# CITY OF HAVERHILL
# CITY COUNCIL AGENDA –
# Tuesday, December 1, 2026 at 7:00 PM
# Theodore A. Pelosi, Jr. Council Chambers, 4 Summer St, Room 202
# In-Person/Remote Meeting: https://meet.google.com/ucv-kkab-iws

NOV 25 PM12:53
HAVCITYCLERK

*This meeting of Haverhill City Council will be held in-person at the location provided on this notice as its official meeting location pursuant to the Open Meeting Law. As the meeting is held in person at a physical location that is open and accessible to the public, the City Council is not required to provide remote access to the meeting. Members of the public are welcome to attend this in-person meeting. Please note that a live stream of the meeting is being provided only as a courtesy to the public, and the meeting will not be suspended or terminated if technological problems interrupt the virtual broadcast, unless otherwise required by law. Members of the public with particular interest in any specific item on this agenda should make plans for in-person vs. virtual attendance accordingly. Those attending tonight's meeting should be aware that the meeting is being audio and video recorded by HCTV, The Eagle Tribune, and WHAV. Any audience members who wish to record any part of the meeting must inform the Council President who will announce the recording. This is to comply with the MA wiretap statute. Thank you.*

1. **OPENING PRAYER**
2. **PLEDGE OF ALLEGIANCE**
3. **APPROVAL OF MINUTES OF PRIOR MEETING**
4. **ASSIGNMENT OF THE MINUTES REVIEW FOR THE NEXT MEETING:**
5. **COMMUNICATIONS FROM THE MAYOR:**

5.1. Mayor Barrett submits the following order:

5.1.1. Order- Authorizing City Council to amend Chapter 240, Article V, § 240-24 ("All- night parking") of the Code of the City of Haverhill

**FILE 10 DAYS**

5.2. Mayor Barrett submits the following gift order:

5.2.1. Order - Authorizing the City Council to accept the completed Golden Hill Elementary School Playground as a gift from the Haverhill Community Playground Committee, which gift was previously accepted by the Haverhill School Committee at its meeting on November 19, 2026, valued at $450,000.00

5.3. Mayor Barrett submits the following order to authorize investment of OPEB (other post-employment benefits) trust funds:

5.3.1. Order- Authorizing the City Council to adopt and hereby approve the following actions to be taken by the Treasurer of the City of Haverhill and President of the Council and further approve the following – authorize Treasurer to execute and deliver the Investment Agreement with the State Retiree Benefits Trust Fund board of trustees and President of the City Council to execute the Incumbency Certificate and authorize the City Treasurer and the OPEB Trust to invest the OPEB Trust funds in the State Retiree Benefits Trust Fund pursuant to the Investment Agreement

5.4. Mayor Barrett submits the following order to amend the following loan order which was approved on October 1, 2016

5.4.1. Order- That the order adopted by the City Council on October 11, 2026, which authorized $17,168,750.00 for the planning, engineering, and construction of improvements to develop a new drinking water source, be amended to increase the amount appropriated and authorize to be borrowed to a new aggregate total of $ 26,075,850.00

**FILE 10 DAYS**

5.5. Mayor Barrett submits the following gift order:

5.5.1. Order - Authorizing the City Council to accept a gift of $ 1,500.00 from the Breakfast Exchange Club of Haverhill for the Council on Aging Department's Happy Rides program

5.6. Mayor Barrett submits the following gift donations:

5.6.1. Order - Authorizing the City Council to accept the following donations for the Holiday Luncheon at the Citizen Center to the Council on Aging Department

**$100.00 from Sacred Hearts Church**
**$500.00 from Fantini Baking Company**
**$150.00 from Aspen Hill Operator LLC**

5.7. Mayor Barrett wishes to introduce Robert Ward who will provide an update on the Water Emergency Declaration from MassDEP

**6. COMMUNICATIONS FROM COUNCILORS TO INTRODUCE AN INDIVIDUAL(S) TO ADDRESS THE COUNCIL:**

6.1. President Jordan and Councilor Lewandowski wish to recognize and thank Haverhill Bank *CEO* Tom Mortimer for the positive impact that he has had on our community

6.2. Councilor Basiliere wishes to introduce Leanne Eastman and Thea Doherty to bring their concerns regarding downtown parking issues to the Council

**7. PUBLIC PARTICIPATION- REQUESTS UNDER COUNCIL RULE 28:**

**8. COMMUNICATIONS AND REPORTS FROM CITY OFFICERS AND EMPLOYEES:**

8.1. Angel A. Perkins, *City Auditor and Chief Financial Officer*, submits the revenue and expense reports for the month of October 2026

**9. UTILITY PUBLIC HEARING(S) AND RELATED ORDER(S):**

9.1. **Doc 7-K** Petition from National Grid and Verizon, requesting a joint pole location for North Boardway WR# 31355845

9.2. Petition from National Grid and Verizon, requesting a joint pole location for East Broadway WR# 31318883

**10. PUBLIC HEARINGS AND RELATED ORDERS:**

10.1. **Doc 21-G- PDD-26-1**; Attorney Russell Channen for client Pentucket North Development, LLC requests to amend Chapter 255 Zoning Ordinance and Zoning Map by creating a Special Permit Planned Development District in accordance with Section 8.5 of the Zoning Ordinance. Applicant, Pentucket North Development, LLC is requesting a special permit of a planned residential development on a portion of land owned by Cedardale, Inc, located off of Boston Road known as 931 Boston Road (Map 754 Block 2 Lot 21) to construct six duplex units and two single family units. The property is currently zoned Commercial Highway (CH)

**Continued from October 27, 2026**

10.2. **Doc 21- L-** Petition by request of the City Council to amend Chapter 255, Zoning, by adding a new section 7.9, Temporary Moratorium on Battery Energy Storage Systems

10.3. **Doc 41-B** – Vice President Michiston, as Chair of the Planning and Development Committee, per recommendation of the Planning and Development Committee on August 24, 2026 and vote of the City Council on September 15, 2026 requests a hearing for the following Zoning Amendment – Battery Energy Storage Systems Ordinance for Hilldale Ave location re: Amend Chapter 255 Zoning Ordinance and Zoning Map – Battery Energy Storage Systems Overlay District (BESS)– by inserting a new section 7.9 Battery Energy Storage Systems, amending section 3.1.3 Table of Use and Parking regulations by allowing a Tier 1, Tier 2 and Tier 3 BESS and amending the Zoning Map to include the BESS Overlay District. The overlay district will be creating regulations for the installation and use of free-standing battery energy storage systems ("BESS"), adding to the table the overlay district with the allowed Tiers and updating the zoning map to include the BESS Overlay District, or take any other action related to

**Continued from October 27, 2026**

**11. APPOINTMENTS:**

11.1. **Confirming Appointments:**
11.2. **Non-Confirming Appointments:**
11.3. **Constables:**

11.4. **Resignation:**

**12. PETITIONS:**

12.1. Petition from Nation Grid and Verizon, requesting a joint pole location for Sixth Ave WR# 31358473

**Hearing for January 5, 2026**

12.2. **Applications Handicap Parking Sign:** *with Police approval*
12.3. **Amusement/Event Application:** *with Police approval*
12.4. **Auctioneer License**:
12.5. **Tag Days***: with Police approval*
12.6. **One Day Liquor License –with Police & License Commission approval**
12.7. **ANNUAL LICENSE RENEWALS:**
12.7.1. **Hawker Peddlers License- Fixed location** – *w/Police approval*
12.7.2. **Coin-Op License *Renewals*** – *with Police approval*
12.7.3. **Christmas Tree Vendor** – *with Police approval*
12.7.4. **Taxi Driver Licenses:** *with Police approval*
12.7.5. **Taxi/Limousine License** *with Police approval*

12.7.6. **TLLB-26-3**- John Jalbert Jr. for Jalbert Wilson Inc, 102 Hale St, 5 Vehicles (renewal)

12.7.7. **Junk Dealer /Collector License** - *with Police approval*
12.7.8. **Pool/Billiard**
12.7.9. **Bowling**
12.7.10. **Sunday Bowling**
12.7.11. **Buy & Sell Secondhand Articles** *with Police approval*
12.7.12. **Buy & Sell Secondhand Clothing** *with Police approval*
12.7.13. **Pawnbroker license** - *with police approval*
12.7.14. **Fortune Teller** *with - Police approval*
12.7.15. **Buy & Sell Old Gold** – *with Police approval*
12.7.16. **Roller Skating Rink**
12.7.17. **Sunday Skating**
12.7.18. **Exterior Vending Machines/Redbox Automated Retail, LLC**
12.7.19. **Limousine/Livery License/Chair Cars** *with Police approval*

**13. MOTIONS AND ORDERS:**

13.1. Order- Pay bills of the previous years and to further authorize the payment from the current year departmental appropriations as listed:

| Vendor | Amount | Account |
|---|---|---|
| AAA Pump Service, Inc | $4,952.29 | WWTP |
| Coady's Garage & Towing | $2,004.89 | WWTP |
| Coady's Garage & Towing | $35.00 | WWTP |
| Coady's Garage & Towing | $35.00 | WWTP |
| Delta Beckwith Elevator | $660.00 | Public Property |
| Delta Beckwith Elevator | $330.00 | Public Property |
| Delta Beckwith Elevator | $330.00 | Public Property |
| Delta Beckwith Elevator | $330.00 | Public Property |
| Delta Beckwith Elevator | $330.00 | Public Property |
| Delta Beckwith Elevator | $660.00 | Police |
| Delta Beckwith Elevator | $330.00 | Police |
| Delta Beckwith Elevator | $330.00 | Police |
| Delta Beckwith Elevator | $330.00 | Police |
| Delta Beckwith Elevator | $330.00 | Police |
| Delta Beckwith Elevator | $275.00 | Police |
| T-Mobile USA, Inc | $50.00 | Police |
| T-Mobile USA, Inc | $50.00 | Police |
| Vestis | $107.43 | Police |
| Al Auto Care | | |
| (37 Invoices $35 Each) | $1,295.00 | Police |
| **Total** | **$12,764.61** | |

**14. ORDINANCES (FILE 10 DAYS):**

**15. COMMUNICATIONS FROM COUNCILORS:**

15.1. Councilors Ferreira and Diodati request a post-election update on the approval of question 10 regarding social consumption of cannabis in Haverhill including an explanation of the next steps and processes involved

15.2. Councilors Michitson and Diodati wish to discuss traffic safety issues on Germain Ave

15.3. Councilors Ferreira and Michitson request an update from Mayor and/or Haverhill Police Department on status of the cancellation of the city's contract with Flock

**16. UNFINISHED BUSINESS OF PRECEDING MEETING:**

16.1. **Doc 41-C**- Councilors Lewandowski and Ferreira request update from Mayor on snow plan for season including services for senior population and snowplow contractor staffing

**Continued from November 17, 2026**

16.2. **Doc 40-C** Ordinance re: Vehicles and Traffic; Amend Ch 240, be further amended by DELETING the following in § 240-85 schedule B; Parking Restrictions and Prohibitions:

| LOCATION | REGULATION | HOURS/ DAYS |
|---|---|---|
| 22 Hillside St | (Except for 1 24-hour Handicap parking) | 24 hours |

**Filed November 18, 2026**

**17. RESOLUTIONS AND PROCLAMATIONS:**
**18. COUNCIL COMMITTEE REPORTS AND ANNOUNCEMENTS:**
**19. DOCUMENTS REFERRED TO COMMITTEE STUDY:**
**20. LONG TERM MATTERS STUDY LIST:**
**21. ADJOURN:**

5.1

MELINDA E. BARRETT
MAYOR

CITY OF HAVERHILL
MASSACHUSETTS

CITY HALL, ROOM 100
FOUR SUMMER STREET
HAVERHILL, MA 01830
PHONE 978-374-2300
FAX 978-373-7544
MAYOR@HAVERHILLMA.GOV
WWW.HAVERHILLMA.GOV

November 25, 2026

**To:** City Council President Timothy J. Jordan and Members of the Haverhill City Council

**From:** Mayor Melinda E. Barrett

**Re:** Order to Amend All-Night Parking Ordinance

Dear Mr. President and Members of the City Council:

I respectfully submit an Order to amend the Code of the City of Haverhill, Ch. 240, Article V, §240-24 ("All Night Parking") to correct a scrivener's error in Section D regarding the commencement date of the ordinance.

I recommend approval.

Very truly yours,

Melinda E. Barrett
Mayor

5.1.1

Document

CITY OF HAVERHILL

In Municipal Council

NOV 25 AM 9:23
HAVCITYCLERK

ORDERED:

COMMONWEALTH OF MASSACHUSETTS

ESSEX, SS.

CITY OF HAVERHILL
CITY COUNCIL

**AN ORDER RELATING TO THE AMENDMENT OF THE ALL-NIGHT PARKING ORDINANCE**

BE IT ORDERED by the City Council of the City of Haverhill that the City Council votes to amend Chapter 240, Article V, § 240-24 ("All-night parking") of the Code of the City of Haverhill as follows:

**§ 240-24. All-night parking.**

A. Except as otherwise provided in this section, no person shall allow, permit or suffer any vehicle registered in his name, other than one acting in an emergency, to be parked on any street for a period longer than one hour between the hours of 6:00 p.m. and 6:00 a.m. at any time between December 15 and March 15, or such dates as determined by the Mayor and approved by City Council in conformance with paragraph D below. [Amended 4-13-1993 by Doc. 26-C; 1-30-1996 by Doc. 18-C].

B. It shall be lawful to park any vehicle on alternate sides of all streets in those zoning districts known as RH, RL, RM and RU between the hours specified in Subsection A above as follows, unless otherwise amended by the Mayor and approved by the City Council in conformance with paragraph D below: [Amended 4-20-1981 by Doc. 11-E; 1-30-1996 by Doc. 18-C]

(1) Beginning December 15 at 6:00 p.m., even-numbered side of the street; and

(2) Beginning January 1 at 6:00 p.m., odd-numbered side of the street;

(3) Beginning February 1 at 6:00 p.m., even-numbered side of the street; and

(4) Beginning March 1 at 6:00 p.m., odd-numbered side of the street.

C. This section shall not apply to any automobiles bearing a license number plate beginning with "HP" or "V," except during snow removal or snow plowing activity.

D. In any year the Mayor may modify the start and end dates of the all-night parking ban and

exceptions under Subsection B, subject to final approval by the City Council. Changes to any dates in Subsection A or Subsection B may not take effect unless they are published on the City website and through the same news and media sources used to declare a snow emergency no less than 7 days prior to December 15, and unless the first day of the parking ban is no less than 7 days after the date of initial publication.

E. Any citizen or citizens may petition the City Council for an alternate parking plan on their respective streets. Permission may be granted at the discretion of the City Council.

F. Exemptions. [Added 1-10-1984 by Doc. 26-S]

(1) The following streets shall be exempt from the above restrictions in Subsection A:

| **Name of Street** | **Side** |
|---|---|
| Marble Street | North |

(2) The following streets shall be exempt from the above allowances in Subsection B:

| **Name of Street** | **Side** |
|---|---|
| Marble Street | South |

G. Whenever the Director of Public Works and the Chief of Police determine that a special emergency involving the health and/or safety of the people and/or their property exists within the City of Haverhill as a result of higher-than-normal snowfalls, the schedule may be temporarily altered at the discretion of the Director of Public Works and the Chief of Police. [Added 2-1-2011 by Doc. 23]

YEAS: _____

NAYS: _____

ABSENT: _____

PASSED IN COUNCIL: _____

_____
Date Approved

_____ _____
Kaitlin M. Wright, City Clerk Melinda E. Barrett, Mayor

**APPROVED AS TO LEGALITY:**

_____

City Solicitor

A True Record, Attest:

ORDERED:

COMMONWEALTH OF MASSACHUSETTS

ESSEX, SS. CITY OF HAVERHILL

CITY COUNCIL

**AN ORDER RELATING TO THE AMENDMENT OF THE ALL-NIGHT PARKING ORDINANCE**

BE IT ORDERED by the City Council of the City of Haverhill that the City Council votes to amend Chapter 240, Article V, § 240-24 ("All-night parking") of the Code of the City of Haverhill as follows:

**§ 240-24. All-night parking.**

A. Except as otherwise provided in this section, no person shall allow, permit or suffer any vehicle registered in his name, other than one acting in an emergency, to be parked on any street for a period longer than one hour between the hours of 6:00 p.m. and 6:00 a.m. at any time between December 15 and March 15, or such dates as determined by the Mayor and approved by City Council in conformance with paragraph D below. [Amended 4-13-1993 by Doc. 26-C; 1-30-1996 by Doc. 18-C].

B. It shall be lawful to park any vehicle on alternate sides of all streets in those zoning districts known as RH, RL, RM and RU between the hours specified in Subsection A above as follows, unless otherwise amended by the Mayor and approved by the City Council in conformance with paragraph D below: [Amended 4-20-1981 by Doc. 11-E; 1-30-1996 by Doc. 18-C]

(1) Beginning December 15 at 6:00 p.m., even-numbered side of the street; and

(2) Beginning January 1 at 6:00 p.m., odd-numbered side of the street;

(3) Beginning February 1 at 6:00 p.m., even-numbered side of the street; and

(4) Beginning March 1 at 6:00 p.m., odd-numbered side of the street.

C. This section shall not apply to any automobiles bearing a license number plate beginning with "HP" or "V," except during snow removal or snow plowing activity.

D. In any year the Mayor may modify the start and end dates of the all-night parking ban and exceptions under Subsection B, subject to final approval by the City Council. Changes to any dates in Subsection A or Subsection B may not take effect unless they are published on the City website and through the same news and media sources used to declare a snow emergency no less than 7 days prior to ~~**November**~~ **December** 15, and unless the first day of the parking ban is no less than 7 days after the date of initial publication.

