887 WOBURN TRANSFER STATION

Site Suitability Application - BWP SW 01

Solid Waste Transfer Station
887 Woburn Street
Wilmington, Massachusetts 01887

July 2021

Prepared For:

887 Woburn, LLC
887 Woburn Street
Wilmington, Massachusetts 01887

Green Seal Environmental, LLC

114 State Road, Building B, Sagamore Beach, MA 02562 | Tel: (508) 888-6034 | Fax: (508) 888-1506 | www.gseenv.com

Green Seal Environmental, LLC
114 State Road, Bldg. B, Sagamore Beach, MA 02562
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MassDOT Certified
DCAMM Certified

August 24, 2021

Mr. Mark Fairbrother, Section Chief
MassDEP – Northeast Region
205B Lowell Street
Wilmington, MA 01887

RE: Site Suitability Application for a New Site Assignment - BWP SW 01
Transmittal No.: 21-SW01-0001-APP
887 Woburn, LLC
887 Woburn Street, Wilmington, Massachusetts

Mr. Fairbrother:

On behalf of 887 Woburn, LLC (887 Woburn), Green Seal Environmental, LLC (GSE) submits for your review a permit application (BWP SW 01- Site Suitability) for a new site assignment for a solid waste transfer and processing facility to be located at 887 Woburn Street in Wilmington. This application was electronically submitted as part of the online EEA ePLACE application process on August 24, 2021. Following online submittal and receipt of the application transmittal number, it was provided to MassDEP and the Town of Wilmington Board of Health electronically via email. Additional recipients were provided paper and/or electronic copies as listed in Attachment 8- Certificate of Service.

Please do not hesitate to contact me if you have any questions or require any additional information.

Sincerely,

GREEN SEAL ENVIRONMENTAL, LLC

Laura A. Bugay, P.E.
Executive Vice President

cc: Wilmington Board of Health
Woburn Board of Health
MassDEP- Bureau of Waste Prevention
Massachusetts Department of Public Health
Metropolitan Area Planning Counsel
Wilmington Public Library (electronic, flash drive)
Woburn Public Library (electronic, flash drive)
Anthony Martignetti, 887 Woburn (electronic)
Michael Penney, GeoInsight (electronic)
Robert Peterson, Law Offices of Robert G. Peterson (electronic)

Attachment

Enter your transmittal number → 21-SW01-0001-APP (Transmittal Number)

Your unique Transmittal Number can be accessed online: http://mass.gov/dep/service/online/trasmfrm.shtml

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP
P.O. Box 4062
Boston, MA
02211

*** Note:**
For BWSC Permits, enter the LSP.

A. Permit Information

1. Permit Code: 7 or 8 character code from permit instructions	2. Name of Permit Category
BWP SW 01	Site Suitability for a New Site Assignment

3. Type of Project or Activity: Solid Waste Transfer and Processing Facility- Site Suitability for a New Site Assignment

B. Applicant Information – Firm or Individual

1. Name of Firm - Or, if party needing this approval is an individual enter name below: 887 Woburn, LLC

2. **Last Name** of Individual	3. **First Name** of Individual	4. MI

5. Street Address: 887 Woburn Street

6. City/Town	7. State	8. Zip Code	9. Telephone #	10. Ext. #
Wilmington	MA	01887	877-720-1313	700

11. Contact Person	12. e-mail address (optional)
Anthony C. Martignetti	acmart13@gmail.com

C. Facility, Site or Individual Requiring Approval

1. Name of Facility, Site Or Individual: 887 Woburn

2. Street Address: 887 Woburn Street

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #
Wilmington	MA	01887	877-720-1313	700

8. DEP Facility Number (if Known)	9. Federal I.D. Number (if Known)	10. BWSC Tracking # (if Known)

D. Application Prepared by (if different from Section B)*

1. Name of Firm Or Individual: Green Seal Environmental, LLC

2. Address: 114 State Road, Building B

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #
Sagamore Beach	MA	02562	508-888-6034	

8. Contact Person	9. LSP Number (BWSC Permits only)
Laura A. Bugay	

E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☒ yes ☐ no
   If yes, enter the project's EOEA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit: 16266 (EOEA File Number)

F. Amount Due

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Special Provisions:

1. ☐ **Fee** Exempt (city, town or municipal housing authority)(state agency if fee is $100 or less).
   There are no fee exemptions for BWSC permits, regardless of applicant status.
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

Check Number	Dollar Amount	Date
1196	$10,585	08/20/2021

MARTIGNETTI DEVELOPMENT
887 Woburn Street
Wilmington, MA 01887
508-717-7358

Bank of America.

5-13/110

1196

DATE 8/20/21

PAY TO THE ORDER OF The Commonwealth of Massachusetts $ 10,585 00

Ten Thousand Five Hundred and Eighty-Five DOLLARS

Mass DEP Site Suitability		$10,585	
PROJECT "887 WOBURN"			

THIS CHECK IS DELIVERED FOR PAYMENT ON THE ACCOUNTS LISTED

⑈001196⑈ ⑆011000138⑆ 004666544537⑈

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention – Solid Waste Management

BWP SW 01 Site Suitability Report for a New Site Assignment

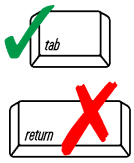
BWP SW 38 Site Suitability for a Major Modification of an Existing Site Assignment

21-SW01-0001-APP
Transmittal Number

Facility ID# (if known)

Instructions

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



BWP SW 01 Site Suitability Report for New Site Assignment:

The information requested on this application form must be supplied when filing an Application for a new Site Assignment pursuant to the provisions of the *Site Assignment Regulations for Solid Waste Management Facilities*, 310 CMR 16.00.

The form is divided into six parts that are to be completed as follows:

I. General Information: All Applicants complete Part I.

II. Facility Specific Criteria: Part II is divided into three sections,

II.A. For landfills,
II.B. For combustion facilities, and
II.C. For waste handling and processing facilities.

Applicants should complete only the appropriate section.

III. General Criteria: All Applicants complete Part III.

IV. Integrated Solid Waste Management: Complete Part IV only if the proposed facility is a landfill or combustion facility.

V. Waiver: Complete Part V only if a waiver is requested.

VI. Signatures and Certification: All Applicants must sign the application in Part VI.

BWP SW 38 Site Suitability Report for a Major Modification of a Site Assignment:

The information requested on this application form must be supplied when filing an Application for a major modification of an existing Site Assignment pursuant to the provisions of the *Site Assignment Regulations for Solid Waste Management Facilities* at 310 CMR 16. 22(2).

When applying for a Major Modification, the applicant need only complete those sections of the form that concern criteria affected by the major modification as determined in writing by the Department. The applicant shall obtain this written determination from the Solid Waste Section in the DEP Regional Office prior to completing and submitting this application.

General Information:

The Applicant should refer to the regulations themselves when completing the Application form. The Application form provides a format for presenting the information required to determine whether the site meets the criteria set forth in the Site Assignment Regulations themselves. The Application form is not a substitute for the regulations, and the Applicant is responsible for providing all the information relevant to evaluating the suitability of the site in accordance with 310 CMR 16.00.

Instructions (cont.)

The application form is annotated with section numbers, enclosed in {braces}, that reference sections in the regulations. These references are included to make it easier to consult the regulations for guidance in completing the application. The references are abbreviated in that, for example, 310 CMR 16.05(2) is written as {16.05(2)}.

Completing the Application Form:

This application form contains three types of questions or requests for information:

1) Requests that documents be attached (e.g., maps). Please attach these documents and note on the application form where these documents can be found.

2) Questions that require a written response. Questions that require a very brief response may be answered in the space provided on the form itself. Longer responses should be attached to the form and the location of the attachment identified in the space provided.

3) Questions that require a "yes" or "no" response. Put an “X” in the appropriate box and indicate in the space provided where additional information or information supporting the response can be found.

Section I. General Information

Instructions: All Applicants should complete Part I.

A. Site Location and Project Description

Please provide the information requested.

1. Project name:

   887 Woburn
   Name of Project

2. Site address:

   887 Woburn Street
   Street

   Wilmington | MA | 01887
   City/Town | State | Zip Code

3. Type of facility:

   ☐ landfill
   ☐ combustion
   ☒ waste handling and processing

4. Total area of the site, including all buffer zones:

   3.37
   acres

5. Total area to be site assigned for solid waste activities:

   3.16
   acres

6. Capacity and expected life of proposed facility:

   a. State the maximum daily capacity of the proposed facility in tons per day. (This number should represent the maximum amount of waste to be accepted on any single day.):
   500
   tons per day

   b. State the average daily capacity of the proposed facility and describe how the average was computed:
   500
   average daily capacity (tons per day)
   500 TPD is based upon the Facility receiving the maximum daily tonnage on any given day.
   how average was computed

A. Site Location and Project Description (cont.)

c. State the yearly capacity of the proposed facility and, if the capacity is expected to change over the life of the facility, indicate the capacity in each year the proposed facility is expected to operate:

182,500 annual tonnage limitation
yearly capacity

Expected change in capacity (if applicable):

Expected yearly capacity	Year
182,500	All years

d. State the number of years the facility is expected to operate:

30+ (Life of facility is not restricted)
years

e. State the total lifetime capacity of the proposed facility:

5.5 Million+ (Life of facility is not restricted)
total lifetime capacity

7. Type of Waste: What type of waste will be accepted at the proposed facility? (check all that apply)

- ☐ municipal solid waste
- ☒ construction and demolition waste
- ☐ industrial waste
- ☐ other, please specify:

8. Project Description: describe the proposed project:

See Site Suitability Application Narrative

B. Applicant Identification

1. Identify the owner of the site:

887 Woburn, LLC
Name

887 Woburn Street
Street Address

Wilmington	MA	01887
City/Town	State	Zip Code

877-720-1313
Telephone

Anthony C. Martignetti	877-720-1313 ext. 700
Contact Person	Contact Telephone

2. Identify the operator of the proposed facility if the owner has entered into an agreement with an operator:

Not Applicable (Owner and Operator the same)
Name

Street Address

City/Town	State	Zip Code

Telephone

Contact Person	Contact Telephone

C. Fees {16.08(4)}

1. Proof of Payment: Documentation must be submitted showing that the requirements for paying the Technical Fee to the Board of Health as per 16.08(4) have been satisfied.

Proof of payment may be either (please check which one you have provided):

☒ Document from the Board of Health stating that the Board of Health has waived the technical fee or that the Applicant has satisfied the Technical Fee payment requirements; or

☒ Receipt showing that the Applicant has paid the Maximum Technical Fee to the municipality.

Location of Attachment:

See Attachment 1
section and/or page numbers

C. Fees {16.08(4)} (cont.)

2. Amount of Maximum Technical Fee: Enter the Maximum Technical Fee as computed using Appendix A of 310 CMR 16.99:
   See Site Suitability Application Narrative, Fees (Section I,Part C) and Attachment 1.

D. Collection Center for Household Hazardous Waste

Does the applicant intend to apply, pursuant to 310 CMR 30.190, for approval to operate a collection center for hazardous waste from households on the proposed site?

☐ Yes ☒ No

If "yes," the Applicant should contact the Permitting Section of the Bureau of Waste Prevention in the appropriate DEP Regional Office.

E. Declaration of Waiver Request {16.08(5)(c)}

1. Is a waiver from any of the site suitability criteria being requested under provisions of 310 CMR 16.40(6)? (If "yes," complete Part V.A. of this application form.)

   ☒ Yes ☐ No

2. Is a waiver from any of the requirements of Part I of 310 CMR 16.00 being requested under provisions of 310 CMR 16.18? (If "yes," complete Part V.B. of this application form.)

   ☐ Yes ☒ No

F. Massachusetts Environmental Policy Act (MEPA) {16.08(5)(d)}

Indicate which one of the following is attached to the application:

☐ Evidence that the project does not require MEPA review.

☐ Certificate from the Secretary of the Executive Office of Environmental Affairs stating that an Environmental Impact Report is **not** required.

☐ Evidence that the MEPA process does apply and the Secretary has determined that an EIR is required. (Note: The DEP will not complete its technical review of the application until the applicant submits the Certificate from the Secretary of the Executive Office of Environmental Affairs stating that the Final Environmental Impact Report is acceptable.)

☒ Certificate from the Secretary of the Executive Office of Environmental Affairs stating that the Final Environmental Impact Report is acceptable.

F. Massachusetts Environmental Policy Act (MEPA) {16.08(5)(d)} (cont.)

Location of Attachment:

See Site Suitability Application, and MEPA Certificate in Attachment 2.
section and/or page numbers

G. Wetlands Resources

1. Buffer Zone: Is any part of the proposed site located within 100 feet of any wetlands?

   ☐ Yes ☒ No

2. Riverfront Area: Is any part of the site located within a riverfront area?

   ☐ Yes ☒ No

3. Floodplain: Is any part of the proposed site located within a 100-year floodplain?

   ☐ Yes ☒ No

   If the answer to question I.G.1, I.G.2 or I.G.3 is "yes," please describe what activities, if any, will occur within the 100-foot buffer zone, the riverfront area or the 100-year floodplain.

   Respond here or identify location of attached response:

   N/A
   section and/or page numbers

4. Order of Conditions: Will an Order of Conditions under the Wetlands Protection Act (c.131, s.40) be required?

   ☐ Yes ☒ No

5. Variance: Will a variance from the Wetlands regulations be required?

   ☐ Yes ☒ No

H. Maps

1. Ground Water Contour Map: Has a ground water contour map for the site been developed?

   ☒ Yes ☐ No

   If Yes, please attach the map and identify the location of the attachment:

   See Site Suitability Application, Groundwater Contour Map (Attachment 2)
   section and/or page numbers

Please submit the following with the Application:

2. Locus Map: A US Geological Survey (USGS) topographic map of at least 8.5 x 11 inches in size (7.5 minute series scale) should be attached which clearly delineates the proposed site boundaries and shows all access roads to the proposed site.

   Identify the attachment:

   See Site Suitability Application, USGS Topographic Map (Figure 1)
   section and/or page numbers

3. Water Resources Site Plan: The following information regarding water resources should be indicated on a site plan (scale no larger than one inch equals two hundred feet) that covers the site plus a one-half mile extension in all directions from the site boundary. Please refer to the definitions at 310 CMR 16.02 for guidance on the meaning of the terms.

   - All wetlands, associated buffer zones and riverfront areas as defined in 310 CMR 10.00
   - All 100-year flood plains
   - All surface water bodies (rivers, streams, ponds, lakes, reservoirs etc),
   - All perennial streams draining to surface drinking water supplies,
   - All private water supply wells
   - All public water supply wells
   - All or any fractions of Interim Wellhead Protection Areas (IWPA) or Zone II areas
   - All or any fractions of Proposed Drinking Water Source Areas
   - All or any fraction of a Zone A or B of a surface water supply

   Identify the location of the attachment:

   See Site Suitability Application, Water Resources Site Plan (Figure 2)
   section and/or page numbers

H. Maps (cont.)

4. Land Use Site Plan: The following information regarding land use should be indicated on a site plan (scale no larger than one inch equals two hundred feet) that covers the site plus a one-half mile extension in all directions from the site boundary:

    - All wildlife management areas,
    - All Areas of Critical Environmental Concern (ACEC) as established by the Secretary of the Executive Office of Environmental Affairs (EOEA),
    - All lands actively devoted to agricultural or horticultural uses and lands classified as Prime, Unique, or of State and Local Importance by the United States Department of Agriculture, Natural Resources Conservation Service;
    - All of the Following Open Space Protected Areas:
        - state forests
        - state or municipal parklands or conservation land, or other open space held for natural resource purposes in accordance with Article 97 of the Massachusetts Constitution
        - Department of Conservation & Recreation (DCR) reservations
        - lands with conservation. preservation, agricultural, or watershed protection restrictions approved by the Secretary of the Executive Office of Environmental Affairs
        - conservation land owned by private non-profit land conservation organizations that is open to the public
        - All residential dwellings on site and within 500 feet (1000 feet for landfills) of the property boundary,
        - All occupied commercial buildings within 500 feet of the property boundary,
        - All of the following:
            - health care facilities
            - prisons
            - Elementary Schools
            - middle schools
            - high schools
            - children's' pre-schools
            - licensed day care centers
            - senior centers
            - youth centers
    - Other Solid Waste Facilities
    - All proposed waste handling areas on the site,
    - All proposed areas of waste deposition on the site,
    - All buildings and other facilities proposed on the site,
    - All access roads on the site and traffic flow off the site,
    - All abutting properties and their appropriate zoning designation (include any zoning abbreviations in plan legend).
    - The zoning designation of the proposed site.

    Identify the location of the attachment:

    See Site Suitability Application, Land Use Site Plan (Figure 3)
    section and/or page numbers

Section II. Facility Specific Criteria

Part II is divided into three sections. Complete only the appropriate section.

II.A. Landfills
II.B. Combustion Facilities
II.C. Waste Handling and Processing Facilities

A. Landfills {16.40(3)(a)}

Complete Part II.A., if Site Assignment is sought for a landfill.

1. Zone II of Existing Public Water Supply {16.40(3)(a)1.}: Will any area of waste deposition be located within the designated Zone II area of an existing public water supply well?

   ☐ Yes ☐ No

   Location of supporting information or comments:

   section and/or page numbers

2. IWPA of Existing Public Water Supply {16.40(3)(a)2.}: If the Zone II of an existing public water supply well has not been determined, will any area of waste deposition be within the Interim Wellhead Protection Area (IWPA) as defined at 310 CMR 22.02?

   ☐ Yes ☐ No

   If “Yes” see the note at Question II.A.4. and identify where additional information is attached:

   section and/or page numbers

3. Zone II or IWPA of a Proposed Drinking Water Source Area {16.40(3)(a)3.}: Will any area of waste deposition be within the area of a Zone II or Interim Well Head Protection Area (IWPA) of a proposed drinking water source area for which the documentation necessary to obtain a source approval has been submitted prior to the earlier of either the site assignment application, or if the MEPA process does apply, the Secretary’s Certificate on the Environmental Notification Form or Notice of Project Change, or where applicable, the Secretary's Certificate on the EIR or Final EIR;

   ☐ Yes ☐ No

   If “Yes” see the note at Question II.A.4. and identify where additional information is attached:

   section and/or page numbers

A. Landfills {16.40(3)(a)} (cont.)

4. 15,000 Feet Upgradient of Existing Public Water Source Well or Proposed Drinking Water Source Area {16.40(3)(a)4.}: In instances where the Zone II has not been calculated, will any area of waste deposition be 15,000 feet or less hydraulically upgradient of an existing public water source well or proposed drinking water source area?

   ☐ Yes ☐ No

   See the note and identify where additional information is attached:

   section and/or page numbers

   Note: If the answer to Questions II.A.2., 3, or 4 is "YES," the applicant may conduct and submit with this application a preliminary Zone II study, approved of by the Department, showing that the waste deposition area would be beyond the Zone II of the public water supply well or proposed drinking water source area in question. Alternatively, the applicant may prepare and submit, with this application, other evidence showing the well or proposed drinking water source area and the ground water under the proposed site are not hydraulically connected

   The Applicant should consult with the DEP Drinking Water Program in the Bureau of Resource Protection prior to conducting a preliminary Zone II investigation to determine the scope of the investigation. At a minimum, the preliminary Zone II submittal should consist of:

   1) A review and discussion of all available pertinent geologic and hydrologic data including bedrock and surficial geologic maps, hydrologic data reports and atlases, consultant reports, and pumping test reports;

   2) An estimate and orientation of the regional hydraulic gradient across the well site;

   3) A preliminary conceptual model of the aquifer, including a discussion of pertinent recharge and till boundaries; and

   4) A preliminary estimate of the Zone II area as defined in the Drinking Water Program's Water Supply Guidelines.

5. Danger to existing or proposed drinking water source area {16.40(3)(a)5.}: State why a discharge from the facility would not pose a danger to any existing or proposed drinking water source area.

   Respond here or identify where the response is attached:

   section and/or page numbers

A. Landfills {16.40(3)(a)} (cont.)

6. Sole Source Aquifer {16.40(3)(a)6.}: Will any area of waste deposition be located within the recharge area of a designated sole source aquifer? (Sole Source Aquifers are designated by the US Environmental Protection Agency. To inquire as to whether a site is located above a Sole Source Aquifer contact the US Environmental Protection Agency, Region I, Ground Water Management Section.)

   ☐ Yes ☐ No

   Identify location of attached information:

   section and/or page numbers

   If the answer to question II.A.6. is "yes," then the site is not suitable unless the criteria in 310 CMR 16.40(3)(a)6.a., b. and c. are met. Attach documentation showing that these criteria are satisfied.

   Identify location of attached information:

   section and/or page numbers

7. Zone of Contribution or Recharge Area {16.40(3)(a)7.}: Is any area of waste deposition within the zone of contribution of an existing public water supply or proposed drinking water source area, or the recharge area of a surface drinking water supply, pursuant to a municipal ordinance or by-law enacted in accordance with M.G.L. c. 40A, § 9?

   ☐ Yes ☐ No

   Identify location of supporting information or comments:

   section and/or page numbers

8. Zone A or B of Surface Drinking Water Supply {16.40(3)(a)8.}: Will any area of waste deposition be within the Zone A or Zone B of a surface water supply?

   ☐ Yes ☐ No

   Identify location of supporting information or comments:

   section and/or page numbers

A. Landfills {16.40(3)(a)} (cont.)

9. Perennial stream draining to Surface Drinking Water Supply {16.40(3)(a)9.} Will any area of waste deposition be located within 400 feet upgradient, as defined by groundwater flow or surface water drainage, of a perennial water course that drains to a surface water supply that itself is within one mile of the waste deposition area?

   ☐ Yes ☐ No

   Identify location of supporting information or comments:

   section and/or page numbers

10. Potentially Productive Aquifer {16.40(3)(a)10.}: Will any area of waste deposition be within a Potentially Productive Aquifer?

    ☐ Yes ☐ No

    Identify location of supporting information or comments:

    section and/or page numbers

    If the answer to question II.A.10. is "yes," then the site is not suitable unless documentation is attached showing that either 16.40(3)(a)10.a., b. or c. applies.

    Identify location of attached documentation:

    section and/or page numbers

11. Within 1000 feet Upgradient or Otherwise within 500 Feet of an Existing or Potential Private Water Supply Well {16.40(3)(a)11.}: Will any area of waste deposition be within 1000 feet upgradient, and where not upgradient, within 500 feet, of a private water supply well existing or established as a potential supply at the time of submittal of the application?

    ☐ Yes ☐ No

    Identify location of supporting information or comments

    section and/or page numbers

A. Landfills {16.40(3)(a)} (cont.)

If the answer to question II.A.11 is "yes," attach documentation showing a valid option to purchase each such supply. Also indicate whether a replacement drinking water supply will be provided.

Identify the location of attached documentation:

section and/or page numbers

12. Four Feet Depth to Ground Water {16.40(3)(a)12.}: Will the maximum high ground water level under any area of waste deposition be less than four (4) feet below the lowermost level of the waste or, if a liner system is employed, four feet below the bottom of the lower most liner?

☐ Yes ☐ No

Identify location of supporting information or comments:

section and/or page numbers

13. Wetlands 16.40(3)(a)13.}: Will any area of waste deposition or any leachate containment structure be within any resource area, including the 100 year floodplain, protected by the Wetlands Protection Act?

☐ Yes ☐ No

Identify location of supporting information or comments:

section and/or page numbers

14. 400 Feet to a Lake or 200 feet to a Riverfront Area {16.40(3)(a)14.}: Will any area of waste deposition or any leachate containment structure be within 400 feet of a lake or within 200 feet of a Riverfront Area as defined in 310 CMR 10.00, that is not a drinking water supply?

☐ Yes ☐ No

Identify location of supporting information or comments:

section and/or page numbers

A. Landfills {16.40(3)(a)} (cont.)

15. 1000 Feet to Various Occupied Facilities {16.40(3)(a)15.}: Will any area of waste deposition be within 1000 feet of any of the following (excluding equipment storage or maintenance structures):

    - an occupied residential dwelling,
    - health care facility
    - prison,
    - Elementary School
    - middle school
    - high school
    - children's' pre-school
    - licensed day care center
    - senior center
    - youth center

    ☐ Yes ☐ No

    Identify location of supporting information or comments:

    section and/or page numbers

    If the answer to II.A.15. is "yes", attach documentation showing evidence of a valid option to purchase the facility in question.

    Identify location of attached documentation:

    section and/or page numbers

16. Ground water Protection System {16.40(3)(a)16.}: Will a ground water protection system be employed?

    ☐ Yes ☐ No

    If a ground water protection system will be employed, describe the general features and components of the system which will prevent the migration of leachate and avoid adverse impact to the ground water.

    If a ground water protection system will not be employed, demonstrate that the facility will not discharge leachate that presents a threat of adverse impact to ground water.

    Identify location of attached explanation:

    section and/or page numbers

B. Combustion Facilities {16.40(3)(c)}

Complete Part II.B. if site assignment is sought for a combustion facility.

1. Zone I of Public Water Supply {16.40(3)(c)1.}: Will any waste handling area be within the Zone I of a public water supply?

   ☐ Yes ☐ No

   Identify location of supporting information or comments:

   section and/or page numbers

2. IWPA or Zone II of Existing Supply or Proposed Drinking Water Source Area {16.40(3)(c)2.}: Will any waste processing area be within:

   a) the Interim Wellhead Protection Area (IWPA) of an existing public supply

      ☐ Yes ☐ No

      Identify location of supporting information or comments:

      section and/or page numbers

   b) Zone II of an existing public water supply

      ☐ Yes ☐ No

      Identify location of supporting information or comments:

      section and/or page numbers

   c) a proposed drinking water source area, provided that the documentation necessary to obtain a source approval has been submitted prior to the earlier of either the site assignment application, or if the MEPA process does apply, the Secretary's Certificate on the Environmental Notification Form or Notice of Project Change, or where applicable, the Secretary's Certificate on the EIR or Final EIR,

      ☐ Yes ☐ No

B. Combustion Facilities {16.40(3)(c)} (cont.)

Identify location of supporting information or comments:

section and/or page numbers

If the answer to all the above is "No," do not respond to the following and go on to section II.B.3. If the answer to any of the above is "Yes," respond to the following requests:

Supply information to demonstrate to the Department that the risk of an adverse impact to the ground water will be minimized.

Identify location of attached information:

section and/or page numbers

Supply information to demonstrate to the Department that at least one of the following is true:

1) The proposed facility cannot reasonably be sited outside the IWPA or Zone II.

2) If the site has been previously used for solid waste management activities, there would be a net environmental benefit to the ground water by siting the facility within the Zone II or the IWPA.

Identify location of attached information:

section and/or page numbers

3. Zone A of Surface Water Supply {16.40(3)(c)3.}: Will the waste processing area be within the Zone A of a surface water supply?

☐ Yes ☐ No

Identify location of supporting information or comments:

section and/or page numbers

B. Combustion Facilities {16.40(3)(c)} (cont.)

4. Within 500 feet Upgradient or Otherwise within 250 Feet of an Existing or Potential Private Water Supply Well {16.40(3)(c)4.}: Will the waste processing area be within 500 feet upgradient, and where not upgradient, within 250 feet, of a private water supply well existing or established as a potential supply at the time of submittal of the application?

   ☐ Yes ☐ No

   Identify location of supporting information or comments:

   section and/or page numbers

   If the answer to question II.B.4 is "yes," attach documentation showing a valid option to purchase each such supply. Also indicate whether a replacement drinking water supply will be provided.

   Identify location of attached documentation:

   section and/or page numbers

5. Two Foot Depth to Ground Water {16.40(3)(c)5.}: Will the maximum high ground water level be less than 2 feet below the surface in any waste handling or processing area?

   ☐ Yes ☐ No

   Identify location of supporting information or comments:

   section and/or page numbers

   If "yes," indicate how the project can be designed to maintain a two foot separation.

   Identify location of explanation:

   section and/or page numbers

B. Combustion Facilities {16.40(3)(c)} (cont.)

6. 500 Feet to Various Occupied Facilities {16.40(3)(c)6.}: Will any waste handling or processing area be within 500 feet of any of the following (excluding equipment storage or maintenance structures):

   - an occupied residential dwelling,
   - health care facility
   - prison,
   - Elementary School
   - middle school
   - high school
   - children's' pre-school
   - licensed day care center
   - senior center
   - youth center

   ☐ Yes ☐ No

   Identify location of supporting information or comments:

   section and/or page numbers

   If the answer to II.B.6. is "yes", attach documentation showing evidence of a valid option to purchase the facility in question.

   Identify location of attached documentation:

   section and/or page numbers

7. Riverfront Area {16.40(3)(c)7.}: Will the waste handling area be within the Riverfront Area as defined at 310 CMR 10.00?

   ☐ Yes ☐ No

   Identify location of supporting information or comments:

   section and/or page numbers

C. Waste Handling and Processing Facilities {16.40(3)(d)}

Complete Part II.C if site assignment is sought for a waste handling and processing facility (all facilities other than landfills and combustion facilities).

1. Zone I of Public Water Supply {16.40(3)(d)1.}: Will any waste handling area be within the Zone I of a public water supply?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:

   See Site Suitability Application Narrative (Section II, Part C), and Figure 2
   section and/or page numbers

2. IWPA or Zone II of Existing Supply or Proposed Drinking Water Source Area {16.40(3)(d)2.}: Will any waste handling or processing area be within:

   a) the Interim Wellhead Protection Area (IWPA) of an existing public supply

      ☐ Yes ☒ No

      Identify location of supporting information or comments:

      See Site Suitability Application Narrative (Section II, Part C) and Figure 2
      section and/or page numbers

   b) the Zone II of an existing public water supply

      ☐ Yes ☒ No

      Identify location of supporting information or comments:

      See Site Suitability Application Narrative (Section II, Part C) and Figure 2
      section and/or page numbers

   c) a proposed drinking water source area, provided that the documentation necessary to obtain a source approval has been submitted prior to the earlier of either the site assignment application, or if the MEPA process does apply, the Secretary's Certificate on the Environmental Notification Form or Notice of Project Change, or where applicable, the Secretary's Certificate on the EIR or Final EIR,

      ☐ Yes ☒ No

C. Waste Handling and Processing Facilities {16.40(3)(d)} (cont.)

Identify location of supporting information or comments:

See Site Suitability Application, MEPA FEIR Certificate (Attachment 2)
section and/or page numbers

If the answer to II.C.2.a, b and c is "No," do not respond to the following and go on to section II.C.3. If the answer to II.C.2.a, b or c is "Yes," respond to the following requests.

Supply information to demonstrate to the Department that the risk of an adverse impact to the ground water will be minimized.

Identify location of attached information:

N/A
section and/or page numbers

Supply information to demonstrate to the Department that at least one of the following is true:

1) The proposed facility cannot reasonably be sited outside the IWPA or Zone II.

2) If the site has been previously used for solid waste management activities, there would be a net environmental benefit to the ground water by siting the facility within the Zone II or the IWPA.

Identify location of attached information:
N/A
section and/or page numbers

3. Zone A of Surface Water Supply {16.40(3)(d)3.}: Will the waste handling or processing area be within the Zone A of a surface water supply?

☐ Yes ☒ No

Identify location of supporting information or comments:
See Site Suitability Application Narrative (Section II, Part C) and Figure 2
section and/or page numbers

C. Waste Handling and Processing Facilities {16.40(3)(d)} (cont.)

4. Within 500 feet Upgradient or Otherwise within 250 Feet of an Existing or Potential Private Water Supply Well {16.40(3)(d)4.}: Will the waste handling or processing area be within 500 feet upgradient, and where not upgradient, within 250 feet, of a private water supply well existing or established as a potential supply at the time of submittal of the application?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:
   See Site Suitability Application Narrative (Section II, Part C) and Figure 2
   section and/or page numbers

   If the answer to question II.C.4 is "yes," attach documentation showing a valid option to purchase each such supply. Also indicate whether a replacement drinking water supply will be provided.

   Identify location of attached documentation:
   N/A
   section and/or page numbers

5. Minimum Distances to Various Occupied Facilities {16.40(3)(d)5.}:

   a) Is the facility a transfer station using a fully enclosed storage system such as a compactor unit that proposes to receive less than or equal to 50 tons per day of solid waste

      ☐ Yes ☒ No

      Identify location of supporting information or comments:
      N/A
      section and/or page numbers

Note: Respond to this question if the answer to question a) above is "Yes."

   b) Is the waste handling area 250 feet or less from any of the following (excluding equipment storage or maintenance structures)

      - an occupied residential dwelling,
      - health care facility
      - prison,
      - Elementary School
      - middle school
      - high school
      - children's' pre-school
      - licensed day care center
      - senior center
      - youth center

      ☐ Yes ☒ No

C. Waste Handling and Processing Facilities {16.40(3)(d)} (cont.)

Identify location of supporting information or comments:

See Site Suitability Application Narrative (Section I, Part H) and Figure 3
section and/or page numbers

Note:
Respond to this question if the answer to question a) above is "No."

c) Is the waste handling area 500 feet or less from any of the following (excluding equipment storage or maintenance structures)

- an occupied residential dwelling,
- health care facility
- prison,
- Elementary School
- middle school
- high school
- children's' pre-school
- licensed day care center
- senior center
- youth center

☐ Yes ☒ No

Identify location of supporting information or comments:

See Site Suitability Application Narrative (Section I, Part H)
section and/or page numbers

6. Riverfront Area {16.40(3)(d)6.}: Will the waste handling area be within the Riverfront Area as defined at 310 CMR 10.00?

☐ Yes ☒ No

Identify location of supporting information or comments:
See Site Suitability Application Narrative (Section I, Part A & Section II, Part C) and Figure 3
section and/or page numbers

C. Waste Handling and Processing Facilities {16.40(3)(d)} (cont.)

7. Two Foot Depth to Ground Water {16.40(3)(d)7.}: Will the maximum high ground water level be less than 2 feet below the surface in any waste handling or processing area?

☐ Yes ☒ No

Identify location of supporting information or comments:
See Site Suitability Application, Groundwater Contour Map (Attachment 3)
section and/or page numbers

If "yes," indicate how the project can be designed to maintain a two foot separation.

Identify location of explanation:

N/A
section and/or page numbers

Section III. General Criteria {16.40(4)}

All applicants should complete all sections of Part III.

Note: When a response includes a description of a potential adverse impact, the applicant should describe both the qualitative and quantitative aspects of the potential impact.

A. Agricultural Land {16.40(4)(a)}

1. Does the site contain any land classified as Prime, Unique, or of State and Local Importance by the United States Department of Agriculture, Natural Resources Conservation Service?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:
   See Site Suitability Application Narrative, Agricultural Land(s) (Section III, Part A), Figure 3, and Attachment 5
   section and/or page numbers

2. Does the site contain any land deemed Land Actively Devoted to Agricultural or Horticultural Uses, except where the facility is an agricultural composting facility?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:
   See Site Suitability Application Narrative, Agricultural Land(s) (Section III, Part A) and Figure 3
   section and/or page numbers

3. Will the facility be less than 100 feet from any land classified as Prime, Unique, or of State and Local Importance by the United States Department of Agriculture, Natural Resources Conservation Service?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:

   See Site Suitability Application Narrative, Agricultural Land(s) (Section III, Part A), Figure 3, and Attachment 5
   section and/or page numbers

A. Agricultural Land {16.40(4)(a)} (cont.)

4. Will the facility be less than 100 feet from any land deemed Land Actively Devoted to Agricultural or Horticultural Uses, except where the facility is an agricultural composting facility?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:
   See Site Suitability Application Narrative, Agricultural Land(s) (Section III, Part A), Figure 3, and Attachment 5
   section and/or page numbers

B. Traffic Impacts {16.40(4)(b)}

1. ENF/EIR Accepted by MEPA

   If the applicant prepared an Environmental Notification Form (ENF) to comply with the requirements of the Massachusetts Environmental Policy Act (MEPA), please attach all portions of the ENF that are relevant to traffic impacts. If the applicant was also required to submit an Environmental Impact Report (EIR) to comply with MEPA, please attach all portions of the EIR relevant to traffic impacts.

   ☒ ENF/EIR traffic impacts attached
   ☐ ENF/EIR not required

   Identify location of attachments or comments:

   See Site Suitability Application Narrative, Traffic Impacts (Section III, Part B), including Traffic Study Overview. See Attachment 6 for Traffic Study.
   section and/or page numbers

2. ENF/EIR Not Required by MEPA

   If no ENF or EIR was required to comply with MEPA, please provide the following information in an attachment:

   a) Maximum number of trips to the site per day by type of vehicle:

   b) Indicate, by vehicle type, the anticipated number of trips that will be made on each of the roads serving the facility.

   c) Identify any intersections, school zones, hospitals, or other locations on the roads serving the facility that may be adversely impacted by traffic accessing the site.

B. Traffic Impacts {16.40(4)(b)} (cont.)

Identify the location of the attached information or comments

See Site Suitability Application Narrative, Traffic Impacts (Section III, Part B), including Traffic Study Overview, and Traffic Study in Attachment 6.
section and/or page numbers

C. Wildlife and Wildlife Habitat {16.40(4)(c)}

The Natural Heritage and Endangered Species Program (NHESP) of the Massachusetts Division of Fisheries and Wildlife administers the programs dealing with the Wildlife and Wildlife Habitats referred to in these questions. The NHESP should be contacted to obtain the information and documentation needed to respond to the questions in this section.

The applicant must obtain a specific response from NHESP regarding the proposed site and attach the response to this application.

1. Habitat of Endangered, Threatened, or Special Concern Animal or Plant: Is the proposed site within the habitat of a state-listed Endangered, Threatened, or Special Concern animal or plant, as documented by the Natural Heritage and Endangered Species Program in its database?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:

   See Site Suitability Application Narrative, Habitat of Endangered Species (Section III, Part C), Figure 3, and Attachment 4. Please note that MassWildlife has provided a letter dated July 22, 2020 stating that "…at this time the site is not mapped as Priority or Estimated Habitat."
   section and/or page numbers

2. Ecologically Significant Natural Communities: Is the proposed site located in or adjacent to an area described on the most recent map of Ecologically Significant Natural Communities as documented by the Natural Heritage Program in its database?

   ☐ Yes ☒ No

   Identify location of supporting information:

   See Site Suitability Application Narrative, Ecologically Significant Natural Communities (Section III, Part C), Figure 3, and Attachment 4.
   section and/or page numbers

C. Wildlife and Wildlife Habitat {16.40(4)(c)} (cont.)

3. Wildlife Management Area: Is the proposed site located in an area adjacent to or with the potential to impact upon a Wildlife Management Area designated and managed by the Division of Fisheries and Wildlife?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:

   See Site Suitability Application Narrative, Wildlife Management Area (Section III, Part C) and Figure 3.
   section and/or page numbers

   Instructions: If the answer to any of the above questions (III.C.1., III.C.2. or III.C.3.) is "yes," and the proposed facility does have the potential to adversely impact one or more Endangered, Threatened, or Special Concern animals or plants or Wildlife Management Area, then answer questions III.C.4. and, if necessary, III.C.5. If the answer to each of the above questions (III.C.1., III.C.2. and III.C.3.) is "no," do not answer question III.C.4. or III.C.5.

4. Adverse Impact on Habitat: Will the proposed site have an adverse impact on the habitat of a state-listed Endangered, Threatened, or Special Concern animal or plant, Ecologically Significant Natural Community, or Wildlife Management Area, as determined by the Natural Heritage and Endangered Species Program? (Attach determination from NHESP.)

   Identify location of supporting information or comments:
   N/A
   section and/or page numbers

   Instructions: If the Natural Heritage and Endangered Species Program has determined there will not be an adverse impact, do not answer question III.C.5. If NHESP determined there is a potential for an adverse impact, respond to question III.C.5.

5. Mitigation of Adverse Impacts: If there is a determination by the Natural Heritage and Endangered Species Program that the proposed facility may potentially impact the habitat of a state-listed Endangered, Threatened or Special Concern animal or plant, Ecologically Significant Natural Community, or Wildlife Management Area, are there any reasonable mitigation measures the proponent may use to minimize or eliminate any adverse impacts?

   ☐ Yes ☐ No

   If "no," then the site is unsuitable and the proposed facility shall not be sited.

   If "yes," then with regard to this criterion the site may be assigned with conditions which will meet Division of Fisheries and Wildlife approval for mitigation of the adverse impacts. The mitigation measures proposed shall be appended to this application.

C. Wildlife and Wildlife Habitat {16.40(4)(c)} (cont.)

Identify location of supporting information or comments:

N/A
section and/or page numbers

D. Areas of Critical Environmental Concern {16.40(4)(d)}

Programs for designating and protecting Areas of Critical Environmental Concern (ACEC) are administered by the Executive Office of Environmental Affairs (EOEA). EOEA should be contacted to obtain the information and documentation needed to respond to the questions in section III.D. Responses by EOEA should be appended to this application.

A specific response from EOEA is not required when EOEA's data show the site is not located near any ACEC.

1. Site Within ACEC: Is the proposed site located within the boundaries of an area designated as an Area of Critical Environmental Concern by the Secretary of EOEA?

☐ Yes ☒ No

Identify location of supporting information or comments:

See Site Suitability Application Narrative, Areas of Critical Concern (Section III, Part D) and Figure 3.
section and/or page numbers

If the answer to question III.D.1. is "yes, the site is not suitable.

2. Site Adjacent to ACEC: Is the proposed site adjacent to an ACEC with the potential to impact the resources designated by the Secretary of EOEA as worthy of protection? (As defined in 16.02, "adjacent" may include areas not contiguous to the boundaries of the site.)

☐ Yes ☒ No

Identify location of supporting information or comments:

See Site Suitability Application Narrative, ACEC Adjacent (Section III, Part D) and Figure 3.
section and/or page numbers

D. Areas of Critical Environmental Concern {16.40(4)(d)} (cont.)

3. Mitigation Measures: If there is a determination by EOEA that the proposed facility may potentially adversely impact the ACEC, are there any reasonable mitigation measures the proponent may use to minimize or eliminate any adverse impacts?

   ☐ Yes ☐ No

   If "no," the site is not suitable.

   If "yes," then with regard to this criterion the site may be assigned with conditions which will meet EOEA approval for mitigation of the adverse impacts. The mitigation measures proposed shall be appended to this application.

   Identify location of supporting information or comments:

   N/A
   section and/or page numbers

E. Protection of Open Space {6.40(4)(e)}

1. State Forests: Will the proposed solid waste management facility have an adverse impact on the physical environment of, or on the use and enjoyment of state forests?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:
   See Site Suitability Application Narrative, State Forests (Section III, Part E) and Figure 3.
   section and/or page numbers

2. State or Municipal Lands: Will the proposed solid waste management facility have an adverse impact on the physical environment of, or on the use and enjoyment of state or municipal parklands or conservation land, or other open space held for natural resource purposes in accordance with Article 97 of the Massachusetts Constitution?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:
   See Site Suitability Application Narrative, State or Municipal Conservation and Park Lands (Section III, Part E) and Figure 3.
   section and/or page numbers

E. Protection of Open Space {6.40(4)(e)} (cont.)

3. MDC Reservation: Will the proposed solid waste management facility have an adverse impact on the physical environment of, or on the use and enjoyment of MDC reservations?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:
   See Site Suitability Application Narrative, MDC Reservations (Section III, Part E) and Figure 3.
   section and/or page numbers

4. Lands Protected by EOEA Restrictions: Will the proposed solid waste management facility have an adverse impact on the physical environment of, or on the use and enjoyment of lands with conservation. preservation, agricultural, or watershed protection restrictions approved by the Secretary of the Executive Office of Environmental Affairs?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:
   See Site Suitability Application Narrative, EOEA Restricted Lands (Section III, Part E) and Figure 3.
   section and/or page numbers

5. Privately Owned Public Conservation Land: Will the proposed solid waste management facility have an adverse impact on the physical environment of, or on the use and enjoyment of conservation land owned by private non-profit land conservation organizations and open to the public?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:

   See Site Suitability Application Narrative, Privately Owned Public Conservation Land (Section III, Part E) and Figure 3.
   section and/or page numbers

F. Air Quality Impacts {16.40(4)(f)}

Instructions: If the proposed facility is a combustion facility, complete only section III.f.1. If the proposed facility is **not** a combustion facility, complete only section III.f.2.

1. Air Quality Impacts: Combustion Facilities

   The Applicant shall, pursuant to the Air Pollution Control regulations, 310 CMR 7.02, submit a complete application to the Department for its review. The application shall be submitted on forms furnished by the Bureau of Waste Prevention. A copy of the permit application shall be appended to this application.

   In addition to the Air Quality Control application, the Applicant shall provide information on any populations within the area impacted by emissions from the facility which might be sensitive to the projected emissions from the facility. Information should include relevant health statistics for the impacted population.

   Identify location of supporting information or comments:

   N/A
   section and/or page numbers

2. Air Quality Impacts: Non-Combustion Facilities

   a) Characterize the possible airborne emissions from the proposed facility. Include the composition and quantity of possible emissions. Indicate how these emissions are expected to vary over the life of the facility. Also characterize any other air emissions associated with the proposed facility such as emissions from vehicles.

   b) Demonstrate that the anticipated emissions from the facility will meet required state and federal air quality standards and criteria and otherwise will not constitute a danger to the public health, safety or the environment. Take into account the concentration and dispersion of emissions, the number and proximity of sensitive receptors and the attainment status of the area.

   Identify location of supporting information or comments:

   See Site Suitability Application Narrative, Air Quality Impacts (Section III, Part F).
   section and/or page numbers

G. Nuisance Conditions {16.40(4)(g)}

For each of the following nuisance conditions that could occur during the construction and/or operation of the proposed facility, indicate the extent of the possible nuisance conditions and the measures that will be taken to mitigate or prevent the occurrence of the nuisance condition:

- Noise,
- Dust,
- Litter;
- Vectors such as rodents and insects,
- Odors,
- Bird hazards to air traffic, and
- Other nuisance conditions (please specify).

Identify location of supporting information or comments:

See Site Suitability Application Narrative, Nuisance Conditions (Section III, Part G).
section and/or page numbers

H. Size of Facility {16.40(4)(h)}

Explanation: The information requested in this section is needed to determine whether the size of the site, considering access roads, areas for vehicles to wait before unloading, unloading facilities, storage areas, waste processing areas and pollution control equipment, is adequate for a facility with the proposed daily capacity.

1. Discussion: Discuss the waste delivery, unloading, and handling (including processing and storage) activities and pollution control equipment to demonstrate whether the size of the site is adequate to properly manage the proposed facility. Be specific with respect to the proposed capacity of the facility.

   Identify the location of supporting information or comments:

   See Site Suitability Application Narrative, Size of the Facility (Section III, Part H).
   section and/or page numbers

2. 100 Foot Set Back: Will the waste handling area or deposition area be less than 100 feet from any property boundary except where the property boundary borders a separate solid waste management facility?

   ☒ Yes ☐ No

H. Size of Facility {16.40(4)(h)} (cont.)

Identify location of supporting information or comments:

See Site Suitability Application Narrative, Size of the Facility (Section III, Part H) and Figures 4 and 6.
section and/or page numbers

I. Areas Previously Used for Solid Waste Disposal {16.40(4)(i)}

1. Previous Solid Waste Activities: Have the proposed site or any of the abutting properties been previously used for the legal or illegal disposal of solid wastes?

☒ Yes ☐ No

Identify location of supporting information or comments:
See Site Suitability Application Narrative, Areas Previously Used for Solid Waste Disposal (Section III, Part I).
section and/or page numbers

If "yes," please supply the following information and append to this application:

a) Address: The address of the area previously used for the disposal of solid waste,

b) Owner: The owner and the address of the owner of the area previously used for the disposal of solid waste,

c) Dimensions: The dimensions of the area previously used for the disposal of solid waste,

d) Status: Current status of the area previously used for the disposal of solid waste (e.g., active, inactive),

e) Impacts on Site: The nature and extent to which the area previously used for the disposal of solid waste currently impacts or threatens to impact the proposed site,

f) Impacts of Site: The nature and extent to which the proposed site may impact the area previously used for the disposal of solid waste,

g) Combined Impacts: The nature and extent of any combined impacts from the area previously used for the disposal of solid waste and the proposed facility to public health, safety or the environment (Include factors such as ground water contamination and surface water runoff.),

h) Mitigation: The extent to which use of the proposed site would result in mitigation of existing or potential impacts from the previously used site through remediation, closure or other activities.

I. Areas Previously Used for Solid Waste Disposal {16.40(4)(i)} (cont.)

Identify location of supporting information or comments:

See Site Suitability Application Narrative, Areas Previously Used for Solid Waste Disposal (Section III, Part I).
section and/or page numbers

J. Existing Disposal Facilities {16.40(4)(j)}

1. Existing Disposal Facilities in Municipality: Are there any existing (active or inactive) disposal facilities (solid waste landfills or combustion facilities) in the municipality in which the proposed site is located?

   ☒ Yes ☐ No

   Identify the location of supporting information or comments:

   See Site Suitability Application Narrative, Existing Disposal Facilities (Section III, Part J).
   section and/or page numbers

2. Exclusive Use of Facility: Will the proposed facility be limited to the exclusive use of the municipality in which the proposed facility is to be sited?

   ☐ Yes ☒ No

   Identify the location of supporting information or comments:
   See Site Suitability Application Narrative, Existing Disposal Facilities (Section III, Part J)
   section and/or page numbers

   Instructions: If the answer to III.J.1. is "yes" and the answer to III.J.2. is "no," please provide the information requested in III.J.3. Otherwise, go on to question III.K.

3. Existing Facility Identification: Provide the following information about the existing disposal facility or facilities in the municipality in which the proposed site is located:

   a) Existing facility identification (name, address, type of facility):

   b) How much of the waste (tons/day) accepted at the proposed facility will be generated in the municipality in which the facility is located?

   c) What percentage of the waste accepted at the proposed facility will come from the municipality in which the site is located?

J. Existing Disposal Facilities {16.40(4)(j)} (cont.)

d) Discuss to what extent the proposed facility meets the needs of the region in which the site is located.

e) Explain to what extent the proposed facility incorporates recycling, composting and waste diversion. (Refer to other responses, if appropriate.)

Identify the location where the information is attached:

See Site Suitability Application Narrative, Existing Disposal Facilities (Section III, Part J)
section and/or page numbers

K. Other Sources of Contamination or Pollution {16.40(4)(k)}

Attach an evaluation of whether the projected impacts of the proposed facility pose a threat to public health, safety or the environment, taking into consideration the impacts of existing sources of pollution or contamination as defined by the Department, and whether the proposed facility will mitigate or reduce those sources of pollution or contamination.

The Department has prepared a guidance document that describes how to make this evaluation. The document is titled, *Interim Risk-Evaluation Guidance Document for Solid Waste Site Assignment and Permitting in Support of 310 CMR 16.00 and 19.000* (initially published June 8, 2001, and most recently revised on March 22, 2006). This guidance document, including its title, will be revised from time to time. Please contact the Department or visit the Department's web site to obtain the most recent version of the guidance document.

The applicant should contact the Department to discuss the scope of work prior to undertaking the evaluation.

Identify the location of the attached evaluation:

See Site Suitability Application Narrative, Other Sources of Contamination or Pollution (Section III, Part K)
section and/or page numbers

L. Regional Participation

1. Municipal Participation in Regional Disposal: Does the municipality in which the proposed site is located now participate in a regional disposal facility?

   ☐ Yes ☒ No

   Identify location of supporting information or comments:
   See Site Suitability Application Narrative, Regional Participation (Section III, Part L)
   section and/or page numbers

   Instructions: If the answer to question III.L.1. is "Yes," supply the information requested in question III.L.2. Otherwise, go on to part IV.

2. Proposed Facility: Provide the following information about the proposed facility:

   a) How much of the waste (tons/day) accepted at the proposed facility will be generated in the municipality in which the facility is located?

   b) What percentage of the waste accepted at the proposed facility will come from the municipality in which the site is located?

   c) Discuss to what extent the proposed facility meets the needs of the region in which the site is located.

   d) Explain to what extent the proposed facility incorporates recycling, composting and waste diversion. (Reference other responses, if appropriate.)

   Identify the location of the information or comments:
   See Site Suitability Application Narrative, Site Location and Project Description (Section I, Part A)
   section and/or page numbers

Section IV. Integrated Solid Waste Management {16.40(5)}

Instructions: Complete Part IV only if site assignment is sought for a **Landfill** or **Combustion** facility.

It is likely that the information requested in Part IV will have been included in the EIR submitted to complete the MEPA process. If this is the case, the applicant should attach the relevant sections from the EIR that was accepted by the Secretary of EOEA. If all the information requested below is not included in the EIR attach additional information.

In order to complete this section, the Applicant will need information on the Commonwealth's goals for recycling and composting and for establishing a statewide integrated solid waste management (ISWM) system. This information is contained in the Commonwealth's Solid Waste Master Plan which is available on the DEP's web site or by calling the DEP. The Master Plan is periodically revised and may be updated by issuing annual Status Reports, so it is important to make sure you have the current version before completing this application.

A. Capacity Need {16.40(5)(a)1.}

Demonstrate the need for the capacity that will be provided by the proposed facility. For each year of the expected life of the proposed facility identify the sources (residential, commercial, industrial) of the solid waste that will supply the amount of waste equal to the proposed capacity. Please be as specific as possible in identifying "sources." Include the municipalities in which the waste will be generated and the type of waste (demolition/construction, wood waste, sludge, ash, special wastes, commercial wastes, household wastes, etc.).

Show how the capacity that will be provided by the proposed facility will contribute to providing the capacity needed by the Commonwealth as identified in the most recent Solid Waste Master Plan and/or most recent annual Status Report.

B. Waste Diversion {16.40(5)(a)2.}

Explain how the proposed facility will maximize the diversion of recyclable and compostable materials from the waste prior to combustion or landfilling. Include a discussion of how the proposed facility will coordinate with other facilities or programs to maximize the diversion.

C. Contribution to ISWM {16.40(5)(a)3.}

How will the proposed facility contribute to the establishment and maintenance of a statewide system for integrated solid waste management? Include a discussion of how the proposed facility will complement the other facilities in the service area.

D. Recycling and Composting {16.40(5)(b)}

Explain to what extent the proposed facility itself incorporates recycling and composting and explain how the proposed facility will be integrated into the recycling and composting activities in the service area.

Identify the location of the information requested in Part IV:

N/A
section and/or page numbers

Section V. Waivers

A. Site Suitability Criteria Waiver {16.40(6)}

The Site Suitability Criteria Waiver Application should be completed only if the applicant is seeking a waiver from one or more of the Site Suitability Criteria set forth in the Site Assignment Regulations, 310 CMR 16.40(3) or the setback distance at 310 CMR 16.40(4)(h). (The intention to seek a waiver must be noted in Part I of the Site Assignment Application Form.)

Note: As required by 310 CMR 16.08(5)(c), an application for a waiver must be accompanied by all data and documentation necessary to support the waiver request.

☒ Check here if a waiver from the Site Suitability Criteria is requested.

Identify the location of the information requested in V.A.1 through V.A.9:

See Site Suitability Application Narrative, Waivers (Section V)
section and/or page numbers

1. Criteria: Identify the Site Suitability Criteria in 310 CMR 16.40(3) or 310 CMR 16.40(4)(h) from which a waiver is sought and for each explain the nature of the waiver being requested.

2. Hardship: State the nature of the hardship which would result if a waiver were not granted.

3. Interest Served: State the community, regional or state public interest that would be served by granting the waiver.

4. Maintain Protection: Explain why granting the waiver will not result in less protection of the public health and safety and the environment than would exist in the absence of the waiver.

5. Alternative Site: Explain why the proposed facility cannot be located at another site in the affected municipality or region at which a waiver would not be needed.

6. Preferred Municipality: Is the proposed site located in a preferred municipality as defined in MGL c.111, s. 150A1/2? (A "preferred Municipality" is a municipality that does not have existing disposal facilities and is not part of a regional waste disposal district.)

7. Environmental Benefit: Will granting the waiver result in any environmental benefits in excess of those benefits achievable in the absence of a waiver? Explain.

8. Integrated Solid Waste Management: Explain how the proposed facility contributes to integrated solid waste management.

9. Waiver Needed for Project Goals: Explain why the solid waste management objectives of the proposed project could not be achieved in the absence of the waiver.

B. Waiver from Application Process {16.18}

This waiver application should be completed only if the applicant is seeking a waiver from one or more of the provisions of Part I (310 CMR 16.01-16.19) of the Site Assignment Regulations that deals with the application process. (The intention to seek a waiver must be noted in Part I of the application form .)

Note: As required by 310 CMR 16.08(5)(c), an application for a waiver must be accompanied by all data and documentation necessary to support the waiver request.

☐ Check here if a waiver from the Application Process is requested.

Identify the location of the information requested in V.B.1 through V.B.4.

1. Regulatory Provision: Identify the provision of the regulations from which a waiver is being requested and explain the specific nature of the request.

2. Interest Served: State the community, regional or state public interest that would be served by granting the waiver.

3. Interference with Suitability Evaluation: State why the granting of the waiver would not interfere with the ability of the Board of Health to evaluate the Suitability of the proposed site.

4. Public Review and Comment: State why granting the waiver would not diminish the ability of the general public to review and comment on the proposed project.

VI. Signatures and Certification {16.08(5)(e)}

A. Land Owner's Signature

Where the applicant is not the owner of the legal title to the land described as the "site" in this application, the owner or other person with control of the site pursuant to an order of a court of competent jurisdiction shall sign the application here:

7/16/21
Anthony C. Martignetti- President
887 Woburn, LLC

Frank LoConte - President
867 Woburn Street, LLC
Owner's Signature

B. Applicant's Signature and Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties both civil and criminal for submitting false information including possible fines and imprisonment.

Applicant's Signature
7/16/21
Date

Agent's Signature
7/16/2021
Date

Site Suitability Introduction

Introduction

Green Seal Environmental, LLC (GSE) has prepared the following document for the Massachusetts Department of Environmental Protection (MassDEP) on behalf of 887 Woburn, LLC (the "Applicant" or "887 Woburn") with the authorization of the property owners (887 Woburn, LLC and 867 Woburn Street, LLC) for the proposed property to be site assigned (Identified as 867, 885, and 889 Woburn Street in Wilmington, Massachusetts).

This application provides the necessary information for MassDEP to find the facility suitable to handle construction and demolition debris (C&D), limited to a total of 500 tons/day and 182,500 tons annually, pursuant to the siting criteria of 310 CMR 16.00 applicable to this proposed site.

Information contained herein includes a Site Suitability Application (BWP SW 01), supporting narratives, attachments, and figures for the proposed site and surrounding area as required under 310 CMR 16.00.

How to Use This Document

This document coincides with the format of the MassDEP's Site Suitability application and contains the following information:

- Site Suitability application form (BWP SW 01) provided by MassDEP;
- A narrative that provides required information relative to each individual suitability criteria;
- Attachments that supplement certain sections of the application corresponding with that particular section (e.g., traffic analysis, MEPA, and NHESP); and
- Figures/plans for comparison to the Site Suitability Criteria such as Water Resources and Land Uses, Existing Conditions, and Proposed Conditions.

Non-Applicability

In the sections of the Site Suitability Application that do not pertain to the project, the statement ***"not applicable"*** will appear. However, some of these sections will contain a narrative and/or justification statement. Where a statement is determined to be necessary, the reader will be directed to the appropriate section within this document and any supporting attachments or figures.

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Section I. General Information

Introduction

The following sections are addenda to the General Information section contained within the Site Suitability application and address the following topics:

- Site Location
- Project Description
- About the Applicant
- Fees
- Collection of Household Hazardous Waste
- Declaration of Waivers
- Massachusetts Environmental Policy Act (MEPA)
- Wetland Resources
- Maps Narrative

Section I Table of Contents

The following Section I table of contents references page numbers of this document, not the application forms.

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Site Location and Project Description (A)

Site Location

887 Woburn has proposed to construct and operate a 500 tons/day solid waste (Construction and Demolition (C&D) Materials) handling and transfer station (the "Facility"). The proposed Facility consists of the construction of an approximately 37,000-square foot solid waste transfer/waste handling building as well as a rail yard; scale house and scales; parking areas; site grading and paving; and associated appurtenances. Additionally, a series of catch basins, drainage manholes, and subsurface infiltration systems will be incorporated into the design plans, which will manage stormwater in compliance with the Massachusetts Stormwater Standards and the Town of Wilmington Stormwater Management Regulations.

The proposed Facility will be located on 3.37 acres of land (the Site) and is comprised of three (3) current parcels (1.28 acres, 1.19, and 0.9 acres in size) which are to be combined and re-subdivided in the near future into two parcels (Lot 1- 68,147 sf and Lot 2- 146,580 sf). The area to be site assigned within these parcels will be comprised of 3.16 acres located in the General Industrial Zone. Please refer to Figure 4 that depicts the three parcels that make up the Site and Figure 10 that depicts the area that is proposed to be site assigned within these parcels.

The proposed Facility is designed to accept C&D delivered by truck for subsequent transfer into rail cars and secondarily as conditions dictate, larger trucks for transport to various locations throughout the country for disposal and/or further recycling. The waste handling area (enclosed building) has been sized so that all unloading, handling, processing, and loading onto rail cars and/or trucks will occur within the building interior. Please refer to Figures 6 and 7 for further detail.

887 Woburn intends to handle (including processing and transfer) up to 500 tons per day (TPD) of C&D with a maximum annualized capacity of 182,500 tons. As presently proposed, the Facility will operate 7 days per week, 24 hours per day, subject to limitations that may be administered by the Town of Wilmington (e.g., Planning Board or Board of Health).

Based upon a maximum daily capacity of 500 TPD and a seven (7) day operating week, the maximum annual capacity is requested to be 182,500 tons per rolling calendar year.

Continued on next page

Site Location and Project Description (A), *Continued*

Type of Facility

887 Woburn is proposing to construct a state-of-the-art C&D handling and transfer Facility with an integrated rail line. The waste handling will be performed entirely within the proposed approximate 37,000-square foot metal framed/sheathed building. The confines of the building will include tipping and inspection areas, temporary waste storage areas, and outbound rail and truck loading areas.

Site Area

The Site is located on three current parcels of land (to be combined and re-subdivided into two parcels in the future). Two of the three parcels have an extensive industrial history as a disposal site and is currently nearly entirely paved with multiple structures. The Site was formerly used as a pig farm prior to 1950 and was used as a salvage/junkyard, waste transfer station and waste incineration site by John Hutchinson & Richard Bertrand in the 1950's. The Site was then leased to E.C. Whitney Barrel Recycling as a waste transfer station, salvage yard, barrel recycling and other harmonious uses. E.C. Whitney Barrel eventually purchased the property and continued operating and expanded their barrel recycling and reconditioning business amongst other activities. Some of E.C. Whitney's waste and recycling activities on the property included Solid Waste Transfer Station, recycling scrap metal, plastics, computer parts, tires/ rubber, paper, cardboard, film, barrels, air conditioners, wood, construction materials, and more.

The site was officially classified as a disposal site on December 1, 1979. While continuing their businesses operations on site, E.C. Whitney conducted Phases 1 through 4 assessments under the Massachusetts Contingency Plan and in 2009 filed for Financial Inability.

In 2017 887 Woburn, a party with no connection to any activity on site, purchased the property. 887 Woburn has spent significant financial resources to remediate the site. The amount of debris scattered throughout the site from waste and recycling activities was extensive. Thousands of tons of solid waste had been piled approximately three stories high in the rear of the property, much of which had been sitting for over a decade. Piles of solid waste were over one-story high on both the northern and southern areas of the site as well. 887 Woburn has since followed MCP direction under their LSP and are currently developing a plan to close out the site in connection with this development plan.

Continued on next page

Site Location and Project Description (A), Continued

Site Area, continued

The site abuts existing rail on the westerly side and Industrial Properties on both the north and south. There is an existing rail easement on-site for an existing freight rail spur that services the property. The proposal includes an approximately 37,000-square foot clear-span, metal-framed building, which will be constructed on site. All proposed waste handling activities will be conducted inside the building.

Capacity

The Applicant proposes permitting a C&D handling and transfer Facility with a rail component:

a. The proposed Facility will have a maximum daily capacity of 500 TPD.

b. The Facility will operate seven (7) days per week, Monday through Sunday. Based upon a maximum daily capacity of 500 TPD and a seven (7) day operating week, the proponent requests and annualized capacity of 182,500 tons per year.

c. As presently proposed, the Facility will operate 7 days per week, 24 hours per day, subject to limitations that may be administered by the Town of Wilmington (e.g., Planning Board or Board of Health) and at the discretion of the Facility (holidays, market conditions, etc.)

d. The Facility is expected to have a lifetime of approximately 30 years, although likely to be greater.

e. Based upon the projections given above, the estimated lifetime capacity for the Facility is 5.5 million tons.

Continued on next page

Site Location and Project Description (A), *Continued*

Type of Waste

The Facility will handle and transfer C&D materials. As defined by MassDEP, construction and demolition waste is waste building materials and rubble resulting from the construction, remodeling, repair or demolition of buildings, pavements, roads, or other structures. Construction and demolition waste includes but is not limited to, concrete, bricks, asphalt pavement, masonry, plaster, gypsum wallboard, metal, lumber, and wood.

The types of C&D anticipated to be accepted at this Facility include:

Category 1- C&D Waste (unpicked or partially picked) – Partially picked C&D Waste may include, but is not limited to, materials that have been previously kick-sorted off-site for removal of metal, large pieces of wood, bulky waste and zero-tolerance items.

Category 2- C&D Waste (pre-processed) – Partially processed C&D Waste may include, but is not limited to, materials that have been previously kick-sorted or processed off-site but still may have the ability for the extraction of further recyclables.

Category 3- Bulky Waste – This is a waste item resulting from commercial or residential activities with a low potential for recovering recyclable materials. Bulkies are generated during commercial or residential building cleanouts and include items not generally accepted during the pickup of the typical daily waste stream generated by commercial and residential activities (e.g., furniture, carpets, mattresses, toys, temporary partitions, etc.).

No hazardous wastes will be accepted.

Disposal in Wilmington

There are no active combustion facilities or landfills in Wilmington as listed on the MassDEP Solid Waste Facilities Master List. The MassDEP Solid Waste Facilities Master List includes the following four inactive or closed landfills in Wilmington:

- Maple Meadow Landfill - located 0.64 miles from the subject site
- Olin Chemical Landfill- located 120 feet from the subject site
- Wilmington Dump - located 3.89 miles from the subject site
- Wilmington Landfill - located 4.66 miles from the subject site

Continued on next page

Site Location and Project Description (A), Continued

Disposal in Wilmington, continued

The Woburn Landfill is also located approximately 800 feet from the Site, however the landfill is capped and closed.

Waste Flow

The following describes how waste will flow on-site:

1. Vehicular ingress and egress will be from/to Woburn Street on the east of the subject property.
2. The ingress traffic pattern follows along a paved driveway that runs along the perimeter of the parcel from east to north to the inbound and outbound scales. This area provides for queuing, two scales, scale house, and a bypass lane to ensure there is no queuing on Woburn Street. The scale house is to be located in between the two scales. Scale house personnel will be able to monitor inbound and outbound traffic patterns. The Facility can utilize both scales for inbound and/or outbound operations if ever deemed necessary.
3. From the inbound scale, delivering waste vehicles would proceed counter-clockwise around the building to the paved tarmac area on the south side of the proposed handling building. The vehicle will back into one of the four inbound tipping doorways. A fifth doorway in the southwest corner is reserved for railcars or outbound live floor tractor trailers. Please see Figures 6 and 7 which depict the exterior site layout and interior layout of the waste handling building, respectively, and Figure 8, which includes a Traffic Movement and Turning Radius Plan. It should be noted that there is adequate access and turning radii to provide access around the entire building. This paved access around the building can also be utilized for vehicle staging/queuing if it is ever necessary.
4. Once in the building, the inbound waste vehicles will tip their loads and exit out of same inbound doorway in which they entered located along the south side of the waste handling building.
5. Exiting vehicles would proceed from the waste handling building around the building in a clockwise direction and await tare-out by communicating with scale house staff.

Continued on next page

Site Location and Project Description (A), Continued

Waste Flow, continued

Additionally, by having the scale house located where it is proposed, on-site logistics with respect to traffic patterns, staging, tare in, and tare out is well served, can be more easily monitored, and create efficient flow and functionality.

Building Size, Elevations and Doorways

The proposed waste handling building has general envelope dimensions of 219 feet (east to west) by 210 feet (north to south) along the longest north and east walls. The building's footprint allows for one typical 65-foot gondola rail car to be in the waste handling building at one time. Figures 6 and 7 depicts the following:

1. Building dimensions.
2. Dimensions of the Tipping and Waste Inspection Area, Outbound Loading Area, Temporary Waste Storage Area, and Railcar Staging areas. These areas will be discussed in further detail within the Size of Facility section of this narrative.
3. The location and approximate size of the proposed doorways.
4. Locations of the interior trench drain system including the associated wastewater storage/holding tank.
5. Pushwall locations and proposed wall heights.

The proposed building height will be approximately 40 feet at the peak that will run in an east to west direction.

Site Location and Project Description (A), *Continued*

Tipping Overview

The Facility's operational protocols will require personnel to inspect and oversee waste tipping activities. The following table outlines 887 Woburn's proposed procedure, subject to revision as operations are finalized and during subsequent operational permitting with MassDEP.

Step	Action
1	An incoming driver is prompted to back his/her vehicle up and onto the concrete tipping area.
2	Facility personnel will direct the driver to tip the waste in one of several designated areas.
3	The load is inspected by trained Facility personnel for unacceptable materials (e.g., visible waste ban materials).
4	Pending an acceptable inspection, the vehicle exits the waste handling area within the building and heads towards the outbound scale.

Waste Consolidation & Processing

The following table outlines 887 Woburn's proposed procedure for waste consolidation and processing within the building, subject to revision as operations are finalized and during subsequent operational permitting with MassDEP.

Step	Action
1	Pending an acceptable inspection and safe vehicle exit, the tipped waste materials will be pushed to the waste staging area located within the northern portion of the building. Note that "non-processable" waste will be kick-sorted out prior it being fed into the processing line.
2	The waste materials will then be placed into the feed hopper of the C&D processing line where various pieces of equipment and manpower will extract the recyclable commodities (e.g. wood, cardboard, metals, aggregates, etc.)
3	The materials will be managed by a front-end loader and/or excavator.
4	With respect to the handling of Category 1 & 3 (Recyclable C&D), this material will be either be processed on-site or consolidated for off-site shipment to a MassDEP-approved C&D processor following the requirements of 310 CMR 19.017.

Given the space, proper vehicle movement throughout the building can be achieved.

Continued on next page

Site Location and Project Description (A), *Continued*

Railcar or Live Floor Loading Operations

The following table outlines 887 Woburn's proposed procedure for railcar or truck loading within the building subject to revision as operations are finalized and during subsequent operational permitting with MassDEP.

Step	Action
1	A front-end loader and/or excavator will transport non-recyclable waste [residual/Category 2] from the waste tipping and inspection area and from the discharge points associated with the C&D processing line.
2	The materials will be directly loaded into a live floor truck and/or rail car located in the proposed outbound loadout area.
3	The rail cars and/or trucks will be covered with an appropriate cover for subsequent staging and transport to the final disposal destination.

Impervious Surfaces

Presently, the Site is nearly covered by impervious surfaces including pavement and existing buildings. Based on the proposed improvements, the impervious surfaces will likely not be increased.

Stormwater

All designs associated with stormwater management and treatment will comply with the Massachusetts Stormwater Standards as well as requirements set forth by the Town of Wilmington (Wilmington Stormwater Management Regulations). Preliminary concepts for stormwater control include deep sump catch basins with hoods, oil/water separators, and proprietary separators. Infiltration of roof runoff will be evaluated for appropriateness in consideration of the site history and MCP-efforts related to RTN-0001787.

Impacts to Associated Wetland and Riverfront Resource Areas

The site is not within Riverfront Area, floodplain, or has any wetlands located on the property. There are wetlands located to the west of the site on the Olin Chemical Superfund Site property in which the 100-foot buffer zone just crosses onto the 887 Woburn Site based on MassGIS mapping. In consideration that the MBTA rail line exists between the wetlands and the Site and the Site is currently disturbed, no impacts to wetlands will occur.

Continued on next page

Site Location and Project Description (A), *Continued*

Facility BMPs

The Facility will be developed using state-of-the-art Best Management Practices (BMPs) to minimize potential impacts to the Site and surrounding environment. A partial list of BMPs that will be incorporated into the Facility are as follows:

- All tipping, handling, and loading will be performed within a fully-enclosed handling building.
- The building floor is designed as impervious concrete that will prevent any potential contamination of groundwater. Any liquids released from the waste will be collected in a floor drain system. The liquid collected in this system will be gravity fed to a wastewater holding tank, which will be periodically trucked off site for disposal at a wastewater treatment plant. Please note that sewer is available on-site and should this discharge be allowed to enter the MWRA Sanitary Sewer system, connection permits will be sought.
- Use of a fine atomized misting system within the handling building will effectively control fugitive dust and odor in the building.
- Regular daily cleanup and sweeping will occur on the external paved surfaces.
- Enhanced stormwater controls that meet or exceed MassDEP Stormwater Standards and Town of Wilmington Stormwater Management Regulations.

Applicant Identification (B)

Applicant

The Applicant is 887 Woburn, LLC, which has a corporate address of 887 Woburn Street, Wilmington, Massachusetts 01887. The Site (3.16 acres to be site assigned) is comprised of three parcels presently owned by the following entities:

Property Owner	Size	Description
887 Woburn, LLC	1.28 Acres per Deed & Assessors Actual 1.16 acres per referenced Deed Plan	885 Woburn Street Book 31143 – Page 147 Parcel ID 37-4A
887 Woburn, LLC	1.19 Acres per Deed & Assessors Actual 0.90 Acres per referenced Deed Plan	889 Woburn Street Book 31143 – Page 147 Parcel ID 37-4
867 Woburn Street, LLC	1.30 Acres (2.87-acre lot subdivided into 1.30 and 1.56-acre parcels)	867 Woburn Street Book 30100 – Page 76 Parcel ID 37-5

As noted above, the deeds for 885 and 889 Woburn Street indicate lot sizes larger than the calculated lot area on the referenced deed plan. Therefore, the assessor's database also incorrectly lists the acreage for the two properties as well. Actual calculated lot sizes from the referenced plan (Plan 97) in the deeds are provided above. The properties combined total 3.37 acres of which 3.16 acres will be site assigned. Please see Figures 4, 5, 6, and 10 that depict the combined property line and the proposed Site Assignment limits and relationships to various setbacks relevant to 310 CMR 16.40.

Fees, Household Hazardous Waste, Waivers (C-E)

Fees

As part of the site suitability process, the Wilmington Board of Health will assess 887 Woburn a Technical Fee. The Board of Health may use the fee for eligible costs of reviewing technical data, obtaining technical assistance, and conducting a public hearing. The maximum allowable technical fee that the Board of Health can assess is computed per 310 CMR 16.00 and is based on the type of Facility and the tons of waste accepted per day.

From 310 CMR 16.99 Appendix A, Table 2, the Maximum Technical Fee for Handling Facilities is based on the maximum daily volume of waste, measured in tons per day (TPD), that is proposed to be accepted at the Facility. 887 Woburn is proposing to accept up to 500 TPD of C&D at the Facility. The Maximum Technical Fee for the proposed Facility capacity is as follows:

- Maximum Fee = $3,000 + (500 TPD x $20.00/TPD) = $13,000.00

The total of the Maximum Technical Fee ($13,000) is required be adjusted for inflation by a factor determined by the ratio of the Boston Consumer Price Index ("BCPI") for September of the year preceding the current year, divided by the BCPI for September 1988. Per information provided by the U.S. Department of Labor, Bureau of Labor Statistics, the BCPI for September 2020 was 283.39 and for September 1988 were 126.2.

Applying the adjustment factor results in the following Maximum Technical Fee for the proposed Facility = $13,000 x (283.39/126.2) = $29,192

As summarized in a letter dated May 1, 2021, an initial fee payment of $15,000 was made to the Board of Health and additional payments will be made commensurate with the project progress. Please see Attachment 1 for a copy of the check and the referenced May 1, 2021 letter.

Household Hazardous Waste

The Applicant is not applying, pursuant to the Massachusetts Hazardous Waste Regulations (310 CMR 30.000, section 30.190), for approval to operate a Facility for the collection of Household Hazardous Waste. Oil and hazardous waste storage on-site will consist of limited quantities of spent hydraulic oil, motor oil and anti-freeze generated from servicing on-site equipment.

Continued on next page

Fees, Household Hazardous Waste, Waivers (C-E), Continued

Household Hazardous Waste, continued

Furthermore, if Household Hazardous Waste is found during inspections, the oil and/or hazardous material will be placed in a secured and approved container for subsequent removal and proper disposal.

Waivers

887 Woburn is requesting a waiver from property line setbacks per 310 CMR 16.18. A setback of 75 feet to the east, west, and north property lines are proposed. As the building is situated with tipping doors to the south, the northern, western, and eastern building walls will provide an equally protective buffer to the adjacent properties from noise, dust, and other potential operational nuisance conditions. Only mandoors providing emergency access out of the building will be located along these sides of the building and will not be commonly used nor open.

The property to the north has provided a letter of support for the reduced setback. No sensitive receptors exist to the west along the MBTA rail line with the wooded Olin Chemical Superfund site beyond, making a reduced setback appropriate in those directions. GSE expects to address the 75-foot setback with the Town during the Site Assignment process.

