	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.16	6.56	6.26	4.22	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.16	5.56	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.16	5.56	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.554	4.054	3.354	2.308	-	-
Pot Cap-1 Maneuver	78	124	1012	102	122	1016	1478	-	-
Stage 1	167	200	-	961	851	-	-	-	-
Stage 2	777	848	-	163	194	-	-	-	-
Platoon blocked, %	30	66	1012	64	65	1016	1478	-	-
Mov Cap-1 Maneuver	30	66	-	64	65	-	-	-	-
Mov Cap-2 Maneuver	167	107	-	961	851	-	-	-	-
Stage 1	498	848	-	86	104	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	136	104.4	0
HCM LOS	F	F	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1478	-	-	35	-	376	1542	-	-
HCM Lane V/C Ratio	-	-	-	0.229	-	1.084	0.447	-	-
HCM Control Delay (s)	0	-	-	136	0	104.4	9.2	0	-
HCM Lane LOS	A	-	-	F	A	F	A	A	-
HCM 95th %ile Q(veh)	0	-	-	0.7	-	14.5	2.4	-	-

Intersection	
Int Delay, s/veh	

Movement	SBL	SBT	SBR
Vol. veh/h	599	41	14
Conflicting Peds. #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	87	87	87
Heavy Vehicles, %	3	3	3
Mvmt Flow	689	47	16

Major/Minor	Major2		
Conflicting Flow All	56	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	1542	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1542	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

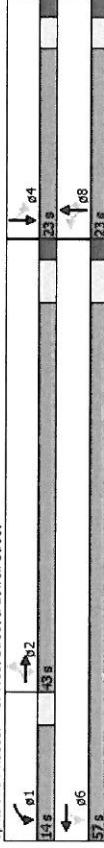
Approach	SB
HCM Control Delay, s	8.4
HCM LOS	-

Minor Lane/Major Mvmt

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	24	730	161	234	729	72	164	114	466	113	71	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	40	100	0	0	0	0	0	150	60	0	0
Storage Lanes	0	1	1	0	0	0	0	0	1	1	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.998	0.850	0.850	0.950	0.987	0.950	0.971	0.850	0.950	0.941	0.941	0.941
Fit Protected	0	1806	1538	1703	1769	0	0	1791	1495	1562	1753	0
Satd Flow (prot)	0.957	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Right Turn on Red	0	1732	1538	179	1769	0	0	1347	1495	488	1753	0
Satd Flow (RTOR)	68	12	30	30	30	30	30	30	30	30	30	30
Link Speed (mph)	2609	700	700	700	700	700	700	700	700	700	700	700
Travel Time (s)	59.3	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
Peak Hour Factor	0.93	0.93	0.87	0.84	0.91	0.91	0.86	0.86	0.82	0.94	0.83	0.83
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	3%	3%	8%	4%	2%	2%
Parking (#/hr)	26	785	185	279	801	79	191	133	568	120	86	55
Adj. Flow (vph)	0	811	185	279	880	0	0	324	568	120	141	0
Shared Lane Traffic (%)	Perm	NA	pm-pt	NA	Perm	NA	Perm	NA	Perm	NA	NA	NA
Lane Group Flow (vph)	2	2	2	2	2	2	2	2	2	2	2	2
Turn Type	2	2	2	2	2	2	2	2	2	2	2	2
Protected Phases	2	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2	2
Detector Phase	2	2	2	2	2	2	2	2	2	2	2	2
Switch Phase	2	2	2	2	2	2	2	2	2	2	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Total Split (%)	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%
Maximum Green (s)	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effect Green (s)	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
Actuated g/C Ratio	0.46	0.46	0.46	0.67	0.64	0.64	0.23	0.23	0.23	0.23	0.23	0.23
v/c Ratio	1.01	0.25	0.86	0.78	0.78	0.78	1.07	0.95	1.09	0.95	0.33	0.33
Control Delay	57.6	9.1	43.0	16.5	16.5	16.5	103.1	40.2	148.9	21.5	21.5	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	57.6	9.1	43.0	16.5	16.5	16.5	103.1	40.2	148.9	21.5	21.5	21.5
LOS	E	A	D	B	B	B	F	D	F	F	C	C
Approach Delay	48.6			22.9			63.0					
Approach LOS	D			C			E					
Queue Length 50th (ft)	~402	33	82	275			~182	121	~69	43		
Queue Length 95th (ft)	#647	67	#185	444			#315	#259	#171	83		
Internal Link Dist (ft)	2529			620			783			345		
Turn Bay Length (ft)		40	100						150	60		
Base Capacity (vph)	804	750	331	1136			304	600	110	424		
Starvation Cap Reductn	0	0	0	0			0	0	0	0		
Spillback Cap Reductn	0	0	0	0			0	0	0	0		
Storage Cap Reductn	0	0	0	0			0	0	0	0		
Reduced v/c Ratio	1.01	0.25	0.84	0.77			1.07	0.95	1.09	0.33		
Intersection Summary												
Area Type	Other											
Cycle Length: 80												
Actuated Cycle Length: 79.7												
Natural Cycle: 80												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 1.09												
Intersection Signal Delay: 46.0												
Intersection Capacity Utilization: 18.4%												
Analysis Period (min): 15												
Intersection LOS: D												
ICU Level of Service: H												
~ Volume exceeds capacity, queue is theoretically infinite.												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
Queue shown is maximum after two cycles.												

Splits and Phases: 3: West Street & Lowell Street



8/25/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SSR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	101	669	110	80	531	119	117	410	113	79	114	65
Idea Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.963	0.933	0.978	0.978	0.995	0.991	0.976	0.966	0.966	0.966	0.966	0.966
Fit Protected												
Satd Flow (prot)	0	1820	0	0	1813	0	0	1820	0	0	1780	0
Flt Permitted	0	0.786	0	0	0.782	0	0	0.944	0	0	0.565	0
Satd Flow (perm)	0	1439	0	0	1425	0	0	1550	0	0	1027	0
Right Turn on Red			Yes			Yes			Yes		Yes	
Satd Flow (RTOR)	14				19			16			26	
Link Speed (mph)	30				30			30			30	
Link Distance (ft)	1206				2609			2429			420	
Travel Time (s)	27.4				59.3			55.2			9.5	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.96	0.96	0.96	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	107	712	117	91	603	135	122	427	118	96	139	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	936	0	0	829	0	0	667	0	0	314	0
Turn Type	Perm	NA			Perm	NA		Perm	NA		Perm	NA
Protected Phases		2			6			8			4	
Permitted Phases	2											4
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0
Total Split (%)	56.9%	56.9%	56.9%	56.9%	56.9%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%	43.1%
Maximum Green (s)	35.0	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0				6.0			6.0			6.0	
Lead/Lag												
Lead/Lag Optimizer?												
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Cals (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	35.0				35.0			25.0			25.0	
Actuated g/c Ratio	0.49				0.49			0.35			0.35	
v/c Ratio	1.33				1.18			1.22			0.84	
Control Delay	177.9				117.1			138.5			42.7	
Queue Delay	0.0				0.0			0.0			0.0	
Total Delay	177.9				117.1			138.5			42.7	
LOS	F				F			F			D	
Approach Delay	177.9				117.1			138.5			42.7	
Approach LOS	F				F			F			D	
Queue Length 50th (ft)	-553				-450			-369			117	
Queue Length 95th (ft)	#774				#640			#657			#219	
Internal Link Dist (ft)	1126				2529			2349			340	
Turn Bay Length (ft)												
Base Capacity (vph)	706				702			548			373	

8/25/2015

The diagram shows a four-way intersection with the following details:

- Streets:** Woburn Street & Lowell Street.
- Approaches:**
 - Northbound (NB): 71 s, 11 s, 11 s
 - Southbound (SB): 31 s, 31 s, 31 s
 - Eastbound (EB): 31 s, 31 s, 31 s
 - Westbound (WB): 31 s, 31 s, 31 s
- Signal Phases:**
 - EBL (Eastbound Left Turn)
 - EBT (Eastbound Through/Right)
 - EBR (Eastbound Right Turn)
 - WBL (Westbound Left Turn)
 - WBT (Westbound Through/Right)
 - WBR (Westbound Right Turn)
 - NBL (Northbound Left Turn)
 - NBT (Northbound Through/Right)
 - NBR (Northbound Right Turn)
 - SBL (Southbound Left Turn)
 - SBT (Southbound Through/Right)
 - SBR (Southbound Right Turn)
- Intersection Data:**
 - Area Type: Other
 - Cycle Length: 72
 - Actuated Cycle Length: 72
 - Offset: 41 (57%) - Referenced to phase 4 SBTL & 8 NBTL Start of Green
 - Natural Cycle: 140
 - Control Type: Pre-timed
 - Maximum v/c Ratio: 1.33
 - Intersection Signal Delay: 134.6
 - Intersection LOS: F
 - Intersection Capacity Utilization: 114.1%
 - Analysis Period (min): 15
 - ICU Level of Service: H
- Queue Status:**
 - 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.