E. Any citizen or citizens may petition the City Council for an alternate parking plan on their respective streets. Permission may be granted at the discretion of the City Council.

F. Exemptions. [Added 1-10-1984 by Doc. 26-S]

(1) The following streets shall be exempt from the above restrictions in Subsection A:

| **Name of Street** | **Side** |
|---|---|
| Marble Street | North |

(2) The following streets shall be exempt from the above allowances in Subsection B:

| **Name of Street** | **Side** |
|---|---|
| Marble Street | South |

G. Whenever the Director of Public Works and the Chief of Police determine that a special emergency involving the health and/or safety of the people and/or their property exists within the City of Haverhill as a result of higher-than-normal snowfalls, the schedule may be temporarily altered at the discretion of the Director of Public Works and the Chief of Police. [Added 2-1-2011 by Doc. 23]

YEAS: _____

NAYS: _____

ABSENT: _____

PASSED IN COUNCIL: _____

_____

Date Approved

Kaitlin M. Wright, City Clerk

Melinda E. Barrett, Mayor

**APPROVED AS TO LEGALITY:**

City Solicitor

A True Record, Attest:

5.2

MELINDA E. BARRETT
MAYOR

CITY OF HAVERHILL
MASSACHUSETTS

CITY HALL, ROOM 100
FOUR SUMMER STREET
HAVERHILL, MA 01830
PHONE 978-374-2300
FAX 978-373-7544
MAYOR@HAVERHILLMA.GOV
WWW.HAVERHILLMA.GOV

November 25, 2026

**To:** City Council President Timothy J. Jordan and Members of the Haverhill City Council

**From:** Mayor Melinda E. Barrett

**Re:** Order to Accept Gift - Golden Hill Elementary School Playground

Dear Mr. President and Members of the City Council:

I respectfully submit an Order to accept the Golden Hill Elementary School Playground as a gift from the Haverhill Playground Committee.

I recommend approval.

Very truly yours,

Melinda E. Barrett
Mayor

5.21

Document

CITY OF HAVERHILL

In Municipal Council

NOV 25 AM 9:23
HAVCITYCLERK

Ordered:

GIFT ACCEPTANCE

At a regularly convened meeting of the City Council of the City of Haverhill, held on the 1st day of December, 2026, it was voted as follows:

That the City Council of the City of Haverhill, duly elected, qualified, and acting as such, on behalf of the City votes to accept the completed Golden Hill Elementary School Playground as a gift from the Haverhill Community Playground Committee, which gift was previously accepted by the Haverhill School Committee at its meeting on November 19, 2026, pursuant to the Memorandum of Understanding between the parties, acknowledging receipt of the independent safety inspection certification and fall attenuation testing certification required by Section 8 of the Memorandum of Understanding, and with a retail value of $450,000.00.

YEAS: _____

NAYS: _____

ABSENT: _____

PASSED IN COUNCIL: _____

A True Record, Attest:

_____
Date Approved

_____
Kaitlin M. Wright, City Clerk

_____
Melinda E. Barrett, Mayor

5.3

MELINDA E. BARRETT
MAYOR

CITY OF HAVERHILL
MASSACHUSETTS

CITY HALL, ROOM 100
FOUR SUMMER STREET
HAVERHILL, MA 01830
PHONE 978-374-2300
FAX 978-373-7544
MAYOR@HAVERHILLMA.GOV
WWW.HAVERHILLMA.GOV

November 25, 2026

**To:** City Council President Timothy J. Jordan and Members of the Haverhill City Council

**From:** Mayor Melinda E. Barrett

**Re:** Order OPEB Trust Funds

Dear Mr. President and Members of the City Council:

I respectfully submit an Order to authorize investment of OPEB trust funds.

I recommend approval.

Very truly yours,

Melinda E. Barrett
Mayor

Document

CITY OF HAVERHILL

In Municipal Council

Ordered:

It is hereby Ordered that the City Council of the City of Haverhill does adopt and hereby approve the following actions to be taken by the Treasurer of the City of Haverhill and President of the Council and further approve the following:

Whereas the Treasurer of the City of Haverhill, as Custodian of the OPEB Fund, be, and hereby is, authorized to execute and deliver the Investment Agreement with the State Retiree Benefits Trust Fund board of trustees on behalf of the City of Haverhill for the purpose of making the representations and warranties, acknowledgements and agreements on the part of the City of Haverhill to be made and performed thereunder; and

Whereas the President of the City of Council of the City of Haverhill shall certifies to the State Retiree Benefits Trust Fund Board of Trustees and the Pension Reserves Investment Management Board that he is the duly elected President of the City Council, the Governmental Unit and authorized to execute the Incumbency Certificate related to the Investment Agreement with the State Retiree Benefits Trust Fund board of trustees on behalf of the City of Haverhill; and

Whereas, to the extent required, the City Council does hereby authorize the City Treasurer and the OPEB Trust to invest the OPEB Trust funds in the State Retiree Benefits Trust Fund pursuant to the Investment Agreement.

So voted.

Date:_____

Certified by the City Clerk

_____
Kaitlin Wright Esposito

Approved by the Mayor

_____
Melinda E. Barrett

5.4

MELINDA E. BARRETT
MAYOR

CITY OF HAVERHILL
MASSACHUSETTS

CITY HALL, ROOM 100
FOUR SUMMER STREET
HAVERHILL, MA 01830
PHONE 978-374-2300
FAX 978-373-7544
MAYOR@HAVERHILLMA.GOV
WWW.HAVERHILLMA.GOV

November 25, 2026

**To:** City Council President Timothy J. Jordan and Members of the Haverhill City Council

**From:** Mayor Melinda E. Barrett

**Re:** Order To Amend Loan Order for Well

Dear Mr. President and Members of the City Council:

I respectfully submit an Order to amend the loan order which was approved on October 11, 2016 in the amount of $17,168,750.00 and increase the amount appropriated to $26,075,850.00 to construct the well at 309 East Broadway.

I recommend approval.

Very truly yours,

Melinda E. Barrett
Mayor

# City of Haverhill

*Massachusetts*

Water and Wastewater Divisions


Date: November 25, 2026

To: The Honorable Melinda E. Barrett
Mayor of Haverhill

From: Robert E. Ward
Director of Public Works – Water/Wastewater

Subject: Amended Loan Order – New Drinking Water Source Development Project

Attached for your review and approval is a proposed amended loan order appropriating funds for the engineering, permitting, and construction of improvements necessary to develop a new drinking water source for the City. In October 2016, the project was authorized for $17,168,750. The proposed amended loan order would increase the authorization to $26,075,850, reflecting updated project costs and anticipated construction requirements. Also attached for City Council approval is the Authority to File Document necessary for State Revolving Fund loan eligibility.

Following approval of the 2016 borrowing authorization, the work on the engineering, permitting, and evaluation continued but was eventually delayed due to extensive permitting requirements and difficulty with completing the acquisition of the property at 309 East Broadway, which was identified as the most suitable site. Please note that engineering, permitting, property acquisition, and related project activities undertaken since 2016 were funded primarily through available Water Division capital funds rather than proceeds from the 2016 borrowing authorization. The 2016 borrowing authorization is now being used to fund the final engineering, permitting, and construction.

The project scope includes the continued engineering, permitting, and construction of the radial collector well (RCW), pump system, electric/control building, electric service, and approximately 13,000 feet 24-inch transmission main from the RCW to the water treatment plant to bring the RCW online. Attached is a concept sketch of the RCW which will be located adjacent to the Merrimack River at 309 East Broadway which the City recently purchased.

The attached cost estimate reflects the revised total project cost of approximately $26 million. The increased borrowing authorization is critical to preventing delays in project delivery and maintaining the project schedule. Given the ongoing drought conditions and the critical importance of maintaining a reliable and redundant water supply for the City, our consultants and City Staff are expediting all phases of this project. Attached is a copy of the project schedule.

In July 2026, we submitted an application to the Massachusetts Department of Environmental Protection (DEP) for a low-interest loan through the Massachusetts Drinking Water State Revolving Fund (SRF) loan program. We will find out in January/February whether or not we will be eligible for SRF funds. The amended loan order authorizes the City to finance the project through borrowing, including financing available through the Massachusetts Drinking Water State Revolving Fund program, while continuing to pursue any available state or federal grant opportunities to reduce the City's borrowing obligation.

Attached is a copy of the Water Division's 5-Year financial forecast from the FY27 budget showing user rates forecasted for the next 5 years. The estimated annual loan payments of $2 million for this project is

included in the forecast and expected to begin in FY28. The rate impact is approximately $0.97 and will cost the average household an additional $14 per quarterly bill. Also attached is a copy of the water 5-Year Capital Project List.

The cost of the project is offset by the water supply impact fee charged to new development.

Because this is a borrowing authorization, the loan order must be placed on file for ten days by the City Council before it can be acted upon at a subsequent meeting. I respectfully recommend forwarding the attached loan order to the City Council so it may be placed on file and subsequently considered for adoption.

Please let me know if you have any questions or require any additional information.

Attachments:

Amended Loan Order
Authority to File
City Council Document 15-J, In City Council October 11, 2026
Project Description
Updated Cost Estimate
Project Schedule
Five-Year Financial Forecast
Five-Year Capital Improvement Program

cc: Christine Lindberg, Chief of Staff, clindberg@haverhillma.gov
Lisa Mead, Mead, Talerman & Costa LLC, lisa@mtclawyers.com
Angel A. Perkins, Chief Financial Officer & City Auditor, aperkins@haverhillma.gov
Shaun Burrier, Water/Wastewater Engineer, sburrier@haverhillma.gov
Allana McOsker, Water/Wastewater Business Manager, amcosker@haverhillma.gov
John D'Aoust, Water Treatment Plant Manager, jdaoust@haverhillma.gov
Lynn Spitalere, Treasurer/Collector, spitalere@haverhillma.gov

5.4.1

DOCUMENT

# CITY OF HAVERHILL

In Municipal Council

NOV 25 A9:23
HAVCITYCLERK

ORDERED:

That the order adopted by the City Council on October 11, 2016, which authorized $17,168,750 for the planning, engineering, and construction of improvements to develop a new drinking water source, be amended to increase the amount appropriated and authorized to be borrowed to a new aggregate total of $26,075,850, so that the amended loan order reads as follows:

> ORDERED: "That $26,075,850 is appropriated for the purpose of financing the planning, engineering, and construction of improvements to develop a new drinking water source, including the payment of all costs incidental or related thereto, and including without limitation all costs thereof as defined in Section 1 of Chapter 29C of the General Laws, as most recently amended ("Chapter 29C"); that to meet this appropriation, the Treasurer with the approval of the Mayor is authorized to borrow $26,075,850 and issue bonds or notes therefor under Chapter 44 of the General Laws and/or Chapter 29C or any other enabling authority; that such bonds or notes shall be general obligations of the City unless the Treasurer with the approval of the Mayor determines that they should be issued as limited obligations and may be secured by local system revenues as defined in Section 1 of Chapter 29C; that the Treasurer with the approval of the Mayor is authorized to borrow all or a portion of such amount from the Massachusetts Clean Water Trust established pursuant to Chapter 29C (the "Trust"), and in connection therewith to enter into a financing agreement and/or a security agreement with the Trust and otherwise to contract with the Trust and the Department of Environmental Protection with respect to such loan and for any federal or state aid available for the project or for the financing thereof; and that the Mayor is authorized to enter into a project regulatory agreement with the Department of Environmental Protection, to expend all funds available for the project and to take any other action necessary or convenient to carry out the project.
>
> FURTHER ORDERED: That the Treasurer is authorized to file an application with the appropriate officials of The Commonwealth of Massachusetts (the "Commonwealth") to qualify under Chapter 44A of the General Laws any and all bonds of the City authorized by this order, and to provide such information and execute such documents as such officials of the Commonwealth may require in connection therewith. The Mayor is authorized to apply for and accept any and all grants that may be available to pay the costs of this project, and the total borrowing authorized by this order shall be reduced to the extent of any such grants received by the City for this project."

DOCUMENT

# CITY OF HAVERHILL

In Municipal Council

## AUTHORITY TO FILE

Whereas, City of Haverhill, (the Applicant), after thorough investigation, has determined that the work activity consisting of the planning, engineering, and construction of improvements to develop a new drinking water source is both in the public interest and necessary to protect the public health, and that to undertake this activity, it is necessary to apply for assistance; and

Whereas, the Massachusetts Department of Environmental Protection (MassDEP) and the Massachusetts Clean Water Trust (the Trust) of the Commonwealth of Massachusetts, pursuant to Chapter 21 and Chapter 29C of the General Laws of the Commonwealth (Chapter 21 and Chapter 29C) are authorized to provide financial assistance to municipalities for the purpose of funding planning and construction activities relative to Water Pollution Abatement Projects and Drinking Water Projects; and

Whereas, the Applicant has examined the provisions of the Act, Chapter 21 and Chapter 29C, and believes it to be in the public interest to file a loan application.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Haverhill as follows:

1. That the Mayor is hereby authorized on behalf of the Applicant to file applications and execute agreements for grant and/or loan assistance as well as furnishing such information, data and documents pertaining to the applicant for a grant(s) and/or loan(s) as may be required; and otherwise to act as the authorized representative of the Applicant in connection with this application;

2. That the purpose of said loan(s), if awarded, shall be to fund planning and construction activities.

3. That if said award is made the Applicant agrees to pay those costs which constitute the required Applicant's share of the project cost.

YEAS: _____

NAYS: _____

ABSENT: _____

PASSED IN COUNCIL: _____

A True Record, Attest:

_____

Date Approved

_____ _____

Kaitlin M. Wright, City Clerk Melinda E. Barrett, Mayor

155

DOCUMENT 15-J

# CITY OF HAVERHILL

In Municipal Council September 27 2016

ORDERED: That $17,168,750.00 is appropriated for the purpose of financing the planning, engineering and construction of improvements to develop a new drinking water source including without limitation all costs thereof as defined in Section 1 of Chapter 29C of the General Laws; that to meet this appropriation the Treasurer with the approval of the Mayor is authorized to borrow $17,168,750.00 and issue bonds or notes therefore under Chapter 44 of the General Laws and/or Chapter 29C of the General Laws,; that such bonds or notes shall be general obligations of the City unless the Treasurer with the approval of the Mayor determines that they should be issued as limited obligations and may be secured by local system revenues as defined in Section 1 of Chapter 29C; that the Treasurer with the approval of the Mayor is authorized to borrow all or a portion of such amount from the Massachusetts Clean Water Trust established pursuant to Chapter 29C; and in connection therewith to enter into a financing agreement and/or a security agreement with the Trust and otherwise to contract with the Trust and the Department of Environmental Protection with respect to such loan and for any federal or state aid available for the project or for the financing thereof; that the Mayor is authorized to enter into a project regulatory agreement with the Department of Environmental Protection, to expend all funds available for the project and to take any other action necessary to carry out the project. Any premium received by the City upon the sale of any bonds or notes approved by this vote, less any such premium applied to the payment of the costs of issuance of such bonds or notes, may be applied to the payment of costs approved by this vote in accordance with Chapter 44, Section 20 of the General Laws, thereby reducing the amount authorized to be borrowed to pay such costs by a like amount.

LOAN ORDER

FURTHER ORDERED: That in connection with the issuance of bonds or notes of the City pursuant to this Order, the Treasurer is authorized to file an application with the appropriate officials of The Commonwealth of Massachusetts (the "Commonwealth") to qualify under Chapter 44A of the General Laws any and all bonds of the City issued pursuant to this order, and to provide such information and execute such documents as such officials of the Commonwealth may require in connection therewith.

PLACED ON FILE for at least 10 days
Attest:
City Clerk

A True Copy Attest
Linda L. Koutoulas
City Clerk

IN CITY COUNCIL: October 11 2016
PASSED Yeas 8, Nays 1
Attest:
City Clerk

APPROVED: October 12 2016
Mayor

**Haverhill Riverbank Radial Collector Well**
**Project Description**

This project includes the design and construction of a radial collector riverbank well system and a 24-inch transmission main from the well to the City's water treatment plant. A radial collector well consists of a vertical shaft caisson with radial collector shafts drilled horizontally beneath the river bottom and into the riverbed formation. The proposed radial collector riverbank well system is being targeted for a capacity of 7 million gallons per day (MGD) and will serve as a redundant supply to the City's existing reservoir system.

Findings from a 2010 Water Master Plan study found that loss of any one of the three (3) existing reservoirs would put Haverhill in a significant supply deficit and some residents, businesses, hospitals and other water consumers may not be served by the water system. A review of potential sources in proximity to Haverhill determined that the only viable large capacity source was the Merrimack River.

In 2011, the Mayor formed a Water Supply Technical Committee to review potential water supply alternatives. The City consisted of key City staff, the City's engineering consultant and special public appointments made by the mayor. The committee concluded that riverbank wells along the Merrimack River is the best and only large capacity long-term water supply solution for the City.

Several phases of prior work tasks have been completed which has led to the identification of a potential site for the development of the radial collector well. Briefly, the prior work included the following:

- Phase I - Geophysical Study. In March and April 2012, a geophysical study was conducted to identify bedrock troughs having deep gravel deposits along the river bottom that had the potential to extend onto land. The study area was concentrated along the north side of the river bound by upstream and downstream city limits. Three (3) areas were identified having the appropriate criteria for further study.

- Phase II - River & Land Test Well Exploration. Between July 2012 through March 2013 a small diameter (2.5 inch) test well program was initiated to validate the findings from the Phase I study and to collect subsurface information on shore directly adjacent to the three areas of focus. The work also included the collection and analysis of water samples. This work identified one area as having the best potential for large capacity groundwater withdrawals. Water quality was found to be fairly typical of New England groundwater with elevated levels of iron, manganese and hardness.