Priority Resources and Land Uses (F-H)

MEPA

According to 310 CMR 16.08(5)(d), the Applicant must provide evidence that the proposed project does or does not require review under the Massachusetts Environmental Policy Act (MEPA).

887 Woburn has completed the MEPA process under file number EEA# 16266, with the following reports submitted and certificates received to date:

Report Submitted	MEPA Certificate Date
Environmental Notification Form	October 9, 2020
Draft Environmental Impact Report	March 1, 2021
Final Environmental Impact Report	April 30, 2021

A copy of the Secretary's Certificate's for the FEIR is included in Attachment 2.

Wetlands Resources

Wetland resource areas are not present on the proposed Site but do exist within the Olin Chemical Superfund Site Property located to the west of the Site as shown on the attached Water Resources Plan (Figure 2). The nearby wetland boundaries and the 100-foot wetland buffer zones are based on MassGIS and the depiction of the 100-foot buffer zone associated with wetlands located on the adjacent Olin Chemical property. The existing MBTA Commuter Rail - Lowell line property is located between the Site and the wetland system. The buffer zone to the west of the rail is heavily vegetated, whereas the buffer zone within the MBTA rail property and the Site is currently developed with little to no vegetation.

The proposed building and immediately surrounding pavement are approximately 100 feet from the wetlands buffer area. However, a limited area of the wetlands buffer extends partially onto the site along the western perimeter. Given the Site is separated from the wetlands by the MBTA Lowell Rail lines and the existing rail spur, the Facility is not expected to have any impact on the wetlands. Stormwater controls will be constructed as part of site redevelopment to mitigate risk of stormwater sediment release and to ultimately improve stormwater runoff in this area.

Continued on next page

Priority Resources and Land Uses (F-H), Continued

Riverfront Area

The Site is not located within Riverfront Area as defined within 310 CMR 10.00. Please refer to Figure 2 that shows no Rivers (as defined by 310 CMR 10.58 (2) 1.a.) are located in proximity to the Site.

The proposed Project complies with the requirements of 310 CMR 16.40(3)(d)(6).

Floodplain

The Site is not located within a 100-year Floodplain as defined within 310 CMR 10.00. Please refer to Figure 2 that shows no floodplain (as defined by 310 CMR 10.58 (2) 1.a.) are located in proximity to the Site.

Depth to Groundwater

The Facility will maintain at least a two-foot separation between the maximum high groundwater elevation and the waste handling area. A groundwater contour map of the subject site has been developed as part of the MCP remediation activities being undertaken at the site by the LSP, Mark Germano and is included in Attachment 3.

Seasonal High Groundwater elevations across the site are estimated to be approximately 2 feet above groundwater elevation based on comparison of redoximorphic conditions and groundwater elevations observed during test pit activities in November 2020. Using groundwater contours developed as part of MCP activities, seasonal high groundwater in the vicinity of the proposed handling building was conservatively estimated to be at El. 77.

The Proposed Conditions Plan-Interior, which is Figure 7, identifies the proposed finished floor and trench drain elevations (FF El. 84.5 with trench drain at El. 79) which satisfies the requirements of 310 CMR 16.40(3)(d)(7).

Maps

The following section addresses plans and figures that GSE has prepared for the proposed project. Please refer to the Figures section at the end of this compiled report.

Continued on next page

Priority Resources and Land Uses (F-H), Continued

Groundwater Contour Map

A groundwater contour map of the subject Site was developed by the Site's LSP that is overseeing work related to historical contamination on site under RTN# 3-1787. The groundwater mapping shows groundwater flow to be generally from north to south at an approximate elevation between 3 and 5 feet below ground surface. Existing topography at the Site in the general location of the proposed waste handling building is between El. 77 and 82 feet (NAVD 88) as shown on Figure 5, the Existing Conditions Plan. Floor elevation of the proposed building is conceptually set at El. 84.5, with the rail at El. 80.5; resulting in between 2.5 and 7.5 feet of fill required over existing grades. In consideration of groundwater, existing topography and the proposed handling building floor grades, separation to groundwater can and will be achieved. As indicated in the above Depth to Groundwater section, separation to seasonal high groundwater has been assessed and required separation is achievable.

Figure 7 "Proposed Conditions - Interior" identifies the proposed slab elevations which satisfies the requirements of 310 CMR 16.40(3) (d) (7).

Locus Map

The following table provides pertinent information relative to the "Locus Map." Please refer to Figure 1 and the Site Plan (Figure 6) for Site referencing locus information.

Quad Name and Date	Wilmington (Massachusetts) - 2015
Latitude and Longitude	Lat: 42.5255 N, Long: -71.1489 W
UTM Coordinates	1061251.79 E, 15454177.2 N (feet)
Elevation above MSL	Approximately 77+ feet above Mean Sea Level

Continued on next page

Priority Resources and Land Uses (F-H) *Continued*

Priority Resources

The following table provides a brief narrative of the priority resource features found within ½-mile radius of the Site. Please refer to the Water Resources Plan (Figure 2), the Land Use Plan Figure 3), Property Identification and Zoning Map (Figure 4), the Existing Conditions Plan (Figure 5), and the Proposed Conditions Plan – Exterior (Figure 6) of this application for more information on these features.

Regional Details (1/2-mile radius)	Description
Wetlands	The Water Resources Plan (Figure 2) depicts wetlands as obtained from MassGIS within a ½-mile radius of the site. No wetlands are located on site. Wetland buffer zones extend over a small portion of the site across the western boundary from wetlands located on the Olin Chemical Superfund Site across the MBTA rail line property. These wetlands are categorized as wooded swamp and shrub swamp. These buffer areas extending 100 feet from wetlands identified in the vicinity of the site are also indicated on the above-mentioned Figure 2, and estimated on Figure 6. No mapped floodplain exists on the site. The site layout has been developed to minimize potential wetland impacts. Currently the existing rail spur is located within the buffer zone and will remain so in proposed conditions with the MBTA rail property separating the Site from the wetlands. Additionally, the design of all stormwater management systems will be in conformance with MassDEP's Stormwater Management Policy for water quality, recharge, and control of sediment contamination further improving existing conditions on site and improving quality of stormwater runoff from the site.

Continued on next page

Priority Resources and Land Uses (F-H) *Continued*

Priority Resources, (*continued)*

Regional Details (1/2-mile radius)	Description Please refer to the Water Resources Plan included as Figure 2.
Proposed Drinking Water Source Areas	The Site is not located within or adjacent to a proposed drinking water source area. The nearest mapped proposed drinking water source area is an aquifer located approximately 0.4-miles south of the site and to the south of the Woburn Landfill. There are a cluster of mapped private wells located to the west of the site approximately 0.3-miles away however their status of use is unknown and likely to have been decommissioned and/or used by the Olin Chemical Corp for monitoring due to extensive groundwater contamination in the area. Please note that all waste handling operations will take place indoors.
Zone A & B Areas	The Site is not located within or adjacent to a Zone A or B of a public drinking water supply area. The nearest Zone A and B of a public drinking water supply is at Mill Pond over 1.2 miles southwest of the Site. This is beyond the ½-mile radius from the Site and is not depicted on the Water Resources Plan.
Zone I	The Site is not located within or in close proximity to Zone I of a public water supply. The nearest Zone I and Public Water Supply Wells are located approximately 0.75 miles northwest of the Site in the Maple Meadow Aquifer. However, these wells are not in use due to contamination from the Olin Chemical Corp Superfund site. The next closest Public Water supply is located approximately 1.4 miles northeast of the Site at the Reading Revay Wellfield in Reading. It is unknown if the Reading well is in service as Reading has water supply by MWRA.
IWPA or Zone II	The Site is not located within an IWPA or Zone II. The nearest Zone II is approximately 1200-feet northwest of the proposed Facility, however this Zone II is associated with Maple Meadow Brook Aquifer where the Town of Wilmington previously used this as a drinking water source and have since abandoned these wells due to contamination. The nearest IWPA is approximately 1.4 miles west of the Site (20 Mill Road).

Continued on next page

Priority Resources and Land Uses (F-H) *Continued*

Land Uses	The following table provides a brief narrative of land uses within ½ mile of the Site. Please note that this information was obtained using digitized images and vectorized data from the Massachusetts Geographic Information Systems (MassGIS) and other publicly available information from the MassGIS website. Please refer to Figure 3, Land Use Plan.

Regional Details (1/2-mile radius)	Description **Please refer to the Land Use Plan included as Figure 3.**
Natural Heritage Endangered Species Program	According to MassGIS, there is no Priority Habitat of Rare Species or Estimated Habitat of Rare Wildlife located within 0.5 miles of the subject Site. The closest mapped Priority Habitat of Rare Species is over 1.5-miles northeast of the site in the vicinity of the Town Forest located along the Ipswich River. As such, habitats are identified as Not Found Features on Figure 3. Please refer to Attachment 4 for a copy of the letter from NHESP regarding the project site.
Wildlife Management Areas	GSE reviewed the Division of Fisheries and Wildlife website for information regarding Wildlife Management Areas. No Wildlife Management Areas are located within a ½ mile of the Site boundary.
ACECs	According to MassGIS, there are no Areas of Critical Environmental Concern (ACEC) located within ½ mile of the subject Site.

Continued on next page

Priority Resources and Land Uses (F-H), Continued

Land Uses, continued

Regional Details (1/2-mile radius)	Description **Please refer to the Land Use Plan included as Figure 3.**
Agricultural Lands (Adjacent & On-Site)	Areas of prime farmland, farmland of unique importance, and farmland of statewide importance as identified by soils classification on the MassGIS system are shown on Figure 3. Farmland of Unique Importance was mapped at the very western edge of the Site, within the MBTA Rail line and on the Olin Chemical Superfund Site further west of the Site. Based on review of USDA Farmland Soil Classes of Massachusetts update document dated October 2019, Massachusetts revisited and revised the farmland criteria for soils in the state, which is not reflected in the current MassGIS mapping. As part of these 2020 changes, Soil map unit 51 which is Swansea Muck, 0-1 percent slopes was previously classified as prime farmland, however are no longer classified as such. In reviewing the NRCS soil mapping, this classified land is mapped as Unit 51 and as such is no longer classified as farmland and therefore the site meets the farmland criteria and associated setbacks. See Appendix C for the USDA Soil Report and October 2019 update document. Additionally, based on a soil investigation performed by Mark Germano, LSP, the area within the area to be Site Assigned previously designated as having soils classified by NRCS as map unit 51- Swansea Muck were not present but instead consisted of other soil mapping units 600 – Pits, gravel and 602 – Urban Land, due to previous excavation and extraction and refilling associated with a sewer pipe installed in the 1970s.
State Forests	GSE reviewed the Department of Conservation and Recreation website for information regarding State forests. No State forests were identified within a ½ mile of the Site boundary.

Continued on next page

Priority Resources and Land Uses (F-H), *Continued*

Land Uses, *(continued)*

The following table provides a brief narrative of land uses within a ½ mile of the Site. Please note that this information was obtained using digitized images and vectorized data from the Massachusetts Geographic Information Systems (MassGIS) and other publicly available information from the MassGIS website. Please refer to Figure 3, Land Use Plan.

Regional Details (1/2-mile radius)	Description Please refer to the Land Use Plan included as Figure 3.
Conservation and Park Lands	GSE reviewed the MassGIS and MassWildlife Lands Viewer regarding Conservation and Park Lands. GSE identified "Jewel Acres" on Cook Avenue in Wilmington within ½ mile (approximately 1,500 feet) of the Site Boundary. Based on the proposed location, the subject Site will not have adverse impacts on the physical environment of any local conservation lands.
MDC Reservations	The MDC is now the Department of Conservation and Recreation (DCR). No DCR parks were identified within 0.5 miles of the proposed Facility.
EOEA Restricted Land	GSE did not identify any lands with conservation, preservation, agricultural, or watershed protection restrictions approved by the secretary of EOEA within a ½ mile of the Site.
Privately Owned Public Access Conservation Land	GSE did not identify any privately owned public access conservation lands in close proximity to the subject Site. Based on the proposed location, the subject Site will not have adverse impacts on the physical environment of local conservation lands.
Residential Dwellings (500-foot Radius)	GSE determined there are no residential dwellings within 500 feet of the proposed waste handling area of the Facility. The residential dwelling nearest the Facility is greater than 2,000 feet to the north of the proposed waste handling area (subject building). Please note, there is also significant topography and vegetation in-between the Facility and the residential dwelling that provides for a natural buffer. There are also no dwellings along the proposed traffic route between the Facility and Interstate 93 & Interstate 95.

Continued on next page

Priority Resources and Land Uses (F-H), *Continued*

Land Uses,
(*continued)*

<table>
<tr><th>Regional Details (1/2-mile radius)</th><th>Description

Please refer to the Land Use Plan included as Figure 3.</th></tr>
<tr><td>Commercial Buildings (500-foot Radius)</td><td>Several commercial buildings are located within 500 feet of the property line of the proposed Site. The buildings are located on Woburn Street, Industrial Way, and New Boston Street as shown in the Property Identification & Zoning Map, Figure 4. The commercial buildings within 500 feet of the Site are as follows:

<table>
<tr><th>Facility/Business</th><th>Address</th></tr>
<tr><td>Dawson Macdonald Co. Inc.</td><td>845 Woburn Street, Wilmington, MA 01887</td></tr>
<tr><td>Alside Exterior Building Products</td><td>844 Woburn Street, Wilmington, MA 01887</td></tr>
<tr><td>Burns Landscaping</td><td>856 Woburn Street, Wilmington, MA 01887</td></tr>
<tr><td>NER Construction</td><td>867 Woburn Street, Wilmington, MA 01887</td></tr>
<tr><td>All Access Equipment</td><td>891 Woburn Street, Wilmington, MA 01887</td></tr>
<tr><td>Wilmington Cold Storage</td><td>2 Industrial Way, Wilmington, MA 01887</td></tr>
<tr><td>Atlantic Plant Maintenance</td><td>15 Industrial Way, Wilmington, MA 01887</td></tr>
<tr><td>Fraen Machining Corp.</td><td>324 New Boston Street, Woburn, MA 01801</td></tr>
<tr><td>Pacific Packaging Products, Inc.</td><td>331 New Boston Street, Woburn, MA 01801</td></tr>
<tr><td>New England Resins & Pigments</td><td>316 New Boston Road, Woburn, MA 01887</td></tr>
</table></td></tr>
<tr><td>Health Care Facilities</td><td>GSE did not identify any health care facilities within ½ mile of the site.</td></tr>
<tr><td>Prisons</td><td>GSE did not identify any prisons within ½ mile of the Site.</td></tr>
<tr><td>Schools</td><td>GSE did not identify any schools within ½ mile of the Site.</td></tr>
<tr><td>Daycare Facilities</td><td>GSE did not identify any daycares within ½ mile of the Site.</td></tr>
<tr><td>Senior & Youth Centers</td><td>GSE did not identify any senior or youth centers within ½ mile of the Site.</td></tr>
</table>

Continued on next page

Priority Resources and Land Uses (F-H), *Continued*

On-Site Land Use

The following table provides a brief overview of the proposed on-site land use. This information can be found on the Proposed Condition Site Plan(s) – Exterior and Interior presented as Figures 6 and 7, respectively.

Criteria	Description
Solid Waste Facilities	GSE identified two inactive solid waste facilities within ½ mile of the Site. The closed and capped Woburn Landfill is located just beyond the 500-foot radius to the southwest from the property as well as a landfill cell from the Olin Chemical Superfund site.
On-Site Waste Handling Areas	The waste handling areas at the Site are indicated on Figures 4 and 6.
Areas of Waste Deposition	Waste will not be landfilled and/or incinerated on the Site. Inbound materials will be tipped, handled, and loaded within the confines of the building. The waste materials will then be transported off-site via rail or large trucks.
Existing Buildings	Presently, there are existing building structures on site which will be demolished and removed from the site as part of construction.
Access Roads	Access roads provided on site that circle the handling building will allow for adequate access and queuing as well as provide required emergency access. Access to and from the site will be from Woburn Street. Please refer to Figures 6 and 8 and the Traffic Report presented as Attachment 6 for further detail.
Traffic Flow	Traffic will access the Site directly from Woburn Street. Access to Woburn Street is via I-93 to Presidential Way to Woburn Street. All trucks will be required to access the site from the south on Woburn Street that leads to Presidential Way and to I-93 and I-95. This pre-established truck route does not pass by any residential dwellings. Please refer to the Traffic Report presented as Attachment 6 for further detail. The traffic flow pattern is shown on Traffic Report and Traffic Movement and Turning Radius Plan (Figure 8). The Site has adequate room for safe and effective traffic flow and truck queueing on-site.
Zoning of Abutting Properties	The abutting properties, as defined in 310 CMR 16.02, to north of the site are zoned General Industrial. Zoning designations are shown on the Property Identification and Zoning Map (Figure 4).
Site Zoning	The zoning of the Site is General Industrial and transfer stations are an allowed use. As such, no local variances are required.

Section II. Facility Specific Criteria (A-C)

Introduction

The following section addresses Facility-specific criteria [310 CMR 16.40(3)(d)] for Waste Handling and Processing Facilities. Please refer to the prior statements in this narrative in the Priority Resources and Land Uses description, Attachments, Figures, and Site Plans for additional information.

Table of Contents – Section II

The following is a TOC for Section II of the Site Suitability application. The page numbers cited refer to page numbers of the general document, not the application form.

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Combustion Facilities	23
Waste Handling and Processing Facilities:	
1. Zone I	24
2. IWPA/Zone II	24
3. Zone A	24
4. Private water supplies	24
5. Occupied facilities	25
6. Riverfront area	25
7. Depth to groundwater	26

Landfills

The proposed Facility is a solid waste handling Facility that will not landfill/dispose waste on-site. Therefore, this section does not apply.

Combustion Facilities

The proposed Facility is a solid waste handling Facility that will not burn or incinerate waste on-site. Therefore, this section does not apply.

Continued on next page

Section II. Facility Specific Criteria (A-C) *Continued*

Zone I of a Public Water Supply	The proposed waste handling area is not located within a Zone I of a public water supply. MassDEP establishes Zone I areas as the area encompassed by a protective radius of 400 feet around a public water system well with a yield of 100,000 gallons per day or greater. The Site is not located within or in close proximity to Zone I of a public water supply. The nearest mapped Zone I of Public Water Supply Well are located approximately 0.72 miles Northwest of the site within the Maple Meadows aquifer and 1.3 miles northeast of the site at the Reading Revay Wellfield. Based on preliminary research it is possible neither of these Zone I's are for active use. The proposed Project complies with the requirements of 310 CMR 16.40(3) (d) (1).
IWPA and Zone II Areas	The proposed waste handling area is not within an Interim Wellhead Protection Area or the Zone II of a public water supply well. The nearest Zone II is approximately 0.75 miles west of the proposed Facility in the Maple Meadow aquifer. However, this aquifer and public water supply wells located within it are no longer in use due to contamination from the nearby Olin Chemical Corporation Superfund Site. The nearest IWPA is approximately 1.4 miles west of the proposed Facility. The proposed Project complies with the requirements of 310 CMR 16.40(3) (d) (2).
Zone A	The proposed waste handling area is not within the Zone A of a public water supply. As shown on the Water Resources Plan (Figure 2), no Public Surface Water Supplies are located within ½ mile of the Site. The proposed Project complies with the requirements of 310 CMR 16.40(3) (d) (3).
Private Water Supplies	Private well locations in the vicinity of the site were obtained from the Commonwealth of Massachusetts Energy & Environmental Affairs Data Portal and MassGIS. No private wells were identified within 500 feet of the proposed waste handling area. As shown on Figure 2, the nearest mapped private well is approximately 0.3 miles west of the proposed Facility. The proposed Project complies with the requirements of 310 CMR 16.40(3) (d) (4).

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Section II. Facility Specific Criteria (A-C), *Continued*

Occupied Facilities

There are no existing occupied residential dwellings, prisons, health care facilities, elementary schools, middle schools or high schools, children's preschools, licensed day care centers, senior centers, or youth centers within 500 feet of the proposed waste handling areas at the Facility. The locations of these sensitive receptors are presented within Figure 3.

The residential dwelling nearest the Facility is located over 2000 feet westerly from the proposed waste handling area (subject building).

The proposed Project complies with the requirements of 310 CMR 16.40(3) (d) (5).

Riverfront Area

The waste handling area is not within a Riverfront Area as defined at 310 CMR 10.00. A "River" is defined at 310 CMR 10.58(2)1.a. as a perennial stream where "the issuing authority shall presume that a river or stream shown as perennial on the current U.S. Geologic Survey ("USGS") or more recent map provided by the MassDEP is perennial unless rebutted by evidence from a competent source asserting to the contrary or a finding by the issuing authority." The Riverfront Area is defined at 310 CMR 10.58(2)(a)3.a. as "the area of land between a river's mean annual high-water line measured horizontally outward from the river and a parallel line located 200 feet away." The waste handling area will not be within 200 feet of a river. The closest perennial stream is greater than 200-feet away from the property.

The proposed Project complies with the requirements of 310 CMR 16.40(3) (d) (6).

Continued on next page

Section II. Facility Specific Criteria (A-C), *Continued*

Depth to Groundwater

The Facility will maintain at least a two-foot separation between the maximum high groundwater elevation and the waste handling area. A groundwater contour map of the subject site has been developed as part of the MCP remediation activities being undertaken at the site by the LSP, Mark Germano and is included in Attachment 3.

Seasonal High Groundwater elevations across the site are estimated to be approximately 2 feet above groundwater elevation based on comparison of redoximorphic conditions and groundwater elevations observed during test pit activities in November 2020. Using groundwater contours developed as part of MCP activities, seasonal high groundwater in the vicinity of the proposed handling building was conservatively estimated to be at El. 77.

The Proposed Conditions Plan-Interior, which is Figure 7, identifies the proposed finished floor and trench drain elevations (FF El. 84.5 with trench drain at El. 79) which satisfies the requirements of 310 CMR 16.40(3)(d)(7).

Figure 7 “Proposed Conditions - Interior” identifies the proposed slab elevations which satisfies the requirements of 310 CMR 16.40(3) (d) (7).

Continued on next page

Section III. General Criteria (A-L)

Introduction

The following section addresses Section III of the Site Suitability Application - General Site Suitability Criteria for a Solid Waste Management Facility. Please refer to the prior statements in this narrative in the Priority Resources and Land Uses description, Attachments, Figures, and Site Plans for additional information.

Table of Contents – Section III

The following is a TOC for Section III of the Site Suitability application. The page numbers cited refer to page numbers of the general document, not the application form.

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Agricultural Land (A)

Agricultural Land(s)

Areas of prime farmland, farmland of unique importance, and farmland of statewide importance as identified by soils classification on the MassGIS system are shown on Figure 3. Farmland of Unique Importance was identified at the very western edge of the Site, within the MBTA Rail line and on the Olin Chemical Superfund Site further west of the Site.

Based on review of USDA Farmland Soil Classes of Massachusetts update document dated October 2019, Massachusetts revisited and revised the farmland criteria for soils in the state. As part of these 2020 changes, Soil map unit 51, which is Swansea Muck, 0-1 percent slopes, was previously classified as prime farmland, however are no longer classified as such. In reviewing the NRCS soil mapping, this classified land is mapped as Unit 51 and as such is no longer classified as farmland and therefore the site meets the farmland criteria and associated setbacks. See Appendix C for the USDA Soil Report and October 2019 update document.

Additionally, based on a soil investigation performed by Mark Germano, LSP, the area within the area to be Site Assigned previously designated as having soils classified by NRCS as map unit 51- Swansea Muck were not present but instead consisted of other soil mapping units 600 – Pits, gravel and 602 – Urban Land, due to previous excavation and extraction and refilling associated with a sewer pipe installed in the 1970s. Please refer to Attachment 5 for a copy of site boring logs, the USDA Soils Report, letter from Mark Germano discussing existing site soils, and the USDA Farmland Classification Update document.

Based on the soil classification update, mapped farmland on MassGIS is no longer classified as Farmland and as such, the site meets 310 CMR 16.40(4)(a).

Continued on next page

Traffic Impacts (B)

Traffic Impacts

The traffic associated with the Facility has been evaluated to demonstrate that the traffic impacts from Facility operations would not constitute a danger to the public health, safety, or the environment, taking into consideration the following factors:

1. traffic congestion;
2. pedestrian and vehicle safety;
3. road configurations;
4. alternate routes; and
5. vehicle emissions.

Traffic Study Overview

The proponent commissioned a traffic study with Greenman-Pedersen, Inc. (GPI). The purpose of this study was to evaluate existing and projected traffic operational and safety conditions in the vicinity of the site and identify mitigating measures to offset potential project-related traffic impacts on the surrounding roadways, if determined to be necessary based on safety and/or other conditions such as Level of Service (LOS).

GPI's assessment based their review on current traffic volumes and accident data collected for this study area, a review of readily accessible traffic analyses, and the anticipated traffic generating characteristics of the proposed development. This study examined existing and projected traffic operations (both with and without the proposed project) at key intersections in the vicinity of the project site. The study area chosen by GPI was based on a review of the surrounding roadway network and anticipated traffic generating characteristics of the proposed project. The appended study provides a detailed analysis of traffic operations during the weekday morning and weekday afternoon peak hours, when the combination of adjacent roadway volumes and potential traffic increases associated with the project would be greatest. As such, GPI assessed "worst case" scenarios with respect to traffic impacts. As traffic counts were conducted in July 2020, adjustments were made to account for COVID-19 pandemic conditions. Both MassDOT permanent count station data and GridSmart traffic camera data was reviewed and GPI applied the higher traffic volume adjustment numbers to conservatively determine existing traffic conditions.

Continued on next page

Traffic Impacts (B), Continued

Traffic Study Overview, continued

The proposed Facility is expected to generate approximately 280 new truck trips per day (140 trucks entering, 140 trucks exiting) for the solid waste operations (these new trip numbers exclude any existing vehicle trips associated with the previous/current use of the developed property). These truck estimates represent typical expectations of the proponent in regards to operations including: that 10% of the daily inbound material will be in small trucks containing only 4 cy (1 ton) of materials; although proposed to operate 24 hrs/day, most materials will be delivered during standard hours of operation; and a significant quantity of outbound materials will be transported via rail. In addition, there are approximately 48 employee trips (24 entering, 24 exiting) estimated for the Facility per day, for a total estimated 205 vehicle trips accessing the site daily.

Based on information from 887 Woburn, it is expected that the employee shifts will not coincide with the peak hours of adjacent street traffic. The Facility is expected to generate approximately 30 truck trips (15 trucks entering, 15 trucks exiting) during the weekday morning peak hour, and approximately 24 truck trips (12 trucks entering, 12 trucks exiting) during the weekday afternoon peak hour. The expected trip generation of the proposed Facility is minor compared to the nearby FedEx Distribution Center to the east at 45 Industrial Way, Pepsi Distribution Center to the north at 111 Eames Street, and Analog Devices to the northeast at 831 Woburn Street.

The capacity analysis indicates that the proposed development will not have an appreciable impact on the operations of the study area intersections or roadways. No changes to level of service between the Build and No-Build scenarios are identified in the study. Overall delays are expected to experience a negligible increase as a result of this project. GPI concludes that mitigation measures are not necessary on the surrounding roadway network to accommodate the proposed development, but noted that changes to the AM signal timing plan at the Presidential Way/Atlantic Avenue/Commerce Way/I-93 Ramps during the weekday peak AM hours can improve existing delays and improve current LOS.

Continued on next page

Traffic Impacts (B), Continued

Traffic Study Overview, continued

The report concluded that the development would not have any appreciable impact on the operations of the signalized study area intersections or roadways and that no mitigation measures are necessary to accommodate the proposed development.

Based upon review and interpretation of the Traffic Impact Study, it is GSE's opinion that the siting of the Facility will not constitute a danger to the public health, safety, or the environment based on traffic congestion, pedestrian and vehicle safety, road configurations, or alternate routes in conformance with the requirements of 310 CMR 16.40(4)(b).

Please refer to Attachment 6 for a copy of the Traffic Impact Study.

Wildlife and Wildlife Habitat (C)

Introduction

This section addresses the Natural Heritage and Endangered Species Program (NHESP) administered by the Massachusetts Division of Fisheries & Wildlife (MassWildlife).

Habitat of Endangered Species

According to MassGIS, there is no Priority Habitat of Rare Species or Estimated Habitat of Rare Wildlife located within 0.5 miles of the subject Site.

Additionally, Massachusetts Division of Fisheries and Wildlife (MassWildlife) was contacted with respect to the subject Site. MassWildlife has provided a letter dated July 22, 2020 stating that "…at this time the site is not mapped as Priority or Estimated Habitat."

The proposed Project complies with the requirements of 310 CMR 16.40(4) (c) (1).

Ecologically Significant Communities

The siting of the proposed Facility will not have an adverse impact on an Ecologically Significant Natural Community. There are no areas identified by the Natural Heritage and Endangered Species Program as ecoregions within 0.5 miles of the Site.

The proposed Project complies with the requirements of 310 CMR 16.40(4) (c) (2).

Wildlife Management Area

The siting of the proposed Facility will not have an adverse impact on the wildlife habitat of any state Wildlife Management Area. GSE reviewed MassGIS and the Division of Fisheries and Wildlife website for information regarding Wildlife Management Areas. No Wildlife Management Areas are located with 0.5 mile of the Site.

The proposed Project complies with the requirements of 310 CMR 16.40(4) (c) (3).

Areas of Critical Environmental Concern (D)

Introduction	This section addresses Areas of Critical Environmental Concern (ACEC) administered by the Executive Office of Environmental Affairs.
ACEC On-Site	Based on GSE's review of the MassGIS ACEC data layer, the Site is not within an ACEC. The proposed Project complies with the requirements of 310 CMR 16.40(4) (d) (1).
ACEC Adjacent	Based on GSE's review of the MassGIS ACEC data layer, no ACECs are located adjacent to the proposed Site. The proposed Project complies with the requirements of 310 CMR 16.40(4) (d) (2).

Protection of Open Space (E)

Introduction

This section addresses land areas that are considered parks and recreation lands under local, regional, and state regulatory agency jurisdiction.

State Forests

GSE reviewed the Department of Conservation and Recreation website for information regarding State forests. According to the Department of Conservation and Recreation website there are no State owned or operated forests within ½ mile of the Site.

Therefore, the siting of the Facility will not have an adverse impact on the physical environment of, or on the use and enjoyment of, State forests in conformance with the requirements of 310 CMR 16.40(4)(e)(1).

State or Municipal Conservation and Park Lands

GSE reviewed MassGIS and the Executive Office of Energy and Environmental Affairs websites for information regarding State parklands. According to these resources, there are no State Conservation or Park Lands located within 0.5 miles of the Site.

Jewel Acres, located at 15 Jewel Drive, is identified on MassGIS as a municipally-owned open space parcel, with the Town of Wilmington's Open Space and Recreation Plan identifying it as Conservation Land. This parcel is located approximately 0.3 miles west of the site and is separated from the Site by the MBTA rail line, the Olin Chemical property and a large industrial building.

Therefore, the siting of the Facility will not have an adverse impact on the physical environment of, or on the use and enjoyment of, state or municipal parklands or conservation land, or other open space held for natural resource purposes in accordance with Article 97 of the Massachusetts Constitution in conformance with the requirements of 310 CMR 16.40(4) (e) (2).

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Protection of Open Space (E), *Continued*

MDC Reservations	The MDC is now part of the Massachusetts Department of Conservation and Recreation (DCR). GSE reviewed the DCR website for information regarding reservations in the area of the proposed Facility and none were located within 0.5 miles of the Facility. Therefore, the siting of the Facility will not have an adverse impact on the physical environment of, or on the use and enjoyment of, DCR (MDC) reservations in conformance with the requirements of 310 CMR 16.40(4)(e)(3).
EOEA Restricted Lands	GSE reviewed MassGIS and the Executive Office of Energy and Environmental Affairs website for any lands with conservation, preservation, agricultural, or watershed protection restrictions approved by the secretary of EOEA within 0.5 miles of the Site. GSE did not identify any lands with conservation, preservation, agricultural, or watershed protection restrictions approved by the Secretary of EOEA within 0.5 miles of the Site. Therefore, the siting of the Facility will not have an adverse impact on the physical environment of, or on the use and enjoyment of, on EOEA restricted lands in conformance with the requirements of 310 CMR 16.40(4)(e)(4).
Privately Owned Public Conservation Land	GSE reviewed MassGIS and the Executive Office of Energy and Environmental Affairs website for any privately owned public access conservation lands in close proximity to the subject Site. GSE did not identify any privately owned public access conservation lands in close proximity to the subject Site. Therefore, the siting of the Facility will not have an adverse impact on the physical environment of, or on the use and enjoyment of, local conservation lands in conformance with the requirements of 310 CMR 16.40(4)(e)(5).

Air Quality Impacts (F)

Introduction

The following section addresses the potential air quality impacts regarding anticipated emissions from truck and mobile, diesel-powered equipment emissions, as well as rail yard activity at the proposed Site.

Pursuant to 310 CMR 16.40(4)(f), Potential Air Quality Impacts, no site shall be determined to be suitable or be assigned as a Solid Waste Management Facility where the anticipated emissions from the Facility would not meet required State and Federal air quality standards or criteria or would otherwise constitute a danger to the public health, safety or the environment, taking into consideration:

1. The concentration and dispersion of emissions
2. The number and proximity of sensitive receptors; and
3. The attainment status of the area.

Regulation

GSE reviewed the most recently published Massachusetts Air Pollution Control regulations (310 CMR 7.00) and the criteria set forth in the MEPA regulations. After a review of the regulations, it was determined that the proposed Facility does not meet the thresholds of the aforementioned regulations and is therefore exempt from Section 7.02 of the Air Pollution Control Regulations (U Plan Approval, Limited Plan Application and U Comprehensive Plan Approvals). Please see the "On-Site Fuel Use" Section that follows for more explanation.

Regulation Intent

As stated within section 7.01(1) of the Air Pollution Control Regulations: *"No person owning, leasing, or controlling the operation of any air contamination source shall willfully, negligently, or through failure to provide necessary equipment or to take necessary precautions, permit any emission from said air contamination source or sources of such quantities of air contaminants which will cause, by themselves or in conjunction with other air contaminants, a condition of air pollution."*

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Air Quality Impacts (F), *Continued*

On-Site Fuel Use

MassDEP's Air Pollution Group regulates only stationary (i.e., non-mobile) sources of pollution under 310 CMR 7.00, section 7.02. Mobile sources (self-propelled equipment) are regulated under the Federal Clean Air Act.

No stationary fuel burning equipment will be utilized for handling activities, no equipment has a BTU input capacity over 3,000,000 BTU per hour, nor does the total amount of stationary source equipment have a BTU input capacity which exceeds 10,000,000 BTUs per hour. Stationary equipment on-site will be powered by electric motors. Therefore, 310 CMR 7.02 does not apply.

Emissions From Mobile Equipment

It is expected that one loader and two excavators will operate inside the proposed building. These pieces of equipment, depending upon age, will be either EPA Tier III or Tier IV compliant. In addition, the Facility may have skid steers, lifts, rail car mover, and a sweeper to facilitate on-site logistics.

Vehicle Emissions

Presently, there are significant changes in the Massachusetts waste market that are beginning to impact overall waste management within the Commonwealth. These changes include the recent closure of the Mich-Lin Transfer Station in Cambridge, Wood Waste of Boston Transfer Station in Everett; the Southbridge, Taunton and Chicopee Landfills; and the Fitchburg-Westminster's current expected closure in 2024, all of which has created an overall imbalance between waste generation and disposal options of both recyclable and non-recyclable material in Massachusetts, especially in MassDEP's Northeast Region.

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Air Quality Impacts (F), *Continued*

Vehicle Emissions *(continued)*

Given the ongoing reduction in local waste disposal markets, waste management companies are seeking ways in which to haul non-recyclable materials to out-of-state markets, which is creating significant competition, especially among industry specific carriers (i.e., carriers that use walking floor trailers).

In response to this, the proposed Facility is seeking to use rail to increase efficiency as it relates to transportation, as well as larger trucks to ensure C&D waste is efficiently transported greater distances. By incorporating rail and large trucks at the proposed Facility, there will be an overall reduction in annual carbon dioxide emissions.

Although the exact quantity of materials that will be transported by rail versus large trucks is not defined, published documentation by CSX indicates that moving freight (waste) by rail is approximately four times more fuel efficient than moving freight on the highway. Trains can potentially move a ton of freight over 470 miles on a single gallon of fuel, whereas a truck can move a ton of freight approximately 134 miles per gallon of fuel.

As a result, the proposed transport of waste with incorporation of increased rail efficiency will result in significant reductions of carbon dioxide emissions, which follows the goals and initiatives of the Massachusetts Environmental Policy Act (MEPA), M.G.L. c. 30, ss. 61-621 and within 301 CMR 11.00.

Odor Emissions

887 Woburn does not anticipate that nuisance odor conditions will occur on and/or off-site based upon the nature of materials being handled at the Facility. 887 Woburn will incorporate policies, controls, and procedures to ensure that nuisance odor conditions do not exist.

Attainment Status

According to the EPA's AirData Air Quality Monitor mapping [https://epa.maps.arcgis.com/apps/webappviewer/index.html], the site is within an attainment status area.

Nuisance Conditions (G)

Introduction

The following section addresses nuisance conditions identified in 310 CMR 16.40(4)(g).

Noise

Noise on-site will be minimized primarily by conducting all tipping, handling, and loading of waste materials within an enclosed building. Placement of the proposed building has been strategically located on the site to:

- Incorporate tipping/delivery doors on the south side of the building, facing away from the public way and closest receptor.
- Allow the building to act as a sound buffer to the closest receptor and the public street.

Furthermore, trucks delivering waste to the site will utilize major roadway networks (I-95 and I-93 to Presidential Way to Woburn Street), and will not pass any residential dwellings along the route. The applicant intends to install acoustical panels on the south side of the handling building with a line of trees to help mitigate any potential noise and aesthetics to Woburn Street. This design will allow the combined building, acoustical panels, and trees to act as a sound buffer.

As the Site is located away from any residential properties and/or sensitive receptors and located within industrial-zoned area, overnight operations should not pose a nuisance noise condition as no nearby receptors will be present and the Project will satisfy the requirements set forth in the MassDEP Noise Policy. Furthermore, in all instances, noise studies conducted for other MassDEP-approved handling facilities included residential receptors that were closer to the proposed handling/processing facility than the proximity of any residential dwellings in relation of the proposed 887 Woburn Facility. The range of receptor distances in the reviewed studies were between several hundred feet and less than 2,000 feet, whereas the closest residential receptor of the proposed 887 Woburn Facility is greater than 2,000 feet away.

Lastly, all proposed construction activities will take place during normal business hours as defined by local Town ordinances, thus further reducing the likelihood the proposed Facility will present a noise nuisance.

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Nuisance Conditions (G), *Continued*

Noise, continued

Through site location, adequate separation to the closest receptors, building design, and proposed sound barrier fencing, noise is not expected to present an off-site nuisance condition.

As the proposed Facility is designed to be compliant with the requirements of 310 CMR 16.40(4) (g) (1), no additional sound attenuation measures are recommended by GSE at this time.

Particulate (Dust) Emissions

Airborne particulate emissions associated with the acceptance of C&D wastes can occur. However, the Massachusetts C&D waste management infrastructure has a long history related to the successful reduction and control of particulate (dust) emissions. The proposed Facility will implement state-of-the-art Best Management Practices (BMP's) proven successful in mitigating any potential adverse impacts to the site and surrounding environment resulting from inadvertent particulate (dust) emissions. Among the partial list of BMP's proposed, the most notable is the processing of C&D waste within an enclosed building.

A partial list of proposed BMP's to mitigate the potential for particulate (dust) emissions at the Facility include:

Control	Function
Pavement	Access roadways and parking areas shall be paved to minimize the potential for dust emissions from vehicular traffic entering and exiting the site.
Sweeping	Wet sweeping or vacuum sweeping of external paved areas will occur on a daily basis.
Building	All tipping, waste handling, and loading will be performed within an enclosed C&D waste processing and handling building.
Atomized Misting system	An atomizing misting system within the confines of building strategically placed over tipping areas, on processing equipment, and above loading and unloading bay doors will be utilized to control fugitive dust and to effectively remove dust from the air within the building.

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Nuisance Conditions (G), Continued

Particulate (Dust) Emissions, continued

Additional design and operational considerations include minimizing door openings within the proposed building, minimizing cross-ventilation of air through the building by having tipping door openings on the southern building elevation only, maintaining equipment on-site that will remove the materials from the tipping floor for subsequent processing, covering trailers and rail cars prior to leaving the processing building, cleaning the paved areas surrounding the building at regular intervals, and the use of water to moisten loads as a means to control dust, if needed.

Emission studies at existing processing and handling facilities within the Commonwealth (i.e., PM 2.5 and PM 10) have shown that the above-referenced environmental controls adequately control nuisance emissions and that additional controls should not be needed.

All of the above referenced activities and controls will be detailed in the applicants pending "Operations and Maintenance Plan" as required pursuant to 310 CMR 19.200, and all proposed controls will be presented to MassDEP during the Authorization to Construct phase.

Litter

All waste handling activities will occur within the confines of the proposed waste processing building. The building will provide protection from the elements, thus significantly reducing the potential for windblown litter nuisance conditions.

Additionally, all vehicles including rail cars that will transport materials either to or from the Facility will be required to be covered in order to prevent incidental littering outside the proposed building. Additionally, the Facility will provide a phone number for the public to report any complaints regarding vehicles traveling on roads to/from this Facility without a covering on their trucks. Drivers violating the cover requirement will be subsequently banned from delivering to the Facility.

Facility personnel will implement standard operating procedures to implement a daily litter pick up routine at the Facility and incorporate and enforce the cover requirements as a part of the Operations & Maintenance Plan.

Continued on next page

Nuisance Conditions (G), Continued

Litter, continued

For these reasons, the establishment and operation of the Facility should not result in a nuisance litter condition that would constitute a danger to the public health, safety, or the environment pursuant to 310 CMR 16.40(4)(g)(2).

Vectors

Vectors defined in 310 CMR 19.006 are organisms *capable of transmitting a pathogen from one organism to another including, but not limited to, flies and other insects, rodents, birds, and vermin*. C&D wastes do not typically include substances which would attract vectors as it is typically inert materials.

To further discourage vectors in the proposed C&D waste processing Facility, waste handling operations will be confined to the inside of the proposed building.

For these reasons, the establishment or operation of the Facility should not result in vector nuisance conditions that would constitute a danger to public health, safety, or the environment pursuant to 310 CMR 16.40(4)(g)(3).

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Nuisance Conditions (G), Continued

Vector Mitigation

887 Woburn will implement good housekeeping and operational measures to ensure that vectors do not pose a nuisance condition. These measures will be incorporated into the Facility's Operations and Maintenance Plan to be developed during future permitting phases. Proposed measures include but are not limited to the following:

- Contracting with a vector control management firm.
- Installing rodent traps within and around the interior and exterior of the building.
- Minimizing door opening within the proposed building.
- Conducting all waste handling activities indoors.
- Maintaining equipment on-site that will remove the materials from the tipping floor for subsequent handling.
- Covering the containers and trailers prior to leaving the waste handling building.
- Sweeping the paved areas and the interior of the building (as needed) at regular intervals.
- Instituting a daily inspection program for vectors following the Operations and Maintenance Plan that will be prepared for the proposed Facility.

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Nuisance Conditions (G), Continued

Odors

The Applicant does not anticipate that nuisance odor conditions will occur on and/or off-site due to the non-putrescible nature of C&D wastes. However, the Applicant will incorporate policies and procedures with respect to nuisance odor conditions that include the following measures, subject to revision as operations are finalized and during subsequent operational permitting with MassDEP:

- Confinement of all waste handling to within the building only.
- Whenever necessary, entirely enclose/secure the proposed C&D waste processing building.
- Maintain covers on trailers and containers outside of the building.
- Use of a fine water mist, and, as necessary, use of odor counteractants to minimize the possibility of odor-adhering particulate matter escaping the building.

For these reasons, the establishment or operation of the Facility is not expected to result in nuisance conditions that would constitute a danger to public health, safety, or the environmental pursuant to 310 CMR 16.40(4)(g)(4).

Bird Hazards to Air Traffic

The closest airport identified is the Laurence G. Hanscom Field airport operated by the Massachusetts Port Authority, located in Bedford, Massachusetts approximately 7.3 miles from the proposed Facility. Based on the nature of C&D wastes and operation of waste handling internal to an enclosed building, the distance to Laurence G. Hanscom Field airport and the design considerations noted below, vectors from the proposed Facility, namely birds, will not be a hazard to air traffic.

- The Facility will not be a landfill, and thus is not subject to the regulations discussed in the FAA Advisory Circular #150/5200-34(2000) regarding the construction or establishment of municipal solid waste landfills near airports.
- The Site is outside of the 3,000-foot buffer established by M.G.L. Chapter 90, Section 35B for building height restrictions within proximity of airports.

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Nuisance Conditions (G), Continued

Bird Hazards to Air Traffic, continued

Even though bird hazards are not a significant concern at the subject Facility, 887 Woburn will implement mitigation measures to ensure that bird hazards do not pose a threat to air traffic. The following measures will be incorporated into the 887 Woburn's Operation and Maintenance Plan that will be developed as part of the Authorization to Construct phase to further describe and illustrate the process and procedures for the control of nuisance conditions. These measures include the following, subject to revision during subsequent operational permitting with MassDEP:

- Minimizing door openings within the proposed building;
- Conducting all waste handling activities indoors;
- Maintaining equipment on-site that will remove the materials from the tipping floor for subsequent handling and off-site shipment;
- Covering the containers and trailers prior to leaving the processing building;
- Sweeping external paved areas and the interior of the building at regular intervals; and,
- Instituting a daily inspection program for vectors incorporated in the Operations and Maintenance Plan that will be prepared for the proposed Facility.

Based on the location of the nearest airport and the proposed controls at the Facility, the establishment and operation of the Facility should not result in nuisance conditions that would constitute a danger to the public health, safety, or the environment pursuant to 310 CMR 16.40(4)(g)(5).

Other Nuisance Conditions

Other nuisance conditions are not likely to exist during the construction and operation of the Facility; therefore, the proposed Facility will be compliant with the requirements of 310 CMR 16.40(4)(g)(6).

Size of the Facility (H)

Introduction

The following section discusses the characteristics and logistics of the proposed Facility and details how the Facility has been designed to adequately handle and process up to 500 TPD of C&D material and meet the Size of Facility criterion at 310 CMR 16.40(4)(h). This section includes information regarding the following:

- Size of the Facility
- Access Roads (Material Ingress & Egress)
- Vehicle Queuing Areas
- Tipping, Waste Consolidation, and Loading Operations
- Comparison with Existing Facilities
- Waste Tipping Capacity Factors
- Setbacks of Waste Handling Areas from property boundaries

Size of Facility

The size of the proposed Site is sufficient to properly operate and maintain the Facility. The proposed Facility consists of the construction of an approximately 36,750-square foot handling building as well as a rail yard, scales, scale house, associated driveway and parking areas, underground utilities, site grading, paving, and stormwater controls. The proposed Facility will be located on 3.37 acres of land comprised of three parcels (1.28 acres, 1.19 acres and 0.9 acres in size) to be combined and re-subdivided into two parcels in the future. The area to be site assigned within the 3.37-acre parcel(s) will be 3.16 acres. Please refer to Figure 4 that depicts the three parcels and the area that is proposed to be site assigned within these parcels.

The proposed Facility is designed to accept C&D delivered by truck for handling, processing, and transfer primarily onto rail cars and secondarily, as conditions dictate, larger trucks for transport to various off-site locations. The transfer building (solid waste handling area) has been sized so that all unloading, handling, processing, and loading onto rail cars and/or trucks will occur within the building interior.

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Size of the Facility (H), *Continued*

Access Roads – Material Ingress and Egress

The following describes how waste will flow on-site.

1. Vehicular ingress and egress will be from/to Woburn Street to the east of the subject property.
2. The ingress traffic pattern follows along a proposed paved driveway that enters at the southeast corner of the Site and continues around the perimeter of the proposed building. This paved way on Site provides for queuing, two scales, and a bypass lane to ensure there is no queuing on Woburn Street. The scale house is to be centrally located between the two scales. Scale house personnel will be able to monitor inbound and outbound traffic patterns. The Facility can utilize both scales for inbound and/or outbound operations if ever deemed necessary.
3. From the inbound scale, delivering waste vehicles would proceed southerly around the building to the paved tarmac area to the front (south side) of the proposed 36,750-square foot building. The vehicle will back into one of the three presently planned inbound off-loading doorways. A fourth doorway is provided for tipping of Category 2 materials, or for outbound loading. A fifth doorway in the southwest corner is reserved for railcars (or can also be used for outbound live floor tractor trailers). Please see Figures 6 and 7, which depict the exterior Facility layout and interior building layout, respectively, and Figure 8 which includes a Traffic Movement and Turning Radius Plan. It should be noted that there are adequate access/turning radii to provide access around the entire building. This area can also be utilized for vehicle staging if it is ever deemed necessary.
4. Once in the building, the inbound waste vehicles will tip their loads and exit out of the tipping door in which they entered.
5. Exiting vehicles would proceed from the waste handling building around the building in clockwise fashion and await tare-out by communication with scale house staff.

Additionally, by having the scale house located where proposed, on-site logistics with respect to traffic patterns, staging, tare-in, and tare-out is well served, can be more easily monitored, and create efficient flow and functionality.

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Size of the Facility (H), *Continued*

Vehicle Queueing

The Site provides a significant amount of space for vehicle queuing (whether inbound or outbound) as there are staging areas located post-inbound scale all the way around the entire transfer building. As previously noted, both scales can weigh inbound vehicles simultaneously so that there is no queueing on Woburn Street. All inbound scale traffic will take precedent over outbound scale traffic.

Building Size, Elevations and Doorways

The proposed waste handling building is approximately 36,750 sf in size and has maximum dimensions of approximately 220 feet (east to west) by 210 feet (north to south) along the north and east walls. The western and southern building walls vary as the walls are staggered and the building is not square. The building's footprint of allows for one railcar to be in the waste handling building along the western side that is accessed from the south side. Four tipping doors are also located on the south side for inbound and outbound loading. See Figures 6 and 7 which depicts the following:

1. Building dimensions.
2. Dimensions of the four (4) discrete areas (Temporary Waste Storage, Tipping and Waste Inspection Area, Outbound Loading Area, and Railcar Staging area). These areas will be discussed in further detail within the Size of Facility Section of this narrative.
3. The location and approximate size of the proposed doorways.
4. Locations of the interior trench drain system.
5. Pushwall locations and proposed wall heights.
6. Conceptual layout of processing line.

The proposed building height will be approximately 40 feet at the peak and run in an east to west direction.

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Size of the Facility (H), *Continued*

Staging & Handling Areas

As described above, the building has four discrete areas for staging and handling waste. Please refer to Figure 7 for the Proposed Conditions – Interior Plan. The following table describes these areas.

Location	Usable Area (square feet)	Description
Tipping and Waste Inspection Area	5,610	This 5,610-square foot area has ample room to allow for both roll-offs and live floor trailers to tip C&D. Additionally, there is room for waste inspections and loader articulation to push waste to the outbound loading area under the processing line or temporary waste storage area, or to the feed hopper of the processing line. Also, if deemed necessary, roll-off containers can be situated within this area and underneath the processing line to provide for temporary storage of separated waste ban items.
Temporary Waste Storage	13,610	The eastern temporary waste storage area abuts 15-foot tall push walls. Based on general calculations, at a 15-foot burden depth along one side, the eastern area can store approximately 1,500 cubic yards of C&D. At a ratio of 4:1, it would equate to approximately 375 tons of C&D. The central waste storage area was calculated to store approximately 1000 tons of C&D in combined piles and bunkers.
Outbound Loading Area	2,815	The outbound loading area will stage a loader and/or an excavator that will load outbound railcars or live floor trailers. After the waste is tipped and inspected, Category 2 residuals and post-processed materials can be pushed to this area for immediate loadout or pushed to the central temporary waste storage area.
Railcar Staging Area	1,268	The railcar staging area can either service railcars or live floor trailers. Given the length of the rail bay (78 feet), it has the ability to house one railcar or one live floor tractor trailer within this area with the door closed.

Note: The usable areas are slightly different than the entire building envelope as pushwalls and other features were removed from the calculations.

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Size of the Facility (H), *Continued*

Tipping Overview

The Facility's operations protocols will require personnel to inspect and oversee waste tipping activities. The following table outlines 887 Woburn's proposed procedure, subject to revision as operations are finalized during subsequent operational permitting with MassDEP.

Step	Action
1	An incoming driver is prompted to back his/her vehicle up and onto the concrete tipping area.
2	Facility personnel will direct the driver to tip the waste in one of several designated areas.
3	The load is inspected by trained Facility personnel for unacceptable materials (e.g., visible waste ban materials).
4	Pending an acceptable inspection, the vehicle exits the waste handling area within the building and heads towards the outbound scale.

Waste Consolidation & Processing

The following table outlines 887 Woburn's proposed procedure for waste consolidation and processing within the waste handling building, subject to revision as operations are finalized and during subsequent operational permitting with MassDEP.

Step	Action
1	Pending an acceptable inspection and safe vehicle exit, the tipped waste materials will be pushed to the waste staging area located within the northern portion of the building. Note that "non-processable" waste will be kick-sorted out prior it being fed into the processing line.
2	The waste materials will then be placed into the feed hopper of the C&D processing line where various pieces of equipment and manpower will extract the recyclable commodities (e.g. wood, cardboard, metals, aggregates, etc.)
3	The materials will be managed by a front-end loader and/or excavator.

Given the space, proper vehicle movement throughout the building can be achieved.

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Size of the Facility (H), *Continued*

Railcar or Live Floor Loading Operations

The following table outlines 887 Woburn's procedure for railcar or truck loading within the building, subject to revision as operations are finalized and during subsequent operational permitting with MassDEP. Please refer to Figure 9 for the railcar movement and storage plan.

Step	Action
1	A front-end loader and/or excavator will transport waste materials from the temporary waste storage area, the end of the processing line, and/or directly from the waste tipping and inspection area (for Category 2 Residuals).
2	The materials will be directly loaded into a live floor trailer and/or rail car located in the proposed outbound loadout and railcar staging area.
3	The rail cars and/or trailers will be covered with an appropriate cover for subsequent staging and transport to the final disposal destination.
Note: Any Category 1 C&D will be staged separately to be processed on-site or shipped to a MassDEP approved processor that is compliant with the waste ban regulations (310 CMR 19.017).	

Comparison with Existing Facilities

The proposed 36,750-square foot waste handling building provides greater operational area than the existing 1,000 TPD - 20,700-square foot Allied Waste System Fall River transfer station; the 1,600 TPD - 23,600-square foot Braintree transfer station; and the 1,000 TPD - 23,400-square foot Allied Peabody transfer station with respect to building size. Additionally, it appears this Facility will exceed the aforementioned facilities with respect to tonnage to interior building area ratio.

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Size of the Facility (H), *Continued*

Waste Tipping Capacity Factors

The table presented below has been prepared to outline the doorway capacities as it relates to tonnage based on various delivery scenarios.

Four Door Peak Factor Calculations			
	All 4-Ton (ave) Roll-off/dump truck Vehicles	**All 8-ton Roll-offs**	**50% Roll-off/dump truck & 50% Live Floor Trailers by Weight**
Average Tons Per Vehicle	4	8	16
Inbound Trucks Per Day Based on Weight Assumptions	125	63	32
Tons Received Per Day at Facility	500	500	500
Operational Hours Per Day for Tipping Waste	11	11	11
Hourly Tonnage if Averaged Over 11 Operational Hours	45	45	45
Number of Doorways Used	4	4	4
Time to Tip Per Vehicle (Minutes Averaged)	10	10	12
Trucks Per Hour Per Doorway	6	6	5
Tons Per Hour Per Doorway	24	48	80
Tons Per Hour - 4 Doorways	96	192	320
Peak Capacity Factor 3 Doorways Utilized	2.13	4.26	7.11

Notes:

1. *Roll-off/ dump truck weights averaged to carry 4-tons per vehicle.to match TIS. Roll-offs typically carry 8-12 tons.*
2. *Live floor trailers assumed to carry 28 tons per vehicle.*
3. *Tipping time for roll-offs is 10 minutes (generally tipping is less than 5 minutes).*
4. *Tipping time for live floor trailers is 15 minutes.*
5. *Column 3 assume that tonnage average is by weight. For example, if deliveries are 50% roll-offs and 50% live floor trailers, then each vehicle type delivers 250 TPD.*
6. *Proposed operations are 24 hours/day however to concentrate inbound trucks to assess worst-case conditions and match assumptions in TIS, a standard 11-hour operational day (6AM-5PM) was assumed.*
7. *Figures have been rounded up when necessary.*

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Size of the Facility (H), *Continued*

Waste Handling Setbacks

The table below presents various setbacks from the waste handling area.

Setback	Distance
Handling Building to closest property line	75 feet to closest northern, eastern, and western property lines
Handling Building to closest occupied residential dwelling	>2,000 feet to property located to the west.

Note: Please refer to Figure 6 that depicts various setbacks to property lines. Additionally, refer to the Priority Resource and Land Use sections of this narrative and Figures 2 and 3 that depict setbacks from other various features that are located off-site. Based on the regulations set forth in 310 CMR 16.40, all of the required minimum setbacks have been met.

Conclusion

Based on the size of the Site, the design of the handling building, associated paved surfaces, the available space for queuing of trucks, and the analysis of the interior operations, the size of the proposed Site is sufficient to properly operate and maintain the proposed Facility.

The proposed Project complies with the requirements of 310 CMR 16.40(4)(h).

Areas Previously Used for Solid Waste Disposal (I)

Introduction

The following section discusses areas previously used for solid waste disposal and demonstrates compliance with 310 CMR 16.40(4) (i).

Abutting Properties

Based on GSE's research, no former solid waste landfill disposal activities were identified on direct abutting properties. The Olin Chemical Superfund Site (and associated landfill) is located across the MBTA Rail property to the west, and the closed and capped Woburn Landfill approximately 800 feet to the southwest, is separated from the Site by the MBTA rail and two other industrial properties.

Proposed Site

No portion of the Site has been previously used for solid waste disposal as listed on the MassDEP Solid Waste Facilities Master List. However, the site is located on two industrial parcels of land that has an extensive industrial history as a disposal site. The Site was used as a pig farm prior to 1950. The site was then used as a salvage/ junkyard, waste transfer station and waste incineration site by John Hutchinson & Richard Bertrand in the 1950s. The site was then leased to E.C. Whitney Barrel Recycling and operated as a waste transfer station, salvage yard, barrel recycling, with other similar uses. E.C. Whitney Barrel eventually purchased the property and continued operating and expanded their barrel recycling and reconditioning business amongst others. Some of E.C. Whitney's waste and recycling activities on the property included: Solid Waste Transfer Station, recycling scrap metal, plastics, computer parts, tires/rubber, paper, cardboard, film, barrels, air conditioners, wood, construction materials, etc.

The site was officially classified as a disposal site on December 1, 1979. While continuing their businesses operations on site, E.C. Whitney conducted Phases I through IV per the Massachusetts Contingency Plan and in 2009 Filed for Financial Inability.

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Size of the Facility (H), Continued

Proposed Site, continued

In 2017, 887 Woburn, a party with no connection to any activity on site, purchased the property. 887 Woburn has spent significant financial resources to remediate the site. An extensive amount of debris was scattered throughout the Site from waste and recycling activities (see Attachment 7 for site photos). Thousands of tons of solid waste had been piled approximately three-stories high in the rear of the property, much of which had been sitting for over a decade. Piles of solid waste were piled over one-story high on both the northern and southern areas of the site as well. 887 Woburn has since followed the MCP process under direction of their LSP and are currently developing a plan to close out the site in connection with this development plan.

Conclusion

1. No prior solid waste Facility operated on any area immediately adjacent to the proposed Facility.
2. MCP-related remediation activities ongoing at the site would not adversely impact or threaten to adversely impact the Site with the development of the solid waste handling Facility, but rather compliment site redevelopment.

The proposed Project complies with the requirements of 310 CMR 16.40(4)(i).

Existing Disposal Facilities (J)

Introduction

The following section discusses existing disposal facilities in the vicinity of the proposed Site and demonstrates that the Facility is entitled to a preference pursuant to 310 CMR 16.40(4) (j).

Active Disposal Facilities

MassDEP and the local Board of Health shall give preferential consideration to sites located in municipalities in which no existing landfill or solid waste combustion facilities are located, a preference that will be applied only to new facilities that will not be for the exclusive use of the municipality in which the Site is located. The proposed Facility meets these requirements and is entitled to a preference.

First, there are no active combustion facilities or landfills in Wilmington as listed on the MassDEP Solid Waste Facilities Master List. The MassDEP Solid Waste Facilities Master List includes four inactive or closed landfills in Wilmington. They are:

- Maple Meadows Landfill (inactive) - located 0.6 miles from the subject site
- Olin Chemical Corporation Landfill (closed) - located 0.8 miles from the subject site
- Wilmington Dump (inactive) - located 3.9 miles from the subject site
- Wilmington Landfill (closed/excavated) - located 4.6 miles from the subject site

Second, the proposed Facility is new and will not be for the exclusive use of the Town, thus the Facility should be given preferential consideration.

It is presently unknown how much C&D is generated within the Town of Wilmington, however given the population (approximately 23,000 residents) and the proposed Facility capacity, the proposed Facility can contribute to the Town's and its region's ability to provide to both the private and public sectors an economically competitive and efficient means to manage their C&D. This rail-served Facility will allow the region to access disposal outlets that are generally not viable (economical) through traditional trucking.

Other Sources of Contamination or Pollution (K)

Introduction

The Facility includes environmental controls for stormwater, contact water, dust, odors, vectors, bird hazards, and noise. The Facility will not pose a threat to public health, safety, or the environment taking into consideration the impacts of existing sources of pollution or contamination pursuant to 310 CMR 16.40(4)(k).

Consideration of Other Sources of Contamination or Pollution

Other sources of contamination or pollution could be emissions from construction. The Facility will incorporate the proper controls, protocols, and procedures to reduce emissions, which will be addressed in future MassDEP and Town permitting endeavors. This will also hold true for the environmental controls that will incorporated into the facility design.

The Facility as proposed will create an overall net reduction in CO_2 emissions annually (calculated to be a reduction of over 1593 tons of CO_2, as presented in the FEIR). Although the proponent cannot presently estimate the percentage of materials that will be transported by rail it is documented by CSX that moving freight (waste) by rail is approximately 4 times more fuel efficient than moving freight on the highway. Trains can move a ton of freight over 470 miles on a single gallon of fuel whereas a truck can move a ton of freight only approximately 134 miles per gallon of fuel.

Consolidating waste and incorporating rail efficiencies can result in significant reductions to CO_2 emissions, which follows the goals and initiatives of the Massachusetts Environmental Policy Act (MEPA), M.G.L. c. 30, ss. 61-621 and within 301 CMR 11.00.

The proposed Project complies with the requirements of 310 CMR 16.40(4)(k).

Regional Participation (L)

Regional Participation & Need

MassDEP and the Board of Health shall give preferential consideration to sites located in municipalities not already participating in a regional disposal Facility pursuant to 310 CMR 16.40(4) (l). The Town is a preferred municipality under M.G.L. c. 111, § 150A½ (15) and (16) as Wilmington does not have an existing solid waste disposal facility and is not part of a regional waste disposal district. Presently, solid waste generated within the Town is collected curbside and disposed of at a combustion facility in North Andover (Wheelabrator). Wilmington's C&D is collected by private contractors/haulers and disposed of at Massachusetts transfer stations or landfills where capacity remains available.

The proposed Facility's maximum capacity and annualized capacity will support regional need within the surrounding area(s). By having a Facility in close proximity to major roadway networks coupled with access to rail, the Facility is designed around regional participation.

The proposed Project complies with the requirements of 310 CMR 16.40(4) (l).

Section IV. Integrated Solid Waste Management

Introduction

Section IV is applicable to Landfills and Combustion facilities only and not applicable to this application.

Section V. Waivers

Waivers

The Facility is requesting a waiver to property line setbacks in accordance with 310 CMR 16.40(6) for the 100-foot setback criteria under 310 CMR 16.40(4) (h).

The Facility is proposing a 75-foot setback to the property line on the north, west, and east sides of the proposed waste handling building, which on these sides are also the proposed limits of the on-site waste handling area(s). On the north and east sides, the handling building is presently proposed with solid concrete push walls therefore potential nuisance sound and dust conditions and visual aesthetics in these directions are eliminated and mitigated by virtue of the building walls. On the west side of the property is the MBTA rail line with the 50-acre Olin Chemical Corporation Superfund Site beyond. No receptors exist in this direction that would be adversely impacted by a reduced setback. All tipping doors face south where a 100-foot setback to property line is maintained.

The ability to house rail internally within the building and adding a C&D processing line are both crucial pieces to a successful C&D acceptance, processing, and handling facility as:

- Processing lines increase recycling to meet the goals and initiatives of the Commonwealth;
- Processing lines significantly aid handling facilities to meet the Minimum Performance Standards (MPS) for process separation rate;
- In house processing lines reduce transportation needs, thus reducing fuel consumption, emissions, and roadway impacts.
- Rail service increases transportation efficiencies and reduces greenhouse gases as an alternative to long-haul trucking (4:1); and
- Rail service provides more disposal options as disposal capacity in Massachusetts continues to rapidly decline.

Continued on next page

Section V. Waivers, Continued

Waivers, continued

Maintaining 100-foot setbacks to the east, west, and north would reduce the size of the building by almost 11,000 square feet which would:

- Eliminate the required space for the processing line thereby reducing recycling capabilities.
- Prevent or significantly reduce the ability to bring rail into the building for loading operations thereby eliminating transportation efficiencies and the ability to use rail and additional out-of-state disposal options.

In support of this waiver, per 310 CMR 40(6)(c), the Facility:

- Has assessed other available and suitable sites in the municipality and regionally as part of the MEPA process. The alternative sites were determined to either lack rail access or have increased impacts to receptors (e.g., residential abutters) at those locations.
- There are only two C&D processing facilities currently in the northeast region, of which one has been closed due to a fire. Additional processing capacity is needed. Furthermore, this Facility may be the first in the northeast region to have rail access which is a significant benefit for the region's future of solid waste management.
- Is within a preferred municipality as discussed above in the Regional Participation and Need section.
- Environmental benefits are increased with the waiver as it will allow for a larger handling building size to house a state-of-the-art processing line to increase recycling and waste diversion in accordance with the solid waste master plan and goals and objectives of the MassDEP. Environmental benefits include the use of rail to reduce greenhouse gas through transportation efficiencies.
- Will promote integrated solid waste management by providing feasible means to maximize diversion and processing of the anticipated waste stream to reduce potential impacts from disposal.

Continued on next page

Section V. Waivers, Continued

Waivers, continued

In the absence of a waiver, the Facility could function as a transfer station but would not be able to process the C&D materials on-site.

The requested waiver for setbacks allows the Facility to install a processing line, which will increase recycling capacity in this region and in the Commonwealth.

Additionally, given the Facility's proximity to rail, this mode of transportation will beneficially reduce traffic, increase transportation efficiencies, reduce greenhouse gas emissions, and increase in-state landfill capacity by increased diversion and access to out-of-state disposal outlets.

In conclusion, strict compliance with the setback criteria, in this instance, would result in undue hardship and would not serve to minimize or avoid adverse impacts.

The Facility is not requesting any waivers to the Application Process under 310 CMR 16.18.

ATTACHMENT 1

RECEIPT OF TECHNICAL FEE

May 1, 2021

Wilmington Board of Health
121 Glen Road
Wilmington, MA 01887

Re: 887 Woburn

Dear Director Newhouse, R.S. and The Wilmington Board of Health,

Hope this finds you well. As previously discussed at the October 6th, 2020 Board of Health meeting; 887 Woburn, LLC (887 Woburn) is presently seeking regulatory approvals for the construction and operation of a solid waste [construction and demolition (C&D)] recycling facility to be located at 887 Woburn Street, Wilmington, MA. The proposed facility will accept C&D regionally from residents as well as commercial haulers and contractors. All designs will utilize best-management-practices and state-of-the-art equipment, with our priorities being to minimize impact to the environment and protect human health and safety.

887 Woburn is preparing to submit an application to the Massachusetts Department of Environmental Protection (MassDEP) for a Site Suitability determination once we have received MEPA approval from the Executive Office of Energy and Environmental Affairs. Once the MassDEP determines the proposed site is suitable, the Board of Health will need to conduct a public hearing on the project and make a decision on whether to grant Site Assignment for the proposed site, following the Site Assignment process detailed in 310 CMR 16.00. The applicant, 887 Woburn, must pay the Board of Health an application fee to cover the Board of Health's costs of reviewing technical data and the costs associated with conducting a public hearing. 887 Woburn must demonstrate that the technical fee has been paid to the Board of Health prior to MassDEP's review of the Site Suitability application.

The technical fee is the actual costs of reviewing technical data and used for obtaining technical assistance to review the data submitted by 887 Woburn related to the project. The maximum allowable fee is determined in accordance with the provisions of 310 CMR 16.99. For a 500 ton per day handling facility (500 tons per day is the proposed daily tonnage), the maximum technical fee is $13,000. When adjusted for inflation per 310 CMR 16.99, the maximum fee is $29,192.42 . The actual costs to the Board of Health of the technical review cannot be determined prior to the start of the review. Based upon the recommendation of Mike Penney, P.E. of GeoInsight, Inc., 887 Woburn proposes to prepay the Board of Health $15,000.00 upon the submittal of the Site Suitability application to MassDEP. 887 Woburn would then reimburse the Board of Health any additional actual technical review costs if

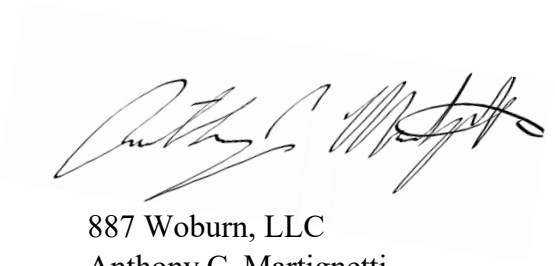
incurred during the site assignment process (up to the maximum allowable technical review fee of $29,192.42).

Please advise if the proposed terms of the technical fee payment as defined above are acceptable to the Board of Health. If this payment plan is acceptable, 887 Woburn will forward a check for $15,000 to the Board of Health. Once payment has been made, 887 Woburn will require a receipt from the Board of Health showing that payment has been made. This receipt will be included in the Site Suitability application to be submitted to MassDEP.

This letter has not addressed the costs associated with the public hearings (likely scheduling Fall 2021). We suggest discussing the fees and costs associated with public hearings as we get closer to establishing the public hearing dates.

Please advise if the technical review payment schedule defined above is acceptable to the Board of Health. Should you have any questions, please call me directly at (508) 717-7358 or email me at acmart13@gmail.com

Respectfully,



887 Woburn, LLC
Anthony C. Martignetti
President

887 Woburn Maximum Technical Fee Calculation

SEP	1988		126.2	126.2
SEP	2020		283.391	283.391

Maximum Fee = $3000 + [$20 x Daily Volume (tons/day)]

$3,000 + ($20 * 500)	$	13,000.00

MTF(Table) x [BCPI(current year - 1)/BCPI(1988)]

13000 * (283.391/126.2)	$	29,192.42

MAXIMUM TECHNICAL FEE	$	29,192.42

887 Woburn

Inbox ×

Board of Health Wed, May 5, 8:49 AM

to me

Good morning, I sent your letter to my Board and at last night's meeting they brought it up under new business and accepted it as written and the check. Just keeping you in the loop. I will get you your receipt when we log the check in

Shelly Newhouse, R.S.
Director of Public Health
121 Glen Road
Wilmington, MA 01887
978-658-4298

This message is for the designated recipient(s) only. If you have received this message in error, please notify the sender immediately and delete the original. Please be advised that email is subject to the provisions of Massachusetts Public Records Law. MA G.L. c. 66.

MARTIGNETTI DEVELOPMENT
887 Woburn Street
Wilmington, MA 01887
508-717-7358

Bank of America
5-13/110

1171

DATE 5/1/2021

PAY TO THE ORDER OF Town of Wilmington Board of Health $ 15,000 —

FIFTEEN THOUSAND DOLLARS

TOWN OF WILMINGTON BOH SITE SUITABILITY TECH. FEE	15,000	—

THIS CHECK IS DELIVERED FOR PAYMENT ON THE ACCOUNTS LISTED

⑈001171⑈ ⑆011000138⑆ 004666544537⑈

Payments to the Treasurer

From the Director of Public Health

887 Woburn 29-010-006-030-0277-0944	$15,000.00
Animal License 01-999-007-030-0850-999R	$40.00
Beaver	$0.00
Food License 01-999-007-030-0850-999R	$425.00
Installer License01-999-007-030-0850-999R	$200.00
Micro Blading 01-999-007-030-0850-999R	$50.00
Perc Test 01-999-007-030-0827-999R	$600.00
T5 System Permits 01-999-007-030-0850-999R	$1,100.00
Trench 01-999-007-030-0850-999R	$0.00
VOID	

Cash	**Check Amt**		
$150.00	$17,265.00	**Total**	**$17,415.00**

Received of the Board of Health $17,415.00

5/6/2021

Submitted by:

Approved by:

Received by:

ATTACHMENT 2

MEPA CERTIFICATE

The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Charles D. Baker
GOVERNOR

Karyn E. Polito
LIEUTENANT GOVERNOR

Kathleen A. Theoharides
SECRETARY

Tel: (617) 626-1000
Fax: (617) 626-1081
http://www.mass.gov/eea

April 30, 2021

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
FINAL ENVIRONMENTAL IMPACT REPORT

PROJECT NAME	: 887 Woburn
PROJECT MUNICIPALITY	: Wilmington
PROJECT WATERSHED	: Ipswich
EEA NUMBER	: 16266
PROJECT PROPONENT	: 887 Woburn, LLC
DATE NOTICED IN MONITOR	: March 24, 2021

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62I) and Section 11.08 of the MEPA Regulations (301 CMR 11.00), I have reviewed the Final Environmental Impact Report (FEIR) for the project and hereby determine that it adequately and properly complies with MEPA and its implementing regulations. The project may proceed to permitting.

Project Description

As described in the FEIR, the project consists of the construction of a Construction and Demolition (C&D) solid waste handling and processing facility. The facility will consist of an approximately 17,235 square-foot (sf) building to which all C&D materials will be transported and unloaded. Access to the tipping floor will be via four roll-up doors on the southerly side of the building. C&D waste will be visually inspected and kick-sorted[1], so that recyclables are separated out from waste. Additional site improvements include stormwater improvements, landscaping, and construction of internal driveways. The project also includes renovation of an existing railroad spur at the site with the intention of transferring outbound materials primarily by rail. The facility intends to handle up to a

[1] Manually separate easily recovered recyclable materials with a machine or by hand.

maximum of 500 tons per day (tpd) of C&D material with an annual maximum capacity of 182,000 tons per year (tpy).

Changes Since the DEIR

As clarified in the FEIR, the Proponent intends to handle up to a maximum of 500 tpd of C&D material 365 days per year unless otherwise restricted through the State and local permitting process. Therefore, the annual maximum would be 182,000 tpd and not 150,000 tpd as previously stated in the ENF and DEIR. However, because daily maximum tonnage would not increase, daily traffic impacts are not anticipated to significantly increase. If the Proponent seeks to process/handle more than 500 tpd of C&D waste the Proponent should submit a Notice of Project Change (NPC) to the MEPA Office. Subsequent correspondence with the Proponent indicated that although the Greenhouse Gas (GHG) Analysis was conducted based on the operations stated in the traffic impact analysis (which assumed that the facility operated six days a week), expanding operations to seven days a week would result in added GHG reductions through the provision of recycling services and infrastructure which will reduce GHG emissions compared to other material management options such as combustion or landfilling. [2]

Project Site

The 2.47-acre project site is comprised of two parcels (1.28 acres and 1.19 acres in size) located in Wilmington's General Industrial Zone. It is bounded by rail on the west and industrial properties to the north and south. The site contains an existing rail easement and freight rail spur. As described in the ENF, the site has an extensive industrial history and was used for a pig farm prior to 1950. It was then used as a salvage/junkyard and unauthorized waste transfer station (i.e. did not receive a Site Assignment from the Town of Wilimington) and barrel recycling. The site was officially classified as a disposal site by Massachusetts Department of Environmental Protection's (MassDEP) in 1979. The previous owner, E.C. Whitney, conducted Phases 1-4 of the Massachusetts Contingency Plan (MCP) and in 2009, asserted financial inability to complete the remediation work. The project site was purchased in 2017 by the Proponent who has continued remediation of the site. The site is currently regulated under the MCP through Release Tracking Number (RTN) 3-0001787.

The project site is not located in Priority and/or Estimated Habitat as mapped by the Division of Fisheries and Wildlife's (DFW) Natural Heritage and Endangered Species Program (NHESP). The site is not located within an Area of Critical Environmental Concern (ACEC) and does not contain any structures listed in the State Register of Historic Places or the Massachusetts Historical Commission's (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth.