lane group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	1.33	1.33	1.18	1.18	1.18	1.22	1.22	1.22	0.84	0.84	0.84

Intersection														
Int Delay, s/veh														
417.6														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR					
Vol. veh/h	228	1	256	2	1	0	284	387	1					
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0					
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free					
RT Channelized	-	-	None	-	-	None	-	-	None					
Storage Length	-	-	-	-	-	-	-	-	-					
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-					
Grade, %	-	0	-	-	0	-	-	0	-					
Peak Hour Factor	95	95	95	38	38	38	79	79	79					
Heavy Vehicles, %	3	3	3	0	0	0	1	1	1					
Mvmt Flow	240	1	269	5	3	0	359	490	1					
Major/Minor	Minor2						Minor1						Major1	
Conflicting Flow All	1494	1493	273	1627	1567	491	348	0	0					
Stage 1	283	283	-	1209	1209	-	-	-	-					
Stage 2	1211	1210	-	418	358	-	-	-	-					
Critical Hdwy	7.13	6.53	6.23	7.1	6.5	6.2	4.11	-	-					
Critical Hdwy Stg 1	6.13	5.53	-	6.1	5.5	-	-	-	-					
Critical Hdwy Stg 2	6.13	5.53	-	6.1	5.5	-	-	-	-					
Follow-up Hdwy	3.527	4.027	3.327	3.5	4	3.3	2.209	-	-					
Pot Cap-1 Maneuver	~101	123	763	83	112	582	1216	-	-					
Stage 1	722	675	-	225	258	-	-	-	-					
Stage 2	~222	254	-	616	631	-	-	-	-					
Platoon blocked, %	-	67	73	763	36	66	582	1216	-					
Mov Cap-1 Maneuver	~67	73	-	36	66	-	-	-	-					
Mov Cap-2 Maneuver	~67	73	-	36	66	-	-	-	-					
Stage 1	429	671	-	134	153	-	-	-	-					
Stage 2	~130	151	-	395	627	-	-	-	-					
Approach	EB						WB						NB	
HCM Control Delay, s	\$ 1400.2						109.6						3.9	
HCM LOS	F						F						F	
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR						
Capacity (veh/h)	1216	-	-	129	42	1062	-	-						
HCM Lane V/C Ratio	0.296	-	-	3.958	0.188	0.005	-	-						
HCM Control Delay (s)	9.2	0	~\$ 1400.2	109.6	8.4	0	-	-						
HCM Lane LOS	A	A	-	F	F	A	A	-						
HCM 95th %ile Q(veh)	1.2	-	-	51.4	0.6	0	-	-						
Notes														
Volume exceeds capacity	\$: Delay exceeds 300s						*: Computation Not Defined						*: All major volume in platoon	

Intersection			
Int Delay, s/veh			
Movement	SBL	SBT	SBR
Vol, veh/h	4	164	125
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	83	83	83
Heavy Vehicles, %	4	4	4
Mvmt Flow	5	198	151
Major/Minor	Major2		
Conflicting Flow All	491	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.236	-	-
Pot Cap-1 Maneuver	1062	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1062	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Approach	SB		
HCM Control Delay, s	0.1		
HCM LOS			
Minor Lane/Major Mvmt			

Wilmington, MA
16: Site Driveway & Eames Street

8/28/2015

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	425	0	0	446	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	88	88	92	92
Heavy Vehicles, %	3	3	2	2	2	2
Mvmt Flow	478	0	0	507	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	478	985
Stage 1	-	-	478
Stage 2	-	-	507
Critical Hdwy	-	4.12	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	-	2.218	3.318
Pot Cap-1 Maneuver	-	1084	275
Stage 1	-	-	624
Stage 2	-	-	605
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1084	275
Mov Cap-2 Maneuver	-	-	275
Stage 1	-	-	624
Stage 2	-	-	605

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS	A	A	A

Minor Lane	Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	-	1084	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0	-
HCM Lane LOS	A	-	-	-	A	-
HCM 95th %ile Q(veh)	-	-	-	-	0	-

Wilmington, MA
11: Main Street & Eames Street

8/28/2015

Intersection		121.2									
Int Delay, s/veh											
Movement	WBL	WBR	NBT	NBR	SBL	SBT					
Vol. veh/h	216	174	599	292	92	296					
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	-	0					
Grade, %	0	-	0	-	-	0					
Peak Hour Factor	94	94	96	96	90	90					
Heavy Vehicles, %	1	1	3	3	2	2					
Mvmt Flow	230	185	624	304	102	329					
Major/Minor	Minor1	Major1		Major2							
Conflicting Flow All	1309	776	0	0	928	0					
Stage 1	776	-	-	-	-	-					
Stage 2	533	-	-	-	-	-					
Critical Hdwy	6.41	6.21	-	-	4.12	-					
Critical Hdwy Stg 1	5.41	-	-	-	-	-					
Critical Hdwy Stg 2	5.41	-	-	-	-	-					
Follow-up Hdwy	3.509	3.309	-	-	2.218	-					
Pot Cap-1 Maneuver	~177	399	-	-	737	-					
Stage 1	456	-	-	-	-	-					
Stage 2	590	-	-	-	-	-					
Platoon blocked, %	-	-	-	-	-	-					
Mov Cap-1 Maneuver	~147	399	-	-	737	-					
Mov Cap-2 Maneuver	~147	-	-	-	-	-					
Stage 1	456	-	-	-	-	-					
Stage 2	490	-	-	-	-	-					
Approach	WB	NB		SB							
HCM Control Delay, s	\$ 515.7	0		2.5							
HCM LOS	F										
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT						
Capacity (veh/h)	-	-	205	737	-						
HCM Lane V/C Ratio	-	-	2.024	0.139	-						
HCM Control Delay (s)	-	-	\$ 515.7	10.7	0						
HCM Lane LOS	-	-	F	B	A						
HCM 95th %ile Q(veh)	-	-	31.2	0.5	-						
Notes											
~: Volume exceeds capacity		\$: Delay exceeds 300s		*: Computation Not Defined							
		+		All major volume in platoon							

Wilmington, MA
12: Woburn Street & Industrial Way

8/28/2015

Intersection									
Int Delay, s/veh	60.9								

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	134	34	424	204	161	346
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
Peak Hour Factor	76	76	76	76	93	93
Heavy Vehicles, %	9	9	3	3	3	3
Mvmt Flow	176	45	558	268	173	372

Major/Minor	Minor1	Minor2	Major1	Major2
Conflicting Flow All	1410	692	0	826
Stage 1	692	-	-	-
Stage 2	718	-	-	-
Critical Hwy	6.49	6.29	-	4.13
Critical Hwy Sig 1	5.49	-	-	-
Critical Hwy Sig 2	5.49	-	-	-
Follow-up Hwy	3.581	3.381	-	2.227
Pot Cap-1 Maneuver	~ 147	432	-	800
Stage 1	484	-	-	-
Stage 2	471	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	~ 107	432	-	800
Mov Cap-2 Maneuver	~ 107	-	-	-
Stage 1	484	-	-	-
Stage 2	342	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	\$ 430	0	3.4
HCM LOS	F	-	-

Minor Lane/Major Mvmt	NBT	NBR	WBL	SBL	SBT
Capacity (veh/h)	-	126	800	-	-
HCM Lane V/C Ratio	-	1.754	0.216	-	-
HCM Control Delay (s)	-	\$ 430	10.7	0	-
HCM Lane LOS	-	F	B	A	-
HCM 95th %ile Q(veh)	-	16.8	0.8	-	-