- Phase III – Additional River Explorations. Between November 2014 through January 2015, a second small diameter test well program was implemented focusing exclusively in the river. The purpose of the work was to fill and refine data collected in Phases I and II. Water quality samples were also collected and analyzed. The results strengthened prior conclusions in that the area of focus appeared to be favorable for large capacity groundwater withdrawals.

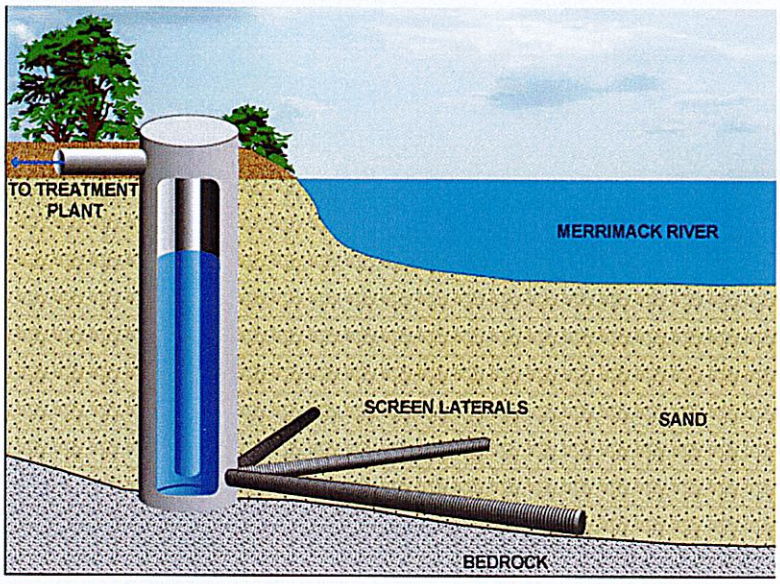
- Well Technology for Riverbank Filtration. In 2016, a brief evaluation of suitable riverbank withdrawal technologies was conducted to recommend the best application for Haverhill. Based on the significant volume of water being targeted, the radial collector technology was recommended.

Funds being requested through this loan order will pay for the remaining exploratory work needed to design and construct the collector well. It also includes funding for the design and construction of a transmission main from the proposed radial collector well site to Kenoza Lake and the City's water treatment plant.

The second component of the project is the design and construction of approximately 13,000 linear feet of 24-inch transmission main from the project site on East Broadway then north on Millvale Road and Kenoza Street to Kenoza Lake and the water treatment plant.

# Preferred Withdrawal Technique

- Riverbank filtration
- Uses sand and gravel for "natural" filtration
- Enhanced water quality
- Reduces subsequent water treatment needs
- Pumped to treatment plant




Radial Collector well

9/29/26

**Haverhill, MA**
**Radial Collector Well and Related Projects**
**Projected Project Cost Estimate**

| Project | Task | Engineering | Construction Estimate | Total |
|---|---|---|---|---|
| **Radial Collector Well** | Pump Test/PFAS Sampling | $60,000 | | |
| | Design | $118,000 | | |
| | Install Monitoring Network | $354,000 | | |
| | Bidding | $18,900 | | |
| | Long-term Pump Test | $127,500 | | |
| | Hydrogeological Modeling | $121,100 | | |
| | BRP WS 19 Final Report | $67,300 | | |
| | WMA Needs Forecasting | $50,000 | | |
| | Master Plan Updated Projections | $17,000 | | |
| | Misc Tasks | $11,950 | | |
| | Preliminary Treatability Analysis | $100,000 | | |
| | Funding Assistance | $6,600 | | |
| | Project Websire Updates | $22,600 | | |
| | FEIR | $235,000 | | |
| | Construction Administration | $420,600 | | |
| | Construction | | $8,000,000 | |
| **Electrical Building** | Design | $274,000 | | |
| | Bidding | $20,000 | | |
| | Construction Administration | $242,000 | | |
| | Construction Inspection | $164,000 | | |
| | Construction | | $4,000,000 | |
| **Pump System** | Design | $72,000 | | |
| | Bidding | $20,000 | | |
| | Construction Administration | $95,000 | | |
| | Construction Inspection | $63,000 | | |
| | Construction | | $1,000,000 | |
| **Transmission Main** | Design (to complete)* | $50,000 | | |
| | Bidding* | $15,000 | | |
| | Construction Administration | $103,300 | | |
| | Construction Inspection | $227,000 | | |
| | Construction | | $10,000,000 | |
| | | $3,075,850 | $23,000,000 | $26,075,850 |

*Budget under orginal agreement

HAVERHILL, MA
RADIAL COLLECTOR WELL AND RELATED PROJECTS – PROJECTED SCHEDULE OF ACTIVITIES

*The dates listed are best estimates and may vary depending on equipment and material availability, review time of agencies, permitting or other factors out of our control or not fully known.*

| Project Description | Design | Bidding | Construction | Permitting |
|---|---|---|---|---|
| Radial Collector Well | 12-31-2026 - complete | 1-13-2027 – advertised<br>2-10-2027 – bid Opening | 3-15-2027 – mobilize<br>11-15-2027 - SC | 7-31-2028 |
| Raw Water Main | complete | 11-11-2026 – advertised<br>11-25-2026 – bid Opening | 12-9-2026 – mobilize<br>1-29-2027 - SC | 12-31-2026 |
| Electrical Building | 11-16-2026 - 30% progress<br>2-27-2027 – 60% progress<br>4-1-2027 – 100% complete | 4-14-2027 – advertised<br>5-26-2027 – bid Opening | 7-1-2027 – mobilize<br>7-1-2028 - SC | N/A |

**Five-Year Forecast**

| 5-Year Forecast - Summary | Budget FY26 | Budget Request FY27 | Mayor Allowed FY27 | Forecast FY28 | Forecast FY29 | Forecast FY30 | Forecast FY31 |
|---|---|---|---|---|---|---|---|
| **User rate** | $5.93 | $6.83 | $6.5171 | $7.34 | $7.81 | $8.00 | $8.13 |
| **Percent Change** | 3.0% | 15.2% | 9.9% | 7.5% | 6.4% | 2.4% | 1.6% |
| Total Revenue | $ 14,148,523 | $ 15,119,293 | $ 14,472,609 | $17,080,577 | $18,526,748 | $19,025,886 | $ 19,409,560 |
| Total Expenditures | $ 14,146,880 | $ 15,115,294 | $ 15,040,416 | $ 17,118,983 | $ 18,564,280 | $ 19,062,327 | $ 19,450,710 |
| Surplus/(Deficit) | $ 1,643 | $ 3,999 | $ (567,807) | $ (38,406) | $ (37,532) | $ (36,441) | $ (41,150) |
| **Year End Retained Earnings** | **$ 173,977** | **$ 1,848,174** | **$ 1,280,367** | **$ 1,809,768** | **$ 1,772,236** | **$ 1,735,796** | **$ 1,694,646** |
| **Min. Retained Earnings (15%** | **$ 2,122,032** | **$ 2,267,294** | **$ 2,256,062** | **$ 2,567,847** | **$ 2,784,642** | **$ 2,859,349** | **$ 2,917,607** |

| Average Impact to Rate Payer | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ave. Household Bill | $443 | $510 | $487 | $549 | $584 | $598 | $608 |
| Ave. Annual Increase | $13 | $67 | $44 | $39 | $35 | $14 | $10 |

| Water Capital Project List | | | | | | |
|---|---|---|---|---|---|---|
| **Project** | **Funding** | **FY27** | **FY28** | **FY29** | **FY30** | **FY31** |
| **Water Supply** | | | | | | |
| Water Supply Expenditures | Annual Capital | $ 25,000 | $ 25,000 | $ 25,000 | $ 25,000 | $ 25,000 |
| Merrimack River - Geophysical, Pump Test, & Permitting | Debt Financing | $ 585,900 | $ 469,200 | $ 97,300 | | |
| Merrimack River - Well Construction | Debt Financing | $ 4,100,000 | $ 3,900,000 | | | |
| Merrimack River - Electrical/Puping Building Design | Debt Financing | | | $ 375,000 | $ 20,000 | |
| Merrimack River - Electrical/Puping Building Construction | Debt Financing | | | | $ 2,500,000 | $ 3,500,000 |
| Merrimack River - Transmission Main Design | Debt Financing | $ 7,500 | $ 7,500 | | | |
| Merrimack River - Transmission Main Construction | Debt Financing | | $ 4,550,000 | $ 4,450,000 | | |
| Merrimack River - Engineering CA | Debt Financing | | $ 435,000 | $ 465,000 | $ 255,000 | $ 345,000 |
| Merrimack River - Property Acquisition | Debt Financing | | | | | |
| Merrmiack River - Property Acquistion - Additional | Debt Financing | $ 800,000 | | | | |
| **Water Treatment** | | | | | | |
| Granular Activated Carbon Change | Annual Capital | $ 320,000 | $ 320,000 | $ 320,000 | $ 320,000 | $ 320,000 |
| WTP Emergency Capital Repair | Annual Capital | $ 50,000 | $ 50,000 | $ 50,000 | $ 50,000 | $ 50,000 |
| WTP Emergency Capital Repair | Debt Financing | | $ 250,000 | | | |
| Tanks - Design & Construction Adminstration | Debt Financing | | | $ 1,000,000 | | |
| Tanks - Interior Inspection & Cleaning | Annual Capital | | | | $ 100,000 | |
| Tanks - Water Quailty Monitoring Station | Debt Financing | | | | $ 750,000 | |
| **Pumping Stations** | | | | | | |
| Pump station equipment replacement | Annual Capital | $ 30,000 | $ 30,000 | $ 30,000 | $ 30,000 | $ 30,000 |
| Broadway Booster Replacement Design | Debt Financing | $ 132,000 | | | | |
| Broadway Booster Replacement Construction | Debt Financing | | $ 2,700,000 | | | |
| Scotland Heights Replacement Design | Debt Financing | $ 132,000 | | | | |
| Scotland Heights Replacement Construction | Debt Financing | | | $ 2,800,000 | | |
| **Water Supply Dams** | | | | | | |
| Millvale Dam Rehabilitation | Debt Financing | | | | $ 2,000,000 | |
| Kenoza Lake South Embankment | Debt Financing | | $ 1,000,000 | | | |
| **Transmission and Distribution** | | | | | | |
| Clean/Line 20" | SRF Financing | | | | $ 5,100,000 | |
| Locke St Area - Rehab/Replace Aged Mains Phase 1 | Debt Financing | $ 2,608,284 | | | | |
| Locke St Area - Rehab/Replace Aged Mains Phase 2 | Debt Financing | $ 3,900,000 | | | | |
| Locke St Area - Rehab/Replace Aged Mains Phase 3 | Debt Financing | | | | | $ 800,000 |
| Water Infrastructure Expense | Annual Capital | $ 60,000 | $ 60,000 | $ 60,000 | $ 60,000 | $ 60,000 |
| Water Main Repiar/Replace - Paving CIP | Debt Financing | | $ 500,000 | $ 500,000 | $ 500,000 | $ 500,000 |
| **Meters** | | | | | | |
| Small Meter Replacement | Annual Capital | | $ 80,000 | $ 82,500 | $ 82,500 | $ 85,000 |
| Large Meter Replacement | Annual Capital | | $ 90,000 | $ 92,500 | $ 92,500 | $ 95,000 |
| Fixed network for water meters | Annual Capital | $ 16,000 | $ 17,000 | $ 18,000 | $ 19,000 | $ 19,000 |
| **Buildings** | | | | | | |
| Water Maint Garage - Repairs and Maintenance | Annual Capital | $ 15,000 | $ 15,000 | $ 15,000 | $ 15,000 | $ 15,000 |
| Water Maint Garage - Window Replacement | Annual Capital | | | $ 100,000 | | |
| **Vehicles and Equipment** | | | | | | |
| Utility Truck Replacement | Annual Capital | $ 100,000 | $ 100,000 | $ 100,000 | $ 100,000 | $ 100,000 |
| W-8 plow truck replacement | Annual Capital | | | | | |
| W-20 Replacement 10 wheel dump | Annual Capital | | | $ 200,000 | | |
| W-27 Replacement 6-wheeled dump | Annual Capital | | $ 180,000 | | | |
| Backhoe Replacement | Annual Capital | | $ 250,000 | | | |
| Misc. Equipment | Annual Capital | $ 25,000 | | $ 25,000 | | $ 25,000 |
| Forklift | Annual Capital | | | | $ 60,000 | |
| Service Vans (2012 replacement, 1 new) | Annual Capital | $ 80,000 | | $ 80,000 | | |
| Kubota MX6000 Tractor, Loader, & Flail Mower | Annual Capital | $ 85,000 | | | | |
| Zero Turn Mower - 72" | Annual Capital | $ 20,000 | | | | |
| **Computer Hardware and Software** | | | | | | |
| Integrated IP Telephone System | Annual Capital | $ 25,000 | | | | |
| Stratus fault tolerant server - lease | Annual Capital | | $ 150,000 | | | |
| GIS Aerial | Annual Capital | | $ 30,000 | | | |
| | **Annual Capital** | $ 851,000 | $ 1,397,000 | $ 1,198,000 | $ 954,000 | $ 824,000 |
| | **SRF Financing** | $ - | $ - | $ - | $ 5,100,000 | $ - |
| | **Debt Financing** | $ 8,283,684 | $ 13,811,700 | $ 9,687,300 | $ 6,025,000 | $ 5,145,000 |
| | **Capital Reserves** | $ - | $ - | $ - | $ - | $ - |

5.5

MELINDA E. BARRETT
MAYOR

CITY OF HAVERHILL
MASSACHUSETTS

CITY HALL, ROOM 100
FOUR SUMMER STREET
HAVERHILL, MA 01830
PHONE 978-374-2300
FAX 978-373-7544
MAYOR@HAVERHILLMA.GOV
WWW.HAVERHILLMA.GOV

November 25, 2026

To: City Council President Timothy J. Jordan and Members of the Haverhill City Council

From: Mayor Melinda E. Barrett

**RE: Order Authorizing the City Council to Accept a Gift of $1500.00 from Breakfast Exchange Club of Haverhill**

Dear Mr. President and Members of the Haverhill City Council:

Please see the attached order authorizing the City Council to accept a gift of $1500.00 dollars from the Breakfast Exchange Club of Haverhill for the Council on Aging Department's Happy Rides program.

I recommend approval.

Sincerely,

Melinda E. Barrett

**Melinda E. Barrett**
Mayor

MEB/em

5.5.1

Document

CITY OF HAVERHILL

In Municipal Council

NOV 25 AM 9:22
HAVCITYCLERK

Ordered:

GIFT ACCEPTANCE

At a regularly convened meeting of the City Council of the City of Haverhill, held on the 1st day of December 2026, it was voted as follows:

That the City Council of the City of Haverhill duly elected, qualified, and acting as such, on behalf of the City votes to accept a gift of fifteen hundred dollars ($1,500.00) for the Happy Rides program. Consistent with the purpose of the donation, as stated in the letter from the Breakfast Exchange Club addressed to the City of Haverhill dated November 2026, the Gift shall be used by the Council on Aging Department.

YEAS: _____

NAYS: _____

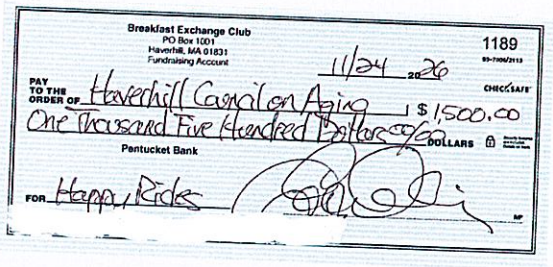
ABSENT: _____

PASSED IN COUNCIL: _____

A True Record, Attest:

_____
Date Approved

_____ _____
Kaitlin M. Wright, City Clerk Melinda E. Barrett, Mayor



Breakfast Exchange Club
PO Box 1001
Haverhill, MA 01831
Fundraising Account

1189

11/24 2026

PAY TO THE ORDER OF Haverhill Council on Aging $ 1,500.00

One Thousand Five Hundred Dollars 00/00 DOLLARS

Pentucket Bank

FOR Happy Rides

5.6

MELINDA E. BARRETT
MAYOR

CITY OF HAVERHILL
MASSACHUSETTS

CITY HALL, ROOM 100
FOUR SUMMER STREET
HAVERHILL, MA 01830
PHONE 978-374-2300
FAX 978-373-7544
MAYOR@HAVERHILLMA.GOV
WWW.HAVERHILLMA.GOV

November 25, 2026

To: City Council President Timothy J. Jordan and Members of the Haverhill City Council

From: Mayor Melinda E. Barrett

**RE: Order Authorizing City Council to Accept Donations for Holiday Luncheon at the Citizens Center.**

Dear Mr. President and Members of the Haverhill City Council:

Please see attached an order authorizing City Council to accept the following donations for the Holiday Luncheon at the Citizens Center to the Council on Aging Department.

$100.00 from Sacred Hearts Church
$500.00 from Fantini Baking Company
$150.00 from Aspen Hill Operator LLC

I recommend approval.

Sincerely,
**Melinda E. Barrett**
Mayor
MEB/em

5.6.1

Document

CITY OF HAVERHILL

In Municipal Council

NOV 25 AM 9:22
HAVCITYCLERK

Ordered:

GIFT ACCEPTANCE

At a regularly convened meeting of the City Council of the City of Haverhill, held on the 1st day of December 2026, it was voted as follows:

That the City Council of the City of Haverhill, duly elected, qualified, and acting as such, on behalf of the City votes to accept the following donations for the Holiday Luncheon at the Citizens Center. Consistent with the purposes stated in the letters of donations, the Gift shall be used by the Council on Aging Department.