Environmental Impacts and Mitigation

The project is expected to generate 54 new average daily trips (adt) (total 314 adt total). The project will accept and process up to 500 tpd of C&D. GHG emissions are associated with the project's energy use (heating, cooling, processing equipment, etc.) and transportation.

[2] Information received by e-mail from the Proponent on 4/20/2021.

Measures to avoid, minimize, and mitigate project impacts include the use of erosion and sedimentation controls, siting the project on a previously altered site, traffic control signage, and performing all processing activities within the metal building. The project will facilitate the reuse and recycling of C&D materials.

Jurisdiction and Permitting

The project is subject to a mandatory EIR pursuant to Section 11.03(9)(a) because it requires a State Agency Action that will create New Capacity for the processing of 150 or more tpd of solid waste. The FEIR indicates the facility will handle a maximum daily tonnage of 500 tpd of C&D waste. The project requires a Determination of Site Suitability (BWP SW 01), a Solid Waste Handling Facility Permit including an Authorization to Construct (ATC) (BWP SW 05) and an Authorization to Operate (ATO) (BWP SW 06) a Large Handling Facility from MassDEP. The project requires a Section 8(m) permit and Sewer Use Discharge Permit from the Massachusetts Water Resources Authority (MWRA). The project will also require a Site Assignment from the Wilmington Board of Health. Because it requires an EIR, the project is subject to the MEPA GHG Emissions Policy and Protocol.

Because the project is not seeking Financial Assistance from the Commonwealth, MEPA jurisdiction extends to those aspects of the project that are within the subject matter of required, or potentially required, State Agency Actions and that may cause Damage to the Environment as defined in the MEPA regulations. The subject matter of the Site Assignment regulations is sufficiently broad to confer the equivalent of broad scope jurisdiction over the potential environmental impacts of the project. Therefore, MEPA jurisdiction is broad in scope and extends to all aspects of a project that are likely, directly or indirectly, to cause Damage to the Environment, as defined in the MEPA regulations.

Review of the FEIR

The Scope for the FEIR was limited to providing revised draft Section 61 Findings and mitigation measures. The FEIR was responsive to the Scope. No comments were received on the FEIR.

Mitigation and Draft Section 61 Findings

The FEIR provided a separate chapter summarizing all proposed mitigation measures and provided draft Section 61 Findings for each anticipated State Agency Action including for MassDEP and the MWRA. As requested by the Scope, the list of mitigation commitments for GHG emissions which will form the basis of the self-certificatoin were revised to accurately reflect GHG emissions.

In order to ensure that all GHG emissions reduction measures adopted by the Proponent are actually constructed or performed by the Proponent, the Secretary requires proponents to provide a self-certification signed by an appropriate professional (e.g., engineer, architect, transportation planner, general contractor) to the MEPA Office indicating that all of the required mitigation measures, or their equivalent, have been completed. The certification should be supported by plans that clearly illustrate where GHG mitigation measures have been incorporated. For those measures that are operational in nature (i.e. TDM, recycling), the Proponent should provide an updated plan identifying the measures, the schedule for implementation and how progress towards achieving the measures will be obtained. To the extent the project will take equivalent measures to achieve the identified reductions, I encourage the

Proponent to commit to achieving the same level of GHG emissions identified in the mitigated (design) case expressed in volumetric terms (e.g., tpy).

Traffic and Transportation

- The onsite railway spur will be improved prior to occupancy to take advantage of efficiencies of exporting materials via rail.
- The project will comply with the Town of Wilmington's "Truck Restriction" on Woburn Street from Eames Street to Lowell Street.
- The Proponent will continue to work with the Town of Wilmington and City of Woburn on appropriate traffic mitigation measures during the State and local permitting process.
- All truck traffic will be restricted to enter and exit the site Southerly on Woburn Street. The restriction will be enacted by the Proponent. Customers' agents will be required to sign an operating and disposal agreement contract, before engaging in business with the Facility. Vendors will be under contract to do business with the Facility as well. The customers and vendors will be notified of the restriction and be contractually obligated to abide to the route; not entering or exiting the site Northerly on Woburn Street. Customers who fail to follow their contractual obligation will be banned from the Facility.

GHG Emissions

- The project will reduce GHG emissions through the provision of recycling services and infrastructure will reduce GHG emissions compared to other material management options such as combustion or landfilling (906.46 tpy) and will reduce mobile source emissions associated with redued travel from trucks transferring recycblae materials from theirpoint of origin to a more distance facility (863.33). The facility will generate 176.18 tpy of GHG emissions resulting in a net GHG emission reductions of 1,593.61 tpy.
- Process equipment will include high efficiency electric motors.

Wastewater/Stormwater

- Installation of a stormwater management system consistent with the Massachusetts Stormwater Management Standards. The stormwater management system will include deep sump catch basins, proprietary stormwater treatment devices, vegetated buffers, detentions basins, and subsurface infiltration chambers.
- A stormwater Operation and Maintaince (O&M) plan will be implemented.
- Roof runoff will be recharged to groundwater via infiltration chambers or within bio-retention swales.
- The project will implement and maintain erosion and sedimentation controls in accordance with the Stormwater Pollution Prevention Plan (SWPPP) prepared in accordance with the NPDES Construction General Permit requirements.
- Any liquids released from waste will be collected in a floor drain system and lawfully discharged to MWRA sewer or off-site disposal at a wastewater treatment plant.

- A Sewer Use Discharge Permit is required propr to discjarging floor wash down, truck washing and equipment cleaing wastewater from waste handling activities associated with the project into the MWRA sanitary sewer system.
- All gas/oil seperatoes will complywith with 360 CMR 10.016 and the State Plumbing Code.

Solid Waste Operations

- All tipping, handling, and loading will be performed within a fully enclosed processing and handling building.
- Building floor will be constructed of impervious concrete to prevent potential groundwater contamination. Liquids will be collected in floor drain collection system and disposed of lawfully.
- Use of fine atomized misting system within the building to control fugitive dust.
- Locating the building as follows to minimize noise impacts: locating tippling/delivery doors away from surrounding receptors; locating the building to act as a sound buffer; and allowing drive-through access for large trucks to reduce the use of back-up alarms.
- To prevent litter and dust outside of facility, all entrance and exit doors closed when not in use.
- Proponent will conduct regular sweeping of outdoor paved surfaces.

Hazardous Waste

- Onsite hazardous waste will be cleaned up and open RTNs will be closed out prior to site occupancy.
- An Licensed Site Professional (LSP) will oversee construction.

Construction Period

- The project will employ erosion control measures and the development of SWPPP.
- Dust control measures will be implemented, including spraying the site with water and stabilizing disturbed areas as soon as possible after completion of construction activities.
- Provision of a rumble strip to reduce offsite sediment tracking.
- Street sweeping on surrounding paved surfaces.

Conclusion

Based on a review of the FEIR and consultation with State Agencies, I find that the FEIR adequately and properly complies with MEPA and its implementing regulations. No further MEPA review is required, and the project may proceed to permitting. Participating State Agencies, in turn, should forward copies of the final Section 61 Findings to the MEPA Office for publication in accordance with 301 CMR 11.12.

K. Theoharides

April 30, 2021
Date

Kathleen A. Theoharides

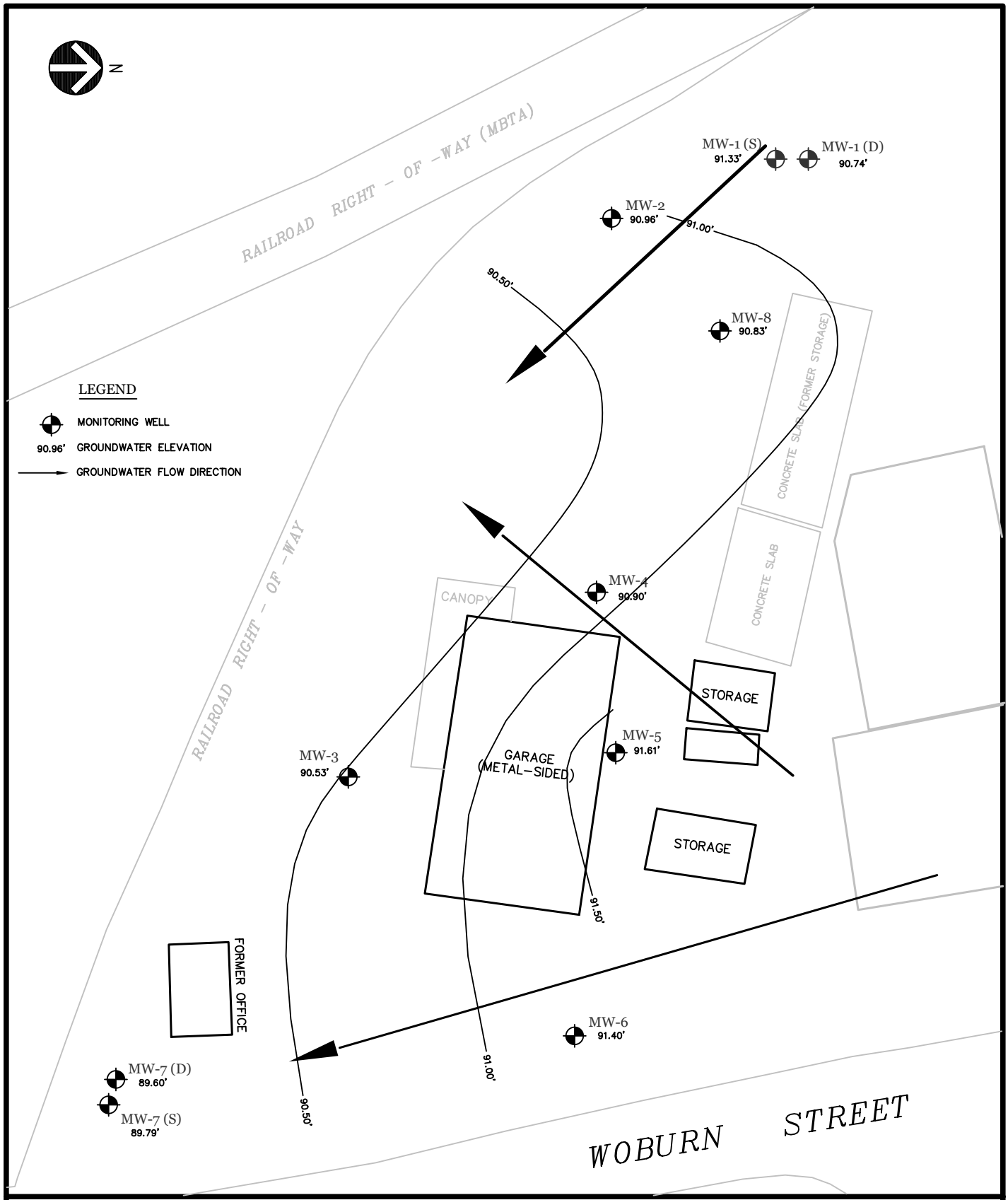
Comments received:

None.

KAT/EFF/eff

ATTACHMENT 3

GROUNDWATER CONTOUR MAP



MAG

ENVIRONMENTAL & LSP SERVICES

RTN 3-2770

885 – 889 WOBURN STREET
WILMINGTON, MASSACHUSETTS

FIGURE 2
SITE PLAN

Note: Groundwater Elevations based off assumed datum of 100' and not relative to existing site topography.

ATTACHMENT 4

NHESP CORRESPONDENCE

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

July 22, 2020

Anthony Martignetti
887 Woburn, LLC
887 Woburn Street
Wilmington MA 01877

RE: Project Location: 887 Woburn Street
Town: WILMINGTON
NHESP Tracking No.: 20-39504

To Whom It May Concern:

Thank you for contacting the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for information regarding state-listed rare species in the vicinity of the above referenced site. Based on the information provided, the Division has determined that at this time the site is not mapped as Priority or Estimated Habitat.

This evaluation is based on the most recent information available in the Natural Heritage database, which is constantly being expanded and updated through ongoing research and inventory. If you have any questions regarding this letter please contact Melany Cheeseman, Endangered Species Review Assistant, at (508) 389-6357.

Sincerely,

Everose Schlüter

Everose Schlüter, Ph.D.
Assistant Director

ATTACHMENT 5

NRCS SOIL MAPPING
AND SOIL INFORMATION

Mark A. Germano, LSP
15 Pinehurst Road
Marshfield, MA 02050
339-793-3528

August 18, 2020

Mr. Anthony C. Martignetti
887 Woburn LLC
Woburn, MA 01801

Re: Agricultural Lands Suitability Criteria
887 Woburn Street
Woburn, Massachusetts

Dear Anthony,

Mark A. Germano, LSP (MAG) is pleased to present this letter report to you summarizing the results of our Detailed Soil Survey of the 887 Woburn St. property (Subject Property, the Site) in Wilmington, Massachusetts. MAG's activities associated with the soil survey included a review of information maintained by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and related agencies, and a review of MAG's site investigation conducted to characterize the soil and groundwater conditions of the Site. The subsurface investigation included drilling of test borings, installation of monitoring wells and laboratory analysis of soil and groundwater samples.

PROJECT NARRATIVE

887 Woburn, LLC, proposes to construct and operate a solid waste handling facility at the Subject Property. As part of the permitting process, the Site is subject to the General Site Suitability Criteria requirements at 310 CMR 16.40(4) of the Site Assignment Regulations for Solid Waste Facilities that are administered by the Massachusetts Department of Environmental Protection (MassDEP). The NRCS provides the general public with information from published Soil Survey Reports with Web Soil Survey (https://websoilsurvey.nrcs.usda.gov/app) which allows public access to soil maps and data for more than 95 percent of the nation's counties. Please see attached the soil survey downloaded from the website. The soil maps provided by NRCS for the Subject Property indicate the presence of Urban Land (approximately 90% of site) and Swansea Muck (<10% of site) mapping units within the proposed area to be Site Assigned. According to NRCS these mapping units are not prime farmland. However according to the Massachusetts State Soil Survey Legend Prime Farmland Soil Classification the Swansea Muck 0 to 1% slopes is Unique Farmland, a category of land subject to the Site Assignment criteria. Urban Land does not have a farmland designation.

PROJECT CONCLUSIONS

During the course of MAG's subsurface investigation two borings (MW-1, MW-2) are located within the area designated as Swansea Muck (See attached Site Plan). According to the NRCS soil survey (See attached) Swansea Muck consists of approximately 0-3 feet over approximately 3-6 feet of coarse sand. According to MAG's boring logs (See attached) this area consists of 5-6 feet of Fill over organic silt and Medium to Fine SAND. An easement (See attached) exists in this area for a sewer line. The Fill is present as backfill for the installation of the sewer line. Therefore, Areas of soil previously mapped by the NRCS as consisting of Swansea Muck 0-1 percent slopes (Map Unit 51A) rated as a Farmland of Unique Importance, were not encountered with the area requested by 887 Woburn, LLC for Site Assignment by MassDEP. The natural soils within this area were destroyed by human activities related to the installation of a sewer line. Furthermore, the sewer runs parallel to an active rail line. This area also has fill related to the installation and maintenance of the railroad tracks. Therefore, Swansea Muck does not exist with 100 feet of the proposed Site Assigned area as well.

If you have any questions please call the undersigned at 339-793-3528.

Sincerely,
Mark A. Germano, LSP

Mark Germano
President

Attachments:

NRCS Soil Survey and mapping units description June, 2020
MAG Site Plot Plan and Boring Logs December, 2020
Easement Plan

Soil Map—Middlesex County, Massachusetts
(887 Woburn Street Wilmington, MA)

Map Scale: 1:1,300 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 20, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 13, 2019—Oct 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
51A	Swansea muck, 0 to 1 percent slopes	0.7	24.0%
602	Urban land	2.2	75.9%
656	Udorthents-Urban land complex	0.0	0.1%
Totals for Area of Interest		**3.0**	**100.0%**

Middlesex County, Massachusetts

51A—Swansea muck, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2trl2
Elevation: 0 to 1,140 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Swansea and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Swansea

Setting

Landform: Swamps, bogs
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material over loose sandy and gravelly glaciofluvial deposits

Typical profile

Oa1 - 0 to 24 inches: muck
Oa2 - 24 to 34 inches: muck
Cg - 34 to 79 inches: coarse sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Available water capacity: Very high (about 16.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: B/D
Ecological site: F144AY043MA - Acidic Organic Wetlands
Hydric soil rating: Yes

Minor Components

Freetown

Percent of map unit: 10 percent
Landform: Bogs, swamps
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Whitman

Percent of map unit: 5 percent
Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 5 percent
Landform: Drainageways, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 20, Jun 9, 2020

Middlesex County, Massachusetts

602—Urban land

Map Unit Setting

National map unit symbol: 9950
Elevation: 0 to 3,000 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Excavated and filled land

Minor Components

Rock outcrop

Percent of map unit: 5 percent
Landform: Ledges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Head slope
Down-slope shape: Concave
Across-slope shape: Concave

Udorthents, wet substratum

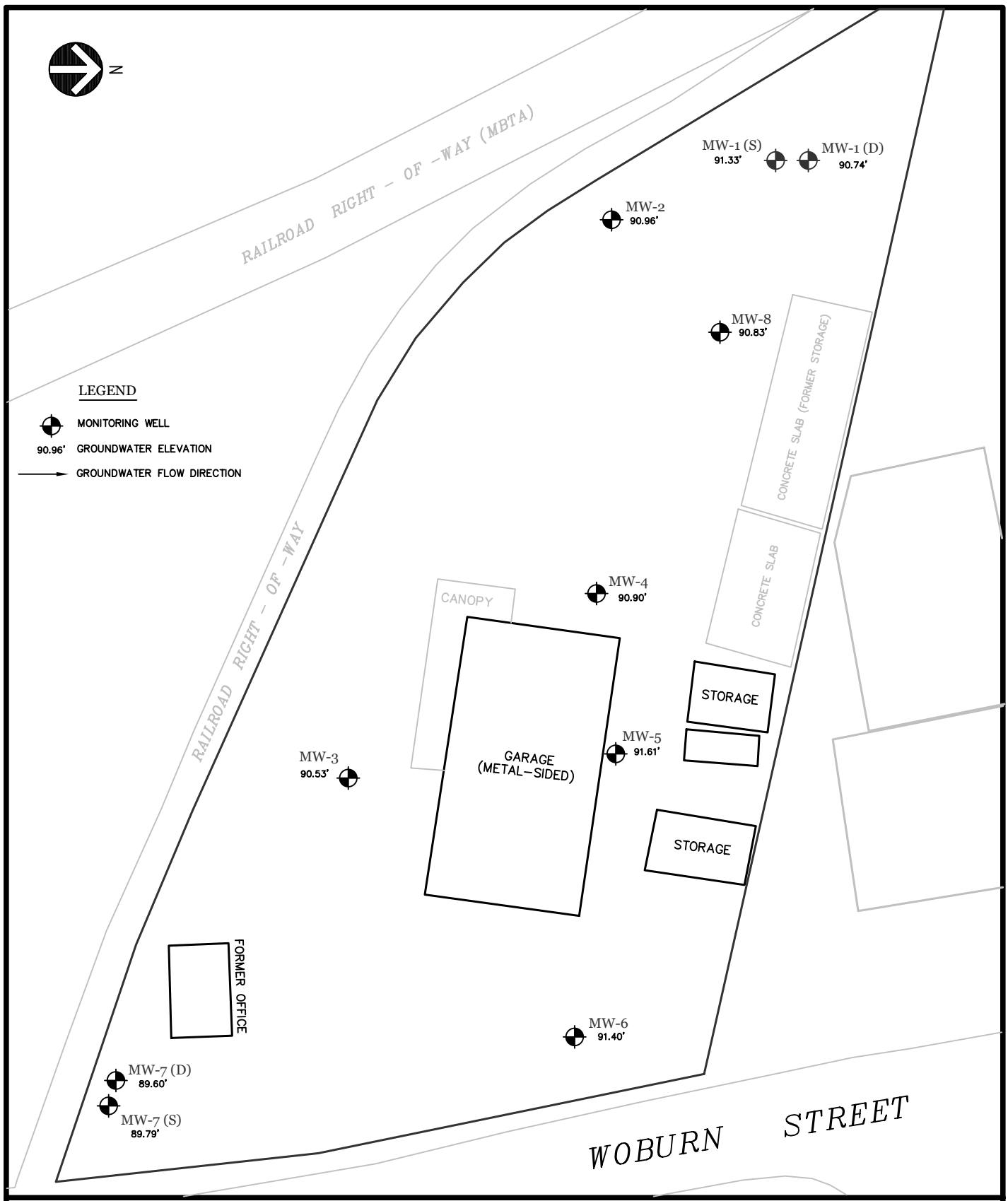
Percent of map unit: 5 percent
Hydric soil rating: No

Udorthents, loamy

Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 20, Jun 9, 2020



MAG

ENVIRONMENTAL & LSP SERVICES

RTN 3-1787

885 - 889 WOBURN STREET
WILMINGTON, MASSACHUSETTS

FIGURE 2

SITE PLAN

TEST BORING LOG

SHEET 1

Mark A. Germano, LSP
15 Pinehurst Road
Marshfield,
MA 02050

DRILLER: TDS
Geoprobe 66

SITE: 887 Woburn St.

Wilmington

BORING NO. MW-1S

PROJECT NO.

DATE: 12/23/2019

Ground Elevation:
Date Started: 12/23/19
Date Finished: 12/23/19
Driller: P N
Soil Engineer/Geologist: JD

GROUNDWATER OBSERVATIONS			
DATE	DEPTH	CASING	STABILIZATION
12/23/19	3.23 ft		

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Sample Depth	PID Result	Strata	Visual Identification of Soil and / or Rock Sample
1			12”		0.1		Brown FILL including gravel, sand and miscellaneous debris
				4.0	0.1		Dark Brown Organic SILT/SAND
5			36”	5.0	0.3		Gray Medium to Fine SAND little coarse sand.
10			24”				
15							Bottom of Boring 15’ Installed 2” Monitoring Well @12’
20							
25							
30							
35							

Notes: Monitoring well installed to approximately 12 feet below grade.

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V Dense.
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M Stiff 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)			
HAMMER WGT (LB)			
HAMMER FALL (IN)			

TEST BORING LOG

SHEET 1

Mark A. Germano, LSP
15 Pinehurst Road
Marshfield,
MA 02050

DRILLER: TDS
Geoprobe 66

SITE: 887 Woburn St.

Wilmington

BORING NO. MW-2

PROJECT NO.

DATE: 12/23/2019

Ground Elevation:
Date Started: 12/23/19
Date Finished: 12/23/19
Driller: P N
Soil Engineer/Geologist: JD

GROUNDWATER OBSERVATIONS			
DATE	DEPTH	CASING	STABILIZATION
12/23/19	3.19		

Depth Ft.	Casing bl/ft	Sample No.	Pen/Rec	Sample Depth	PID Result	Strata	Visual Identification of Soil and / or Rock Sample
1			12”		1217		Brown FILL including gravel, sand and miscellaneous debris
5			12”	5.0			Dark Brown Organic SILT/SAND
10			60	6.0	2500		Gray Medium to Fine SAND little coarse sand.
15							Bottom of Boring 15’ Installed 2” Monitoring Well @12’
20							
25							
30							
35							

Notes: Monitoring well installed to approximately 12 feet below grade.

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V Dense.
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M Stiff 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)			
HAMMER WGT (LB)			
HAMMER FALL (IN)			

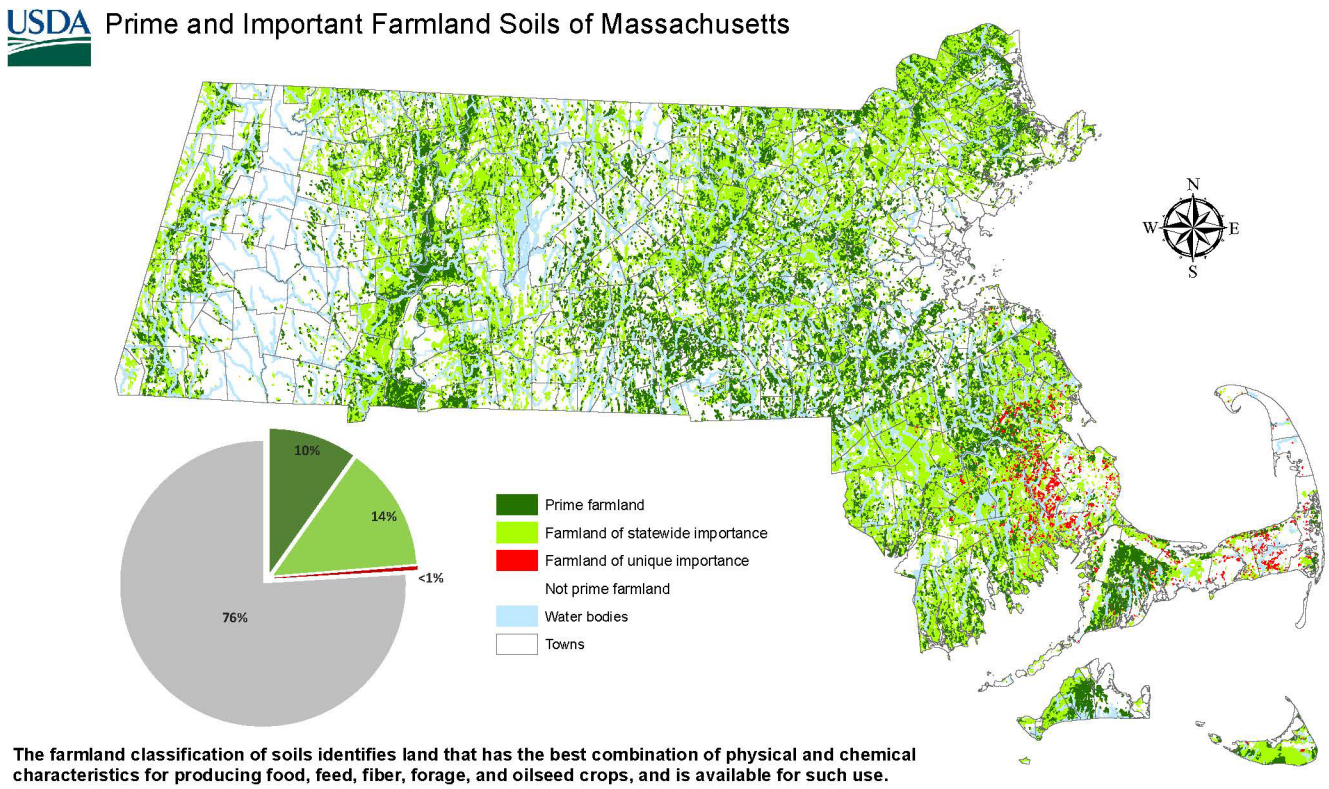
Farmland Soil Classes of Massachusetts

Farmland classification of soils identifies land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, and oilseed crops and is available for such use.

For FY2020, Massachusetts has revisited and revised the farmland criteria for soils in the state. These changes will result in the following changes to the Farmland Class Ratings:

- 3,200 acres changed from 'farmland of statewide importance' to 'meets no important farmland class'
- 6,100 acres changed from 'prime farmland' to 'farmland of statewide importance'
- 800 acres changed from 'farmland of statewide importance' to 'prime farmland'
- 125,500 acres changed from 'meets no important farmland class' to 'farmland of statewide importance'
- 254,000 acres changed from 'farmland of unique importance' to 'meets no important farmland class'

The most significant changes include the removal of organic wetland soils that are not used in cranberry agriculture from the farmland of unique importance category and the addition of map units on 8 to 15% slopes with stony and very stony surface phases to the farmland of statewide importance category.



The farmland classification of soils identifies land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, and oilseed crops, and is available for such use.

Maps and further information can be found at https://websoilsurvey.sc.egov.usda.gov and https://www.nrcs.usda.gov/wps/portal/nrcs/main/ma/soils/

Farmland classification of soils identifies land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, and oilseed crops and is available for such use.

Code of Federal Regulations (7 CFR Part 657.5) important farmland criteria is applied to the predominant characteristics of soil survey map units as mapped by the National Cooperative Soil Survey and published by the USDA Natural Resources Conservation Service (NRCS) through the Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov).

There are four farmland classes assigned to soil survey map units of Massachusetts:

Prime Farmland

Prime farmland soils have specific physical and chemical characteristics that make them well suited for growing crops. Criteria for the prime farmland classification in Massachusetts are:

- available water capacity of 3.5 in (8.9 cm) or more[1] within a depth of 40 in (1 m) or the depth to an impermeable layer if less than 40 in (1 m); and
- pH between 4.5 and 8.4 in all horizons within a depth of 40 in (1 m); and
- water table, if present, not shallower than 15 in (38 cm) during May through October; and
- infrequent (less often than once in 2 years) or no flooding during May through October; and
- the product of Kw (erodibility factor, whole soil) of the mineral soil surface and percent slope is less than 2.0; and
- permeability rate of at least 0.06 in (0.15 cm) per hour in the upper 20 in (50 cm); and
- upper 6 in (15 cm) of the soil surface contains less than 10 percent rock fragments by volume coarser than 3 in (7.6 cm) diameter; and
- not more than 0.1 percent of the soil surface is covered by stones 10 in (25cm) to 24 in (60cm) diameter, and/or boulders >24 in (60 cm) diameter; and
- less than 2 percent bedrock exposures.

Farmland of Statewide Importance

Farmland of statewide importance are those soils that fail to meet one or more of the requirements of prime farmland, but are important for the production of food, feed, fiber, or forage crops. They include those soils that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Criteria for defining this land are determined by the appropriate state agency or agencies.

[1] Available water capacity needs determined from "*Conservation Irrigation Guide for Massachusetts, 1981"*

Soils that do not meet all prime farmland criteria are Massachusetts farmland of statewide importance if the following criteria are met (bold font indicates criteria varying from that for prime farmland):

- **available water capacity of 2.0 in (5.1 cm) or more within a depth of 40 in (1 m)**; and
- pH between 4.5 and 8.4 in all horizons within a depth of 40 in (1 m); and
- water table, if present, not shallower than 15 in (38 cm) during May through October; and
- infrequent (less often than once in 2 years) or no flooding during May through October; and
- **the product of Kw (erodibility factor, whole soil) of the mineral soil surface and percent slope is less than 4.2[2]; and,**
- permeability rate of at least 0.06 in (0.15 cm) per hour in the upper 20 in (50 cm); and
- **upper 6 in (15 cm) with less than 35 percent rock fragments by volume coarser than 3 in (7.6 cm);** and,
- **not more than 3 percent of the soil surface is covered by stones 10 in (25 cm) to 24 in (60 cm) diameter**, and
- not more than 0.1 percent of the surface is covered by boulders >24 in (60 cm) diameter; and
- less than 2 percent bedrock exposures.

Farmland of Unique Importance

Unique farmland is land other than prime farmland and farmland of statewide importance that is used for the production of specific high value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality and/or high yields of a specific crop when treated and managed according to acceptable farming methods.

In Massachusetts, soil map units suited and used for the production of cranberries have been identified as farmland of unique importance. The soil properties essential for cranberry production are unique; low soil pH, abundant supply of water, the ability to hold water, and access to a source of sand.

Not Prime Farmland

Soils that do not meet the criteria for prime farmland, farmland of statewide importance, or farmland of unique importance are classified as not prime farmland. These soils may be in agricultural use but may require more intense management to maintain high agricultural yields.

[2] Product of K and slope criterion based on historical precedent, MA Soil Conservation Service document, *"Additional Farmland of State or Local Importance"*,1/17/1986.

- Map units that meet all prime farmland criteria per CFR except the relative value data representing the predominant components reflects available water capacity of less than 3.5 in (8.9 cm) through the upper 40 in (1 m) but has sufficient available water capacity in the upper profile, are designated prime farmland. This qualifier is applicable to soil survey map unit components having moderately coarse to medium textured mantles overlying coarse textured deposits.
- Complexes and Associations - Soil map units with more than 50 percent components that meet any of the above scenarios are designated prime.

Criteria for the designation "Farmland of Statewide Importance"

- Soil map units, the predominant composition of which does not meet criteria for prime farmland and have all the following characteristics…
- available water capacity of 2.0 in (5.1 cm) or more[4] within a depth of 40 in (1 m); and,
- pH between 4.5 and 8.4 in all horizons within a depth of 40 in (1 m) and,
- water table, if present, not shallower than 15 in (38 cm) during May through October; and,
- infrequent (less often than once in 2 years) or no flooding during May through October; and,
- the product of Kw (erodibility factor, whole soil) of the mineral soil surface and percent slope is less than 4.2[5]; and,
- permeability rate of at least 0.06 in (0.15 cm) per hour in the upper 20 in (50 cm); and,
- upper 6 in (15 cm) with less than 35 percent rock fragments by volume coarser than 3 in (7.6 cm); and,
- not more than 3 percent of the soil surface is covered by stones 10 in (25 cm) to 24 in (60 cm) diameter and,
- not more than 0.1 percent of the surface is covered by boulders >24 in (60 cm) diameter, and
- less than 2 percent bedrock exposures.

Qualifiers for data application to Massachusetts Farmland of Statewide Importance Criteria

- Where the product of K and slope percent is 4.2 or less for the lower part of an 8 to 15 percent map unit slope phase range but exceeds 4.2 for the upper part of the slope range, and remaining criteria are met, the map unit is designated farmland of statewide importance.

- Complexes and Associations - Soil map units with more than 50 percent components that meet the above criteria are designated farmland of statewide importance.

Important Farmland Soil Map Unit Designation Overriding Scenarios

Application of anomalous or non-representative data elements to important farmland criteria may result in inaccurate class placement. The consideration of the characteristics of the soil survey map unit as a whole as assessed by Massachusetts NRCS staff overrides point specific data.

[4] Available water capacity needs determined from *Conservation Irrigation Guide for Massachusetts, 1981*

[5] Product of K and slope criterion based on historical precedent, MA Soil Conservation Service document, *"Additional Farmland of State or Local Importance"*,1/17/1986. Slope range values applied to this criterion exclude the lowest whole number in the range to separate overlap with the adjacent lower slope phase as follows: 0-3, 4-8, 9-15.

K factors and available water capacity data for the same nominal component may vary among soil survey areas resulting in different data-derived farmland classes. The characteristics of the predominant condition based on acreage extent will be applied state-wide for prime farmland and farmland of state-wide importance designations.

The following address specific scenarios where calculations based on attribute data may inaccurately place a map unit in prime farmland or farmland of statewide Importance classes. Soil map units having any of the following characteristics are precluded from important farmland designations:

- A major component that is shallow to lithic contact: complex slopes, surface stones and boulders associated with these map units, and very shallow components within these landscapes are significant limitations to agriculture.
- Slope phase range that includes 20 percent or more. Per recommendation from MA NRCS ecological sciences staff, 20 percent slope or greater is limiting for equipment operations.
- Hydric soil composition greater than or equal to 50 percent.
- Quartzipsamment composition greater than or equal to 50 percent: droughty, inherently low fertility.
- A major component of urban land and/or major component classified to level above series i.e. Udorthents.
- Map unit complexes associated with the undulating, rolling, irregular slopes of the Cape Cod terminal moraines.

Soil map units having any of the following characteristics are precluded from the designation, Prime Farmland:

- Composition of soil components in the sandy-skeletal particle size class greater than or equal to 50 percent.
- Slope phase range that exceeds 8 percent.[6]

Unique Farmland

Soil survey map units designated as Unique Farmland, are those suitable for, and have an established history of cranberry production. The Unique Farmland designation is excluded from soil survey areas with few or no lands with cranberry production.

[6] Based on data, some map units meet Prime Farmland criteria on the lower part of the 8-15 percent slope range. About a dozen map units with available water capacity >3.5 inches and Kw of .1, .2, .15, or .17 were noted, all of which have loamy surface textures and parent material like other map units with higher Kw factors. The decision to exclude slopes greater than 8 percent from Prime Farmland is based on the preponderance of attribute data for similar soils.

Soil Map Units with Changes to Farmland Class (2020 update)					
Map unit symbol	**Map Unit name**	**Farmland Class 2019**	**Farmland Class 2020**	**Reason for Change**	**Map unit acres**
MA001	**Barnstable County, Massachusetts**				
242C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	534
53A	Freetown muck, ponded, coastal lowland, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	1065
54A	Freetown and Swansea mucks, coastal lowland, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	3748
66A	Ipswich - Pawcatuck - Matunuck complex, 0 to 2 percent slopes, very frequently flooded	Farmland of unique importance	Not Prime Farmland	These areas are salt marshes and not used for agriculture	14028
MA003	**Berkshire County, Massachusetts**				
242C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1291
273C	Oakville loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	239
58A	Natchaug and Catden mucks, 0 to 2 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	6907
MA007	**Dukes County, Massachusetts**				
285C	Eastchop loamy sand, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	2309
297A	Klej loamy coarse sand, sandy substratum, 0 to 5 percent slopes	Farmland of statewide importance	Not Prime Farmland	Sandy, nutrient-poor soils with low available water capacity	1084
308A	Moshup loam, 0 to 3 percent slopes	Farmland of statewide importance	All areas are prime farmland	Meets physical criteria for prime farmland soils	110
308B	Moshup loam, 3 to 8 percent slopes	Farmland of statewide importance	All areas are prime farmland	Meets physical criteria for prime farmland soils	331
309B	Moshup loam, 0 to 8 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	173
408A	Pompton sandy loam, 0 to 3 percent slopes	Farmland of statewide importance	All areas are prime farmland	Meets physical criteria for prime farmland soils	378
54A	Freetown and Swansea mucks, coastal lowland, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	1461
64A	Pawcatuck and Matunuck mucky peats, 0 to 2 percent slopes, very frequently flooded	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	920
MA011	**Franklin County, Massachusetts**				
127C	Berkshire-Tunbridge complex, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	>50% of map unit meets physical criteria for farmland of statewide importance	724

245C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	3169
255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1527
266A	Warwick channery fine sandy loam, 0 to 3 percent slopes	All areas are prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance, available water capacity is too low to meet prime farmland criteria	1473
266B	Warwick channery fine sandy loam, 3 to 8 percent slopes	All areas are prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance, available water capacity is too low to meet prime farmland criteria	1594
283C	Colton-Adams complex, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	>50% of map unit meets physical criteria for farmland of statewide importance	287
286B	Sheepscot fine sandy loam, 3 to 8 percent slopes	All areas are prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance, available water capacity is too low to meet prime farmland criteria	189
386C	Essex sandy loam, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	207
440C	Gloucester sandy loam, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance except low AWC. Change to fsi to maintain mapunit consistency throughout state	532
441C	Gloucester sandy loam, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance except low AWC. Change to fsi to maintain mapunit consistency throughout state	843
MA017	**Middlesex County, Massachusetts**				
253C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	7582
255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	2812
311B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	5559
311C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	888
51A	Swansea muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	12243
52A	Freetown muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	30435

53A	Freetown muck, ponded, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	5267
MA019	**Nantucket County, Massachusetts**				
294C	Evesboro sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance, available water capacity is too low to meet prime farmland criteria	1121
52A	Freetown and Swansea mucks, coastal lowland, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	1319
63A	Pawcatuck mucky peat, 0 to 2 percent slopes, very frequently flooded	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	707
MA023	**Plymouth County, Massachusetts**				
227A	Wapanucket loamy sand, 0 to 3 percent slopes	All areas are prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance, available water capacity is too low to meet prime farmland criteria	28
227B	Wapanucket loamy sand, 3 to 8 percent slopes	All areas are prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance, available water capacity is too low to meet prime farmland criteria	459
253C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	6849
255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1106
262C	Quonset sandy loam, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physcical criteria for farmland of statewide importance except for low AWC. Change to FSI to maintain consistency within state for Quonset	697
278A	Carver-Merrimac complex, 0 to 3 percent slopes	Not prime farmland	Farmland of statewide importance	>50% of map unit meets physical criteria for farmland of statewide importance	331
278B	Carver-Merrimac complex, 3 to 8 percent slopes	Not prime farmland	Farmland of statewide importance	>50% of map unit meets physical criteria for farmland of statewide importance	1871
278C	Carver-Merrimac complex, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	>50% of map unit meets physical criteria for farmland of statewide importance	824
427A	Newfields fine sandy loam, 0 to 3 percent slopes, extremely stony	Farmland of statewide importance	Not Prime Farmland	Extremely stony soils are not considered prime or farmland of statewide importance	1074
427B	Newfields fine sandy loam, 3 to 8 percent slopes, extremely stony	Farmland of statewide importance	Not Prime Farmland	Extremely stony soils are not considered prime or farmland of statewide importance	2119

486B	Barnstable - Plymouth complex, 3 to 8 percent slopes	Not prime farmland	Farmland of statewide importance	>50% of map unit meets physical criteria for farmland of statewide importance	560
486C	Barnstable - Plymouth complex, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	>50% of map unit meets physical criteria for farmland of statewide importance	649
MA602	**Bristol County, Massachusetts, Northern Part**				
245C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	5834
255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1300
290B	Hinckley loamy sand, 3 to 8 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	675
290C	Hinckley loamy sand, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	184
51A	Swansea muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	6706
52A	Freetown muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	15175
53A	Freetown muck, ponded, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	9
62A	Westbrook mucky peat, 0 to 2 percent slopes, very frequently flooded	Farmland of unique importance	Not Prime Farmland	These areas are salt marshes and not used for agriculture	662
MA603	**Bristol County, Massachusetts, Southern Part**				
242C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	2967
255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	258
446B	Gloucester-Hinckley complex, 3 to 8 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	>50% of map unit meets physical criteria for farmland of statewide importance	3052
446C	Gloucester-Hinckley complex, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	>50% of map unit meets physical criteria for farmland of statewide importance	1486
51A	Swansea muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	3554
52A	Freetown muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	8457
53A	Freetown muck, ponded, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	952
61A	Pawcatuck and Ipswich peats, 0 to 2 percent slopes, very frequently flooded	Farmland of unique importance	Not Prime Farmland	These areas are salt marshes and not used for agriculture	3143
MA605	**Essex County, Massachusetts, Northern Part**				
253C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	3446

255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1393
51A	Swansea muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	1769
52A	Freetown muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	9889
712A	Ipswich and Westbrook mucky peats, 0 to 2 percent slopes, very frequently flooded	Farmland of unique importance	Not Prime Farmland	These areas are salt marshes and not used for agriculture	9668
MA606	**Essex County, Massachusetts, Southern Part**				
242C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1540
255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	181
51A	Swansea muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	1262
52A	Freetown muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	7487
53A	Freetown muck, ponded, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	863
712A	Ipswich and Westbrook mucky peats, 0 to 2 percent slopes, very frequently flooded	Farmland of unique importance	Not Prime Farmland	These areas are salt marshes and not used for agriculture	8272
MA607	**Hampden County, Massachusetts, Central Part**				
253C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	4274
255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	2139
51A	Swansea muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	2002
52A	Freetown muck, central lowland, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	2232
54A	Freetown and Swansea mucks, 0 to 2 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	753
MA608	**Hampden and Hampshire Counties, Massachusetts, Western Part**				
243C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	738
57A	Lupton muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	2315
MA609	**Hampshire County, Massachusetts, Central Part**				
253C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	2051

255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	889
306B	Paxton fine sandy loam, 0 to 8 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1398
306C	Paxton fine sandy loam, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	3313
311B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1372
311C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1470
316B	Scituate fine sandy loam, 3 to 8 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	522
316C	Scituate fine sandy loam, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	111
398B	Wethersfield fine sandy loam, 3 to 8 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	486
398C	Wethersfield fine sandy loam, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	663
406B	Charlton fine sandy loam, 3 to 8 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	684
406C	Charlton fine sandy loam, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1193
441B	Gloucester fine sandy loam, 3 to 8 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	827
441C	Gloucester fine sandy loam, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1021
51A	Swansea muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	874
52A	Freetown muck, central lowland, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	1741
MA610	**Hampden and Hampshire Counties, Massachusetts, Eastern Part**				
253C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	5369
255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	742
51A	Swansea muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	1735
52A	Freetown muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	3666
MA613	**Worcester County, Massachusetts, Northeastern Part**				

245C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	4381
255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1442
262A	Quonset loamy sand, 0 to 3 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physcical criteria for farmland of statewide importance except for low AWC. Change to FSI to maintain consistency within state for Quonset	565
262B	Quonset loamy sand, 3 to 8 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physcical criteria for farmland of statewide importance except for low AWC. Change to FSI to maintain consistency within state for Quonset	2285
262C	Quonset loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physcical criteria for farmland of statewide importance except for low AWC. Change to FSI to maintain consistency within state for Quonset	1172
290B	Hinckley loamy sand, 3 to 8 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	193
290C	Hinckley loamy sand, 8 to 15 percent slopes, very stony	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	284
51A	Swansea muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	2186
52A	Freetown muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	8413
53A	Freetown muck, ponded, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	696
MA614	**Worcester County, Massachusetts, Northwestern Part**				
253C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	3599
284A	Croghan loamy fine sand, 0 to 3 percent slopes	All areas are prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance, available water capacity is too low to meet prime farmland criteria	558
284B	Croghan loamy fine sand, 3 to 8 percent slopes	All areas are prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance, available water capacity is too low to meet prime farmland criteria	1751
54A	Freetown and Swansea mucky peats, 0 to 2 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	435
56A	Greenwood and Chocorua mucks, 0 to 3 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	914

58A	Catden and Natchaug mucks, 0 to 2 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	8705
59A	Bucksport and Wonsqueak mucks, 0 to 2 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	18996
MA615	**Worcester County, Massachusetts, Southern Part**				
245C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	4408
255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	567
51A	Swansea muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	5136
52A	Freetown muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	12180
53A	Freetown muck, ponded, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	2416
MA616	**Norfolk and Suffolk Counties, Massachusetts**				
51	Swansea muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	8830
52	Freetown muck, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	9900
53	Freetown muck, ponded, 0 to 1 percent slopes	Farmland of unique importance	Not Prime Farmland	These areas are freshwater wetlands and not used for agriculture	2210
65	Ipswich mucky peat, 0 to 2 percent slopes, very frequently flooded	Farmland of unique importance	Not Prime Farmland	These areas are salt marshes and not used for agriculture	1850
245C	Hinckley loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	9125
255C	Windsor loamy sand, 8 to 15 percent slopes	Not prime farmland	Farmland of statewide importance	Meets physical criteria for farmland of statewide importance	1000
					388584

ATTACHMENT 6

TRAFFIC STUDY

TECHNICAL MEMORANDUM

REF: NEX-2020172.00

DATE: July 30, 2020

TO: 887 Woburn, LLC.
887 Woburn Street
Wilmington, MA 01887

FROM: Ms. Rebecca L. Brown, P.E., Senior Project Manager
Mr. Douglas S. Halpert, P.E., Project Engineer

RE: Traffic Impact and Access Study
Proposed Solid Waste Handling Facility
887 Woburn Street – Wilmington, Massachusetts

INTRODUCTION

Greenman-Pedersen, Inc. (GPI) has prepared this *Traffic Impact and Access Study* (TIAS) for a proposed solid waste handling facility to be located at #887 Woburn Street in Wilmington, Massachusetts. The site is currently occupied by a salvage yard and is accessed via a single full-access/egress driveway on Woburn Street approximately 290 feet north of Presidential Way. The project consists of razing the existing structures on-site and constructing a commercial construction and demolition solid waste handling facility to accommodate 500 tons per day of material. As part of the project, the access driveway will be shifted to the southerly end of the property. This facility will serve mainly commercial waste disposal vehicles. Although the facility will be open to the public, there will be a minimum fee of over $200 (for 1 ton or less) associated with the drop-off materials, which will result in minimal residential drop-off of materials. The majority of waste will leave the site via the adjacent rail line to the west, while recyclables will be consolidated and transported off-site in larger vehicles. All commercial vehicles will be directed to travel to/from the site via Presidential Way and will be restricted from traveling along Woburn Street north of the site driveway. This TIA evaluates the traffic impacts and access/egress requirements for the proposed redevelopment.

The site is bounded by NER Construction Management (#867 Woburn Street) to the north, All Access Equipment (#891 Woburn Street) to the south, Woburn Street to the east, and Massachusetts Bay Transit Authority (MBTA) train tracks to the west. The site location in relation to the surrounding roadways is shown on the map on Figure 1.

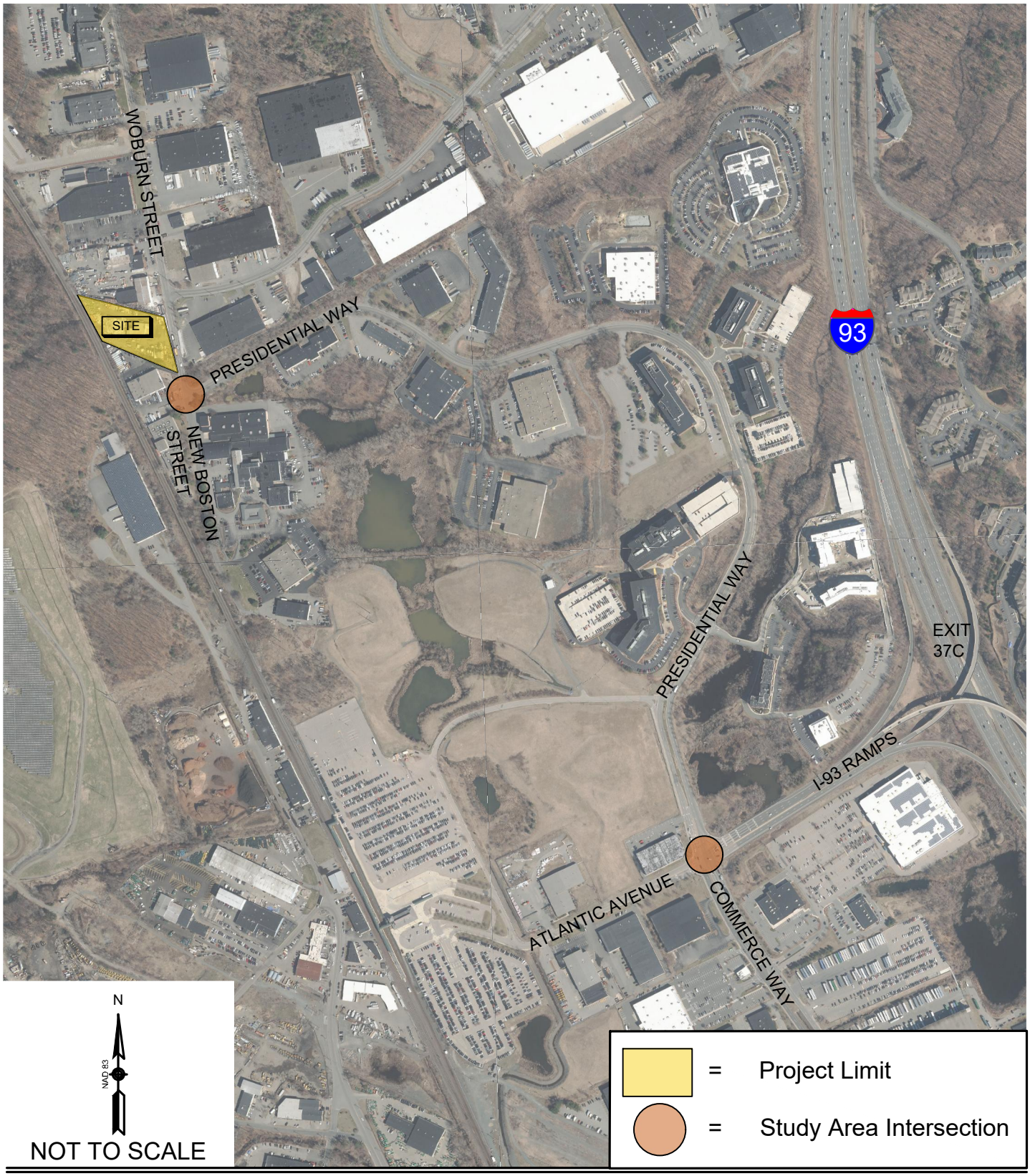


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Figure 1

Project Locus Map

EXISTING CONDITIONS

Study Area

Evaluation of the traffic impacts associated with the proposed project requires an evaluation of existing and projected traffic volumes on the adjacent streets, the volume of traffic expected to be generated by the project, and the impact that this traffic will have on the adjacent streets and nearby intersections. In preparing the TIAS for the proposed site, the following intersections have been analyzed and evaluated:

- Presidential Way / Woburn Street / New Boston Street
- Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps

Presidential Way

Presidential Way is classified as a local roadway running in a C-shape, which connects Woburn Street to the west with Commerce Way and the Interstate 93 (I-93) Exit 37C Ramps to the east. The roadway is under the jurisdiction of the City of Woburn. Presidential Way is generally 42-feet wide and primarily consists of one travel lane in each direction with directional travel separated by a striped double-yellow centerline. The posted speed limit is 35 miles per hour (mph) in both directions. Variable width shoulders are provided; however, they are not specifically designated for use by bicycles. Land use along Presidential Way near the site consists of mainly industrial and office uses.

Woburn Street

Woburn Street is classified as an urban minor arterial and is aligned in an overall north-south direction. The roadway is under the jurisdiction of the Town of Wilmington. Woburn Street provides connection between Park Street in Wilmington to the north and New Boston Street / Presidential Way in Woburn to the south. Adjacent to the site, Woburn Street is generally 26-feet wide one travel lane in each direction separated by a striped double-yellow centerline. The posted speed limit is 35 miles per hour (mph) in both directions. There are no bicycle accommodations provided. Land use along Woburn Street near the site consists of mainly industrial and office uses.

Presidential Way / Woburn Street / New Boston Street

Woburn Street and New Boston Street intersect at Presidential Way to form a four-way unsignalized intersection, with the shared driveway for All Access Equipment and Fraen Machining Corporation (#891 Woburn Street) forming the fourth leg of the intersection. The Woburn Street southbound and New Boston Street southbound approaches operate free-flowing, while the Presidential Way westbound and #891 Woburn Street Driveway eastbound approaches operate under STOP control. New Boston Street is not striped but is approximately 30 feet wide, providing adequate width for a single travel lane in each direction. The site driveway eastbound and New Boston Street northbound approaches consist of a general-purpose lane with no separation for directional travel. The Presidential Way westbound and Woburn Street southbound approaches each consist of a single general-purposed travel-lane with directional travel separated by a striped double yellow centerline. There are no pedestrian accommodations provided at this intersection.

Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps

Atlantic Avenue, Commerce Way, and the Interstate 93 ramps intersect at Presidential Way to form a four-way signalized intersection. The Atlantic Avenue eastbound approach consists of a shared left-turn/through lane and an exclusive right-turn lane. The I-93 Ramps westbound approach consists of two exclusive left-

turn lanes, a through lane, and a channelized right-turn lane operating under YIELD control. The Commerce Way northbound approach consists of an exclusive left-turn lane, a through lane, and two exclusive right-turn lanes. The Presidential Way southbound approach consists of two exclusive left-turn lanes and a shared through/right-turn lane. Sidewalks are provided along the westerly side of Presidential Way, the westerly side of Commerce Way, and the southerly side of Atlantic Avenue with a signalized crosswalk provided across the Atlantic Avenue approach.

Traffic Volumes

Base traffic conditions within the study area were developed by conducting manual turning movement counts (TMC) and vehicle classification counts at the study area locations. The TMCs and vehicle classification counts were performed during the weekday AM peak period (7:00 to 9:00 AM) and weekday PM peak period (3:00 to 6:00 PM) on Tuesday, July 21, 2020 and during the Saturday midday (10:00 AM to 1:00 PM) peak period on Saturday, July 18, 2020.

COVID19- Adjustment

Based on MassDOT count station data, traffic volumes in July are typically higher than average-month conditions. However, the TMCs at the study area intersections were conducted on July 18 and 20, 2020, following the impact of the COVID-19 pandemic reaching the United States. Although actions had been taken on the date of the counts to reopen many businesses, restaurants, and retail establishments, may businesses continued to remain closed or under Work-From-Home (WFH operations). The combinations of the closure of businesses and WFH operations likely resulted in significant reductions in traffic volumes through the study area intersections.

GridSmart cameras are currently installed at the Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps intersection that record traffic volumes through the intersection on a daily basis. TMCs were obtained from the GridSmart cameras from Wednesday, February 26, 2020 and Saturday, February 29, 2020 to compare the July 2020 TMCs collected during the COVID-19 pandemic to traffic volumes experienced just before the impacts of the pandemic were realized in the Commonwealth of Massachusetts. In reviewing the GridSmart data, GPI discovered that the cameras did not record the Presidential Way westbound channelize right-turn movement as this movement is not controlled by the traffic signal. In addition, the cameras erroneously counted the vehicles in the inside right-turn lane on Commerce Way northbound as through vehicles due to their alignment with the opposing through lane on Presidential Way. Therefore, the February 2020 GridSmart counts were not used for analysis, but were used to determine an adjustment factor to apply to the July 2020 traffic volumes to estimate pre-COVID-19 traffic conditions.

The total entering vehicle (TEV) trips through the Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps intersection collected in February 2020 was compared to the TEV trips collected in July 2020 for each of the analysis time periods, which indicated that the traffic volumes during the weekday AM peak hour were approximately 81.3 percent higher in February than in July 2020, traffic volumes during the weekday PM peak hour were approximately 32.6 percent higher in February than in July 2020, and traffic volumes during the Saturday midday peak hour were approximately 41.5 percent higher in February than in July 2020.

In addition to comparing traffic counts at the Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps intersection, GPI reviewed traffic counts available from Massachusetts Department of Transportation (MassDOT) permanent count stations on other arterial roadways in the surrounding area[1].

[1] MassDOT Transportation Data Management System; Permanent Count Station #407 (Route 28 south of Reading T.L) and Station #5127 (Route 125 south of Route 28).

This comparison revealed that traffic volumes in February 2020 were approximately 92.9 percent, 27.3 percent, and 26.8 percent higher than July 2020 traffic volumes during the weekday AM, weekday PM, and Saturday midday peak hours, respectively.

As the adjustments obtained from the GridSmart data at the Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps intersection were slightly higher than those obtained from MassDOT permanent count station and represent more localized conditions, this data was used to adjust the volumes collected in July 2020 to a pre-COVID-19 condition. Therefore, the July 2020 traffic volumes were increased by 81.3, 32.6, and 41.5 percent during the weekday AM, weekday PM, and Saturday midday peak hours, respectively, to represent February 2020 existing traffic volume conditions.

Seasonal Adjustment

Traffic on a given roadway typically fluctuates throughout the year depending on the area and the type of roadway. Traffic volumes during the month of February are typically lower than average-month conditions. As the July 2020 traffic volumes were adjusted to February 2020 conditions to reflect pre-COVID conditions, an additional seasonal adjustment was applied to adjust February 2020 volumes to average-month conditions. To account for the seasonal fluctuation, MassDOT historical seasonal factors were reviewed for Factor Group U4-U7 (Minor arterial, major and minor collector, and local road) for the most recent three years of available data (2017-2019). This information revealed that February traffic volumes are typically 2.3 percent below average-month conditions. Therefore, the TMCs were further increased by 2.3% to reflect an average-month analysis condition. The MassDOT seasonal adjustment data is provided in the Appendix.

The 2020 Existing traffic-flow networks for the weekday AM, weekday PM, and Saturday midday peak hours are shown graphically on Figure 2.

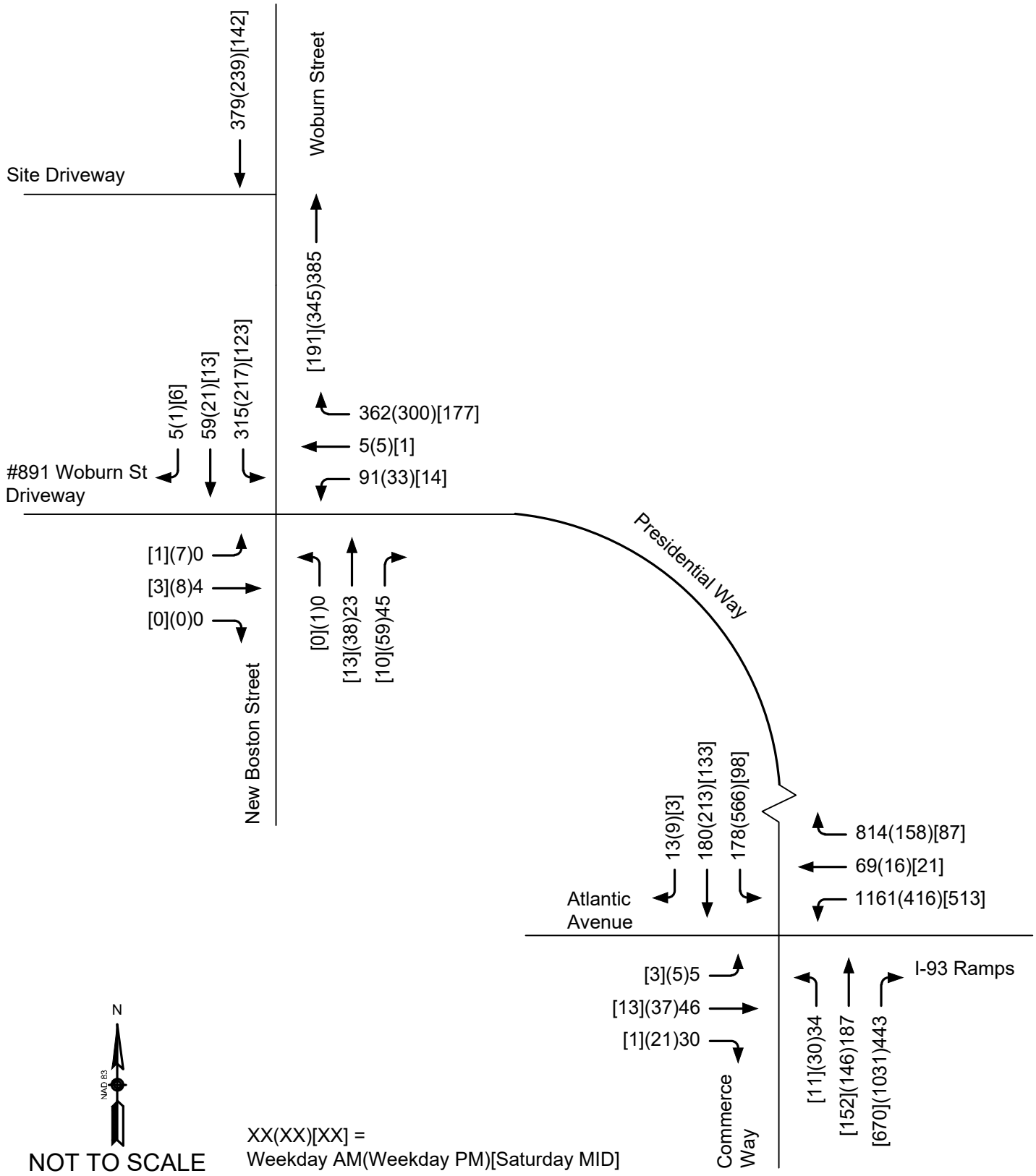

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Figure 2

2020 Existing
Peak Hour Traffic Volumes

Collisions

Collision data for the study area intersections were obtained from MassDOT for the latest complete five years available (2014-2018). A summary of the crashes at this intersection is provided in Table 1.

In addition to the collision summary, crash occurrence also should be compared to the volume of traffic through a particular intersection or on a particular classification of roadway to determine any significance. Accordingly, the crash rate was calculated for the study area intersections and compared with the statewide and district-wide averages. An intersection crash rate is a measure of the frequency of collisions compared to the volume of traffic through an intersection and is presented in crashes per million entering vehicles (c/mev). For signalized intersections, the statewide average is 0.78 c/mev and the district-wide (District 4) average is 0.73 c/mev. For unsignalized intersections, the statewide and district-wide average is 0.57 c/mev. A comparison of the calculated crash rate to these averages can be used to establish the significance of collision occurrence and whether or not potential safety problems exist. All crash rate worksheets are provided in the Appendix.

Based on the collision data, the signalized intersection of Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps experienced an average of 12.8 collisions per year over the five-year study period and a crash rate of 1.11 c/mev, which is higher than the statewide and district-wide average. This intersection has been identified by MassDOT as high-crash location and is therefore eligible for funding through the Highway Safety Improvement Program (HSIP). To be categorized as HSIP eligible, an intersection must be within the top five percent of crash clusters in its respective Regional Planning Agencies (RPAS) boundaries. This intersection is considered HSIP-eligible based on MassDOT's online database and recorded crash cluster data from 2015-2017 for the Metropolitan Area Planning Council with an Equivalent Property Damage Only (EPDO) index of 210.

Of the 64 crashes at the Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps intersection, approximately 58 percent (37 of 64) were angled collisions where approximately 62 percent (23 of 37) occurred between vehicles traveling northbound and westbound. These collisions involved a mix of westbound left-turn and westbound right-turn vehicles. The collisions between westbound left-turning and northbound through vehicles may be the result of inadequate green times or clearance intervals on the westbound left-turn movement that results in vehicles entering the intersection on a red indication. The collisions between the westbound right-turns and northbound through movements may be the result of confusing intersection geometry where only a single through lane is striped on Commerce Way northbound, but two through lanes are providing on the receiving side of Presidential Way, appearing as though the westbound right-turns may enter into their own lane without yielding. Review of historic street view imagery also indicates that the YIELD sign on the channelized right-turn lane was missing for an unknown period of time prior to November 2017 and may have contributed to some of these angle collisions. GPI recommends that the City of Woburn and/or MassDOT review the signal timings at this location to verify that the clearance intervals are consistent with MassDOT standards based on the intersection geometry and that the green times are adequate to accommodate the existing traffic volumes. GPI noted that although the traffic signal controller has been programmed with various time-of-day coordination plans, the intersection is operating on a single timing plan for the entire day, seven days per week. As more than half of the angle collisions occurred during the weekday AM and PM peak commuter hours, the existing timings may not be long enough to accommodate the traffic volumes during these time periods.

Although MassDOT's Impact Crash Portal indicated that no reportable collisions were experienced at the unsignalized intersection of Presidential Way / Woburn Street / New Boston Street over the five-year analysis period, three collisions were reported in the vicinity of #1 Presidential Way, just to the east of the intersection. All three of these collisions were single-vehicle crashes, with two occurring during inclement weather conditions and the other one involving a truck roll-over. These collisions may have been the result of drivers losing control of their vehicle while traveling too quickly making the left-turn movement from Woburn Street southbound to Presidential Way eastbound.

TABLE 1
Collision Summary

Location	Number of Collisions			Severity [a]				Collision Type [b]						Percent During	
	Total	Average per Year	Crash Rate [c]	PD	PI	F	NR	SS	RE	CM	FO	SV	HO	Commuter Peak [d]	Wet/Icy Conditions [e]
Presidential Way / Woburn Street / New Boston Street	3	0.6	0.20	1	2	--	--	--	--	--	--	1	--	0%	67%
Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps	64	12.8	1.11	41	23	--	--	8	14	37	1	1	3	31%	22%

Source: MassDOT (2014-2018).

[a] PD = property damage only; PI = personal injury; F = fatality, NR = not reported.

[b] SS = sideswipe; RE = rear end; CM = cross movement/angle; FO = fixed object; SV = single vehicle; HO = head-on.

[c] Measured in crashes per million entering vehicles for intersections and in crashes per million vehicle miles traveled for roadway segments.

[d] Percent of vehicle incidents that occurred during the weekday AM (7:00 AM-9:00 AM) and weekday PM (4:00 PM -6:00 PM) commuter peak periods.

[e] Represents the percentage of only "known" collisions occurring during inclement weather conditions.

Sight Distance

To identify potential safety concerns associated with site access and egress, sight distances have been evaluated at the proposed site driveway location to determine if the available sight distances for vehicles exiting the site meet or exceed the minimum distances required for approaching vehicles to safely stop. The available sight distances were compared with minimum requirements, as established by the American Association of State Highway and Transportation Officials (AASHTO)[2]. AASHTO is the national standard by which vehicle sight distance is calculated, measured, and reported. The Massachusetts Executive Office of Transportation (EOT) and the Executive Office of Energy and Environmental Affairs (EEA) require the use of AASHTO sight distance standards when preparing traffic impact assessments and studies, as stated in their guidelines for traffic impact assessments.

Sight distance is the length of roadway ahead that is visible to the driver. Stopping Sight Distance (SSD) is the minimum distance required for a vehicle traveling at a certain speed to safely stop before reaching a stationary object in its path. The values are based on a driver perception and reaction time of 2.5 seconds and a braking distance calculated for wet, level pavements. When the roadway is either on an upgrade or downgrade, grade correction factors are applied. Stopping sight distance is measured from an eye height of 3.5 feet to an object height of 2 feet above street level, equivalent to the taillight height of a passenger car. The SSD is measured along the centerline of the traveled way of the major road.

Intersection sight distance (ISD) is provided on minor street approaches to allow the drivers of stopped vehicles a sufficient view of the major roadway to decide when to enter the major roadway. By definition, ISD is the minimum distance required for a motorist exiting a minor street to turn onto the major street, without being overtaken by an approaching vehicle reducing its speed from the design speed to 70 percent of the design speed. ISD is measured from an eye height of 3.5 feet to an object height of 3.5 feet above street level. The use of an object height equal to the driver eye height makes intersection sight distances reciprocal (i.e., if one driver can see another vehicle, then the driver of that vehicle can also see the first vehicle). When the minor street is on an upgrade that exceeds 3 percent, grade correction factors are applied.

SSD is generally more important as it represents the minimum distance required for safe stopping while ISD is based only upon acceptable speed reductions to the approaching traffic stream. The ISD, however, must be equal to or greater than the minimum required SSD in order to provide safe operations at the intersection. In accordance with the AASHTO manual, *"If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road."* Accordingly, ISD should be at least equal to the distance required to allow a driver approaching the minor road to safely stop.

The available SSD and ISD at the proposed site driveway location were measured and compared to minimum requirements as established by AASHTO. Based on the enforced and observed speeds, the SSD and ISD requirements at this intersection were calculated. The required minimum sight distances for the driveways are compared to the available distances, as shown in Table 2.

The speeds for determining minimum and desired sight distances were based on the posted speed limit along Woburn Street due to the proposed site driveway's proximity to the Presidential Way / Woburn Street / New Boston Street intersection. This is considered to be a conservative estimation as the majority of traffic passing by the driveway is turning left from Woburn Street southbound onto Presidential Way or turning

[2] *A Policy on Geometric Design of Highways and Streets*; American Association of State Highway and Transportation Officials (AASHTO); 2018.

right from Presidential Way westbound onto Woburn Street, and would therefore, be traveling slowly passing by the driveway to negotiate the 90-degree turn at the intersection.

The site driveway will be signed to restrict left-turns exiting the site onto Woburn Street and all contracted vehicles will be directed to exit the site toward the south (right). Therefore, vehicles exiting the site driveway will only need to look north (left) along Woburn Street to see oncoming traffic and make this right-turn maneuver. However, ISD measurements have been provided to the south (right) of the site driveway for informational purposes and to ensure that safe sight lines exist in the unlikely event that a vehicle illegally exits left out of the site driveway or an emergency vehicle needs to exit left out of the site driveway.

TABLE 2
Sight Distance Summary

Location/Direction	Stopping Sight Distance (feet)		Intersection Sight Distance (feet)		
	Measured	Minimum Required [a]	Measured	Minimum Required [b]	Desirable [c]
Woburn Street at Site Driveway:					
North of intersection (SB)	+500	250	+500	250	335
South of intersection (NB)	+500	250	*+500* [d]	*250*	*390*

[a] Values based on AASHTO requirements for minimum SSD based on posted speed of 35 mph on Woburn Street.

[b] Values based on AASHTO requirements for SSD.

[c] Values based on AASHTO requirements for ISD for posted speed of 35 mph on Woburn Street.

[d] Distance measured along Woburn St / New Boston Street. Sight line is 240 feet to STOP line on Presidential Way; however, vehicles will be approaching from a stopped condition.

A concrete block wall is currently located along the site frontage on the westerly side of Woburn Street. This block wall will be removed as part of the project, providing a clear view in both directions exiting the site driveway. As shown in Table 2, the sight lines at the proposed site driveway are anticipated to exceed AASHTO's recommendations for minimum SSD and desirable ISD.

In addition, it is recommended that any proposed plantings, vegetation, landscaping, and signing along the site frontage be kept low to the ground (no more than 3.0 feet above street level) or set back sufficiently from Woburn Street so as not to inhibit the available sight lines.

FUTURE CONDITIONS

To estimate the impact of site-generated traffic within the study area, existing traffic volumes were projected to the year 2027, representing a seven-year design horizon based in accordance with state guidelines. The proposed redevelopment is expected to be completed and fully operational well within this time frame. Traffic volumes on the roadway network at that time will include existing traffic and new traffic due to normal traffic growth. Consideration of these factors resulted in the development of 2027 No-Build traffic volumes, which assume that the proposed redevelopment is not built. The incremental impacts of the proposed project may then be determined by adding site-generated traffic volumes (Build conditions) and making comparisons to the No-Build conditions.

Traffic Growth

To develop the 2027 No-Build forecast volumes, two components of traffic growth were considered. First, an annual growth percentage was determined. Based on historic traffic-volume counts provided by MassDOT, traffic volumes in the area have been increasing at a rate of approximately 1.0 percent per year since 2010.[3] Based on previous studies provided by the Town of Wilmington, a 1.0 percent compounded annual growth was assumed which is consistent with other recent studies done in the area.

Second, any planned or approved specific developments in the area that would generate a significant volume of traffic on study area roadways within the next seven years were considered. There were no significant projects identified by the City of Woburn. The following project was included in the 2027 No-Build condition as identified by the Town of Wilmington:

- *804 Woburn Street* – This project consists of constructing ±180,000 square foot (SF) research and development expansion. While some work is still ongoing on this project, the majority of the development has been constructed and is occupied. In discussions with the Town of Wilmington, it was agreed that the additional trips generated by the completion of this project could be assumed to be included in the background growth rate of 1.0 percent per year.

Planned Roadway Improvements

Based on discussions with the City of Woburn and the Town of Wilmington, there are no planned roadway improvement projects in the vicinity of the proposed project.

No-Build Conditions

The 2027 No-Build peak-hour traffic volumes were accordingly developed by applying a 1.0 percent compounded annual traffic growth rate (7.2 percent over seven years) to the 2020 Existing traffic volumes. The 2027 No-Build weekday AM, weekday PM, and Saturday midday peak hour traffic volumes are illustrated on Figure 3.

[3] *MassDOT Transportation Data Management System;* Tewksbury and Wilmington, MA.

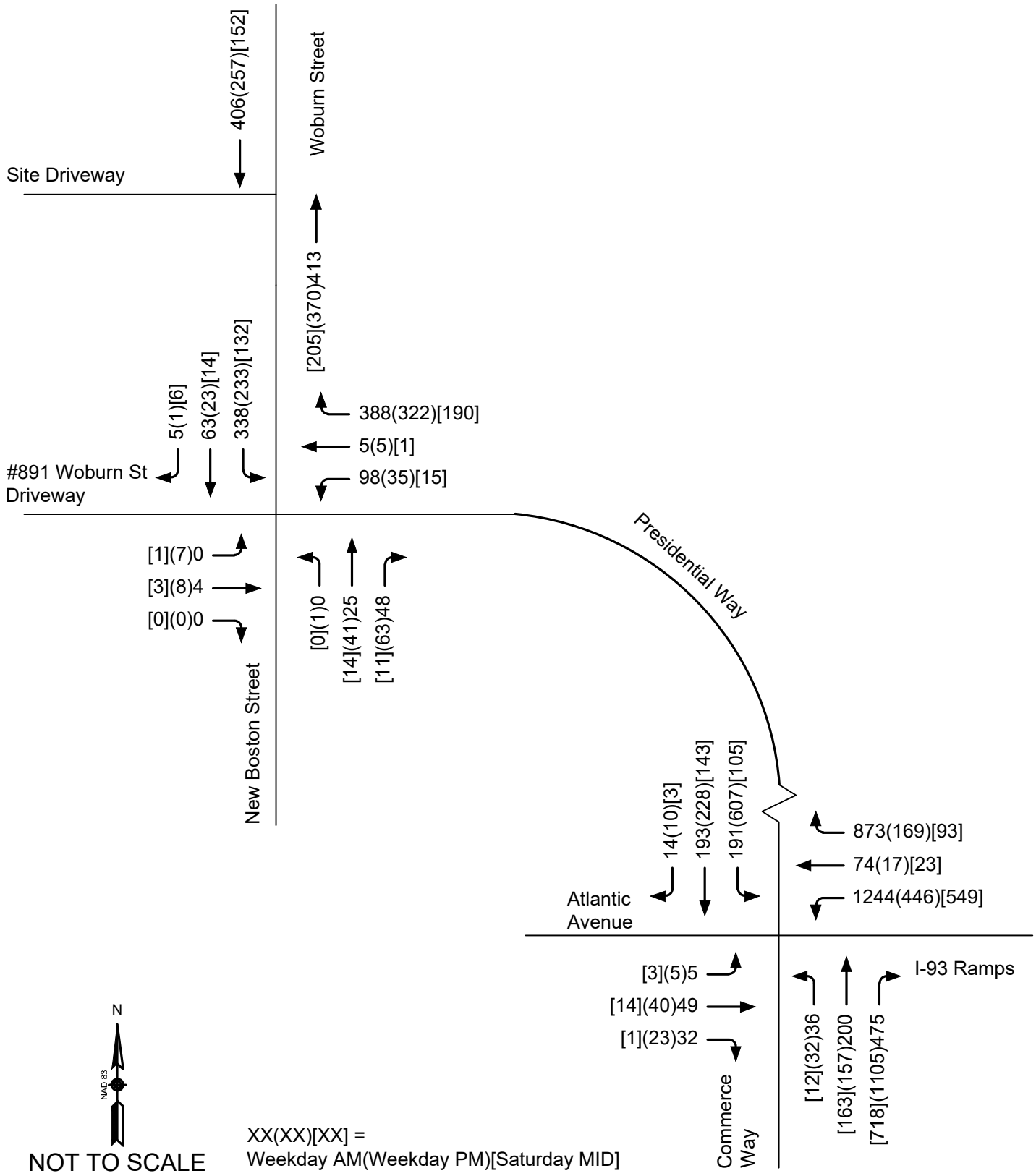

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Figure 3

2027 No-Build
Peak Hour Traffic Volumes

Trip Generation

The proposed solid waste handling facility is anticipated to process up to 500 tons of material per day on a maximum capacity day. The large majority of material is anticipated to be transported to the facility via commercial vehicles, consisting of a mix of small box trucks and roll-off containers. Although the facility will be open to the public, there will be a minimum fee of over $200 for drop-off of up to 1 ton of material, which will result in minimal residential drop-off off with the exception of large loads that are anticipated to be transported to the facility via pick-up trucks with or without trailers and small box trucks. Typically, site-generated trips are estimated based on trip rates contained in the Institute of Transportation Engineers (ITE) publication *Trip Generation Manual*. However, ITE does not provide trip rates for a solid waste handling facility. Therefore, the site-generated trips were estimated based on information provided by the Proponent on the anticipated number of vehicles proposed to be serviced at the facility, as well as empirical trip generation information obtained from a similar proposed facility on Carleton Drive in Georgetown, Massachusetts.