Notes
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

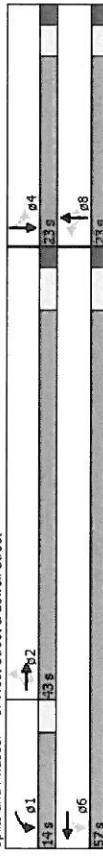
Intersection													
Int Delay, s/veh													
108.4													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR				
Vol. veh/h	12	17	0	17	0	629	0	18	34				
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0				
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free				
RT Channelized	-	-	None	-	-	None	-	-	None				
Storage Length	-	-	0	-	-	-	-	-	-				
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-				
Grade, %	-	0	-	-	0	-	-	0	-				
Peak Hour Factor	36	36	36	75	75	75	77	77	77				
Heavy Vehicles, %	0	0	0	3	3	3	2	2	2				
Mvmt Flow	33	47	0	23	0	839	0	23	44				
Major/Minor													
	Minor2			Minor1			Major1						
Conflicting Flow All	1557	1160	25	1160	1138	45	26	0	0				
Stage 1	1092	1092	-	45	45	-	-	-	-				
Stage 2	465	68	-	1115	1093	-	-	-	-				
Critical Hdwy	7.1	6.5	6.2	7.13	6.53	6.23	4.12	-	-				
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.53	-	-	-	-				
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.53	-	-	-	-				
Follow-up Hdwy	3.5	4	3.3	3.527	4.027	3.327	2.218	-	-				
Pot Cap-1 Maneuver	93	197	1057	172	201	1022	1588	-	-				
Stage 1	262	293	-	966	855	-	-	-	-				
Stage 2	581	842	-	251	289	-	-	-	-				
Platoon blocked, %	-	-	-	-	-	-	-	-	-				
Mov Cap-1 Maneuver	~12	127	1057	91	130	1022	1588	-	-				
Mov Cap-2 Maneuver	~12	127	-	91	130	-	-	-	-				
Stage 1	262	189	-	966	855	-	-	-	-				
Stage 2	104	842	-	122	187	-	-	-	-				
Approach													
	EB			WB			NB						
HCM Control Delay, s	\$ 1260.5			74.2			0						
HCM LOS	F			F			F						
Minor Lane/Major Mvmt													
	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1588	-	-	26	-	805	1527	-	-				
HCM Lane V/C Ratio	-	-	-	3.098	-	1.07	0.349	-	-				
HCM Control Delay (s)	0	-	-\$ 1260.5	0	74.2	8.6	0	-	-				
HCM Lane LOS	A	-	-	F	A	F	A	A	-				
HCM 95th %ile Q(veh)	0	-	-	9.9	-	21.8	1.6	-	-				
Notes													
Volume exceeds capacity	\$: Delay exceeds 300s +/- Computation Not Defined *: All major volume in platoon												

Intersection			
Int Delay, s/veh			
Movement	SBL	SBT	SBR
Vol, veh/h	448	20	2
Conflicting Peds, #/hr	0	0	0
Sign Control	Free	Free	Free
RT Channelized	-	-	None
Storage Length	-	-	-
Veh in Median Storage, #	-	0	-
Grade, %	-	0	-
Peak Hour Factor	84	84	84
Heavy Vehicles, %	3	3	3
Mvmt Flow	533	24	2
Major/Minor			
Major2	68	0	0
Conflicting Flow All	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.13	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.227	-	-
Pot Cap-1 Maneuver	1527	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1527	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Approach			
SB	8.2		
HCM Control Delay, s			
HCM LOS			
Minor Lane/Major Mvmt			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	30	686	113	261	652	40	97	43	286	184	185	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	40	100	0	0	0	0	0	150	60	0	0
Storage Lanes	0	1	1	0	0	0	0	0	1	1	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998	0.850	0.850	0.991	0.991	0.991	0.991	0.991	0.850	0.950	0.967	0.967
Flt Protected	0	1806	1538	1703	1776	0	0	1782	1495	1736	1801	0
Satd Flow (prot)	0.952	0.100	0.100	0.422	0.422	0.611	0.611	0.611	0.611	0.611	0.611	0.611
Flt Permitted	0	1723	1538	179	1776	0	0	778	1495	1116	1801	0
Satd Flow (perm)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Right Turn on Red	68	30	30	30	30	30	30	30	30	30	30	30
Satd Flow (RTOR)	2609	700	700	700	700	700	700	700	700	700	700	700
Link Speed (mph)	59.3	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
Link Distance (ft)	0.90	0.90	0.75	0.88	0.95	0.95	0.86	0.86	0.75	0.84	0.87	0.87
Peak Hour Factor	5%	5%	5%	6%	6%	6%	3%	3%	8%	4%	2%	2%
Heavy Vehicles (%)	33	762	151	297	686	42	113	50	381	219	213	59
Adj. Flow (vph)	0	795	151	297	728	0	0	163	381	219	272	0
Shared Lane Traffic (%)	Perm	NA	Perm	pm-pt	NA	Perm	NA	Perm	NA	Perm	NA	0
Lane Group Flow (vph)	2	2	2	2	2	2	2	2	2	2	2	2
Turn Type	2	2	2	2	2	2	2	2	2	2	2	2
Protected Phases	2	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2	2
Detector Phase	2	2	2	2	2	2	2	2	2	2	2	2
Switch Phase	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Initial (s)	22.0	22.0	22.0	8.0	22.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Minimum Split (s)	43.0	43.0	43.0	14.0	57.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	53.8%	53.8%	53.8%	17.5%	71.3%	28.8%	28.8%	28.8%	28.8%	28.8%	28.8%	28.8%
Total Split (%)	37.0	37.0	37.0	11.0	51.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Maximum Green (s)	4.0	4.0	4.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Yellow Time (s)	2.0	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	6.0	6.0	6.0	3.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost Time (s)	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead/Lag	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lead-Lag Optimize?	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	None	None	None	None	None	None	None	None	None	None	None	None
Recall Mode	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Walk Time (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Calls (#/hr)	37.0	37.0	37.0	54.0	51.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
Act Effct Green (s)	0.46	0.46	0.46	0.68	0.64	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Actuated g/C Ratio	1.00	1.00	1.00	0.90	0.64	0.93	0.63	0.87	0.65	0.65	0.65	0.65
v/c Ratio	55.2	55.2	55.2	49.9	12.1	86.8	10.0	64.6	34.8	34.8	34.8	34.8
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	55.2	55.2	55.2	8.0	49.9	12.1	86.8	10.0	64.6	34.8	34.8	34.8
Total Delay												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	E	D	A	D	B	B	F	C	B	E	C	C
Approach Delay	47.7	380	23	93	195	305	783	150	603	251	417	48.1
Approach LOS	D	C	C	C	C	C	C	C	C	C	C	D
Queue Length 50th (ft)	#630	42	#228	305	620	620	783	150	603	251	417	117
Queue Length 95th (ft)	2529	796	747	330	1135	1135	175	603	251	417	117	188
Internal Link Dist (ft)	796	747	330	1135	1135	1135	175	603	251	417	117	188
Turn Bay Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Stallion Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.20	0.90	0.64	0.64	0.64	0.93	0.63	0.87	0.87	0.65	0.65
Intersection Summary												
Area Type:	Other											
Cycle Length:	80											
Actuated Cycle Length:	80											
Natural Cycle:	80											
Control Type:	Semi Act-Uncoordinated											
Maximum v/c Ratio:	1.00											
Intersection Signal Delay:	36.7											
Intersection Capacity Utilization:	113.3%											
Analysis Period (min):	15											
ICU Level of Service:	H											
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Splits and Phases: 3: West Street & Lowell Street