$100.00 from Sacred Hearts Church
$500.00 from Fantini Baking Company
$150.00 from Aspen Hill Operator LLC

YEAS: _____

NAYS: _____

ABSENT: _____

PASSED IN COUNCIL: _____

A True Record, Attest:

_____
Date Approved

_____
Kaitlin M. Wright, City Clerk

_____
Melinda E. Barrett, Mayor

11/9/2026

Paola-

Enclosed is a donation from Sacred Heart Parish for upcoming holiday luncheon.

See you on Friday, November 20.

Sincerely

Fr. John Delaney

HOLD TO LIGHT TO VIEW TRUE WATERMARK IN PAPER - HEAT SENSITIVE RED LOCK DISAPPEARS WHEN HEATED

32850

**SACRED HEARTS PARISH**
48 SOUTH CHESTNUT STREET
BRADFORD, MASSACHUSETTS 01835

Haverhill Bank
Just One Bank

53-7005/2113

11/04/2026

PAY TO THE ORDER OF Haverhill Council on Aging

$ **100.00**

***One Hundred Dollars***

DOLLARS

Haverhill Council on Aging
4 Summer St.
Haverhill, MA 01830
United States

MEMO

AUTHORIZED SIGNATURE

Security features. Details on back.

**SACRED HEARTS PARISH**

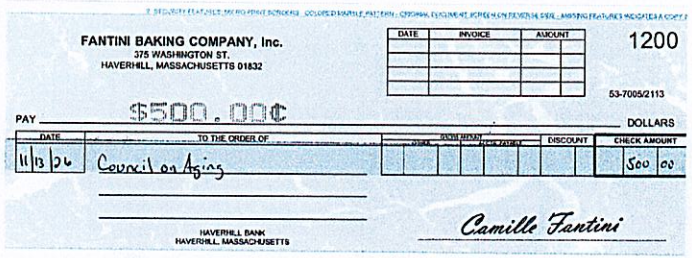
32850

V-0054195--Haverhill Council on Aging
Print As: Haverhill Council on Aging

4 Summer St.
Haverhill, MA 01830

Haverhill Bank
B553 Operating 3033 3033
Date: 11/04/2026

| Date | Memo | Reference Number / Department ID | Entity | Amount Entered | Amount Paid |
|---|---|---|---|---|---|
| 11/04/2026 | Rev. JD 11.04.2026 | | | | |
| 534001--Charitable Works | Support for Holiday Party | 70001 | B553 | $100.00 | $100.00 |
| Net Amount | | | | | $100.00 |



FANTINI BAKING COMPANY, Inc.
375 WASHINGTON ST.
HAVERHILL, MASSACHUSETTS 01832

| DATE | INVOICE | AMOUNT | |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

1200

53-7005/2113

PAY $500.00¢ DOLLARS

| DATE | TO THE ORDER OF | DISCOUNT | CHECK AMOUNT |
|---|---|---|---|
| 11/13/26 | Council on Aging | | 500 00 |

HAVERHILL BANK
HAVERHILL, MASSACHUSETTS

Camille Fantini

Aspen Hill Operator LLC
V18901--City of Haverhill
Print As: City of Haverhill

Tax Collectors Office
4 Summers St, Room 114
Haverhill, MA 01830

14857
CIBC Bank
Aspen Hill Operator 9027
Date: 10/23/2026

| Date | Invoice | Description | Amount | Discount | Net |
|---|---|---|---|---|---|
| 10/23/2026 | 100126 | 100126 | $150.00 | | $150.00 |

Page 1 of 1

Aspen Hill Operator LLC
V18901--City of Haverhill
Print As: City of Haverhill

Tax Collectors Office
4 Summers St, Room 114
Haverhill, MA 01830

14857
CIBC Bank
Aspen Hill Operator 9027
Date: 10/23/2026

| Date | Invoice | Description | Amount | Discount | Net |
|---|---|---|---|---|---|
| 10/23/2026 | 100126 | 100126 | $150.00 | | $150.00 |

Page 1 of 1

THE BACK OF THIS DOCUMENT HAS A COLORED BACKGROUND ON WHITE PAPER

Aspen Hill Operator LLC
1608 RT 88
Suite 301
Brick, NJ 08724

CIBC Bank
120 S. LaSalle St.
Chicago, IL
60603

14857
Date: 10/23/2026

70-0648/710

Pay One Hundred Fifty Dollars

$150.00

Memo: #print

Pay to the Order of City of Haverhill
Tax Collectors Office
4 Summers St, Room 114
Haverhill, MA 01830
United States

MPosen

Security Features Included Details on back.

5.7

MELINDA E. BARRETT
MAYOR

CITY OF HAVERHILL
MASSACHUSETTS

CITY HALL, ROOM 100
FOUR SUMMER STREET
HAVERHILL, MA 01830
PHONE 978-374-2300
FAX 978-373-7544
MAYOR@HAVERHILLMA.GOV
WWW.HAVERHILLMA.GOV

NOV 25 AM 9:23
HAVCITYCLERK

November 25, 2026

**To:** City Council President Timothy J. Jordan and Members of the Haverhill City Council

**From:** Mayor Melinda E. Barrett

**Re:** Water Emergency Declaration by MassDEP

Dear Mr. President and Members of the City Council:

I respectfully request to introduce Robert Ward who will provide an update on the Water Emergency Declaration from MassDEP.

Thank you.

Very truly yours,

Melinda E. Barrett
Mayor

6.1

**CITY COUNCIL**
**Timthoy J. Jordan,** *President*
**John A. Michitson,** *Vice President*
**Thomas J. Sullivan**
**Colin F. LePage**
**Melissa J. Lewandowski**
**Catherine P. Rogers**
**Shaun P. Toohey**
**Michael S. McGonagle**
**Daniel R. Diodati**
**Devan Ferreira**
**Ralph T. Basiliere**

CITY HALL, ROOM 204
4 SUMMER STREET
TELEPHONE: 978-374-2328
FACSIMILE: 978-374-2329
WWW.CITYOFHAVERHILL.GOV
CITYCOUNCIL@HAVERHILLMA.GOV

**CITY OF HAVERHILL**
HAVERHILL, MASSACHUSETTS 01830-5843

November 24, 2026

NOV 24 AM9:52
HAVCITYCLERK

TO: City Councilors

President Jordan and Councilor Lewandowski wish to recognize and thank Haverhill Bank CEO Tom Mortimer for the positive impact that he has had on our community.

Timothy J. Jordan

President Timothy J. Jordan

Melissa J. Lewandowski

Councilor Melissa J. Lewandowski

(meeting: 12/1/26)

6.2

**CITY COUNCIL**
**Timthoy J. Jordan,** *President*
**John A. Michitson,** *Vice President*
**Thomas J. Sullivan**
**Colin F. LePage**
**Melissa J. Lewandowski**
**Catherine P. Rogers**
**Shaun P. Toohey**
**Michael S. McGonagle**
**Daniel R. Diodati**
**Devan Ferreira**
**Ralph T. Basiliere**

CITY HALL, ROOM 204
4 SUMMER STREET
TELEPHONE: 978-374-2328
FACSIMILE: 978-374-2329
WWW.CITYOFHAVERHILL.GOV
CITYCOUNCIL@HAVERHILLMA.GOV

**CITY OF HAVERHILL**
HAVERHILL, MASSACHUSETTS 01830-5843

November 24, 2026

NOV 24 AM9:52
HAVCITYCLERK

TO: President Jordan and City Councilors

Councilor Basiliere wishes to introduce Leanne Eastman and Thea Doherty to bring their concerns regarding downtown parking issues to the council.

Ralph T. Basiliere

Councilor Ralph T. Basiliere

(meeting: 12/1/26)

8.1

# Haverhill

Office of the City Auditor, Room 106
Phone: 978-374-2306 Fax: 978-373-8476
aperkins@cityofhaverhill.com

November 17, 2026

To The Honorable City Council

NOV 18 AM9:44
HAVCITYCLERK

Attached are the revenue and expense reports through October 2026.

The general fund revenue shows a year-over-year increase of 2.75%, which is down from 5.43% in October of 2025. As anticipated, investment income has decreased due to reduced invested ARPA funds and borrowing proceeds. Investment earnings recognized through last October were $1.6 million compared to just $740,428 through this October. This decline in investment earnings was incorporated into the 2027 operating budget, so it is not negatively affecting budget performance. Overall, the general fund revenue is slightly above its year-to-date collection benchmark of 36%, currently standing at 37.4%.

The general fund operating budget is progressing as planned; however, in 2027, the city has significantly reduced its operating reserves due to budget constraints. As we navigate these challenging financial conditions, it is essential for all departments to manage budgets accurately, given the limited capacity to accommodate unexpected expenses.

**As discussed in the recent department head meeting, the Mayor has extended the budget freeze on all discretionary purchases until further notice.**

The city's free cash has been submitted to the Massachusetts Department of Revenue for certification. As in previous years, a portion of this free cash will be allocated to high-priority capital projects, placeholders for snow and ice removal, and the 2028 operating budget. The 2028 budget process will begin earlier this year and is intended to conclude in early June.

Sincerely,

Angel A. Perkins, CPFO, CGA, CFE
Chief Financial Officer & City Auditor

| Year to Date Benchmark | 34.62% |
|---|---|

| City Department | Budget | Expended as of 10/31/26 | Unexpended | % Expended |
|---|---|---|---|---|
| Council Salaries | $ 236,676 | $ 80,588 | $ 156,088 | 34.05% |
| Council Expenses | $ 6,600 | $ 477 | $ 6,123 | 7.23% |
| Mayor Salaries | $ 446,004 | $ 129,941 | $ 316,063 | 29.13% |
| Mayor Expenses | $ 206,750 | $ 45,747 | $ 161,003 | 22.13% |
| Auditor's Office Salaries | $ 406,751 | $ 142,031 | $ 264,720 | 34.92% |
| Auditor's Office Expenses | $ 148,100 | $ 1,819 | $ 146,281 | 1.23% |
| Assessors Salaries | $ 310,083 | $ 108,630 | $ 201,453 | 35.03% |
| Assessors Expenses | $ 171,079 | $ 53,316 | $ 117,763 | 31.16% |
| Treasurer/Collector Salaries | $ 428,727 | $ 141,770 | $ 286,957 | 33.07% |
| Treasurer/Collector Expenses | $ 250,300 | $ 52,362 | $ 197,938 | 20.92% |
| Constituent Services Salaries | $ 105,672 | $ 35,378 | $ 70,294 | 33.48% |
| Constituent Services Expenses | $ 7,500 | $ - | $ 7,500 | 0.00% |
| Purchasing Salaries | $ 102,632 | $ 36,994 | $ 65,638 | 36.05% |
| Purchasing Expenses | $ 15,050 | $ 4,993 | $ 10,057 | 33.18% |
| Law Department Salaries | $ 47,754 | $ 16,805 | $ 30,949 | 35.19% |
| Law Department Legal | $ 425,000 | $ 124,587 | $ 300,413 | 29.31% |
| Human Resources Salaries | $ 331,555 | $ 116,938 | $ 214,617 | 35.27% |
| Human Resources Expenses | $ 130,300 | $ 55,520 | $ 74,780 | 42.61% |
| MIS Salaries | $ 211,100 | $ 75,228 | $ 135,872 | 35.64% |
| MIS Expenses | $ 641,809 | $ 273,818 | $ 367,991 | 42.66% |
| MIS Capital | $ 50,000 | $ 12,044 | $ 37,956 | 24.09% |
| City Clerk Salaries | $ 612,582 | $ 231,812 | $ 380,770 | 37.84% |
| City Clerk Expenses | $ 154,380 | $ 55,242 | $ 99,138 | 35.78% |
| **TOTAL GENERAL GOVERNMENT** | **$ 5,446,404** | **$ 1,796,040** | **$ 3,650,364** | 33.0% |
| Building Maint. Salaries | $ 26,000 | $ 9,000 | $ 17,000 | 34.62% |
| Building Maint. Expenses | $ 373,500 | $ 90,631 | $ 282,869 | 24.27% |
| Inspectional & Health Services Salaries | $ 1,271,710 | $ 415,945 | $ 855,765 | 32.71% |
| Inspectional & Health Services Expenses | $ 45,450 | $ 11,037 | $ 34,413 | 24.28% |

**Expense Report as of 10/31/2026**

| City Department | Budget | Expended as of 10/31/26 | Unexpended | % Expended |
|---|---|---|---|---|
| Public Health Salaries | $ 254,291 | $ 103,507 | $ 150,784 | 40.70% |
| Public Health Expenses | $ 7,000 | $ 678 | $ 6,322 | 9.69% |
| Economic Development Salaries | $ 366,920 | $ 80,094 | $ 286,826 | 21.83% |
| Economic Development Expenses | $ 52,370 | $ 30,424 | $ 21,946 | 58.09% |
| **TOTAL COMMUNITY & ECONOMIC DEVELOPMENT** | **$ 2,397,241** | **$ 741,316** | **$ 1,655,925** | **30.9%** |
| Police Salaries | $ 15,215,388 | $ 4,925,707 | $ 10,289,681 | 32.37% |
| Police Expenses | $ 1,876,608 | $ 663,005 | $ 1,213,603 | 35.33% |
| Police Capital | $ 410,000 | $ 344,800 | $ 65,200 | 84.10% |
| Fire Salaries | $ 14,883,477 | $ 4,787,167 | $ 10,096,310 | 32.16% |
| Fire Expenses | $ 1,006,973 | $ 217,062 | $ 789,911 | 21.56% |
| Fire Capital | $ 29,522 | $ 26,164 | $ 3,358 | 88.63% |
| **TOTAL PUBLIC SAFETY** | **$ 33,421,968** | **$ 10,963,905** | **$ 22,458,063** | **32.8%** |
| Whittier Regional School Assessment | $ 9,469,211 | $ 4,734,606 | $ 4,734,605 | 50.00% |
| North Shore Essex Tech. Assessment | $ 690,625 | $ - | $ 690,625 | 0.00% |
| School Department | $ 136,998,618 | $ 28,450,178 | $ 108,548,440 | 20.77% |
| **TOTAL EDUCATION** | **$ 147,158,454** | **$ 33,184,784** | **$ 113,973,670** | **22.6%** |
| Public Works Administration Salaries | $ 297,318 | $ 81,497 | $ 215,821 | 27.41% |
| Public Works Administration Expenses | $ 37,165 | $ 4,684 | $ 32,481 | 12.60% |
| Public Works Highways Salaries | $ 1,127,200 | $ 281,501 | $ 845,699 | 24.97% |
| Public Works Highways Expenses | $ 712,800 | $ 300,538 | $ 412,262 | 42.16% |
| Public Works Highways Capital | $ 100,000 | $ - | $ 100,000 | 0.00% |
| Public Works Solid Waste/Recycling Salaries | $ 219,899 | $ 78,714 | $ 141,185 | 35.80% |
| Public Works Solid Waste/Recycling Expenses | $ 5,898,252 | $ 806,214 | $ 5,092,038 | 13.67% |
| Public Works Parking Area Salaries | $ 51,726 | $ 23,983 | $ 27,743 | 46.37% |
| Public Works Parking Area Expenses | $ 396,670 | $ 108,798 | $ 287,872 | 27.43% |
| Public Works Street Marking Expenses | $ 200,000 | $ 15,937 | $ 184,063 | 7.97% |
| Public Works Fleet Maint. Salaries | $ 281,158 | $ 61,771 | $ 219,387 | 21.97% |
| Public Works Fleet Maint. Expenses | $ 76,260 | $ 7,996 | $ 68,264 | 10.49% |
| Public Works Park Dept. Salaries | $ 587,791 | $ 215,087 | $ 372,704 | 36.59% |
| Public Works Park Dept. Expenses | $ 285,871 | $ 70,116 | $ 215,755 | 24.53% |

**Expense Report as of 10/31/2026**

| City Department | Budget | Expended as of 10/31/26 | Unexpended | % Expended |
|---|---|---|---|---|
| Public Works Street Lighting Expenses | $ 753,608 | $ 190,445 | $ 563,163 | 25.27% |
| Public Works Snow & Ice Removal Salaries | $ 229,330 | $ 2,659 | $ 226,671 | 1.16% |
| Public Works Snow & Ice Removal Expenses | $ 980,670 | $ 821 | $ 979,849 | 0.08% |
| **TOTAL PUBLIC WORKS** | **$ 12,235,718** | **$ 2,250,761** | **$ 9,984,957** | **18.4%** |
| Citizens Center Salaries | $ 317,822 | $ 121,691 | $ 196,131 | 38.29% |
| Citizens Center Expenses | $ 168,610 | $ 25,839 | $ 142,771 | 15.32% |
| Veterans Services Salaries | $ 131,645 | $ 44,651 | $ 86,994 | 33.92% |
| Veterans Services Expenses | $ 533,250 | $ 147,717 | $ 385,533 | 27.70% |
| Senior Services Salaries | $ 12,100 | $ 3,462 | $ 8,638 | 28.61% |
| Senior Services Expenses | $ 2,400 | $ - | $ 2,400 | 0.00% |
| Stadium Commission | $ 61,600 | $ 14,596 | $ 47,004 | 23.69% |
| Recreation Salaries | $ 235,397 | $ 177,099 | $ 58,298 | 75.23% |
| Recreation Expenses | $ 85,000 | $ 8,641 | $ 76,359 | 10.17% |
| Public Library Salaries | $ 1,711,916 | $ 562,642 | $ 1,149,274 | 32.87% |
| Public Library Expenses | $ 298,134 | $ 122,865 | $ 175,269 | 41.21% |
| **TOTAL HUMAN SERVICES** | **$ 3,557,874** | **$ 1,229,203** | **$ 2,328,671** | **34.5%** |
| Debt Service | $ 8,834,819 | $ 1,385,351 | $ 7,449,468 | 15.68% |
| **TOTAL DEBT SERVICE** | **$ 8,834,819** | **$ 1,385,351** | **$ 7,449,468** | **15.7%** |
| Retirement Fund | $ 23,838,461 | $ 23,838,461 | $ - | 100.00% |
| Unemployment Compensation | $ 280,000 | $ 163,545 | $ 116,455 | 58.41% |
| Group Insurance | $ 31,583,332 | $ 7,548,284 | $ 24,035,048 | 23.90% |
| Payroll Taxes (FICA/Medicare) | $ 2,207,955 | $ 645,544 | $ 1,562,411 | 29.24% |
| Workers Compensation | $ 890,000 | $ 361,757 | $ 528,243 | 40.65% |
| Injured on Duty Claims | $ 210,000 | $ 153,795 | $ 56,205 | 73.24% |
| Sick Leave Bank | $ 182,934 | $ 38,732 | $ 144,202 | 21.17% |
| Vacational Buyback | $ 50,000 | | $ 50,000 | 0.00% |
| Retiree Medical Claims | $ 85,000 | $ 3,234 | $ 81,766 | 3.80% |
| TOTAL EMPLOYEE BENEFITS | $ 59,327,682 | $ 32,753,352 | $ 26,574,330 | 55.2% |
| General Liability Insurance | $ 1,381,899 | $ 860,722 | $ 521,177 | 62.29% |
| Salary Reserve | $ 388,666 | $ 159,472 | $ 229,194 | 41.03% |