The proposed facility will be open for the receipt of materials from 6:00 AM to 5:00 PM on weekdays and from 7:00 AM to 12:00 PM on Saturdays. Approximately 10 to 12 employees will operate the site, with 24-hour sorting operations on weekdays and half-day sorting operations on Saturdays. Employees were assumed to work in two shifts extending from approximately 6:00 AM to 2:00 PM, and from 2:00 PM to 10:00 PM, with up to 6 employees arriving at the same time for any given shift.

In order to reach 500 tons per day of material traveling to the site, a total of approximately 120 vehicles are anticipated to transport material to the site on a peak operation day, consisting of a mix of approximately 50 small commercial trucks and 90 roll-off trucks.

The majority of the material being transported off of the site will leave via the adjacent railroad to the west. However, recyclables and some large bulk items will leave the site on 40-foot roll-off trucks. Approximately five of these vehicles are anticipated to transport materials off site on a typical day.

Table 3 provides a summary of the daily number of each type of vehicle anticipated to travel to the site, along with the approximate tonnage per vehicle associated with each type of vehicle.

The daily trips described in Table 3 were distributed throughout the day to estimate the site-generated vehicle trips during each of the three analysis time periods based on empirical trip generation counts collected at the existing G Mello Disposal solid waste handling facility on Route 133 in Georgetown, MA. The proposed facility is anticipated to operate with similar commercial vehicle loads to the new facility in Georgetown and is therefore likely to experience similar variation in traffic throughout the day. The resulting peak hour traffic volumes anticipated to be generated by the proposed solid waste handling facility are summarized in Table 4. The detailed trip generation calculations are provided in the Attachments.

The proposed development is expected to generate 30 *additional new* vehicle trips (15 entering and 15 exiting) during the weekday AM peak hour, 24 *additional new* vehicle trips (12 entering and 12 exiting) during the weekday PM peak hour, and 70 *additional new* trips (35 entering and 35 exiting) during the Saturday midday peak hour.

TABLE 3
Daily Trip Generation Summary

Type of Truck	Tonnage (per vehicle)	Number per Day	Total Tonnage
Passenger Vehicles (Employees)	--	12	--
Small Commercial Trucks	1	50	50
Roll-Off Trucks	5	90	450
Recycling Roll-Off Trucks (Export Only)	5	5	--
TOTAL VEHICLES	**--**	**157**	**500**

TABLE 4
Trip Generation Summary

Time Period / Direction	Receipt of Materials		Export of Materials	Employees	Total Trips [a]
	Small Commercial Vehicles	Roll-Off Trucks	Recycling Roll-Off Trucks		
Weekday Daily	100	180	10	24	314
Weekday AM Peak Hour:					
Enter	5	9	1	--	15
Exit	5	9	1	--	15
Total	10	18	2	--	30
Weekday PM Peak Hour:					
Enter	4	7	1	--	12
Exit	4	7	1	--	12
Total	8	14	2	--	24
Saturday Daily	100	180	10	12	302
Saturday Midday Peak Hour:					
Enter	12	22	1	--	35
Exit	12	22	1	--	35
Total	24	44	2	--	70

[a] Sum of Small Commercial Vehicles, Roll-Off Trucks, Recycling Roll-off Trucks, and Employee Trips.

Trip Distribution

Having estimated project-generated vehicle trips, the next step is to determine the distribution of project traffic and assign these trips to the local roadway network. The proposed site driveway will be restricted to left-in / right-out only movements, prohibiting traffic to travel to the site to/from the north along Woburn Street. In addition, the majority of the vehicles traveling to the site will operate under contract with the Proponent. A condition of this contract will require that vehicles enter and exit the site via Presidential Way to the south.

The majority of material leaving the site will be removed via the adjacent railway. However, recyclables will be transported off-site in 40-foot roll-off trucks to facilities in Everett, Boston, and Canada. All of these vehicles will travel to/from the site via I-93 and Presidential Way.

To assess the distribution of vehicles traveling to/from the site, a population gravity model was created based on 2010 U.S. Census data for municipalities within a 10-mile radius which accounted for distance from the site. Accordingly, 65 percent of the site traffic is expected to/from the south along Presidential Way via Interstate 93, 20 percent is expected to/from the west/south along Commerce Way via Interstate 95, and 15 percent is expected to/from the east/north along Presidential Way via Interstate 93. The detailed trip distribution calculations are provided in the Appendix.

Build Traffic Volumes

Based on the traffic generation and distribution estimates for this project, the traffic volumes associated with the proposed redevelopment were assigned to the roadway network. The site-generated traffic networks are shown on Figure 4 for the weekday AM, weekday PM and Saturday midday peak hours. The site-generated traffic volumes were then combined with the 2027 No-Build traffic volumes to develop the 2027 Build peak-hour traffic-volume networks. The 2027 Build weekday AM, weekday PM, and Saturday midday peak hour traffic volumes are illustrated on Figure 5.

Traffic Increases

The proposed redevelopment will result in increases in traffic on the study area roadways. As shown on Figure 4, traffic-volume increases beyond the study area during the peak hours are expected to be in the range of 30 to 70 vehicles on Presidential Way. These increases represent, on average, one additional vehicle approximately every one to two minutes during the peak hours. Traffic-volume increases beyond the study area during the peak hours are expected to be in the range of 4 to 14 vehicles on Commerce Way. These increases represent, on average, one additional vehicle approximately every four to 15 minutes during the peak hours.

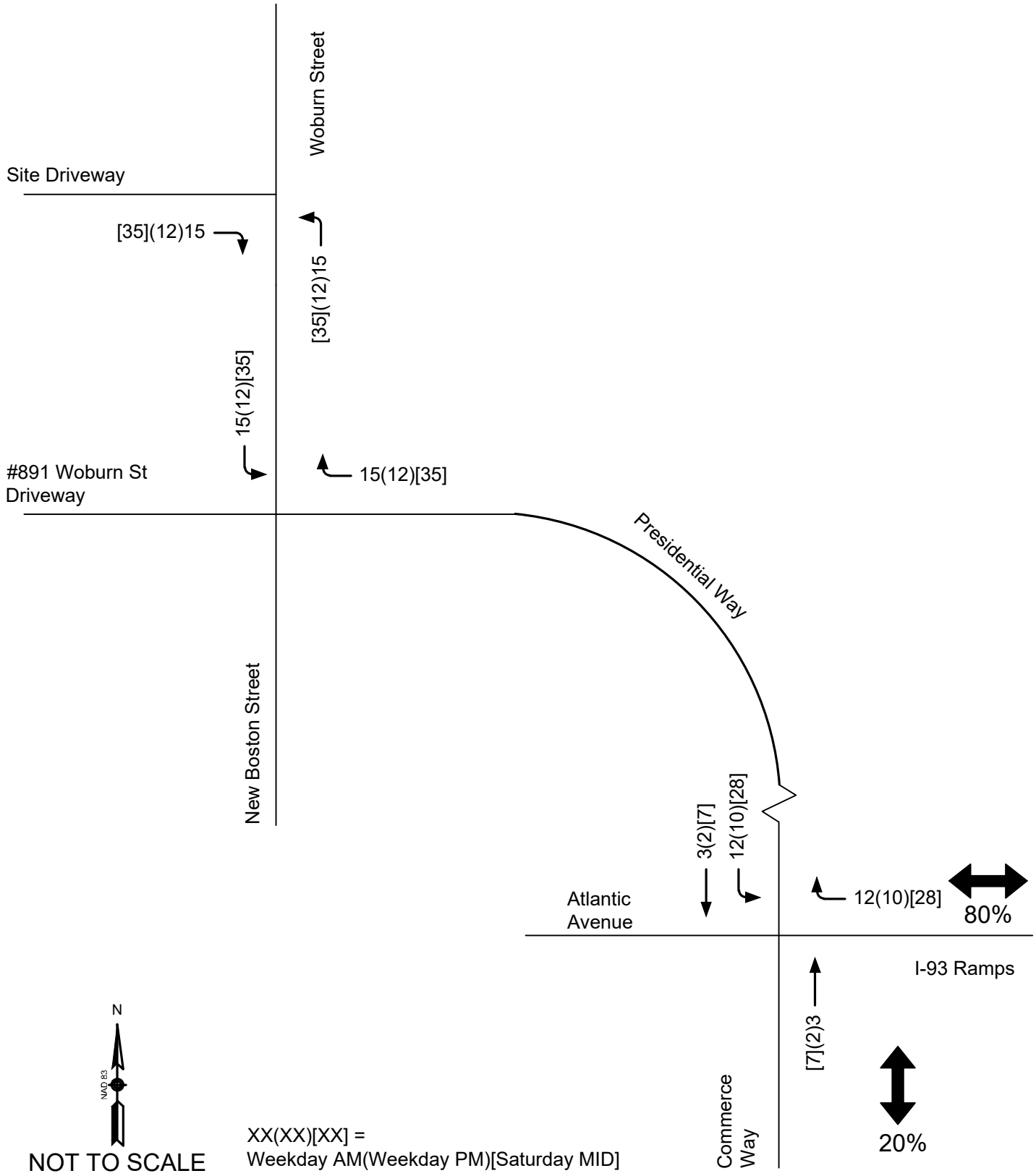

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Figure 4

Site Generated Trips
Peak Hour Traffic Volumes

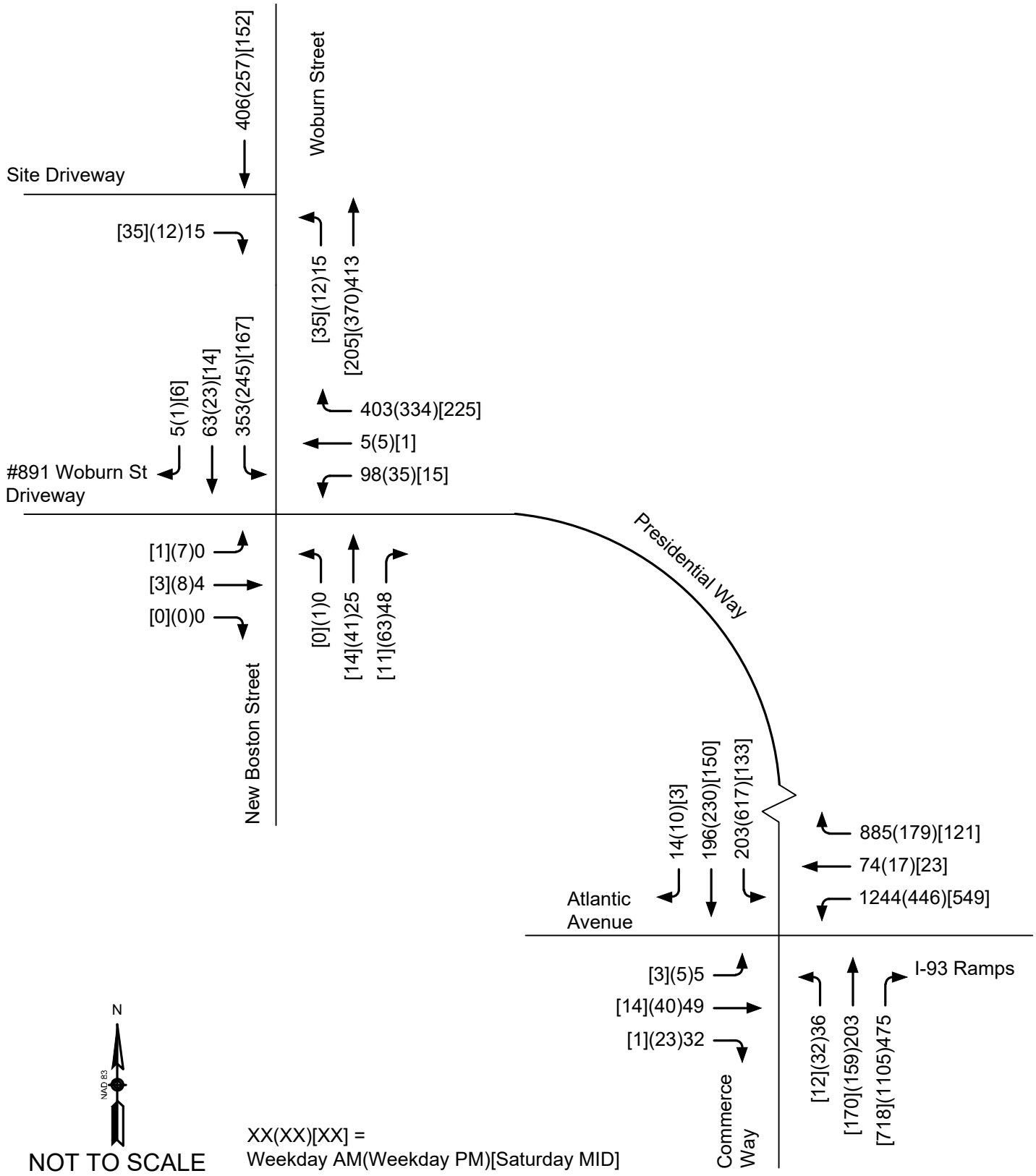

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Figure 5

2027 Build
Peak Hour Traffic Volumes

CAPACITY AND QUEUE ANALYSIS

Capacity and queue analyses were conducted at all study area locations under 2020 Existing, 2027 No-Build, and 2027 Build traffic-volume conditions. The impact of site-generated traffic can be measured by comparing 2027 No-Build conditions to 2027 Build conditions.

Methodology

The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual* (HCM)[4] and is described in the Appendix. The TIAS utilizes HCM 2000 analysis results for the signalized intersection of Presidential Way / Commerce Way / Atlantic Avenue / I-93 Exit 37C Ramps because the HCM 6th Edition methodology does not support exclusive pedestrian phases or signal phasing which in incompatible with National Electrical Manufacturers Association (NEMA) standards. MassDOT has recognized such inefficiencies with the HCM 6th Edition method and accepts HCM 2000 results as the most recently approved analysis methodology.

The TIAS also utilizes Synchro/SimTraffic 10.0 analysis results for the unsignalized intersection of Presidential Way / Woburn Street / New Boston Street as it provides a more accurate representation of the impacts of the heavy southbound left-turn movement operating in conjunction with the heavy westbound right-turn movement.

An average of five consecutive runs of the SimTraffic microsimulation model were utilized to estimate average delays and queuing at the study area intersections. The volume-to-capacity (V/C) ratios were obtained from the HCM outputs from the Synchro model.

For signalized intersections, the maximum back of queue during a typical (average) signal cycle and a 95th percentile signal cycle were calculated for each lane group during the peak periods studied. The back of queue is the length of a backup of vehicles from the stop line of a signalized intersection to the last vehicle in the queue that is required to stop, regardless of the signal indication. The length of this queue depends on a number of factors including signal timing, vehicle arrival patterns, and the saturation flow rate. For unsignalized intersections, the 95th percentile queue represents the length of queue of the critical minor-street movement that is not expected to be exceeded 95 percent of the time during the analysis period (typically one hour). In this case, the queue length is a function of the capacity of the movement and the movement's degree of saturation.

Peak Hour Factors (PHF)

MassDOT's *Transportation Impact Assessment (TIA) Guidelines* require the use of a Peak Hour Factor (PHF) of 0.92 in urban areas for all future year analysis conditions. Therefore, the PHFs have been set to 0.92 for the 2027 No-Build and Build conditions. Default PHFs of 0.92 were also utilized for the 2020 Existing conditions analysis for the following reasons:

- The traffic counts were collected in July 2020 under impact of travel, WFH, and other restrictions related to COVID-19. Review of historic traffic counts both pre- and post-COVID-19 indicate that traffic patterns have been heavily impacted by the pandemic, shifting the peak hours throughout the day. Therefore, it is unlikely that the peaking characteristics of counts collected in July 2020 would be consistent with actual travel patterns experienced pre-COVID-19. As a result, use of a 0.92 default PHF is appropriate in the absence of known peaking characteristics.

[4] *Highway Capacity Manual 2000*, Transportation Research Board; Washington, D.C.; 2000.

- GPI reviewed the PHFs collected using the GridSmart cameras at the Presidential Way / Commerce Way / Atlantic Avenue / I-93 Exit 37C Ramps intersection in February 2020, and found that the PHFs at this intersection were 0.90, 0.94, and 0.96 during the weekday AM, weekday PM, and Saturday midday peak hours, respectively. Therefore, in all cases except the weekday AM peak hour, use of a 0.92 PHF would provide more conservative (higher) estimates of the delays and queues through the intersection. It should be noted that the GridSmart data does not take into account the channelized right-turn volume from the I-93 Exit 37C Ramps onto Presidential Way, which is heavy during the weekday AM peak hour and is likely the reason for the lower PHF during this time period.

- GPI also reviewed the PHFs from the intersection of Woburn Street / Eames Street / Ox Bow Drive from the *Traffic Impact Assessment* completed for the 804 Woburn Street development. Based on counts collected in March 2016, this intersection experienced PHFs of 0.94 and 0.96 during the weekday AM and weekday PM peak hours. Therefore, the use of a 0.92 PHF will provide more conservative traffic analysis results and is consistent with historic traffic patterns in the area.

Heavy Vehicle Percentages

While many of the office and retail developments in the vicinity of the site that would typically generate a high volume of passenger vehicle trips are currently closed, implementing WFH operations, or operating under delivery-only services, the majority of the industrial uses with heavier truck traffic are still operational. As a result, the heavy vehicle percentages experienced during the July 2020 traffic counts are likely to be higher than typical pre-COVID-19 conditions. To provide a conservative (worse case) analysis condition, the July 2020 heavy vehicle percentages were utilized as these would provide higher estimates of delay and queuing through the study area intersections.

Analysis Results

The results of the level-of-service (LOS) and queue analyses are shown in Table 5 and are discussed below. The capacity and queue analysis worksheets for all conditions are provided in the Appendix.

Presidential Way / Woburn Street / New Boston Street

As shown in Table 5, under existing and future traffic-volume conditions, all movements are anticipated to operate at LOS C or better during all peak hour periods. As a result of the project, the increase in delay to any movement is anticipated to be less than two (2) seconds and an increase in queue of less than one vehicle.

Woburn Street / Site Driveway

All movements at the site driveway intersection with Woburn Street are anticipated to operate at LOS A during all analysis time periods, with queues not exceeding two vehicles.

Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps

Under existing and future traffic-volume conditions, the I-93 westbound left-turn movement is expected to operate at level of service (LOS) F during the weekday AM peak hour with long delays and queues. As a result of the poor LOS on the I-93 westbound left-turn movement, the overall intersection also operates at LOS F during the weekday AM peak hour. All other movements are anticipated to operate at LOS D or better during all analysis time periods. The additional traffic generated by the proposed solid waste handling facility is not anticipated to increase delay on any given movement by more than two (2) seconds or increase queues in any lane by more than three (3) vehicles.

It should be noted that although the traffic signal controller at this location is programmed with varying time-of-day coordination plans, the intersection is currently operating under a single timing plan (MAX I) for the entire day, seven days per week. While this timing plan works well for the weekday PM and Saturday midday peak hours, the maximum green time on the I-93 Exit 37C Ramps westbound left-turn movement is not long enough to accommodate the heavy volume of traffic that this movement experiences during the weekday AM peak hour. To improve the operations of the intersection independent of the proposed development, the City and MassDOT should consider reprograming the MAX II timing plans within the existing signal controller for the weekday AM peak period with timings that would provide additional green time for the I-93 Ramps Exit 37 C Ramps westbound approach. The signal could continue operating on Max I timings for the remainder of the day.

GPI conducted a sensitivity analysis of a 2027 Build with Improvements condition to evaluate the impact the proposed signal timing modifications would have on the operations of the intersection. As shown in Table 5, the proposed signal timing modifications would reduce the delay on the I-93 Exit 37C Ramps westbound left-turn movement by over 175 seconds per vehicle, improving the LOS from F to E. In addition, the timing modifications would reduce the overall delay through the intersection by over 64 seconds per vehicle, improving the LOS from F to D.

TABLE 5
Intersection Capacity Analysis Summary

Intersection/Peak Hour/Lane Group	2020 Existing				2027 No-Build				2027 Build			
	V/C [a]	Del. [b]	LOS [c]	Queue [d]	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
Presidential Way / Woburn Street / New Boston Street												
Weekday AM:												
Driveway EB	0.02	8.7	A	--/34	0.03	6.3	A	--/30	0.03	7.7	A	--/33
Presidential Way WB	0.85	13.3	B	--/265	0.97	15.7	C	--/312	1.02	17.3	C	--/321
New Boston Street NB	0.00	0.2	A	--/<25	0.00	0.5	A	--/<25	0.00	0.6	A	--/<25
Woburn Street SB	0.24	3.1	A	--/81	0.25	3.4	A	--/104	0.26	2.4	A	--/84
Weekday PM:												
Driveway EB	0.07	7.2	A	--/43	0.08	7.1	A	--/47	0.09	6.4	A	--/46
Presidential Way WB	0.46	6.3	A	--/134	0.51	7.2	A	--/146	0.53	6.8	A	--/142
New Boston Street NB	0.00	0.6	A	--/<25	0.00	0.6	A	--/<25	0.00	0.7	A	--/<25
Woburn Street SB	0.16	3.1	A	--/72	0.18	3.1	A	--/68	0.19	2.4	A	--/76
Saturday Midday:												
Driveway EB	0.01	3.7	A	--/<25	0.01	4.1	A	--/<25	0.01	4.5	A	--/<25
Presidential Way WB	0.21	3.9	A	--/74	0.23	4.1	A	--/78	0.27	4.3	A	--/80
New Boston Street NB	0.00	0.1	A	--/<25	0.00	0.2	A	--/<25	0.00	0.4	A	--/<25
Woburn Street SB	0.08	2.1	A	--/<25	0.09	2.1	A	--/30	0.11	1.5	A	--/<25
Woburn Street / Site Driveway												
Weekday AM:												
Driveway EB	--	--	--	--/--	--	--	--	--/--	0.03	5.4	A	--/41
Woburn Street NB	--	--	--	--/--	--	--	--	--/--	0.02	0.7	A	--/46
Woburn Street SB	--	--	--	--/--	--	--	--	--/--	0.00	0.9	A	--/<25
Weekday PM:												
Driveway EB	--	--	--	--/--	--	--	--	--/--	0.02	3.8	A	--/36
Woburn Street NB	--	--	--	--/--	--	--	--	--/--	0.01	0.5	A	--/<25
Woburn Street SB	--	--	--	--/--	--	--	--	--/--	0.00	0.6	A	--/<25
Saturday Midday:												
Driveway EB	--	--	--	--/--	--	--	--	--/--	0.04	3.2	A	--/50
Woburn Street NB	--	--	--	--/--	--	--	--	--/--	0.03	0.6	A	--/31
Woburn Street SB	--	--	--	--/--	--	--	--	--/--	0.00	0.4	A	--/<25

[a] Volume-to-capacity ratio. [b] Average control delay in seconds per vehicle.
[c] Level of service. [d] Average/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

TABLE 5 (continued)
Intersection Capacity Analysis Summary

Intersection/Peak Hour/Lane Group	2020 Existing				2027 No-Build				2027 Build				2027 Build with Improvements			
	V/C [a]	Del. [b]	LOS [c]	Queue [d]	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps																
Weekday AM:																
Atlantic Avenue EB through/left-turn	0.40	39.7	D	30/79	0.42	40.6	D	33/81	0.42	40.7	D	33/81	0.71	65.7	E	37/108
Atlantic Avenue EB right-turn	0.02	23.8	C	<25/<25	0.02	23.8	C	<25/<25	0.02	23.9	C	<25/<25	0.02	30.9	C	<25/<25
I-93 WB left-turn	1.35	196.7	F	490/812	1.48	255.5	F	571/884	1.48	256.4	F	573/884	1.07	77.8	E	512/851
I-93 WB through	0.11	15.0	B	25/66	0.11	15.9	B	28/70	0.11	15.9	B	28/70	0.10	13.1	B	27/54
I-93 WB right-turn	0.60	20.4	C	<25/183	0.70	24.3	C	49/314	0.73	25.2	C	58/374	0.68	20.8	C	47/234
Commerce Way NB left-turn	0.12	30.4	C	<25/50	0.12	30.6	C	<25/52	0.12	30.7	C	<25/52	0.15	36.0	D	<25/52
Commerce Way NB through	0.58	35.5	D	105/200	0.59	36.3	D	115/215	0.61	36.7	D	118/218	0.78	52.0	D	136/246
Commerce Way NB right-turn	0.36	12.1	B	82/158	0.39	12.6	B	93/172	0.39	12.7	B	94/172	0.35	10.2	B	90/129
Presidential Way SB left-turn	0.36	32.8	C	50/91	0.38	33.5	C	55/98	0.40	33.6	C	59/104	0.44	36.6	D	64/101
Presidential Way SB through/right-turn	0.71	41.7	D	112/210	0.75	44.4	D	124/226	0.75	44.9	D	126/228	0.81	54.5	D	138/242
Overall Intersection	**0.93**	**87.3**	**F**	**--/--**	**1.00**	**110.3**	**F**	**--/--**	**1.01**	**110.1**	**F**	**--/--**	**0.95**	**45.7**	**D**	**--/--**
Weekday PM:																
Atlantic Avenue EB through/left-turn	0.35	42.2	D	27/66	0.38	43.9	D	30/70	0.38	44.0	D	30/70				
Atlantic Avenue EB right-turn	0.01	20.6	C	<25/<25	0.01	22.0	C	<25/<25	0.01	22.1	C	<25/<25				
I-93 WB left-turn	0.74	41.0	D	137/199	0.76	42.3	D	152/214	0.76	42.5	D	152/241				
I-93 WB through	0.03	22.2	C	<25/<25	0.03	22.6	C	<25/<25	0.03	22.7	C	<25/<25				
I-93 WB right-turn	0.11	22.9	C	<25/44	0.12	23.3	C	<25/45	0.13	23.5	C	<25/46	Same as Build			
Commerce Way NB left-turn	0.07	25.9	C	<25/44	0.08	27.5	C	<25/47	0.08	27.6	C	<25/47				
Commerce Way NB through	0.32	28.2	C	79/154	0.36	30.1	C	90/168	0.36	30.3	C	91/170				
Commerce Way NB right-turn	0.79	21.8	C	313/449	0.85	25.6	C	367/506	0.85	25.8	C	367/506				
Presidential Way SB left-turn	0.79	39.8	D	180/269	0.81	41.3	D	200/313	0.82	41.7	D	204/322				
Presidential Way SB through/right-turn	0.62	35.3	D	130/233	0.64	36.1	D	144/255	0.64	38.0	D	146/257				
Overall Intersection	**0.81**	**30.6**	**C**	**--/--**	**0.86**	**32.9**	**C**	**--/--**	**0.86**	**33.1**	**C**	**--/--**				
Saturday Midday:																
Atlantic Avenue EB through/left-turn	0.18	34.0	C	<25/32	0.19	35.3	D	<25/34	0.20	35.8	D	<25/34				
Atlantic Avenue EB right-turn	0.00	17.4	B	<25/<25	0.00	18.0	B	<25/<25	0.00	18.3	B	<25/<25				
I-93 WB left-turn	0.74	31.6	C	130/219	0.77	33.4	C	148/238	0.76	33.4	C	150/240				
I-93 WB through	0.03	15.5	B	<25/25	0.04	16.0	B	<25/27	0.04	16.1	B	<25/27				
I-93 WB right-turn	0.06	15.7	B	<25/<25	0.07	16.1	B	<25/<25	0.09	16.5	B	<25/36				
Commerce Way NB left-turn	0.03	21.9	C	<25/<25	0.03	22.6	C	<25/<25	0.03	22.8	C	<25/<25	Same as Build			
Commerce Way NB through	0.34	24.2	C	65/145	0.37	25.2	C	74/156	0.39	25.5	C	78/164				
Commerce Way NB right-turn	0.47	10.9	B	110/192	0.50	11.3	B	125/215	0.50	11.4	B	127/219				
Presidential Way SB left-turn	0.23	29.9	C	<25/54	0.24	30.7	C	27/57	0.30	31.0	C	35/70				
Presidential Way SB through/right-turn	0.57	33.3	C	68/147	0.60	34.7	C	77/156	0.61	35.0	D	82/163				
Overall Intersection	**0.57**	**21.8**	**C**	**--/--**	**0.60**	**22.8**	**C**	**--/--**	**0.60**	**23.0**	**C**	**--/--**				

[a] Volume-to-capacity ratio.

[b] Average control delay in seconds per vehicle.

[c] Level of service.

[d] Average/95th percentile queue length in feet per lane (assuming 25 feet per vehicle).

CONCLUSIONS

Existing and future conditions in the study area have been described, analyzed, and evaluated with respect to traffic operations and the impact of the proposed redevelopment. Conclusions of this effort are presented below.

- The site is currently occupied by a salvage yard and is accessed via a single full-access/egress driveway on Woburn Street approximately 290 feet north of Presidential Way. The project consists of razing the existing structures on-site and constructing a commercial construction and demolition materials solid waste handling facility to accommodate 500 tons per day of material. As part of the project, the driveway will be shifted to the southerly end of the property. The majority of waste will leave the site via the adjacent rail line to the west, while recyclables will be transported off-site in smaller roll-off vehicles.

- The site driveway will be signed to restrict left-turns exiting the site onto Woburn Street and all contracted vehicles will be directed to exit the site toward the south (right).

- The sight lines at the proposed site driveway are anticipated to exceed AASHTO's recommendations for minimum SSD and desirable ISD. In addition, it is recommended that any proposed plantings, vegetation, landscaping, and signing along the site frontage be kept low to the ground (no more than 3.0 feet above street level) or set back sufficiently from Woburn Street so as not to inhibit the available sight lines.

- The signalized intersection of Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps has been identified by MassDOT as high-crash location and is HSIP eligible. Of the 64 crashes at the Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps intersection, approximately 58 percent (37 of 64) were angled collisions with the majority between vehicles traveling northbound and westbound. These collisions involved a mix of westbound left-turn and westbound right-turn vehicles. The collisions between westbound left-turning and northbound through vehicles may be the result of inadequate green times or clearance intervals on the westbound left-turn movement that results in vehicles entering the intersection on a red indication. The collisions between the westbound right-turns and northbound through movements may be the result of confusing intersection geometry where only a single through lane is striped on Commerce Way northbound, but two through lanes are providing on the receiving side of Presidential Way, appearing as though the westbound right-turns may enter into their own lane without yielding. Review of historic street view imagery also indicates that the YIELD sign on the channelized right-turn lane was missing for an unknown period of time prior to November 2017 and may have contributed to some of these angle collisions. GPI recommends that the City of Woburn and/or MassDOT review the signal timings at this location to verify that the clearance intervals are consistent with MassDOT standards based on the intersection geometry and that the green times are adequate to accommodate the existing traffic volumes. GPI noted that although the traffic signal controller has been programmed with various time-of-day coordination plans, the intersection is operating on a single timing plan for the entire day, seven days per week. As more than half of the angle collisions occurred during the weekday AM and PM peak commuter hours, the existing timings may not be long enough to accommodate the traffic volumes during these time periods.

- The proposed development is expected to generate 30 *additional new* vehicle trips (15 entering and 15 exiting) during the weekday AM peak hour, 24 *additional new* vehicle trips (12 entering and 12 exiting) during the weekday PM peak hour, and 70 *additional new* trips (35 entering and 35 exiting) during the Saturday midday peak hour.

- Traffic-volume increases beyond the study area during the peak hours are expected to be in the range of 22 to 66 vehicles on Presidential Way. These increases represent, on average, one additional vehicle approximately every one to three minutes during the peak hours. Traffic-volume increases beyond the study area during the peak hours are expected to be in the range of 4 to 14 vehicles on Commerce Way. These increases represent, on average, one additional vehicle approximately every four to 15 minutes during the peak hours.

- Under existing and future traffic-volume conditions, all movements at the Presidential Way / Woburn Street / New Boston Street intersection are anticipated to operate at LOS C or better during all peak hour periods. As a result of the project, the increase in delay to any movement is anticipated to be less than two (2) seconds and an increase in queue of less than one vehicle.

- All movements at the site driveway intersection with Woburn Street are anticipated to operate at LOS A during all analysis time periods, with queues not exceeding two vehicles.

- Under existing and future traffic-volume conditions, the I-93 westbound left-turn movement at the intersection with Presidential Way / Commerce Way / Atlantic Avenue is expected to operate at level of service (LOS) F during the weekday AM peak hour with long delays and queues. All other movements are anticipated to operate at LOS D or better during all analysis time periods. The additional traffic generated by the proposed solid waste handling facility is not anticipated to increase delay on any given movement by more than two (2) seconds or increase queues in any lane by more than three (3) vehicles.

- Although the traffic signal controller at the Presidential Way / Commerce Way / Atlantic Avenue / I-93 Exit 37 C Ramps intersection is programmed with varying time-of-day coordination plans, the intersection is currently operating under a single timing plan (MAX I) for the entire day, seven days per week. While this timing plan works well for the weekday PM and Saturday midday peak hours, the maximum green time on the I-93 Exit 37C Ramps westbound left-turn movement is not long enough to accommodate the heavy volume of traffic that this movement experiences during the weekday AM peak hour. To improve the operations of the intersection independent of the proposed development, the City and MassDOT should consider reprograming the MAX II timing plans within the existing signal controller for the weekday AM peak period with timings that would provide additional green time for the I-93 Ramps Exit 37 C Ramps westbound approach. The signal could continue operating on Max I timings for the remainder of the day. The proposed signal timing modifications would reduce the delay on the I-93 Exit 37C Ramps westbound left-turn movement by over 175 seconds per vehicle, improving the LOS from F to C. In addition, the timing modifications would reduce the overall delay through the intersection by over 64 seconds per vehicle, improving the LOS from F to D.

Based on the findings above, the proposed development of a solid waste handling facility located at 887 Woburn Street can be safely and efficiently accommodated along the existing roadway network and does not constitute a danger to the public health, safety, or the environment with consideration to traffic congestion, pedestrian and vehicular safety, and roadway configuration. No Project-specific mitigation is warranted based on the minimal impacts of the Project on traffic operations through the study area.

- APPENDIX

- ***Traffic Count Data***
- ***COVID-19 Adjustment Data***
- ***Seasonal Adjustment Data***
- ***Ambient Growth Data***
- ***MassDOT Crash Data Worksheets***
- ***Trip Generation Calculations***
- ***Trip Distribution Calculations***
- ***Capacity Analysis Methodology***
- ***Capacity and Queue Analysis Worksheets***

TRAFFIC COUNT DATA

Location Map: 207572 Woburn, MA

Precision Data Industries, LLC 46 Morton Street, Framingham, MA 01702 ph: 508-875-0100 email: datarequests@pdillc.com

Sat 10am-1pm/ Tues 7-9am/ 3-6pm
A= Presidential Way / Woburn Street / New Boston Street (1) VCU
B= Presidential Way / Atlantic Avenue / Commerce Way (2)-VCUs

Client:	Engineer:	Site Code:	Date:	PDI Job #	City, State:
GPI	R. Brown		Sat 7/18 and Tues 7/21/2020	207572	Woburn, MA

PDI File #: **207572 A**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	4	15	0	19	19	0	2	0	21	2	1	0	0	3	0	0	0	0	0	43
10:15 AM	0	2	19	0	21	22	0	3	0	25	1	2	0	0	3	0	0	0	0	0	49
10:30 AM	0	2	27	0	29	20	0	4	0	24	4	3	0	0	7	0	0	0	0	0	60
10:45 AM	1	3	21	0	25	23	0	3	1	27	1	2	0	0	3	0	0	0	0	0	55
Total	1	11	82	0	94	84	0	12	1	97	8	8	0	0	16	0	0	0	0	0	207
11:00 AM	0	1	23	0	24	28	0	2	0	30	6	0	0	0	6	0	0	0	0	0	60
11:15 AM	0	3	18	1	22	27	0	5	0	32	3	1	0	0	4	0	0	0	0	0	58
11:30 AM	0	1	21	0	22	25	0	1	0	26	4	2	0	0	6	0	0	1	0	1	55
11:45 AM	0	0	17	0	17	31	0	3	0	34	3	1	0	0	4	0	0	0	0	0	55
Total	0	5	79	1	85	111	0	11	0	122	16	4	0	0	20	0	0	1	0	1	228
12:00 PM	1	1	30	0	32	33	0	1	0	34	1	2	0	0	3	0	1	0	0	1	70
12:15 PM	2	3	12	0	17	31	1	5	0	37	0	2	0	0	2	0	0	1	0	1	57
12:30 PM	1	4	14	0	19	29	0	2	0	31	6	3	0	0	9	0	0	0	0	0	59
12:45 PM	0	1	29	0	30	29	0	2	0	31	0	2	0	0	2	0	1	0	0	1	64
Total	4	9	85	0	98	122	1	10	0	133	7	9	0	0	16	0	2	1	0	3	250
Grand Total	5	25	246	1	277	317	1	33	1	352	31	21	0	0	52	0	2	2	0	4	685
Approach %	1.8	9.0	88.8	0.4		90.1	0.3	9.4	0.3		59.6	40.4	0.0	0.0		0.0	50.0	50.0	0.0		
Total %	0.7	3.6	35.9	0.1	40.4	46.3	0.1	4.8	0.1	51.4	4.5	3.1	0.0	0.0	7.6	0.0	0.3	0.3	0.0	0.6	
Exiting Leg Total					341					280					58					6	685
Cars	5	25	239	1	270	306	1	30	1	338	29	21	0	0	50	0	2	2	0	4	662
% Cars	100.0	100.0	97.2	100.0	97.5	96.5	100.0	90.9	100.0	96.0	93.5	100.0	0.0	0.0	96.2	0.0	100.0	100.0	0.0	100.0	96.6
Exiting Leg Total					330					271					55					6	662
Heavy Vehicles	0	0	7	0	7	11	0	3	0	14	2	0	0	0	2	0	0	0	0	0	23
% Heavy Vehicles	0.0	0.0	2.8	0.0	2.5	3.5	0.0	9.1	0.0	4.0	6.5	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	3.4
Exiting Leg Total					11					9					3					0	23

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

12:00 PM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
12:00 PM	1	1	30	0	32	33	0	1	0	34	1	2	0	0	3	0	1	0	0	1	70
12:15 PM	2	3	12	0	17	31	1	5	0	37	0	2	0	0	2	0	0	1	0	1	57
12:30 PM	1	4	14	0	19	29	0	2	0	31	6	3	0	0	9	0	0	0	0	0	59
12:45 PM	0	1	29	0	30	29	0	2	0	31	0	2	0	0	2	0	1	0	0	1	64
Total Volume	4	9	85	0	98	122	1	10	0	133	7	9	0	0	16	0	2	1	0	3	250
% Approach Total	4.1	9.2	86.7	0.0		91.7	0.8	7.5	0.0		43.8	56.3	0.0	0.0		0.0	66.7	33.3	0.0		
PHF	0.500	0.563	0.708	0.000	0.766	0.924	0.250	0.500	0.000	0.899	0.292	0.750	0.000	0.000	0.444	0.000	0.500	0.250	0.000	0.750	0.893
Cars	4	9	83	0	96	117	1	9	0	127	7	9	0	0	16	0	2	1	0	3	242
Cars %	100.0	100.0	97.6	0.0	98.0	95.9	100.0	90.0	0.0	95.5	100.0	100.0	0.0	0.0	100.0	0.0	100.0	100.0	0.0	100.0	96.8
Heavy Vehicles	0	0	2	0	2	5	0	1	0	6	0	0	0	0	0	0	0	0	0	0	8
Heavy Vehicles %	0.0	0.0	2.4	0.0	2.0	4.1	0.0	10.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2
Cars Enter Leg	4	9	83	0	96	117	1	9	0	127	7	9	0	0	16	0	2	1	0	3	242
Heavy Enter Leg	0	0	2	0	2	5	0	1	0	6	0	0	0	0	0	0	0	0	0	0	8
Total Entering Leg	4	9	85	0	98	122	1	10	0	133	7	9	0	0	16	0	2	1	0	3	250
Cars Exiting Leg					127					92					18					5	242
Heavy Exiting Leg					5					2					1					0	8
Total Exiting Leg					132					94					19					5	250

PDI File #: **207572 A**
Location: **N: Woburn Street S: New Boston Street**
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City, State: **Woburn, MA**
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PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	4	14	0	18	18	0	2	0	20	2	1	0	0	3	0	0	0	0	0	41
10:15 AM	0	2	18	0	20	22	0	3	0	25	0	2	0	0	2	0	0	0	0	0	47
10:30 AM	0	2	27	0	29	20	0	3	0	23	4	3	0	0	7	0	0	0	0	0	59
10:45 AM	1	3	21	0	25	22	0	3	1	26	1	2	0	0	3	0	0	0	0	0	54
Total	1	11	80	0	92	82	0	11	1	94	7	8	0	0	15	0	0	0	0	0	201
11:00 AM	0	1	22	0	23	25	0	2	0	27	5	0	0	0	5	0	0	0	0	0	55
11:15 AM	0	3	17	1	21	26	0	4	0	30	3	1	0	0	4	0	0	0	0	0	55
11:30 AM	0	1	21	0	22	25	0	1	0	26	4	2	0	0	6	0	0	1	0	1	55
11:45 AM	0	0	16	0	16	31	0	3	0	34	3	1	0	0	4	0	0	0	0	0	54
Total	0	5	76	1	82	107	0	10	0	117	15	4	0	0	19	0	0	1	0	1	219
12:00 PM	1	1	29	0	31	31	0	1	0	32	1	2	0	0	3	0	1	0	0	1	67
12:15 PM	2	3	12	0	17	30	1	4	0	35	0	2	0	0	2	0	0	1	0	1	55
12:30 PM	1	4	14	0	19	28	0	2	0	30	6	3	0	0	9	0	0	0	0	0	58
12:45 PM	0	1	28	0	29	28	0	2	0	30	0	2	0	0	2	0	1	0	0	1	62
Total	4	9	83	0	96	117	1	9	0	127	7	9	0	0	16	0	2	1	0	3	242
Grand Total	5	25	239	1	270	306	1	30	1	338	29	21	0	0	50	0	2	2	0	4	662
Approach %	1.9	9.3	88.5	0.4		90.5	0.3	8.9	0.3		58.0	42.0	0.0	0.0		0.0	50.0	50.0	0.0		
Total %	0.8	3.8	36.1	0.2	40.8	46.2	0.2	4.5	0.2	51.1	4.4	3.2	0.0	0.0	7.6	0.0	0.3	0.3	0.0	0.6	
Exiting Leg Total					330					271					55					6	662

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

12:00 PM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
12:00 PM	1	1	29	0	31	31	0	1	0	32	1	2	0	0	3	0	1	0	0	1	67
12:15 PM	2	3	12	0	17	30	1	4	0	35	0	2	0	0	2	0	0	1	0	1	55
12:30 PM	1	4	14	0	19	28	0	2	0	30	6	3	0	0	9	0	0	0	0	0	58
12:45 PM	0	1	28	0	29	28	0	2	0	30	0	2	0	0	2	0	1	0	0	1	62
Total Volume	4	9	83	0	96	117	1	9	0	127	7	9	0	0	16	0	2	1	0	3	242
% Approach Total	4.2	9.4	86.5	0.0		92.1	0.8	7.1	0.0		43.8	56.3	0.0	0.0		0.0	66.7	33.3	0.0		
PHF	0.500	0.563	0.716	0.000	0.774	0.944	0.250	0.563	0.000	0.907	0.292	0.750	0.000	0.000	0.444	0.000	0.500	0.250	0.000	0.750	0.903
Entering Leg	4	9	83	0	96	117	1	9	0	127	7	9	0	0	16	0	2	1	0	3	242
Exiting Leg					127					92					18					5	242
Total					223					219					34					8	484

PDI File #: **207572 A**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
10:15 AM	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
10:30 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
10:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	2	0	2	2	0	1	0	3	1	0	0	0	1	0	0	0	0	0	6
11:00 AM	0	0	1	0	1	3	0	0	0	3	1	0	0	0	1	0	0	0	0	0	5
11:15 AM	0	0	1	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	3
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	3	0	3	4	0	1	0	5	1	0	0	0	1	0	0	0	0	0	9
12:00 PM	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
12:15 PM	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2
12:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	2	0	2	5	0	1	0	6	0	0	0	0	0	0	0	0	0	0	8
Grand Total	0	0	7	0	7	11	0	3	0	14	2	0	0	0	2	0	0	0	0	0	23
Approach %	0.0	0.0	100.0	0.0		78.6	0.0	21.4	0.0		100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	30.4	0.0	30.4	47.8	0.0	13.0	0.0	60.9	8.7	0.0	0.0	0.0	8.7	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					11					9					3					0	23
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0
Single-Unit Trucks	0	0	7	0	7	9	0	1	0	10	0	0	0	0	0	0	0	0	0	0	17
% Single-Unit	0.0	0.0	100.0	0.0	100.0	81.8	0.0	33.3	0.0	71.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.9
Exiting Leg Total					9					7					1					0	17
Articulated Trucks	0	0	0	0	0	2	0	2	0	4	2	0	0	0	2	0	0	0	0	0	6
% Articulated	0.0	0.0	0.0	0.0	0.0	18.2	0.0	66.7	0.0	28.6	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	26.1
Exiting Leg Total					2					2					2					0	6

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

10:30 AM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:30 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
10:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:00 AM	0	0	1	0	1	3	0	0	0	3	1	0	0	0	1	0	0	0	0	0	5
11:15 AM	0	0	1	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	3
Total Volume	0	0	2	0	2	5	0	2	0	7	1	0	0	0	1	0	0	0	0	0	10
% Approach Total	0.0	0.0	100.0	0.0		71.4	0.0	28.6	0.0		100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.500	0.000	0.500	0.417	0.000	0.500	0.000	0.583	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	0	0	2	0	2	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
Single-Unit %	0.0	0.0	100.0	0.0	100.0	80.0	0.0	0.0	0.0	57.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0
Articulated Trucks	0	0	0	0	0	1	0	2	0	3	1	0	0	0	1	0	0	0	0	0	4
Articulated %	0.0	0.0	0.0	0.0	0.0	20.0	0.0	100.0	0.0	42.9	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	40.0
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	0	2	0	2	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
Articulated Trucks	0	0	0	0	0	1	0	2	0	3	1	0	0	0	1	0	0	0	0	0	4
Total Entering Leg	0	0	2	0	2	5	0	2	0	7	1	0	0	0	1	0	0	0	0	0	10
Buses					0					0					0					0	0
Single-Unit Trucks					4					2					0					0	6
Articulated Trucks					1					1					2					0	4
Total Exiting Leg					5					3					2					0	10

PDI File #: **207572 A**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 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	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 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	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	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	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

10:00 AM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	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	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **207572 A**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
10:15 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
11:00 AM	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
11:15 AM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	3	0	3	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
12:00 PM	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
12:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	2	0	2	4	0	1	0	5	0	0	0	0	0	0	0	0	0	0	7
Grand Total	0	0	7	0	7	9	0	1	0	10	0	0	0	0	0	0	0	0	0	0	17
Approach %	0.0	0.0	100.0	0.0		90.0	0.0	10.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	41.2	0.0	41.2	52.9	0.0	5.9	0.0	58.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					9					7					1					0	17

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

12:00 PM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
12:00 PM	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
12:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	0	2	0	2	4	0	1	0	5	0	0	0	0	0	0	0	0	0	0	7
% Approach Total	0.0	0.0	100.0	0.0		80.0	0.0	20.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.500	0.000	0.500	0.500	0.000	0.250	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.583
Entering Leg	0	0	2	0	2	4	0	1	0	5	0	0	0	0	0	0	0	0	0	0	7
Exiting Leg					4					2					1					0	7
Total					6					7					1					0	14

PDI File #: **207572 A**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
10:30 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
10:45 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	1	0	1	1	0	0	0	1	0	0	0	0	0	2
11:00 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
11:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	2	1	0	0	0	1	0	0	0	0	0	3
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	2	0	2	0	4	2	0	0	0	2	0	0	0	0	0	6
Approach %	0.0	0.0	0.0	0.0		50.0	0.0	50.0	0.0		100.0	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	33.3	0.0	33.3	0.0	66.7	33.3	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					2					2					2					0	6

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

10:15 AM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
10:30 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Total Volume	0	0	0	0	0	1	0	1	0	2	2	0	0	0	2	0	0	0	0	0	4
% Approach Total	0.0	0.0	0.0	0.0		50.0	0.0	50.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.500	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	0	0	0	0	1	0	1	0	2	2	0	0	0	2	0	0	0	0	0	4
Exiting Leg					1					2					1					0	4
Total					1					4					3					0	8

PDI File #: **207572 A**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Woburn Street from North							Presidential Way from East							New Boston Street from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
10:00 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	0	0	0	0
10:15 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	0	0	0	0
10:30 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	0	0	0
10:45 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	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	0	0	0	0	0	0	0	0
11:00 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	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
11:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 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	0	0	0
Total	0	0	0	0	0	0	0	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
12:00 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
12:30 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	0	0	0	0
12:45 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	0	0	0	0
Total	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Grand Total	0	1	0	0	0	0	1	4	0	0	0	0	0	4	1	0	0	0	0	0	1	0	0	0	0	0	0	0	6
Approach %	0.0	100.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	16.7	0.0	0.0	0.0	0.0	16.7	66.7	0.0	0.0	0.0	0.0	0.0	66.7	16.7	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							4							1							1							0	6

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

11:15 AM	Woburn Street from North							Presidential Way from East							New Boston Street from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
11:15 AM	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
11:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 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	0	0	0
12:00 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	0	0	0	1	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
% Approach Total	0.0	100.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.333	0.000	0.000	0.000	0.000	0.000	0.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.417
Entering Leg	0	1	0	0	0	0	1	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Exiting Leg							4							0							1							0	5
Total							5							4							1							0	10

PDI File #: **207572 A**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Woburn Street from North							Presidential Way from East							New Boston Street from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
10:00 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:15 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	0	0	0	0
10:30 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	0	0	0
10:45 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	0	0	0
Total	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:00 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	0	0	0	0
11:15 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	0	0	0	0
11:30 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	0	0	0
11:45 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	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	0	0	0	0	0	0	0	0
12:00 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	1	1	1	1
12:15 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	1	0	1	1
12:30 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	0	0	0	0
12:45 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	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	0	0	0	0	1	1	2	2
Grand Total	0	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	1	2	3
Approach %	0	0	0	0	0	100		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	50	50		
Total %	0	0	0	0	0	33.3	33.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33.3	33.3	66.7	
Exiting Leg Total							1							0							0							2	3

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

11:30 AM	Woburn Street from North							Presidential Way from East							New Boston Street from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
11:30 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	0	0	0
11:45 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	0	0	0
12:00 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	1	1	1	1
12:15 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	1	0	1	1
Total Volume	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	1	1	2	2
% Approach Total	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	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	50.0	50.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.500	0.500
Entering Leg	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	1	1	2	2
Exiting Leg							0							0							0							2	2
Total							0							0							0							4	4

PDI File #: **207572 AA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	6	32	0	38	37	0	8	0	45	13	3	0	0	16	0	0	0	0	0	99
7:15 AM	1	9	36	0	46	53	0	6	0	59	1	1	0	0	2	0	0	0	0	0	107
7:30 AM	0	5	36	0	41	36	0	4	0	40	2	2	0	0	4	0	0	0	0	0	85
7:45 AM	1	12	55	0	68	63	0	24	0	87	4	3	0	0	7	0	0	0	0	0	162
Total	2	32	159	0	193	189	0	42	0	231	20	9	0	0	29	0	0	0	0	0	453
8:00 AM	1	11	39	0	51	53	3	5	0	61	11	3	0	0	14	0	0	0	0	0	126
8:15 AM	1	5	37	0	43	45	0	8	0	53	4	2	0	0	6	0	2	0	0	2	104
8:30 AM	0	4	39	0	43	34	0	12	0	46	5	4	0	0	9	0	0	0	0	0	98
8:45 AM	1	4	47	0	52	38	0	10	0	48	6	2	0	0	8	0	0	1	0	1	109
Total	3	24	162	0	189	170	3	35	0	208	26	11	0	0	37	0	2	1	0	3	437
Grand Total	5	56	321	0	382	359	3	77	0	439	46	20	0	0	66	0	2	1	0	3	890
Approach %	1.3	14.7	84.0	0.0		81.8	0.7	17.5	0.0		69.7	30.3	0.0	0.0		0.0	66.7	33.3	0.0		
Total %	0.6	6.3	36.1	0.0	42.9	40.3	0.3	8.7	0.0	49.3	5.2	2.2	0.0	0.0	7.4	0.0	0.2	0.1	0.0	0.3	
Exiting Leg Total					380					369					133					8	890
Cars	4	50	280	0	334	326	3	68	0	397	36	15	0	0	51	0	1	1	0	2	784
% Cars	80.0	89.3	87.2	0.0	87.4	90.8	100.0	88.3	0.0	90.4	78.3	75.0	0.0	0.0	77.3	0.0	50.0	100.0	0.0	66.7	88.1
Exiting Leg Total					342					317					118					7	784
Heavy Vehicles	1	6	41	0	48	33	0	9	0	42	10	5	0	0	15	0	1	0	0	1	106
% Heavy Vehicles	20.0	10.7	12.8	0.0	12.6	9.2	0.0	11.7	0.0	9.6	21.7	25.0	0.0	0.0	22.7	0.0	50.0	0.0	0.0	33.3	11.9
Exiting Leg Total					38					52					15					1	106

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	1	12	55	0	68	63	0	24	0	87	4	3	0	0	7	0	0	0	0	0	162
8:00 AM	1	11	39	0	51	53	3	5	0	61	11	3	0	0	14	0	0	0	0	0	126
8:15 AM	1	5	37	0	43	45	0	8	0	53	4	2	0	0	6	0	2	0	0	2	104
8:30 AM	0	4	39	0	43	34	0	12	0	46	5	4	0	0	9	0	0	0	0	0	98
Total Volume	3	32	170	0	205	195	3	49	0	247	24	12	0	0	36	0	2	0	0	2	490
% Approach Total	1.5	15.6	82.9	0.0		78.9	1.2	19.8	0.0		66.7	33.3	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.750	0.667	0.773	0.000	0.754	0.774	0.250	0.510	0.000	0.710	0.545	0.750	0.000	0.000	0.643	0.000	0.250	0.000	0.000	0.250	0.756
Cars	2	29	147	0	178	174	3	42	0	219	21	10	0	0	31	0	1	0	0	1	429
Cars %	66.7	90.6	86.5	0.0	86.8	89.2	100.0	85.7	0.0	88.7	87.5	83.3	0.0	0.0	86.1	0.0	50.0	0.0	0.0	50.0	87.6
Heavy Vehicles	1	3	23	0	27	21	0	7	0	28	3	2	0	0	5	0	1	0	0	1	61
Heavy Vehicles %	33.3	9.4	13.5	0.0	13.2	10.8	0.0	14.3	0.0	11.3	12.5	16.7	0.0	0.0	13.9	0.0	50.0	0.0	0.0	50.0	12.4
Cars Enter Leg	2	29	147	0	178	174	3	42	0	219	21	10	0	0	31	0	1	0	0	1	429
Heavy Enter Leg	1	3	23	0	27	21	0	7	0	28	3	2	0	0	5	0	1	0	0	1	61
Total Entering Leg	3	32	170	0	205	195	3	49	0	247	24	12	0	0	36	0	2	0	0	2	490
Cars Exiting Leg					184					169					71					5	429
Heavy Exiting Leg					23					27					10					1	61
Total Exiting Leg					207					196					81					6	490

PDI File #: **207572 AA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	4	30	0	34	33	0	7	0	40	9	2	0	0	11	0	0	0	0	0	85
7:15 AM	1	9	29	0	39	49	0	5	0	54	1	0	0	0	1	0	0	0	0	0	94
7:30 AM	0	5	33	0	38	36	0	4	0	40	1	1	0	0	2	0	0	0	0	0	80
7:45 AM	1	11	50	0	62	55	0	23	0	78	2	3	0	0	5	0	0	0	0	0	145
Total	2	29	142	0	173	173	0	39	0	212	13	6	0	0	19	0	0	0	0	0	404
8:00 AM	1	10	35	0	46	51	3	3	0	57	10	1	0	0	11	0	0	0	0	0	114
8:15 AM	0	4	30	0	34	38	0	8	0	46	4	2	0	0	6	0	1	0	0	1	87
8:30 AM	0	4	32	0	36	30	0	8	0	38	5	4	0	0	9	0	0	0	0	0	83
8:45 AM	1	3	41	0	45	34	0	10	0	44	4	2	0	0	6	0	0	1	0	1	96
Total	2	21	138	0	161	153	3	29	0	185	23	9	0	0	32	0	1	1	0	2	380
Grand Total	4	50	280	0	334	326	3	68	0	397	36	15	0	0	51	0	1	1	0	2	784
Approach %	1.2	15.0	83.8	0.0		82.1	0.8	17.1	0.0		70.6	29.4	0.0	0.0		0.0	50.0	50.0	0.0		
Total %	0.5	6.4	35.7	0.0	42.6	41.6	0.4	8.7	0.0	50.6	4.6	1.9	0.0	0.0	6.5	0.0	0.1	0.1	0.0	0.3	
Exiting Leg Total					342					317					118					7	784

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	1	9	29	0	39	49	0	5	0	54	1	0	0	0	1	0	0	0	0	0	94
7:30 AM	0	5	33	0	38	36	0	4	0	40	1	1	0	0	2	0	0	0	0	0	80
7:45 AM	1	11	50	0	62	55	0	23	0	78	2	3	0	0	5	0	0	0	0	0	145
8:00 AM	1	10	35	0	46	51	3	3	0	57	10	1	0	0	11	0	0	0	0	0	114
Total Volume	3	35	147	0	185	191	3	35	0	229	14	5	0	0	19	0	0	0	0	0	433
% Approach Total	1.6	18.9	79.5	0.0		83.4	1.3	15.3	0.0		73.7	26.3	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.750	0.795	0.735	0.000	0.746	0.868	0.250	0.380	0.000	0.734	0.350	0.417	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000	0.747
Entering Leg	3	35	147	0	185	191	3	35	0	229	14	5	0	0	19	0	0	0	0	0	433
Exiting Leg					196					161					70					6	433
Total					381					390					89					6	866

PDI File #: **207572 AA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	2	2	0	4	4	0	1	0	5	4	1	0	0	5	0	0	0	0	0	14
7:15 AM	0	0	7	0	7	4	0	1	0	5	0	1	0	0	1	0	0	0	0	0	13
7:30 AM	0	0	3	0	3	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	5
7:45 AM	0	1	5	0	6	8	0	1	0	9	2	0	0	0	2	0	0	0	0	0	17
Total	0	3	17	0	20	16	0	3	0	19	7	3	0	0	10	0	0	0	0	0	49
8:00 AM	0	1	4	0	5	2	0	2	0	4	1	2	0	0	3	0	0	0	0	0	12
8:15 AM	1	1	7	0	9	7	0	0	0	7	0	0	0	0	0	0	1	0	0	1	17
8:30 AM	0	0	7	0	7	4	0	4	0	8	0	0	0	0	0	0	0	0	0	0	15
8:45 AM	0	1	6	0	7	4	0	0	0	4	2	0	0	0	2	0	0	0	0	0	13
Total	1	3	24	0	28	17	0	6	0	23	3	2	0	0	5	0	1	0	0	1	57
Grand Total	1	6	41	0	48	33	0	9	0	42	10	5	0	0	15	0	1	0	0	1	106
Approach %	2.1	12.5	85.4	0.0		78.6	0.0	21.4	0.0		66.7	33.3	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.9	5.7	38.7	0.0	45.3	31.1	0.0	8.5	0.0	39.6	9.4	4.7	0.0	0.0	14.2	0.0	0.9	0.0	0.0	0.9	
Exiting Leg Total					38					52					15					1	106
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0
Single-Unit Trucks	1	4	32	0	37	21	0	8	0	29	8	3	0	0	11	0	1	0	0	1	78
% Single-Unit	100.0	66.7	78.0	0.0	77.1	63.6	0.0	88.9	0.0	69.0	80.0	60.0	0.0	0.0	73.3	0.0	100.0	0.0	0.0	100.0	73.6
Exiting Leg Total					24					41					12					1	78
Articulated Trucks	0	2	9	0	11	12	0	1	0	13	2	2	0	0	4	0	0	0	0	0	28
% Articulated	0.0	33.3	22.0	0.0	22.9	36.4	0.0	11.1	0.0	31.0	20.0	40.0	0.0	0.0	26.7	0.0	0.0	0.0	0.0	0.0	26.4
Exiting Leg Total					14					11					3					0	28

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	1	5	0	6	8	0	1	0	9	2	0	0	0	2	0	0	0	0	0	17
8:00 AM	0	1	4	0	5	2	0	2	0	4	1	2	0	0	3	0	0	0	0	0	12
8:15 AM	1	1	7	0	9	7	0	0	0	7	0	0	0	0	0	0	1	0	0	1	17
8:30 AM	0	0	7	0	7	4	0	4	0	8	0	0	0	0	0	0	0	0	0	0	15
Total Volume	1	3	23	0	27	21	0	7	0	28	3	2	0	0	5	0	1	0	0	1	61
% Approach Total	3.7	11.1	85.2	0.0		75.0	0.0	25.0	0.0		60.0	40.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.250	0.750	0.821	0.000	0.750	0.656	0.000	0.438	0.000	0.778	0.375	0.250	0.000	0.000	0.417	0.000	0.250	0.000	0.000	0.250	0.897
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	1	2	18	0	21	13	0	6	0	19	3	1	0	0	4	0	1	0	0	1	45
Single-Unit %	100.0	66.7	78.3	0.0	77.8	61.9	0.0	85.7	0.0	67.9	100.0	50.0	0.0	0.0	80.0	0.0	100.0	0.0	0.0	100.0	73.8
Articulated Trucks	0	1	5	0	6	8	0	1	0	9	0	1	0	0	1	0	0	0	0	0	16
Articulated %	0.0	33.3	21.7	0.0	22.2	38.1	0.0	14.3	0.0	32.1	0.0	50.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	26.2
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	1	2	18	0	21	13	0	6	0	19	3	1	0	0	4	0	1	0	0	1	45
Articulated Trucks	0	1	5	0	6	8	0	1	0	9	0	1	0	0	1	0	0	0	0	0	16
Total Entering Leg	1	3	23	0	27	21	0	7	0	28	3	2	0	0	5	0	1	0	0	1	61
Buses					0					0					0					0	0
Single-Unit Trucks					14					22					8					1	45
Articulated Trucks					9					5					2					0	16
Total Exiting Leg					23					27					10					1	61

PDI File #: **207572 AA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 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	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	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	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	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	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **207572 AA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	1	1	0	2	2	0	1	0	3	3	0	0	0	3	0	0	0	0	0	8
7:15 AM	0	0	7	0	7	3	0	1	0	4	0	1	0	0	1	0	0	0	0	0	12
7:30 AM	0	0	2	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	4
7:45 AM	0	0	4	0	4	5	0	1	0	6	2	0	0	0	2	0	0	0	0	0	12
Total	0	1	14	0	15	10	0	3	0	13	6	2	0	0	8	0	0	0	0	0	36
8:00 AM	0	1	4	0	5	0	0	2	0	2	1	1	0	0	2	0	0	0	0	0	9
8:15 AM	1	1	5	0	7	5	0	0	0	5	0	0	0	0	0	0	1	0	0	1	13
8:30 AM	0	0	5	0	5	3	0	3	0	6	0	0	0	0	0	0	0	0	0	0	11
8:45 AM	0	1	4	0	5	3	0	0	0	3	1	0	0	0	1	0	0	0	0	0	9
Total	1	3	18	0	22	11	0	5	0	16	2	1	0	0	3	0	1	0	0	1	42
Grand Total	1	4	32	0	37	21	0	8	0	29	8	3	0	0	11	0	1	0	0	1	78
Approach %	2.7	10.8	86.5	0.0		72.4	0.0	27.6	0.0		72.7	27.3	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	1.3	5.1	41.0	0.0	47.4	26.9	0.0	10.3	0.0	37.2	10.3	3.8	0.0	0.0	14.1	0.0	1.3	0.0	0.0	1.3	
Exiting Leg Total					24					41					12					1	78

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	0	4	0	4	5	0	1	0	6	2	0	0	0	2	0	0	0	0	0	12
8:00 AM	0	1	4	0	5	0	0	2	0	2	1	1	0	0	2	0	0	0	0	0	9
8:15 AM	1	1	5	0	7	5	0	0	0	5	0	0	0	0	0	0	1	0	0	1	13
8:30 AM	0	0	5	0	5	3	0	3	0	6	0	0	0	0	0	0	0	0	0	0	11
Total Volume	1	2	18	0	21	13	0	6	0	19	3	1	0	0	4	0	1	0	0	1	45
% Approach Total	4.8	9.5	85.7	0.0		68.4	0.0	31.6	0.0		75.0	25.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.250	0.500	0.900	0.000	0.750	0.650	0.000	0.500	0.000	0.792	0.375	0.250	0.000	0.000	0.500	0.000	0.250	0.000	0.000	0.250	0.865
Entering Leg	1	2	18	0	21	13	0	6	0	19	3	1	0	0	4	0	1	0	0	1	45
Exiting Leg					14					22					8					1	45
Total					35					41					12					2	90

PDI File #: **207572 AA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Woburn Street					Presidential Way					New Boston Street					Driveway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	1	1	0	2	2	0	0	0	2	1	1	0	0	2	0	0	0	0	0	6
7:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	1	1	0	2	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
Total	0	2	3	0	5	6	0	0	0	6	1	1	0	0	2	0	0	0	0	0	13
8:00 AM	0	0	0	0	0	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	3
8:15 AM	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
8:30 AM	0	0	2	0	2	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	4
8:45 AM	0	0	2	0	2	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	4
Total	0	0	6	0	6	6	0	1	0	7	1	1	0	0	2	0	0	0	0	0	15
Grand Total	0	2	9	0	11	12	0	1	0	13	2	2	0	0	4	0	0	0	0	0	28
Approach %	0.0	18.2	81.8	0.0		92.3	0.0	7.7	0.0		50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	7.1	32.1	0.0	39.3	42.9	0.0	3.6	0.0	46.4	7.1	7.1	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					14					11					3					0	28

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Woburn Street					Presidential Way					New Boston Street					Driveway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	1	1	0	2	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
8:00 AM	0	0	0	0	0	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	3
8:15 AM	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
8:30 AM	0	0	2	0	2	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	4
Total Volume	0	1	5	0	6	8	0	1	0	9	0	1	0	0	1	0	0	0	0	0	16
% Approach Total	0.0	16.7	83.3	0.0		88.9	0.0	11.1	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.625	0.000	0.750	0.667	0.000	0.250	0.000	0.750	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.800
Entering Leg	0	1	5	0	6	8	0	1	0	9	0	1	0	0	1	0	0	0	0	0	16
Exiting Leg					9					5					2					0	16
Total					15					14					3					0	32

PDI File #: **207572 AA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Woburn Street from North							Presidential Way from East							New Boston Street from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 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	0	0	0	0
7:15 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	0	0	0	0
7:30 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	0	0	0
7:45 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	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	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							1							0							0							0	1

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Woburn Street from North							Presidential Way from East							New Boston Street from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 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	0	0	0	0
8:15 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	0	0	0	0
8:30 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	0	0	0
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg							1							0							0							0	1
Total							1							1							0							0	2

PDI File #: **207572 AA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class:

Pedestrians

	Woburn Street							Presidential Way							New Boston Street							Driveway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 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	0	0	0	0
7:15 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	0	0	0	0
7:30 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	0	0	0
7:45 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	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	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 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	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	0	0	0	0	0	0	0	0
Grand Total	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	0	0	0
Approach %	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 %	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	0	0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Woburn Street							Presidential Way							New Boston Street							Driveway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 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	0	0	0	0
7:15 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	0	0	0	0
7:30 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	0	0	0
7:45 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	0	0	0
Total Volume	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	0	0	0
% Approach Total	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	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	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	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **207572 AAA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	5	29	0	34	61	0	4	0	65	18	10	0	0	28	0	0	1	0	1	128
3:15 PM	0	3	40	0	43	45	2	7	0	54	11	7	0	0	18	0	2	1	0	3	118
3:30 PM	0	4	56	0	60	62	2	7	0	71	7	10	1	0	18	0	1	1	0	2	151
3:45 PM	1	4	35	0	40	53	0	6	0	59	8	1	0	0	9	0	3	2	0	5	113
Total	1	16	160	0	177	221	4	24	0	249	44	28	1	0	73	0	6	5	0	11	510
4:00 PM	0	3	39	0	42	56	0	2	0	58	10	13	0	0	23	0	0	0	0	0	123
4:15 PM	0	5	39	0	44	34	0	2	0	36	10	9	0	0	19	0	2	2	0	4	103
4:30 PM	1	3	51	0	55	48	0	5	0	53	10	5	0	0	15	0	1	2	0	3	126
4:45 PM	1	1	30	0	32	48	0	3	0	51	13	4	0	0	17	0	1	0	0	1	101
Total	2	12	159	0	173	186	0	12	0	198	43	31	0	0	74	0	4	4	0	8	453
5:00 PM	0	1	50	0	51	55	0	1	0	56	10	4	0	0	14	0	0	1	0	1	122
5:15 PM	0	0	41	0	41	40	0	1	0	41	3	1	0	0	4	0	0	0	0	0	86
5:30 PM	0	0	27	1	28	43	0	1	0	44	4	4	0	0	8	0	0	0	0	0	80
5:45 PM	0	0	27	0	27	38	0	2	0	40	1	0	0	0	1	0	0	0	0	0	68
Total	0	1	145	1	147	176	0	5	0	181	18	9	0	0	27	0	0	1	0	1	356
Grand Total	3	29	464	1	497	583	4	41	0	628	105	68	1	0	174	0	10	10	0	20	1319
Approach %	0.6	5.8	93.4	0.2		92.8	0.6	6.5	0.0		60.3	39.1	0.6	0.0		0.0	50.0	50.0	0.0		
Total %	0.2	2.2	35.2	0.1	37.7	44.2	0.3	3.1	0.0	47.6	8.0	5.2	0.1	0.0	13.2	0.0	0.8	0.8	0.0	1.5	
Exiting Leg Total					662					579					70					8	1319
Cars	1	24	433	1	459	520	0	34	0	554	102	62	0	0	164	0	7	8	0	15	1192
% Cars	33.3	82.8	93.3	100.0	92.4	89.2	0.0	82.9	0.0	88.2	97.1	91.2	0.0	0.0	94.3	0.0	70.0	80.0	0.0	75.0	90.4
Exiting Leg Total					591					542					58					1	1192
Heavy Vehicles	2	5	31	0	38	63	4	7	0	74	3	6	1	0	10	0	3	2	0	5	127
% Heavy Vehicles	66.7	17.2	6.7	0.0	7.6	10.8	100.0	17.1	0.0	11.8	2.9	8.8	100.0	0.0	5.7	0.0	30.0	20.0	0.0	25.0	9.6
Exiting Leg Total					71					37					12					7	127

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	5	29	0	34	61	0	4	0	65	18	10	0	0	28	0	0	1	0	1	128
3:15 PM	0	3	40	0	43	45	2	7	0	54	11	7	0	0	18	0	2	1	0	3	118
3:30 PM	0	4	56	0	60	62	2	7	0	71	7	10	1	0	18	0	1	1	0	2	151
3:45 PM	1	4	35	0	40	53	0	6	0	59	8	1	0	0	9	0	3	2	0	5	113
Total Volume	1	16	160	0	177	221	4	24	0	249	44	28	1	0	73	0	6	5	0	11	510
% Approach Total	0.6	9.0	90.4	0.0		88.8	1.6	9.6	0.0		60.3	38.4	1.4	0.0		0.0	54.5	45.5	0.0		
PHF	0.250	0.800	0.714	0.000	0.738	0.891	0.500	0.857	0.000	0.877	0.611	0.700	0.250	0.000	0.652	0.000	0.500	0.625	0.000	0.550	0.844
Cars	1	13	145	0	159	190	0	21	0	211	42	26	0	0	68	0	4	4	0	8	446
Cars %	100.0	81.3	90.6	0.0	89.8	86.0	0.0	87.5	0.0	84.7	95.5	92.9	0.0	0.0	93.2	0.0	66.7	80.0	0.0	72.7	87.5
Heavy Vehicles	0	3	15	0	18	31	4	3	0	38	2	2	1	0	5	0	2	1	0	3	64
Heavy Vehicles %	0.0	18.8	9.4	0.0	10.2	14.0	100.0	12.5	0.0	15.3	4.5	7.1	100.0	0.0	6.8	0.0	33.3	20.0	0.0	27.3	12.5
Cars Enter Leg	1	13	145	0	159	190	0	21	0	211	42	26	0	0	68	0	4	4	0	8	446
Heavy Enter Leg	0	3	15	0	18	31	4	3	0	38	2	2	1	0	5	0	2	1	0	3	64
Total Entering Leg	1	16	160	0	177	221	4	24	0	249	44	28	1	0	73	0	6	5	0	11	510
Cars Exiting Leg					220					191					34					1	446
Heavy Exiting Leg					34					19					6					5	64
Total Exiting Leg					254					210					40					6	510

PDI File #: **207572 AAA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	4	26	0	30	52	0	2	0	54	18	10	0	0	28	0	0	1	0	1	113
3:15 PM	0	2	34	0	36	39	0	6	0	45	10	6	0	0	16	0	2	0	0	2	99
3:30 PM	0	3	53	0	56	55	0	7	0	62	7	9	0	0	16	0	1	1	0	2	136
3:45 PM	1	4	32	0	37	44	0	6	0	50	7	1	0	0	8	0	1	2	0	3	98
Total	1	13	145	0	159	190	0	21	0	211	42	26	0	0	68	0	4	4	0	8	446
4:00 PM	0	3	37	0	40	50	0	1	0	51	9	12	0	0	21	0	0	0	0	0	112
4:15 PM	0	4	36	0	40	29	0	1	0	30	10	8	0	0	18	0	2	2	0	4	92
4:30 PM	0	3	47	0	50	41	0	5	0	46	10	5	0	0	15	0	1	2	0	3	114
4:45 PM	0	0	29	0	29	42	0	3	0	45	13	2	0	0	15	0	0	0	0	0	89
Total	0	10	149	0	159	162	0	10	0	172	42	27	0	0	69	0	3	4	0	7	407
5:00 PM	0	1	49	0	50	53	0	0	0	53	10	4	0	0	14	0	0	0	0	0	117
5:15 PM	0	0	39	0	39	36	0	1	0	37	3	1	0	0	4	0	0	0	0	0	80
5:30 PM	0	0	24	1	25	43	0	1	0	44	4	4	0	0	8	0	0	0	0	0	77
5:45 PM	0	0	27	0	27	36	0	1	0	37	1	0	0	0	1	0	0	0	0	0	65
Total	0	1	139	1	141	168	0	3	0	171	18	9	0	0	27	0	0	0	0	0	339
Grand Total	1	24	433	1	459	520	0	34	0	554	102	62	0	0	164	0	7	8	0	15	1192
Approach %	0.2	5.2	94.3	0.2		93.9	0.0	6.1	0.0		62.2	37.8	0.0	0.0		0.0	46.7	53.3	0.0		
Total %	0.1	2.0	36.3	0.1	38.5	43.6	0.0	2.9	0.0	46.5	8.6	5.2	0.0	0.0	13.8	0.0	0.6	0.7	0.0	1.3	
Exiting Leg Total					591					542					58					1	1192