3/10/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	35	654	207	128	529	33	56	80	78	119	448	55
Idea Flow (vpph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Idea Unit Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.969	0.969	0.994	0.994	0.994	0.951	0.951	0.987	0.987	0.987	0.987	0.987
Fit Protected	0.998	0.998	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
Satd Flow (prot)	0	1750	0	0	1800	0	0	1715	0	0	1824	0
Fit Permitted	0	0.957	0	0.592	0.592	0	0.442	0.442	0	0.849	0.849	0
Satd Flow (perm)	0	1678	0	0	1075	0	0	1115	0	0	1562	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd Flow (RTOR)	29	30	30	30	30	30	30	30	30	30	30	30
Link Speed (mph)	1206	2609	2609	2609	2609	2609	2609	2609	2609	2609	2609	2609
Travel Time (s)	27.4	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.76	0.76	0.76	0.94	0.94	0.94
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	4%	2%	2%	2%
Adj. Flow (vph)	37	696	220	136	563	35	74	105	103	127	477	59
Shared Lane Traffic (%)	0	953	0	0	734	0	0	282	0	0	663	0
Lane Group Flow (vph)	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	NA	NA
Turn Type	2	2	6	8	8	4	4	4	4	4	4	4
Permitted Phases	2	2	6	8	8	4	4	4	4	4	4	4
Protected Phases	2	2	6	8	8	4	4	4	4	4	4	4
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (%)	41.0	41.0	41.0	41.0	41.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0
Maximum Green (s)	35.0	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	2	2	6	8	8	4	4	4	4	4	4	4
Lead/Lag Optimizer?	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Walk Time (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Call (#/hr)	35.0	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Act Effct Green (s)	0.49	0.49	0.49	0.49	0.49	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Actuated g/C Ratio	1.15	1.15	1.15	1.15	1.15	1.21	1.21	1.21	1.21	1.21	1.21	1.21
v/c Ratio	1.017	1.017	1.017	1.017	1.017	0.868	0.868	0.868	0.868	0.868	0.868	0.868
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7
Total Delay	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7
LOS	F	F	F	F	F	F	F	F	F	F	F	F
Approach Delay	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7	101.7
Approach LOS	F	F	F	F	F	F	F	F	F	F	F	F
Queue Length 50th (ft)	~504	~504	~504	~504	~504	~504	~504	~504	~504	~504	~504	~504
Queue Length 95th (ft)	#726	#726	#726	#726	#726	#726	#726	#726	#726	#726	#726	#726
Internal Link Dist (ft)	1126	1126	1126	1126	1126	1126	1126	1126	1126	1126	1126	1126
Turn Bay Length (ft)	830	830	830	830	830	830	830	830	830	830	830	830
Base Capacity (vph)	525	525	525	525	525	525	525	525	525	525	525	525

Synchro 8 Report
Page 1

3/10/2016

Area Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Slavation Cap Reducn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reducn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reducn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15			1.40			0.68				1.21	

Intersection Summary	Area Type:	Other
Cycle Length:	72	
Actuated Cycle Length:	72	
Offset:	41 (57%)	Referenced to phase 4 SBT.L and 8 NBT.L Start of Green
Natural Cycle:	150	
Control Type:	Pretimed	
Maximum v/c Ratio:	1.40	
Intersection Signal Delay:	133.6	Intersection LOS: F
Intersection Capacity Utilization:	136.4%	ICU Level of Service: H
Analysis Period (min):	15	

~ 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: 6- Woburn Street & Lowell Street

Woburn Street: 1, 2, 3, 4, 5, 6
 Lowell Street: 1, 2, 3, 4, 5, 6

Synchro 8 Report
Page 2

Intersection		97.3											
Int Delay, s/veh													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Vol veh/h	109	0	262	2	2	4	158	90	0	3	549	288	
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0	
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0	
Peak Hour Factor	92	92	92	50	50	50	89	89	89	90	90	90	
Heavy Vehicles, %	2	2	2	12	12	12	12	12	12	2	2	2	
Mvmt Flow	118	0	285	4	4	8	178	101	0	3	610	320	
Major/Minor	Minor2	Minor1			Major1			Major2					
Conflicting Flow All	1239	1233	770	1375	1393	101	930	0	0	101	0	0	
Stage 1	777	777	-	456	456	-	-	-	-	-	-	-	
Stage 2	462	456	-	919	937	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.22	7.22	6.62	6.32	4.22	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.22	5.62	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.22	5.62	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.318	3.608	4.108	3.408	2.308	-	-	2.218	-	-	
Pot Cap-1 Maneuver	152	177	401	117	135	928	696	-	-	1491	-	-	
Stage 1	390	407	-	565	552	-	-	-	-	-	-	-	
Stage 2	580	568	-	312	330	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	~ 115	129	401	27	98	928	696	-	-	1491	-	-	
Mov Cap-2 Maneuver	~ 115	129	-	27	98	-	-	-	-	-	-	-	
Stage 1	284	405	-	412	402	-	-	-	-	-	-	-	
Stage 2	415	414	-	90	329	-	-	-	-	-	-	-	
Approach	EB	WB	NB	SB									
HCM Control Delay, s	\$ 385.9	60.1	7.6	0									
HCM LOS	F	F											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	WBL	N1	SBL	SBT	SBR				
Capacity (veh/h)	696	-	-	232	81	1491	-	-	-				
HCM Lane V/C Ratio	0.255	-	-	1.738	0.198	0.002	-	-	-				
HCM Control Delay (s)	11.9	0	\$ 385.9	60.1	7.4	0	-	-	-				
HCM Lane LOS	B	A	F	F	A	A	-	-	-				
HCM 95th %ile Q(veh)	1	-	-	27	0.7	0	-	-	-				
Notes													
Volume exceeds capacity		\$: Delay exceeds 300s		*: Computation Not Defined									
				*: All major volume in platoon									

Wilmington, MA
11: Main Street & Eames Street

3/10/2016

Intersection	
Int Delay, s/veh	145.3

Movement	WBL	WBR	NBT	NBR	SBL	SRT
Vol. veh/h	249	49	213	228	121	622
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	86	86	80	80	90	90
Heavy Vehicles, %	8	8	5	5	3	3
Mvmt Flow	290	57	266	285	134	691

Major/Minor	Minor1	Minor2	Major1	Major2
Conflicting Flow All	1369	409	0	0
Stage 1	409	-	-	-
Stage 2	960	-	-	-
Critical Hdwy	6.48	6.28	-	4.13
Critical Hdwy Sig 1	5.48	-	-	-
Critical Hdwy Sig 2	5.48	-	-	-
Follow-up Hdwy	3.572	3.372	-	2.227
Pot Cap-1 Maneuver	~ 157	630	-	1014
Stage 1	658	-	-	-
Stage 2	362	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	~ 123	630	-	1014
Mov Cap-2 Maneuver	~ 123	-	-	-
Stage 1	658	-	-	-
Stage 2	~ 284	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	\$ 718.9	0	1.5
HCM LOS	F	-	-

Minor Lane/Minor Mvmt	NBT	NBR	WBL1	SBL	SRT
Capacity (veh/h)	-	-	142	1014	-
HCM Lane V/C Ratio	-	-	2.44	0.133	-
HCM Control Delay (s)	-	-	\$ 718.9	9.1	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %ile Q(veh)	-	-	29.9	0.5	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection						
Int Delay, s/veh		43.2				
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	204	69	244	146	65	472
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	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	84	84	93	93
Heavy Vehicles, %	9	9	6	6	3	3
Mvmt Flow	255	86	290	174	70	508
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1024	377	0	0	464	0
Stage 1	377	-	-	-	-	-
Stage 2	647	-	-	-	-	-
Critical Hdwy	6.49	6.29	-	-	4.13	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	-	-	2.227	-
Pot Cap-1 Maneuver	~253	654	-	-	1092	-
Stage 1	678	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	~230	654	-	-	1092	-
Mov Cap-2 Maneuver	~230	-	-	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	173.5	0	1			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBL1	SBL	SBT	
Capacity (veh/h)	-	-	275	1092	-	
HCM Lane V/C Ratio	-	-	1.241	0.064	-	
HCM Control Delay (s)	-	-	173.5	8.5	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %ile Q(veh)	-	-	16.2	0.2	-	
Notes						
Volume exceeds capacity \$. Delay exceeds 300s *: Computation Not Defined *: All major volume in platoon						

Wilmington, MA
14: Woburn Street & Private Drive/Presidential Way

3/10/2016

Intersection	
Int Delay, s/veh	61.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol. veh/h	3	1	0	38	5	367	0	16	14	631	41	14
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	-	-	-	-	-	-	-	-	-	-
Peak Hour Factor	50	50	50	92	92	92	54	54	54	87	87	87
Heavy Vehicles, %	2	2	2	6	6	6	12	12	12	3	3	3
Mvmt Flow	6	2	0	41	5	399	0	30	26	725	47	16

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	1751	1562	55	1550
Stage 1	1506	1506	-	43
Stage 2	245	56	-	1507
Critical Hdwy	7.12	6.52	6.22	7.16
Critical Hdwy Stg 1	6.12	5.52	-	6.16
Critical Hdwy Stg 2	6.12	5.52	-	5.56
Follow-up Hdwy	3518	4018	3318	3554
Pot Cap-1 Maneuver	67	112	1012	91
Stage 1	151	184	-	961
Stage 2	759	848	-	148
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	23	57	1012	55
Mov Cap-2 Maneuver	23	57	-	56
Stage 1	151	94	-	961
Stage 2	458	848	-	74