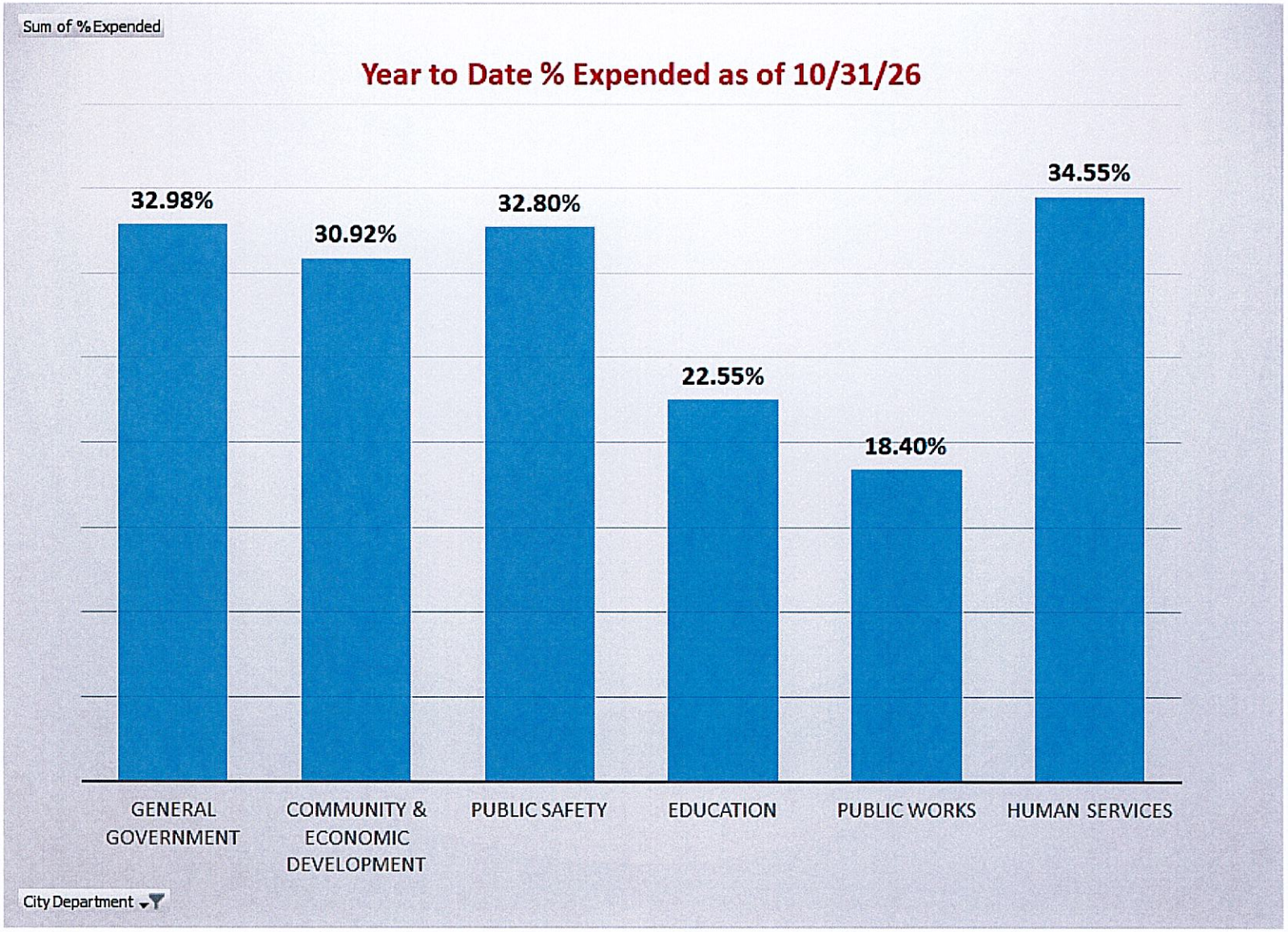
**Expense Report as of 10/31/2026**

| City Department | Budget | Expended as of 10/31/26 | Unexpended | % Expended |
|---|---|---|---|---|
| Budget Reserve | $ 600,000 | $ 19,334 | $ 580,666 | 3.22% |
| State Assessments (Cherry Sheets) | $ 10,271,435 | $ 3,440,908 | $ 6,830,527 | 33.50% |
| Reserve for Abatement & Exemption (Overlay) | $ 250,000 | $ - | $ 250,000 | 0.00% |
| **TOTAL OTHER CITY EXPENSES** | **$ 12,892,000** | **$ 4,480,436** | **$ 8,411,564** | 34.8% |
| **TOTAL GENERAL FUND** | **$ 285,272,160** | **$ 88,785,148** | **$ 196,487,012** | 31.1% |

| | | | | |
|---|---|---|---|---|
| Water Department Salaries | $ 4,021,835 | $ 1,192,582 | $ 2,829,253 | 29.65% |
| Water Department Expenses | $ 10,313,361 | $ 4,975,564 | $ 5,337,797 | 48.24% |
| Water Department Capital | $ 451,000 | $ 51,747 | $ 399,253 | 11.47% |
| Water Department Indirect | $ 254,221 | | $ 254,221 | 0.00% |
| **TOTAL WATER DEPARTMENT** | **$ 15,040,417** | **$ 6,219,893** | **$ 8,820,524** | 41.4% |
| Wastewater Salaries | $ 3,189,677 | $ 1,057,963 | $ 2,131,714 | 33.17% |
| Wastewater Expenses | $ 12,411,268 | $ 3,709,288 | $ 8,701,980 | 29.89% |
| Wastewater Capital | $ 1,102,000 | $ 195,990 | $ 906,010 | 17.78% |
| Wastewater Indirect | $ 718,418 | $ - | $ 718,418 | 0.00% |
| **TOTAL WASTEWATER DEPARTMENT** | **$ 17,421,363** | **$ 4,963,241** | **$ 12,458,122** | 28.5% |

| | FY '25 through 10/31/24 | FY '26 through 10/31/25 | FY '27 through 10/31/26 | Trendline |
|---|---|---|---|---|
| TOTAL GENERAL GOVERNMENT | $ 1,958,970 | $ 1,668,307 | $ 1,796,040 | |
| TOTAL COMMUNITY & ECONOMIC DEVELO | $ 696,250 | $ 701,081 | $ 741,316 | |
| TOTAL PUBLIC SAFETY | $ 9,397,171 | $ 10,117,219 | $ 10,963,905 | |
| TOTAL EDUCATION | $ 29,188,694 | $ 32,538,438 | $ 33,184,784 | |
| TOTAL PUBLIC WORKS | $ 2,977,890 | $ 2,677,169 | $ 2,250,761 | |
| TOTAL HUMAN SERVICES | $ 1,163,282 | $ 1,199,412 | $ 1,229,203 | |
| TOTAL DEBT SERVICE | $ 1,931,251 | $ 1,191,133 | $ 1,385,351 | |
| TOTAL EMPLOYEE BENEFITS | $ 27,680,260 | $ 29,267,765 | $ 32,753,352 | |
| TOTAL OTHER CITY EXPENSES | $ 4,018,773 | $ 4,183,703 | $ 4,480,436 | |
| **TOTAL CITY EXPENDITURES** | **$ 79,012,541** | **$ 83,544,227** | **$ 88,785,148** | |
| TOTAL WATER DEPARTMENT | $ 5,048,050 | $ 5,370,302 | $ 6,219,893 | |
| TOTAL WASTEWATER DEPARTMENT | $ 4,612,614 | $ 4,694,947 | $ 4,963,241 | |

**Expense Report as of 10/31/2026**


Sum of % Expended
Year to Date % Expended as of 10/31/26
32.98%
30.92%
32.80%
22.55%
18.40%
34.55%
GENERAL GOVERNMENT
COMMUNITY & ECONOMIC DEVELOPMENT
PUBLIC SAFETY
EDUCATION
PUBLIC WORKS
HUMAN SERVICES
City Department

# City of Haverhill

Revenue Report

Period Ending 10/31/26

## Year to Year Comparison

| Revenue Source | 10/31/2024 | 10/31/2025 | 10/31/2026 | FY 26 to 27 % Change | FY 26 to 27 $ Change | FY 25-27 Trendline |
|---|---|---|---|---|---|---|
| Real Estate & Pers Property | $ 57,124,119 | $ 60,986,351 | $ 63,838,740 | 4.68% | ↑ $ 2,852,389 | |
| Motor Vehcile Excise | $ 1,326,300 | $ 1,127,662 | $ 1,175,968 | 4.28% | ↑ $ 48,306 | |
| Meals Excise | $ 342,160 | $ 332,983 | $ 364,134 | 9.36% | ↑ $ 31,151 | |
| Hotel / Room Excise | $ 94,694 | $ 100,600 | $ 93,964 | -6.60% | ↓ $ (6,636) | |
| Boat & Other Excise | $ 3,614 | $ 3,723 | $ 2,347 | -36.96% | ↓ $ (1,376) | |
| Cannabis Excise | $ 308,446 | $ 340,227 | $ 319,752 | -6.02% | ↓ $ (20,475) | |
| Waste Disposal Facility Program | $ 771,076 | $ 987,171 | $ 1,179,621 | 19.50% | ↑ $ 192,450 | |
| PILOT | $ 243,793 | $ 26,459 | $ 26,473 | 0.05% | ↑ $ 14 | |
| Penalties & Interest | $ 212,585 | $ 264,673 | $ 311,861 | 17.83% | ↑ $ 47,188 | |
| Fees | $ 330,701 | $ 360,306 | $ 385,414 | 6.97% | ↑ $ 25,108 | |
| Rentals | $ 95,135 | $ 43,606 | $ 59,306 | 36.00% | ↑ $ 15,700 | |
| Departmental Revenue | $ 392,240 | $ 135,224 | $ 179,926 | 33.06% | ↑ $ 44,702 | |
| License & Permits | $ 1,225,971 | $ 941,761 | $ 918,979 | -2.42% | ↓ $ (22,782) | |
| Fines & Forefits | $ 186,675 | $ 242,407 | $ 147,145 | -39.30% | ↓ $ (95,262) | |
| Investments | $ 988,766 | $ 1,607,009 | $ 740,428 | -53.93% | ↓ $ (866,581) | |
| Medicaid Reimbursement | $ 261,977 | $ 280,506 | | -100.00% | ↓ $ (280,506) | |
| *Misc Revenue | $ 73,376 | $ 7,886 | $ 9,215 | 16.85% | ↑ $ 1,329 | |
| Comm of MA Cherry Sheet | $ 33,952,572 | $ 35,460,915 | $ 36,903,637 | 4.07% | ↑ $ 1,442,722 | |
| Wastewater Enterprise Fund | $ 4,849,599 | $ 4,724,841 | $ 4,643,161 | -1.73% | ↓ $ (81,680) | |
| Water Enterprise Fund | $ 3,952,893 | $ 4,448,993 | $ 4,215,029 | -5.26% | ↓ $ (233,964) | |
| Other GF Rev - Trnsf From Sp Rev & Free Cash | | | | | → $ - | |
| **Total Revenue** | **$ 106,736,692** | **$ 112,423,303** | **$ 115,515,100** | **2.75%** | **↑ $ 3,091,797** | |
| **Total Revenue without Enterprise Funds** | $ 97,934,200 | $ 103,249,469 | $ 106,656,910 | 3.30% | ↑ $ 3,407,441 | |
| **Total Local Receipts** | $ 6,857,509 | $ 6,802,203 | $ 5,914,533 | -13.05% | ↓ $ (887,670) | |
| **Total Local Receipts not including Investments** | $ 5,868,743 | $ 5,195,194 | $ 5,174,105 | -0.41% | ↓ $ (21,089) | |

Prepared by Angel A. Perkins, Chief Financial Officer

# City of Haverhill

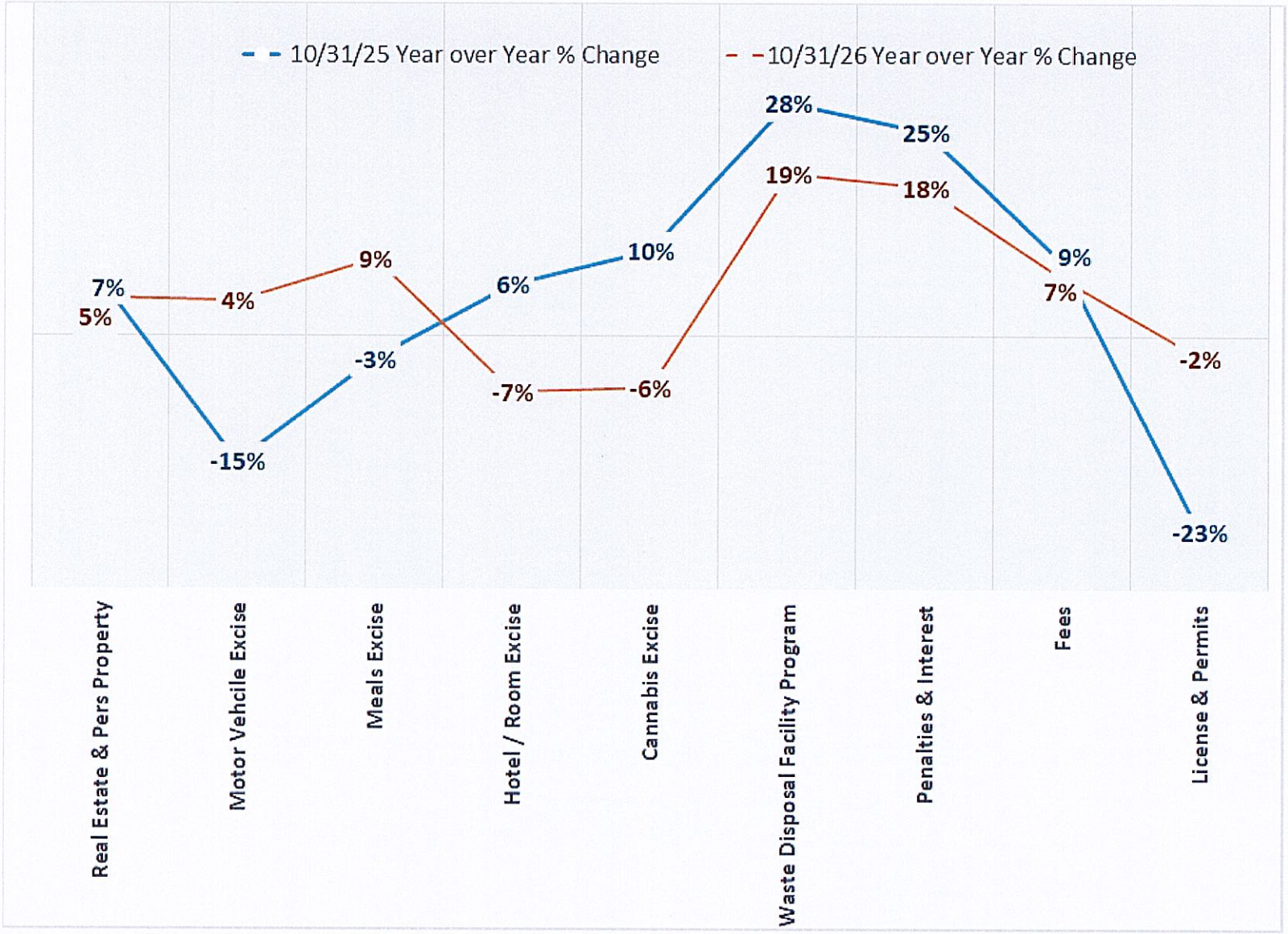
Revenue Report

Period Ending 10/31/26

## Collections as a Percent of Budget

| Revenue Source | FY 27 Estimated Revenue | FY 27 Actual Revenue Collections | YTD Benchmark | Actual Revenue Benchmark |
|---|---|---|---|---|
| Real Estate & Pers Property | $ 146,107,374 | $ 63,838,740 | 42% | 43.7% |
| Motor Vehcile Excise | $ 9,025,789 | $ 1,175,968 | 10% | 13.0% |
| Meals Excise | $ 1,300,000 | $ 364,134 | 25% | 28.0% |
| Hotel / Room Excise | $ 310,000 | $ 93,964 | 25% | 30.3% |
| Boat & Other Excise | $ 8,400 | $ 2,347 | 27% | 27.9% |
| Cannabis Excise | $ 1,133,040 | $ 319,752 | 25% | 28.2% |
| Waste Disposal Facility Program | $ 3,023,244 | $ 1,179,621 | 33% | 39.0% |
| PILOT | $ 281,555 | $ 26,473 | 33% | 9.4% |
| Penalties & Interest | $ 742,000 | $ 311,861 | 33% | 42.0% |
| Fees | $ 998,900 | $ 385,414 | 33% | 38.6% |
| Rentals | $ 198,450 | $ 59,306 | 33% | 29.9% |
| Departmental Revenue | $ 555,000 | $ 179,926 | 33% | 32.4% |
| License & Permits | $ 2,300,000 | $ 918,979 | 33% | 40.0% |
| Fines & Forefits | $ 625,000 | $ 147,145 | 33% | 23.5% |
| Investments | $ 1,000,000 | $ 740,428 | 33% | 74.0% |
| Medicaid Reimbursement | $ 1,000,000 | $ - | 33% | 0.0% |
| *Misc Revenue | | $ 9,215 | 0% | 100.0% |
| Comm of MA Cherry Sheet | $ 110,453,103 | $ 36,903,637 | 33% | 33.4% |
| Wastewater Enterprise Fund | $ 17,421,363 | $ 4,643,161 | 33% | 26.7% |
| Water Enterprise Fund | $ 15,040,417 | $ 4,215,029 | 33% | 28.0% |
| Other GF Rev - Trnsf From Sp Rev & Free Cash | $ 6,210,304 | $ - | 0% | 0.0% |
| **Total** | **$ 317,733,939** | **$ 115,515,100** | **36%** | **36.4%** |
| *Estimated General Fund Revenue* | *$ 285,272,159* | *$ 106,656,910* | *36%* | *37.4%* |
| *Estimated Local Receipts* | *$ 22,501,378* | *$ 5,914,533* | *23%* | *26.3%* |