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	4	26	0	30	52	0	2	0	54	18	10	0	0	28	0	0	1	0	1	113
3:15 PM	0	2	34	0	36	39	0	6	0	45	10	6	0	0	16	0	2	0	0	2	99
3:30 PM	0	3	53	0	56	55	0	7	0	62	7	9	0	0	16	0	1	1	0	2	136
3:45 PM	1	4	32	0	37	44	0	6	0	50	7	1	0	0	8	0	1	2	0	3	98
Total Volume	1	13	145	0	159	190	0	21	0	211	42	26	0	0	68	0	4	4	0	8	446
% Approach Total	0.6	8.2	91.2	0.0		90.0	0.0	10.0	0.0		61.8	38.2	0.0	0.0		0.0	50.0	50.0	0.0		
PHF	0.250	0.813	0.684	0.000	0.710	0.864	0.000	0.750	0.000	0.851	0.583	0.650	0.000	0.000	0.607	0.000	0.500	0.500	0.000	0.667	0.820
Entering Leg	1	13	145	0	159	190	0	21	0	211	42	26	0	0	68	0	4	4	0	8	446
Exiting Leg					220					191					34					1	446
Total					379					402					102					9	892

PDI File #: **207572 AAA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	1	3	0	4	9	0	2	0	11	0	0	0	0	0	0	0	0	0	0	15
3:15 PM	0	1	6	0	7	6	2	1	0	9	1	1	0	0	2	0	0	1	0	1	19
3:30 PM	0	1	3	0	4	7	2	0	0	9	0	1	1	0	2	0	0	0	0	0	15
3:45 PM	0	0	3	0	3	9	0	0	0	9	1	0	0	0	1	0	2	0	0	2	15
Total	0	3	15	0	18	31	4	3	0	38	2	2	1	0	5	0	2	1	0	3	64
4:00 PM	0	0	2	0	2	6	0	1	0	7	1	1	0	0	2	0	0	0	0	0	11
4:15 PM	0	1	3	0	4	5	0	1	0	6	0	1	0	0	1	0	0	0	0	0	11
4:30 PM	1	0	4	0	5	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	12
4:45 PM	1	1	1	0	3	6	0	0	0	6	0	2	0	0	2	0	1	0	0	1	12
Total	2	2	10	0	14	24	0	2	0	26	1	4	0	0	5	0	1	0	0	1	46
5:00 PM	0	0	1	0	1	2	0	1	0	3	0	0	0	0	0	0	0	1	0	1	5
5:15 PM	0	0	2	0	2	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
5:30 PM	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	6	0	6	8	0	2	0	10	0	0	0	0	0	0	0	1	0	1	17
Grand Total	2	5	31	0	38	63	4	7	0	74	3	6	1	0	10	0	3	2	0	5	127
Approach %	5.3	13.2	81.6	0.0		85.1	5.4	9.5	0.0		30.0	60.0	10.0	0.0		0.0	60.0	40.0	0.0		
Total %	1.6	3.9	24.4	0.0	29.9	49.6	3.1	5.5	0.0	58.3	2.4	4.7	0.8	0.0	7.9	0.0	2.4	1.6	0.0	3.9	
Exiting Leg Total					71					37					12					7	127
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total					0					0					0					0	0
Single-Unit Trucks	1	3	20	0	24	46	3	3	0	52	3	4	0	0	7	0	0	2	0	2	85
% Single-Unit	50.0	60.0	64.5	0.0	63.2	73.0	75.0	42.9	0.0	70.3	100.0	66.7	0.0	0.0	70.0	0.0	0.0	100.0	0.0	40.0	66.9
Exiting Leg Total					52					23					6					4	85
Articulated Trucks	1	2	11	0	14	17	1	4	0	22	0	2	1	0	3	0	3	0	0	3	42
% Articulated	50.0	40.0	35.5	0.0	36.8	27.0	25.0	57.1	0.0	29.7	0.0	33.3	100.0	0.0	30.0	0.0	100.0	0.0	0.0	60.0	33.1
Exiting Leg Total					19					14					6					3	42

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	1	3	0	4	9	0	2	0	11	0	0	0	0	0	0	0	0	0	0	15
3:15 PM	0	1	6	0	7	6	2	1	0	9	1	1	0	0	2	0	0	1	0	1	19
3:30 PM	0	1	3	0	4	7	2	0	0	9	0	1	1	0	2	0	0	0	0	0	15
3:45 PM	0	0	3	0	3	9	0	0	0	9	1	0	0	0	1	0	2	0	0	2	15
Total Volume	0	3	15	0	18	31	4	3	0	38	2	2	1	0	5	0	2	1	0	3	64
% Approach Total	0.0	16.7	83.3	0.0		81.6	10.5	7.9	0.0		40.0	40.0	20.0	0.0		0.0	66.7	33.3	0.0		
PHF	0.000	0.750	0.625	0.000	0.643	0.861	0.500	0.375	0.000	0.864	0.500	0.500	0.250	0.000	0.625	0.000	0.250	0.250	0.000	0.375	0.842
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Buses %	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Single-Unit Trucks	0	1	9	0	10	20	3	2	0	25	2	2	0	0	4	0	0	1	0	1	40
Single-Unit %	0.0	33.3	60.0	0.0	55.6	64.5	75.0	66.7	0.0	65.8	100.0	100.0	0.0	0.0	80.0	0.0	0.0	100.0	0.0	33.3	62.5
Articulated Trucks	0	2	6	0	8	11	1	1	0	13	0	0	1	0	1	0	2	0	0	2	24
Articulated %	0.0	66.7	40.0	0.0	44.4	35.5	25.0	33.3	0.0	34.2	0.0	0.0	100.0	0.0	20.0	0.0	100.0	0.0	0.0	66.7	37.5
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	1	9	0	10	20	3	2	0	25	2	2	0	0	4	0	0	1	0	1	40
Articulated Trucks	0	2	6	0	8	11	1	1	0	13	0	0	1	0	1	0	2	0	0	2	24
Total Entering Leg	0	3	15	0	18	31	4	3	0	38	2	2	1	0	5	0	2	1	0	3	64
Buses					0					0					0					0	0
Single-Unit Trucks					23					11					3					3	40
Articulated Trucks					11					8					3					2	24
Total Exiting Leg					34					19					6					5	64

PDI File #: **207572 AAA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 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
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 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
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	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	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					0					0					0					0	0

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	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	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg					0					0					0					0	0
Total					0					0					0					0	0

PDI File #: **207572 AAA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	3	0	3	4	0	1	0	5	0	0	0	0	0	0	0	0	0	0	8
3:15 PM	0	1	3	0	4	6	2	1	0	9	1	1	0	0	2	0	0	1	0	1	16
3:30 PM	0	0	2	0	2	4	1	0	0	5	0	1	0	0	1	0	0	0	0	0	8
3:45 PM	0	0	1	0	1	6	0	0	0	6	1	0	0	0	1	0	0	0	0	0	8
Total	0	1	9	0	10	20	3	2	0	25	2	2	0	0	4	0	0	1	0	1	40
4:00 PM	0	0	1	0	1	5	0	0	0	5	1	0	0	0	1	0	0	0	0	0	7
4:15 PM	0	1	1	0	2	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
4:30 PM	0	0	3	0	3	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	7
4:45 PM	1	1	1	0	3	6	0	0	0	6	0	2	0	0	2	0	0	0	0	0	11
Total	1	2	6	0	9	19	0	0	0	19	1	2	0	0	3	0	0	0	0	0	31
5:00 PM	0	0	1	0	1	1	0	1	0	2	0	0	0	0	0	0	0	1	0	1	4
5:15 PM	0	0	2	0	2	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
5:30 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	5	0	5	7	0	1	0	8	0	0	0	0	0	0	0	1	0	1	14
Grand Total	1	3	20	0	24	46	3	3	0	52	3	4	0	0	7	0	0	2	0	2	85
Approach %	4.2	12.5	83.3	0.0		88.5	5.8	5.8	0.0		42.9	57.1	0.0	0.0		0.0	0.0	100.0	0.0		
Total %	1.2	3.5	23.5	0.0	28.2	54.1	3.5	3.5	0.0	61.2	3.5	4.7	0.0	0.0	8.2	0.0	0.0	2.4	0.0	2.4	
Exiting Leg Total					52					23					6					4	85

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	3	0	3	4	0	1	0	5	0	0	0	0	0	0	0	0	0	0	8
3:15 PM	0	1	3	0	4	6	2	1	0	9	1	1	0	0	2	0	0	1	0	1	16
3:30 PM	0	0	2	0	2	4	1	0	0	5	0	1	0	0	1	0	0	0	0	0	8
3:45 PM	0	0	1	0	1	6	0	0	0	6	1	0	0	0	1	0	0	0	0	0	8
Total Volume	0	1	9	0	10	20	3	2	0	25	2	2	0	0	4	0	0	1	0	1	40
% Approach Total	0.0	10.0	90.0	0.0		80.0	12.0	8.0	0.0		50.0	50.0	0.0	0.0		0.0	0.0	100.0	0.0		
PHF	0.000	0.250	0.750	0.000	0.625	0.833	0.375	0.500	0.000	0.694	0.500	0.500	0.000	0.000	0.500	0.000	0.000	0.250	0.000	0.250	0.625
Entering Leg	0	1	9	0	10	20	3	2	0	25	2	2	0	0	4	0	0	1	0	1	40
Exiting Leg					23					11					3					3	40
Total					33					36					7					4	80

PDI File #: **207572 AAA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	1	0	0	1	5	0	1	0	6	0	0	0	0	0	0	0	0	0	0	7
3:15 PM	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3:30 PM	0	1	1	0	2	3	1	0	0	4	0	0	1	0	1	0	0	0	0	0	7
3:45 PM	0	0	2	0	2	3	0	0	0	3	0	0	0	0	0	0	2	0	0	2	7
Total	0	2	6	0	8	11	1	1	0	13	0	0	1	0	1	0	2	0	0	2	24
4:00 PM	0	0	1	0	1	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	4
4:15 PM	0	0	2	0	2	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	5
4:30 PM	1	0	1	0	2	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	1	0	4	0	5	5	0	2	0	7	0	2	0	0	2	0	1	0	0	1	15
5:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	1	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	3
Grand Total	1	2	11	0	14	17	1	4	0	22	0	2	1	0	3	0	3	0	0	3	42
Approach %	7.1	14.3	78.6	0.0		77.3	4.5	18.2	0.0		0.0	66.7	33.3	0.0		0.0	100.0	0.0	0.0		
Total %	2.4	4.8	26.2	0.0	33.3	40.5	2.4	9.5	0.0	52.4	0.0	4.8	2.4	0.0	7.1	0.0	7.1	0.0	0.0	7.1	
Exiting Leg Total					19					14					6					3	42

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Woburn Street from North					Presidential Way from East					New Boston Street from South					Driveway from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	1	0	0	1	5	0	1	0	6	0	0	0	0	0	0	0	0	0	0	7
3:15 PM	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3:30 PM	0	1	1	0	2	3	1	0	0	4	0	0	1	0	1	0	0	0	0	0	7
3:45 PM	0	0	2	0	2	3	0	0	0	3	0	0	0	0	0	0	2	0	0	2	7
Total Volume	0	2	6	0	8	11	1	1	0	13	0	0	1	0	1	0	2	0	0	2	24
% Approach Total	0.0	25.0	75.0	0.0		84.6	7.7	7.7	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.500	0.500	0.000	0.667	0.550	0.250	0.250	0.000	0.542	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.000	0.000	0.250	0.857
Entering Leg	0	2	6	0	8	11	1	1	0	13	0	0	1	0	1	0	2	0	0	2	24
Exiting Leg					11					8					3					2	24
Total					19					21					4					4	48

PDI File #: **207572 AAA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Woburn Street from North							Presidential Way from East							New Boston Street from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	2	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3:15 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	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 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	0	0	0	0
Total	0	0	2	0	0	0	2	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4:00 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	0	0	0	0
4:15 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	0	0	0	0
4:30 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	0	0	0	0
4:45 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	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	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0
Grand Total	0	0	2	0	0	0	2	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Approach %	0.0	0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	50.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							2							2							0							0	4

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Woburn Street from North							Presidential Way from East							New Boston Street from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 PM	0	0	2	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3:15 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	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 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	0	0	0	0
Total Volume	0	0	2	0	0	0	2	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
% Approach Total	0.0	0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.500	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333
Entering Leg	0	0	2	0	0	0	2	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Exiting Leg							2							2							0							0	4
Total							4							4							0							0	8

PDI File #: **207572 AAA**
Location: **N: Woburn Street S: New Boston Street**
Location: **E: Presidential Way W: Driveway**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Woburn Street from North							Presidential Way from East							New Boston Street from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 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	0	0	0	0
3:15 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	0	0	0	0
3:30 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	0	0	0	0
3:45 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	0	1	1	1
Total	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	1	1	1
4:00 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	0	0	0	0
4:15 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	0	0	0	0
4:30 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	0	0	0	0
4:45 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	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	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0
Grand Total	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	1	1	1
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	100		
Total %	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	100	100	
Exiting Leg Total							0							0							0							1	1

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Woburn Street from North							Presidential Way from East							New Boston Street from South							Driveway from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 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	0	0	0	0
3:15 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	0	0	0	0
3:30 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	0	0	0	0
3:45 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	0	1	1	1
Total Volume	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	1	1	1
% Approach Total	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	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.250
Entering Leg	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	1	1	1
Exiting Leg							0							0							0							1	1
Total							0							0							0							2	2

PDI File #: **207572 B**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	16	11	0	27	13	1	79	2	95	64	13	2	0	79	1	3	0	0	4	205
10:15 AM	0	19	14	0	33	19	6	68	3	96	82	18	2	0	102	1	0	0	0	1	232
10:30 AM	0	36	14	0	50	8	2	90	5	105	87	19	2	0	108	1	2	0	0	3	266
10:45 AM	0	18	9	0	27	16	4	75	3	98	86	22	5	0	113	0	1	0	0	1	239
Total	0	89	48	0	137	56	13	312	13	394	319	72	11	0	402	3	6	0	0	9	942
11:00 AM	0	27	20	0	47	18	3	85	2	108	94	31	0	0	125	3	4	0	0	7	287
11:15 AM	0	19	17	0	36	16	1	85	5	107	109	27	1	2	139	0	6	0	0	6	288
11:30 AM	0	32	12	0	44	16	7	92	1	116	125	16	2	0	143	0	1	0	0	1	304
11:45 AM	0	13	14	0	27	12	1	85	4	102	96	31	3	0	130	0	0	1	0	1	260
Total	0	91	63	0	154	62	12	347	12	433	424	105	6	2	537	3	11	1	0	15	1139
12:00 PM	2	28	25	0	55	16	6	81	2	105	133	31	0	0	164	1	2	1	0	4	328
12:15 PM	0	20	11	0	31	12	5	75	1	93	131	27	1	1	160	0	2	0	0	2	286
12:30 PM	0	14	17	0	31	14	3	74	1	92	118	26	0	0	144	2	5	0	0	7	274
12:45 PM	1	28	8	0	37	16	2	68	1	87	113	28	1	1	143	3	3	0	0	6	273
Total	3	90	61	0	154	58	16	298	5	377	495	112	2	2	611	6	12	1	0	19	1161
Grand Total	3	270	172	0	445	176	41	957	30	1204	1238	289	19	4	1550	12	29	2	0	43	3242
Approach %	0.7	60.7	38.7	0.0		14.6	3.4	79.5	2.5		79.9	18.6	1.2	0.3		27.9	67.4	4.7	0.0		
Total %	0.1	8.3	5.3	0.0	13.7	5.4	1.3	29.5	0.9	37.1	38.2	8.9	0.6	0.1	47.8	0.4	0.9	0.1	0.0	1.3	
Exiting Leg Total					467					1469					1243					63	3242
Cars	3	266	159	0	428	162	31	929	30	1152	1211	283	18	4	1516	11	21	2	0	34	3130
% Cars	100.0	98.5	92.4	0.0	96.2	92.0	75.6	97.1	100.0	95.7	97.8	97.9	94.7	100.0	97.8	91.7	72.4	100.0	0.0	79.1	96.5
Exiting Leg Total					447					1421					1210					52	3130
Heavy Vehicles	0	4	13	0	17	14	10	28	0	52	27	6	1	0	34	1	8	0	0	9	112
% Heavy Vehicles	0.0	1.5	7.6	0.0	3.8	8.0	24.4	2.9	0.0	4.3	2.2	2.1	5.3	0.0	2.2	8.3	27.6	0.0	0.0	20.9	3.5
Exiting Leg Total					20					48					33					11	112

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

11:15 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
11:15 AM	0	19	17	0	36	16	1	85	5	107	109	27	1	2	139	0	6	0	0	6	288
11:30 AM	0	32	12	0	44	16	7	92	1	116	125	16	2	0	143	0	1	0	0	1	304
11:45 AM	0	13	14	0	27	12	1	85	4	102	96	31	3	0	130	0	0	1	0	1	260
12:00 PM	2	28	25	0	55	16	6	81	2	105	133	31	0	0	164	1	2	1	0	4	328
Total Volume	2	92	68	0	162	60	15	343	12	430	463	105	6	2	576	1	9	2	0	12	1180
% Approach Total	1.2	56.8	42.0	0.0		14.0	3.5	79.8	2.8		80.4	18.2	1.0	0.3		8.3	75.0	16.7	0.0		
PHF	0.250	0.719	0.680	0.000	0.736	0.938	0.536	0.932	0.600	0.927	0.870	0.847	0.500	0.250	0.878	0.250	0.375	0.500	0.000	0.500	0.899
Cars	2	92	63	0	157	55	14	339	12	420	457	104	5	2	568	0	4	2	0	6	1151
Cars %	100.0	100.0	92.6	0.0	96.9	91.7	93.3	98.8	100.0	97.7	98.7	99.0	83.3	100.0	98.6	0.0	44.4	100.0	0.0	50.0	97.5
Heavy Vehicles	0	0	5	0	5	5	1	4	0	10	6	1	1	0	8	1	5	0	0	6	29
Heavy Vehicles %	0.0	0.0	7.4	0.0	3.1	8.3	6.7	1.2	0.0	2.3	1.3	1.0	16.7	0.0	1.4	100.0	55.6	0.0	0.0	50.0	2.5
Cars Enter Leg	2	92	63	0	157	55	14	339	12	420	457	104	5	2	568	0	4	2	0	6	1151
Heavy Enter Leg	0	0	5	0	5	5	1	4	0	10	6	1	1	0	8	1	5	0	0	6	29
Total Entering Leg	2	92	68	0	162	60	15	343	12	430	463	105	6	2	576	1	9	2	0	12	1180
Cars Exiting Leg					161					536					433					21	1151
Heavy Exiting Leg					6					16					5					2	29
Total Exiting Leg					167					552					438					23	1180

PDI File #: **207572 B**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	15	11	0	26	12	1	71	2	86	63	13	2	0	78	1	2	0	0	3	193
10:15 AM	0	17	12	0	29	19	3	65	3	90	81	18	2	0	101	1	0	0	0	1	221
10:30 AM	0	36	13	0	49	7	1	87	5	100	83	19	2	0	104	1	2	0	0	3	256
10:45 AM	0	18	9	0	27	16	4	73	3	96	83	21	5	0	109	0	1	0	0	1	233
Total	0	86	45	0	131	54	9	296	13	372	310	71	11	0	392	3	5	0	0	8	903
11:00 AM	0	27	15	0	42	14	3	83	2	102	88	31	0	0	119	3	2	0	0	5	268
11:15 AM	0	19	15	0	34	15	0	84	5	104	106	26	0	2	134	0	2	0	0	2	274
11:30 AM	0	32	12	0	44	14	7	91	1	113	124	16	2	0	142	0	1	0	0	1	300
11:45 AM	0	13	13	0	26	12	1	83	4	100	95	31	3	0	129	0	0	1	0	1	256
Total	0	91	55	0	146	55	11	341	12	419	413	104	5	2	524	3	5	1	0	9	1098
12:00 PM	2	28	23	0	53	14	6	81	2	103	132	31	0	0	163	0	1	1	0	2	321
12:15 PM	0	20	11	0	31	11	2	73	1	87	128	24	1	1	154	0	2	0	0	2	274
12:30 PM	0	14	17	0	31	13	2	73	1	89	116	26	0	0	142	2	5	0	0	7	269
12:45 PM	1	27	8	0	36	15	1	65	1	82	112	27	1	1	141	3	3	0	0	6	265
Total	3	89	59	0	151	53	11	292	5	361	488	108	2	2	600	5	11	1	0	17	1129
Grand Total	3	266	159	0	428	162	31	929	30	1152	1211	283	18	4	1516	11	21	2	0	34	3130
Approach %	0.7	62.1	37.1	0.0		14.1	2.7	80.6	2.6		79.9	18.7	1.2	0.3		32.4	61.8	5.9	0.0		
Total %	0.1	8.5	5.1	0.0	13.7	5.2	1.0	29.7	1.0	36.8	38.7	9.0	0.6	0.1	48.4	0.4	0.7	0.1	0.0	1.1	
Exiting Leg Total					447					1421					1210					52	3130

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

11:15 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
11:15 AM	0	19	15	0	34	15	0	84	5	104	106	26	0	2	134	0	2	0	0	2	274
11:30 AM	0	32	12	0	44	14	7	91	1	113	124	16	2	0	142	0	1	0	0	1	300
11:45 AM	0	13	13	0	26	12	1	83	4	100	95	31	3	0	129	0	0	1	0	1	256
12:00 PM	2	28	23	0	53	14	6	81	2	103	132	31	0	0	163	0	1	1	0	2	321
Total Volume	2	92	63	0	157	55	14	339	12	420	457	104	5	2	568	0	4	2	0	6	1151
% Approach Total	1.3	58.6	40.1	0.0		13.1	3.3	80.7	2.9		80.5	18.3	0.9	0.4		0.0	66.7	33.3	0.0		
PHF	0.250	0.719	0.685	0.000	0.741	0.917	0.500	0.931	0.600	0.929	0.866	0.839	0.417	0.250	0.871	0.000	0.500	0.500	0.000	0.750	0.896
Entering Leg	2	92	63	0	157	55	14	339	12	420	457	104	5	2	568	0	4	2	0	6	1151
Exiting Leg					161					536					433					21	1151
Total					318					956					1001					27	2302

PDI File #: **207572 B**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	1	0	0	1	1	0	8	0	9	1	0	0	0	1	0	1	0	0	1	12
10:15 AM	0	2	2	0	4	0	3	3	0	6	1	0	0	0	1	0	0	0	0	0	11
10:30 AM	0	0	1	0	1	1	1	3	0	5	4	0	0	0	4	0	0	0	0	0	10
10:45 AM	0	0	0	0	0	0	0	2	0	2	3	1	0	0	4	0	0	0	0	0	6
Total	0	3	3	0	6	2	4	16	0	22	9	1	0	0	10	0	1	0	0	1	39
11:00 AM	0	0	5	0	5	4	0	2	0	6	6	0	0	0	6	0	2	0	0	2	19
11:15 AM	0	0	2	0	2	1	1	1	0	3	3	1	1	0	5	0	4	0	0	4	14
11:30 AM	0	0	0	0	0	2	0	1	0	3	1	0	0	0	1	0	0	0	0	0	4
11:45 AM	0	0	1	0	1	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	4
Total	0	0	8	0	8	7	1	6	0	14	11	1	1	0	13	0	6	0	0	6	41
12:00 PM	0	0	2	0	2	2	0	0	0	2	1	0	0	0	1	1	1	0	0	2	7
12:15 PM	0	0	0	0	0	1	3	2	0	6	3	3	0	0	6	0	0	0	0	0	12
12:30 PM	0	0	0	0	0	1	1	1	0	3	2	0	0	0	2	0	0	0	0	0	5
12:45 PM	0	1	0	0	1	1	1	3	0	5	1	1	0	0	2	0	0	0	0	0	8
Total	0	1	2	0	3	5	5	6	0	16	7	4	0	0	11	1	1	0	0	2	32
Grand Total	0	4	13	0	17	14	10	28	0	52	27	6	1	0	34	1	8	0	0	9	112
Approach %	0.0	23.5	76.5	0.0		26.9	19.2	53.8	0.0		79.4	17.6	2.9	0.0		11.1	88.9	0.0	0.0		
Total %	0.0	3.6	11.6	0.0	15.2	12.5	8.9	25.0	0.0	46.4	24.1	5.4	0.9	0.0	30.4	0.9	7.1	0.0	0.0	8.0	
Exiting Leg Total					20					48					33					11	112
Buses	0	1	0	0	1	0	9	0	0	9	1	0	0	0	1	0	7	0	0	7	18
% Buses	0.0	25.0	0.0	0.0	5.9	0.0	90.0	0.0	0.0	17.3	3.7	0.0	0.0	0.0	2.9	0.0	87.5	0.0	0.0	77.8	16.1
Exiting Leg Total					0					8					1					9	18
Single-Unit Trucks	0	2	9	0	11	10	1	20	0	31	22	4	1	0	27	1	1	0	0	2	71
% Single-Unit	0.0	50.0	69.2	0.0	64.7	71.4	10.0	71.4	0.0	59.6	81.5	66.7	100.0	0.0	79.4	100.0	12.5	0.0	0.0	22.2	63.4
Exiting Leg Total					14					32					23					2	71
Articulated Trucks	0	1	4	0	5	4	0	8	0	12	4	2	0	0	6	0	0	0	0	0	23
% Articulated	0.0	25.0	30.8	0.0	29.4	28.6	0.0	28.6	0.0	23.1	14.8	33.3	0.0	0.0	17.6	0.0	0.0	0.0	0.0	0.0	20.5
Exiting Leg Total					6					8					9					0	23

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

10:30 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:30 AM	0	0	1	0	1	1	1	3	0	5	4	0	0	0	4	0	0	0	0	0	10
10:45 AM	0	0	0	0	0	0	0	2	0	2	3	1	0	0	4	0	0	0	0	0	6
11:00 AM	0	0	5	0	5	4	0	2	0	6	6	0	0	0	6	0	2	0	0	2	19
11:15 AM	0	0	2	0	2	1	1	1	0	3	3	1	1	0	5	0	4	0	0	4	14
Total Volume	0	0	8	0	8	6	2	8	0	16	16	2	1	0	19	0	6	0	0	6	49
% Approach Total	0.0	0.0	100.0	0.0		37.5	12.5	50.0	0.0		84.2	10.5	5.3	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.400	0.000	0.400	0.375	0.500	0.667	0.000	0.667	0.667	0.500	0.250	0.000	0.792	0.000	0.375	0.000	0.000	0.375	0.645
Buses	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	5	0	0	5	8
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	12.5	6.3	0.0	0.0	0.0	5.3	0.0	83.3	0.0	0.0	83.3	16.3
Single-Unit Trucks	0	0	4	0	4	5	0	7	0	12	12	1	1	0	14	0	1	0	0	1	31
Single-Unit %	0.0	0.0	50.0	0.0	50.0	83.3	0.0	87.5	0.0	75.0	75.0	50.0	100.0	0.0	73.7	0.0	16.7	0.0	0.0	16.7	63.3
Articulated Trucks	0	0	4	0	4	1	0	1	0	2	3	1	0	0	4	0	0	0	0	0	10
Articulated %	0.0	0.0	50.0	0.0	50.0	16.7	0.0	12.5	0.0	12.5	18.8	50.0	0.0	0.0	21.1	0.0	0.0	0.0	0.0	0.0	20.4
Buses	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	5	0	0	5	8
Single-Unit Trucks	0	0	4	0	4	5	0	7	0	12	12	1	1	0	14	0	1	0	0	1	31
Articulated Trucks	0	0	4	0	4	1	0	1	0	2	3	1	0	0	4	0	0	0	0	0	10
Total Entering Leg	0	0	8	0	8	6	2	8	0	16	16	2	1	0	19	0	6	0	0	6	49
Buses					0					6					0					2	8
Single-Unit Trucks					6					17					7					1	31
Articulated Trucks					2					7					1					0	10
Total Exiting Leg					8					30					8					3	49

PDI File #: **207572 B**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
10:15 AM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
10:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
10:45 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	1	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	5
11:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	3
11:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	5	0	0	5	7
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
12:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
12:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	6
Grand Total	0	1	0	0	1	0	9	0	0	9	1	0	0	0	1	0	7	0	0	7	18
Approach %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	5.6	0.0	0.0	5.6	0.0	50.0	0.0	0.0	50.0	5.6	0.0	0.0	0.0	5.6	0.0	38.9	0.0	0.0	38.9	
Exiting Leg Total					0					8					1					9	18

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

10:30 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	3
11:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Total Volume	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	5	0	0	5	8
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.250	0.000	0.000	0.000	0.250	0.000	0.417	0.000	0.000	0.417	0.500
Entering Leg	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	5	0	0	5	8
Exiting Leg					0					6					0					2	8
Total					0					8					1					7	16

PDI File #: **207572 B**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	1	0	0	1	1	0	5	0	6	1	0	0	0	1	0	0	0	0	0	8
10:15 AM	0	0	2	0	2	0	1	1	0	2	1	0	0	0	1	0	0	0	0	0	5
10:30 AM	0	0	1	0	1	0	0	2	0	2	3	0	0	0	3	0	0	0	0	0	6
10:45 AM	0	0	0	0	0	0	0	2	0	2	3	1	0	0	4	0	0	0	0	0	6
Total	0	1	3	0	4	1	1	10	0	12	8	1	0	0	9	0	0	0	0	0	25
11:00 AM	0	0	2	0	2	4	0	2	0	6	3	0	0	0	3	0	0	0	0	0	11
11:15 AM	0	0	1	0	1	1	0	1	0	2	3	0	1	0	4	0	1	0	0	1	8
11:30 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
11:45 AM	0	0	1	0	1	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	4
Total	0	0	4	0	4	5	0	6	0	11	8	0	1	0	9	0	1	0	0	1	25
12:00 PM	0	0	2	0	2	2	0	0	0	2	1	0	0	0	1	1	0	0	0	1	6
12:15 PM	0	0	0	0	0	0	0	1	0	1	2	2	0	0	4	0	0	0	0	0	5
12:30 PM	0	0	0	0	0	1	0	1	0	2	2	0	0	0	2	0	0	0	0	0	4
12:45 PM	0	1	0	0	1	1	0	2	0	3	1	1	0	0	2	0	0	0	0	0	6
Total	0	1	2	0	3	4	0	4	0	8	6	3	0	0	9	1	0	0	0	1	21
Grand Total	0	2	9	0	11	10	1	20	0	31	22	4	1	0	27	1	1	0	0	2	71
Approach %	0.0	18.2	81.8	0.0		32.3	3.2	64.5	0.0		81.5	14.8	3.7	0.0		50.0	50.0	0.0	0.0		
Total %	0.0	2.8	12.7	0.0	15.5	14.1	1.4	28.2	0.0	43.7	31.0	5.6	1.4	0.0	38.0	1.4	1.4	0.0	0.0	2.8	
Exiting Leg Total					14					32					23					2	71

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

10:30 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:30 AM	0	0	1	0	1	0	0	2	0	2	3	0	0	0	3	0	0	0	0	0	6
10:45 AM	0	0	0	0	0	0	0	2	0	2	3	1	0	0	4	0	0	0	0	0	6
11:00 AM	0	0	2	0	2	4	0	2	0	6	3	0	0	0	3	0	0	0	0	0	11
11:15 AM	0	0	1	0	1	1	0	1	0	2	3	0	1	0	4	0	1	0	0	1	8
Total Volume	0	0	4	0	4	5	0	7	0	12	12	1	1	0	14	0	1	0	0	1	31
% Approach Total	0.0	0.0	100.0	0.0		41.7	0.0	58.3	0.0		85.7	7.1	7.1	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.500	0.000	0.500	0.313	0.000	0.875	0.000	0.500	1.000	0.250	0.250	0.000	0.875	0.000	0.250	0.000	0.000	0.250	0.705
Entering Leg	0	0	4	0	4	5	0	7	0	12	12	1	1	0	14	0	1	0	0	1	31
Exiting Leg					6					17					7					1	31
Total					10					29					21					2	62

PDI File #: **207572 B**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:00 AM	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	3
10:15 AM	0	1	0	0	1	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	3
10:30 AM	0	0	0	0	0	1	0	1	0	2	1	0	0	0	1	0	0	0	0	0	3
10:45 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	1	1	0	6	0	7	1	0	0	0	1	0	0	0	0	0	9
11:00 AM	0	0	3	0	3	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	5
11:15 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
11:30 AM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
11:45 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	4	0	4	2	0	0	0	2	2	1	0	0	3	0	0	0	0	0	9
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	1	0	1	0	2	1	1	0	0	2	0	0	0	0	0	4
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	2	0	3	1	1	0	0	2	0	0	0	0	0	5
Grand Total	0	1	4	0	5	4	0	8	0	12	4	2	0	0	6	0	0	0	0	0	23
Approach %	0.0	20.0	80.0	0.0		33.3	0.0	66.7	0.0		66.7	33.3	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	4.3	17.4	0.0	21.7	17.4	0.0	34.8	0.0	52.2	17.4	8.7	0.0	0.0	26.1	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total					6					8					9					0	23

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

10:15 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
10:15 AM	0	1	0	0	1	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	3
10:30 AM	0	0	0	0	0	1	0	1	0	2	1	0	0	0	1	0	0	0	0	0	3
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	3	0	3	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	5
Total Volume	0	1	3	0	4	1	0	3	0	4	3	0	0	0	3	0	0	0	0	0	11
% Approach Total	0.0	25.0	75.0	0.0		25.0	0.0	75.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.250	0.000	0.333	0.250	0.000	0.375	0.000	0.500	0.375	0.000	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.550
Entering Leg	0	1	3	0	4	1	0	3	0	4	3	0	0	0	3	0	0	0	0	0	11
Exiting Leg					1					6					4					0	11
Total					5					10					7					0	22

PDI File #: **207572 B**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
10:00 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	0	0	0	0
10:15 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	0	0	0	0
10:30 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	0	0	0
10:45 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	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	0	0	0	0	0	0	0	0
11:00 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	0	0	0	0
11:15 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	4	0	4	4
11:30 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	0	0	0
11:45 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	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	0	0	0	0	4	0	4	4
12:00 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	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
12:45 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	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	1	0	0	0	0	0	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	5	5
Approach %	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	0.0	0.0	0.0	0.0	0.0		20.0	0.0	0.0	0.0	80.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	80.0	0.0	100.0	
Exiting Leg Total							0							0							1							4	5

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

10:30 AM	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
10:30 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	0	0	0
10:45 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	0	0	0
11:00 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	0	0	0	0
11:15 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	4	0	4	4
Total Volume	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	4	0	4	4
% Approach Total	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	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.250
Entering Leg	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	4	0	4	4
Exiting Leg							0							0							0							4	4
Total							0							0							0							8	8

PDI File #: **207572 B**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Saturday, July 18, 2020**
Start Time: **10:00 AM**
End Time: **1:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
10:00 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	0	0	0	0
10:15 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	0	0	0	0
10:30 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	0	0	0
10:45 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	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	0	0	0	0	0	0	0	0
11:00 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	0	0	0	0
11:15 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	0	0	0	0
11:30 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	0	0	0
11:45 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	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	0	0	0	0	0	0	0	0
12:00 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	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0
Grand Total	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	0	0	0
Approach %	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 %	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	0	0	
Exiting Leg Total							0							0							0							0	0

Peak Hour Analysis from 10:00 AM to 01:00 PM begins at:

10:00 AM	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
10:00 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	0	0	0	0
10:15 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	0	0	0	0
10:30 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	0	0	0
10:45 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	0	0	0
Total Volume	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	0	0	0
% Approach Total	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	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	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	0	0	0
Exiting Leg							0							0							0							0	0
Total							0							0							0							0	0

PDI File #: **207572 BB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	6	15	19	0	40	90	9	128	0	227	50	17	3	0	70	1	5	0	0	6	343
7:15 AM	0	21	19	0	40	106	10	149	2	267	55	12	3	1	71	2	0	0	0	2	380
7:30 AM	3	20	17	0	40	102	10	161	2	275	49	20	7	0	76	6	9	0	0	15	406
7:45 AM	3	27	27	0	57	134	6	188	2	330	58	29	2	0	89	5	4	2	0	11	487
Total	12	83	82	0	177	432	35	626	6	1099	212	78	15	1	306	14	18	2	0	34	1616
8:00 AM	1	27	33	0	61	94	9	140	1	244	62	31	6	0	99	3	5	0	0	8	412
8:15 AM	0	23	19	0	42	109	12	131	1	253	70	21	3	0	94	2	7	1	0	10	399
8:30 AM	0	13	23	0	36	106	8	148	0	262	62	21	3	0	86	5	7	0	0	12	396
8:45 AM	1	32	24	0	57	103	1	135	0	239	67	31	3	0	101	1	3	0	0	4	401
Total	2	95	99	0	196	412	30	554	2	998	261	104	15	0	380	11	22	1	0	34	1608
Grand Total	14	178	181	0	373	844	65	1180	8	2097	473	182	30	1	686	25	40	3	0	68	3224
Approach %	3.8	47.7	48.5	0.0		40.2	3.1	56.3	0.4		69.0	26.5	4.4	0.1		36.8	58.8	4.4	0.0		
Total %	0.4	5.5	5.6	0.0	11.6	26.2	2.0	36.6	0.2	65.0	14.7	5.6	0.9	0.0	21.3	0.8	1.2	0.1	0.0	2.1	
Exiting Leg Total					1029					702					1384					109	3224
Cars	13	161	149	0	323	807	51	1107	7	1972	406	174	27	1	608	23	33	2	0	58	2961
% Cars	92.9	90.4	82.3	0.0	86.6	95.6	78.5	93.8	87.5	94.0	85.8	95.6	90.0	100.0	88.6	92.0	82.5	66.7	0.0	85.3	91.8
Exiting Leg Total					983					595					1292					91	2961
Heavy Vehicles	1	17	32	0	50	37	14	73	1	125	67	8	3	0	78	2	7	1	0	10	263
% Heavy Vehicles	7.1	9.6	17.7	0.0	13.4	4.4	21.5	6.2	12.5	6.0	14.2	4.4	10.0	0.0	11.4	8.0	17.5	33.3	0.0	14.7	8.2
Exiting Leg Total					46					107					92					18	263

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	3	20	17	0	40	102	10	161	2	275	49	20	7	0	76	6	9	0	0	15	406
7:45 AM	3	27	27	0	57	134	6	188	2	330	58	29	2	0	89	5	4	2	0	11	487
8:00 AM	1	27	33	0	61	94	9	140	1	244	62	31	6	0	99	3	5	0	0	8	412
8:15 AM	0	23	19	0	42	109	12	131	1	253	70	21	3	0	94	2	7	1	0	10	399
Total Volume	7	97	96	0	200	439	37	620	6	1102	239	101	18	0	358	16	25	3	0	44	1704
% Approach Total	3.5	48.5	48.0	0.0		39.8	3.4	56.3	0.5		66.8	28.2	5.0	0.0		36.4	56.8	6.8	0.0		
PHF	0.583	0.898	0.727	0.000	0.820	0.819	0.771	0.824	0.750	0.835	0.854	0.815	0.643	0.000	0.904	0.667	0.694	0.375	0.000	0.733	0.875
Cars	6	88	81	0	175	420	31	586	6	1043	204	99	16	0	319	14	22	2	0	38	1575
Cars %	85.7	90.7	84.4	0.0	87.5	95.7	83.8	94.5	100.0	94.6	85.4	98.0	88.9	0.0	89.1	87.5	88.0	66.7	0.0	86.4	92.4
Heavy Vehicles	1	9	15	0	25	19	6	34	0	59	35	2	2	0	39	2	3	1	0	6	129
Heavy Vehicles %	14.3	9.3	15.6	0.0	12.5	4.3	16.2	5.5	0.0	5.4	14.6	2.0	11.1	0.0	10.9	12.5	12.0	33.3	0.0	13.6	7.6
Cars Enter Leg	6	88	81	0	175	420	31	586	6	1043	204	99	16	0	319	14	22	2	0	38	1575
Heavy Enter Leg	1	9	15	0	25	19	6	34	0	59	35	2	2	0	39	2	3	1	0	6	129
Total Entering Leg	7	97	96	0	200	439	37	620	6	1102	239	101	18	0	358	16	25	3	0	44	1704
Cars Exiting Leg					521					313					688					53	1575
Heavy Exiting Leg					22					53					45					9	129
Total Exiting Leg					543					366					733					62	1704

PDI File #: **207572 BB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	6	13	18	0	37	86	7	122	0	215	47	15	3	0	65	1	4	0	0	5	322
7:15 AM	0	18	15	0	33	103	7	137	1	248	39	12	3	1	55	2	0	0	0	2	338
7:30 AM	3	19	14	0	36	101	9	152	2	264	43	20	6	0	69	5	8	0	0	13	382
7:45 AM	3	24	24	0	51	126	5	180	2	313	52	28	2	0	82	5	3	2	0	10	456
Total	12	74	71	0	157	416	28	591	5	1040	181	75	14	1	271	13	15	2	0	30	1498
8:00 AM	0	27	29	0	56	89	8	133	1	231	47	30	6	0	83	2	4	0	0	6	376
8:15 AM	0	18	14	0	32	104	9	121	1	235	62	21	2	0	85	2	7	0	0	9	361
8:30 AM	0	12	17	0	29	101	5	135	0	241	56	17	2	0	75	5	5	0	0	10	355
8:45 AM	1	30	18	0	49	97	1	127	0	225	60	31	3	0	94	1	2	0	0	3	371
Total	1	87	78	0	166	391	23	516	2	932	225	99	13	0	337	10	18	0	0	28	1463
Grand Total	13	161	149	0	323	807	51	1107	7	1972	406	174	27	1	608	23	33	2	0	58	2961
Approach %	4.0	49.8	46.1	0.0		40.9	2.6	56.1	0.4		66.8	28.6	4.4	0.2		39.7	56.9	3.4	0.0		
Total %	0.4	5.4	5.0	0.0	10.9	27.3	1.7	37.4	0.2	66.6	13.7	5.9	0.9	0.0	20.5	0.8	1.1	0.1	0.0	2.0	
Exiting Leg Total					983					595					1292					91	2961

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	3	19	14	0	36	101	9	152	2	264	43	20	6	0	69	5	8	0	0	13	382
7:45 AM	3	24	24	0	51	126	5	180	2	313	52	28	2	0	82	5	3	2	0	10	456
8:00 AM	0	27	29	0	56	89	8	133	1	231	47	30	6	0	83	2	4	0	0	6	376
8:15 AM	0	18	14	0	32	104	9	121	1	235	62	21	2	0	85	2	7	0	0	9	361
Total Volume	6	88	81	0	175	420	31	586	6	1043	204	99	16	0	319	14	22	2	0	38	1575
% Approach Total	3.4	50.3	46.3	0.0		40.3	3.0	56.2	0.6		63.9	31.0	5.0	0.0		36.8	57.9	5.3	0.0		
PHF	0.500	0.815	0.698	0.000	0.781	0.833	0.861	0.814	0.750	0.833	0.823	0.825	0.667	0.000	0.938	0.700	0.688	0.250	0.000	0.731	0.863
Entering Leg	6	88	81	0	175	420	31	586	6	1043	204	99	16	0	319	14	22	2	0	38	1575
Exiting Leg					521					313					688					53	1575
Total					696					1356					1007					91	3150

PDI File #: **207572 BB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	2	1	0	3	4	2	6	0	12	3	2	0	0	5	0	1	0	0	1	21
7:15 AM	0	3	4	0	7	3	3	12	1	19	16	0	0	0	16	0	0	0	0	0	42
7:30 AM	0	1	3	0	4	1	1	9	0	11	6	0	1	0	7	1	1	0	0	2	24
7:45 AM	0	3	3	0	6	8	1	8	0	17	6	1	0	0	7	0	1	0	0	1	31
Total	0	9	11	0	20	16	7	35	1	59	31	3	1	0	35	1	3	0	0	4	118
8:00 AM	1	0	4	0	5	5	1	7	0	13	15	1	0	0	16	1	1	0	0	2	36
8:15 AM	0	5	5	0	10	5	3	10	0	18	8	0	1	0	9	0	0	1	0	1	38
8:30 AM	0	1	6	0	7	5	3	13	0	21	6	4	1	0	11	0	2	0	0	2	41
8:45 AM	0	2	6	0	8	6	0	8	0	14	7	0	0	0	7	0	1	0	0	1	30
Total	1	8	21	0	30	21	7	38	0	66	36	5	2	0	43	1	4	1	0	6	145
Grand Total	1	17	32	0	50	37	14	73	1	125	67	8	3	0	78	2	7	1	0	10	263
Approach %	2.0	34.0	64.0	0.0		29.6	11.2	58.4	0.8		85.9	10.3	3.8	0.0		20.0	70.0	10.0	0.0		
Total %	0.4	6.5	12.2	0.0	19.0	14.1	5.3	27.8	0.4	47.5	25.5	3.0	1.1	0.0	29.7	0.8	2.7	0.4	0.0	3.8	
Exiting Leg Total					46					107					92					18	263
Buses	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	5
% Buses	0.0	0.0	3.1	0.0	2.0	0.0	7.1	1.4	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	28.6	0.0	0.0	20.0	1.9
Exiting Leg Total					0					3					1					1	5
Single-Unit Trucks	1	14	23	0	38	25	5	53	1	84	44	4	3	0	51	2	3	0	0	5	178
% Single-Unit	100.0	82.4	71.9	0.0	76.0	67.6	35.7	72.6	100.0	67.2	65.7	50.0	100.0	0.0	65.4	100.0	42.9	0.0	0.0	50.0	67.7
Exiting Leg Total					29					71					69					9	178
Articulated Trucks	0	3	8	0	11	12	8	19	0	39	23	4	0	0	27	0	2	1	0	3	80
% Articulated	0.0	17.6	25.0	0.0	22.0	32.4	57.1	26.0	0.0	31.2	34.3	50.0	0.0	0.0	34.6	0.0	28.6	100.0	0.0	30.0	30.4
Exiting Leg Total					17					33					22					8	80

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	3	3	0	6	8	1	8	0	17	6	1	0	0	7	0	1	0	0	1	31
8:00 AM	1	0	4	0	5	5	1	7	0	13	15	1	0	0	16	1	1	0	0	2	36
8:15 AM	0	5	5	0	10	5	3	10	0	18	8	0	1	0	9	0	0	1	0	1	38
8:30 AM	0	1	6	0	7	5	3	13	0	21	6	4	1	0	11	0	2	0	0	2	41
Total Volume	1	9	18	0	28	23	8	38	0	69	35	6	2	0	43	1	4	1	0	6	146
% Approach Total	3.6	32.1	64.3	0.0		33.3	11.6	55.1	0.0		81.4	14.0	4.7	0.0		16.7	66.7	16.7	0.0		
PHF	0.250	0.450	0.750	0.000	0.700	0.719	0.667	0.731	0.000	0.821	0.583	0.375	0.500	0.000	0.672	0.250	0.500	0.250	0.000	0.750	0.890
Buses	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	4
Buses %	0.0	0.0	5.6	0.0	3.6	0.0	12.5	2.6	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	16.7	2.7
Single-Unit Trucks	1	7	14	0	22	14	2	25	0	41	25	4	2	0	31	1	2	0	0	3	97
Single-Unit %	100.0	77.8	77.8	0.0	78.6	60.9	25.0	65.8	0.0	59.4	71.4	66.7	100.0	0.0	72.1	100.0	50.0	0.0	0.0	50.0	66.4
Articulated Trucks	0	2	3	0	5	9	5	12	0	26	10	2	0	0	12	0	1	1	0	2	45
Articulated %	0.0	22.2	16.7	0.0	17.9	39.1	62.5	31.6	0.0	37.7	28.6	33.3	0.0	0.0	27.9	0.0	25.0	100.0	0.0	33.3	30.8
Buses	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	4
Single-Unit Trucks	1	7	14	0	22	14	2	25	0	41	25	4	2	0	31	1	2	0	0	3	97
Articulated Trucks	0	2	3	0	5	9	5	12	0	26	10	2	0	0	12	0	1	1	0	2	45
Total Entering Leg	1	9	18	0	28	23	8	38	0	69	35	6	2	0	43	1	4	1	0	6	146
Buses					0					2					1					1	4
Single-Unit Trucks					18					41					33					5	97
Articulated Trucks					12					14					14					5	45
Total Exiting Leg					30					57					48					11	146

PDI File #: **207572 BB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 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	0	0	0	0	0	1	0	0	1	1
8:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
8:15 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 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	1	0	1	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	4
Grand Total	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	5
Approach %	0.0	0.0	100.0	0.0		0.0	50.0	50.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	20.0	0.0	20.0	0.0	20.0	20.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	40.0	
Exiting Leg Total					0					3					1					1	5

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
8:15 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	4
% Approach Total	0.0	0.0	100.0	0.0		0.0	50.0	50.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.500
Entering Leg	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	4
Exiting Leg					0					2					1					1	4
Total					1					4					1					2	8

PDI File #: **207572 BB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Single-Unit Trucks**

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	2	1	0	3	3	0	5	0	8	2	0	0	0	2	0	0	0	0	0	13
7:15 AM	0	2	2	0	4	2	2	12	1	17	10	0	0	0	10	0	0	0	0	0	31
7:30 AM	0	1	2	0	3	1	1	6	0	8	4	0	1	0	5	1	0	0	0	1	17
7:45 AM	0	2	3	0	5	5	0	4	0	9	3	1	0	0	4	0	1	0	0	1	19
Total	0	7	8	0	15	11	3	27	1	42	19	1	1	0	21	1	1	0	0	2	80
8:00 AM	1	0	3	0	4	3	0	5	0	8	10	0	0	0	10	1	0	0	0	1	23
8:15 AM	0	4	4	0	8	3	1	7	0	11	7	0	1	0	8	0	0	0	0	0	27
8:30 AM	0	1	4	0	5	3	1	9	0	13	5	3	1	0	9	0	1	0	0	1	28
8:45 AM	0	2	4	0	6	5	0	5	0	10	3	0	0	0	3	0	1	0	0	1	20
Total	1	7	15	0	23	14	2	26	0	42	25	3	2	0	30	1	2	0	0	3	98
Grand Total	1	14	23	0	38	25	5	53	1	84	44	4	3	0	51	2	3	0	0	5	178
Approach %	2.6	36.8	60.5	0.0		29.8	6.0	63.1	1.2		86.3	7.8	5.9	0.0		40.0	60.0	0.0	0.0		
Total %	0.6	7.9	12.9	0.0	21.3	14.0	2.8	29.8	0.6	47.2	24.7	2.2	1.7	0.0	28.7	1.1	1.7	0.0	0.0	2.8	
Exiting Leg Total					29					71					69					9	178

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	1	0	3	0	4	3	0	5	0	8	10	0	0	0	10	1	0	0	0	1	23
8:15 AM	0	4	4	0	8	3	1	7	0	11	7	0	1	0	8	0	0	0	0	0	27
8:30 AM	0	1	4	0	5	3	1	9	0	13	5	3	1	0	9	0	1	0	0	1	28
8:45 AM	0	2	4	0	6	5	0	5	0	10	3	0	0	0	3	0	1	0	0	1	20
Total Volume	1	7	15	0	23	14	2	26	0	42	25	3	2	0	30	1	2	0	0	3	98
% Approach Total	4.3	30.4	65.2	0.0		33.3	4.8	61.9	0.0		83.3	10.0	6.7	0.0		33.3	66.7	0.0	0.0		
PHF	0.250	0.438	0.938	0.000	0.719	0.700	0.500	0.722	0.000	0.808	0.625	0.250	0.500	0.000	0.750	0.250	0.500	0.000	0.000	0.750	0.875
Entering Leg	1	7	15	0	23	14	2	26	0	42	25	3	2	0	30	1	2	0	0	3	98
Exiting Leg					17					42					34					5	98
Total					40					84					64					8	196

PDI File #: **207572 BB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	0	0	0	0	1	2	1	0	4	1	2	0	0	3	0	0	0	0	0	7
7:15 AM	0	1	2	0	3	1	1	0	0	2	6	0	0	0	6	0	0	0	0	0	11
7:30 AM	0	0	1	0	1	0	0	3	0	3	2	0	0	0	2	0	1	0	0	1	7
7:45 AM	0	1	0	0	1	3	1	4	0	8	3	0	0	0	3	0	0	0	0	0	12
Total	0	2	3	0	5	5	4	8	0	17	12	2	0	0	14	0	1	0	0	1	37
8:00 AM	0	0	0	0	0	2	1	2	0	5	5	1	0	0	6	0	0	0	0	0	11
8:15 AM	0	1	1	0	2	2	1	2	0	5	1	0	0	0	1	0	0	1	0	1	9
8:30 AM	0	0	2	0	2	2	2	4	0	8	1	1	0	0	2	0	1	0	0	1	13
8:45 AM	0	0	2	0	2	1	0	3	0	4	4	0	0	0	4	0	0	0	0	0	10
Total	0	1	5	0	6	7	4	11	0	22	11	2	0	0	13	0	1	1	0	2	43
Grand Total	0	3	8	0	11	12	8	19	0	39	23	4	0	0	27	0	2	1	0	3	80
Approach %	0.0	27.3	72.7	0.0		30.8	20.5	48.7	0.0		85.2	14.8	0.0	0.0		0.0	66.7	33.3	0.0		
Total %	0.0	3.8	10.0	0.0	13.8	15.0	10.0	23.8	0.0	48.8	28.8	5.0	0.0	0.0	33.8	0.0	2.5	1.3	0.0	3.8	
Exiting Leg Total					17					33					22					8	80

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	1	0	0	1	3	1	4	0	8	3	0	0	0	3	0	0	0	0	0	12
8:00 AM	0	0	0	0	0	2	1	2	0	5	5	1	0	0	6	0	0	0	0	0	11
8:15 AM	0	1	1	0	2	2	1	2	0	5	1	0	0	0	1	0	0	1	0	1	9
8:30 AM	0	0	2	0	2	2	2	4	0	8	1	1	0	0	2	0	1	0	0	1	13
Total Volume	0	2	3	0	5	9	5	12	0	26	10	2	0	0	12	0	1	1	0	2	45
% Approach Total	0.0	40.0	60.0	0.0		34.6	19.2	46.2	0.0		83.3	16.7	0.0	0.0		0.0	50.0	50.0	0.0		
PHF	0.000	0.500	0.375	0.000	0.625	0.750	0.625	0.750	0.000	0.813	0.500	0.500	0.000	0.000	0.500	0.000	0.250	0.250	0.000	0.500	0.865
Entering Leg	0	2	3	0	5	9	5	12	0	26	10	2	0	0	12	0	1	1	0	2	45
Exiting Leg					12					14					14					5	45
Total					17					40					26					7	90

PDI File #: **207572 BB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 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	0	0	0	0
7:15 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	0	0	0	0
7:30 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	0	0	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
8:00 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	0	0	0	0
8:15 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	0	0	0	0
8:30 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	0	0	0
8:45 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	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	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		100.0	0.0	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	50.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total							1							1							0							0	2

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 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	0	0	0	0
7:15 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	0	0	0	0
7:30 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	0	0	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Exiting Leg							1							1							0							0	2
Total							1							2							1							0	4

PDI File #: **207572 BB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 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	0	0	0	0
7:15 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	0	0	0	0
7:30 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	2	2	2
7:45 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	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	0	0	0	0	0	2	2	2
8:00 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	0	0	0	0
8:15 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	0	0	0	0
8:30 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	1	0	1	1
8:45 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	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	0	0	0	0	1	0	1	1
Grand Total	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	1	2	3	3
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	33.3	66.7		
Total %	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	33.3	66.7	100	
Exiting Leg Total							0							0							0							3	3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 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	0	0	0	0
7:15 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	0	0	0	0
7:30 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	2	2	2
7:45 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	0	0	0
Total Volume	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	2	2	2
% Approach Total	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	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.250
Entering Leg	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	2	2	2
Exiting Leg							0							0							0							2	2
Total							0							0							0							4	4

PDI File #: **207572 BBB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	38	56	0	94	49	3	138	2	192	174	35	2	0	211	6	2	2	0	10	507
3:15 PM	0	26	70	0	96	35	3	86	6	130	182	35	5	1	223	7	3	1	0	11	460
3:30 PM	0	34	81	0	115	38	9	88	2	137	186	39	2	1	228	6	4	1	0	11	491
3:45 PM	2	31	59	1	93	34	4	102	2	142	178	24	4	0	206	4	4	1	0	9	450
Total	2	129	266	1	398	156	19	414	12	601	720	133	13	2	868	23	13	5	0	41	1908
4:00 PM	0	35	96	0	131	31	0	67	1	99	210	32	4	0	246	3	9	0	0	12	488
4:15 PM	1	33	70	0	104	28	2	89	0	119	197	25	2	1	225	1	2	0	0	3	451
4:30 PM	1	42	106	0	149	34	3	73	0	110	199	28	5	1	233	5	10	0	0	15	507
4:45 PM	4	35	95	0	134	34	3	75	2	114	182	17	5	2	206	1	3	2	0	6	460
Total	6	145	367	0	518	127	8	304	3	442	788	102	16	4	910	10	24	2	0	36	1906
5:00 PM	2	37	115	0	154	29	4	73	0	106	210	33	5	1	249	9	10	2	0	21	530
5:15 PM	0	43	101	0	144	19	2	84	0	105	169	30	3	0	202	1	4	0	0	5	456
5:30 PM	1	43	89	0	133	26	2	63	0	91	132	30	3	0	165	3	1	0	0	4	393
5:45 PM	0	32	68	0	100	24	2	58	0	84	140	26	1	0	167	1	0	1	0	2	353
Total	3	155	373	0	531	98	10	278	0	386	651	119	12	1	783	14	15	3	0	32	1732
Grand Total	11	429	1006	1	1447	381	37	996	15	1429	2159	354	41	7	2561	47	52	10	0	109	5546
Approach %	0.8	29.6	69.5	0.1		26.7	2.6	69.7	1.0		84.3	13.8	1.6	0.3		43.1	47.7	9.2	0.0		
Total %	0.2	7.7	18.1	0.0	26.1	6.9	0.7	18.0	0.3	25.8	38.9	6.4	0.7	0.1	46.2	0.8	0.9	0.2	0.0	2.0	
Exiting Leg Total					746					3232					1479					89	5546
Cars	11	401	983	1	1396	314	30	936	14	1294	2108	336	39	7	2490	45	48	10	0	103	5283
% Cars	100.0	93.5	97.7	100.0	96.5	82.4	81.1	94.0	93.3	90.6	97.6	94.9	95.1	100.0	97.2	95.7	92.3	100.0	0.0	94.5	95.3
Exiting Leg Total					661					3153					1389					80	5283
Heavy Vehicles	0	28	23	0	51	67	7	60	1	135	51	18	2	0	71	2	4	0	0	6	263
% Heavy Vehicles	0.0	6.5	2.3	0.0	3.5	17.6	18.9	6.0	6.7	9.4	2.4	5.1	4.9	0.0	2.8	4.3	7.7	0.0	0.0	5.5	4.7
Exiting Leg Total					85					79					90					9	263

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:30 PM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	1	42	106	0	149	34	3	73	0	110	199	28	5	1	233	5	10	0	0	15	507
4:45 PM	4	35	95	0	134	34	3	75	2	114	182	17	5	2	206	1	3	2	0	6	460
5:00 PM	2	37	115	0	154	29	4	73	0	106	210	33	5	1	249	9	10	2	0	21	530
5:15 PM	0	43	101	0	144	19	2	84	0	105	169	30	3	0	202	1	4	0	0	5	456
Total Volume	7	157	417	0	581	116	12	305	2	435	760	108	18	4	890	16	27	4	0	47	1953
% Approach Total	1.2	27.0	71.8	0.0		26.7	2.8	70.1	0.5		85.4	12.1	2.0	0.4		34.0	57.4	8.5	0.0		
PHF	0.438	0.913	0.907	0.000	0.943	0.853	0.750	0.908	0.250	0.954	0.905	0.818	0.900	0.500	0.894	0.444	0.675	0.500	0.000	0.560	0.921
Cars	7	147	411	0	565	105	11	293	2	411	745	105	17	4	871	16	26	4	0	46	1893
Cars %	100.0	93.6	98.6	0.0	97.2	90.5	91.7	96.1	100.0	94.5	98.0	97.2	94.4	100.0	97.9	100.0	96.3	100.0	0.0	97.9	96.9
Heavy Vehicles	0	10	6	0	16	11	1	12	0	24	15	3	1	0	19	0	1	0	0	1	60
Heavy Vehicles %	0.0	6.4	1.4	0.0	2.8	9.5	8.3	3.9	0.0	5.5	2.0	2.8	5.6	0.0	2.1	0.0	3.7	0.0	0.0	2.1	3.1
Cars Enter Leg	7	147	411	0	565	105	11	293	2	411	745	105	17	4	871	16	26	4	0	46	1893
Heavy Enter Leg	0	10	6	0	16	11	1	12	0	24	15	3	1	0	19	0	1	0	0	1	60
Total Entering Leg	7	157	417	0	581	116	12	305	2	435	760	108	18	4	890	16	27	4	0	47	1953
Cars Exiting Leg					214					1184					460					35	1893
Heavy Exiting Leg					14					22					22					2	60
Total Exiting Leg					228					1206					482					37	1953

PDI File #: **207572 BBB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	36	54	0	90	38	2	126	1	167	170	31	2	0	203	5	1	2	0	8	468
3:15 PM	0	24	65	0	89	26	2	79	6	113	179	30	5	1	215	7	3	1	0	11	428
3:30 PM	0	31	81	0	112	31	7	78	2	118	185	38	1	1	225	5	4	1	0	10	465
3:45 PM	2	26	56	1	85	25	4	94	2	125	171	23	4	0	198	4	4	1	0	9	417
Total	2	117	256	1	376	120	15	377	11	523	705	122	12	2	841	21	12	5	0	38	1778
4:00 PM	0	33	94	0	127	26	0	62	1	89	200	29	4	0	233	3	8	0	0	11	460
4:15 PM	1	31	69	0	101	20	1	86	0	107	191	24	2	1	218	1	1	0	0	2	428
4:30 PM	1	41	104	0	146	28	2	69	0	99	192	28	4	1	225	5	10	0	0	15	485
4:45 PM	4	31	92	0	127	31	3	72	2	108	178	16	5	2	201	1	3	2	0	6	442
Total	6	136	359	0	501	105	6	289	3	403	761	97	15	4	877	10	22	2	0	34	1815
5:00 PM	2	33	115	0	150	27	4	72	0	103	207	32	5	1	245	9	9	2	0	20	518
5:15 PM	0	42	100	0	142	19	2	80	0	101	168	29	3	0	200	1	4	0	0	5	448
5:30 PM	1	41	86	0	128	23	1	62	0	86	131	30	3	0	164	3	1	0	0	4	382
5:45 PM	0	32	67	0	99	20	2	56	0	78	136	26	1	0	163	1	0	1	0	2	342
Total	3	148	368	0	519	89	9	270	0	368	642	117	12	1	772	14	14	3	0	31	1690
Grand Total	11	401	983	1	1396	314	30	936	14	1294	2108	336	39	7	2490	45	48	10	0	103	5283
Approach %	0.8	28.7	70.4	0.1		24.3	2.3	72.3	1.1		84.7	13.5	1.6	0.3		43.7	46.6	9.7	0.0		
Total %	0.2	7.6	18.6	0.0	26.4	5.9	0.6	17.7	0.3	24.5	39.9	6.4	0.7	0.1	47.1	0.9	0.9	0.2	0.0	1.9	
Exiting Leg Total					661					3153					1389					80	5283

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

4:30 PM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	1	41	104	0	146	28	2	69	0	99	192	28	4	1	225	5	10	0	0	15	485
4:45 PM	4	31	92	0	127	31	3	72	2	108	178	16	5	2	201	1	3	2	0	6	442
5:00 PM	2	33	115	0	150	27	4	72	0	103	207	32	5	1	245	9	9	2	0	20	518
5:15 PM	0	42	100	0	142	19	2	80	0	101	168	29	3	0	200	1	4	0	0	5	448
Total Volume	7	147	411	0	565	105	11	293	2	411	745	105	17	4	871	16	26	4	0	46	1893
% Approach Total	1.2	26.0	72.7	0.0		25.5	2.7	71.3	0.5		85.5	12.1	2.0	0.5		34.8	56.5	8.7	0.0		
PHF	0.438	0.875	0.893	0.000	0.942	0.847	0.688	0.916	0.250	0.951	0.900	0.820	0.850	0.500	0.889	0.444	0.650	0.500	0.000	0.575	0.914
Entering Leg	7	147	411	0	565	105	11	293	2	411	745	105	17	4	871	16	26	4	0	46	1893
Exiting Leg					214					1184					460					35	1893
Total					779					1595					1331					81	3786

PDI File #: **207572 BBB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	2	2	0	4	11	1	12	1	25	4	4	0	0	8	1	1	0	0	2	39
3:15 PM	0	2	5	0	7	9	1	7	0	17	3	5	0	0	8	0	0	0	0	0	32
3:30 PM	0	3	0	0	3	7	2	10	0	19	1	1	1	0	3	1	0	0	0	1	26
3:45 PM	0	5	3	0	8	9	0	8	0	17	7	1	0	0	8	0	0	0	0	0	33
Total	0	12	10	0	22	36	4	37	1	78	15	11	1	0	27	2	1	0	0	3	130
4:00 PM	0	2	2	0	4	5	0	5	0	10	10	3	0	0	13	0	1	0	0	1	28
4:15 PM	0	2	1	0	3	8	1	3	0	12	6	1	0	0	7	0	1	0	0	1	23
4:30 PM	0	1	2	0	3	6	1	4	0	11	7	0	1	0	8	0	0	0	0	0	22
4:45 PM	0	4	3	0	7	3	0	3	0	6	4	1	0	0	5	0	0	0	0	0	18
Total	0	9	8	0	17	22	2	15	0	39	27	5	1	0	33	0	2	0	0	2	91
5:00 PM	0	4	0	0	4	2	0	1	0	3	3	1	0	0	4	0	1	0	0	1	12
5:15 PM	0	1	1	0	2	0	0	4	0	4	1	1	0	0	2	0	0	0	0	0	8
5:30 PM	0	2	3	0	5	3	1	1	0	5	1	0	0	0	1	0	0	0	0	0	11
5:45 PM	0	0	1	0	1	4	0	2	0	6	4	0	0	0	4	0	0	0	0	0	11
Total	0	7	5	0	12	9	1	8	0	18	9	2	0	0	11	0	1	0	0	1	42
Grand Total	0	28	23	0	51	67	7	60	1	135	51	18	2	0	71	2	4	0	0	6	263
Approach %	0.0	54.9	45.1	0.0		49.6	5.2	44.4	0.7		71.8	25.4	2.8	0.0		33.3	66.7	0.0	0.0		
Total %	0.0	10.6	8.7	0.0	19.4	25.5	2.7	22.8	0.4	51.3	19.4	6.8	0.8	0.0	27.0	0.8	1.5	0.0	0.0	2.3	
Exiting Leg Total					85					79					90					9	263
Buses	0	0	1	0	1	1	2	2	0	5	0	0	0	0	0	0	3	0	0	3	9
% Buses	0.0	0.0	4.3	0.0	2.0	1.5	28.6	3.3	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	75.0	0.0	0.0	50.0	3.4
Exiting Leg Total					1					4					2					2	9
Single-Unit Trucks	0	21	7	0	28	47	1	43	1	92	33	13	2	0	48	2	0	0	0	2	170
% Single-Unit	0.0	75.0	30.4	0.0	54.9	70.1	14.3	71.7	100.0	68.1	64.7	72.2	100.0	0.0	67.6	100.0	0.0	0.0	0.0	33.3	64.6
Exiting Leg Total					60					41					66					3	170
Articulated Trucks	0	7	15	0	22	19	4	15	0	38	18	5	0	0	23	0	1	0	0	1	84
% Articulated	0.0	25.0	65.2	0.0	43.1	28.4	57.1	25.0	0.0	28.1	35.3	27.8	0.0	0.0	32.4	0.0	25.0	0.0	0.0	16.7	31.9
Exiting Leg Total					24					34					22					4	84

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	2	2	0	4	11	1	12	1	25	4	4	0	0	8	1	1	0	0	2	39
3:15 PM	0	2	5	0	7	9	1	7	0	17	3	5	0	0	8	0	0	0	0	0	32
3:30 PM	0	3	0	0	3	7	2	10	0	19	1	1	1	0	3	1	0	0	0	1	26
3:45 PM	0	5	3	0	8	9	0	8	0	17	7	1	0	0	8	0	0	0	0	0	33
Total Volume	0	12	10	0	22	36	4	37	1	78	15	11	1	0	27	2	1	0	0	3	130
% Approach Total	0.0	54.5	45.5	0.0		46.2	5.1	47.4	1.3		55.6	40.7	3.7	0.0		66.7	33.3	0.0	0.0		
PHF	0.000	0.600	0.500	0.000	0.688	0.818	0.500	0.771	0.250	0.780	0.536	0.550	0.250	0.000	0.844	0.500	0.250	0.000	0.000	0.375	0.833
Buses	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1	4
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	25.0	5.4	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	33.3	3.1
Single-Unit Trucks	0	8	1	0	9	23	0	28	1	52	11	7	1	0	19	2	0	0	0	2	82
Single-Unit %	0.0	66.7	10.0	0.0	40.9	63.9	0.0	75.7	100.0	66.7	73.3	63.6	100.0	0.0	70.4	100.0	0.0	0.0	0.0	66.7	63.1
Articulated Trucks	0	4	9	0	13	13	3	7	0	23	4	4	0	0	8	0	0	0	0	0	44
Articulated %	0.0	33.3	90.0	0.0	59.1	36.1	75.0	18.9	0.0	29.5	26.7	36.4	0.0	0.0	29.6	0.0	0.0	0.0	0.0	0.0	33.8
Buses	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1	4
Single-Unit Trucks	0	8	1	0	9	23	0	28	1	52	11	7	1	0	19	2	0	0	0	2	82
Articulated Trucks	0	4	9	0	13	13	3	7	0	23	4	4	0	0	8	0	0	0	0	0	44
Total Entering Leg	0	12	10	0	22	36	4	37	1	78	15	11	1	0	27	2	1	0	0	3	130
Buses					0					1					2					1	4
Single-Unit Trucks					30					13					38					1	82
Articulated Trucks					17					13					11					3	44
Total Exiting Leg					47					27					51					5	130

PDI File #: **207572 BBB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Buses

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1	4
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 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	1	0	0	1	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	4
Grand Total	0	0	1	0	1	1	2	2	0	5	0	0	0	0	0	0	3	0	0	3	9
Approach %	0.0	0.0	100.0	0.0		20.0	40.0	40.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	11.1	0.0	11.1	11.1	22.2	22.2	0.0	55.6	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	33.3	
Exiting Leg Total					1					4					2					2	9

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1	4
% Approach Total	0.0	0.0	0.0	0.0		0.0	33.3	66.7	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.500
Entering Leg	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1	4
Exiting Leg					0					1					2					1	4
Total					0					4					2					2	8

PDI File #: **207572 BBB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Single-Unit Trucks

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	1	0	0	1	7	0	9	1	17	2	3	0	0	5	1	0	0	0	1	24
3:15 PM	0	2	1	0	3	6	0	6	0	12	2	3	0	0	5	0	0	0	0	0	20
3:30 PM	0	2	0	0	2	5	0	8	0	13	1	1	1	0	3	1	0	0	0	1	19
3:45 PM	0	3	0	0	3	5	0	5	0	10	6	0	0	0	6	0	0	0	0	0	19
Total	0	8	1	0	9	23	0	28	1	52	11	7	1	0	19	2	0	0	0	2	82
4:00 PM	0	1	2	0	3	4	0	3	0	7	6	2	0	0	8	0	0	0	0	0	18
4:15 PM	0	2	0	0	2	6	1	2	0	9	5	1	0	0	6	0	0	0	0	0	17
4:30 PM	0	1	1	0	2	5	0	3	0	8	3	0	1	0	4	0	0	0	0	0	14
4:45 PM	0	4	2	0	6	3	0	3	0	6	3	1	0	0	4	0	0	0	0	0	16
Total	0	8	5	0	13	18	1	11	0	30	17	4	1	0	22	0	0	0	0	0	65
5:00 PM	0	3	0	0	3	1	0	1	0	2	2	1	0	0	3	0	0	0	0	0	8
5:15 PM	0	1	0	0	1	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	4
5:30 PM	0	1	1	0	2	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	0	0	0	0	2	0	1	0	3	3	0	0	0	3	0	0	0	0	0	6
Total	0	5	1	0	6	6	0	4	0	10	5	2	0	0	7	0	0	0	0	0	23
Grand Total	0	21	7	0	28	47	1	43	1	92	33	13	2	0	48	2	0	0	0	2	170
Approach %	0.0	75.0	25.0	0.0		51.1	1.1	46.7	1.1		68.8	27.1	4.2	0.0		100.0	0.0	0.0	0.0		
Total %	0.0	12.4	4.1	0.0	16.5	27.6	0.6	25.3	0.6	54.1	19.4	7.6	1.2	0.0	28.2	1.2	0.0	0.0	0.0	1.2	
Exiting Leg Total					60					41					66					3	170

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	1	0	0	1	7	0	9	1	17	2	3	0	0	5	1	0	0	0	1	24
3:15 PM	0	2	1	0	3	6	0	6	0	12	2	3	0	0	5	0	0	0	0	0	20
3:30 PM	0	2	0	0	2	5	0	8	0	13	1	1	1	0	3	1	0	0	0	1	19
3:45 PM	0	3	0	0	3	5	0	5	0	10	6	0	0	0	6	0	0	0	0	0	19
Total Volume	0	8	1	0	9	23	0	28	1	52	11	7	1	0	19	2	0	0	0	2	82
% Approach Total	0.0	88.9	11.1	0.0		44.2	0.0	53.8	1.9		57.9	36.8	5.3	0.0		100.0	0.0	0.0	0.0		
PHF	0.000	0.667	0.250	0.000	0.750	0.821	0.000	0.778	0.250	0.765	0.458	0.583	0.250	0.000	0.792	0.500	0.000	0.000	0.000	0.500	0.854
Entering Leg	0	8	1	0	9	23	0	28	1	52	11	7	1	0	19	2	0	0	0	2	82
Exiting Leg					30					13					38					1	82
Total					39					65					57					3	164

PDI File #: **207572 BBB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Articulated Trucks

	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	1	2	0	3	4	1	3	0	8	2	1	0	0	3	0	0	0	0	0	14
3:15 PM	0	0	4	0	4	3	1	1	0	5	1	2	0	0	3	0	0	0	0	0	12
3:30 PM	0	1	0	0	1	2	1	2	0	5	0	0	0	0	0	0	0	0	0	0	6
3:45 PM	0	2	3	0	5	4	0	1	0	5	1	1	0	0	2	0	0	0	0	0	12
Total	0	4	9	0	13	13	3	7	0	23	4	4	0	0	8	0	0	0	0	0	44
4:00 PM	0	1	0	0	1	1	0	2	0	3	4	1	0	0	5	0	0	0	0	0	9
4:15 PM	0	0	1	0	1	2	0	1	0	3	1	0	0	0	1	0	1	0	0	1	6
4:30 PM	0	0	1	0	1	1	1	1	0	3	4	0	0	0	4	0	0	0	0	0	8
4:45 PM	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Total	0	1	3	0	4	4	1	4	0	9	10	1	0	0	11	0	1	0	0	1	25
5:00 PM	0	1	0	0	1	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	3
5:15 PM	0	0	1	0	1	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	4
5:30 PM	0	1	2	0	3	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	5
5:45 PM	0	0	0	0	0	1	0	1	0	2	1	0	0	0	1	0	0	0	0	0	3
Total	0	2	3	0	5	2	0	4	0	6	4	0	0	0	4	0	0	0	0	0	15
Grand Total	0	7	15	0	22	19	4	15	0	38	18	5	0	0	23	0	1	0	0	1	84
Approach %	0.0	31.8	68.2	0.0		50.0	10.5	39.5	0.0		78.3	21.7	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	8.3	17.9	0.0	26.2	22.6	4.8	17.9	0.0	45.2	21.4	6.0	0.0	0.0	27.4	0.0	1.2	0.0	0.0	1.2	
Exiting Leg Total					24					34					22					4	84

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Presidential Way from North					I-93 Ramps from East					Commerce Avenue from South					Atlantic Avenue from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
3:00 PM	0	1	2	0	3	4	1	3	0	8	2	1	0	0	3	0	0	0	0	0	14
3:15 PM	0	0	4	0	4	3	1	1	0	5	1	2	0	0	3	0	0	0	0	0	12
3:30 PM	0	1	0	0	1	2	1	2	0	5	0	0	0	0	0	0	0	0	0	0	6
3:45 PM	0	2	3	0	5	4	0	1	0	5	1	1	0	0	2	0	0	0	0	0	12
Total Volume	0	4	9	0	13	13	3	7	0	23	4	4	0	0	8	0	0	0	0	0	44
% Approach Total	0.0	30.8	69.2	0.0		56.5	13.0	30.4	0.0		50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.500	0.563	0.000	0.650	0.813	0.750	0.583	0.000	0.719	0.500	0.500	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.786
Entering Leg	0	4	9	0	13	13	3	7	0	23	4	4	0	0	8	0	0	0	0	0	44
Exiting Leg					17					13					11					3	44
Total					30					36					19					3	88