Approach	EB	WB	NB	SB
HCM Control Delay, s	187	161.8	0	8.6
HCM LOS	F	F	-	-

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Capacity (veh/h)	1478	-	-	27	-	359	1542	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	0.296	-	1.241	0.47	-	-	-	-	-
HCM Control Delay (s)	0	-	-	187	0	161.8	9.4	0	-	-	-	-
HCM Lane LOS	A	-	-	F	A	F	A	A	-	-	-	-
HCM 95th %ile Q(veh)	0	-	-	0.9	-	19.4	2.6	-	-	-	-	-

Intersection													
Int Delay, s/veh		0.8											
Movement													
Vol. veh/h		374	1	35	339	1							
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				0			
Veh in Median Storage, #		0	-	-	0	0				-			
Grade, %		0	-	-	0	0				0			
Peak Hour Factor		82	82	86	86	92				92			
Heavy Vehicles, %		2	2	2	2	2				2			
Mvmt Flow		456	1	41	394	1				35			
Major/Minor													
Major1		Major2		Minor1		Minor2		Minor3		Minor4		Minor5	
Conflicting Flow All		0		457		0		933		457		457	
Stage 1		-		-		-		-		476		-	
Stage 2		-		-		-		-		-		-	
Critical Hdwy		-		4.12		-		6.42		6.22		6.22	
Critical Hdwy Stg 1		-		-		-		5.42		-		-	
Critical Hdwy Stg 2		-		-		-		5.42		-		-	
Follow-up Hdwy		-		2.218		-		3.518		3.318		3.318	
Pot Cap-1 Maneuver		-		1104		-		295		604		604	
Stage 1		-		-		-		638		-		-	
Stage 2		-		-		-		625		-		-	
Platoon blocked, %		-		-		-		-		-		-	
Mov Cap-1 Maneuver		-		1104		-		281		604		604	
Mov Cap-2 Maneuver		-		-		-		281		-		-	
Stage 1		-		-		-		638		-		-	
Stage 2		-		-		-		595		-		-	
Approach													
HCM Control Delay, s		0		0.8		11.6		11.6		11.6		11.6	
HCM LOS		B		B		B		B		B		B	
Minor Lane/Major Mvmt													
NBLn1	EBT	EBR	WBL	WBT									
584	-	-	-	-									
Capacity (veh/h)													
0.061	-	-	0.037	-									
HCM Lane V/C Ratio													
11.6	-	-	8.4	0									
HCM Control Delay (s)													
B	-	-	A	A									
HCM Lane LOS													
0.2	-	-	0.1	-									
HCM 95th %ile Q(veh)													

Wilmington, MA

3: West Street & Lowell Street

3/10/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Volume (vph)	24	730	161	234	729	72	164	114	466	113	71	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	40	100	0	0	0	0	0	150	60	0	0
Storage Lanes	0	1	1	0	0	0	0	0	1	1	0	0
Taper Length (ft)	25	0	0	25	0	0	25	0	0	0	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998	0.950	0.850	0.950	0.987	0.950	0.950	0.971	0.850	0.950	0.941	0.941
Satd. Flow (prot)	0	1806	1538	1703	1769	0	0	1791	1495	1562	1753	0
Flt Permitted	0	0.957	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Satd. Flow (perm)	0	1732	1538	179	1769	0	0	1347	1495	488	1753	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	68	0	0	0	0	0	0	0	0	0	0	0
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	2609	700	700	700	700	700	700	700	700	700	700	700
Travel Time (s)	59.3	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9	15.9
Peak Hour Factor	0.93	0.93	0.87	0.84	0.91	0.91	0.86	0.86	0.82	0.94	0.83	0.83
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	3%	3%	8%	4%	2%	2%
Parking (#/hr)	26	785	185	279	801	79	191	133	568	120	86	55
Adj. Flow (vph)	0	811	185	279	880	0	0	324	568	120	141	0
Shared Lane Traffic (%)	Perm	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	0
Lane Group Flow (vph)	2	2	2	2	2	2	2	2	2	2	2	2
Turn Type	2	2	2	2	2	2	2	2	2	2	2	2
Protected Phases	2	2	2	2	2	2	2	2	2	2	2	2
Permitted Phases	2	2	2	2	2	2	2	2	2	2	2	2
Detector Phase	2	2	2	2	2	2	2	2	2	2	2	2
Switch Phase	2	2	2	2	2	2	2	2	2	2	2	2
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0
Total Split (%)	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%	53.8%
Maximum Green (s)	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Eff Green (s)	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0	37.0
Actuated g/C Ratio	0.46	0.46	0.67	0.64	0.67	0.64	0.67	0.64	0.67	0.64	0.67	0.64
v/c Ratio	1.01	0.25	0.86	0.78	1.07	0.95	1.07	0.95	1.07	0.95	1.07	0.95
Control Delay	57.6	9.1	43.0	16.5	103.1	40.2	148.9	21.5	0.0	0.0	0.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

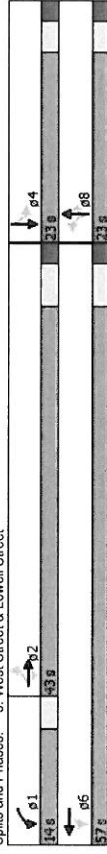
Wilmington, MA

3: West Street & Lowell Street

3/10/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	57.6	9.1	43.0	16.5	103.1	40.2	148.9	21.5	0.0	0.0	0.0	0.0
LOS	E	A	D	B	F	D	F	F	D	F	F	C
Approach Delay	48.6	0	0	22.9	63.0	0	0	0	0	0	0	0
Approach LOS	D			C	E							F
Queue Length 50th (ft)	-402	33	82	275	-182	121	-69	43	0	0	0	0
Queue Length 95th (ft)	#647	67	#185	444	#315	#239	#171	83	0	0	0	0
Internal Link Dist (ft)	2529	0	0	620	783	0	0	0	0	0	0	0
Turn Bay Length (ft)	804	750	331	1136	304	600	110	424	0	0	0	0
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.25	0.84	0.77	1.07	0.95	1.09	0.33	0.0	0.0	0.0	0.0
Intersection Summary	Other											
Area Type:	Cycle Length: 80											
Actual Cycle Length:	79.7											
Natural Cycle:	80											
Control Type:	Semi Act-Uncoordinated											
Maximum v/c Ratio:	1.09											
Intersection Signal Delay:	46.0											
Intersection Capacity Utilization:	118.4%											
Analysis Period (min):	15											
Intersection LOS:	D											
ICU Level of Service:	H											
~ 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: 3: West Street & Lowell Street



3/10/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SST	SBR
Lane Configurations	↰	↱	↷		↰	↱	↷	↑	↰	↱	↷	↑
Volume (vph)	101	669	110	80	531	119	117	410	113	79	114	65
Ideal flow (vpmpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.963			0.978				0.976			0.966	
Fit Protected	0.994			0.995				0.991			0.985	
Satd Flow (prot)	0	1820	0	0	1813	0	0	1820	0	0	1790	0
Flt Permitted	0	0.786	0	0	0.782	0	0	0.844	0	0	0.565	0
Satd Flow (perm)	0	1439	0	0	1425	0	0	1550	0	0	1027	0
Right Turn on Red Satd Flow (RTOR)			Yes			Yes			Yes			Yes
Link Speed (mph)	14	30	30	19	30			16	30		26	30
Link Distance (ft)	1206			2609				2429			420	
Travel Time (s)	27.4	59.3	59.3	27.4	59.3			55.2			9.5	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.96	0.96	0.96	0.82	0.82	0.82
Heavy Vehicles (%)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Ajd. Flow (vpbl)	107	712	117	91	603	135	122	427	118	96	139	79
Shared Lane Traffic (%)												
Lane Group Flow (vpbl)	0	936	0	0	829	0	0	667	0	0	314	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	NA	NA
Protected Phases		2			6			8			4	
Permitted Phases	2											4
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0			22.0			22.0	
Total Split (s)	41.0	41.0	41.0	41.0	41.0			31.0			31.0	
Total Split (%)	56.9%	56.9%	56.9%	56.9%	56.9%			43.1%			43.1%	
Maximum Green (s)	35.0	35.0	35.0	35.0	35.0			25.0			25.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0			4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	
Lost Time Adjust(s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	6.0				6.0			6.0			6.0	
Lead-Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/m)	0	0	0	0	0			0			0	
Act Effect Green (s)	35.0				36.0			25.0			25.0	
Activated g/C Ratio	0.49				0.49			0.35			0.35	
w/c Ratio	1.33				1.18			1.22			0.84	
Control Delay	177.9				117.1			138.5			42.7	
Queue Delay	0.0				0.0			0.0			0.0	
Total Delay	177.9				117.1			138.5			42.7	
LOS	F				F			F			D	
Approach Delay	177.9				117.1			138.5			42.7	
Approach LOS	F				F			F			D	
Queue Length 50th (ft)	-553				-450			-369			117	
Queue Length 95th (ft)	#774				#640			#567			#219	
Internal Link Delay (ft)	1126				2529			2349			340	
Turn Bay Length (ft)												
Base Capacity (vph)	706				702			548			373	