Prepared by Angel A. Perkins, Chief Financial Officer


10/31/25 Year over Year % Change
10/31/26 Year over Year % Change
7%
5%
-15%
-3%
6%
10%
28%
25%
9%
4%
9%
-7%
-6%
19%
18%
7%
-2%
-23%
Real Estate & Pers Property
Motor Vehcile Excise
Meals Excise
Hotel / Room Excise
Cannabis Excise
Waste Disposal Facility Program
Penalties & Interest
Fees
License & Permits

## Document # 7-K

Petition from National Grid and Verizon, requesting a joint pole location for North Boardway WR# 31355845

**IN COUNCIL:** October 20, 2026

**Hearing for December 1, 2026**

**9 YEAS, 0 NAYS, 2 ABSENT**

**Attest:** Kaitlin M. Wright Esposito

Kaitlin M. Wright Esposito, CMC

City Clerk

12.1 announce 10/20 hearing 12/1

nationalgrid

August 27, 2026

HAV CITY CLRK OCT 8'26 16:00

To the City of Haverhill, Massachusetts

To Whom It May Concern:

Enclosed please find a petition for NATIONAL GRID and VERIZON, covering joint NATIONAL GRID-VERIZON pole location(s)

If you have any questions regarding this permit, please contact:

Veasna Eang 978-995-4819 or Veasna.eang@nationalgrid.com

Please notify National Grid's Jennifer Iannalfo of the hearing date / time to Jennifer.Iannalfo@nationalgrid.com

If this petition meets with your approval, please return an executed copy to each of the above-named Companies.

National Grid: Jennifer Iannalfo, 1101 Turnpike Street; North Andover, MA 01845.

Very truly yours,

Dave Johnson

Dave Johnson
Supervisor, Distribution Design

Enclosures

Questions contact - Veasna Eang – 978-995-4819 or Veasna.eang@nationalgrid.com

**PETITION FOR JOINT OR IDENTICAL POLE LOCATIONS**

North Andover, Massachusetts

To The City Council
Of Haverhill, Massachusetts

Massachusetts Electric Company d/b/a NATIONAL GRID and Verizon New England, Inc requests permission to locate poles, wires, and fixtures, including the necessary sustaining and protecting fixtures, along and across the following public way:

North Broadway - National Grid to install 1 JO pole on North Broadway beginning at a point approximately 749 feet Northwest of the centerline of the intersection of St. Onge Terrace and continuing approximately 15 feet in a West direction. National Grid will install pole 48-84 and anchor and guy in public way on North Broadway. The new pole 48-84 to be located approximately 58' Southwest of existing pole 48. New pole 48-84 to provide utilities to new customers at 416 North Broadway, Haverhill, MA.

Location approximately as shown on plan attached.

Wherefore it prays that after due notice and hearing as provided by law, it be granted a location for and permission to erect and maintain poles and wires, together with such sustaining and protecting fixtures as it may find necessary, said poles to be erected substantially in accordance with the plan filed herewith marked – North Broadway - Haverhill, Massachusetts.

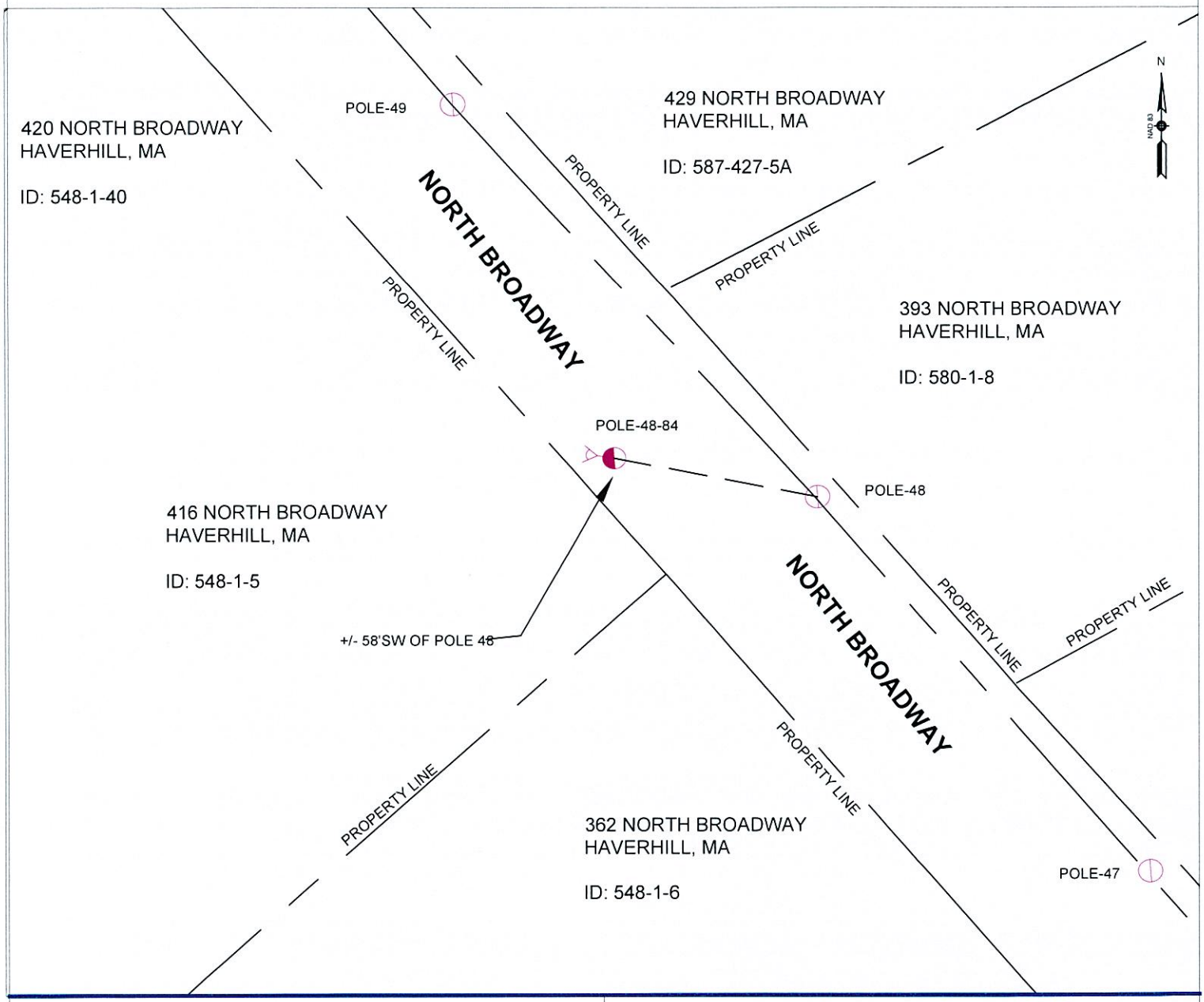
**No.# 31355845**

Also, for permission to lay and maintain underground laterals, cables, and wires in the above or intersecting public ways for the purpose of making connections with such poles and buildings as each of said petitioners may desire for distributing purposes.

Your petitioner agrees to reserve space for one cross-arm at a suitable point on each of said poles for the fire, police, telephone, and telegraph signal wires belonging to the municipality and used by it exclusively for municipal purposes.

NATIONAL GRID *Dave Johnson*
BY _____
Engineering Department

VERIZON NEW ENGLAND, INC.
BY _____
Manager / Right of Way




# JOINT OWNED POLE PETITION

| | |
|---|---|
| Existing OH utilities | |
| Proposed Anchor and Anchor guy Location | |
| Proposed J.O. Pole Locations | |
| Existing J.O. Pole Locations | |
| Proposed OH utilituies | |

Nationalgrid to install Pole 48-84 and anchor/guy in the public way on North Broadway, new pole 48-84 to be located appoximately +/-58' SW of existing pole 48. New pole 48-84 to provide utilities to new customer at 416 N. Broadway.

DISTANCES ARE APPROXIMATE

**nationalgrid**
**And**
**Verizon New England, Inc.**

Date: 8/26.2026

Work Request Number: 31355845

To Accompany Petition Dated:

To The: City Of Haverhill

For Proposed: J.O Pole: 48-84 Location: North Broadway

August 27, 2026

Veasna Eang – 978-995-4819 or Veasna.eang@nationalgrid.com

**ORDER FOR JOINT OR IDENTICAL POLE LOCATIONS**

To the City Council Of Haverhill, Massachusetts

Notice having been given and public hearing held, as provided by law,
IT IS HEREBY ORDERED: that Massachusetts Electric Company d/b/a NATIONAL GRID and VERIZON NEW ENGLAND INC. (formerly known as NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY) be and they are hereby granted joint or identical locations for and permission to erect and maintain poles and wires to be placed thereon, together with such sustaining and protecting fixtures as said Companies may deem necessary, in the public way or ways hereinafter referred to, as requested in petition of said Companies dated the 26th day of August, 2026.

All construction under this order shall be in accordance with the following conditions:

Poles shall be of sound timber, and reasonable straight, and shall be set substantially at the points indicated upon the plan marked – North Broadway - Haverhill, Massachusetts.

**No.# 31355845**

Filed with this order:

There may be attached to said poles by Massachusetts Electric Company d/b/a NATIONAL GRID and Verizon New England Inc. such wires, cables, and fixtures as needed in their business and all of said wires and cables shall be placed at a height of not less than twenty (20) feet from the ground.

The following are the public ways or part of ways along which the poles above referred to may be erected, and the number of poles which may be erected thereon under this order:

North Broadway - National Grid to install 1 JO pole on North Broadway beginning at a point approximately 749 feet Northwest of the centerline of the intersection of St. Onge Terrace and continuing approximately 15 feet in a West direction. National Grid will install pole 48-84 and anchor and guy in public way on North Broadway. The new pole 48-84 to be located approximately 58' Southwest of existing pole 48. New pole 48-84 to provide utilities to new customers at 416 North Broadway, Haverhill, MA.

Also, for permission to lay and maintain underground laterals, cables, and wires in the above or intersecting public ways for the purpose of making connections with such poles and buildings as each of said petitioners may desire for distributing purposes.
I hereby certify that the foregoing order was adopted at a meeting of the
Of the City/Town of ,Massachusetts held on the day of 20 .

City/Town Clerk.

Massachusetts 20 .

Received and entered in the records of location orders of the City/Town of

Book Page

Attest:

City/Town Clerk

I hereby certify that on 20 , at o'clock, M
At a public hearing was held on the petition of
Massachusetts Electric Company d/b/a NATIONAL GRID and VERIZON NEW ENGLAND, INC. for permission to erect the poles, wires, and fixtures described in the order herewith recorded, and that we mailed at least seven days before said hearing a written notice of the time and place of said hearing to each of the owners of real estate (as determined by the last preceding assessment for taxation) along the ways or parts of ways upon which the Company is permitted to erect Poles, wires, and fixtures under said order. And that thereupon said order was duly adopted.

City/Town Clerk.

.....
.....
.....
.....

Board or Council of Town or City, Massachusetts

CERTIFICATE

I hereby certify that the foregoing is a true copy of the location order and certificate of hearing with notice adopted by the of the City of Massachusetts, on the day of 20 and recorded with the records of location orders of the said City, Book , and Page . This certified copy is made under the provisions of Chapter 166 of General Laws and any additions thereto or amendments thereof.

Attest:

City/Town Clerk

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ParcelID | StreetNum | StreetName | LocCity | Owner1 | BillingAddress | City | State | Zip |
| 2 | 548-1-40 | 420 | NORTH BROADWAY | HAVERHILL | O`MAHONEY WILLIAM F JR | 420 NORTH BROADWAY | HAVERHILL | MA | 01832 |
| 3 | 548-1-40-2 | 416 | NORTH BROADWAY | HAVERHILL | REAL D LLC | 10 RAINBOW DR | HAVERHILL | MA | 01835 |
| 4 | 548-1-6 | 362 | NORTH BROADWAY | HAVERHILL | 362 NORTH BROADWAY IRREVOCABLE | 362 NORTH BROADWAY | HAVERHILL | MA | 01832 |
| 5 | 580-1-1A | 385 | NORTH BROADWAY | HAVERHILL | RAYMOND ADAMS G | 385 NORTH BROADWAY | HAVERHILL | MA | 01832 |
| 6 | 580-1-8 | 393 | NORTH BROADWAY | HAVERHILL | McCARTHY SARAH J-ETUX | 393 NORTH BROADWAY | HAVERHILL | MA | 01832 |
| 7 | 587-427-5A | 429 | NORTH BROADWAY | HAVERHILL | THE CATHOLIC CEMETERY ASSOC. | 175 BROADWAY | MALDEN | MA | 02148 |

2025 OCT 9 PM2:30
HAV ASSESSOR

BOARD OF ASSESSORS
CITY OF HAVERHILL
4 SUMMER STREET • RM 115
HAVERHILL, MA 01830-5843

548-1-40
O`MAHONEY WILLIAM F JR
420 NORTH BROADWAY
HAVERHILL, MA 01832

548-1-40-2
REAL D LLC
10 RAINBOW DR
HAVERHILL, MA 01835

548-1-6
362 NORTH BROADWAY IRREVOCABLE
362 NORTH BROADWAY
HAVERHILL, MA 01832

580-1-1A
RAYMOND ADAMS G
385 NORTH BROADWAY
HAVERHILL, MA 01832

580-1-8
McCARTHY SARAH J-ETUX
393 NORTH BROADWAY
HAVERHILL, MA 01832

587-427-5A
THE CATHOLIC CEMETERY ASSOC.
175 BROADWAY
MALDEN, MA 02148

City of Haverhill
Rm 118
Haverhill, MA 01832

City of Haverhill
4 Summer St
Rm 118
Haverhill, MA 01830

9.2 hearing for 12/1/26

nationalgrid

November 19, 2026

NOV 19 AM11:34
HAVCITYCLERK

To the City of Haverhill, Massachusetts

To Whom It May Concern:

Enclosed please find a petition for NATIONAL GRID and VERIZON, covering joint NATIONAL GRID-VERIZON pole location(s)

If you have any questions regarding this permit, please contact:

Veasna Eang (978) 995-4819 or Veasna.eang@nationalgrid.com

Please notify National Grid's Jennifer Iannalfo of the hearing date / time to Jennifer.Iannalfo@nationalgrid.com

If this petition meets with your approval, please return an executed copy to each of the above-named Companies.

National Grid: Jennifer Iannalfo, 1101 Turnpike Street; North Andover, MA 01845.

Very truly yours,

Dave Johnson

Dave Johnson
Supervisor, Distribution Design

Enclosures

Questions contact – Veasna Eang (978) 995-4819 or veasna.eang@nationalgrid.com

**PETITION FOR JOINT OR IDENTICAL POLE LOCATIONS**

North Andover, Massachusetts

To The City Council
Of Haverhill, Massachusetts

Massachusetts Electric Company d/b/a NATIONAL GRID and Verizon New England, Inc requests permission to locate poles, wires, and fixtures, including the necessary sustaining and protecting fixtures, along and across the following public way:

East Broadway - National Grid to install 1 JO pole on East Broadway beginning at a point approximately 1550 feet Southwest of the centerline of the intersection of Millvale Road and East Broadway and continuing approximately 15 feet in a West direction. National Grid to install anchor and JO pole 55-50 approximately 70' Southwest of existing pole 55. Pole to be installed in the public way. Pole 55-50 to provide primary power at 309 East Broadway, Haverhill, MA.

Location approximately as shown on plan attached.