PDI File #: **207572 BBB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Bicycles (on Roadway and Crosswalks)

	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 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	0	1	1	1
3:15 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	0	0	0	0
3:30 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	0	0	0	0
3:45 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	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	0	0	0	0	0	1	1	1
4:00 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	0	0	0	0
4:15 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	0	0	0	0
4:30 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	0	0	0	0
4:45 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	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	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
5:30 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	0	0	0	0
5:45 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	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	1	2
Approach %	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	0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		
Total %	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	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0	
Exiting Leg Total							0							0							0							2	2

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

3:00 PM	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 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	0	1	1	1
3:15 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	0	0	0	0
3:30 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	0	0	0	0
3:45 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	0	0	0	0
Total Volume	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	1	1	1
% Approach Total	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	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.250
Entering Leg	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	1	1	1
Exiting Leg							0							0							0							1	1
Total							0							0							0							2	2

PDI File #: **207572 BBB**
Location: **N: Presidential Way S: Commerce Avenue**
Location: **E: I-93 Ramps W: Atlantic Avenue**
City, State: **Woburn, MA**
Client: **GPI/ R. Brown**
Site Code: **TBA**
Count Date: **Tuesday, July 21, 2020**
Start Time: **3:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Pedestrians

	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:00 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	0	0	0	0
3:15 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	0	0	0	0
3:30 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	0	0	0	0
3:45 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	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	0	0	0	0	0	0	0	0
4:00 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	0	1	1	1
4:15 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	0	0	0	0
4:30 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	1	0	1	1
4:45 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	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	0	0	0	0	1	1	2	2
5:00 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	0	0	0	0
5:15 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	0	0	0	0
5:30 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	1	0	1	1
5:45 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	0	1	1	1
Total	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	1	1	2	2
Grand Total	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	2	2	4	4
Approach %	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	50	50		
Total %	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	50	50	100	
Exiting Leg Total							0							0							0							4	4

Peak Hour Analysis from 03:00 PM to 06:00 PM begins at:

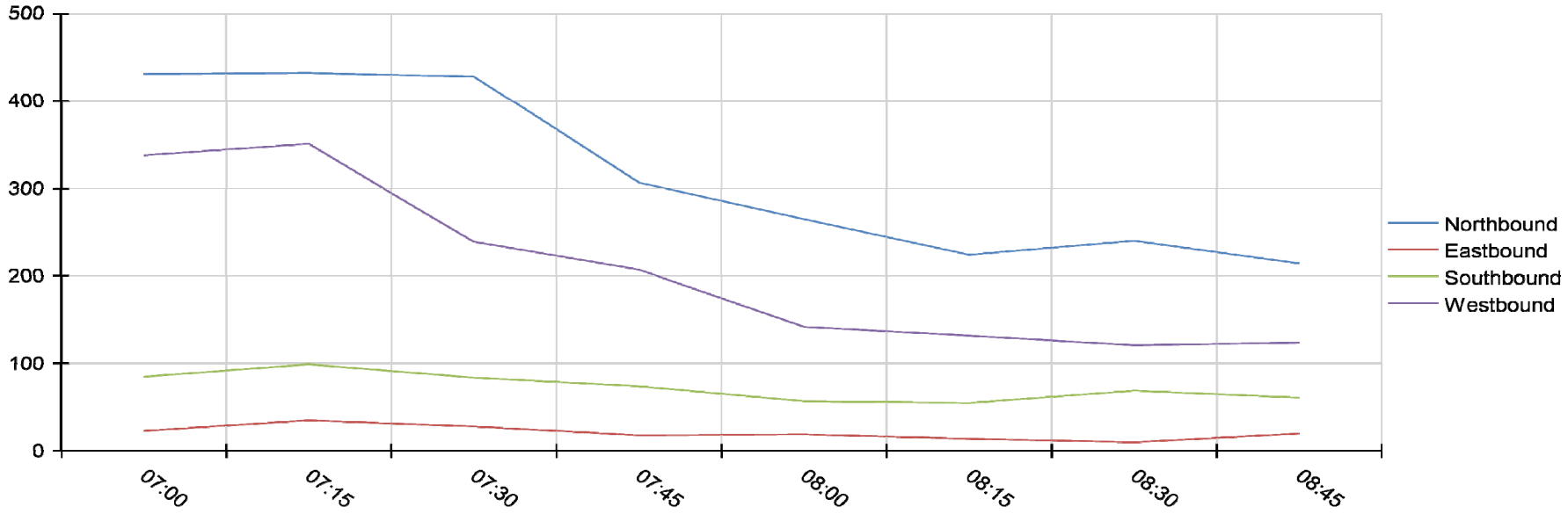
3:45 PM	Presidential Way from North							I-93 Ramps from East							Commerce Avenue from South							Atlantic Avenue from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
3:45 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	0	0	0	0
4:00 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	0	1	1	1
4:15 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	0	0	0	0
4:30 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	1	0	1	1
Total Volume	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	1	1	2	2
% Approach Total	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	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	50.0	50.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.500	0.500
Entering Leg	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	1	1	2	2
Exiting Leg							0							0							0							2	2
Total							0							0							0							4	4

GRIDSMART®

Turning Movement Counts - Sum

Intersection Commerce & Atlantic
Date 2/26/2020

	Right	Through	Left	UTurn	Total
Northbound	686	1774	80	1	2541
Eastbound	55	89	23		167
Southbound	39	277	268		584
Westbound		224	1418	12	1654
Total	**780**	**2364**	**1789**	**13**	**4946**

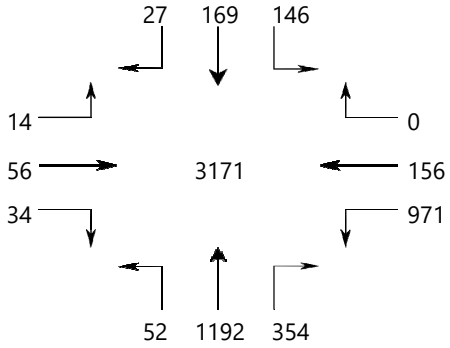


	Northbound				Eastbound			Southbound			Westbound		
	R	T	L	U	R	T	L	R	T	L	T	L	U
07:00	83	328	20		10	9	4	4	51	30	54	281	3
07:15	98	321	13		12	21	2	10	55	34	50	300	1
07:30	95	325	8		4	19	5	8	42	34	24	215	
07:45	78	218	11		8	7	3	5	21	48	28	175	4
08:00	78	176	11		7	10	2	3	20	34	17	124	1
08:15	87	131	6		6	5	3	6	27	22	19	112	1
08:30	91	148	1		3	6	1	2	30	37	15	105	1
08:45	76	127	10	1	5	12	3	1	31	29	17	106	1
Total	**686**	**1774**	**80**	**1**	**55**	**89**	**23**	**39**	**277**	**268**	**224**	**1418**	**12**

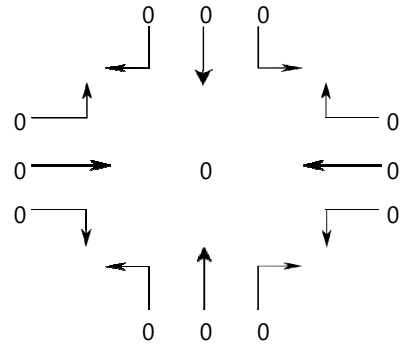
Turning Movement Counts - Sum

Intersection Commerce & Atlantic
Date 2/26/2020

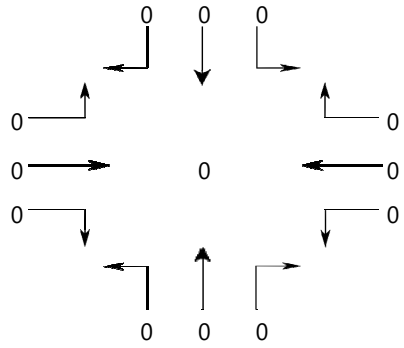
AM PEAK HOUR VOLUME (0:00-10:45)
FROM 07:00 TO 08:00



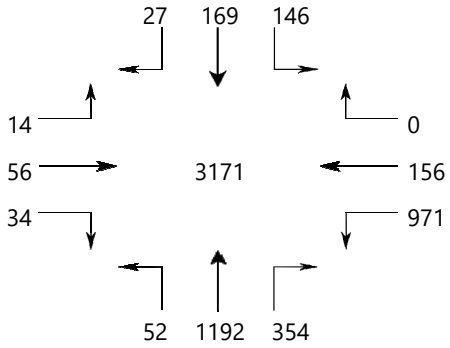
MID-DAY PEAK HOUR VOLUME (11:00-14:00)
FROM 11:00 TO 12:00



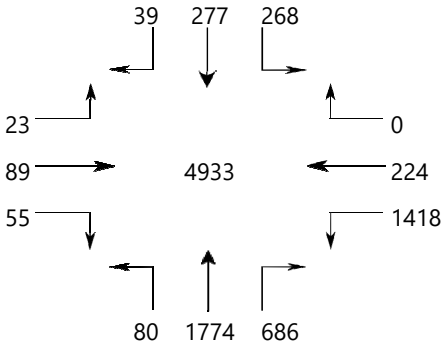
PM PEAK HOUR VOLUME (14:15-23:45)
FROM 14:15 TO 15:15



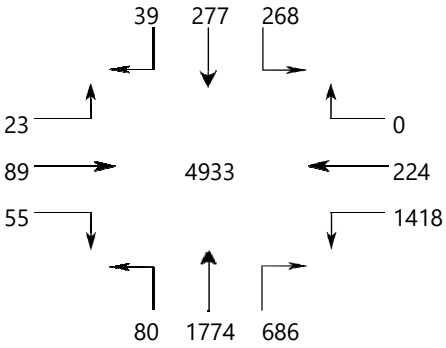
OVERALL PEAK HOUR VOLUME
FROM 07:00 TO 08:00



DAYTIME TOTAL VOLUME
FROM 07:00 TO 18:00



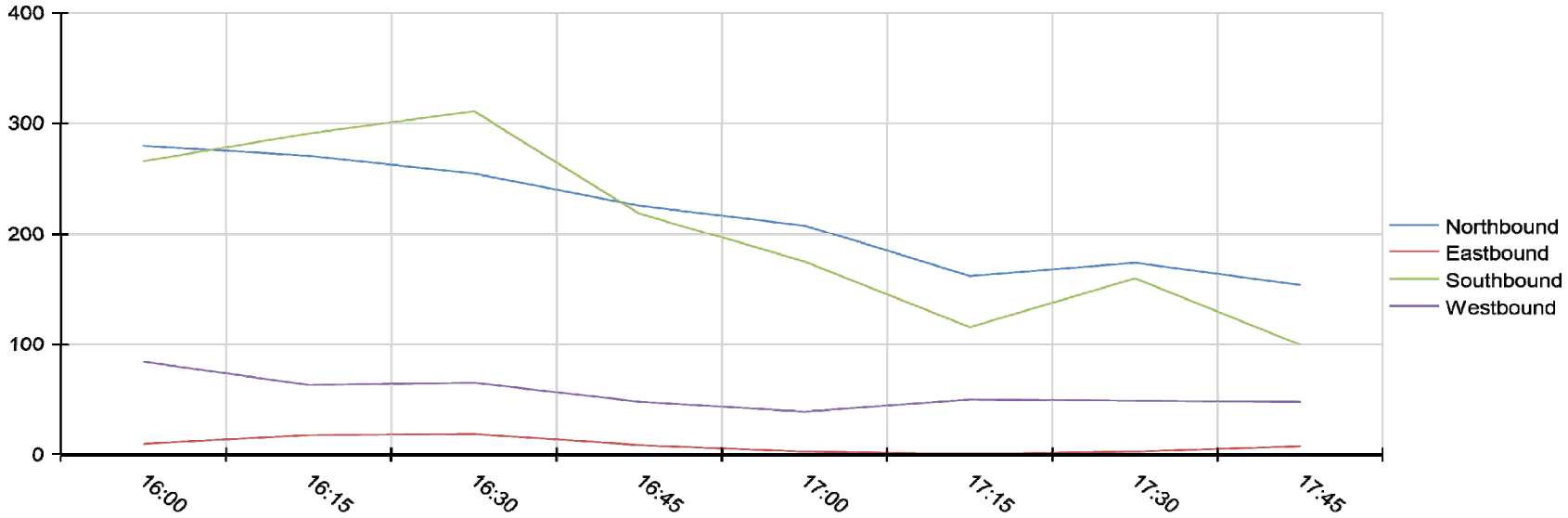
SELECTED TIME VOLUME
FROM 07:00 TO 09:00



Turning Movement Counts - Sum

Intersection Commerce & Atlantic
Date 2/26/2020

	Right	Through	Left	UTurn	Total
Northbound	1224	454	52		1730
Eastbound	39	32			71
Southbound	44	537	1057		1638
Westbound		69	371	6	446
Total	**1307**	**1092**	**1480**	**6**	**3885**

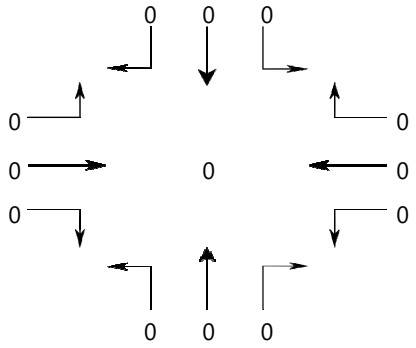


	Northbound			Eastbound		Southbound			Westbound		
	R	T	L	R	T	R	T	L	T	L	U
16:00	190	77	13	7	3	7	87	172	9	74	1
16:15	187	76	8	9	9	7	100	184	11	51	1
16:30	175	73	7	8	11	9	105	197	11	54	
16:45	174	46	6	5	4	7	73	139	8	40	
17:00	155	47	6	1	2	4	53	118	6	32	1
17:15	111	49	2	1		4	45	67	8	41	1
17:30	122	46	6	3		4	41	115	10	39	
17:45	110	40	4	5	3	2	33	65	6	40	2
Total	**1224**	**454**	**52**	**39**	**32**	**44**	**537**	**1057**	**69**	**371**	**6**

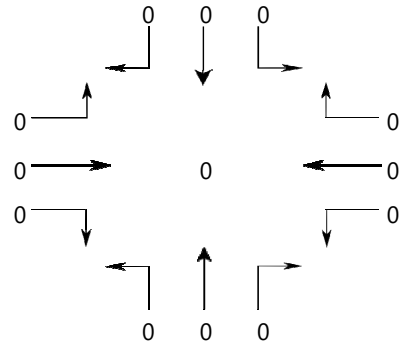
Turning Movement Counts - Sum

Intersection Commerce & Atlantic
Date 2/26/2020

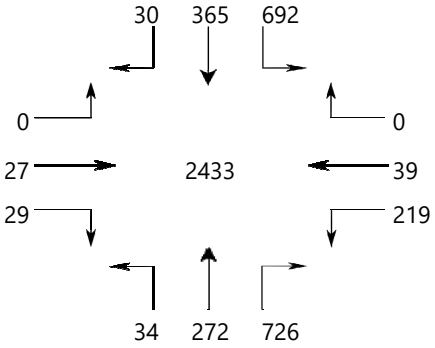
AM PEAK HOUR VOLUME (0:00-10:45)
FROM 00:00 TO 01:00



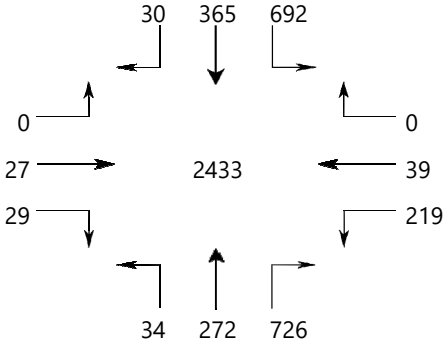
MID-DAY PEAK HOUR VOLUME (11:00-14:00)
FROM 11:00 TO 12:00



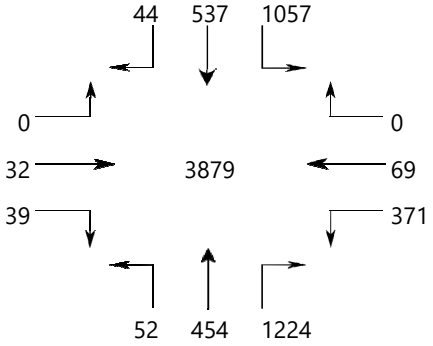
PM PEAK HOUR VOLUME (14:15-23:45)
FROM 16:00 TO 17:00



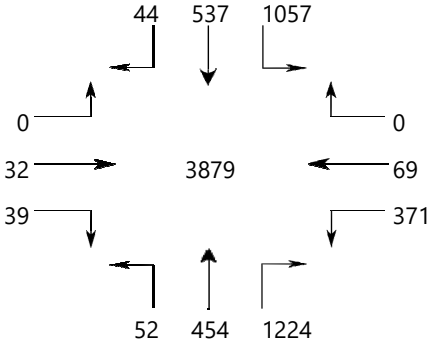
OVERALL PEAK HOUR VOLUME
FROM 16:00 TO 17:00



DAYTIME TOTAL VOLUME
FROM 07:00 TO 18:00



SELECTED TIME VOLUME
FROM 16:00 TO 18:00

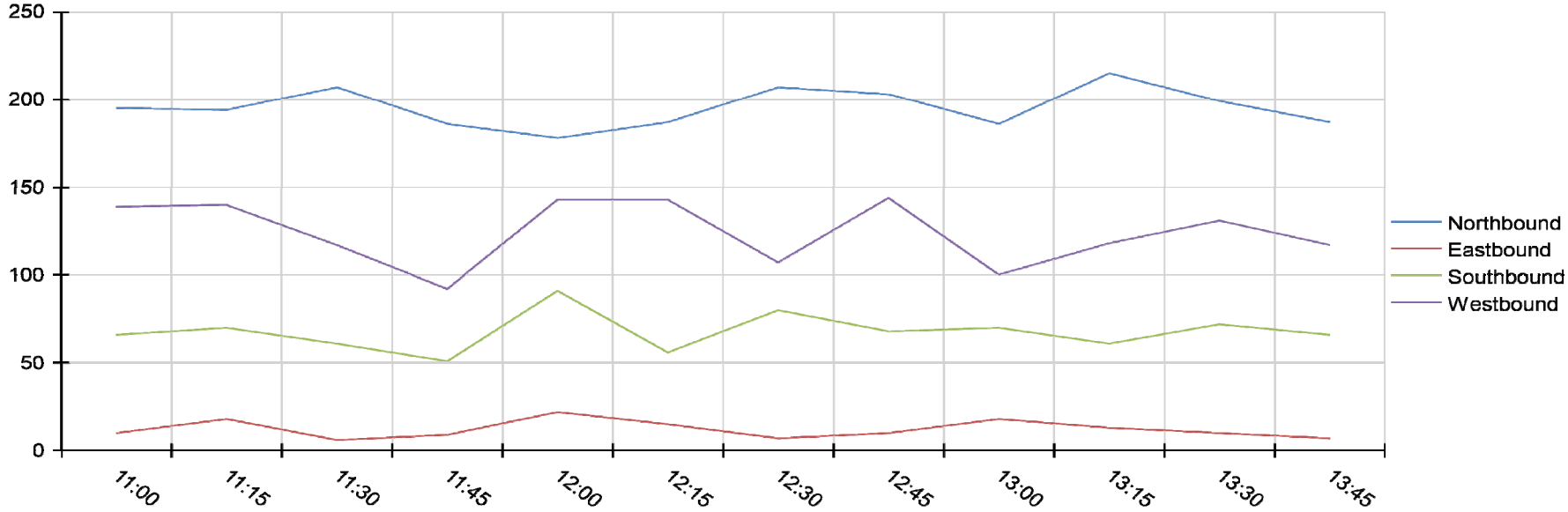


GRIDSMART®

Turning Movement Counts - Sum

Intersection Commerce & Atlantic
Date 2/29/2020

	Right	Through	Left	UTurn	Total
Northbound	1464	831	40	9	2344
Eastbound	40	97	8		145
Southbound	15	405	392		812
Westbound		109	1345	37	1491
Total	**1519**	**1442**	**1785**	**46**	**4792**



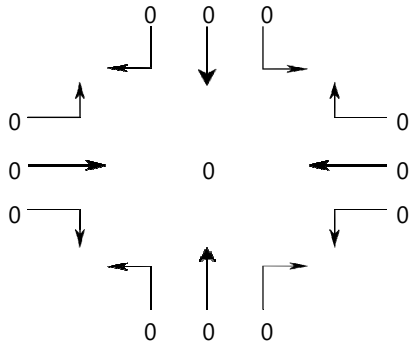
	Northbound				Eastbound			Southbound			Westbound		
	R	T	L	U	R	T	L	R	T	L	T	L	U
11:00	121	69	4	1	7	3			35	31	11	123	5
11:15	130	62	2		4	10	4		44	26	18	121	1
11:30	125	76	4	2	1	5		1	31	29	7	109	1
11:45	125	57	2	2	4	5		1	23	27	3	88	1
12:00	110	63	5		4	18		6	37	48	17	125	1
12:15	113	71	2	1	3	11	1		31	25	10	129	4
12:30	114	91	1	1	2	5			38	42	5	98	4
12:45	117	84	2		3	7		2	34	32	14	128	2
13:00	116	63	7		4	13	1	2	31	37	7	92	1
13:15	140	71	4		4	7	2	1	33	27	5	110	3
13:30	126	70	2	1	3	7			37	35	7	118	6
13:45	127	54	5	1	1	6		2	31	33	5	104	8
Total	**1464**	**831**	**40**	**9**	**40**	**97**	**8**	**15**	**405**	**392**	**109**	**1345**	**37**

Turning Movement Counts - Sum

Intersection Commerce & Atlantic
Date 2/29/2020

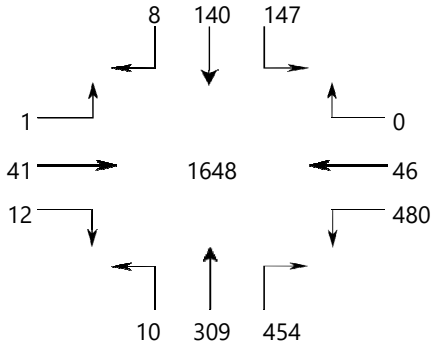
AM PEAK HOUR VOLUME (0:00-10:45)

FROM 00:00 TO 01:00



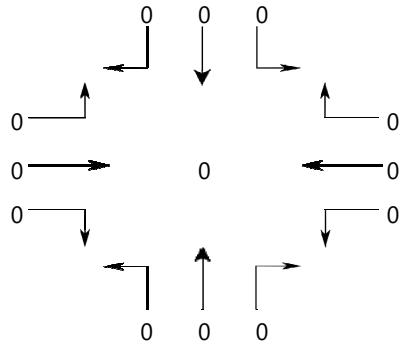
MID-DAY PEAK HOUR VOLUME (11:00-14:00)

FROM 12:00 TO 13:00



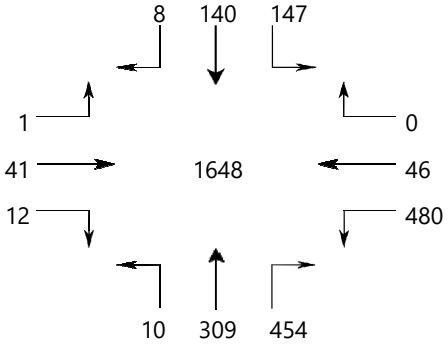
PM PEAK HOUR VOLUME (14:15-23:45)

FROM 14:15 TO 15:15



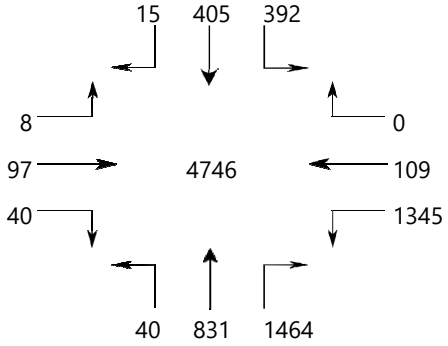
OVERALL PEAK HOUR VOLUME

FROM 12:00 TO 13:00



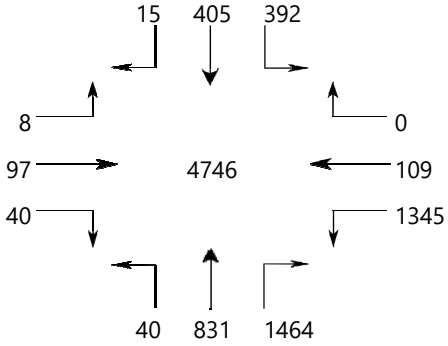
DAYTIME TOTAL VOLUME

FROM 07:00 TO 18:00



SELECTED TIME VOLUME

FROM 11:00 TO 14:00



COVID-19 ADJUSTMENT DATA

Presidential Way / Atlantic Avenue / Commerce Way / I-93 Exit 37C Ramps					
Date	Day of Week	Peak Hour(s)	AM Peak Hour	Midday Peak Hour	PM Peak Hour
TMC Count Dates					
7/18/2020	Saturday	11:15 AM - 12:15 PM	--	1,120	--
7/21/2020	Tuesday	7:30 AM - 8:30 AM 4:30 PM - 5:30 PM	1,265	--	1,837
Pre-COVID Counts					
2/29/2020	Saturday	11:15 AM - 12:15 PM	--	1,585	
2/26/2020	Wednesday	7:30 AM - 8:30 AM 4:00 PM - 5:00 PM	2,293	--	2,435
COVID Adjustment					
Saturday			**--**	**1.415**	**--**
Weekday			**1.813**	**--**	**1.326**

Count Station 5127 (Andover Bypass (Route 125) South of Route 28)					
Date	Day of Week	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Daily
TMC Count Dates					
6/27/2020	Saturday	--	805	--	8,841
6/23/2020	Tuesday	805	--	1,294	12,118
Pre-COVID Counts					
2/29/2020	Saturday	--	1,020		12,732
2/26/2020	Wednesday	1,797	--	1,755	19,575
COVID Adjustment					
Saturday		**--**	**1.267**	**--**	**1.440**
Weekday		**2.232**	**--**	**1.356**	**1.615**

Count Station 407 (Main Street (Route 28) south of Reading T.L.)					
Date	Day of Week	AM Peak Hour	Midday Peak Hour	PM Peak Hour	Daily
TMC Count Dates					
7/18/2020	Saturday	--	1,690	--	19,229
7/21/2020	Tuesday	1,202	--	1,667	12,118
Pre-COVID Counts					
2/29/2020	Saturday	--	2,162		24,121
2/26/2020	Wednesday	1,954	--	1,968	19,575
COVID Adjustment					
Saturday		**--**	**1.279**	**--**	**1.254**
Weekday		**1.626**	**--**	**1.181**	**1.615**

AVERAGE COVID ADJUSTMENT FACTOR (ARTERIAL ROADWAYS)				
Saturday	**--**	**1.273**	**--**	**1.347**
Weekday	**1.929**	**--**	**1.268**	**1.615**

SEASONAL ADJUSTMENT DATA

Massachusetts Highway Department

Statewide Traffic Data Collection

2017 Weekday Seasonal Factors

Factor Group	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Axle Factor
R1	1.30	1.23	1.21	1.04	0.98	0.92	0.86	0.81	0.95	0.99	1.03	1.10	0.80
R2	0.95	0.96	0.98	0.97	0.97	0.93	0.97	0.94	0.96	0.90	0.92	0.93	0.96
R3	1.05	1.01	1.04	0.99	0.94	0.93	0.91	0.92	0.96	0.94	1.01	1.03	0.97
R4-R7	1.10	1.07	1.09	1.00	0.95	0.89	0.88	0.87	0.92	0.95	1.04	1.09	0.93
U1-Boston	1.01	1.04	0.99	0.94	0.93	0.92	0.96	0.93	0.94	0.93	0.95	0.98	0.95
U1-Essex	1.04	1.05	1.00	0.96	0.93	0.89	0.90	0.90	0.93	0.93	0.98	1.03	0.90
U1-Southeast	1.07	1.05	1.02	0.97	0.95	0.90	0.89	0.88	0.92	0.94	0.98	1.01	0.97
U1-West	1.00	0.96	0.94	0.92	0.93	0.92	0.95	0.93	0.92	0.92	0.97	0.97	0.89
U1-Worcester	1.10	1.10	1.04	0.97	0.95	0.94	0.93	0.91	0.95	0.96	0.98	1.04	0.89
U2	1.01	1.03	0.98	0.95	0.93	0.91	0.94	0.92	0.95	0.95	0.95	0.97	0.98
U3	1.03	1.05	1.01	0.95	0.92	0.90	0.94	0.93	0.93	0.92	0.96	0.99	0.96
U4-U7	1.06	1.05	1.02	0.96	0.92	0.89	0.95	0.95	0.92	0.92	0.98	1.03	0.98
Rec - East	1.18	1.17	1.08	1.03	0.95	0.87	0.83	0.83	0.97	0.98	1.19	1.19	0.98
Rec - West	1.30	1.23	1.32	1.18	0.95	0.82	0.70	0.69	0.97	0.96	1.16	1.15	0.95

Round off:
0-999 = 10
>1000 = 100

U = Urban
R = Rural

1 - Interstate
2 - Freeway and Expressway
3 - Other Principal Arterial
4 - Minor Arterial
5 - Major Collector
6 - Minor Collector
7 - Local Road and Street

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

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

5/26/2020

Massachusetts Highway Department

Statewide Traffic Data Collection

2018 Weekday Seasonal Factors

Factor Group	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Axle Factor
R1	1.37	1.26	1.30	1.08	0.97	0.93	0.87	0.83	0.96	0.98	1.05	1.13	0.78
R2	0.95	0.96	0.98	0.97	0.97	0.93	0.97	0.94	0.96	0.90	0.92	0.93	0.96
R3	1.15	1.06	1.07	1.00	0.89	0.88	0.89	0.89	0.95	0.92	1.02	1.01	0.98
R4-R7	1.10	1.07	1.03	1.00	0.90	0.92	0.94	0.94	0.96	0.94	1.03	1.02	0.93
U1-Boston	1.05	0.98	1.01	0.93	0.92	0.91	0.95	0.93	0.94	0.92	0.96	0.99	0.96
U1-Essex	1.05	1.01	1.04	0.93	0.92	0.89	0.90	0.90	0.94	0.93	0.98	1.01	0.91
U1-Southeast	1.11	1.05	1.07	0.99	0.93	0.89	0.88	0.87	0.93	0.95	1.01	1.05	0.98
U1-West	1.15	1.08	1.07	0.98	0.94	0.92	0.92	0.88	0.92	0.91	1.00	1.06	0.83
U1-Worcester	1.18	1.11	1.09	0.99	0.95	0.94	0.95	0.91	0.97	0.97	1.01	1.05	0.87
U2	1.04	0.99	0.99	0.94	0.92	0.90	0.93	0.91	0.94	0.92	0.96	0.98	0.99
U3	0.99	1.00	1.02	0.96	0.91	0.89	0.92	0.90	0.95	0.92	1.01	0.97	0.97
U4-U7	1.03	1.02	0.97	0.95	0.88	0.89	0.96	0.93	0.94	0.93	1.00	1.00	0.99
Rec - East	1.22	1.15	1.09	1.12	0.90	0.89	0.82	0.83	0.92	0.98	1.06	1.08	0.99
Rec - West	1.30	1.23	1.32	1.18	0.95	0.82	0.70	0.69	0.97	0.96	1.16	1.15	0.97

Round off:
0-999 = 10
>1000 = 100

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R = Rural

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

5/26/2020

Massachusetts Highway Department

Statewide Traffic Data Collection

2019 Weekday Seasonal Factors

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

Round off:
0-999 = 10
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Recreational - West Group - Continuous Stations 2 and 189 including stations 1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1113,1114,1116,2196,2197 and 2198.

5/26/2020

AMBIENT GROWTH DATA

Traffic Growth Factor Worksheet

Count Stations

(Source: MassDOT Transportation Data Management System)

STA.	CITY/TOWN	ROUTE/STREET	LOCATION	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average % Growth
5127	WILMINGTON	ANDOVER BYPASS	RAMP - RTE 28 SB TO RTE 125	15,210	15,173	15,312	15,008	15,292	15,659		17,357	16,906	17,055	1.3%
4105	TEWKSBURY	SALEM RD	EAST OF MAIN ST	5,375	5,965	5,884	5,938	5,679						1.5%
4112	TEWKSBURY	CHANDLER STREET	NORTH OF WHIPPLE ROAD	2,091	1,820	1,827	1,846	2,172			2,069			0.2%
4803	WILMINGTON	I-93	NORTH OF I-95						164,712	166,771	164,068	163,354		-0.3%
4391	WILMINGTON	I-93	NORTH OF CONCORD STREET	151,486	148,887	149,934	150,904	131,707	157,568	155,837			171,302	1.7%
5022	WILMINGTON	I-93	NORTH OF ROUTE 125	137,116		135,921	136,213	136,495	142,104	145,189	151,255	148,240		1.0%

Average Growth: 0.9%

Say **1.0%**

MASSDOT CRASH DATA WORKSHEETS

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Woburn COUNT DATE : Jul-20

DISTRICT : 4 UNSIGNALIZED : SIGNALIZED : X

~ INTERSECTION DATA ~

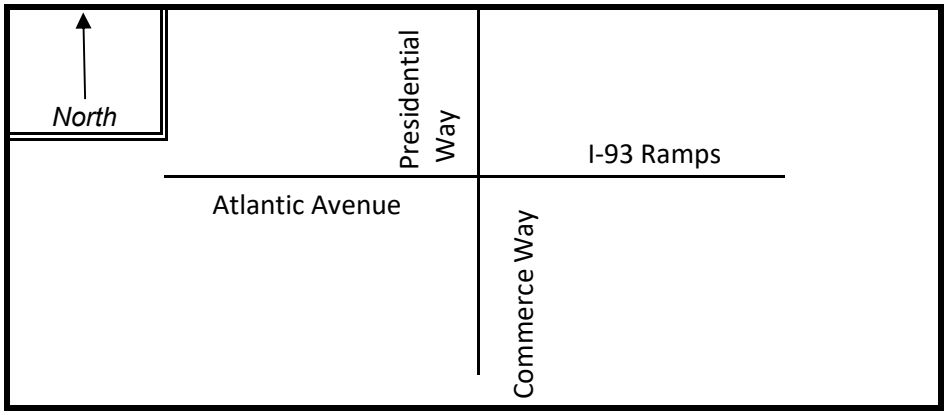
MAJOR STREET : Presidential Way

MINOR STREET(S) : Atlantic Avenue

Commerce Way

Interstate 93 Ramps

INTERSECTION DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	63	590	1,207	788		**2,648**

" K " FACTOR : **0.084** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **31,524**

TOTAL # OF CRASHES : 64 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **12.80**

CRASH RATE CALCULATION : **1.11** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : K-Vaule based on GridSmart 24-hr count for 2/26/20 compared to PM peak hour.

Project Title & D a NEX-2020172.00 - Proposed Solid Waste Facility - Wilmington, MA

Presidential Way / Atlantic Avenue / Commerce Way / I-93 Ramps

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Driver Distracted By (All Vehicles)	Light Conditions	Manner of Collision	Road Surface Condition	Total Fatalities	Total Non-Fatal Injuries	Traffic Control Device Type	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Most Harmful Event (All Vehicles)	Road Contributing Circumstance	Traffic Control Device Function	Street Number	Roadway	Near Intersection Roadway	Landmark
01/25/2014	Saturday	Non-fatal injury	2:56 AM	2	D1: (Distracted),(Inattention) / D2: (No improper driving)		Dark - lighted roadway	Rear-end	Dry	0	1	Traffic control signal	V1: Travelling straight ahead / V2: Slowing or stopped in traffic	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: W	Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	Not reported	Yes, device functioning		ATLANTIC AVENUE / COMMERCE WAY / PRESIDENTIAL WAY		ON/OFF RAMP ROUTE 93
01/16/2014	Thursday	Non-fatal injury	9:51 AM	2	D1: (No improper driving) / D2: (Disregarded traffic signs, signals, road markings)		Daylight	Angle	Wet	0	1	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	Not reported	Yes, device functioning		COMMERCE WAY / ATLANTIC AVENUE		
03/25/2014	Tuesday	Property damage only (none injured)	9:00 AM	2	D1: (Followed too closely) / D2: (No improper driving)		Daylight	Rear-end	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: E / V2: E	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	Not reported	Yes, device functioning	120	COMMERCE WAY	ATLANTIC AVENUE	ANDERSON RITA
04/08/2014	Tuesday	Property damage only (none injured)	1:17 PM	2	D1: (Failed to yield right of way) / D2: (No improper driving)		Daylight	Angle	Dry	0	0	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Tractor/semi-trailer) / V2:(Tractor/semi-trailer)	V1: N / V2: S	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	No, device not functioning		COMMERCE WAY / ATLANTIC AVENUE		
01/04/2014	Saturday	Non-fatal injury	5:34 PM	2	D1: (No improper driving) / D2: (Disregarded traffic signs, signals, road markings),(Inattention)		Dark - lighted roadway	Angle	Ice	0	1	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVENUE		
02/22/2014	Saturday	Non-fatal injury	9:35 AM	2	D1: (Other improper action) / D2: (No improper driving)		Daylight	Angle	Dry	0	1	Traffic control signal	V1: Travelling straight ahead / V2: Turning left	V1:(Passenger car) / V2:(Passenger car)	V1: E / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	No, device not functioning	112	COMMERCE WAY	ATLANTIC AVENUE	CHIPOTLE GRILL
05/20/2014	Tuesday	Non-fatal injury	7:26 AM	2	D1: (No improper driving) / D2: (Other improper action)		Daylight	Angle	Dry	0	1	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVENUE		

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Driver Distracted By (All Vehicles)	Light Conditions	Manner of Collision	Road Surface Condition	Total Fatalities	Total Non-Fatal Injuries	Traffic Control Device Type	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Most Harmful Event (All Vehicles)	Road Contributing Circumstance	Traffic Control Device Function	Street Number	Roadway	Near Intersection Roadway	Landmark
04/30/2014	Wednesday	Property damage only (none injured)	9:14 AM	3	D1: (No improper driving) / D2: (No improper driving)		Daylight	Rear-end	Wet	0	0	No controls	V1: Slowing or stopped in traffic / V2: Slowing or stopped in traffic / V3: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car) / V3:(Passenger car)	V1: N / V2: N / V3: N	Rain	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) / V3:(Collision with motor vehicle in traffic)	Road surface condition (wet, icy, snow, slush, etc.)	Not reported		COMMERCE WAY / ATLANTIC AVENUE / PRESIDENTIAL WAY		
08/09/2014	Saturday	Property damage only (none injured)	2:28 PM	2	D1: (Disregarded traffic signs, signals, road markings) / D2: (No improper driving)		Daylight	Sideswipe, same direction	Dry	0	0	Traffic control signal	V1: Turning right / V2: Turning right	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
09/16/2014	Tuesday	Non-fatal injury	5:44 PM	2	D1: (No improper driving) / D2: (No improper driving)		Daylight	Angle	Dry	0	1	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility))	V1: E / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning	130	COMMERCE WAY	ATLANTIC AVENUE	
10/23/2014	Thursday	Property damage only (none injured)	6:38 AM	2	D1: (No improper driving) / D2: (No improper driving)		Dark - lighted roadway	Sideswipe, opposite direction	Wet	0	0	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: E / V2: W	Rain	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	Road surface condition (wet, icy, snow, slush, etc.)	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
11/11/2014	Tuesday	Property damage only (none injured)	4:50 PM	1	D1: (No improper driving)		Dark - lighted roadway	Angle	Dry	0	0	No controls	V1: Turning left	V1:(Passenger car)	V1: W	Clear	V1:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
12/18/2014	Thursday	Non-fatal injury	5:11 PM	2	D1: (Failed to yield right of way) / D2: (No improper driving)		Dark - lighted roadway	Angle	Dry	0	3	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: W	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY	ATLANTIC AVENUE	

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Driver Distracted By (All Vehicles)	Light Conditions	Manner of Collision	Road Surface Condition	Total Fatalities	Total Non-Fatal Injuries	Traffic Control Device Type	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Most Harmful Event (All Vehicles)	Road Contributing Circumstance	Traffic Control Device Function	Street Number	Roadway	Near Intersection Roadway	Landmark
04/14/2015	Tuesday	Non-fatal injury	4:41 PM	2	D1: (No improper driving) / D2: (Failure to keep in proper lane or running off road),(Disregarded traffic signs, signals, road markings)		Daylight	Rear-end	Dry	0	1	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning	130	COMMERCE WAY	ATLANTIC AVENUE	
04/09/2015	Thursday	Property damage only (none injured)	12:43 PM	2	D1: (No improper driving) / D2: (Failed to yield right of way)		Daylight	Sideswipe, same direction	Wet	0	0	Traffic control signal	V1: Turning right / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: N	Cloudy /Rain	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
05/17/2015	Sunday	Property damage only (none injured)	8:42 PM	2	D1: (Unknown) / D2: (Distracted),(Inattention)	D1: Other activity (searching, eating, personal hygiene, etc.)	Dark - lighted roadway	Rear-end	Dry	0	0	Traffic control signal	V1: Turning left / V2: Turning left	V1:(Passenger car) / V2:(Passenger car)	V1: S / V2: S	Clear /Unknown	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
02/06/2015	Friday	Property damage only (none injured)	7:35 AM	3	D1: (No improper driving) / D2: (No improper driving) / D3: (Unknown)		Daylight	Rear-end	Wet	0	0	Traffic control signal	V1: Slowing or stopped in traffic / V2: Slowing or stopped in traffic / V3: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car) / V3:(Single-unit truck (2-axle, 6-tires))	V1: N / V2: N / V3: N	Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) / V3:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVENUE / PRESIDENTIAL WAY		
06/30/2015	Tuesday	Property damage only (none injured)	2:21 PM	2	D1: (No improper driving) / D2: (Followed too closely)		Daylight	Rear-end	Dry	0	0	Traffic control signal	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: W	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / PRESIDENTIAL WAY		
07/23/2015	Thursday	Property damage only (none injured)	1:02 PM	2	D1: (No improper driving) / D2: (Other improper action)		Daylight	Angle	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility))	V1: W / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Driver Distracted By (All Vehicles)	Light Conditions	Manner of Collision	Road Surface Condition	Total Fatalities	Total Non-Fatal Injuries	Traffic Control Device Type	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Most Harmful Event (All Vehicles)	Road Contributing Circumstance	Traffic Control Device Function	Street Number	Roadway	Near Intersection Roadway	Landmark
07/31/2015	Friday	Property damage only (none injured)	6:36 PM	2	D1: (Unknown) / D2: (Unknown)		Daylight	Angle	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: W	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		PRESIDENTIAL WAY / COMMERCE WAY		
08/03/2015	Monday	Property damage only (none injured)	4:03 PM	1	D1: (No improper driving)		Daylight	Sideswipe, same direction	Dry	0	0	Traffic control signal	V1: Turning left	V1:(Passenger car)	V1: S	Clear	V1:(Collision with motor vehicle in traffic)	None	Yes, device functioning		PRESIDENTIAL WAY / COMMERCE WAY		
09/03/2015	Thursday	Property damage only (none injured)	7:05 AM	2	D1: (No improper driving) / D2: (Inattention)	D1: External distraction (outside the vehicle)	Daylight	Rear-end	Dry	0	0	Yield signs	V1: Slowing or stopped in traffic / V2: Slowing or stopped in traffic	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		PRESIDENTIAL WAY / COMMERCE WAY		
09/23/2015	Wednesday	Property damage only (none injured)	6:14 PM	2	D1: (Unknown) / D2: (Unknown)		Dusk	Angle	Dry	0	0	Traffic control signal	V1: Turning right / V2: Turning right	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
10/01/2015	Thursday	Property damage only (none injured)	12:11 PM	2	D1: (Disregarded traffic signs, signals, road markings) / D2: (No improper driving)		Daylight	Angle	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Turning left	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: W	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / PRESIDENTIAL WAY		
11/01/2015	Sunday	Non-fatal injury	4:51 PM	2	D1: (No improper driving) / D2: (Inattention),(Other improper action)		Dusk	Angle	Dry	0	1	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / PRESIDENTIAL WAY		
12/08/2015	Tuesday	Property damage only (none injured)	1:26 PM	2	D1: (Inattention),(Disregarded traffic signs, signals, road markings) / D2: (No improper driving)		Daylight	Angle	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: W	Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / PRESIDENTIAL WAY / ATLANTIC AVE		

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Driver Distracted By (All Vehicles)	Light Conditions	Manner of Collision	Road Surface Condition	Total Fatalities	Total Non-Fatal Injuries	Traffic Control Device Type	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Most Harmful Event (All Vehicles)	Road Contributing Circumstance	Traffic Control Device Function	Street Number	Roadway	Near Intersection Roadway	Landmark
03/08/2016	Tuesday	Property damage only (none injured)	12:00 PM	2	D1: (Failure to keep in proper lane or running off road) / D2: (No improper driving)		Daylight	Sideswipe, same direction	Dry	0	0	Traffic control signal	V1: Turning right / V2: Turning right	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
07/28/2016	Thursday	Property damage only (none injured)	4:40 PM	2	D1: (Unknown) / D2: (Unknown)		Daylight	Angle	Dry	0	0	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		ATLANTIC AVE / COMMERCE WAY		
08/31/2016	Wednesday	Non-fatal injury	10:56 AM	2	D1: (No improper driving) / D2: (Followed too closely)		Daylight	Rear-end	Dry	0	1	Yield signs	V1: Slowing or stopped in traffic / V2: Slowing or stopped in traffic	V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility))	V1: N / V2: N	Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		PRESIDENTIAL WAY	ATLANTIC AVENUE	
10/17/2016	Monday	Property damage only (none injured)	4:20 PM	2	D1: (No improper driving) / D2: (No improper driving)		Daylight	Sideswipe, same direction	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: E / V2: E	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY		
12/05/2016	Monday	Property damage only (none injured)	4:59 PM	2	D1: (No improper driving) / D2: (Unknown)		Dark - lighted roadway	Angle	Wet	0	0	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: N	Rain	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	Traffic congestion related	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
12/29/2016	Thursday	Property damage only (none injured)	5:18 AM	2	D1: (No improper driving) / D2: (No improper driving)		Dark - lighted roadway	Angle	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Turning left	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: S	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
01/29/2017	Sunday	Non-fatal injury	8:26 PM	2	D1: (Unknown) / D2: (Unknown)		Dark - lighted roadway	Angle	Dry	0	2	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: W	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Driver Distracted By (All Vehicles)	Light Conditions	Manner of Collision	Road Surface Condition	Total Fatalities	Total Non-Fatal Injuries	Traffic Control Device Type	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Most Harmful Event (All Vehicles)	Road Contributing Circumstance	Traffic Control Device Function	Street Number	Roadway	Near Intersection Roadway	Landmark
01/24/2017	Tuesday	Non-fatal injury	11:49 AM	3	D1: (No improper driving) / D2: (Inattention),(Failed to yield right of way) / D3: (No improper driving)		Daylight	Angle	Wet	0	2	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead / V3: Slowing or stopped in traffic	V1:(Passenger car) / V2:(Passenger car) / V3:(Passenger car)	V1: W / V2: N / V3: S	Cloudy /Rain	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) / V3:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / PRESIDENTIAL WAY / ATLANTIC AVE		
03/25/2017	Saturday	Property damage only (none injured)	9:37 AM	1	D1: (No improper driving)		Daylight	Angle	Wet	0	0	Traffic control signal	V1: Turning left	V1:(Passenger car)	V1: W	Cloudy/ Rain	V1:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
04/04/2017	Tuesday	Non-fatal injury	8:23 AM	2	D1: (No improper driving) / D2: (Other improper action)		Daylight	Rear-end	Wet	0	1	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Rain/ Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	Other	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
04/19/2017	Wednesday	Property damage only (none injured)	10:41 AM	2	D1: (No improper driving) / D2: (Inattention)		Daylight	Rear-end	Dry	0	0	Yield signs	V1: Slowing or stopped in traffic / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		PRESIDENTIAL WAY / COMMERCE WAY		
04/28/2017	Friday	Non-fatal injury	10:04 AM	2	D1: (No improper driving) / D2: (Disregarded traffic signs, signals, road markings)		Daylight	Angle	Dry	0	1	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
05/11/2017	Thursday	Property damage only (none injured)	7:10 AM	2	D1: (Inattention) / D2: (No improper driving)	D1: Talking on hand-held electronic device	Daylight	Head-on	Dry	0	0	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: W	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		ATLANTIC AVE / COMMERCE WAY		
06/20/2017	Tuesday	Property damage only (none injured)	10:40 AM	1	D1: (Inattention)		Daylight	Single vehicle crash	Dry	0	0	Traffic control signal	V1: Travelling straight ahead	V1:(Passenger car)	V1: N	Clear	V1:(Overturn/ rollover)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVENUE		

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Driver Distracted By (All Vehicles)	Light Conditions	Manner of Collision	Road Surface Condition	Total Fatalities	Total Non-Fatal Injuries	Traffic Control Device Type	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Most Harmful Event (All Vehicles)	Road Contributing Circumstance	Traffic Control Device Function	Street Number	Roadway	Near Intersection Roadway	Landmark
08/03/2017	Thursday	Property damage only (none injured)	3:00 PM	2	D1: (Failed to yield right of way),(Unknown) / D2: (No improper driving)		Daylight	Angle	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: W	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	Traffic control device inoperative, missing, or obscured	Yes, device functioning		PRESIDENTIAL WAY / ATLANTIC AVE		
07/24/2017	Monday	Property damage only (none injured)	7:18 AM	1	D1: (No improper driving)		Daylight	Angle	Dry	0	0	No controls	V1: Entering traffic lane	V1:(Passenger car)	V1: N	Cloudy	V1:(Collision with motor vehicle in traffic)	None	No, device not functioning		PRESIDENTIAL WAY / RAMP-RT 93 TO COMMERCE WAY WAY		
09/20/2017	Wednesday	Property damage only (none injured)	2:34 PM	2	D1: (No improper driving) / D2: (Disregarded traffic signs, signals, road markings)		Daylight	Angle	Wet	0	0	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / PRESIDENTIAL WAY		
09/21/2017	Thursday	Non-fatal injury	8:15 AM	2	D1: (Unknown) / D2: (Unknown)		Daylight	Angle	Dry	0	2	Traffic control signal	V1: Travelling straight ahead / V2: Turning left	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: E	Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
11/10/2017	Friday	Non-fatal injury	1:52 PM	2	D1: (Inattention),(Failed to yield right of way) / D2: (No improper driving)		Daylight	Angle	Dry	0	1	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Tractor/semi-trailer) / V2:(Passenger car)	V1: N / V2: W	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	Other	Yes, device functioning		COMMERCE WAY / PRESIDENTIAL WAY / ATLANTIC AVENUE		
01/03/2018	Wednesday	Property damage only (none injured)	8:29 AM	3	D1: (No improper driving) / D2: (Followed too closely),(Inattention) / D3: (Followed too closely),(Inattention)		Daylight	Rear-end	Dry	0	0	Traffic control signal	V1: Slowing or stopped in traffic / V2: Travelling straight ahead / V3: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car) / V3:(Passenger car)	V1: S / V2: S / V3: S	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) / V3:(Collision with motor vehicle in traffic)		Yes, device functioning		PRESIDENTIAL WAY / COMMERCE WAY		

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Driver Distracted By (All Vehicles)	Light Conditions	Manner of Collision	Road Surface Condition	Total Fatalities	Total Non-Fatal Injuries	Traffic Control Device Type	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Most Harmful Event (All Vehicles)	Road Contributing Circumstance	Traffic Control Device Function	Street Number	Roadway	Near Intersection Roadway	Landmark
01/12/2018	Friday	Property damage only (none injured)	2:42 PM	2	D1: (Inattention),(Disregarded traffic signs, signals, road markings) / D2: (No improper driving)		Daylight	Angle	Wet	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Turning left	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: W	Rain/ Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)		Yes, device functioning	130	COMMERCE WAY	ATLANTIC AVE	
03/09/2018	Friday	Property damage only (none injured)	7:17 AM	2	D1: (No improper driving) / D2: (No improper driving)	D1: External distraction (outside the vehicle)	Daylight	Angle	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Turning left	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE / ROUTE 93 HWY		
04/05/2018	Thursday	Property damage only (none injured)	11:48 AM	2	D1: (Failed to yield right of way) / D2: (No improper driving)		Daylight	Angle	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	Traffic control device inoperative, missing, or obscured	No, device not functioning		COMMERCE WAY / ATLANTIC AVE		
04/27/2018	Friday	Property damage only (none injured)	11:30 PM	2			Dark - lighted roadway	Sideswipe, same direction	Dry	0	0	Traffic control signal	V1: Turning right / V2: Turning right	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		PRESIDENTIAL WAY / RAMP-RT 93 TO COMMERCE WAY WAY / ATLANTIC AVENUE		
07/02/2018	Monday	Property damage only (none injured)	3:32 PM	2	D1: (No improper driving) / D2: (Inattention)		Daylight	Angle	Dry	0	0	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: S / V2: W	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
07/11/2018	Wednesday	Property damage only (none injured)	6:57 PM	2	D1: (No improper driving) / D2: (Disregarded traffic signs, signals, road markings)		Daylight	Angle	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility))	V1: W / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVENUE		
07/16/2018	Monday	Non-fatal injury	10:07 PM	2	D1: (Unknown) / D2: (No improper driving)		Dark - lighted roadway	Rear-end	Dry	0	1	Traffic control signal	V1: Travelling straight ahead / V2: Slowing or stopped in traffic	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Driver Distracted By (All Vehicles)	Light Conditions	Manner of Collision	Road Surface Condition	Total Fatalities	Total Non-Fatal Injuries	Traffic Control Device Type	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Most Harmful Event (All Vehicles)	Road Contributing Circumstance	Traffic Control Device Function	Street Number	Roadway	Near Intersection Roadway	Landmark
09/26/2018	Wednesday	Non-fatal injury	9:13 PM	2	D1: (Disregarded traffic signs, signals, road markings) / D2: (No improper driving)		Dark - lighted roadway	Angle	Dry	0	1	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: W	Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
09/27/2018	Thursday	Non-fatal injury	6:53 PM	2	D1: (No improper driving) / D2: (Disregarded traffic signs, signals, road markings)		Dark - lighted roadway	Angle	Dry	0	2	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: N	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	No, device not functioning		COMMERCE WAY / ATLANTIC AVE		
10/25/2018	Thursday	Property damage only (none injured)	6:33 PM	2	D1: (No improper driving) / D2: (Disregarded traffic signs, signals, road markings)		Dark - lighted roadway	Angle	Dry	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Turning left	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: W	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		ATLANTIC AVE / COMMERCE WAY		
10/15/2018	Monday	Non-fatal injury	5:57 AM	2	D1: (No improper driving) / D2: (Failed to yield right of way),(Inattention)		Dark - lighted roadway	Head-on	Dry	0	1	Traffic control signal	V1: Travelling straight ahead / V2: Turning left	V1:(Passenger car) / V2:(Passenger car)	V1: W / V2: E	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		ATLANTIC AVE / PRESIDENTIAL WAY		
11/07/2018	Wednesday	Property damage only (none injured)	9:44 AM	2	D1: (Failed to yield right of way) / D2: (No improper driving)		Daylight	Rear-end	Dry	0	0	Yield signs	V1: Turning right / V2: Slowing or stopped in traffic	V1:(Passenger car) / V2:(Passenger car)	V1: S / V2: S	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	No, device not functioning		RAMP-RT 93 TO COMMERCE WAY WAY	PRESIDENTIAL WAY	
11/02/2018	Friday	Non-fatal injury	9:47 AM	2	D1: (Inattention),(Disregarded traffic signs, signals, road markings) / D2: (No improper driving)		Daylight	Angle	Wet	0	1	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: W	Cloudy/ Rain	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	Other	Yes, device functioning		COMMERCE WAY / PRESIDENTIAL WAY		
11/15/2018	Thursday	Property damage only (none injured)	4:47 PM	2	D1: (No improper driving) / D2: (No improper driving)		Dark - lighted roadway	Sideswipe, same direction	Dry	0	0	Traffic control signal	V1: Turning right / V2: Turning right	V1:(Passenger car) / V2:(Passenger car)	V1: E / V2: E	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Driver Distracted By (All Vehicles)	Light Conditions	Manner of Collision	Road Surface Condition	Total Fatalities	Total Non-Fatal Injuries	Traffic Control Device Type	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Most Harmful Event (All Vehicles)	Road Contributing Circumstance	Traffic Control Device Function	Street Number	Roadway	Near Intersection Roadway	Landmark
11/25/2018	Sunday	Property damage only (none injured)	4:06 PM	2	D1: (Unknown) / D2: (Unknown)		Dusk	Head-on	Wet	0	0	Traffic control signal	V1: Travelling straight ahead / V2: Turning left	V1:(Passenger car) / V2:(Passenger car)	V1: N / V2: N	Cloudy /Rain	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		COMMERCE WAY / ATLANTIC AVE		
12/03/2018	Monday	Non-fatal injury	6:20 PM	2	D1: (Unknown) / D2: (Unknown)		Dark - lighted roadway	Angle	Dry	0	1	Traffic control signal	V1: Travelling straight ahead / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: E / V2: S	Clear	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		PRESIDENTIAL WAY / RAMP-RT 93 TO COMMERCE WAY WAY / COMMERCE WAY		
11/28/2018	Wednesday	Property damage only (none injured)	5:27 PM	1	D1: (Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc)		Dark - lighted roadway	Single vehicle crash	Dry	0	0	Traffic control signal	V1: Travelling straight ahead	V1:(Passenger car)	V1: N	Clear	V1:(Collision with curb)	Traffic congestion related	Yes, device functioning	9	ATLANTIC AVE		
11/29/2018	Thursday	Non-fatal injury	12:08 PM	2	D1: (Failed to yield right of way),(Inattention) / D2: (No improper driving)		Daylight	Angle	Dry	0	2	Traffic control signal	V1: Turning left / V2: Travelling straight ahead	V1:(Passenger car) / V2:(Passenger car)	V1: E / V2: W	Cloudy	V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic)	None	Yes, device functioning		ATLANTIC AVE / PRESIDENTIAL WAY / COMMERCE WAY		

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Woburn COUNT DATE : Jul-20

DISTRICT : 4 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

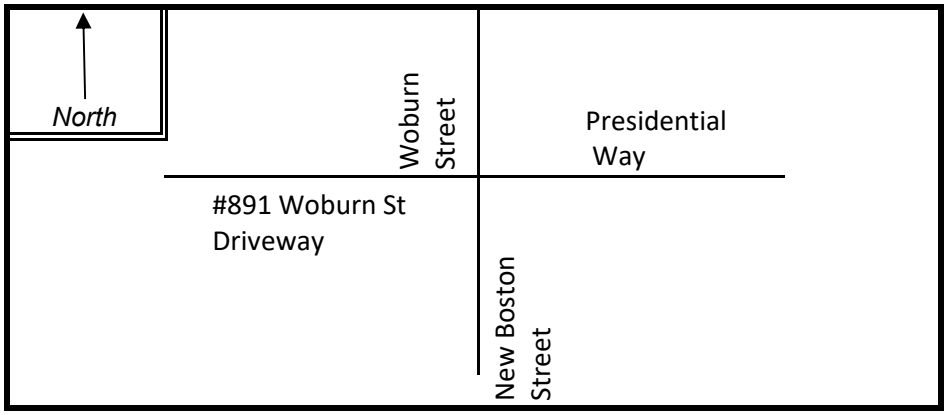
MAJOR STREET : Presidential Way

MINOR STREET(S) : Woburn Street

New Boston Street

#891 Woburn Street Driveway

INTERSECTION DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	15	338	98	239		**690**

" K " FACTOR : **0.084** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **8,214**

TOTAL # OF CRASHES : 3 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.60**

CRASH RATE CALCULATION : **0.20** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : K-Vaule based on GridSmart 24-hr count for 2/26/20 compared to PM peak hour.

Project Title & D a NEX-2020172.00 - Proposed Solid Waste Facility - Wilmington, MA

Crash Date	Day of Week	Crash Severity	Crash Time	Number of Vehicles	Driver Contributing Circumstances (All Drivers)	Light Conditions	Manner of Collision	Road Surface Condition	Roadway Junction Type	Total Fatalities	Total Non-Fatal Injuries	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Configuration (All Vehicles)	Vehicle Travel Directions (All Vehicles)	Weather Conditions	Hit and Run	Most Harmful Event (All Vehicles)	Street Number	Roadway
04/15/2015	Wednesday	Non-fatal injury	3:59 PM	1	D1: (Unknown)	Daylight	Single vehicle crash	Dry	Not at junction	0	1	V1: Travelling straight ahead	V1:(Tractor/ semi-trailer)	V1: N	Clear	No hit and run	V1:(Overturn/ rollover)	1	PRESIDENTIAL WAY
09/27/2016	Tuesday	Non-fatal injury	10:10 AM	1	D1: (Unknown)	Daylight	Single vehicle crash	Wet	Not at junction	0	1	V1: Travelling straight ahead	V1:(Passenger car)	V1: N	Rain/ Cloudy	No hit and run	V1:(Unknown)	1	PRESIDENTIAL WAY
08/09/2018	Thursday	Property damage only (none injured)	6:40 AM	1	D1: (No improper driving)	Dawn	Single vehicle crash	Wet	Not at junction	0	0	V1: Travelling straight ahead	V1:(Passenger car)	V1: W	Rain/ Cloudy	No hit and run	V1:(Collision with tree)	1	PRESIDENTIAL WAY

TRIP-GENERATION CALCULATIONS

TRIP GENERATION CALCULATIONS

	Weekday											Georgetown Hourly Distribution		Adjusted for Wilmington Operations
	Receipt of Materials											Driveway Volume	% of Daily Total	% of Daily Total
	Roll-Off Trucks		Small Commercial Vehicles		Recyling Roll-Offs		Employees		TOTAL					
TIME	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	TOTAL			
6:00 AM	6	6	4	4	0	0	6	3	16	13	29	15	2%	**7%**
7:00 AM	6	6	3	3	1	0	--	--	10	9	19	57	8%	**7%**
8:00 AM	9	9	5	5	1	1	--	--	**15**	**15**	**30**	85	12%	**10%**
9:00 AM	10	10	6	6	0	1	--	--	16	17	33	96	14%	**11%**
10:00 AM	12	12	6	6	0	0	--	--	18	18	36	109	16%	**13%**
11:00 AM	10	10	5	5	0	0	--	--	15	15	30	94	14%	**11%**
12:00 PM	11	11	6	6	1	0	--	--	18	17	35	104	15%	**12%**
1:00 PM	6	6	3	3	0	1	--	--	9	10	19	56	8%	**7%**
2:00 PM	8	8	5	5	0	0	6	6	19	19	38	77	11%	**9%**
3:00 PM	7	7	4	4	1	1	--	--	**12**	**12**	**24**	--	--	**7%**
4:00 PM	5	5	3	3	1	1	--	--	9	9	18	--	--	**6%**
5:00 PM	--	--	--	--	--	--	--	--	0	0	0	--	--	**--**
TOTAL	**90**	**90**	**50**	**50**	**5**	**5**	**12**	**9**	**157**	**154**	**311**	693	100%	**100%**

	Saturday													
	Receipt of Materials													
	Roll-Off Trucks		Small Commercial Vehicles		Recyling Roll-Offs		Employees		TOTAL					
TIME	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	TOTAL			
6:00 AM	--	--	--	--	--	--	6	--	6	0	6			
7:00 AM	11	11	6	6	1	1	--	--	18	18	36	95	12%	**12%**
8:00 AM	17	17	9	9	1	1	--	--	27	27	54	147	19%	**19%**
9:00 AM	22	22	12	12	1	1	--	--	**35**	**35**	**70**	190	24%	**24%**
10:00 AM	21	21	12	12	1	1	--	--	34	34	68	184	23%	**23%**
11:00 AM	20	20	11	11	1	1	--	--	32	32	64	172	22%	**22%**
12:00 PM	--	--	--	--	--	--	--	--	0	0	0			
1:00 PM	--	--	--	--	--	--	--	--	0	0	0			
2:00 PM	--	--	--	--	--	--	6	6	6	6	12			
3:00 PM	--	--	--	--	--	--	--	--	0	0	0			
4:00 PM	--	--	--	--	--	--	--	--	0	0	0			
5:00 PM	--	--	--	--	--	--	--	--	0	0	0			
TOTAL	**91**	**91**	**50**	**50**	**5**	**5**	**12**	**6**	**158**	**152**	**310**			

TRIP DISTRIBUTION CALCULATIONS

Gravity Model of 10 Mile Radius from Station (Census 2010)

					Entering / Exiting			Entering / Exiting		
					To/From East/North	To/From South	To/From West/South	To/From East/North	To/From South	To/From West/South
Municipality	**Population**	**Distance Factor**	**Adjusted Population**		I-93 via Presidential Way	I-93 via Presidential Way	I-95 via Commerce Way	I-93 via Presidential Way	I-93 via Presidential Way	I-95 via Commerce Way
Boston	617,594	0.25	154,399	24.47%		100%		0.0	154398.5	0.0
Lowell	106,519	0.25	26,630	4.22%	70%		30%	18640.8	0.0	7988.9
Cambridge	105,162	0.25	26,291	4.17%		100%		0.0	26290.5	0.0
Lynn	90,329	0.25	22,582	3.58%		100%		0.0	22582.3	0.0
Somerville	75,754	0.25	18,939	3.00%		100%		0.0	18938.5	0.0
Waltham	60,632	0.25	15,158	2.40%		30%	70%	0.0	4547.4	10610.6
Malden	59,450	0.25	14,863	2.36%		100%		0.0	14862.5	0.0
Medford	56,173	0.25	14,043	2.23%		100%		0.0	14043.3	0.0
Revere	51,755	0.25	12,939	2.05%		100%		0.0	12938.8	0.0
Arlington	42,844	0.50	21,422	3.39%		60%	40%	0.0	12853.2	8568.8
Everett	41,667	0.25	10,417	1.65%		100%		0.0	10416.8	0.0
Billerica	40,243	0.50	20,122	3.19%			100%	0.0	0.0	20121.5
Woburn	38,120	1.00	38,120	6.04%		30%	70%	0.0	11436.0	26684.0
Chelsea	35,177	0.25	8,794	1.39%		100%		0.0	8794.3	0.0
Andover	33,201	0.25	8,300	1.32%	100%			8300.3	0.0	0.0
Watertown	31,915	0.25	7,979	1.26%		50%	50%	0.0	3989.4	3989.4
Lexington	31,394	0.50	15,697	2.49%		30%	70%	0.0	4709.1	10987.9
Tewksbury	28,961	0.50	14,481	2.29%	100%			14480.5	0.0	0.0
North Andover	28,352	0.25	7,088	1.12%	100%			7088.0	0.0	0.0
Melrose	26,983	0.50	13,492	2.14%		100%		0.0	13491.5	0.0
Saugus	26,628	0.25	6,657	1.05%		100%		0.0	6657.0	0.0
Wakefield	24,932	0.75	18,699	2.96%		100%		0.0	18699.0	0.0
Reading	24,747	1.00	24,747	3.92%		100%		0.0	24747.0	0.0
Belmont	24,729	0.25	6,182	0.98%		40%	60%	0.0	2472.9	3709.4
Burlington	24,498	1.00	24,498	3.88%			100%	0.0	0.0	24498.0
Wilmington	22,325	1.00	22,325	3.54%	100%			22325.0	0.0	0.0
Stoneham	21,437	0.75	16,078	2.55%		100%		0.0	16077.8	0.0
Winchester	21,374	0.50	10,687	1.69%		50%	50%	0.0	5343.5	5343.5
Concord	17,668	0.25	4,417	0.70%		30%	70%	0.0	1325.1	3091.9
North Reading	14,892	0.50	7,446	1.18%	100%			7446.0	0.0	0.0
Bedford	13,320	0.50	6,660	1.06%			100%	0.0	0.0	6660.0
Lynnfield	11,596	0.50	5,798	0.92%		100%		0.0	5798.0	0.0
Middleton	8,987	0.25	2,247	0.36%	40%	60%		898.7	1348.1	0.0
Lincoln	6,400	0.25	1,600	0.25%			100%	0.0	0.0	1600.0
Carlisle	4,852	0.25	1,213	0.19%			100%	0.0	0.0	1213.0
	1,870,610		631,006	100.00%				79179.3	416760.1	135066.9
								12.5%	66.0%	21.4%
							SAY:	**15%**	**65%**	**20%**

Distance Factor (1.00 = Within 2.5 miles, 0.75 = Between 2.5 - 5 Miles, 0.50 = Between 5 - 7.5 Miles, 0.25 = Between 7.5 - 10 Miles)

CAPACITY ANALYSIS METHODOLOGY

CAPACITY ANALYSIS METHODOLOGY

A primary result of capacity analysis is the assignment of levels of service to traffic facilities under various traffic flow conditions. The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual* (HCM).[5,6] The concept of level of service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year. A description of the operating condition under each level of service is provided below:

- *LOS A* describes conditions with little to no delay to motorists.
- *LOS B* represents a desirable level with relatively low delay to motorists.
- *LOS C* describes conditions with average delays to motorists.
- *LOS D* describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.
- *LOS E* represents operating conditions with high delay values. This level is considered by many agencies to be the limit of acceptable delay.
- *LOS F* is considered to be unacceptable to most drivers with high delay values that often occur, when arrival flow rates exceed the capacity of the intersection.

Signalized Intersections

Levels of service for signalized intersections are also calculated using the operational analysis methodology of the HCM. The methodology for signalized intersections assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on average *control* delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Table A-1 summarizes the relationship between level of service and average control delay.

[5] *Highway Capacity Manual 2000*, Transportation Research Board; Washington, D.C.; 2000.

[6] *Highway Capacity Manual 6th Edition*, Transportation Research Board; Washington, D.C.; 2016.

TABLE A-1
Level-of-Service Criteria for Signalized Intersections

Level of Service	Signalized Intersection Criteria Average Control Delay (Seconds per Vehicle)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Source: *Highway Capacity Manual 2000*, Transportation Research Board; Washington, D.C.; 2000. Pages 10-16 and 17-2.

For signalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to the entire intersection.

Unsignalized Intersections

Levels of service for unsignalized intersections are calculated using the operational analysis methodology of the HCM. The procedure accounts for lane configuration on both the minor and major street approaches, conflicting traffic stream volumes, and the type of intersection control (STOP, YIELD, or all-way STOP control). The definition of level of service for unsignalized intersections is a function of average *control* delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The level-of-service criteria for unsignalized intersections are shown in Table A-2.

TABLE A-2
Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Unsignalized Intersection Criteria Average Control Delay (Seconds per Vehicle)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50 or v/c >1.0

Source: Highway Capacity Manual 6th Edition, Transportation Research Board; Washington, D.C.; 2016. Pages 19-16, 20-6, and 21-9.

For unsignalized intersections, this delay criterion may be applied in assigning level-of-service designations to individual lane groups or to individual intersection approaches.