3/10/2016

Area Group	EBL	EBT	EPR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBP
Starvation Cap Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	0	0	1.18	0	0	1.22	0	0	0.84	0	0

Intersection Summary

Area Type: Other

Cycle Length: 72

Actuated Cycle Length: 72

Offset: 41 (57%) Referenced to phase 4 SBTL and 8 NBTL, Start of Green

Natural Cycle: 140

Control Type: Pretimed

Maximum v/c Ratio: 1.33

Intersection Signal Delay: 134.6

Intersection LOS: F

Intersection Capacity Utilization: 114.1%

ICU Level of Service: H

Analysis Period (min): 15

Queue shown is maximum after two cycles.

Queue shown is maximum after two cycles.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Woburn Street & Lowell Street

Diagram showing the intersection layout with lane markings and traffic flow directions. The intersection is a T-junction where Woburn Street (top) meets Lowell Street (bottom). Woburn Street has a left-turn lane (EBL), a through-right lane (EBT), and a right-turn lane (EPR). Lowell Street has a left-turn lane (WBL), a through-right lane (WBT), and a right-turn lane (WBR). The intersection is controlled by a pre-timed signal. The diagram shows the intersection layout with lane markings and traffic flow directions.

Intersection												
Int Delay, s/veh 571.8												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	228	1	299	2	1	0	323	387	1	4	164	125
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	38	38	38	79	79	79	83	83	83
Heavy Vehicles, %	3	3	3	0	0	0	1	1	1	4	4	4
Mvmt Flow	240	1	315	5	3	0	409	490	1	5	198	151
Major/Minor												
	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1593	1592	273	1748	1666	491	348	0	0	491	0	0
Stage 1	283	283	-	1308	1308	-	-	-	-	-	-	-
Stage 2	1310	1309	-	440	358	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.1	6.5	6.2	4.11	-	-	4.14	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.5	4	3.3	2.209	-	-	2.236	-	-
Pot Cap-1 Maneuver	~86	107	763	68	98	582	1216	-	-	1062	-	-
Stage 1	722	675	-	198	231	-	-	-	-	-	-	-
Stage 2	~195	228	-	600	631	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	~53	57	763	25	52	582	1216	-	-	1062	-	-
Mov Cap-2 Maneuver	~53	57	-	25	52	-	-	-	-	-	-	-
Stage 1	388	671	-	106	124	-	-	-	-	-	-	-
Stage 2	~102	122	-	350	627	-	-	-	-	-	-	-
Approach												
	EB			WB			NB			SB		
HCM Control Delay, s	\$ 1859.6			163.4			4.3			0.1		
HCM LOS	F			F			-			-		
Minor Lane/Major Mvmt												
	NBL	NBT	NBR	EBL/N1WBL/N1	SBL	SBT	SBR					
Capacity (veh/h)	1216	-	-	112	30	1062	-					
HCM Lane V/C Ratio	0.336	-	-	4.962	0.263	0.005	-					
HCM Control Delay (s)	9.5	0	\$ 1859.6	163.4	8.4	0	-					
HCM Lane LOS	A	A	-	F	F	A	A					
HCM 95th %ile Q(veh)	1.5	-	-	59	0.8	0	-					
Notes												
Volume exceeds capacity \$: Delay exceeds 300s *: Computation Not Defined *: All major volume in platoon												

Wilmington, MA
16: Site Driveway & Eames Street

3/10/2016

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol veh/h	425	1	39	446	1	43
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	89	89	88	88	92	92
Heavy Vehicles, %	3	3	2	2	2	2
Mvmt Flow	478	1	44	507	1	47

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	479	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	4.12	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	-	2.218	-
Stage 1	-	1083	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1083	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	567	-	-	1083	-
HCM Lane V/C Ratio	0.084	-	-	0.041	-
HCM Control Delay (s)	11.9	-	-	8.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %ile Q(veh)	0.3	-	-	0.1	-

Intersection						
Int Delay, s/veh 123						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	216	175	599	292	93	296
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	94	94	96	96	90	90
Heavy Vehicles, %	1	1	3	3	2	2
Mvmt Flow	230	186	624	304	103	329
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1312	776	0	0	928	0
Stage 1	776	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Critical Hdwy	6.41	6.21	-	-	4.12	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	-	-	2.218	-
Pot Cap-1 Maneuver	~ 176	399	-	-	737	-
Stage 1	456	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	~ 146	399	-	-	737	-
Mov Cap-2 Maneuver	~ 146	-	-	-	-	-
Stage 1	456	-	-	-	-	-
Stage 2	488	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	\$ 522.6	0		2.6		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	204	737	-	
HCM Lane V/C Ratio	-	-	2.039	0.14	-	
HCM Control Delay (s)	-	-	\$ 522.6	10.7	0	
HCM Lane LOS	-	-	F	B	A	
HCM 95th %ile Q(veh)	-	-	31.5	0.5	-	
Notes						
Volume exceeds capacity		\$ Delay exceeds 300s		*: Computation Not Defined		
				*: All major volume in platoon		

Wilmington, MA
12: Woburn Street & Industrial Way

3/10/2016

Intersection	
Int Delay, s/veh	76.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol. veh/h	134	34	463	204	161	389
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	76	76	76	76	93	93
Heavy Vehicles, %	9	9	3	3	3	3
Wrtt Flow	176	45	609	268	173	418

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1508	743	878
Stage 1	743	-	-
Stage 2	765	-	-
Critical Hwy	6.49	6.29	4.13
Critical Hwy Stg 1	5.49	-	-
Critical Hwy Stg 2	5.49	-	-
Follow-up Hdwy	3.581	3.381	2.227
Por Cap-1 Maneuver	~ 128	404	765
Stage 1	458	-	-
Stage 2	447	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	~ 90	404	765
Mov Cap-2 Maneuver	~ 90	-	-
Stage 1	458	-	-
Stage 2	315	-	-

Approach	WB	NB	SB
HCM Control Delay, s	\$ 576.5	0	3.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR/WBL	SBL	SBT
Capacity (veh/h)	-	107	765	-
HCM Lane V/C Ratio	-	2.066	0.226	-
HCM Control Delay (s)	-	\$ 576.5	11.1	0
HCM Lane LOS	-	F	B	A
HCM 95th %ile Q(veh)	-	18.7	0.9	-

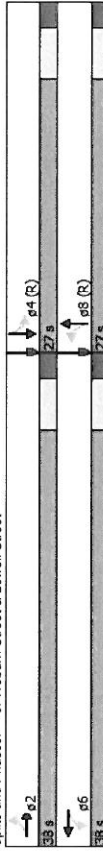
Notes
~: Volume exceeds capacity \$: Delay exceeds 300s *: Computation Not Defined *: All major volume in platoon