Wherefore it prays that after due notice and hearing as provided by law, it be granted a location for and permission to erect and maintain poles and wires, together with such sustaining and protecting fixtures as it may find necessary, said poles to be erected substantially in accordance with the plan filed herewith marked – East Broadway - Haverhill, Massachusetts.

**No.# 31318883**

Also, for permission to lay and maintain underground laterals, cables, and wires in the above or intersecting public ways for the purpose of making connections with such poles and buildings as each of said petitioners may desire for distributing purposes.

Your petitioner agrees to reserve space for one cross-arm at a suitable point on each of said poles for the fire, police, telephone, and telegraph signal wires belonging to the municipality and used by it exclusively for municipal purposes.

Massachusetts Electric Company d/b/a
NATIONAL GRID Dave Johnson
BY _____
Engineering Department

VERIZON NEW ENGLAND, INC.
BY _____
Manager / Right of Way

November 19, 2026

Questions contact – Veasna Eang (978) 995-4819 or veasna.eang@nationalgrid.com

**ORDER FOR JOINT OR IDENTICAL POLE LOCATIONS**

To the City Council of Haverhill, Massachusetts

Notice having been given and public hearing held, as provided by law,
IT IS HEREBY ORDERED: that Massachusetts Electric Company d/b/a NATIONAL GRID and VERIZON NEW ENGLAND INC. (formerly known as NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY) be and they are hereby granted joint or identical locations for and permission to erect and maintain poles and wires to be placed thereon, together with such sustaining and protecting fixtures as said Companies may deem necessary, in the public way or ways hereinafter referred to, as requested in petition of said Companies dated the 16th day of November, 2026.

All construction under this order shall be in accordance with the following conditions:

Poles shall be of sound timber, and reasonable straight, and shall be set substantially at the points indicated upon the plan marked – East Broadway - Haverhill, Massachusetts.

**No.# 31318883**

Filed with this order:

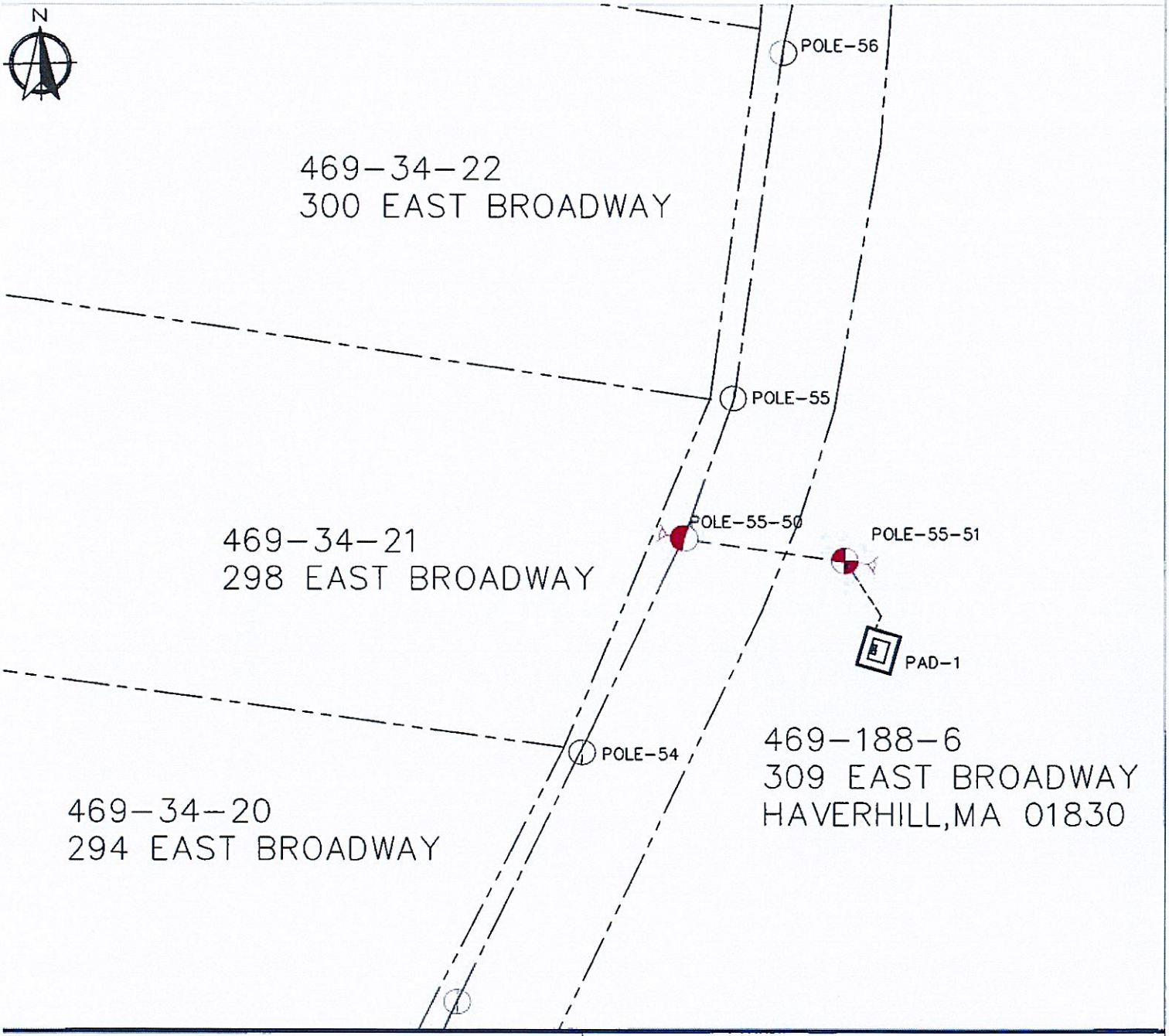
There may be attached to said poles by Massachusetts Electric Company d/b/a NATIONAL GRID and Verizon New England Inc. such wires, cables, and fixtures as needed in their business and all of said wires and cables shall be placed at a height of not less than twenty (20) feet from the ground.

The following are the public ways or part of ways along which the poles above referred to may be erected, and the number of poles which may be erected thereon under this order:

East Broadway - National Grid to install 1 JO pole on East Broadway beginning at a point approximately 1550 feet Southwest of the centerline of the intersection of Millvale Road and East Broadway and continuing approximately 15 feet in a West direction. National Grid to install anchor and JO pole 55-50 approximately 70' Southwest of existing pole 55. Pole to be installed in the public way. Pole 55-50 to provide primary power at 309 East Broadway, Haverhill, MA.

Also, for permission to lay and maintain underground laterals, cables, and wires in the above or intersecting public ways for the purpose of making connections with such poles and buildings as each of said petitioners may desire for distributing purposes.

I hereby certify that the foregoing order was adopted at a meeting of the




# JOINT OWNED POLE PETITION

| | |
|---|---|
| ○ | **Existing J.O. Pole Locations** |
| ◐◁ | **Proposed J.O Pole With Anchor and Guy.** |
| — — — | **Existing Overhead Utilities** |
| ---------- | **Property Lines** |
| ◕◁ | **Proposed S.O Pole With Anchor and Guy.** |

NATIONALGRID TO INSTALL ANCHOR AND J.O POLE 55-50 APPROX. +/- 70' SW OF EXISTING POLE 55, POLE TO BE INSTALLED IN THE PUBLIC WAY. POLE 55-50 TO PROVIDE PRIMARY POWER AT 309 EAST BROADWAY HAVERHILL MA, 01830.

DISTANCES ARE APPROXIMATE

**nationalgrid**
**And**
**Verizon New England, Inc.**

Date: 11.16.2026

Work Request Number: 31318883

To Accompany Petition Dated:

To The: City Of Haverhill

For Proposed: J.O Pole: 55-50 Location: E. Broadway

Of the City/Town of ,Massachusetts held on the day of 20 .

City/Town Clerk.

Massachusetts 20 .

Received and entered in the records of location orders of the City/Town of
Book Page

Attest:
City/Town Clerk

I hereby certify that on 20 , at o'clock, M
At a public hearing was held on the petition of Massachusetts Electric Company d/b/a NATIONAL GRID and VERIZON NEW ENGLAND, INC. for permission to erect the poles, wires, and fixtures described in the order herewith recorded, and that we mailed at least seven days before said hearing a written notice of the time and place of said hearing to each of the owners of real estate (as determined by the last preceding assessment for taxation) along the ways or parts of ways upon which the Company is permitted to erect Poles, wires, and fixtures under said order. And that thereupon said order was duly adopted.

City/Town Clerk.

.....
.....
.....
.....

Board or Council of Town or City, Massachusetts

CERTIFICATE

I hereby certify that the foregoing is a true copy of the location order and certificate of hearing with notice adopted by the of the City of Massachusetts, on the day of 20 and recorded with the records of location orders of the said City, Book , and Page . This certified copy is made under the provisions of Chapter 166 of General Laws and any additions thereto or amendments thereof.

Attest:
City/Town Clerk

Original Mailed out 11/20/26

# Haverhill

City Clerk's Office, Room 118
Phone: 978-374-2312 Fax: 978-373-8490
cityclerk@haverhillma.gov

Date: November 20, 2026

TO: Abutters/Interested Parties.....

Notice is hereby given under MGL, Ch. 166 and amendments thereto, of the application to the City Council of...Mass Electric, National Grid of North Andover and Verizon New England, inc. for joint pole location on

... **East Boardway Plan WR# 31318883**

...Questions: Veasna Eang (978) 995-4819 or Veasna.eang@nationalgrid.com

Hearing will be held in City Council Chambers, City Hall, Room 202, 4 Summer st

**Tuesday, December 1, 2026 at 7 o'clock P.M**. for the company(s) and all parties interested in said application.

**By order of the City Council**

Kaitlin M Wright Esposito

**City Clerk**

***Residents who are interested in commenting on this hearing can either (1) attend in person (City Council Chambers, Room 202) or (2) Attend remotely using the link provided on the public meeting calendar on the City's website.)***

469-188-4B

LANGLOIS KARA L

295 EAST BROADWAY

HAVERHILL, MA 01830

469-188-6

CITY OF HAVERHILL

4 SUMMER ST

HAVERHILL, MA 01830

469-34-19

WRIGHT DEREK

290 EAST BROADWAY

HAVERHILL, MA 01830

469-34-20

GARNER ALISON M-ETUX

294 EAST BROADWAY

HAVERHILL, MA 01830

469-34-21

GUBA ROBERT D

298 EAST BROADWAY

HAVERHILL, MA 01830

469-34-22

DIANTGIKIS JAMES

300 EAST BROADWAY

HAVERHILL, MA 01830

| | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ParcelID | StreetNum | StreetName | LocCity | Owner1 | BillingAddress | City | State | Zip |
| 2 | 469-188-4B | 295 | EAST BROADWAY | HAVERHILL | LANGLOIS KARA L | 295 EAST BROADWAY | HAVERHILL | MA | 01830 |
| 3 | 469-188-6 | 309 | EAST BROADWAY | HAVERHILL | CITY OF HAVERHILL | 4 SUMMER ST | HAVERHILL | MA | 01830 |
| 4 | 469-34-19 | 290 | EAST BROADWAY | HAVERHILL | WRIGHT DEREK | 290 EAST BROADWAY | HAVERHILL | MA | 01830 |
| 5 | 469-34-20 | 294 | EAST BROADWAY | HAVERHILL | GARNER ALISON M-ETUX | 294 EAST BROADWAY | HAVERHILL | MA | 01830 |
| 6 | 469-34-21 | 298 | EAST BROADWAY | HAVERHILL | GUBA ROBERT D | 298 EAST BROADWAY | HAVERHILL | MA | 01830 |
| 7 | 469-34-22 | 300 | EAST BROADWAY | HAVERHILL | DIANTGIKIS JAMES | 300 EAST BROADWAY | HAVERHILL | MA | 01830 |

10.1

# Document # 21-G

**PDD-26-1;**

Attorney Russell Channen for client *Pentucket North Development, LLC* requests to amend Chapter 255 Zoning Ordinance and Zoning Map by creating a Special Permit Planned Development District in accordance with Section 8.5 of the Zoning Ordinance. Applicant, Pentucket North Development, LLC is requesting a special permit of a planned residential development on a portion of land owned by Cedardale, Inc. located off of Boston Road known as 931 Boston Road (Map 754 Block 2 Lot 21) to construct six duplex units and two single family units. The property is currently zoned Commercial Highway (CH)

## IN CITY COUNCIL: June 30, 2026

## Refer to Planning Board & hearing scheduled for August 25, 2026

## 11 YEAS, 0 NAYS, 0 ABSENT

Attest: Kaitlin M. Wright Esposito

Kaitlin M. Wright Esposito, CMC

IN CITY COUNCIL: AUGUST 25 2026
CON'T TO OCTOBER 27 2026
10 YEAS, 0 NAYS, 1 ABSENT

ATTEST: Kaitlin M. Wright Esposito
KAITLIN M. WRIGHT ESPOSITO, CMC
CITY CLERK

IN CITY COUNCIL: OCTOBER 27, 2026
CONTINUE TO DECEMBER 1, 2026
10 YEAS, 0 NAYS, 1 ABSENT

ATTEST: Kaitlin M. Wright Esposito
KAITLIN M. WRIGHT ESPOSITO, CMC
CITY CLERK

**Lori Robertson**

**From:** Devan Ferreira
**Sent:** Monday, October 26, 2026 1:38 PM
**To:** Lori Robertson
**Subject:** Fw: Public Record formal request

Devan Ferreira

she/her
City Councilor for Haverhill's Ward 3
(401)499-3583

---

**From:** radm111@aol.com <radm111@aol.com>
**Sent:** Sunday, 25 October 2026 00:19:44
**To:** Tim Jordan <tjordan@haverhillma.gov>; John Michitson <JMichitson@haverhillma.gov>; Colin LePage <clepage@haverhillma.gov>; Thomas J. Sullivan <tsullivan@haverhillma.gov>; Ralph T. Basiliere <RBasiliere@haverhillma.gov>; Dan Diodati <DDiodati@HaverhillMa.gov>; Devan Ferreira <DFerreira@haverhillma.gov>; Melissa Lewandowski <mlewandowski@haverhillma.gov>; Shaun Toohey <stoohey@haverhillma.gov>; Michael McGonagle <mmcgonagle@HaverhillMa.gov>; Catherine Rogers <crogers@haverhillma.gov>
**Subject:** Public Record formal request

Warning! External Email. Exercise caution when opening attachments or clicking on any links.

Dear Haverhill City Councilors,

My name is Marianne Abate'-Day. I reside at 72 I Street, Bradford, MA.
**Please accept this written statement as my formal and firm opposition to the 931 Development project.**

**Furthermore, I strongly object to any plans utilizing I Street as an access road for this project.**

**As I may be unable to attend the upcoming City Council meeting to speak in person, I respectfully request that these statements be entered into the official public record.**

**Thank you,**

Marianne Abate'-Day
radm111@aol.com

**Lori Robertson**

**From:** Russell Channen <rchannen@pgclawoffice.com>
**Sent:** Monday, October 26, 2026 3:51 PM
**To:** Lori Robertson
**Cc:** Ron Mailloux; Will Schkuta
**Subject:** 931 Boston Road, Haverhill, MA

Warning! External Email. Exercise caution when opening attachments or clicking on any links.

HI Lori: In accordance with our telephone conversation today, please accept this email as Pentucket North Development, LLC's request to continue the City Council Hearing from October 27th to December 1st. We make this request because only 10 members will be present tomorrow evening and all 11 members are currently scheduled for December 1st.

If you need me present tomorrow to make a formal request on the record, I would be happy to appear.

As always, thank you for your assistance.