CAPACITY AND QUEUE ANALYSIS WORKSHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	4	0	91	5	362	0	23	45	315	59	5
Future Volume (vph)	0	4	0	91	5	362	0	23	45	315	59	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.893			0.911			0.998	
Flt Protected					0.990						0.960	
Satd. Flow (prot)	0	1267	0	0	1507	0	0	1514	0	0	1605	0
Flt Permitted					0.990						0.960	
Satd. Flow (perm)	0	1267	0	0	1507	0	0	1514	0	0	1605	0
Link Speed (mph)		20			25			30			30	
Link Distance (ft)		500			500			500			500	
Travel Time (s)		17.0			13.6			11.4			11.4	
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 (%)	0%	50%	0%	14%	0%	11%	0%	17%	13%	14%	9%	33%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	21.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	4	0	91	5	362	0	23	45	315	59	5
Future Vol, veh/h	0	4	0	91	5	362	0	23	45	315	59	5
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	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	50	0	14	0	11	0	17	13	14	9	33
Mvmt Flow	0	4	0	99	5	393	0	25	49	342	64	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1000	825	67	803	803	50	69	0	0	74	0	0
Stage 1	751	751	-	50	50	-	-	-	-	-	-	-
Stage 2	249	74	-	753	753	-	-	-	-	-	-	-
Critical Hdwy	7.1	7	6.2	7.24	6.5	6.31	4.1	-	-	4.24	-	-
Critical Hdwy Stg 1	6.1	6	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	6	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.45	3.3	3.626	4	3.399	2.2	-	-	2.326	-	-
Pot Cap-1 Maneuver	224	259	1002	288	319	993	1545	-	-	1453	-	-
Stage 1	406	355	-	934	857	-	-	-	-	-	-	-
Stage 2	759	748	-	384	420	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	108	196	1002	230	241	993	1545	-	-	1453	-	-
Mov Cap-2 Maneuver	108	196	-	230	241	-	-	-	-	-	-	-
Stage 1	406	268	-	934	857	-	-	-	-	-	-	-
Stage 2	455	748	-	285	317	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.8	36.4	0	6.8
HCM LOS	C	E		

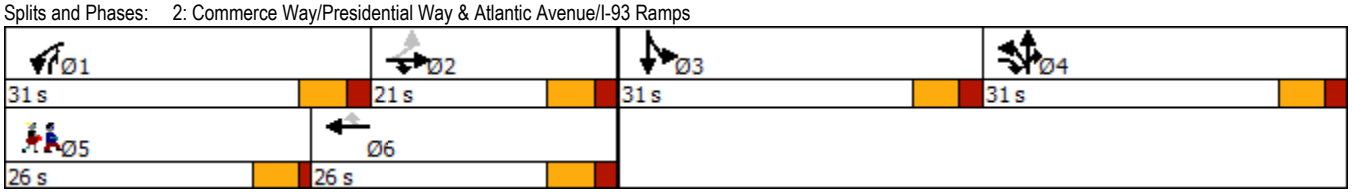
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1545	-	-	196	586	1453	-	-
HCM Lane V/C Ratio	-	-	-	0.022	0.85	0.236	-	-
HCM Control Delay (s)	0	-	-	23.8	36.4	8.2	0	-
HCM Lane LOS	A	-	-	C	E	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	9.2	0.9	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	46	30	1161	69	814	34	187	443	178	180	13
Future Volume (vph)	5	46	30	1161	69	814	34	187	443	178	180	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	13	13	12	12	12	11	12
Storage Length (ft)	0		175	0		350	250		0	275		0
Storage Lanes	0		1	2		1	1		2	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Ped Bike Factor							1.00				1.00	
Frt			0.850			0.850			0.850		0.990	
Flt Protected		0.995		0.950			0.950			0.950		
Satd. Flow (prot)	0	1660	1620	3303	1638	1605	1680	1863	2472	3019	1660	0
Flt Permitted		0.958		0.950			0.950			0.950		
Satd. Flow (perm)	0	1598	1620	3303	1638	1605	1675	1863	2472	3019	1660	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			77			822					3	
Link Speed (mph)		30			30			40			30	
Link Distance (ft)		700			700			800			350	
Travel Time (s)		15.9			15.9			13.6			8.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	33%	12%	13%	6%	16%	4%	11%	2%	15%	16%	9%	14%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Detector Phase	2	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		6.0	6.0	6.0	8.0	8.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		12.0	12.0	12.0	14.0	14.0		12.0	12.0	
Total Split (s)	21.0	21.0		31.0	26.0	26.0	31.0	31.0		31.0	31.0	
Total Split (%)	18.4%	18.4%		27.2%	22.8%	22.8%	27.2%	27.2%		27.2%	27.2%	
Maximum Green (s)	15.0	15.0		25.0	20.0	20.0	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	
All-Red Time (s)	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	
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	Min	Min		None	Min	Min	None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

Intersection Summary

Area Type: Other
Cycle Length: 114
Actuated Cycle Length: 90.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Commerce Way/Presidential Way & Atlantic Avenue/I-93 Ramps



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	23%
Maximum Green (s)	21.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	0

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	55	33	1262	75	885	37	203	482	193	210
v/c Ratio	0.41	0.07	1.35	0.11	0.76	0.12	0.58	0.36	0.37	0.72
Control Delay	52.1	0.3	195.6	18.9	7.8	33.1	41.6	14.0	35.7	50.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	0.3	195.6	18.9	7.8	33.1	41.6	14.0	35.7	50.3
Queue Length 50th (ft)	30	0	~490	25	21	17	105	82	50	112
Queue Length 95th (ft)	79	0	#812	66	183	50	200	158	91	210
Internal Link Dist (ft)	620			620			720			270
Turn Bay Length (ft)		175			350	250			275	
Base Capacity (vph)	270	629	932	710	1161	474	526	1322	852	470
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.05	1.35	0.11	0.76	0.08	0.39	0.36	0.23	0.45

Intersection Summary

~ 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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	46	30	1161	69	814	34	187	443	178	180	13
Future Volume (vph)	5	46	30	1161	69	814	34	187	443	178	180	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	13	13	12	12	12	11	12
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1660	1620	3303	1638	1605	1680	1863	2472	3019	1660	
Flt Permitted		0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1598	1620	3303	1638	1605	1680	1863	2472	3019	1660	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	50	33	1262	75	885	37	203	482	193	196	14
RTOR Reduction (vph)	0	0	24	0	0	464	0	0	0	0	2	0
Lane Group Flow (vph)	0	55	9	1262	75	421	37	203	482	193	208	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	33%	12%	13%	6%	16%	4%	11%	2%	15%	16%	9%	14%
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Actuated Green, G (s)		7.7	24.7	25.5	39.2	39.2	17.0	17.0	48.5	15.8	15.8	
Effective Green, g (s)		7.7	24.7	25.5	39.2	39.2	17.0	17.0	48.5	15.8	15.8	
Actuated g/C Ratio		0.09	0.27	0.28	0.44	0.44	0.19	0.19	0.54	0.18	0.18	
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)		136	444	935	713	699	317	351	1332	530	291	
v/s Ratio Prot			0.01	c0.38	0.05		0.02	c0.11	0.20	0.06	c0.12	
v/s Ratio Perm		0.03				c0.26						
v/c Ratio		0.40	0.02	1.35	0.11	0.60	0.12	0.58	0.36	0.36	0.71	
Uniform Delay, d1		39.0	23.8	32.2	15.0	19.4	30.3	33.2	11.9	32.7	35.0	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.7	0.0	164.5	0.0	1.0	0.2	2.3	0.2	0.2	6.7	
Delay (s)		39.7	23.8	196.7	15.0	20.4	30.4	35.5	12.1	32.8	41.7	
Level of Service		D	C	F	B	C	C	D	B	C	D	
Approach Delay (s)		33.7			120.4			19.6			37.4	
Approach LOS		C			F			B			D	

Intersection Summary			
HCM 2000 Control Delay	87.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:55	6:55	6:55	6:55	6:55	6:55
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4
Vehs Entered	3545	3716	3629	3623	3727	3647
Vehs Exited	3535	3685	3602	3624	3714	3632
Starting Vehs	68	67	69	89	76	74
Ending Vehs	78	98	96	88	89	89
Travel Distance (mi)	883	917	898	905	928	906
Travel Time (hr)	319.6	299.8	334.2	314.2	286.0	310.8
Total Delay (hr)	286.2	264.8	300.1	279.9	250.8	276.3
Total Stops	2669	2669	2692	2769	2788	2717
Fuel Used (gal)	99.6	95.8	103.1	99.1	93.3	98.2

Interval #0 Information Seeding

Start Time	6:55
End Time	7:00
Total Time (min)	5

Volumes adjusted by Growth Factors, Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	886	944	927	900	911	915
Vehs Exited	861	925	915	896	893	898
Starting Vehs	68	67	69	89	76	74
Ending Vehs	93	86	81	93	94	89
Travel Distance (mi)	219	231	228	224	225	225
Travel Time (hr)	25.5	34.5	24.7	29.2	32.3	29.2
Total Delay (hr)	17.3	25.6	16.0	20.6	23.7	20.7
Total Stops	694	680	630	673	712	677
Fuel Used (gal)	12.6	14.9	12.7	13.5	14.2	13.6

Interval #2 Information Recording

Start Time 7:15
End Time 7:30
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	944	976	879	916	953	933
Vehs Exited	927	965	878	906	958	927
Starting Vehs	93	86	81	93	94	89
Ending Vehs	110	97	82	103	89	95
Travel Distance (mi)	231	241	216	228	239	231
Travel Time (hr)	64.5	60.3	69.2	66.8	62.8	64.7
Total Delay (hr)	55.7	51.2	61.0	58.2	53.7	56.0
Total Stops	720	727	645	691	688	693
Fuel Used (gal)	21.7	21.1	22.1	22.3	21.8	21.8

Interval #3 Information Recording

Start Time 7:30
End Time 7:45
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	848	930	873	902	891	890
Vehs Exited	874	945	857	899	885	892
Starting Vehs	110	97	82	103	89	95
Ending Vehs	84	82	98	106	95	92
Travel Distance (mi)	216	231	219	224	220	222
Travel Time (hr)	103.7	88.5	110.4	98.8	87.9	97.9
Total Delay (hr)	95.5	79.7	102.1	90.3	79.5	89.4
Total Stops	679	643	684	739	674	683
Fuel Used (gal)	30.0	27.0	31.6	29.4	26.5	28.9

Interval #4 Information Recording

Start Time 7:45
End Time 8:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	867	866	950	905	972	913
Vehs Exited	873	850	952	923	978	915
Starting Vehs	84	82	98	106	95	92
Ending Vehs	78	98	96	88	89	89
Travel Distance (mi)	217	213	235	229	244	228
Travel Time (hr)	126.0	116.4	129.8	119.5	103.1	119.0
Total Delay (hr)	117.8	108.3	120.9	110.8	93.8	110.3
Total Stops	576	619	733	666	714	660
Fuel Used (gal)	35.2	32.9	36.6	33.9	30.7	33.9

1: New Boston Street/Woburn Street & Driveway/Presidenital Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.5	0.1	0.4	0.4
Total Del/Veh (s)	8.7	13.3	0.5	3.1	8.1

Intersection: 1: New Boston Street/Woburn Street & Driveway/Presidenital Way

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	318	4	114
Average Queue (ft)	6	134	0	31
95th Queue (ft)	34	265	3	81
Link Distance (ft)	472	472	472	472
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	8	0	33	5	300	1	38	59	217	21	1
Future Volume (vph)	7	8	0	33	5	300	1	38	59	217	21	1
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
Ped Bike Factor												
Frt					0.880			0.918			0.999	
Flt Protected		0.977			0.995						0.957	
Satd. Flow (prot)	0	1463	0	0	1446	0	0	1635	0	0	1654	0
Flt Permitted		0.977			0.995						0.957	
Satd. Flow (perm)	0	1463	0	0	1446	0	0	1635	0	0	1654	0
Link Speed (mph)		20			25			30			30	
Link Distance (ft)		500			500			500			500	
Travel Time (s)		17.0			13.6			11.4			11.4	
Confl. Peds. (#/hr)	1		1				1					1
Confl. Bikes (#/hr)						2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	20%	33%	0%	13%	100%	14%	100%	7%	5%	9%	19%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	9.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	8	0	33	5	300	1	38	59	217	21	1
Future Vol, veh/h	7	8	0	33	5	300	1	38	59	217	21	1
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	0	0	0	1
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	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	33	0	13	100	14	100	7	5	9	19	0
Mvmt Flow	8	9	0	36	5	326	1	41	64	236	23	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	739	604	26	576	572	74	25	0	0	105	0	0
Stage 1	497	497	-	75	75	-	-	-	-	-	-	-
Stage 2	242	107	-	501	497	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.83	6.2	7.23	7.5	6.34	5.1	-	-	4.19	-	-
Critical Hdwy Stg 1	6.3	5.83	-	6.23	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.3	5.83	-	6.23	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4.297	3.3	3.617	4.9	3.426	3.1	-	-	2.281	-	-
Pot Cap-1 Maneuver	311	374	1056	412	321	955	1133	-	-	1444	-	-
Stage 1	523	497	-	907	675	-	-	-	-	-	-	-
Stage 2	723	750	-	532	412	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	175	311	1054	351	267	954	1132	-	-	1444	-	-
Mov Cap-2 Maneuver	175	311	-	351	267	-	-	-	-	-	-	-
Stage 1	522	414	-	906	674	-	-	-	-	-	-	-
Stage 2	471	749	-	434	343	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22	13.4	0.1	7.2
HCM LOS	C	B		

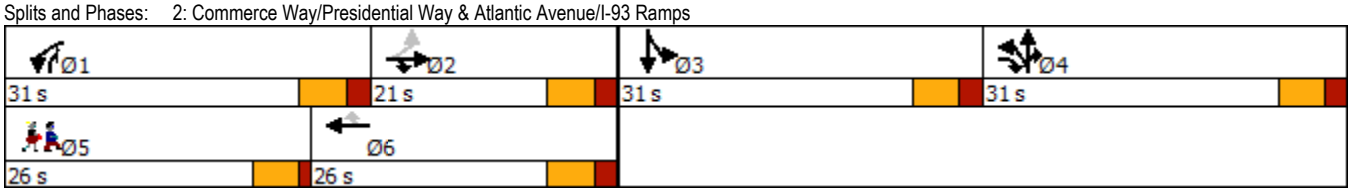
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1132	-	-	228	791	1444	-	-
HCM Lane V/C Ratio	0.001	-	-	0.072	0.464	0.163	-	-
HCM Control Delay (s)	8.2	0	-	22	13.4	8	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	2.5	0.6	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	37	21	416	16	158	30	146	1031	566	213	9
Future Volume (vph)	5	37	21	416	16	158	30	146	1031	566	213	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	13	13	12	12	12	11	12
Storage Length (ft)	0		175	0		350	250		0	275		0
Storage Lanes	0		1	2		1	1		2	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Frt			0.850			0.850			0.850		0.994	
Flt Protected		0.994		0.950			0.950			0.950		
Satd. Flow (prot)	0	1824	1830	3367	1759	1517	1760	1845	2787	3467	1726	0
Flt Permitted		0.957		0.950			0.950			0.950		
Satd. Flow (perm)	0	1756	1830	3367	1759	1517	1760	1845	2787	3467	1726	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			77			172					2	
Link Speed (mph)		30			30			40			30	
Link Distance (ft)		700			700			800			350	
Travel Time (s)		15.9			15.9			13.6			8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	0%	4%	8%	10%	6%	3%	2%	1%	6%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Detector Phase	2	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		6.0	6.0	6.0	8.0	8.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		12.0	12.0	12.0	14.0	14.0		12.0	12.0	
Total Split (s)	21.0	21.0		31.0	26.0	26.0	31.0	31.0		31.0	31.0	
Total Split (%)	18.4%	18.4%		27.2%	22.8%	22.8%	27.2%	27.2%		27.2%	27.2%	
Maximum Green (s)	15.0	15.0		25.0	20.0	20.0	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	
All-Red Time (s)	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	
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	Min	Min		None	Min	Min	None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

Intersection Summary

Area Type: Other
Cycle Length: 114
Actuated Cycle Length: 94.8
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Commerce Way/Presidential Way & Atlantic Avenue/I-93 Ramps



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	23%
Maximum Green (s)	21.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	0

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	45	23	452	17	172	33	159	1121	615	242
v/c Ratio	0.35	0.03	0.74	0.03	0.29	0.07	0.32	0.79	0.79	0.62
Control Delay	52.1	0.1	45.5	22.7	5.0	30.5	32.8	24.7	43.6	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	0.1	45.5	22.7	5.0	30.5	32.8	24.7	43.6	41.6
Queue Length 50th (ft)	27	0	137	7	0	15	79	313	180	130
Queue Length 95th (ft)	66	0	199	22	44	44	154	449	269	233
Internal Link Dist (ft)	620			620			720			270
Turn Bay Length (ft)		175			350	250			275	
Base Capacity (vph)	280	824	897	558	598	469	491	1424	924	461
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.03	0.50	0.03	0.29	0.07	0.32	0.79	0.67	0.52

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	37	21	416	16	158	30	146	1031	566	213	9
Future Volume (vph)	5	37	21	416	16	158	30	146	1031	566	213	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	13	13	12	12	12	11	12
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1825	1830	3367	1759	1517	1760	1845	2787	3467	1726	
Flt Permitted		0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1757	1830	3367	1759	1517	1760	1845	2787	3467	1726	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	40	23	452	17	172	33	159	1121	615	232	10
RTOR Reduction (vph)	0	0	15	0	0	117	0	0	0	0	2	0
Lane Group Flow (vph)	0	45	8	452	17	55	33	159	1121	615	240	0
Heavy Vehicles (%)	0%	4%	0%	4%	8%	10%	6%	3%	2%	1%	6%	0%
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Actuated Green, G (s)		7.0	32.3	17.1	30.1	30.1	25.3	25.3	48.4	21.2	21.2	
Effective Green, g (s)		7.0	32.3	17.1	30.1	30.1	25.3	25.3	48.4	21.2	21.2	
Actuated g/C Ratio		0.07	0.34	0.18	0.32	0.32	0.27	0.27	0.51	0.22	0.22	
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)		130	624	608	559	482	470	493	1425	776	386	
v/s Ratio Prot			0.00	0.13	0.01		0.02	0.09	c0.40	c0.18	0.14	
v/s Ratio Perm		c0.03				0.04						
v/c Ratio		0.35	0.01	0.74	0.03	0.11	0.07	0.32	0.79	0.79	0.62	
Uniform Delay, d1		41.6	20.6	36.7	22.2	22.8	25.9	27.8	18.9	34.6	33.1	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.6	0.0	4.3	0.0	0.0	0.1	0.4	2.9	5.2	2.3	
Delay (s)		42.2	20.6	41.0	22.2	22.9	25.9	28.2	21.8	39.8	35.3	
Level of Service		D	C	D	C	C	C	C	C	D	D	
Approach Delay (s)		34.9			35.6			22.7			38.6	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	24.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:25	4:25	4:25	4:25	4:25	4:25
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4
Vehs Entered	3301	3313	3239	3485	3378	3344
Vehs Exited	3306	3317	3250	3470	3377	3344
Starting Vehs	59	53	61	37	56	52
Ending Vehs	54	49	50	52	57	52
Travel Distance (mi)	846	844	828	890	857	853
Travel Time (hr)	54.4	53.5	53.2	57.9	55.3	54.9
Total Delay (hr)	22.6	21.7	21.9	24.5	23.0	22.7
Total Stops	2205	2215	2183	2337	2272	2244
Fuel Used (gal)	37.1	36.8	36.0	39.2	38.0	37.5

Interval #0 Information Seeding

Start Time	4:25
End Time	4:30
Total Time (min)	5

Volumes adjusted by Growth Factors, Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	769	778	765	872	775	792
Vehs Exited	780	795	778	858	765	795
Starting Vehs	59	53	61	37	56	52
Ending Vehs	48	36	48	51	66	51
Travel Distance (mi)	200	199	197	222	196	203
Travel Time (hr)	13.1	12.6	12.8	14.2	12.7	13.1
Total Delay (hr)	5.6	5.1	5.3	5.8	5.3	5.4
Total Stops	544	527	536	564	534	539
Fuel Used (gal)	8.9	8.8	8.5	9.6	8.8	8.9

Interval #2 Information Recording

Start Time 4:45
End Time 5:00
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	926	919	878	917	945	917
Vehs Exited	887	890	871	891	963	901
Starting Vehs	48	36	48	51	66	51
Ending Vehs	87	65	55	77	48	68
Travel Distance (mi)	233	230	221	230	243	231
Travel Time (hr)	15.1	14.7	14.2	15.4	16.2	15.1
Total Delay (hr)	6.3	6.0	5.8	6.8	7.0	6.4
Total Stops	610	605	594	637	659	622
Fuel Used (gal)	10.1	9.9	9.6	10.3	10.8	10.1

Interval #3 Information Recording

Start Time 5:00
End Time 5:15
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	762	806	772	806	815	791
Vehs Exited	817	806	772	820	823	807
Starting Vehs	87	65	55	77	48	68
Ending Vehs	32	65	55	63	40	51
Travel Distance (mi)	200	208	197	210	208	204
Travel Time (hr)	12.5	13.3	12.4	13.3	12.9	12.9
Total Delay (hr)	5.0	5.4	5.0	5.4	5.1	5.2
Total Stops	496	522	498	542	523	516
Fuel Used (gal)	8.8	9.1	8.6	9.2	9.1	9.0

Interval #4 Information Recording

Start Time 5:15
End Time 5:30
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	844	810	824	890	843	843
Vehs Exited	822	826	829	901	826	841
Starting Vehs	32	65	55	63	40	51
Ending Vehs	54	49	50	52	57	52
Travel Distance (mi)	213	207	212	228	211	214
Travel Time (hr)	13.8	12.9	13.8	15.0	13.6	13.8
Total Delay (hr)	5.8	5.1	5.7	6.5	5.6	5.7
Total Stops	555	561	555	594	556	564
Fuel Used (gal)	9.3	9.1	9.2	10.2	9.3	9.4

1: New Boston Street/Woburn Street & Driveway/Presidenital Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.3	0.2	0.2	0.3
Total Del/Veh (s)	7.2	6.3	0.6	3.1	4.4

Intersection: 1: New Boston Street/Woburn Street & Driveway/Presidenital Way

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	62	166	14	86
Average Queue (ft)	12	79	1	29
95th Queue (ft)	43	134	8	72
Link Distance (ft)	472	472	472	472
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	3	0	14	1	177	0	13	10	123	13	6
Future Volume (vph)	1	3	0	14	1	177	0	13	10	123	13	6
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
Ped Bike Factor												
Frt					0.875			0.941			0.994	
Flt Protected		0.988			0.996						0.959	
Satd. Flow (prot)	0	1877	0	0	1586	0	0	1788	0	0	1780	0
Flt Permitted		0.988			0.996						0.959	
Satd. Flow (perm)	0	1877	0	0	1586	0	0	1788	0	0	1780	0
Link Speed (mph)		20			25			30			30	
Link Distance (ft)		500			500			500			500	
Travel Time (s)		17.0			13.6			11.4			11.4	
Confl. Peds. (#/hr)	2		2				2					2
Confl. Bikes (#/hr)			1						1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	10%	0%	4%	0%	0%	0%	2%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	7.8											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	0	14	1	177	0	13	10	123	13	6
Future Vol, veh/h	1	3	0	14	1	177	0	13	10	123	13	6
Conflicting Peds, #/hr	2	0	2	0	0	0	2	0	0	0	0	2
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	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	10	0	4	0	0	0	2	0	0
Mvmt Flow	1	3	0	15	1	192	0	14	11	134	14	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	406	313	22	309	311	22	23	0	0	25	0	0
Stage 1	288	288	-	20	20	-	-	-	-	-	-	-
Stage 2	118	25	-	289	291	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.2	6.5	6.24	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.59	4	3.336	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	559	606	1061	628	607	1049	1605	-	-	1589	-	-
Stage 1	724	677	-	979	883	-	-	-	-	-	-	-
Stage 2	891	878	-	702	675	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	424	553	1057	583	554	1047	1602	-	-	1589	-	-
Mov Cap-2 Maneuver	424	553	-	583	554	-	-	-	-	-	-	-
Stage 1	723	618	-	979	883	-	-	-	-	-	-	-
Stage 2	725	878	-	638	616	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.1	9.6	0	6.5
HCM LOS	B	A		

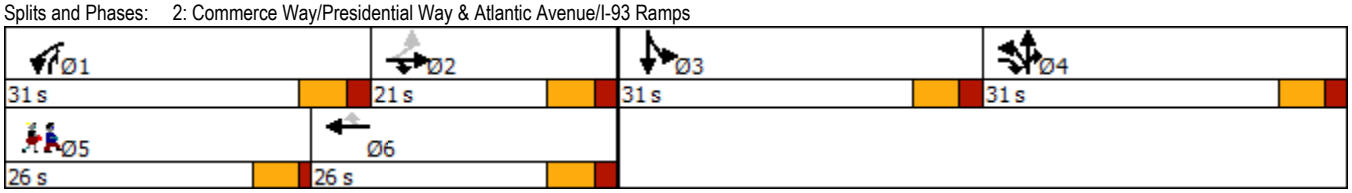
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1602	-	-	514	985	1589	-	-
HCM Lane V/C Ratio	-	-	-	0.008	0.212	0.084	-	-
HCM Control Delay (s)	0	-	-	12.1	9.6	7.5	0	-
HCM Lane LOS	A	-	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.8	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	13	1	513	21	87	11	152	670	98	133	3
Future Volume (vph)	3	13	1	513	21	87	11	152	670	98	133	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	13	13	12	12	12	11	12
Storage Length (ft)	0		175	0		350	250		0	275		0
Storage Lanes	0		1	2		1	1		2	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Ped Bike Factor							0.99				1.00	
Frt			0.850			0.850			0.850		0.997	
Flt Protected		0.991		0.950			0.950			0.950		
Satd. Flow (prot)	0	1289	915	3467	1776	1545	1711	1881	2814	3273	1830	0
Flt Permitted		0.933		0.950			0.950			0.950		
Satd. Flow (perm)	0	1213	915	3467	1776	1545	1698	1881	2814	3273	1830	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			77			134					1	
Link Speed (mph)		30			30			40			30	
Link Distance (ft)		700			700			800			350	
Travel Time (s)		15.9			15.9			13.6			8.0	
Confl. Peds. (#/hr)							4					4
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 (%)	0%	56%	100%	1%	7%	8%	9%	1%	1%	7%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Detector Phase	2	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		6.0	6.0	6.0	8.0	8.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		12.0	12.0	12.0	14.0	14.0		12.0	12.0	
Total Split (s)	21.0	21.0		31.0	26.0	26.0	31.0	31.0		31.0	31.0	
Total Split (%)	18.4%	18.4%		27.2%	22.8%	22.8%	27.2%	27.2%		27.2%	27.2%	
Maximum Green (s)	15.0	15.0		25.0	20.0	20.0	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	
All-Red Time (s)	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	
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	Min	Min		None	Min	Min	None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

Intersection Summary

Area Type: Other
Cycle Length: 114
Actuated Cycle Length: 78.7
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Commerce Way/Presidential Way & Atlantic Avenue/I-93 Ramps



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	23%
Maximum Green (s)	21.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	0

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	17	1	558	23	95	12	165	728	107	148
v/c Ratio	0.19	0.00	0.74	0.04	0.14	0.03	0.35	0.47	0.23	0.58
Control Delay	45.1	0.0	36.4	18.0	2.0	25.9	28.4	12.2	33.9	43.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	0.0	36.4	18.0	2.0	25.9	28.4	12.2	33.9	43.2
Queue Length 50th (ft)	8	0	130	7	0	4	65	110	24	68
Queue Length 95th (ft)	32	0	219	25	15	20	145	192	54	147
Internal Link Dist (ft)	620			620			720			270
Turn Bay Length (ft)		175			350	250			275	
Base Capacity (vph)	239	454	1139	657	656	562	618	1495	1076	602
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.00	0.49	0.04	0.14	0.02	0.27	0.49	0.10	0.25

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	13	1	513	21	87	11	152	670	98	133	3
Future Volume (vph)	3	13	1	513	21	87	11	152	670	98	133	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	13	13	12	12	12	11	12
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1289	915	3467	1776	1545	1711	1881	2814	3273	1830	
Flt Permitted		0.93	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1213	915	3467	1776	1545	1711	1881	2814	3273	1830	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	14	1	558	23	95	12	165	728	107	145	3
RTOR Reduction (vph)	0	0	1	0	0	59	0	0	0	0	1	0
Lane Group Flow (vph)	0	17	0	558	23	36	12	165	728	107	147	0
Confl. Peds. (#/hr)							4					4
Heavy Vehicles (%)	0%	56%	100%	1%	7%	8%	9%	1%	1%	7%	0%	0%
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Actuated Green, G (s)		6.1	26.0	17.1	29.2	29.2	19.9	19.9	43.0	11.0	11.0	
Effective Green, g (s)		6.1	26.0	17.1	29.2	29.2	19.9	19.9	43.0	11.0	11.0	
Actuated g/C Ratio		0.08	0.33	0.22	0.37	0.37	0.25	0.25	0.55	0.14	0.14	
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)		94	304	759	664	577	435	479	1549	460	257	
v/s Ratio Prot			0.00	c0.16	0.01		0.01	0.09	c0.26	0.03	c0.08	
v/s Ratio Perm		c0.01				0.02						
v/c Ratio		0.18	0.00	0.74	0.03	0.06	0.03	0.34	0.47	0.23	0.57	
Uniform Delay, d1		33.7	17.4	28.4	15.5	15.7	21.8	23.8	10.6	29.8	31.4	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3	0.0	3.2	0.0	0.0	0.0	0.4	0.2	0.1	1.9	
Delay (s)		34.0	17.4	31.6	15.5	15.7	21.9	24.2	10.9	29.9	33.3	
Level of Service		C	B	C	B	B	C	C	B	C	C	
Approach Delay (s)		33.1			28.8			13.4			31.9	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	78.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	11:55	11:55	11:55	11:55	11:55	11:55
End Time	1:00	1:00	1:00	1:00	1:00	1:00
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4
Vehs Entered	2075	2046	2023	2029	2078	2051
Vehs Exited	2076	2041	2024	2028	2070	2047
Starting Vehs	29	22	36	23	16	25
Ending Vehs	28	27	35	24	24	29
Travel Distance (mi)	541	531	526	526	539	532
Travel Time (hr)	30.9	29.7	29.3	29.7	30.5	30.0
Total Delay (hr)	10.7	9.8	9.6	10.0	10.3	10.1
Total Stops	1194	1176	1186	1188	1219	1193
Fuel Used (gal)	23.0	22.3	21.9	22.0	22.8	22.4

Interval #0 Information Seeding

Start Time	11:55
End Time	12:00
Total Time (min)	5

Volumes adjusted by Growth Factors, Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	12:00
End Time	12:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	502	532	485	469	515	500
Vehs Exited	508	534	497	461	496	499
Starting Vehs	29	22	36	23	16	25
Ending Vehs	23	20	24	31	35	25
Travel Distance (mi)	133	140	126	120	133	130
Travel Time (hr)	7.5	8.0	7.1	6.7	7.6	7.4
Total Delay (hr)	2.6	2.7	2.4	2.2	2.6	2.5
Total Stops	286	309	289	275	303	291
Fuel Used (gal)	5.7	6.0	5.2	5.0	5.7	5.5

Interval #2 Information Recording

Start Time 12:15
End Time 12:30
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	599	539	533	551	558	555
Vehs Exited	582	537	529	547	553	548
Starting Vehs	23	20	24	31	35	25
Ending Vehs	40	22	28	35	40	31
Travel Distance (mi)	153	138	139	142	142	143
Travel Time (hr)	8.7	7.8	7.8	8.2	8.2	8.1
Total Delay (hr)	3.0	2.6	2.7	2.8	2.8	2.8
Total Stops	351	312	318	321	341	328
Fuel Used (gal)	6.4	5.8	5.8	6.0	6.0	6.0

Interval #3 Information Recording

Start Time 12:30
End Time 12:45
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	472	508	503	517	506	500
Vehs Exited	482	502	498	516	522	502
Starting Vehs	40	22	28	35	40	31
Ending Vehs	30	28	33	36	24	28
Travel Distance (mi)	124	130	130	134	134	130
Travel Time (hr)	7.1	7.3	7.0	7.6	7.4	7.3
Total Delay (hr)	2.5	2.4	2.2	2.6	2.4	2.4
Total Stops	278	287	272	311	287	288
Fuel Used (gal)	5.3	5.5	5.3	5.5	5.6	5.4

Interval #4 Information Recording

Start Time 12:45
End Time 1:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	502	467	502	492	499	491
Vehs Exited	504	468	500	504	499	494
Starting Vehs	30	28	33	36	24	28
Ending Vehs	28	27	35	24	24	29
Travel Distance (mi)	131	121	131	130	130	129
Travel Time (hr)	7.5	6.6	7.3	7.2	7.3	7.2
Total Delay (hr)	2.6	2.1	2.4	2.3	2.4	2.4
Total Stops	279	268	307	281	288	285
Fuel Used (gal)	5.6	5.1	5.6	5.4	5.6	5.4

1: New Boston Street/Woburn Street & Driveway/Presidenital Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.2	0.1	0.2	0.2
Total Del/Veh (s)	3.7	3.9	0.1	2.1	2.9

Intersection: 1: New Boston Street/Woburn Street & Driveway/Presidenital Way

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	31	86	40
Average Queue (ft)	3	48	4
95th Queue (ft)	18	74	23
Link Distance (ft)	472	472	472
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	4	0	98	5	388	0	25	48	338	63	5
Future Volume (vph)	0	4	0	98	5	388	0	25	48	338	63	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.893			0.911			0.998	
Flt Protected					0.990						0.960	
Satd. Flow (prot)	0	1267	0	0	1507	0	0	1513	0	0	1605	0
Flt Permitted					0.990						0.960	
Satd. Flow (perm)	0	1267	0	0	1507	0	0	1513	0	0	1605	0
Link Speed (mph)		20			25			30			30	
Link Distance (ft)		500			500			500			500	
Travel Time (s)		17.0			13.6			11.4			11.4	
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 (%)	0%	50%	0%	14%	0%	11%	0%	17%	13%	14%	9%	33%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	32.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	4	0	98	5	388	0	25	48	338	63	5
Future Vol, veh/h	0	4	0	98	5	388	0	25	48	338	63	5
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	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	50	0	14	0	11	0	17	13	14	9	33
Mvmt Flow	0	4	0	107	5	422	0	27	52	367	68	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1072	884	71	860	860	53	73	0	0	79	0	0
Stage 1	805	805	-	53	53	-	-	-	-	-	-	-
Stage 2	267	79	-	807	807	-	-	-	-	-	-	-
Critical Hdwy	7.1	7	6.2	7.24	6.5	6.31	4.1	-	-	4.24	-	-
Critical Hdwy Stg 1	6.1	6	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	6	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.45	3.3	3.626	4	3.399	2.2	-	-	2.326	-	-
Pot Cap-1 Maneuver	200	238	997	263	296	990	1540	-	-	1447	-	-
Stage 1	379	334	-	930	855	-	-	-	-	-	-	-
Stage 2	743	744	-	358	397	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	90	175	997	205	218	990	1540	-	-	1447	-	-
Mov Cap-2 Maneuver	90	175	-	205	218	-	-	-	-	-	-	-
Stage 1	379	245	-	930	855	-	-	-	-	-	-	-
Stage 2	424	744	-	258	292	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.1	58.8	0	6.9
HCM LOS	D	F		

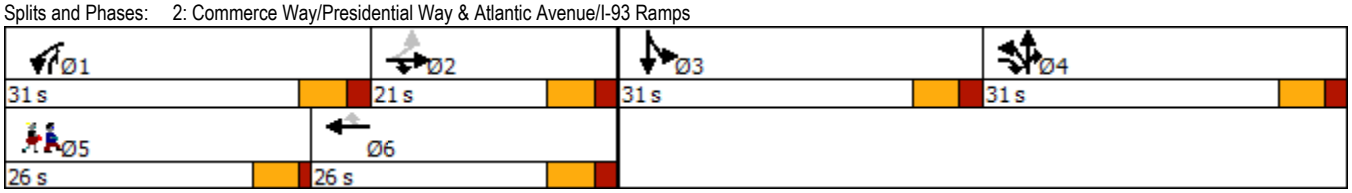
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1540	-	-	175	550	1447	-	-
HCM Lane V/C Ratio	-	-	-	0.025	0.97	0.254	-	-
HCM Control Delay (s)	0	-	-	26.1	58.8	8.3	0	-
HCM Lane LOS	A	-	-	D	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	13.2	1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	49	32	1244	74	873	36	200	475	191	193	14
Future Volume (vph)	5	49	32	1244	74	873	36	200	475	191	193	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	13	13	12	12	12	11	12
Storage Length (ft)	0		175	0		350	250		0	275		0
Storage Lanes	0		1	2		1	1		2	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Ped Bike Factor							1.00				1.00	
Frt			0.850			0.850			0.850		0.990	
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	1663	1620	3303	1638	1605	1680	1863	2472	3019	1660	0
Flt Permitted		0.960		0.950			0.950			0.950		
Satd. Flow (perm)	0	1603	1620	3303	1638	1605	1675	1863	2472	3019	1660	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			77			813					3	
Link Speed (mph)		30			30			40			30	
Link Distance (ft)		700			700			800			350	
Travel Time (s)		15.9			15.9			13.6			8.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	33%	12%	13%	6%	16%	4%	11%	2%	15%	16%	9%	14%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Detector Phase	2	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		6.0	6.0	6.0	8.0	8.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		12.0	12.0	12.0	14.0	14.0		12.0	12.0	
Total Split (s)	21.0	21.0		31.0	26.0	26.0	31.0	31.0		31.0	31.0	
Total Split (%)	18.4%	18.4%		27.2%	22.8%	22.8%	27.2%	27.2%		27.2%	27.2%	
Maximum Green (s)	15.0	15.0		25.0	20.0	20.0	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	
All-Red Time (s)	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	
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	Min	Min		None	Min	Min	None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

Intersection Summary

Area Type: Other
Cycle Length: 114
Actuated Cycle Length: 92.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Commerce Way/Presidential Way & Atlantic Avenue/I-93 Ramps



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	23%
Maximum Green (s)	21.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	0

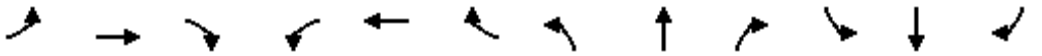
Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	58	35	1352	80	949	39	217	516	208	225
v/c Ratio	0.43	0.07	1.49	0.11	0.83	0.12	0.60	0.39	0.39	0.75
Control Delay	53.5	0.3	252.8	19.8	11.7	33.2	42.2	14.6	36.4	52.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	0.3	252.8	19.8	11.7	33.2	42.2	14.6	36.4	52.7
Queue Length 50th (ft)	33	0	~571	28	49	19	115	93	55	124
Queue Length 95th (ft)	81	1	#884	70	314	52	215	172	98	226
Internal Link Dist (ft)	620			620			720			270
Turn Bay Length (ft)		175			350	250			275	
Base Capacity (vph)	264	634	910	698	1150	463	513	1308	832	460
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.06	1.49	0.11	0.83	0.08	0.42	0.39	0.25	0.49

Intersection Summary

~ 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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	49	32	1244	74	873	36	200	475	191	193	14
Future Volume (vph)	5	49	32	1244	74	873	36	200	475	191	193	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	13	13	12	12	12	11	12
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1662	1620	3303	1638	1605	1680	1863	2472	3019	1660	
Flt Permitted		0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1603	1620	3303	1638	1605	1680	1863	2472	3019	1660	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	53	35	1352	80	949	39	217	516	208	210	15
RTOR Reduction (vph)	0	0	25	0	0	465	0	0	0	0	2	0
Lane Group Flow (vph)	0	58	10	1352	80	484	39	217	516	208	223	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	33%	12%	13%	6%	16%	4%	11%	2%	15%	16%	9%	14%
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Actuated Green, G (s)		8.0	26.1	25.5	39.5	39.5	18.1	18.1	49.6	16.6	16.6	
Effective Green, g (s)		8.0	26.1	25.5	39.5	39.5	18.1	18.1	49.6	16.6	16.6	
Actuated g/C Ratio		0.09	0.28	0.28	0.43	0.43	0.20	0.20	0.54	0.18	0.18	
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)		139	458	913	701	687	329	365	1329	543	298	
v/s Ratio Prot			0.01	c0.41	0.05		0.02	c0.12	0.21	0.07	c0.13	
v/s Ratio Perm		0.04				c0.30						
v/c Ratio		0.42	0.02	1.48	0.11	0.70	0.12	0.59	0.39	0.38	0.75	
Uniform Delay, d1		39.9	23.8	33.4	15.8	21.6	30.5	33.7	12.4	33.3	35.8	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.7	0.0	222.3	0.0	2.7	0.2	2.6	0.2	0.2	8.6	
Delay (s)		40.6	23.8	255.6	15.9	24.3	30.6	36.3	12.6	33.5	44.4	
Level of Service		D	C	F	B	C	C	D	B	C	D	
Approach Delay (s)		34.3			155.4			20.2			39.2	
Approach LOS		C			F			C			D	

Intersection Summary			
HCM 2000 Control Delay	110.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	92.2	Sum of lost time (s)	24.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:55	6:55	6:55	6:55	6:55	6:55
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4
Vehs Entered	3723	3712	3757	3768	3792	3750
Vehs Exited	3728	3684	3745	3744	3768	3732
Starting Vehs	95	85	77	77	67	76
Ending Vehs	90	113	89	101	91	95
Travel Distance (mi)	930	917	930	936	937	930
Travel Time (hr)	458.4	401.6	381.2	327.2	366.1	386.9
Total Delay (hr)	423.2	366.6	345.9	291.7	330.5	351.6
Total Stops	2720	2768	2743	2796	2808	2766
Fuel Used (gal)	132.2	119.1	114.6	102.9	111.5	116.1

Interval #0 Information Seeding

Start Time 6:55
End Time 7:00
Total Time (min) 5
Volumes adjusted by Growth Factors, Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time 7:00
End Time 7:15
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	918	957	968	948	960	951
Vehs Exited	918	938	966	933	937	939
Starting Vehs	95	85	77	77	67	76
Ending Vehs	95	104	79	92	90	90
Travel Distance (mi)	231	233	239	236	234	234
Travel Time (hr)	42.1	34.7	29.6	33.4	28.8	33.7
Total Delay (hr)	33.4	25.8	20.5	24.4	19.9	24.8
Total Stops	672	706	695	726	720	705
Fuel Used (gal)	16.8	15.1	13.9	14.8	13.8	14.9

Interval #2 Information Recording

Start Time 7:15
End Time 7:30
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	968	943	930	970	964	956
Vehs Exited	942	946	918	962	957	946
Starting Vehs	95	104	79	92	90	90
Ending Vehs	121	101	91	100	97	101
Travel Distance (mi)	238	234	229	238	236	235
Travel Time (hr)	90.8	78.0	76.0	65.0	76.2	77.2
Total Delay (hr)	81.8	69.1	67.3	56.0	67.2	68.3
Total Stops	679	739	673	690	693	694
Fuel Used (gal)	27.8	24.8	24.2	22.1	24.5	24.7

Interval #3 Information Recording

Start Time 7:30
End Time 7:45
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	882	889	946	905	918	905
Vehs Exited	921	887	925	910	911	910
Starting Vehs	121	101	91	100	97	101
Ending Vehs	82	103	112	95	104	98
Travel Distance (mi)	226	221	233	229	228	227
Travel Time (hr)	148.7	126.1	125.4	98.6	118.0	123.4
Total Delay (hr)	140.1	117.7	116.6	90.0	109.4	114.7
Total Stops	733	637	676	670	713	686
Fuel Used (gal)	40.6	35.3	35.5	29.5	33.6	34.9

Interval #4 Information Recording

Start Time 7:45
End Time 8:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	955	923	913	945	950	937
Vehs Exited	947	913	936	939	963	940
Starting Vehs	82	103	112	95	104	98
Ending Vehs	90	113	89	101	91	95
Travel Distance (mi)	235	229	230	233	239	233
Travel Time (hr)	176.8	162.7	150.2	130.1	143.1	152.6
Total Delay (hr)	167.9	154.0	141.5	121.3	134.0	143.7
Total Stops	636	686	699	710	682	681
Fuel Used (gal)	47.0	44.0	41.0	36.5	39.6	41.6

1: New Boston Street/Woburn Street & Driveway/Presidenital Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.6	0.1	0.4	0.5
Total Del/Veh (s)	6.3	15.7	0.5	3.4	9.5

Intersection: 1: New Boston Street/Woburn Street & Driveway/Presidenital Way

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	56	383	12	149
Average Queue (ft)	5	164	0	38
95th Queue (ft)	30	312	9	104
Link Distance (ft)	472	472	472	472
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	8	0	35	5	322	1	41	63	233	23	1
Future Volume (vph)	7	8	0	35	5	322	1	41	63	233	23	1
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
Ped Bike Factor												
Frt					0.880			0.919				
Flt Protected		0.977			0.995						0.957	
Satd. Flow (prot)	0	1463	0	0	1447	0	0	1638	0	0	1655	0
Flt Permitted		0.977			0.995						0.957	
Satd. Flow (perm)	0	1463	0	0	1447	0	0	1638	0	0	1655	0
Link Speed (mph)		20			25			30			30	
Link Distance (ft)		500			500			500			500	
Travel Time (s)		17.0			13.6			11.4			11.4	
Confl. Peds. (#/hr)	1		1				1					1
Confl. Bikes (#/hr)						2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	20%	33%	0%	13%	100%	14%	100%	7%	5%	9%	19%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	10.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	8	0	35	5	322	1	41	63	233	23	1
Future Vol, veh/h	7	8	0	35	5	322	1	41	63	233	23	1
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	0	0	0	1
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	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	33	0	13	100	14	100	7	5	9	19	0
Mvmt Flow	8	9	0	38	5	350	1	45	68	253	25	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	793	648	28	618	614	80	27	0	0	113	0	0
Stage 1	533	533	-	81	81	-	-	-	-	-	-	-
Stage 2	260	115	-	537	533	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.83	6.2	7.23	7.5	6.34	5.1	-	-	4.19	-	-
Critical Hdwy Stg 1	6.3	5.83	-	6.23	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.3	5.83	-	6.23	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4.297	3.3	3.617	4.9	3.426	3.1	-	-	2.281	-	-
Pot Cap-1 Maneuver	286	352	1053	386	302	948	1131	-	-	1434	-	-
Stage 1	499	478	-	901	670	-	-	-	-	-	-	-
Stage 2	707	744	-	508	395	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	152	288	1051	325	247	947	1130	-	-	1434	-	-
Mov Cap-2 Maneuver	152	288	-	325	247	-	-	-	-	-	-	-
Stage 1	498	392	-	900	669	-	-	-	-	-	-	-
Stage 2	441	743	-	407	324	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.3	14.4	0.1	7.3
HCM LOS	C	B		

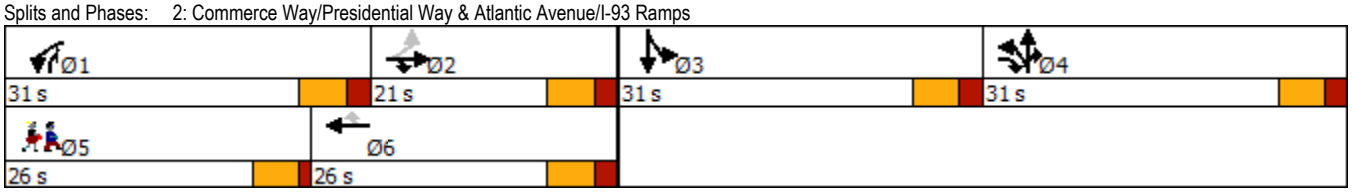
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1130	-	-	203	774	1434	-	-
HCM Lane V/C Ratio	0.001	-	-	0.08	0.508	0.177	-	-
HCM Control Delay (s)	8.2	0	-	24.3	14.4	8	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	2.9	0.6	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	40	23	446	17	169	32	157	1105	607	228	10
Future Volume (vph)	5	40	23	446	17	169	32	157	1105	607	228	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	13	13	12	12	12	11	12
Storage Length (ft)	0		175	0		350	250		0	275		0
Storage Lanes	0		1	2		1	1		2	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Frt			0.850			0.850			0.850		0.994	
Flt Protected		0.995		0.950			0.950			0.950		
Satd. Flow (prot)	0	1825	1830	3367	1759	1517	1760	1845	2787	3467	1726	0
Flt Permitted		0.960		0.950			0.950			0.950		
Satd. Flow (perm)	0	1761	1830	3367	1759	1517	1760	1845	2787	3467	1726	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			77			184					2	
Link Speed (mph)		30			30			40			30	
Link Distance (ft)		700			700			800			350	
Travel Time (s)		15.9			15.9			13.6			8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	0%	4%	8%	10%	6%	3%	2%	1%	6%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Detector Phase	2	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		6.0	6.0	6.0	8.0	8.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		12.0	12.0	12.0	14.0	14.0		12.0	12.0	
Total Split (s)	21.0	21.0		31.0	26.0	26.0	31.0	31.0		31.0	31.0	
Total Split (%)	18.4%	18.4%		27.2%	22.8%	22.8%	27.2%	27.2%		27.2%	27.2%	
Maximum Green (s)	15.0	15.0		25.0	20.0	20.0	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	
All-Red Time (s)	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	
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	Min	Min		None	Min	Min	None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

Intersection Summary

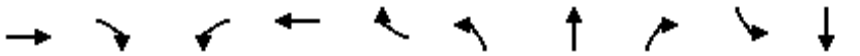
Area Type: Other
Cycle Length: 114
Actuated Cycle Length: 97.9
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Commerce Way/Presidential Way & Atlantic Avenue/I-93 Ramps



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	23%
Maximum Green (s)	21.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	0

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	25	485	18	184	35	171	1201	660	259
v/c Ratio	0.38	0.04	0.76	0.03	0.30	0.08	0.36	0.85	0.81	0.64
Control Delay	53.9	0.1	46.6	22.5	4.9	31.6	34.6	28.5	45.3	42.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	0.1	46.6	22.5	4.9	31.6	34.6	28.5	45.3	42.7
Queue Length 50th (ft)	30	0	152	8	0	17	90	367	200	144
Queue Length 95th (ft)	70	0	214	23	45	47	168	506	#313	255
Internal Link Dist (ft)	620			620			720			270
Turn Bay Length (ft)		175			350	250			275	
Base Capacity (vph)	271	799	867	568	614	453	475	1415	892	445
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.03	0.56	0.03	0.30	0.08	0.36	0.85	0.74	0.58

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	40	23	446	17	169	32	157	1105	607	228	10
Future Volume (vph)	5	40	23	446	17	169	32	157	1105	607	228	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	13	13	12	12	12	11	12
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1825	1830	3367	1759	1517	1760	1845	2787	3467	1726	
Flt Permitted		0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1761	1830	3367	1759	1517	1760	1845	2787	3467	1726	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	43	25	485	18	184	35	171	1201	660	248	11
RTOR Reduction (vph)	0	0	17	0	0	124	0	0	0	0	2	0
Lane Group Flow (vph)	0	48	8	485	18	60	35	171	1201	660	257	0
Heavy Vehicles (%)	0%	4%	0%	4%	8%	10%	6%	3%	2%	1%	6%	0%
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Actuated Green, G (s)		7.1	32.3	18.5	31.6	31.6	25.2	25.2	49.7	22.9	22.9	
Effective Green, g (s)		7.1	32.3	18.5	31.6	31.6	25.2	25.2	49.7	22.9	22.9	
Actuated g/C Ratio		0.07	0.33	0.19	0.32	0.32	0.26	0.26	0.51	0.23	0.23	
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)		127	605	637	568	490	453	475	1417	812	404	
v/s Ratio Prot			0.00	0.14	0.01		0.02	0.09	c0.43	c0.19	0.15	
v/s Ratio Perm		c0.03				0.04						
v/c Ratio		0.38	0.01	0.76	0.03	0.12	0.08	0.36	0.85	0.81	0.64	
Uniform Delay, d1		43.2	22.0	37.5	22.6	23.3	27.4	29.7	20.7	35.4	33.7	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.7	0.0	4.8	0.0	0.0	0.1	0.5	4.9	5.9	2.4	
Delay (s)		43.9	22.0	42.3	22.6	23.3	27.5	30.1	25.6	41.3	36.1	
Level of Service		D	C	D	C	C	C	C	C	D	D	
Approach Delay (s)		36.4			36.7			26.2			39.8	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	97.7	Sum of lost time (s)	24.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:25	4:25	4:25	4:25	4:25	4:25
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4
Vehs Entered	3504	3529	3539	3569	3644	3556
Vehs Exited	3533	3501	3547	3560	3645	3557
Starting Vehs	61	46	60	45	65	55
Ending Vehs	32	74	52	54	64	49
Travel Distance (mi)	899	897	906	907	930	908
Travel Time (hr)	58.6	60.3	59.2	60.5	61.3	60.0
Total Delay (hr)	24.7	26.5	24.9	26.3	26.2	25.7
Total Stops	2330	2495	2409	2464	2462	2429
Fuel Used (gal)	39.8	40.1	40.0	40.5	41.5	40.4

Interval #0 Information Seeding

Start Time 4:25
End Time 4:30
Total Time (min) 5
Volumes adjusted by Growth Factors, Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time 4:30
End Time 4:45
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	809	833	876	813	849	837
Vehs Exited	820	844	866	796	853	836
Starting Vehs	61	46	60	45	65	55
Ending Vehs	50	35	70	62	61	54
Travel Distance (mi)	209	213	222	204	218	213
Travel Time (hr)	13.6	13.7	14.3	13.1	14.2	13.8
Total Delay (hr)	5.7	5.6	6.0	5.4	6.0	5.7
Total Stops	553	568	579	526	554	557
Fuel Used (gal)	9.3	9.4	9.8	8.9	9.7	9.4

Interval #2 Information Recording

Start Time 4:45
End Time 5:00
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	995	967	962	1012	1016	991
Vehs Exited	976	926	960	990	1004	972
Starting Vehs	50	35	70	62	61	54
Ending Vehs	69	76	72	84	73	73
Travel Distance (mi)	251	238	246	255	257	249
Travel Time (hr)	16.6	16.2	16.7	18.0	17.4	17.0
Total Delay (hr)	7.2	7.1	7.5	8.5	7.6	7.6
Total Stops	671	683	687	732	695	696
Fuel Used (gal)	11.1	10.6	11.0	11.6	11.5	11.2

Interval #3 Information Recording

Start Time 5:00
End Time 5:15
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	863	855	859	826	853	851
Vehs Exited	879	864	864	846	868	864
Starting Vehs	69	76	72	84	73	73
Ending Vehs	53	67	67	64	58	62
Travel Distance (mi)	223	221	219	215	219	219
Travel Time (hr)	14.5	14.6	13.9	13.7	14.7	14.3
Total Delay (hr)	6.1	6.2	5.5	5.6	6.4	6.0
Total Stops	583	584	565	540	623	580
Fuel Used (gal)	9.9	9.9	9.6	9.5	9.8	9.7

Interval #4 Information Recording

Start Time 5:15
End Time 5:30
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	837	874	842	918	926	880
Vehs Exited	858	867	857	928	920	886
Starting Vehs	53	67	67	64	58	62
Ending Vehs	32	74	52	54	64	49
Travel Distance (mi)	217	224	220	234	236	226
Travel Time (hr)	13.9	15.9	14.2	15.7	15.0	14.9
Total Delay (hr)	5.7	7.5	5.9	6.8	6.1	6.4
Total Stops	523	660	578	666	590	604
Fuel Used (gal)	9.6	10.2	9.6	10.4	10.5	10.1

1: New Boston Street/Woburn Street & Driveway/Presidenital Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.4	0.2	0.2	0.3
Total Del/Veh (s)	7.1	7.2	0.6	3.1	4.8

Intersection: 1: New Boston Street/Woburn Street & Driveway/Presidenital Way

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	66	208	83
Average Queue (ft)	14	88	28
95th Queue (ft)	47	146	68
Link Distance (ft)	472	472	472
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	3	0	15	1	190	0	14	11	132	14	6
Future Volume (vph)	1	3	0	15	1	190	0	14	11	132	14	6
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
Ped Bike Factor												
Frt					0.875			0.940			0.994	
Flt Protected		0.988			0.996						0.958	
Satd. Flow (prot)	0	1877	0	0	1586	0	0	1786	0	0	1778	0
Flt Permitted		0.988			0.996						0.958	
Satd. Flow (perm)	0	1877	0	0	1586	0	0	1786	0	0	1778	0
Link Speed (mph)		20			25			30			30	
Link Distance (ft)		500			500			500			500	
Travel Time (s)		17.0			13.6			11.4			11.4	
Confl. Peds. (#/hr)	2		2				2					2
Confl. Bikes (#/hr)			1						1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	10%	0%	4%	0%	0%	0%	2%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	0	15	1	190	0	14	11	132	14	6
Future Vol, veh/h	1	3	0	15	1	190	0	14	11	132	14	6
Conflicting Peds, #/hr	2	0	2	0	0	0	2	0	0	0	0	2
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	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	10	0	4	0	0	0	2	0	0
Mvmt Flow	1	3	0	16	1	207	0	15	12	143	15	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	434	334	23	329	331	23	24	0	0	27	0	0
Stage 1	307	307	-	21	21	-	-	-	-	-	-	-
Stage 2	127	27	-	308	310	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.2	6.5	6.24	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.59	4	3.336	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	536	589	1060	609	592	1048	1604	-	-	1587	-	-
Stage 1	707	665	-	977	882	-	-	-	-	-	-	-
Stage 2	882	877	-	685	663	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	398	534	1056	563	537	1046	1601	-	-	1587	-	-
Mov Cap-2 Maneuver	398	534	-	563	537	-	-	-	-	-	-	-
Stage 1	706	603	-	977	882	-	-	-	-	-	-	-
Stage 2	706	877	-	618	601	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.4	9.8	0	6.5
HCM LOS	B	A		

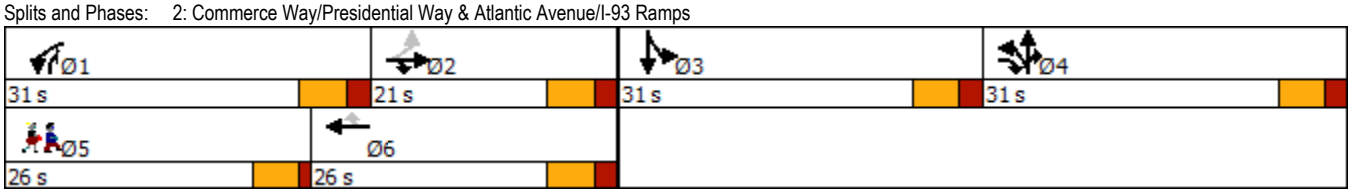
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1601	-	-	492	980	1587	-	-
HCM Lane V/C Ratio	-	-	-	0.009	0.228	0.09	-	-
HCM Control Delay (s)	0	-	-	12.4	9.8	7.5	0	-
HCM Lane LOS	A	-	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.9	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	14	1	549	23	93	12	163	718	105	143	3
Future Volume (vph)	3	14	1	549	23	93	12	163	718	105	143	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	13	13	12	12	12	11	12
Storage Length (ft)	0		175	0		350	250		0	275		0
Storage Lanes	0		1	2		1	1		2	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Ped Bike Factor							0.99				1.00	
Frt			0.850			0.850			0.850		0.997	
Flt Protected		0.992		0.950			0.950			0.950		
Satd. Flow (prot)	0	1285	915	3467	1776	1545	1711	1881	2814	3273	1830	0
Flt Permitted		0.936		0.950			0.950			0.950		
Satd. Flow (perm)	0	1213	915	3467	1776	1545	1699	1881	2814	3273	1830	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			77			134					1	
Link Speed (mph)		30			30			40			30	
Link Distance (ft)		700			700			800			350	
Travel Time (s)		15.9			15.9			13.6			8.0	
Confl. Peds. (#/hr)							4					4
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 (%)	0%	56%	100%	1%	7%	8%	9%	1%	1%	7%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Detector Phase	2	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		6.0	6.0	6.0	8.0	8.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		12.0	12.0	12.0	14.0	14.0		12.0	12.0	
Total Split (s)	21.0	21.0		31.0	26.0	26.0	31.0	31.0		31.0	31.0	
Total Split (%)	18.4%	18.4%		27.2%	22.8%	22.8%	27.2%	27.2%		27.2%	27.2%	
Maximum Green (s)	15.0	15.0		25.0	20.0	20.0	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	
All-Red Time (s)	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	
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	Min	Min		None	Min	Min	None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

Intersection Summary

Area Type: Other
Cycle Length: 114
Actuated Cycle Length: 81.4
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Commerce Way/Presidential Way & Atlantic Avenue/I-93 Ramps



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	23%
Maximum Green (s)	21.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	0

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	18	1	597	25	101	13	177	780	114	158
v/c Ratio	0.20	0.00	0.77	0.04	0.15	0.03	0.37	0.50	0.24	0.60
Control Delay	46.4	0.0	37.9	18.3	2.2	26.7	29.5	12.8	34.4	44.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	0.0	37.9	18.3	2.2	26.7	29.5	12.8	34.4	44.6
Queue Length 50th (ft)	9	0	148	8	0	5	74	125	27	77
Queue Length 95th (ft)	34	0	238	27	18	22	156	215	57	156
Internal Link Dist (ft)	620			620			720			270
Turn Bay Length (ft)		175			350	250			275	
Base Capacity (vph)	230	449	1099	663	661	542	596	1539	1038	581
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.00	0.54	0.04	0.15	0.02	0.30	0.51	0.11	0.27

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	14	1	549	23	93	12	163	718	105	143	3
Future Volume (vph)	3	14	1	549	23	93	12	163	718	105	143	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	13	13	12	12	12	11	12
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1285	915	3467	1776	1545	1711	1881	2814	3273	1830	
Flt Permitted		0.94	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1212	915	3467	1776	1545	1711	1881	2814	3273	1830	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	15	1	597	25	101	13	177	780	114	155	3
RTOR Reduction (vph)	0	0	1	0	0	63	0	0	0	0	1	0
Lane Group Flow (vph)	0	18	0	597	25	38	13	177	780	114	157	0
Confl. Peds. (#/hr)							4					4
Heavy Vehicles (%)	0%	56%	100%	1%	7%	8%	9%	1%	1%	7%	0%	0%
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Actuated Green, G (s)		6.2	26.9	18.2	30.4	30.4	20.7	20.7	44.9	11.7	11.7	
Effective Green, g (s)		6.2	26.9	18.2	30.4	30.4	20.7	20.7	44.9	11.7	11.7	
Actuated g/C Ratio		0.08	0.33	0.23	0.38	0.38	0.26	0.26	0.56	0.14	0.14	
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)		93	304	780	668	581	438	481	1563	473	264	
v/s Ratio Prot			0.00	c0.17	0.01		0.01	0.09	c0.28	0.03	c0.09	
v/s Ratio Perm		c0.01				0.02						
v/c Ratio		0.19	0.00	0.77	0.04	0.07	0.03	0.37	0.50	0.24	0.60	
Uniform Delay, d1		35.0	18.0	29.3	15.9	16.1	22.5	24.7	11.0	30.6	32.3	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.4	0.0	4.1	0.0	0.0	0.0	0.5	0.3	0.1	2.4	
Delay (s)		35.3	18.0	33.4	16.0	16.1	22.6	25.2	11.3	30.7	34.7	
Level of Service		D	B	C	B	B	C	C	B	C	C	
Approach Delay (s)		34.4			30.4			14.0			33.0	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	24.0
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	11:55	11:55	11:55	11:55	11:55	11:55
End Time	1:00	1:00	1:00	1:00	1:00	1:00
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4
Vehs Entered	2205	2190	2186	2140	2251	2195
Vehs Exited	2209	2180	2186	2145	2247	2193
Starting Vehs	26	28	29	38	29	29
Ending Vehs	22	38	29	33	33	30
Travel Distance (mi)	573	565	566	556	585	569
Travel Time (hr)	33.0	32.1	32.3	31.9	33.4	32.6
Total Delay (hr)	11.5	10.9	11.2	11.2	11.6	11.3
Total Stops	1297	1305	1310	1259	1314	1298
Fuel Used (gal)	24.5	23.8	24.0	23.7	24.6	24.1

Interval #0 Information Seeding

Start Time	11:55
End Time	12:00
Total Time (min)	5

Volumes adjusted by Growth Factors, Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	12:00
End Time	12:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	527	546	536	510	539	530
Vehs Exited	522	552	529	528	534	534
Starting Vehs	26	28	29	38	29	29
Ending Vehs	31	22	36	20	34	28
Travel Distance (mi)	137	143	137	135	140	138
Travel Time (hr)	7.8	8.2	7.6	7.8	7.8	7.8
Total Delay (hr)	2.6	2.8	2.5	2.8	2.6	2.7
Total Stops	293	318	324	302	302	307
Fuel Used (gal)	5.8	6.0	5.8	5.8	5.8	5.8

Interval #2 Information Recording

Start Time 12:15
End Time 12:30
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	621	580	630	582	645	611
Vehs Exited	611	577	630	567	642	605
Starting Vehs	31	22	36	20	34	28
Ending Vehs	41	25	36	35	37	35
Travel Distance (mi)	161	149	164	148	167	158
Travel Time (hr)	9.5	8.4	9.6	8.5	9.9	9.2
Total Delay (hr)	3.5	2.8	3.5	2.9	3.7	3.3
Total Stops	382	335	368	333	375	358
Fuel Used (gal)	7.0	6.1	6.9	6.3	7.0	6.7

Interval #3 Information Recording

Start Time 12:30
End Time 12:45
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	537	527	520	526	515	524
Vehs Exited	541	519	534	524	528	529
Starting Vehs	41	25	36	35	37	35
Ending Vehs	37	33	22	37	24	31
Travel Distance (mi)	139	135	139	137	135	137
Travel Time (hr)	8.2	7.6	7.9	7.8	7.6	7.8
Total Delay (hr)	3.0	2.5	2.7	2.7	2.6	2.7
Total Stops	328	311	305	311	307	313
Fuel Used (gal)	5.9	5.8	5.8	5.7	5.7	5.8

Interval #4 Information Recording

Start Time 12:45
End Time 1:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	520	537	500	522	552	526
Vehs Exited	535	532	493	526	543	527
Starting Vehs	37	33	22	37	24	31
Ending Vehs	22	38	29	33	33	30
Travel Distance (mi)	136	138	127	136	143	136
Travel Time (hr)	7.5	7.9	7.3	7.8	8.1	7.7
Total Delay (hr)	2.4	2.7	2.5	2.7	2.7	2.6
Total Stops	294	341	313	313	330	317
Fuel Used (gal)	5.8	5.9	5.4	5.8	6.0	5.8

1: New Boston Street/Woburn Street & Driveway/Presidenital Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.3	0.1	0.2	0.2
Total Del/Veh (s)	4.1	4.1	0.2	2.1	3.1

Intersection: 1: New Boston Street/Woburn Street & Driveway/Presidenital Way

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	32	93	53
Average Queue (ft)	3	51	6
95th Queue (ft)	18	78	30
Link Distance (ft)	472	472	472
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	4	0	98	5	403	0	25	48	353	63	5
Future Volume (vph)	0	4	0	98	5	403	0	25	48	353	63	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.892			0.911			0.999	
Flt Protected					0.990						0.960	
Satd. Flow (prot)	0	1267	0	0	1505	0	0	1513	0	0	1606	0
Flt Permitted					0.990						0.960	
Satd. Flow (perm)	0	1267	0	0	1505	0	0	1513	0	0	1606	0
Link Speed (mph)		20			25			30			30	
Link Distance (ft)		500			500			500			180	
Travel Time (s)		17.0			13.6			11.4			4.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	50%	0%	14%	0%	11%	0%	17%	13%	14%	9%	33%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	39.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	4	0	98	5	403	0	25	48	353	63	5
Future Vol, veh/h	0	4	0	98	5	403	0	25	48	353	63	5
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	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	50	0	14	0	11	0	17	13	14	9	33
Mvmt Flow	0	4	0	107	5	438	0	27	52	384	68	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1114	918	71	894	894	53	73	0	0	79	0	0
Stage 1	839	839	-	53	53	-	-	-	-	-	-	-
Stage 2	275	79	-	841	841	-	-	-	-	-	-	-
Critical Hdwy	7.1	7	6.2	7.24	6.5	6.31	4.1	-	-	4.24	-	-
Critical Hdwy Stg 1	6.1	6	-	6.24	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	6	-	6.24	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.45	3.3	3.626	4	3.399	2.2	-	-	2.326	-	-
Pot Cap-1 Maneuver	187	227	997	249	283	990	1540	-	-	1447	-	-
Stage 1	363	321	-	930	855	-	-	-	-	-	-	-
Stage 2	736	744	-	343	383	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	80	164	997	192	205	990	1540	-	-	1447	-	-
Mov Cap-2 Maneuver	80	164	-	192	205	-	-	-	-	-	-	-
Stage 1	363	232	-	930	855	-	-	-	-	-	-	-
Stage 2	408	744	-	243	277	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.5	73	0	7
HCM LOS	D	F		

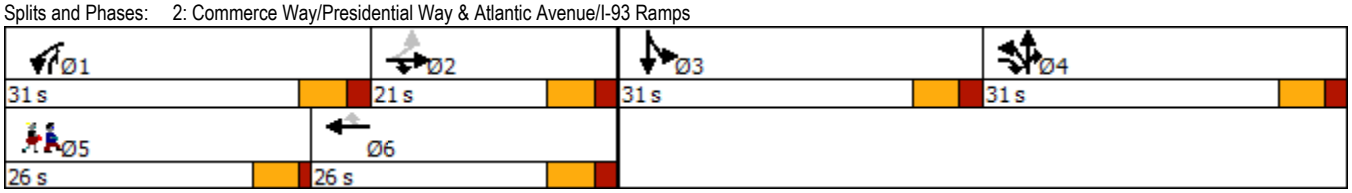
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1540	-	-	164	537	1447	-	-
HCM Lane V/C Ratio	-	-	-	0.027	1.024	0.265	-	-
HCM Control Delay (s)	0	-	-	27.5	73	8.4	0	-
HCM Lane LOS	A	-	-	D	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	15.2	1.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	49	32	1244	74	885	36	203	475	203	196	14
Future Volume (vph)	5	49	32	1244	74	885	36	203	475	203	196	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	13	13	12	12	12	11	12
Storage Length (ft)	0		175	0		350	250		0	275		0
Storage Lanes	0		1	2		1	1		2	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Ped Bike Factor							1.00				1.00	
Frt			0.850			0.850			0.850		0.990	
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	1663	1620	3303	1638	1605	1680	1863	2472	3019	1660	0
Flt Permitted		0.960		0.950			0.950			0.950		
Satd. Flow (perm)	0	1603	1620	3303	1638	1605	1675	1863	2472	3019	1660	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			77			810					3	
Link Speed (mph)		30			30			40			30	
Link Distance (ft)		700			700			800			350	
Travel Time (s)		15.9			15.9			13.6			8.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	33%	12%	13%	6%	16%	4%	11%	2%	15%	16%	9%	14%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Detector Phase	2	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		6.0	6.0	6.0	8.0	8.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		12.0	12.0	12.0	14.0	14.0		12.0	12.0	
Total Split (s)	21.0	21.0		31.0	26.0	26.0	31.0	31.0		31.0	31.0	
Total Split (%)	18.4%	18.4%		27.2%	22.8%	22.8%	27.2%	27.2%		27.2%	27.2%	
Maximum Green (s)	15.0	15.0		25.0	20.0	20.0	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	
All-Red Time (s)	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	
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	Min	Min		None	Min	Min	None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

Intersection Summary

Area Type: Other
Cycle Length: 114
Actuated Cycle Length: 92.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Commerce Way/Presidential Way & Atlantic Avenue/I-93 Ramps



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	23%
Maximum Green (s)	21.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	0

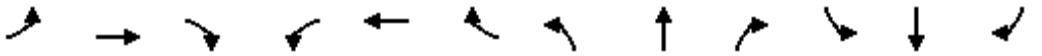
Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	58	35	1352	80	962	39	221	516	221	228
v/c Ratio	0.43	0.07	1.49	0.11	0.84	0.12	0.61	0.39	0.41	0.75
Control Delay	53.7	0.3	253.8	19.9	12.7	33.3	42.7	14.7	36.7	53.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	0.3	253.8	19.9	12.7	33.3	42.7	14.7	36.7	53.0
Queue Length 50th (ft)	33	0	~573	28	56	19	118	94	59	126
Queue Length 95th (ft)	81	1	#884	70	#374	52	218	172	104	228
Internal Link Dist (ft)	620			620			720			270
Turn Bay Length (ft)		175			350	250			275	
Base Capacity (vph)	264	633	908	697	1148	462	512	1306	830	459
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.06	1.49	0.11	0.84	0.08	0.43	0.40	0.27	0.50

Intersection Summary

~ 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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	49	32	1244	74	885	36	203	475	203	196	14
Future Volume (vph)	5	49	32	1244	74	885	36	203	475	203	196	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	13	13	12	12	12	11	12
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1662	1620	3303	1638	1605	1680	1863	2472	3019	1661	
Flt Permitted		0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1603	1620	3303	1638	1605	1680	1863	2472	3019	1661	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	53	35	1352	80	962	39	221	516	221	213	15
RTOR Reduction (vph)	0	0	25	0	0	463	0	0	0	0	2	0
Lane Group Flow (vph)	0	58	10	1352	80	499	39	221	516	221	226	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	33%	12%	13%	6%	16%	4%	11%	2%	15%	16%	9%	14%
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Actuated Green, G (s)		8.0	26.1	25.5	39.5	39.5	18.1	18.1	49.6	16.7	16.7	
Effective Green, g (s)		8.0	26.1	25.5	39.5	39.5	18.1	18.1	49.6	16.7	16.7	
Actuated g/C Ratio		0.09	0.28	0.28	0.43	0.43	0.20	0.20	0.54	0.18	0.18	
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)		138	458	912	700	686	329	365	1328	546	300	
v/s Ratio Prot			0.01	c0.41	0.05		0.02	c0.12	0.21	0.07	c0.14	
v/s Ratio Perm		0.04				c0.31						
v/c Ratio		0.42	0.02	1.48	0.11	0.73	0.12	0.61	0.39	0.40	0.75	
Uniform Delay, d1		40.0	23.9	33.4	15.9	21.9	30.5	33.8	12.5	33.4	35.8	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.8	0.0	223.0	0.0	3.3	0.2	2.8	0.2	0.2	9.1	
Delay (s)		40.7	23.9	256.4	15.9	25.2	30.7	36.7	12.7	33.6	44.9	
Level of Service		D	C	F	B	C	C	D	B	C	D	
Approach Delay (s)		34.4			155.5			20.4			39.3	
Approach LOS		C			F			C			D	

Intersection Summary			
HCM 2000 Control Delay	110.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	92.3	Sum of lost time (s)	24.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	15	15	413	406	0
Future Volume (vph)	0	15	15	413	406	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865				
Flt Protected				0.998		
Satd. Flow (prot)	0	1611	0	1713	1667	0
Flt Permitted				0.998		
Satd. Flow (perm)	0	1611	0	1713	1667	0
Link Speed (mph)	20			30	30	
Link Distance (ft)	500			180	520	
Travel Time (s)	17.0			4.1	11.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	11%	14%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	15	15	413	406	0
Future Vol, veh/h	0	15	15	413	406	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	2	2	11	14	0
Mvmt Flow	0	16	16	449	441	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	441	441	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	616	1119	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	616	1119	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1119	-	616	-	-
HCM Lane V/C Ratio	0.015	-	0.026	-	-
HCM Control Delay (s)	8.3	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:55	6:55	6:55	6:55	6:55	6:55
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4
Vehs Entered	3774	3815	3800	3766	3895	3810
Vehs Exited	3752	3795	3794	3756	3869	3792
Starting Vehs	75	93	84	79	78	80
Ending Vehs	97	113	90	89	104	99
Travel Distance (mi)	965	975	975	966	994	975
Travel Time (hr)	383.4	413.1	408.0	449.7	391.6	409.2
Total Delay (hr)	346.9	376.2	371.1	413.2	354.0	372.3
Total Stops	2807	2905	2820	2742	2923	2840
Fuel Used (gal)	115.8	123.1	121.8	131.0	118.8	122.1

Interval #0 Information Seeding

Start Time	6:55
End Time	7:00
Total Time (min)	5

Volumes adjusted by Growth Factors, Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	955	970	902	911	957	941
Vehs Exited	929	963	890	898	944	925
Starting Vehs	75	93	84	79	78	80
Ending Vehs	101	100	96	92	91	94
Travel Distance (mi)	239	247	230	233	242	238
Travel Time (hr)	36.0	32.2	38.8	41.5	32.9	36.3
Total Delay (hr)	26.9	22.8	30.1	32.7	23.8	27.3
Total Stops	685	712	671	667	734	695
Fuel Used (gal)	15.5	14.9	15.8	16.5	14.8	15.5

Interval #2 Information Recording

Start Time 7:15
End Time 7:30
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	983	992	1036	1031	1009	1011
Vehs Exited	974	982	1019	1006	990	994
Starting Vehs	101	100	96	92	91	94
Ending Vehs	110	110	113	117	110	112
Travel Distance (mi)	250	253	264	259	253	256
Travel Time (hr)	68.2	77.5	92.2	87.3	77.7	80.6
Total Delay (hr)	58.8	68.0	82.3	77.5	68.1	70.9
Total Stops	747	698	774	753	769	746
Fuel Used (gal)	22.9	25.2	28.9	27.7	25.3	26.0

Interval #3 Information Recording

Start Time 7:30
End Time 7:45
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	918	922	952	876	949	923
Vehs Exited	940	930	958	878	957	933
Starting Vehs	110	110	113	117	110	112
Ending Vehs	88	102	107	115	102	101
Travel Distance (mi)	239	239	247	228	247	240
Travel Time (hr)	117.2	125.9	123.5	139.6	124.8	126.2
Total Delay (hr)	108.1	116.9	114.1	131.0	115.4	117.1
Total Stops	673	740	691	643	716	694
Fuel Used (gal)	33.6	35.8	35.4	38.5	35.7	35.8

Interval #4 Information Recording

Start Time 7:45
End Time 8:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	918	931	910	948	980	937
Vehs Exited	909	920	927	974	978	942
Starting Vehs	88	102	107	115	102	101
Ending Vehs	97	113	90	89	104	99
Travel Distance (mi)	237	237	234	246	252	241
Travel Time (hr)	162.0	177.5	153.5	181.4	156.2	166.1
Total Delay (hr)	153.1	168.5	144.6	172.0	146.7	157.0
Total Stops	702	755	684	679	704	705
Fuel Used (gal)	43.9	47.3	41.7	48.3	43.0	44.8

1: New Boston Street/Woburn Street & Driveway/Presidenital Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.4	0.1	0.0	0.7
Total Del/Veh (s)	7.7	17.3	0.6	2.4	9.8

3: Woburn Street & Site Driveway Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.4	0.2
Total Del/Veh (s)	5.4	0.7	0.9	0.9

Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	1185.4

Intersection: 1: New Boston Street/Woburn Street & Driveway/Presidenital Way

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	58	353	18	109
Average Queue (ft)	6	155	1	36
95th Queue (ft)	33	321	9	84
Link Distance (ft)	472	472	472	124
Upstream Blk Time (%)		2		0
Queuing Penalty (veh)		0		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Woburn Street & Site Driveway

Movement	EB	NB	SB
Directions Served	R	LT	TR
Maximum Queue (ft)	40	84	35
Average Queue (ft)	15	10	1
95th Queue (ft)	41	46	16
Link Distance (ft)	472	124	492
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	8	0	35	5	334	1	41	63	245	23	1
Future Volume (vph)	7	8	0	35	5	334	1	41	63	245	23	1
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
Ped Bike Factor												
Frt					0.879			0.919				
Flt Protected		0.977			0.995						0.956	
Satd. Flow (prot)	0	1463	0	0	1445	0	0	1638	0	0	1654	0
Flt Permitted		0.977			0.995						0.956	
Satd. Flow (perm)	0	1463	0	0	1445	0	0	1638	0	0	1654	0
Link Speed (mph)		20			25			30			30	
Link Distance (ft)		500			500			500			180	
Travel Time (s)		17.0			13.6			11.4			4.1	
Confl. Peds. (#/hr)	1		1				1					1
Confl. Bikes (#/hr)						2						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	20%	33%	0%	13%	100%	14%	100%	7%	5%	9%	19%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	10.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	8	0	35	5	334	1	41	63	245	23	1
Future Vol, veh/h	7	8	0	35	5	334	1	41	63	245	23	1
Conflicting Peds, #/hr	1	0	1	0	0	0	1	0	0	0	0	1
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	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	33	0	13	100	14	100	7	5	9	19	0
Mvmt Flow	8	9	0	38	5	363	1	45	68	266	25	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	825	674	28	644	640	80	27	0	0	113	0	0
Stage 1	559	559	-	81	81	-	-	-	-	-	-	-
Stage 2	266	115	-	563	559	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.83	6.2	7.23	7.5	6.34	5.1	-	-	4.19	-	-
Critical Hdwy Stg 1	6.3	5.83	-	6.23	6.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.3	5.83	-	6.23	6.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4.297	3.3	3.617	4.9	3.426	3.1	-	-	2.281	-	-
Pot Cap-1 Maneuver	272	339	1053	371	290	948	1131	-	-	1434	-	-
Stage 1	483	464	-	901	670	-	-	-	-	-	-	-
Stage 2	701	744	-	492	382	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	141	275	1051	309	235	947	1130	-	-	1434	-	-
Mov Cap-2 Maneuver	141	275	-	309	235	-	-	-	-	-	-	-
Stage 1	482	376	-	900	669	-	-	-	-	-	-	-
Stage 2	428	743	-	390	310	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.6	14.8	0.1	7.4
HCM LOS	D	B		