Intersection		190.1															
Int Delay, s/veh																	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR					
Vol. veh/h	12	17	0	17	0	668	0	18	34	491	20	2					
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0	Free	Free	0					
Sgn Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	0					
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None					
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-					
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	-	0					
Grade, %	-	0	-	-	0	-	-	0	-	-	-	0					
Peak Hour Factor	36	36	36	75	75	75	77	77	77	84	84	84					
Heavy Vehicles, %	0	0	0	3	3	3	2	2	2	3	3	3					
Mvmt Flow	33	47	0	23	0	891	0	23	44	585	24	2					
Major/Minor	Minor2				Minor1				Major1				Major2				
Conflicting Flow All	1685	1262	25	1263	1240	45	26	0	0	68	0	0					
Stage 1	1194	1194	-	-	45	45	-	-	-	-	-	-					
Stage 2	491	68	-	-	1218	1195	-	-	-	-	-	-					
Critical Hdwy	7.1	6.5	6.2	7.13	6.53	6.23	4.12	-	-	4.13	-	-					
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-					
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.53	-	-	-	-	-	-	-					
Follow-up Hdwy	3.5	4	3.3	3.527	4.027	3.327	2.218	-	-	2.227	-	-					
Pot Cap-1 Maneuver	75	171	1057	146	174	1022	1588	-	-	1527	-	-					
Stage 1	230	262	-	966	855	-	-	-	-	-	-	-					
Stage 2	563	842	-	220	259	-	-	-	-	-	-	-					
Platoon blocked, %	-	7	104	1057	68	106	1022	1588	-	-	-	-					
Mov Cap-1 Maneuver	-	7	104	-	68	106	-	-	-	-	-	-					
Mov Cap-2 Maneuver	230	160	-	966	855	-	-	-	-	-	-	-					
Stage 1	72	842	-	95	158	-	-	-	-	-	-	-					
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-					
Approach	EB				WB				NB				SB				
HCM Control Delay, s	\$ 2472.1				124.4				0				8.4				
HCM LOS	F				F				F				F				
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR								
Capacity (veh/h)	1588	-	-	15	-	758	1527	-	-								
HCM Lane V/C Ratio	-	-	-	5.37	-	1.205	0.383	-	-								
HCM Control Delay (s)	0	-	-	\$ 2472.1	0	124.4	8.8	0	-								
HCM Lane LOS	A	-	-	F	A	F	A	A	-								
HCM 95th %ile Q(veh)	0	-	-	11	-	30.6	1.8	-	-								
Notes	Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in Platoon																

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	101	669	110	80	531	119	117	410	113	79	114	65
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	100	0	100	0	100	0	100	0	100	0	100	0
Storage Length (ft)	1	0	1	0	1	0	1	0	1	0	1	0
Storage Lanes	25	0	25	0	25	0	25	0	25	0	25	0
Taper Length (ft)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	0.979	0.979	0.973	0.973	0.973	0.973	0.968	0.968	0.968	0.968	0.946	0.946
Flt Protected	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
Satd. Flow (prot)	1770	1824	0	1770	1812	0	1787	1821	0	1787	1780	0
Flt Permitted	0.181	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
Satd. Flow (perm)	337	1824	0	233	1812	0	1166	1821	0	357	1780	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	18	24	24	24	24	24	23	23	23	23	47	47
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	1206	2609	2609	2609	2609	2609	2429	2429	2429	2429	420	420
Travel Time (s)	27.4	59.3	59.3	59.3	59.3	59.3	55.2	55.2	55.2	55.2	9.5	9.5
Peak Hour Factor	0.94	0.94	0.88	0.88	0.88	0.88	0.96	0.96	0.96	0.82	0.82	0.82
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	107	712	117	91	603	135	122	427	118	96	139	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	829	0	91	738	0	122	545	0	96	218	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	2	2	6	6	6	6	8	8	8	8	4	4
Permitted Phases	2	2	6	6	6	6	8	8	8	8	4	4
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0	38.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	58.5%	58.5%	58.5%	58.5%	58.5%	58.5%	41.5%	41.5%	41.5%	41.5%	41.5%	41.5%
Maximum Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	21.0	21.0	21.0	21.0	21.0	21.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	32.0	32.0	32.0	32.0	32.0	32.0	21.0	21.0	21.0	21.0	21.0	21.0
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.49	0.49	0.32	0.32	0.32	0.32	0.32	0.32
v/c Ratio	0.65	0.91	0.80	0.82	0.82	0.82	0.32	0.32	0.32	0.32	0.36	0.36
Control Delay	35.7	32.4	65.6	23.1	19.7	42.2	76.5	76.5	76.5	76.5	15.1	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	32.4	65.6	23.1	19.7	42.2	76.5	76.5	76.5	76.5	15.1	15.1
LOS	D	C	E	C	B	D	B	D	E	B	C	C
Approach Delay	32.8	27.8	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
Approach LOS	C	C	C	C	C	C	C	C	C	C	C	C
Queue Length 50th (ft)	29	278	28	224	36	195	36	195	36	195	35	50
Queue Length 95th (ft)	#109	#517	#107	#411	76	#375	76	#375	76	#375	#101	88

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)	100	1126	100	100	2529	100	100	2349	100	100	340	340
Turn Bay Length (ft)	165	907	114	904	376	603	115	606	0	0	0	0
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.91	0.80	0.82	0.32	0.90	0.83	0.36	0.83	0.36	0.36	0.36
Intersection Summary												
Area Type	Other											
Cycle Length	65											
Actuated Cycle Length	65											
Offset	0.00%	Referenced to phase 4:SBTL and 8:NBT, Start of Green										
Natural Cycle	65											
Control Type	Pretimed											
Maximum v/c Ratio	0.91											
Intersection Signal Delay	32.7											
Intersection LOS	C											
Intersection Capacity Utilization	99.1%											
Analysis Period (min)	15											
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Splits and Phases: 6: Woburn Street & Lowell Street



9/1/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Volume (vph)	35	654	207	128	529	33	56	80	78	119	448	55
Idea Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100			100			100		100			100
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit	0.960	0.964		0.950	0.991		0.926		0.950	0.983		
Fit Protected												
Satd Flow (prot)	1719	1744	0	1736	1810	0	1736	1692	0	1770	1831	0
Fit Permitted	0.332			0.124			0.138		0.557			
Satd Flow (perm)	601	1744	0	227	1810	0	252	1692	0	1038	1831	0
Right Turn on Red Satd Flow (RTOR)			Yes			Yes			Yes			Yes
Link Speed (mph)	28				5			50			6	
Travel Distance (ft)	1206			2609			2429				420	
Travel Time (s)	27.4			59.3			55.2				9.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.76	0.76	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	4%	4%	2%	2%	2%	2%
Adj. Flow (vph)	37	696	220	136	963	35	74	105	103	127	477	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	916	0	136	598	0	74	208	0	127	536	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2											4
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	65.0	65.0		65.0	65.0		35.0	35.0		35.0	35.0	
Total Split (%)	65.0%	65.0%		65.0%	65.0%		35.0%	35.0%		35.0%	35.0%	
Maximum Green (s)	59.0	59.0		59.0	59.0		29.0	29.0		29.0	29.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adj(ist) (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead-Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effic Green (s)	59.0	59.0		59.0	59.0		29.0	29.0		29.0	29.0	
Actuated g/C Ratio	0.59	0.59		0.59	0.59		0.29	0.29		0.29	0.29	
w/C Ratio	0.10	0.88		1.02	0.56		1.01	0.40		1.00	0.42	
Control Delay	9.9	28.9		110.4	15.0		149.7	24.0		34.0	75.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.9	28.9		110.4	15.0		149.7	24.0		34.0	75.8	
LOS	A	C		F	B		F	C		C	E	
Approach Delay		28.1			32.6			57.0			67.8	
Approach LOS		C			C			E			E	
Queue Length 50th (ft)	10	452		-86	215		-48	79		65	-339	
Queue Length 95th (ft)	25	#759		#212	312		#113	113		122	#653	

Synchro 8 Report
Page 1

9/1/2015

[illegible]

Synchro 8 Report
Page 2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	109	0	260	2	2	4	156	90	0	3	549	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	0	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	0	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.950	0.850	0.932	0.988	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969
Satd. Flow (prot)	1770	1583	0	0	1562	0	0	1644	0	0	1777	0
Flt Permitted	0.747	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Satd. Flow (perm)	1391	1583	0	0	1409	0	0	728	0	0	1775	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	269	30	8	30	8	30	8	30	8	30	8	30
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	1825	495	495	495	495	495	495	495	495	495	495	495
Travel Time (s)	41.5	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	118	0	283	4	4	8	175	101	0	3	610	320
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	283	0	0	16	0	0	276	0	0	933	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4	4	8	8	8	8	8	8	8	8	8	8
Permitted Phases	4	4	8	8	8	8	8	8	8	8	8	8
Detector Phase	4	4	8	8	8	8	8	8	8	8	8	8
Switch Phase	4	4	8	8	8	8	8	8	8	8	8	8
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	3.0	3.0	3.0	3.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	None	None	None	None	None	None	None	None	None	None	None	None
Recall Mode	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Walk Time (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Calls (#/hr)	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
Act Effect Green (s)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Actuated g/C Ratio	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
vic Ratio	24.1	7.7	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	24.1	7.7	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Total Delay	24.1	7.7	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	109	0	260	2	2	4	156	90	0	3	549	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	0	0	0	0	0	0	0	0	0	0
Storage Lanes	1	0	0	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.950	0.850	0.932	0.988	0.969	0.969	0.969	0.969	0.969	0.969	0.969	0.969
Satd. Flow (prot)	1770	1583	0	0	1562	0	0	1644	0	0	1777	0
Flt Permitted	0.747	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891	0.891
Satd. Flow (perm)	1391	1583	0	0	1409	0	0	728	0	0	1775	0
Right Turn on Red	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	269	30	8	30	8	30	8	30	8	30	8	30
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	1825	495	495	495	495	495	495	495	495	495	495	495
Travel Time (s)	41.5	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	118	0	283	4	4	8	175	101	0	3	610	320
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	283	0	0	16	0	0	276	0	0	933	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4	4	8	8	8	8	8	8	8	8	8	8
Permitted Phases	4	4	8	8	8	8	8	8	8	8	8	8
Detector Phase	4	4	8	8	8	8	8	8	8	8	8	8
Switch Phase	4	4	8	8	8	8	8	8	8	8	8	8
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Yellow Time (s)	3.0	3.0	3.0	3.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag												
Lead-Lag Optimize?	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	None	None	None	None	None	None	None	None	None	None	None	None
Recall Mode	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Walk Time (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Calls (#/hr)	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
Act Effect Green (s)	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Actuated g/C Ratio	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
vic Ratio	24.1	7.7	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Control Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Delay	24.1	7.7	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Total Delay	24.1	7.7	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 52.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 16.3

Intersection Capacity Utilization 88.6%

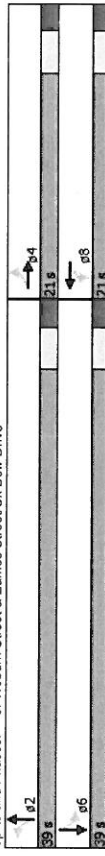
Analysis Period (min) 15

ICU Level of Service E

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

Queue shown is maximum after two cycles.

Splits and Phases: 9: Woburn Street & Eames Street/Ox Bow Drive



9/1/2015

2022 Build Volumes
PM Peak Hr - Mitigated Conditions

9/1/2015

2022 Build Volumes
PM Peak Hr - Mitigated Conditions

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W					4
Volume (vph)	249	49	213	228	121	622
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Flt	0.978	0.930				
Flt Protected	0.960					0.992
Satd. Flow (prot)	1652	0	1683	0	0	1830
Flt Permitted	0.960					0.800
Satd. Flow (perm)	1652	0	1683	0	0	1476
Right Turn on Red	Yes			Yes		
Satd. Flow (RTOR)	12	133				30
Link Speed (mph)	30	30				792
Link Distance (ft)	1595	1378				18.0
Travel Time (s)	36.3	31.3				0.90
Peak Hour Factor	0.86	0.80		0.80	0.90	3%
Heavy Vehicles (%)	8%	5%		5%	3%	3%
Adj. Flow (vph)	290	57	266	285	134	691
Shared Lane Traffic (%)						
Lane Group Flow (vph)	347	0	551	0	0	825
Turn Type	Prot	NA	NA	Perm	NA	NA
Protected Phases	8		2		6	6
Permitted Phases	8		2		6	6
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	22.0		22.0		22.0	22.0
Total Split (s)	22.0		53.0		53.0	53.0
Total Split (%)	29.3%		70.7%		70.7%	70.7%
Maximum Green (s)	17.0		48.0		48.0	48.0
Yellow Time (s)	3.0		3.0		3.0	3.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		2.0		0.0	0.0
Total Lost Time (s)	5.0		7.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		Min	Min
Walk Time (s)	5.0		5.0		5.0	5.0
Flash Dont Walk (s)	11.0		11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effct Green (s)	16.5		40.6			42.6
Actuated g/C Ratio	0.24		0.59		0.62	0.62
v/c Ratio	0.87		0.53		0.91	0.91
Control Delay	49.8		8.2		27.8	27.8
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	49.8		8.2		27.8	27.8
LOS	D		A		C	C
Approach Delay	49.8		8.2		27.8	27.8
Approach LOS	D		A		C	C

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	152		91			274
Queue Length 95th (ft)	#283		128			#557
Internal Link Dist (ft)	1515		1298			712
Turn Bay Length (ft)						
Base Capacity (vph)	420		1179			1039
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.83		0.47			0.79
Intersection Summary						
Area Type: Other						
Cycle Length: 75						
Actuated Cycle Length: 69.2						
Natural Cycle: 75						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.91						
Intersection Signal Delay: 26.0						
Intersection Capacity Utilization: 95.5%						
Analysis Period (min): 15						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles.						

Splits and Phases: 11: Main Street & Eames Street

53 s	53 s	72 s
53 s	53 s	72 s

Wilmington, MA
11: Main Street & Eames Street

9/1/2015

Lane Group	WBL	WBR	NBT	NBR	SBL	SBR
Lane Configurations	W	W	T	T	T	T
Volume (vph)	216	175	599	292	93	296
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.940	0.956				
Flt Protected	0.973				0.988	
Satd. Flow (prot)	1721	0	1763	0	0	1840
Flt Permitted	0.973				0.412	
Satd. Flow (perm)	1721	0	1763	0	0	767
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	59		67			30
Link Speed (mph)	30		30			792
Link Distance (ft)	1595		1378			18.0
Travel Time (s)	36.3		31.3			
Peak Hour Factor	0.94	0.96	0.96	0.96	0.90	0.90
Heavy Vehicles (%)	1%	3%	2%	2%	2%	2%
Adj. Flow (vph)	230	186	624	304	103	329
Shared Lane Traffic (%)						
Lane Group Flow (vph)	416	0	928	0	0	432
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2		6	
Permitted Phases						6
Detector Phase	8		2		6	6
Switch Phase						
Minimum Initial (s)	4.0		4.0		4.0	4.0
Minimum Split (s)	21.0		21.0		21.0	21.0
Total Split (s)	21.0		44.0		44.0	44.0
Total Split (%)	32.3%		67.7%		67.7%	67.7%
Maximum Green (s)	16.0		39.0		39.0	39.0
Yellow Time (s)	3.0		3.0		3.0	3.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	5.0		5.0		5.0	5.0
Lead/Lag						
Lead-Lag Optimizer?						
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		Min	Min
Walk Time (s)	5.0		5.0		5.0	5.0
Flash Dont Walk (s)	11.0		11.0		11.0	11.0
Pedestrian Calls (#/hr)	0		0		0	0
Act Effect Green (s)	15.3		37.1		37.1	37.1
Actuated g/C Ratio	0.24		0.59		0.59	0.59
v/c Ratio	0.89		0.86		0.95	0.95
Control Delay	44.8		20.9		47.9	47.9
Queue Delay	0.0		0.0		0.0	0.0
Total Delay	44.8		20.9		47.9	47.9
LOS	D		C		D	D
Approach Delay	44.8		20.9		47.9	47.9
Approach LOS	D		C		D	D

2022 Build Volumes
PM Peak Hr - Mitigated Conditions

Synchro 8 Report
Page 1

Wilmington, MA
11: Main Street & Eames Street

9/1/2015

Lane Group	WBL	WBR	NBT	NBR	SBL	SBR
Queue Length 50th (ft)	138		247		138	
Queue Length 95th (ft)	#293		#523		#328	
Internal Link Dist (ft)	1515		1298		712	
Turn Bay Length (ft)						
Base Capacity (vph)	488		1133		482	
Starvation Cap Reductn	0		0		0	
Spillback Cap Reductn	0		0		0	
Storage Cap Reductn	0		0		0	
Reduced v/c Ratio	0.85		0.82		0.90	
Intersection Summary						
Area Type:	Other					
Cycle Length: 65						
Actuated Cycle Length: 62.5						
Natural Cycle: 65						
Control Type: Actuated/Uncoordinated						
Maximum v/c Ratio: 0.95						
Intersection Signal Delay: 33.0						
Intersection Capacity Utilization: 105.2%						
Analysis Period (min): 15						
# 95th percentile volume exceeds capacity, queue may be longer.						
Queue shown is maximum after two cycles						

Splices and Phases: 11: Main Street & Eames Street



2022 Build Volumes
PM Peak Hr - Mitigated Conditions

Synchro 8 Report
Page 2