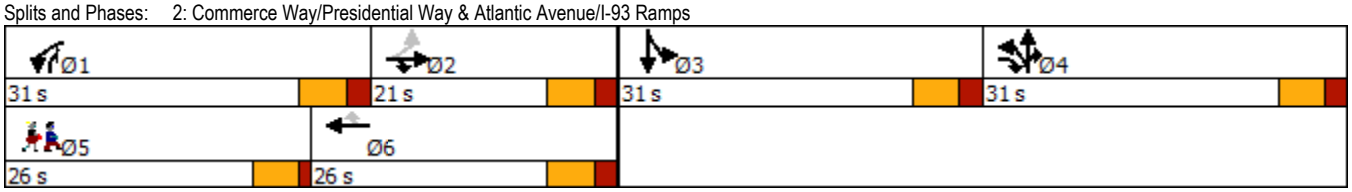
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1130	-	-	191	768	1434	-	-
HCM Lane V/C Ratio	0.001	-	-	0.085	0.529	0.186	-	-
HCM Control Delay (s)	8.2	0	-	25.6	14.8	8.1	0	-
HCM Lane LOS	A	A	-	D	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	3.2	0.7	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	40	23	446	17	179	32	159	1105	617	230	10
Future Volume (vph)	5	40	23	446	17	179	32	159	1105	617	230	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	13	13	12	12	12	11	12
Storage Length (ft)	0		175	0		350	250		0	275		0
Storage Lanes	0		1	2		1	1		2	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Frt			0.850			0.850			0.850		0.994	
Flt Protected		0.995		0.950			0.950			0.950		
Satd. Flow (prot)	0	1825	1830	3367	1759	1517	1760	1845	2787	3467	1726	0
Flt Permitted		0.960		0.950			0.950			0.950		
Satd. Flow (perm)	0	1761	1830	3367	1759	1517	1760	1845	2787	3467	1726	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			77			195					2	
Link Speed (mph)		30			30			40			30	
Link Distance (ft)		700			700			800			350	
Travel Time (s)		15.9			15.9			13.6			8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	4%	0%	4%	8%	10%	6%	3%	2%	1%	6%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Detector Phase	2	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		6.0	6.0	6.0	8.0	8.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		12.0	12.0	12.0	14.0	14.0		12.0	12.0	
Total Split (s)	21.0	21.0		31.0	26.0	26.0	31.0	31.0		31.0	31.0	
Total Split (%)	18.4%	18.4%		27.2%	22.8%	22.8%	27.2%	27.2%		27.2%	27.2%	
Maximum Green (s)	15.0	15.0		25.0	20.0	20.0	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	
All-Red Time (s)	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	
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	Min	Min		None	Min	Min	None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

Intersection Summary

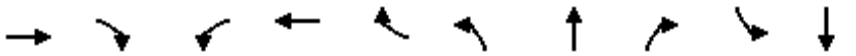
Area Type: Other
Cycle Length: 114
Actuated Cycle Length: 98.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Commerce Way/Presidential Way & Atlantic Avenue/I-93 Ramps



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	23%
Maximum Green (s)	21.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	0

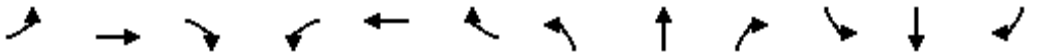
Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	48	25	485	18	195	35	173	1201	671	261
v/c Ratio	0.38	0.04	0.76	0.03	0.31	0.08	0.37	0.85	0.82	0.64
Control Delay	53.9	0.1	46.8	22.5	4.8	31.6	34.8	28.7	45.7	42.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.9	0.1	46.8	22.5	4.8	31.6	34.8	28.7	45.7	42.6
Queue Length 50th (ft)	30	0	152	8	0	17	91	367	204	146
Queue Length 95th (ft)	70	0	214	23	46	47	170	506	#322	257
Internal Link Dist (ft)	620			620			720			270
Turn Bay Length (ft)		175			350	250			275	
Base Capacity (vph)	271	797	864	567	621	452	473	1412	890	444
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.03	0.56	0.03	0.31	0.08	0.37	0.85	0.75	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	40	23	446	17	179	32	159	1105	617	230	10
Future Volume (vph)	5	40	23	446	17	179	32	159	1105	617	230	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	13	13	12	12	12	11	12
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1825	1830	3367	1759	1517	1760	1845	2787	3467	1726	
Flt Permitted		0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1761	1830	3367	1759	1517	1760	1845	2787	3467	1726	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	43	25	485	18	195	35	173	1201	671	250	11
RTOR Reduction (vph)	0	0	17	0	0	132	0	0	0	0	2	0
Lane Group Flow (vph)	0	48	8	485	18	63	35	173	1201	671	259	0
Heavy Vehicles (%)	0%	4%	0%	4%	8%	10%	6%	3%	2%	1%	6%	0%
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Actuated Green, G (s)		7.1	32.3	18.5	31.6	31.6	25.2	25.2	49.7	23.1	23.1	
Effective Green, g (s)		7.1	32.3	18.5	31.6	31.6	25.2	25.2	49.7	23.1	23.1	
Actuated g/C Ratio		0.07	0.33	0.19	0.32	0.32	0.26	0.26	0.51	0.24	0.24	
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)		127	603	636	567	489	453	474	1414	818	407	
v/s Ratio Prot			0.00	0.14	0.01		0.02	0.09	c0.43	c0.19	0.15	
v/s Ratio Perm		c0.03				0.04						
v/c Ratio		0.38	0.01	0.76	0.03	0.13	0.08	0.36	0.85	0.82	0.64	
Uniform Delay, d1		43.3	22.1	37.6	22.7	23.4	27.5	29.8	20.9	35.4	33.6	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.7	0.0	4.9	0.0	0.0	0.1	0.5	5.0	6.3	2.4	
Delay (s)		44.0	22.1	42.5	22.7	23.5	27.6	30.3	25.8	41.7	36.0	
Level of Service		D	C	D	C	C	C	C	C	D	D	
Approach Delay (s)		36.5			36.7			26.4			40.1	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	97.9	Sum of lost time (s)	24.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	12	12	370	257	0
Future Volume (vph)	0	12	12	370	257	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865				
Flt Protected				0.998		
Satd. Flow (prot)	0	1611	0	1669	1743	0
Flt Permitted				0.998		
Satd. Flow (perm)	0	1611	0	1669	1743	0
Link Speed (mph)	20			30	30	
Link Distance (ft)	500			180	520	
Travel Time (s)	17.0			4.1	11.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	14%	9%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection						
Int Delay, s/veh	0.3					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	12	12	370	257	0
Future Vol, veh/h	0	12	12	370	257	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	2	2	14	9	0
Mvmt Flow	0	13	13	402	279	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	279	279	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	760	1284	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	760	1284	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1284	-	760	-	-
HCM Lane V/C Ratio	0.01	-	0.017	-	-
HCM Control Delay (s)	7.8	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:25	4:25	4:25	4:25	4:25	4:25
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4
Vehs Entered	3680	3677	3717	3526	3715	3663
Vehs Exited	3694	3672	3722	3523	3702	3662
Starting Vehs	63	56	51	49	48	51
Ending Vehs	49	61	46	52	61	50
Travel Distance (mi)	961	957	968	918	966	954
Travel Time (hr)	62.3	61.7	63.0	58.8	62.9	61.7
Total Delay (hr)	26.1	25.6	26.5	24.3	26.5	25.8
Total Stops	2472	2482	2543	2377	2549	2485
Fuel Used (gal)	42.2	41.9	42.5	40.2	42.3	41.8

Interval #0 Information Seeding

Start Time 4:25
End Time 4:30
Total Time (min) 5
Volumes adjusted by Growth Factors, Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time 4:30
End Time 4:45
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	839	921	853	860	844	864
Vehs Exited	843	908	848	851	854	861
Starting Vehs	63	56	51	49	48	51
Ending Vehs	59	69	56	58	38	56
Travel Distance (mi)	219	238	221	224	221	225
Travel Time (hr)	13.6	15.4	13.8	14.5	13.7	14.2
Total Delay (hr)	5.4	6.3	5.5	6.1	5.3	5.7
Total Stops	542	612	560	586	556	570
Fuel Used (gal)	9.5	10.4	9.5	9.8	9.5	9.8

Interval #2 Information Recording

Start Time 4:45
End Time 5:00
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1012	993	1038	927	1048	1004
Vehs Exited	1010	988	1029	927	1008	992
Starting Vehs	59	69	56	58	38	56
Ending Vehs	61	74	65	58	78	66
Travel Distance (mi)	264	257	269	241	265	259
Travel Time (hr)	17.6	16.6	18.5	15.7	17.8	17.2
Total Delay (hr)	7.7	6.9	8.3	6.6	7.8	7.5
Total Stops	701	670	767	625	744	702
Fuel Used (gal)	11.7	11.2	12.0	10.6	11.7	11.4

Interval #3 Information Recording

Start Time 5:00
End Time 5:15
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	891	894	893	845	955	895
Vehs Exited	896	912	910	847	972	910
Starting Vehs	61	74	65	58	78	66
Ending Vehs	56	56	48	56	61	55
Travel Distance (mi)	233	236	234	220	253	235
Travel Time (hr)	15.0	15.6	15.1	13.7	16.9	15.3
Total Delay (hr)	6.3	6.7	6.2	5.4	7.3	6.4
Total Stops	610	623	593	558	672	610
Fuel Used (gal)	10.2	10.5	10.3	9.5	11.1	10.3

Interval #4 Information Recording

Start Time 5:15
End Time 5:30
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	938	869	933	894	868	899
Vehs Exited	945	864	935	898	868	902
Starting Vehs	56	56	48	56	61	55
Ending Vehs	49	61	46	52	61	50
Travel Distance (mi)	246	226	244	232	227	235
Travel Time (hr)	16.0	14.1	15.6	14.9	14.6	15.0
Total Delay (hr)	6.8	5.6	6.4	6.1	6.0	6.2
Total Stops	619	577	623	608	577	602
Fuel Used (gal)	10.9	9.8	10.7	10.2	10.0	10.3

1: New Boston Street/Woburn Street & Driveway/Presidenital Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.4	0.2	0.0	0.2
Total Del/Veh (s)	6.4	6.8	0.7	2.4	4.4

3: Woburn Street & Site Driveway Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.1
Total Del/Veh (s)	3.8	0.5	0.6	0.6

Total Zone Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	482.1

Intersection: 1: New Boston Street/Woburn Street & Driveway/Presidenital Way

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	61	192	23	106
Average Queue (ft)	14	84	1	32
95th Queue (ft)	46	142	11	76
Link Distance (ft)	472	472	472	124
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Woburn Street & Site Driveway

Movement	EB	NB
Directions Served	R	LT
Maximum Queue (ft)	41	49
Average Queue (ft)	11	4
95th Queue (ft)	36	24
Link Distance (ft)	472	124
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	3	0	15	1	225	0	14	11	167	14	6
Future Volume (vph)	1	3	0	15	1	225	0	14	11	167	14	6
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
Ped Bike Factor												
Frt					0.874			0.940			0.995	
Flt Protected		0.988			0.997						0.957	
Satd. Flow (prot)	0	1877	0	0	1587	0	0	1786	0	0	1777	0
Flt Permitted		0.988			0.997						0.957	
Satd. Flow (perm)	0	1877	0	0	1587	0	0	1786	0	0	1777	0
Link Speed (mph)		20			25			30			30	
Link Distance (ft)		500			500			500			180	
Travel Time (s)		17.0			13.6			11.4			4.1	
Confl. Peds. (#/hr)	2		2				2					2
Confl. Bikes (#/hr)			1						1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	10%	0%	4%	0%	0%	0%	2%	0%	0%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection												
Int Delay, s/veh	8.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	0	15	1	225	0	14	11	167	14	6
Future Vol, veh/h	1	3	0	15	1	225	0	14	11	167	14	6
Conflicting Peds, #/hr	2	0	2	0	0	0	2	0	0	0	0	2
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	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	10	0	4	0	0	0	2	0	0
Mvmt Flow	1	3	0	16	1	245	0	15	12	182	15	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	531	412	23	407	409	23	24	0	0	27	0	0
Stage 1	385	385	-	21	21	-	-	-	-	-	-	-
Stage 2	146	27	-	386	388	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.2	6.5	6.24	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.2	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.59	4	3.336	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	462	533	1060	541	535	1048	1604	-	-	1587	-	-
Stage 1	642	614	-	977	882	-	-	-	-	-	-	-
Stage 2	861	877	-	621	612	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	321	470	1056	490	472	1046	1601	-	-	1587	-	-
Mov Cap-2 Maneuver	321	470	-	490	472	-	-	-	-	-	-	-
Stage 1	641	542	-	977	882	-	-	-	-	-	-	-
Stage 2	658	877	-	545	540	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.6	10.1	0	6.8
HCM LOS	B	B		

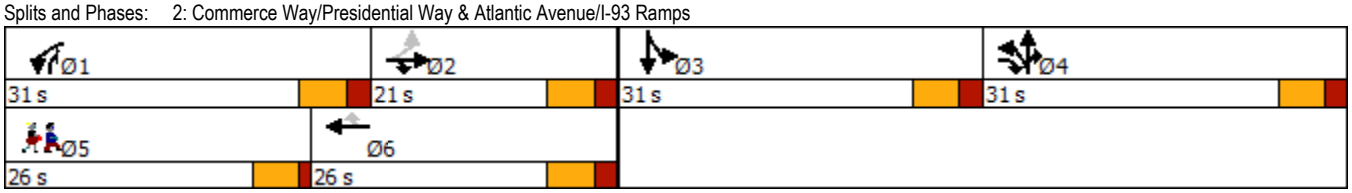
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1601	-	-	421	972	1587	-	-
HCM Lane V/C Ratio	-	-	-	0.01	0.27	0.114	-	-
HCM Control Delay (s)	0	-	-	13.6	10.1	7.6	0	-
HCM Lane LOS	A	-	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	1.1	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	14	1	549	23	121	12	170	718	133	150	3
Future Volume (vph)	3	14	1	549	23	121	12	170	718	133	150	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	13	13	12	12	12	11	12
Storage Length (ft)	0		175	0		350	250		0	275		0
Storage Lanes	0		1	2		1	1		2	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Ped Bike Factor							0.99				1.00	
Frt			0.850			0.850			0.850		0.997	
Flt Protected		0.992		0.950			0.950			0.950		
Satd. Flow (prot)	0	1285	915	3467	1776	1545	1711	1881	2814	3273	1830	0
Flt Permitted		0.936		0.950			0.950			0.950		
Satd. Flow (perm)	0	1213	915	3467	1776	1545	1699	1881	2814	3273	1830	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			77			134					1	
Link Speed (mph)		30			30			40			30	
Link Distance (ft)		700			700			800			350	
Travel Time (s)		15.9			15.9			13.6			8.0	
Confl. Peds. (#/hr)							4					4
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 (%)	0%	56%	100%	1%	7%	8%	9%	1%	1%	7%	0%	0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Detector Phase	2	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		6.0	6.0	6.0	8.0	8.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		12.0	12.0	12.0	14.0	14.0		12.0	12.0	
Total Split (s)	21.0	21.0		31.0	26.0	26.0	31.0	31.0		31.0	31.0	
Total Split (%)	18.4%	18.4%		27.2%	22.8%	22.8%	27.2%	27.2%		27.2%	27.2%	
Maximum Green (s)	15.0	15.0		25.0	20.0	20.0	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	
All-Red Time (s)	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	
Total Lost Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	Min	Min		None	Min	Min	None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

Intersection Summary

Area Type: Other
Cycle Length: 114
Actuated Cycle Length: 82
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Commerce Way/Presidential Way & Atlantic Avenue/I-93 Ramps



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	23%
Maximum Green (s)	21.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	0

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	18	1	597	25	132	13	185	780	145	166
v/c Ratio	0.20	0.00	0.77	0.04	0.20	0.03	0.39	0.50	0.30	0.61
Control Delay	46.8	0.0	38.2	18.5	4.5	26.9	30.1	13.0	34.8	45.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.8	0.0	38.2	18.5	4.5	26.9	30.1	13.0	34.8	45.0
Queue Length 50th (ft)	9	0	150	8	0	5	78	127	35	82
Queue Length 95th (ft)	34	0	240	27	36	21	164	219	70	163
Internal Link Dist (ft)	620			620			720			270
Turn Bay Length (ft)		175			350	250			275	
Base Capacity (vph)	229	447	1091	661	659	538	592	1534	1030	576
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.00	0.55	0.04	0.20	0.02	0.31	0.51	0.14	0.29

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	14	1	549	23	121	12	170	718	133	150	3
Future Volume (vph)	3	14	1	549	23	121	12	170	718	133	150	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	13	13	12	12	12	11	12
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1285	915	3467	1776	1545	1711	1881	2814	3273	1831	
Flt Permitted		0.94	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1212	915	3467	1776	1545	1711	1881	2814	3273	1831	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	15	1	597	25	132	13	185	780	145	163	3
RTOR Reduction (vph)	0	0	1	0	0	83	0	0	0	0	1	0
Lane Group Flow (vph)	0	18	0	597	25	49	13	185	780	145	165	0
Confl. Peds. (#/hr)							4					4
Heavy Vehicles (%)	0%	56%	100%	1%	7%	8%	9%	1%	1%	7%	0%	0%
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Actuated Green, G (s)		6.1	26.9	18.4	30.5	30.5	20.8	20.8	45.2	12.1	12.1	
Effective Green, g (s)		6.1	26.9	18.4	30.5	30.5	20.8	20.8	45.2	12.1	12.1	
Actuated g/C Ratio		0.07	0.33	0.23	0.37	0.37	0.26	0.26	0.56	0.15	0.15	
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)		90	302	783	665	578	437	480	1562	486	272	
v/s Ratio Prot			0.00	c0.17	0.01		0.01	0.10	c0.28	0.04	c0.09	
v/s Ratio Perm		c0.01				0.03						
v/c Ratio		0.20	0.00	0.76	0.04	0.09	0.03	0.39	0.50	0.30	0.61	
Uniform Delay, d1		35.4	18.3	29.5	16.1	16.4	22.7	25.0	11.1	30.9	32.4	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.4	0.0	4.0	0.0	0.0	0.0	0.5	0.3	0.1	2.6	
Delay (s)		35.8	18.3	33.4	16.1	16.5	22.8	25.5	11.4	31.0	35.0	
Level of Service		D	B	C	B	B	C	C	B	C	D	
Approach Delay (s)		34.8			29.9			14.2			33.2	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	81.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	35	35	205	152	0
Future Volume (vph)	0	35	35	205	152	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865				
Flt Protected				0.993		
Satd. Flow (prot)	0	1611	0	1819	1863	0
Flt Permitted				0.993		
Satd. Flow (perm)	0	1611	0	1819	1863	0
Link Speed (mph)	20			30	30	
Link Distance (ft)	500			180	520	
Travel Time (s)	17.0			4.1	11.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	2%	4%	2%	0%
Shared Lane Traffic (%)						
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection						
Int Delay, s/veh	1.4					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	35	35	205	152	0
Future Vol, veh/h	0	35	35	205	152	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	2	2	4	2	0
Mvmt Flow	0	38	38	223	165	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	165	165	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	4.12	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	0	879	1413	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	879	1413	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	1.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1413	-	879	-	-
HCM Lane V/C Ratio	0.027	-	0.043	-	-
HCM Control Delay (s)	7.6	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	11:55	11:55	11:55	11:55	11:55	11:55
End Time	1:00	1:00	1:00	1:00	1:00	1:00
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4
Vehs Entered	2353	2362	2342	2332	2419	2362
Vehs Exited	2351	2355	2340	2334	2411	2359
Starting Vehs	36	26	44	38	29	34
Ending Vehs	38	33	46	36	37	39
Travel Distance (mi)	622	623	620	619	638	624
Travel Time (hr)	35.8	35.0	35.7	36.2	37.0	35.9
Total Delay (hr)	12.5	11.6	12.4	13.0	13.1	12.5
Total Stops	1437	1412	1431	1474	1451	1443
Fuel Used (gal)	26.5	26.2	26.3	26.3	26.9	26.5

Interval #0 Information Seeding

Start Time 11:55
End Time 12:00
Total Time (min) 5
Volumes adjusted by Growth Factors, Anti PHF.
No data recorded this interval.

Interval #1 Information Recording

Start Time 12:00
End Time 12:15
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	548	566	549	571	623	572
Vehs Exited	538	565	572	570	616	571
Starting Vehs	36	26	44	38	29	34
Ending Vehs	46	27	21	39	36	33
Travel Distance (mi)	143	149	149	152	162	151
Travel Time (hr)	8.0	8.2	8.5	8.4	9.1	8.5
Total Delay (hr)	2.7	2.6	3.0	2.7	3.1	2.8
Total Stops	311	326	335	342	364	337
Fuel Used (gal)	6.0	6.3	6.2	6.3	6.8	6.3

Interval #2 Information Recording

Start Time 12:15
End Time 12:30
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	648	659	636	620	686	650
Vehs Exited	654	641	618	612	688	642
Starting Vehs	46	27	21	39	36	33
Ending Vehs	40	45	39	47	34	39
Travel Distance (mi)	171	171	165	162	183	171
Travel Time (hr)	10.1	9.7	9.5	9.4	11.0	10.0
Total Delay (hr)	3.6	3.3	3.3	3.4	4.2	3.6
Total Stops	405	399	376	402	414	398
Fuel Used (gal)	7.3	7.2	7.0	7.0	7.8	7.3

Interval #3 Information Recording

Start Time 12:30
End Time 12:45
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	578	568	560	581	531	562
Vehs Exited	592	587	566	579	529	569
Starting Vehs	40	45	39	47	34	39
Ending Vehs	26	26	33	49	36	33
Travel Distance (mi)	156	152	150	154	140	150
Travel Time (hr)	9.0	8.7	8.7	9.2	7.8	8.7
Total Delay (hr)	3.1	3.0	3.1	3.5	2.6	3.0
Total Stops	358	358	346	368	324	349
Fuel Used (gal)	6.6	6.5	6.4	6.5	5.8	6.4

Interval #4 Information Recording

Start Time 12:45
End Time 1:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs Entered	579	569	597	560	579	576
Vehs Exited	567	562	584	573	578	573
Starting Vehs	26	26	33	49	36	33
Ending Vehs	38	33	46	36	37	39
Travel Distance (mi)	151	150	157	151	153	152
Travel Time (hr)	8.8	8.4	9.0	9.1	9.0	8.8
Total Delay (hr)	3.1	2.7	3.1	3.4	3.2	3.1
Total Stops	363	329	374	362	349	355
Fuel Used (gal)	6.6	6.3	6.7	6.5	6.5	6.5

1: New Boston Street/Woburn Street & Driveway/Presidenital Way Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.3	0.1	0.0	0.1
Total Del/Veh (s)	4.5	4.3	0.4	1.5	3.0

3: Woburn Street & Site Driveway Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.1
Total Del/Veh (s)	3.2	0.6	0.4	0.7

Total Zone Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	336.3

Intersection: 1: New Boston Street/Woburn Street & Driveway/Presidenital Way

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	32	99	40
Average Queue (ft)	5	51	3
95th Queue (ft)	24	80	21
Link Distance (ft)	472	472	124
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Woburn Street & Site Driveway

Movement	EB	NB	SB
Directions Served	R	LT	TR
Maximum Queue (ft)	52	43	4
Average Queue (ft)	24	7	0
95th Queue (ft)	50	31	3
Link Distance (ft)	472	124	492
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

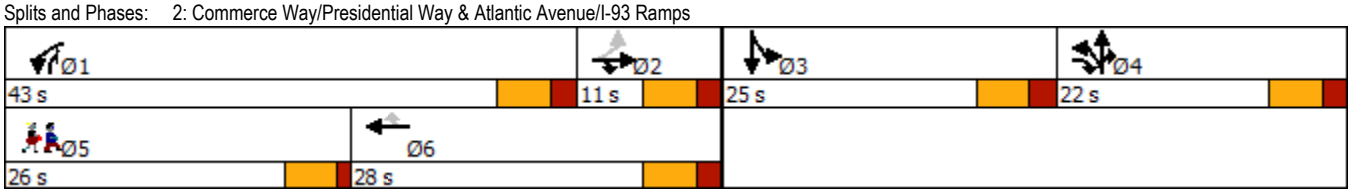
Zone wide Queuing Penalty: 0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	49	32	1244	74	885	36	203	475	203	196	14
Future Volume (vph)	5	49	32	1244	74	885	36	203	475	203	196	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	16	12	12	13	13	12	12	12	11	12
Storage Length (ft)	0		175	0		350	250		0	275		0
Storage Lanes	0		1	2		1	1		2	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	1.00
Ped Bike Factor							1.00				1.00	
Frt			0.850			0.850			0.850		0.990	
Flt Protected		0.996		0.950			0.950			0.950		
Satd. Flow (prot)	0	1663	1620	3303	1638	1605	1680	1863	2472	3019	1660	0
Flt Permitted		0.959		0.950			0.950			0.950		
Satd. Flow (perm)	0	1601	1620	3303	1638	1605	1673	1863	2472	3019	1660	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			151			829					3	
Link Speed (mph)		30			30			40			30	
Link Distance (ft)		700			700			800			350	
Travel Time (s)		15.9			15.9			13.6			8.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	33%	12%	13%	6%	16%	4%	11%	2%	15%	16%	9%	14%
Shared Lane Traffic (%)												
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Detector Phase	2	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	4.0	4.0		6.0	6.0	6.0	8.0	8.0		6.0	6.0	
Minimum Split (s)	10.0	10.0		12.0	12.0	12.0	14.0	14.0		12.0	12.0	
Total Split (s)	11.0	11.0		43.0	28.0	28.0	22.0	22.0		25.0	25.0	
Total Split (%)	10.9%	10.9%		42.6%	27.7%	27.7%	21.8%	21.8%		24.8%	24.8%	
Maximum Green (s)	5.0	5.0		37.0	22.0	22.0	16.0	16.0		19.0	19.0	
Yellow Time (s)	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	
Lost Time Adjust (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	Lag	Lag		Lead	Lag	Lag	Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Recall Mode	Min	Min		None	Min	Min	None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												

Intersection Summary

Area Type: Other
Cycle Length: 101
Actuated Cycle Length: 97.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Commerce Way/Presidential Way & Atlantic Avenue/I-93 Ramps



Lane Group	Ø5
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	5
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	7.0
Minimum Split (s)	26.0
Total Split (s)	26.0
Total Split (%)	26%
Maximum Green (s)	21.0
Yellow Time (s)	4.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	14.0
Pedestrian Calls (#/hr)	0

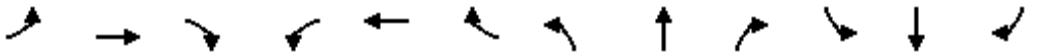
Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	58	35	1352	80	962	39	221	516	221	228
v/c Ratio	0.71	0.08	1.07	0.10	0.79	0.15	0.78	0.35	0.44	0.82
Control Delay	89.5	0.3	78.6	14.8	8.9	38.2	59.7	11.2	39.3	61.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.5	0.3	78.6	14.8	8.9	38.2	59.7	11.2	39.3	61.9
Queue Length 50th (ft)	37	0	~512	27	47	22	136	90	64	138
Queue Length 95th (ft)	#108	0	#651	54	234	52	#246	129	101	#242
Internal Link Dist (ft)	620			620			720			270
Turn Bay Length (ft)		175			350	250			275	
Base Capacity (vph)	82	450	1259	810	1212	277	307	1438	590	327
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.08	1.07	0.10	0.79	0.14	0.72	0.36	0.37	0.70

Intersection Summary

~ 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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	49	32	1244	74	885	36	203	475	203	196	14
Future Volume (vph)	5	49	32	1244	74	885	36	203	475	203	196	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	16	12	12	13	13	12	12	12	11	12
Total Lost time (s)		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00	0.97	1.00	1.00	1.00	1.00	0.88	0.97	1.00	
Frpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1662	1620	3303	1638	1605	1680	1863	2472	3019	1661	
Flt Permitted		0.96	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1601	1620	3303	1638	1605	1680	1863	2472	3019	1661	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	53	35	1352	80	962	39	221	516	221	213	15
RTOR Reduction (vph)	0	0	28	0	0	419	0	0	0	0	2	0
Lane Group Flow (vph)	0	58	7	1352	80	543	39	221	516	221	226	0
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	33%	12%	13%	6%	16%	4%	11%	2%	15%	16%	9%	14%
Turn Type	Perm	NA	pt+ov	Prot	NA	Perm	Split	NA	pt+ov	Split	NA	
Protected Phases		2	2 4	1	6		4	4	4 1	3	3	
Permitted Phases	2					6						
Actuated Green, G (s)		5.0	19.9	37.1	48.1	48.1	14.9	14.9	58.0	16.3	16.3	
Effective Green, g (s)		5.0	19.9	37.1	48.1	48.1	14.9	14.9	58.0	16.3	16.3	
Actuated g/C Ratio		0.05	0.20	0.38	0.49	0.49	0.15	0.15	0.60	0.17	0.17	
Clearance Time (s)		6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		2.0		2.0	2.0	2.0	3.0	3.0		2.0	2.0	
Lane Grp Cap (vph)		82	331	1259	809	793	257	285	1473	505	278	
v/s Ratio Prot			0.00	c0.41	0.05		0.02	c0.12	0.21	0.07	c0.14	
v/s Ratio Perm		0.04				c0.34						
v/c Ratio		0.71	0.02	1.07	0.10	0.68	0.15	0.78	0.35	0.44	0.81	
Uniform Delay, d1		45.4	30.9	30.1	13.1	18.8	35.7	39.6	10.0	36.4	39.0	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		20.2	0.0	47.7	0.0	2.0	0.3	12.4	0.1	0.2	15.5	
Delay (s)		65.7	30.9	77.8	13.1	20.8	36.0	52.0	10.2	36.6	54.5	
Level of Service		E	C	E	B	C	D	D	B	D	D	
Approach Delay (s)		52.6			52.7			23.4			45.7	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	45.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	97.3	Sum of lost time (s)	24.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

ATTACHMENT 7

EXISTING SITE PHOTOS

USA
4510
MAX.
GROSS
TARE
NET
MAX. DES.
CARGO
30.480 KGS.
8.520 LBS
26.615 KGS.
58.680 LBS
IDEAL

Three Sons

CATERPI

29234

DUREZ

CATERPILLAR
225
THREE SONS
CONTRACTING
658-8178
Simplicity

CAT

ND UP
STACK
OTHER FREIGH
THIS TANK

LIQUITOT
SYSTEMS
800-228-4335
CAUTION! VENT TANK
BEFORE OPENING VALVE
THIS END UP
DO NOT STACK
OTHER FREIGHT
OF THIS TANK

P30

2

OFFICE

GRAINGE

Three Sons

ATTACHMENT 8

CERTIFICATE OF SERVICE

887 Woburn, LLC
Solid Waste Transfer Station
Wilmington, MA

CERTIFICATION OF SERVICE OF COPIES

Pursuant to 310 CMR 16.08(3), I certify that the Site Suitability Application (BWP SW 01), prepared by Green Seal Environmental, LLC for the proposed new Solid Waste Handling Facility was sent to the following recipients by U.S. Mail, postage prepaid, on or before August 24, 2021.

Distribution List

Wilmington Board of Health Attn: Shelly Newhouse R.S., Director Town Hall 121 Glen Road, Room 5 Wilmington, MA 01887 *(2 Copies)*	Department of Environmental Protection Bureau of Waste Prevention Business Compliance Division 1 Winter Street Boston, MA 02108
City of Woburn Health Department Attn: John R. Fralick, REHS/ RS 10 Common Street Woburn, MA 01801	Department of Environmental Protection Northeast Regional Office Solid Waste Section Attn: Mark Fairbrother, Section Chief 205B Lowell Street Wilmington, MA 01887
Wilmington Public Library 175 Middlesex Avenue Wilmington, MA 01887 *(USB flash drive Copy)*	Massachusetts Department of Public Health Bureau of Environmental Health Assessment 250 Washington Street, 7th Floor Boston, MA 02108
Woburn Public Library 45 Pleasant Street Woburn, MA 01801 *(USB flash drive Copy)*	Metropolitan Area Planning Counsel 60 Temple Place Boston, MA 02111

Signed under the pain and penalties of perjury on August 24, 2021.

Laura A. Bugay, P.E. – Executive Vice President
Green Seal Environmental, LLC
On behalf of 887 Woburn, LLC

Site Suitability Report

887 Woburn, LLC
887 Woburn Street, Wilmington, MA

CIRCULATION LIST
per 310 CMR 16.08(3):

Agency & No. of Copies	Address
MassDEP Boston – 1 copy	MassDEP Bureau of Waste Prevention Business Compliance Division 1 Winter Street Boston, MA 02108
MassDEP NERO – 1 copy	MassDEP – Northeast Regional Office Attn: Mark Fairbrother, Section Chief 205B Lowell Street Wilmington, MA 01887 mark.fairbrother@state.ma.us
Town of Wilmington – Health Department – 2 copies	Wilmington Board of Health Attn: Shelly Newhouse, R.S., Director Town Hall 121 Glen Road, Room 5 Wilmington, MA 01887 boh@wilmingtonma.gov
City of Woburn- Health Department- 1 copy	City of Woburn Health Department Attn: John R. Fralick, REHS/RS 10 Common Street Woburn, MA 01801
Regional Planning Agency – 1 copy	Metropolitan Area Planning Counsel 60 Temple Place Boston, MA 02111
Department of Public Health – 1 copy	Massachusetts Department of Public Health Bureau of Environmental Health Assessment 250 Washington Street - 7th Floor Boston, MA 02108
Local Library – 1 USB flash drive copy	Wilmington Public Library 175 Middlesex Avenue Wilmington, MA 01887
Local Library – 1 USB flash drive copy	Woburn Public Library 45 Pleasant Street Woburn, MA 01801

CIRCULATION LIST (Cont.)
(Additional Recipients):

Additional Recipients	Address
GeoInsight, Inc.	GeoInsight, Inc. Attn: Michael Penney, P.E. 186 Granite Street, 3rd Floor Manchester, NH 03101 MCPenney@geoinc.com
Law Offices of Robert G. Peterson	Law Offices of Robert G. Peterson Robert G. Peterson Sr. Robert G. Peterson Jr. 314 Main Street #103 Wilmington, MA 01887 Bob@rgpetersonlaw.com Rob@rgpetersonlaw.com

ATTACHMENT 9

LETTER OF SUPPORT

5/17/2018

887 Woburn, LLC ("887 WOBURN")
887 Woburn Street
Wilmington, MA 01887

MassDEP Commisioner
Martin Suuberg
One Winter Street, 2nd Floor
Boston, MA 02108

To Whom It May Concern:

This letter may be used for consideration by any reviewing agency including MA DEP.

As an abutter to 885 and 889 Woburn Street, Wilmington, Massachusetts, I support permitting a solid waste transfer facility in our industrial neighborhood. I understand that the handling operation planned by 887 Woburn is located within the 100ft setback to my property line. The property at 885 and 889 Woburn Street is currently a blight on area industry and the community. The proposed project would revitalize the property into a useful industrial facility that would blend well with nearby industry.

Yours truly,

Frank LoConte

867 Woburn Street, LLC
867 Woburn Street, Wilmington, MA 01887

FIGURES

FIGURE 1

USGS TOPOGRAPHIC LOCUS MAP

NOTE: USGS TOPOGRAPHIC MAP WAS PROVIDED BY THE OFFICE OF GEOGRAPHIC AND ENVIRONMENTAL INFORMATION (MassGIS), COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS CURRENT TO MARCH 2017.

REVISIONS	
NO./ DATE	COMMENT

DRAWING TITLE:

SITE LOCUS MAP

CAD TECH:	CHECKED BY:
N. ELDRIDGE	G. WIRSEN
ENGINEER:	DATE:
L. BUGAY	06/04/2021

PREPARED FOR:

887 WOBURN, LLC
887 WOBURN STREET
WOBURN, MA, 01887

Green Seal Environmental, LLC
114 State Road, Building B
Sagamore Beach, MA 02562
Tel: (508) 888-6034
Fax: (508) 888-1506
www.gseenv.com

LOCUS:

867/885/889 Woburn Street
Wilmington, MA 01887

SCALE:

1" = 2,500'

SHEET:

FIGURE 1

FIGURE 2

WATER RESOURCES PLAN

0.5 MILE RADIUS FROM PROPERTY BOUNDARY

POTENTIAL VERNAL POOL (TYP)

ZONE II

ABUTTER PROPERTY LINE

HIGHLAND STREET

100' WETLAND BUFFER

INTERSTATE 93

OLIN CHEMICAL SUPERFUND SITE

WETLAND (TYP)

SITE

FEMA 100YR FLOOD ZONE

READING WOBURN

RESIDENTIAL WAY

UPPER WOBURN ST POND

OUTER RIPARIAN ZONE

LOWER WOBURN ST POND

OLIN LANDFILL

PRIVATE WELL (TYP)

500 FOOT RADIUS FROM PROPERTY BOUNDARY

WOBURN LANDFILL

WILMINGTON WOBURN

MEDIUM YIELD AQUIFER

LEGEND

- DEP WETLANDS
- 100' BUFFER ZONE
- MEDIUM YIELD AQUIFER
- ZONE II
- POTENTIAL VERNAL POOL
- CERTIFIED VERNAL POOL
- PRIVATE WELL
- 500' AND 0.5 MILE SITE SETBACK
- SITE ASSIGNMENT LIMITS
- ABUTTER PROPERTY LINE
- 200' OUTER RIPARIAN ZONE TO RIVERFRONT AREA
- TOWN BOUNDARY LINE
- FEMA 100YR FLOOD ZONE

LEGEND OF FEATURES NOT FOUND

THE FOLLOWING FEATURES WERE SEARCHED FOR AND NOT FOUND WITHIN THE 0.5 MILE RADIUS DEPICTED ON THE PLAN:

- ZONE A
- ZONE B
- PROPOSED DRINKING WATER SOURCE AREAS
- ZONE I
- IWPA
- MUNICIPAL SUPPLY WELL
- PUBLIC WATER SUPPLY WELL
- HIGH YIELD AQUIFER

NOTES:
1. THE INFORMATION SHOWN ON THIS PLAN WAS OBTAINED FROM MASSGIS.

Green Seal Environmental, LLC
114 State Road, Building B
Sagamore Beach, MA 02562
Tel: (508) 888-6034
Fax: (508) 888-1506
www.gseenv.com

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Dimensions are as indicated.

Use of this plan constitutes acceptance of terms and conditions set forth in accompanying project documentation.

It is the responsibility of the user to confirm discrepancies with the Engineer prior to use.

REVISIONS

NO.	DATE	COMMENT

PURPOSE:

SOLID WASTE HANDLING FACILITY SITE SUITABILITY

LOCUS:

867/885/889 Woburn Street
Wilmington, MA 01887

PREPARED FOR:

887 WOBURN, LLC
887 WOBURN STREET
WILMINGTON, MA 01887

DRAWING TITLE:

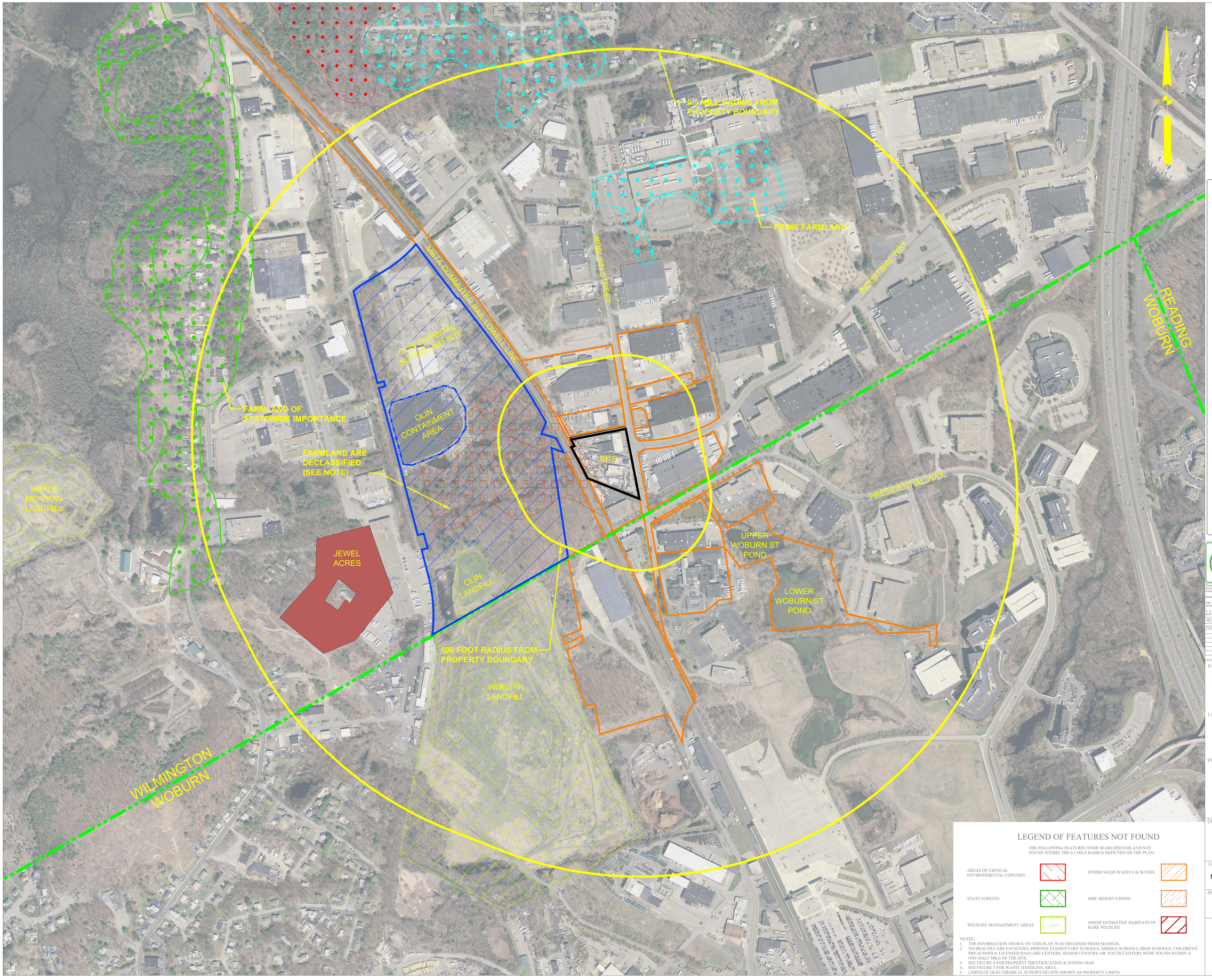
WATER RESOURCES PLAN

CAD TECH:	CHECKED BY:
N. ELDRIDGE	G. WIRSEN
ENGINEER:	DATE:
L. BUGAY	06/25/2021
	SCALE: 1" = 200'
	SHEET: FIGURE 2

COMMONWEALTH OF MASSACHUSETTS
LAURA A. BUGAY
CIVIL
No. 47599
REGISTERED PROFESSIONAL ENGINEER

FIGURE 3

LAND USE PLAN



LEGEND

- FARMLAND OF UNIQUE IMPORTANCE
- FARMLAND OF STATEWIDE IMPORTANCE
- PRIME FARMLAND
- CONSERVATION LAND
- OPENSPACE LAND PRIMARY PURPOSE UNKNOWN
- LANDFILL
- DECLASSIFIED FARMLANDS OF UNIQUE IMPORTANCE
- OLIN CHEMICAL CORP SUPERFUND SITE
- 500' AND 0.5 MILE SITE SETBACK
- SITE ASSIGNMENT LIMITS
- ABUTTER PROPERTY LINE
- TOWN BOUNDARY LINE

NOTE:
1. MASSGIS SHOWS FARMLAND OF UNIQUE IMPORTANCE ON SITE AND ADJACENT TO SITE, HOWEVER PER USDA FY2020 CHART FARMLAND DOCUMENT DATED OCT 2019, SWANSEA AND FREETOWN MUCK ARE NO LONGER CONSIDERED FARMLAND.

LEGEND OF FEATURES NOT FOUND

THE FOLLOWING FEATURES WERE SEARCHED FOR AND NOT FOUND WITHIN THE 0.5 MILE RADIUS DEPICTED ON THE PLAN:

- AREAS OF CRITICAL ENVIRONMENTAL CONCERN
- OTHER SOLID WASTE FACILITIES
- STATE FORESTS
- MDC RESERVATIONS
- WILDLIFE MANAGEMENT AREAS
- NHESP ESTIMATED HABITATS OF RARE WILDLIFE

NOTES:
1. THE INFORMATION SHOWN ON THIS PLAN WAS OBTAINED FROM MASSGIS.
2. NO HEALTH CARE FACILITIES, PRISONS, ELEMENTARY SCHOOLS, MIDDLE SCHOOLS, HIGH SCHOOLS, CHILDREN'S PRE-SCHOOLS, LICENSED DAYCARE CENTERS, SENIOR CENTERS, OR YOUTH CENTERS WERE FOUND WITHIN A ONE-HALF MILE OF THE SITE.
3. SEE FIGURE 4 FOR PROPERTY IDENTIFICATION & ZONING MAP.
4. SEE FIGURE 5 FOR WASTE HANDLING AREA.
5. LIMITS OF OLIN CHEMICAL SUPERFUND SITE SHOWN AS PROPERTY LIMITS.

Green Seal Environmental, LLC
114 State Road, Building B
Sagamore Beach, MA 02562
Tel: (508) 888-6034
Fax: (508) 888-1506
www.gsenv.com

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Dimensions are as indicated.

Use of this plan constitutes acceptance of terms and conditions set forth in accompanying project documentation.

It is the responsibility of the user to confirm discrepancies with the Engineer prior to use.

REVISIONS

NO.	DATE	COMMENT

PURPOSE:

SOLID WASTE HANDLING FACILITY SITE SUITABILITY

LOCUS:

867/885/889 Woburn Street
Wilmington, MA 01887

PREPARED FOR:

887 WOBURN, LLC
887 WOBURN STREET,
WILMINGTON, MA 01887

DRAWING TITLE:

LAND USE PLAN

CAD TECH:	CHECKED BY:
N.ELDRIDGE	G. WIRSEN
ENGINEER:	DATE:
L. BUGAY	06/25/2021

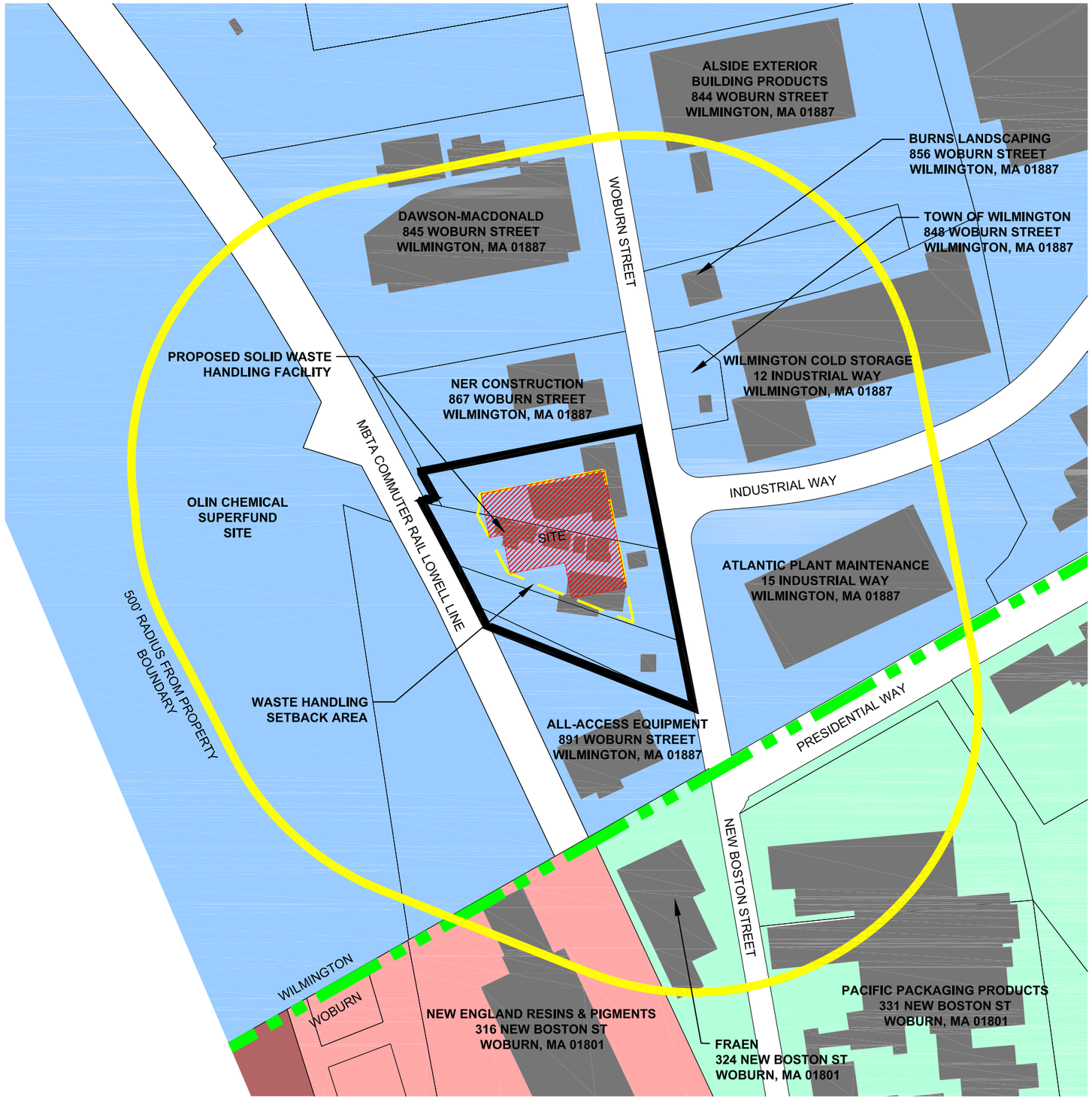
COMMONWEALTH OF MASSACHUSETTS
LAURA A. BUGAY
CIVIL
No. 47599
REGISTERED PROFESSIONAL ENGINEER

SCALE: *1" = 200'*

SHEET: FIGURE 3

FIGURE 4

PROPERTY IDENTIFICATION AND ZONING MAP



LEGEND

GENERAL INDUSTRIAL DISTRICT

INDUSTRIAL PARK DISTRICT

INDUSTRIAL PARK 2 DISTRICT

EXISTING BUILDING

PROPOSED BUILDING

500' RADIUS FROM PROPERTY BOUNDARY

100' WASTE HANDLING SETBACK AREA

SITE ASSIGNMENT LIMITS

MUNICIPAL BOUNDARY

PARCEL LINE

NOTES:
1. THE INFORMATION SHOWN ON THIS PLAN WAS OBTAINED FROM MASSGIS.
2. TENANTS / OCCUPANTS NOT NECESSARILY OWNERS INDICATED ON PLAN.

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REVISIONS

NO.	DATE	COMMENTS

PROJECT:

SOLID WASTE HANDLING FACILITY SITE SUITABILITY

LOCUS:

867/885/889 Woburn St
Wilmington, MA 01887

PREPARED FOR:

887 WOBURN, LLC
887 WOBURN STREET
WILMINGTON, MA 01887

DRAWING TITLE:

PROPERTY IDENTIFICATION & ZONING MAP

ENGINEER: L. BUGAY

CAD TECH: N. ELDRIDGE

CHECKED BY: G. WIRSEN

SCALE: Not to Scale

DATE: 06/25/2021

SHEET: FIGURE 4

FIGURE 5

EXISTING CONDITIONS PLAN

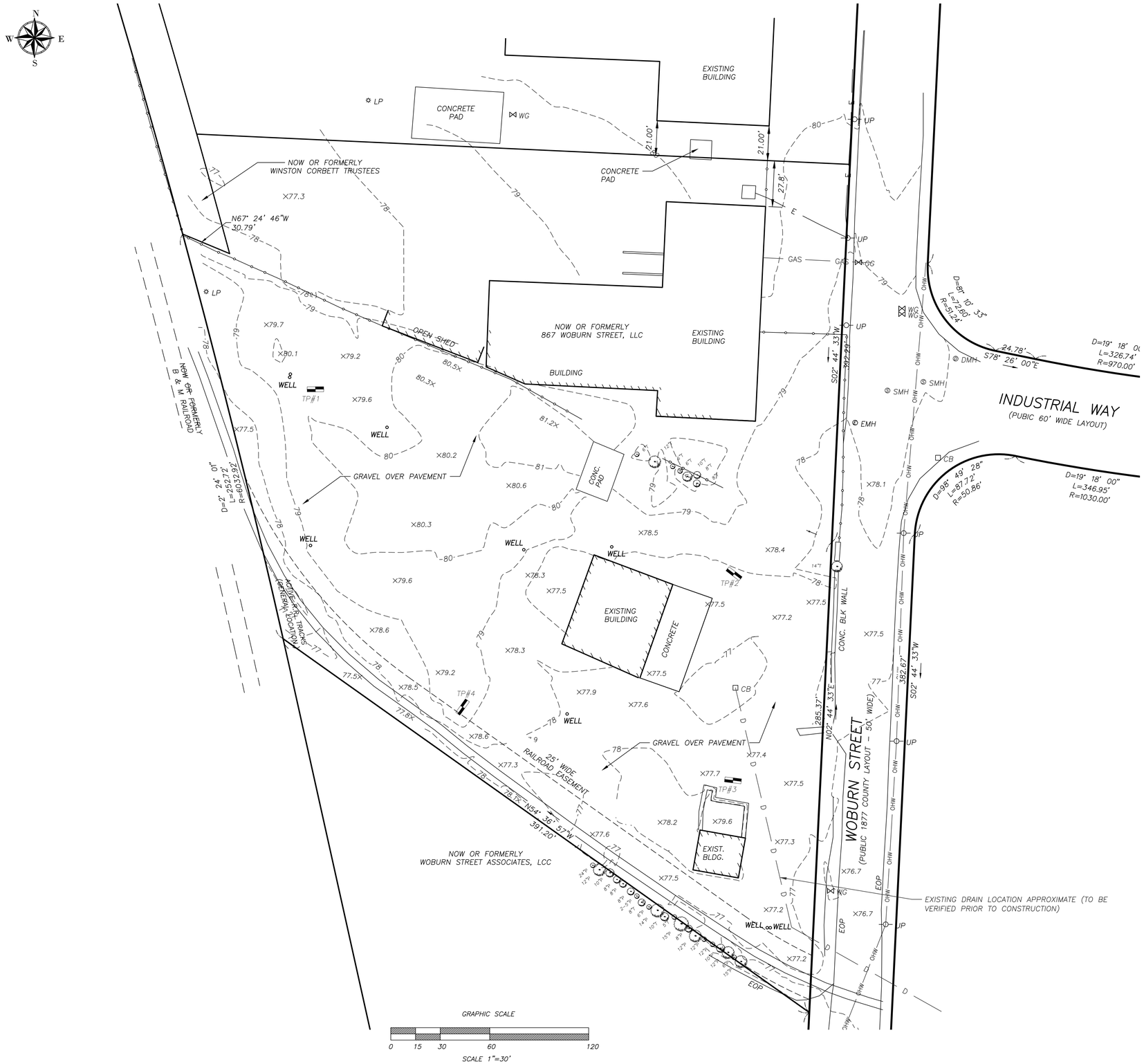


FIGURE 5 - EXISTING CONDITIONS PLAN

NOTES:

1. THIS PLAN HAS BEEN PREPARED AS A PRELIMINARY SITE PLAN FOR DISCUSSION PURPOSES. A FIELD SURVEY WAS PERFORMED BY EAGLEBROOK ENGINEERING BETWEEN NOVEMBER 2019 AND MAY 2021. THE PROPERTY LINES DEPICTED ON THIS PLAN IS BASED ON A FUTURE APPROVAL NOT REQUIRED PLAN TO BE FILED.
2. THE SUBJECT PROPERTY IS IDENTIFIED BY THE WILMINGTON ASSESSOR AS 37-4A, 37-4 AND 37-5. THE PROPERTIES ARE LOCATED IN THE GENERAL INDUSTRIAL ZONING DISTRICT BASED ON THE WILMINGTON ZONING MAP DATED APRIL 28, 2018.
3. THE RECORD OWNER OF THE PROPERTIES ARE 887 WOBURN, LLC RECORDED IN DEED BOOK 31143, PAGE 147, AND 867 WOBURN STREET, LLC RECORDED IN DEED BOOK 30100, PAGE 76.
4. THE VERTICAL DATUM IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). THE VERTICAL DATUM WAS ESTABLISHED BY GPS OBSERVATION ON AUGUST 4, 2020 WITH A LEICA GS14 ANTENNA AND UTILIZING THE LEICA SMARTNET RTK CONTROL NETWORK.

EAGLEBROOK

EAGLEBROOK ENGINEERING & SURVEY, LLC

491 MAPLE STREET, SUITE 304
DANVERS, MASS. 01923
TEL: (978) 777-0494

887 WOBURN STREET
LOCATED IN
WILMINGTON, MASSACHUSETTS
PREPARED FOR
ANTHONY MARTIGNETTI
887 WOBURN STREET
WILMINGTON, MA.

STAMP:

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. JULIANO
No. 37735
REGISTERED PROFESSIONAL ENGINEER
6/4/21

DATE:
JUNE 4, 2021

REVISIONS:

NO.:	DESCRIPTION:	DATE:

DRAWN BY: MJJ
CHECKED BY: KCK
SCALE: AS NOTED

PROJECT NO. 19-041

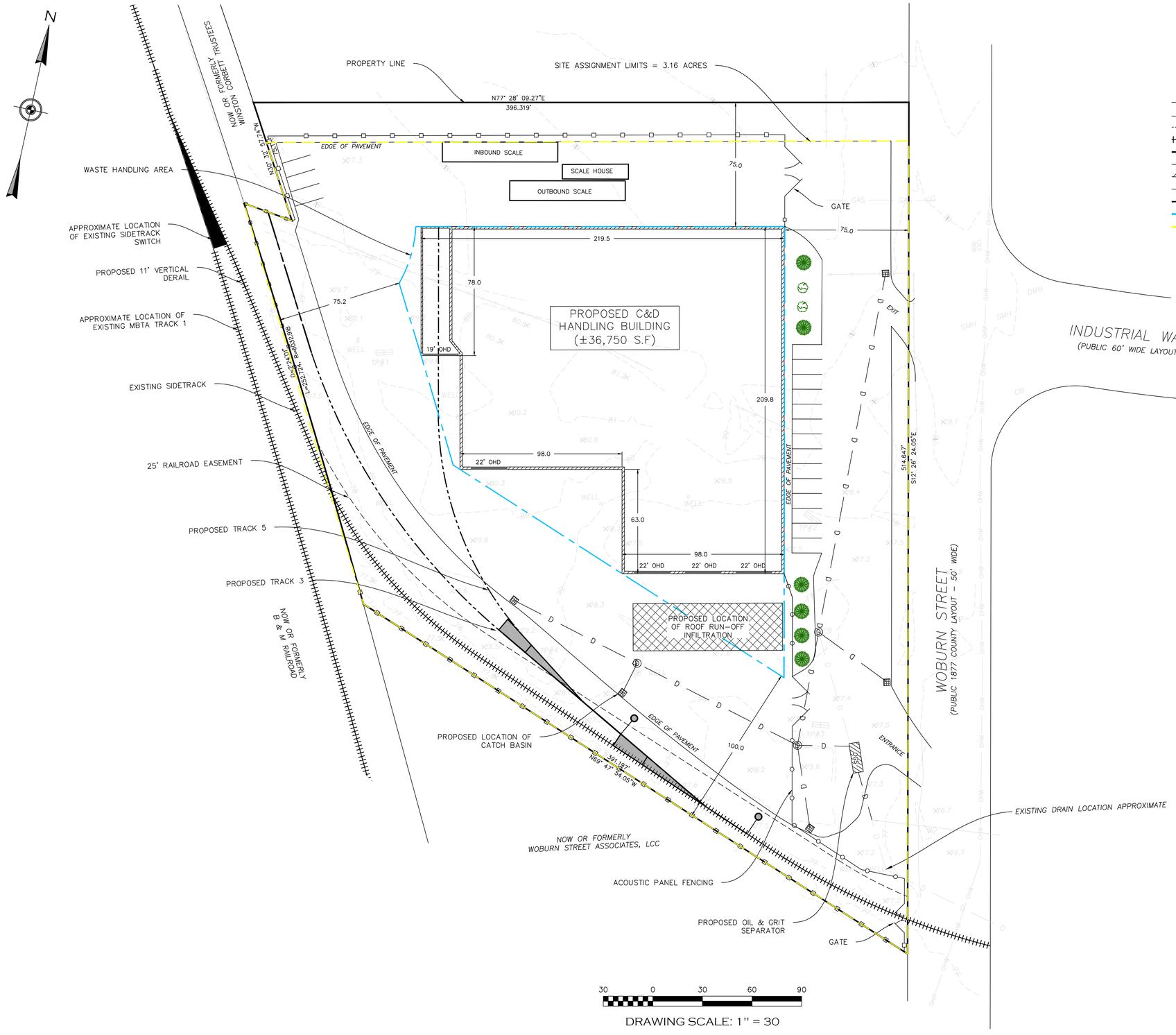
TITLE:
EXIST PLAN
C-1

SHEET No. 1 OF 3

C:\Users\mjuliano.EAGLEBROOK\Eaglebrook Engineering\Company - Documents\Eaglebrook Projects\19-041 885 Woburn St Wilmington\DWG\REF FOR NEW LOT.dwg, EXISTING CONDITION

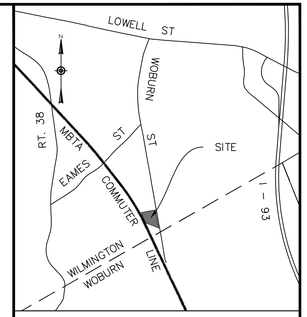
FIGURE 6

SITE PLAN



LEGEND

- CATCH BASIN
- DRAIN MANHOLE
- GATE
- SHRUB
- TREE
- ABUTTERS PARCELS
- EDGE OF PAVEMENT
- EXISTING RAILROAD EASEMENT
- EXISTING RAILROAD TRACKS
- PROPERTY LINE
- PROPOSED ACOUSTIC PANEL FENCING
- PROPOSED BUILDING
- PROPOSED FENCING
- PROPOSED SIDETRACKS
- WASTE HANDLING AREA
- SITE ASSIGNMENT LIMITS



LOCUS MAP
1" = 2000'

GREEN SEAL ENVIRONMENTAL, LLC
114 STATE ROAD, BUILDING B
SAGAMORE BEACH, MA 02562
TEL: (508) 888-6034
FAX: (508) 888-1506
WWW.GSEENV.COM

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DIMENSIONS ARE AS INDICATED.

USE OF THIS PLAN CONSTITUTES ACCEPTANCE OF TERMS AND CONDITIONS SET FORTH IN ACCOMPANYING PROJECT DOCUMENTATION.

IT IS THE RESPONSIBILITY OF THE USER TO CONFIRM DISCREPANCIES WITH THE ENGINEER PRIOR TO USE.

REVISIONS

NO.	DATE	COMMENT

PURPOSE:
SITE SUITABILITY

LOCUS:
867, 885, & 889
WOBURN STREET
WILMINGTON, MA 01887

PREPARED FOR:
887 WOBURN, LLC
887 WOBURN STREET
WILMINGTON, MA 01887

DRAWING TITLE:
SITE PLAN

CAD TECH:	CHECKED BY:
NHE	LAB
ENGINEER:	DATE:
LAB	06/25/2021

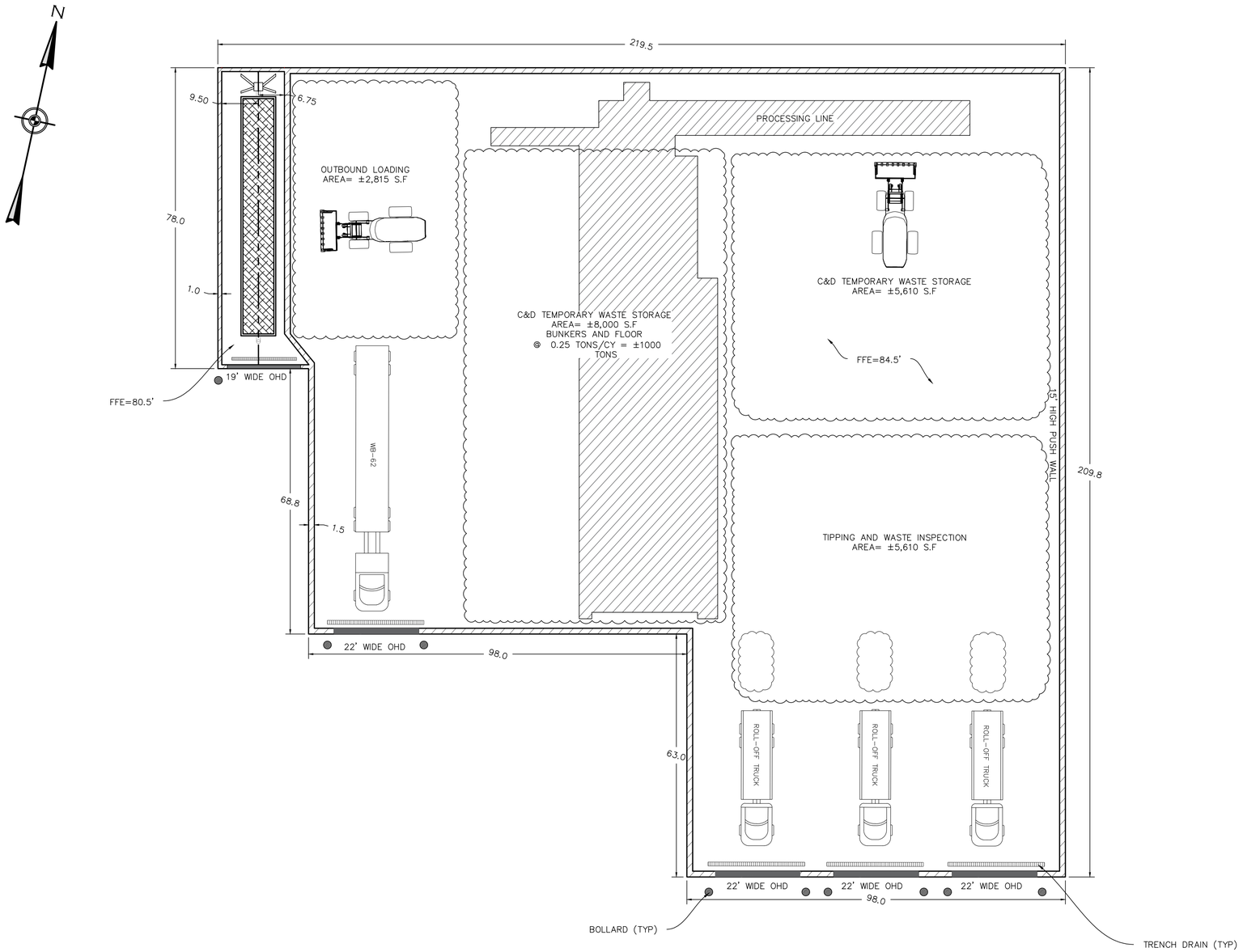
COMMONWEALTH OF MASSACHUSETTS
LAURA A. BUGAY
CIVIL
No. 47599
REGISTERED PROFESSIONAL ENGINEER

SCALE: 1" = 30'

SHEET: FIGURE 6

FIGURE 7

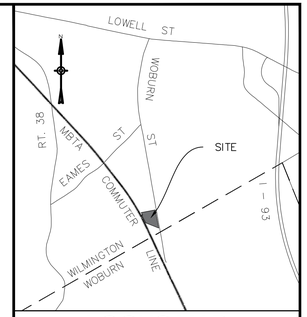
PROPOSED INTERIOR LAYOUT



NOTE:
1. DOORS TO BE FITTED WITH HANGING PLASTIC (FREEZER) STRIPS AND BUILDING EQUIPPED WITH AN ATOMIZED MISTING SYSTEM FOR DUST (AND ODOR) CONTROL
2. OHD = OVERHEAD DOOR

15 0 15 30 45

DRAWING SCALE: 1" = 15'



LOCUS MAP
1" = 2000'

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PROPOSED INTERIOR LAYOUT

CAD TECH:	CHECKED BY:
NHE	LAB
ENGINEER:	DATE:
LAB	06/25/2021

COMMONWEALTH OF MASSACHUSETTS
LAURA A. BUGAY
CIVIL
No. 47599
REGISTERED PROFESSIONAL ENGINEER

SCALE: 1" = 15'

SHEET: FIGURE 7

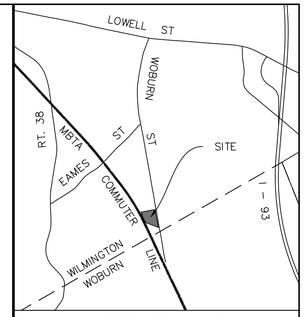
FIGURE 8

TRAFFIC PATTERN

LEGEND

INBOUND WB-65

OUTBOUND WB-65



LOCUS MAP

1" = 2000'

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CAD TECH:	CHECKED BY:
NHE	LAB
ENGINEER:	DATE:
LAB	06/25/2021

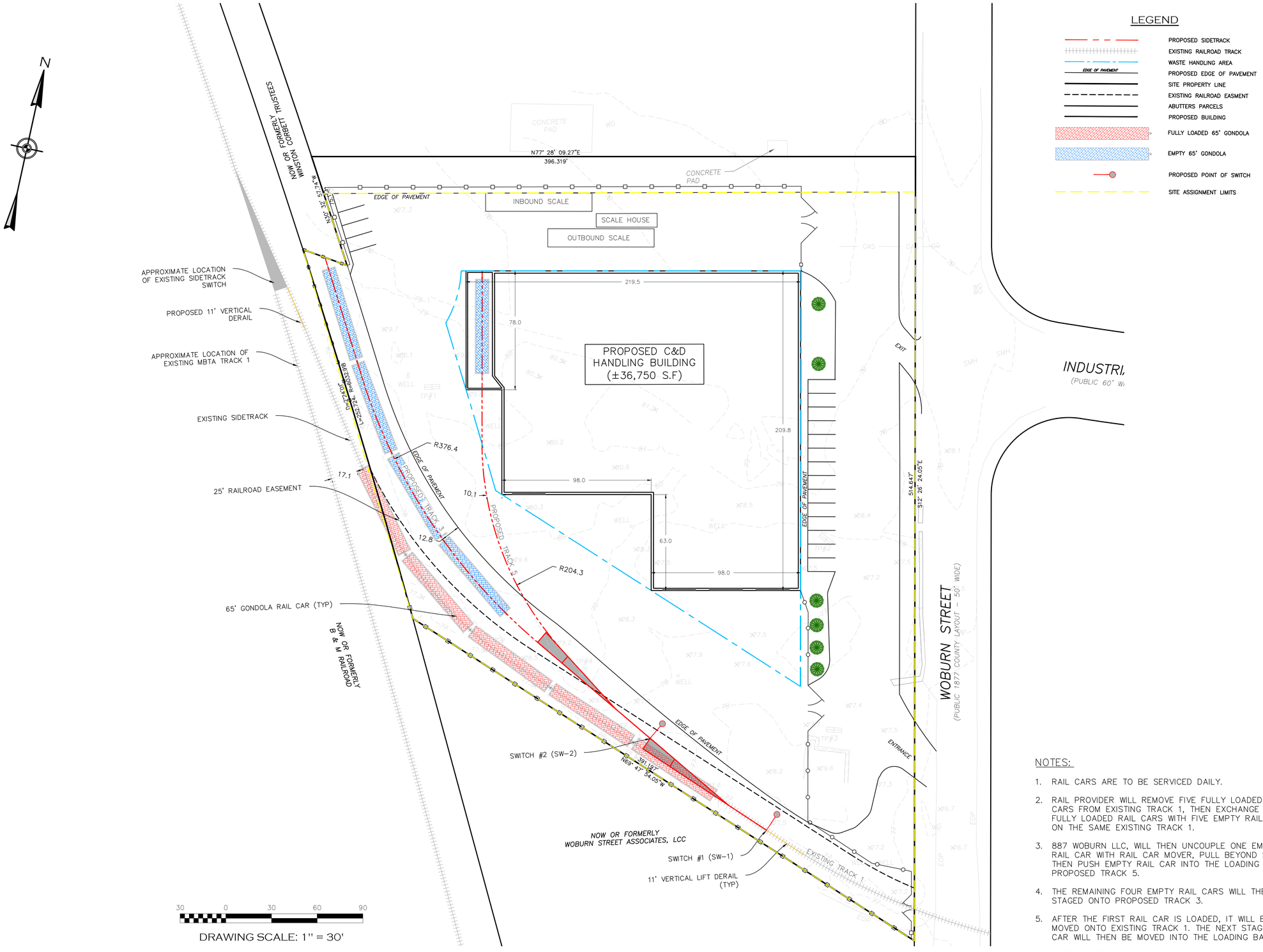
COMMONWEALTH OF MASSACHUSETTS
LAURA A. BUGAY
CIVIL
No. 47599
REGISTERED PROFESSIONAL ENGINEER

SCALE: 1" = 30'

SHEET: FIGURE 8

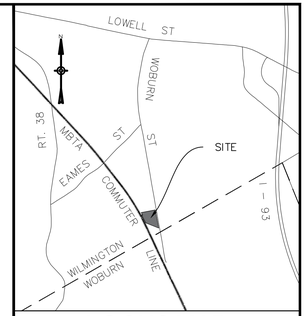
FIGURE 9

RAIL MOVEMENT AND STORAGE PLAN



NOTES:

1. RAIL CARS ARE TO BE SERVICED DAILY.
2. RAIL PROVIDER WILL REMOVE FIVE FULLY LOADED RAIL CARS FROM EXISTING TRACK 1, THEN EXCHANGE THE FULLY LOADED RAIL CARS WITH FIVE EMPTY RAIL CARS ON THE SAME EXISTING TRACK 1.
3. 887 WOBURN LLC, WILL THEN UNCOUPLE ONE EMPTY RAIL CAR WITH RAIL CAR MOVER, PULL BEYOND SW#1, THEN PUSH EMPTY RAIL CAR INTO THE LOADING BAY ON PROPOSED TRACK 5.
4. THE REMAINING FOUR EMPTY RAIL CARS WILL THEN BE STAGED ONTO PROPOSED TRACK 3.
5. AFTER THE FIRST RAIL CAR IS LOADED, IT WILL BE MOVED ONTO EXISTING TRACK 1. THE NEXT STAGED RAIL CAR WILL THEN BE MOVED INTO THE LOADING BAY.
6. REPEAT STEPS 6 AND 7 UNTIL ALL 5 CARS ARE FULLY LOADED ON EXISTING TRACK 1 FOR RAIL PROVIDER TO SERVICE.



LOCUS MAP
1" = 2000'

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REVISIONS

NO.	DATE	COMMENT

PURPOSE:
SITE SUITABILITY

LOCUS:
867, 885, & 889
WOBURN STREET
WILMINGTON, MA 01887

PREPARED FOR:
887 WOBURN, LLC
887 WOBURN STREET
WILMINGTON, MA 01887

DRAWING TITLE:
RAIL MOVEMENT AND STORAGE PLAN

CAD TECH:	CHECKED BY:
NHE	LAB
ENGINEER:	DATE:
LAB	06/25/2021

COMMONWEALTH OF MASSACHUSETTS
LAURA A. BUGAY
CIVIL
No. 47599
REGISTERED PROFESSIONAL ENGINEER

SCALE: 1" = 30'

SHEET: FIGURE 9

FIGURE 10

SITE ASSIGNMENT LIMITS

N

NOW OR FORMERLY
WINSOR ON OR FORMERLY TRUSTEES
CORBETT TRUSTEES

N77° 28' 09.27"E
396.319'

N12° 51' 27.74"W
391.19'

EDGE OF PAVEMENT

INBOUND SCALE

SCALE HOUSE

OUTBOUND SCALE

219.5

78.0

PROPOSED C&D
HANDLING BUILDING
(±36,750 S.F)

209.8

98.0

63.0

98.0

L=2521.73'
R=5829.58'
Δ=24°47'00"

EDGE OF PAVEMENT

EDGE OF PAVEMENT

EXIT

514.64'
S12° 26' 24.05"E

INDUSTRIAL WAY
(PUBLIC 60' WIDE LAYOUT)

NOW OR FORMERLY
B & M RAILROAD

EDGE OF PAVEMENT

391.19'
N89° 47' 54.05"W

NOW OR FORMERLY
WOBURN STREET ASSOCIATES, LCC

ENTRANCE

WOBURN STREET
(PUBLIC 1877 COUNTY LAYOUT - 50' WIDE)

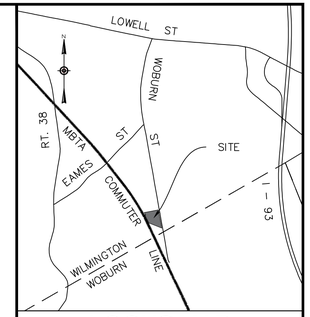
EXISTING DRAIN LOCATION APPROXIMATE

30 0 30 60 90

DRAWING SCALE: 1" = 30

LEGEND

- GATE
- SHRUB
- TREE
- ABUTTERS PARCELS
- EDGE OF PAVEMENT
- EXISTING RAILROAD EASEMENT
- EXISTING RAILROAD TRACKS
- PROPERTY LINE
- PROPOSED ACOUSTIC PANEL FENCING
- PROPOSED BUILDING
- PROPOSED FENCING
- WASTE HANDLING AREA
- SITE ASSIGNMENT LIMITS



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NO.	DATE	COMMENT

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PREPARED FOR:

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DRAWING TITLE:

SITE ASSIGNMENT
LIMITS

CAD TECH:	CHECKED BY:
NHE	LAB
ENGINEER:	DATE:
LAB	06/25/2021

COMMONWEALTH OF MASSACHUSETTS
LAURA A. BUGAY
CIVIL
No. 47599
REGISTERED PROFESSIONAL ENGINEER

SCALE: 1" = 30'

SHEET: FIGURE 10