Russell

--

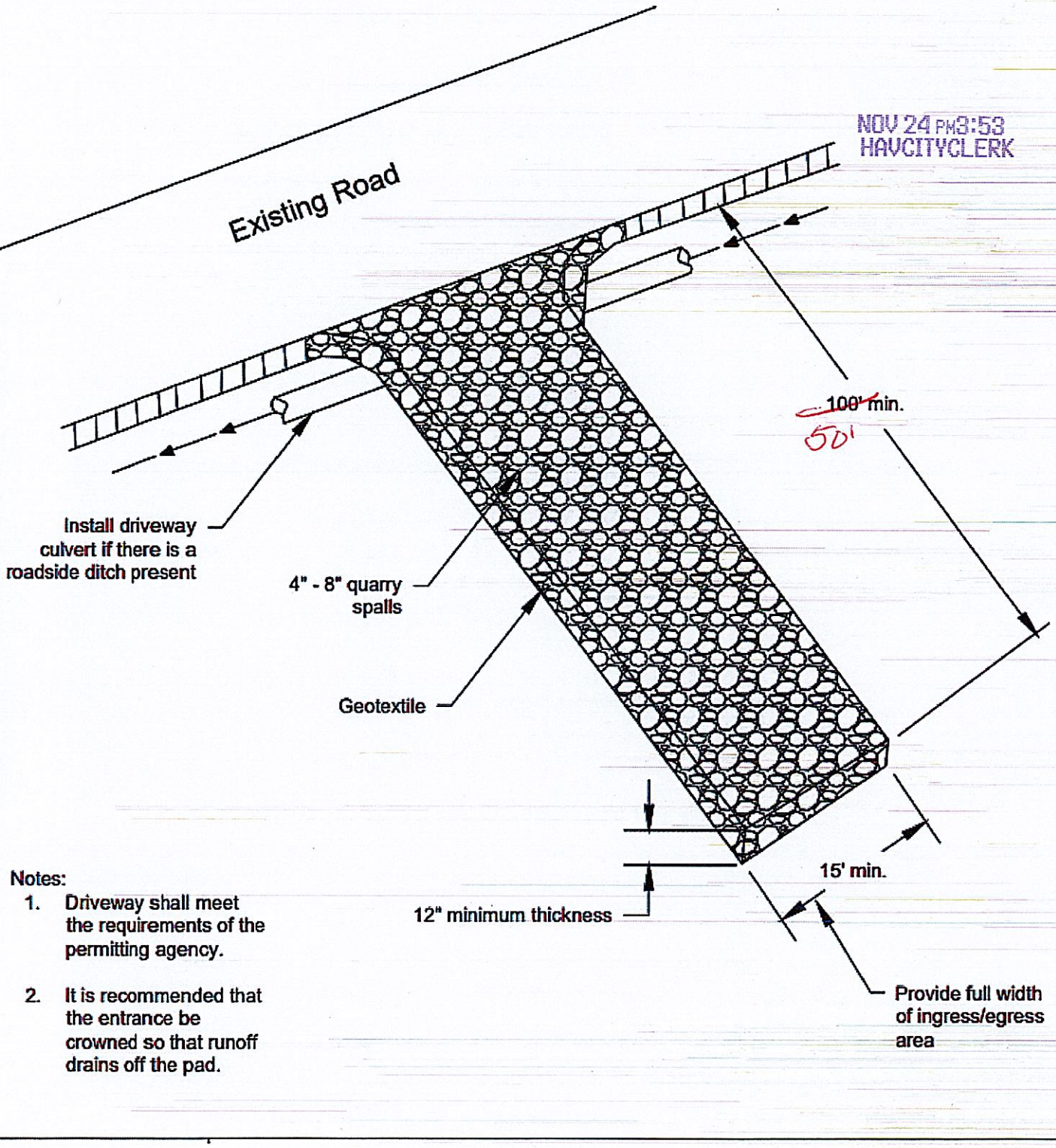
*Russell S. Channen, Esquire*
*Phillips, Gerstein & Channen, LLP*
*25 Kenoza Avenue*
*Haverhill, MA 01830*
*Telephone: 978-374-1131*
*Fax: 978-372-3086*
E-Mail: rchannen@pgclawoffice.com

*COVID-19 ADVISORY - Please be advised that the COVID-19 (Coronavirus) pandemic will begin to have major impacts on real estate closings. We expect town/city halls and registries of deeds to announce closures in the coming days. This may prevent our office from conducting closings. If you have a closing that is able to occur, we ask that you remain flexible as recordings, mortgage payoffs, tax payments and other disbursements may be delayed. In addition, we ask that only essential personnel attend. If possible, please send us your documents ahead of time and we will mail/email you copies and checks. We will try our best to keep everyone updated in this rapidly changing environment. Thank you.*

**LEGAL NOTICE**
This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, and exempt from disclosure under applicable law. Any unauthorized dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify me immediately by return email and delete the original message and all copies of the message and any attachments to it.

NOT TO SCALE

NOV 24 PM3:53
HAVCITYCLERK




Notes:

1. Driveway shall meet the requirements of the permitting agency.
2. It is recommended that the entrance be crowned so that runoff drains off the pad.

CONSTRUCTION ENTRANCE

CITY OF HAVERHILL

CITY ENGINEER'S

JUNE 2024

**Lori Robertson**

**From:** Patti Neals <pneals50@gmail.com>
**Sent:** Thursday, October 22, 2026 2:46 PM
**To:** Tim Jordan; City Council
**Subject:** 931 Boston Rd. Development: Impact on I Street Residents

Warning! External Email. Exercise caution when opening attachments or clicking on any links.

Dear Mr. Jordan and Members of the Haverhill City Council:

I am writing in my capacity as Executor of the property located at 37 I Street in Haverhill, Massachusetts, to formally express my serious concerns regarding the proposed development of approximately 1.5 acres of CH-zoned land at the end of I Street, currently part of the larger Cedardale property.

My family has owned our property for more than 55 years, and we have a vested interest in protecting both its future development potential and the character of the neighborhood we have called home for generations.

Of particular concern is the proposed alteration of Y Street, an undeveloped public right-of-way, commonly referred to as a "paper street." Portions of my family's property may require access via Y Street should we choose to develop the rear sections of our land in the future. The developer's proposed modifications appear to create significant obstacles to that access, potentially limiting our ability to make reasonable use of property we have owned for decades.

According to the submitted plans, the proposed regrading of the western half of the Y Street right-of-way would raise existing elevations by as much as seven feet in certain areas. This substantial change appears intended to reduce the size and cost of a retaining wall necessary to support the proposed development. While this approach may benefit the developer financially, it would create considerable engineering challenges and additional expenses for my family should we pursue future development of our own property.

Additionally, the proposed drainage outflow pipe and associated riprap splash pad appear to extend approximately 10 to 15 feet into the Y Street right-of-way. These improvements raise further concerns about potential encroachments, drainage impacts, and restrictions on future access.

It is neither reasonable nor equitable for one developer's cost-saving measures to create permanent obstacles and financial burdens for neighboring property owners. My family should not be placed in a position where the future use and development of our property are compromised simply to make another project more financially advantageous.

Beyond these direct impacts, I am deeply concerned about the broader consequences of this proposal for the I Street neighborhood.

Currently, I Street serves 15 residential units spread across roughly four to five acres of land. The proposed development would introduce an additional 14 residential units on just 1.5 acres, nearly doubling the number of households relying on this single dead-end street for access. One relatively small parcel would account for nearly half of all residential units on I Street following development.

While the roadway itself may be technically capable of accommodating the additional vehicle trips, that does not diminish the substantial change this project would bring to the neighborhood. The concentration of 14 new residential units on a single parcel would more than double existing vehicle activity, fundamentally changing the day-to-day experience of residents who have lived on this street for decades.

This is not simply a matter of whether the road can accommodate more cars. It is a question of whether the proposed density and intensity of development are appropriate for an established residential neighborhood of this size and character.

activity, children and families spending time outdoors, and the general residential atmosphere that has existed for generations.

Adding nearly as many residential units on 1.5 acres as currently exist throughout the surrounding neighborhood represents a significant and disproportionate increase in density. Such a substantial change should not be evaluated solely on whether it meets minimum technical requirements, but also on its long-term impact on the surrounding community and neighboring property owners.

Development should not come at the expense of the people who already live here, nor should the financial interests of a developer take precedence over the property rights and long-term interests of neighboring families.

My family has been part of this neighborhood for more than half a century. We recognize that properties may be developed over time, but new development must be thoughtfully planned, responsibly designed, and respectful of the rights of those who have already invested their lives and livelihoods in this community.

I strongly oppose the proposal in its current form and ask that these concerns be meaningfully addressed before any approvals are granted.

Thank you for your time and consideration. I respectfully request that this letter be included in the official record of any proceedings concerning this development.

Sincerely,

Patricia Neals
Executor, 37 I St., Haverhill
(978) 930-0612

LAW OFFICES OF
Phillips, Gerstein & Channen, LLP
25 Kenoza Avenue ■ Haverhill, MA 01830
Tel: (978) 374-1131 ■ Fax: (978) 372-3086
www.pgclawoffice.com

Herbert P. Phillips (1933 - 2017)
Michael A. Gerstein
Russell S. Channen

Of Counsel:
Jane M. Owens Triano

October 22, 2026

Timothy J. Jordan, President
Haverhill City Council
City Hall
4 Summer Street
Haverhill, MA 01830

RE: Applicant: Pentucket North Builders, LLC
Project: 931 Boston Road, Haverhill, Massachusetts

Dear President Jordan:

Please accept this letter as an Impact Statement regarding the Proposed Plan Development District for 931 Boston Road, Haverhill, Massachusetts.

## I. Community Needs Served by Proposal.

Pentucket North Builders, LLC ("Pentucket North") believes that this Project will have a huge beneficial impact for the City of Haverhill. Local cities and towns have been in dire need for additional housing. Cities and towns have gone so far to relax zoning requirements, allowing for Accessory Dwelling Units by right and are contemplating the reduction of lot area for future development.

This project would allow for the creation of fourteen residential/condominium units. Photographs of the proposed development have been previously provided and illustrate the beautiful design for the various buildings. The City of Haverhill currently has a small inventory of homes/condos on the market. Coldwell Banker/Realty, which has been hired to assist with this Project, will speak as to the current local conditions and explain the need for additional homeownership in Haverhill.

Coldwell Banker expects these homes would be perfect for couples looking to purchase either their first home or looking to downsize from their single-family homes. Coldwell Banker sees this development as an opportunity for a young or older couples looking to establish a foothold in the Merrimack Valley area.

During a Planning Board hearing, a neighbor expressed her concern that the Developments would become rental property. Pentucket North has agreed to create a Home Owner's Association ("HOA") which will include among other things, a restriction prohibiting the rental of any units.

## II. Traffic and Pedestrian Flow and Safety.

Pentucket North performed a traffic study and the City of Haverhill conducted its own peer review.

Vanasse & Associates, Inc. ("VAI") determined the following:

1. Traffic-volume increases related to the Project, external to the Study, are anticipated to range from 1 to 4 vehicles or 0.4 to 2.3 percent, during peak periods; and
2. The Project will generally not have a significant impact on motorist delays or vehicle queuing at study area intersections compared to anticipated future conditions without the Project (No-Build conditions)

The City's peer report, performed by McClure Engineering Co. ("McClure"), determined that VAI's methodologies were consistent with accepted MassDOT practices, and the findings were reasonable. McClure further recommended plans depicting the turnaround for fire apparatus and widening and fixing I Street.

**Pentucket North has agreed to widen I Street to 24 feet and to mill and overlay I Street post construction. Such work would be coordinated with the required City Departments.**

The studies confirm Pentucket North's belief that the proposed development is properly scaled to minimally impact any traffic concerns and the widening and repairs to I street will further help to alleviate any additional concerns.

## III. Adequacy of Utilities and Other Public Services.

The Morin-Cameron Group, Inc. has spearheaded the Engineering work and taken the lead for all necessary studies. William A. Schkuta, P.E., Director of Engineering has coordinated Storm Water Reports and Responded to Peer Review Reports conducted by the City and comments from other City Departments, Environmental. Mr. Schkuta will be able to provide details regarding said reports at the City Council Meeting. All reports have been positive and in accordance with the Planning Board's approval recommendation, the Project remains subject only to the hydraulic analysis.

Utility poles already exist and no additional work would be necessary to establish power and services to the development.

The Fire Department is satisfied with the plans and layout of the Development and their only request was for Pentucket North to install an additional fire hydrant at the Development's entrance. Pentucket North has no issue with this request.

## IV. Neighborhood Character and Social Structures.

The neighborhood currently consists of single family and multi-family homes. The Planning Board meetings included spirited comments from the neighbors. Most, if not all of their concerns, centered upon the potential increase of traffic and I Street's current condition. Pentucket North's traffic study and the City's peer review suggest that there would not be any significant traffic increase Acknowledging the neighbor's concerns, Pentucket North has agreed to both widen and repair I Street.

Pentucket North is also working with the Postmaster to determine if it is feasible to have the mailboxes placed on each home rather than all at the end of I Street. If so, Pentucket North would cover such costs to relocate the same.

Change is never easy. Mr. Mailloux understands this and is sympathetic to the older generation currently residing in the area. However, Pentucket North beliefs that the Project's benefits outweigh the acknowledged inconveniences to the neighbors.

## V. Impact on the Natural Environment

There will be no impact to the Natural Environment.

## VI. Potential Fiscal Impact, including Impact on City Services, Tax Base and Employment.

Michael Joy and Robert DiBurro, seasoned Coldwell Banker Realtors were engaged to assist with this Application and if approved will list and market the development.
Michael and Bob have examined the market and based upon the proposed upscale development, envision listing the 12 condex units and 2 single units within the $600,000.00 to $650,000.00 range. Haverhill's current residential tax rate is $10.61. This would result in yearly property tax revenue of approximately $90,000.00. The parcel is currently undeveloped land and garners little to no tax revenue.

Pentucket North believes that owner/occupied Units will have a positive impact on City Services. From utilizing the many businesses within the community to employment opportunities, this Project will further stimulate Haverhill's economic growth.

Respectfully submitted,
Pentucket North Development, LLC
By its Attorney,

Russell S. Channen, Esquire

g:\gloria\russ\r-estate\mailloux, ron\impact letter jordan 081326.gdp.docx

## Lori Robertson

**From:** Christine Neals <cneals92@gmail.com>
**Sent:** Wednesday, October 21, 2026 4:52 PM
**To:** Tim Jordan; City Council
**Subject:** 931 Boston Road Development: Impact on I Street Residents

Warning! External Email: Exercise caution when opening attachments or clicking on any links.

Dear Council President Jordan,

I am writing as a homeowner and resident of I Street in Bradford to express my serious concerns regarding the proposed residential development at 931 Boston Road, particularly the plans to utilize I Street as an access point for the development.

I grew up playing outside on this very street, just as I still see children doing today. It has always been a quiet, close-knit neighborhood where families feel comfortable letting their children play in their yards and along the dead-end road. I'm incredibly proud to now own a home in the same neighborhood where I grew up. My husband and I hope to start a family of our own in the very near future, and the thought that the neighborhood I have known and loved my entire life could be fundamentally changed is deeply concerning.

I Street is a narrow, dead-end residential road that was never designed to accommodate the traffic associated with a development of this size. The addition of 14 residential units would bring a significant increase in vehicles, along with construction traffic, deliveries, and service vehicles. Without sidewalks or infrastructure designed to support this additional activity, I worry about pedestrian safety, emergency vehicle access, road conditions, and, most importantly, the safety of the children and families who live here.

Equally frustrating has been the experience of residents throughout the review process. Many of my neighbors and I have attended Planning Board meetings, taken the time to understand the proposal, and raised legitimate concerns about its impact. Unfortunately, the responses we have received have often been vague and have done little to reassure us that these issues are being adequately considered or addressed.

We understand that development is a necessary part of a growing city, and I am not opposed to responsible growth. However, I strongly believe that new development should not come at the expense of the safety and quality of life of existing residents. It is difficult to understand why a quiet residential street should be expected to accommodate the traffic and demands of a development located along Boston Road, particularly without a more thorough examination of alternative access options.

I respectfully ask the City Council to consider the following before making a decision:

- Whether I Street can safely accommodate the additional traffic, including emergency and service vehicles.
- What alternative access routes have been explored and why they have not been pursued.
- •How the concerns raised by residents throughout this process have been meaningfully addressed.
- What long-term impact this development will have on the safety, infrastructure, and character of our neighborhood.

I recognize that the City must balance many interests when considering development proposals. However, the voices of the people who already live in these neighborhoods deserve to carry meaningful weight in those decisions.

**Our neighborhood is more than an access road on a developer's site plan. It is our home.** The decisions made regarding this project will have lasting consequences for the people who live here, and I sincerely hope those voices will be reflected in the Council's deliberations.

I sincerely ask that you and your fellow councilors give these concerns careful consideration and refrain from approving the proposal in its current form until the impacts on existing residents have been thoroughly evaluated and addressed.

Thank you for your time and consideration. I appreciate your service to our community and hope that the voices of I Street residents will be heard before a decision with such lasting consequences is made.

Given the upcoming October 27 meeting, I would greatly appreciate a brief acknowledgment that my concerns have been received and will be shared with the appropriate Council members.

Sincerely,

Christine Mahoney
59 I Street Resident & Homeowner
Bradford, MA
(978) 604-8545

ORDERED:

TO AMEND THE CITY OF HAVERHILL ZONING ORDINANCE CHAPTER 255 BY ADDING THE FOLLOWING: "I STREET PLANNED RESIDENTIAL DEVELOPMENT DISTRTCT, (ISPRD)" AS SET FORTH IN SECTION 8.5.C:

**Item 1.** In Section 2.1.2, add "I Street Planned Residential Development District" to the list.
**Item 2.** Add the following new Section 8.5.C

**8.5C**

**I STREET PLANNED RESIDENTIAL DEVELOPMENT DISTRICT (ISPRD)**

**8.5.C.1 Purpose.** The purpose of the I Street Planned Residential Development District ("ISPRD") is as follows:

1. To promote a diversity of housing in the City; and
2. To promote the reuse of vacant land transforming the same into 14 condominium units.

**8.5.C. 2 Location**. The ISPRD is a portion of land located on Tax Parcel Map 754, Block 2, Lot21, containing approximately 55,820 square feet of land.

**8.5.C.3 As of Right Uses.** The following uses are allowed in the ISPRD upon the issuance of Development Review approval pursuant to Section 10.1.4:

1. Six (6) duplex and Two (2) single family Condominium units.

**8.5.C.4 Dimensional and Density Regulations**. The following dimensional and density regulations shall apply in the ISPRD:

| Set Back | Proposed PD Lot |
|---|---|
| | |
| Lot Area | 55,820' |
| Lot Area Required Per Dwelling Unit | 3,972' |
| Lot Frontage | 207.36' |
| Lot Depth | 291' |
| Front Setback | 40' |
| Side Setback | 15' |
| Rear Setback | 15' |
| Building Height | <40' |
| Building Height -- Stores | <3.5' |
| Building Coverage | 18.1% |
| Floor Area Ratio | <0.50' |
| Open Space | 51% |

**8.5C.5 Parking and Loading**. The following parking requirements shall apply in the BRPRD. Both surface and underground parking areas are permissible.

1. **Multifamily Dwellings:** 3.0 spaces per dwelling unit; 1 garage and 2 outdoor surface spaces.

Parking and loading shall generally comply with the standards set forth in Section 6.1 of this Ordinance, unless waived by the City during Development Review.

**8.5.C.6 Roads and Utilities**. The principal roadway(s) and driveways serving the site shall be adequate for the intended use and vehicular traffic and shall be maintained privately. The connection of all buildings in the ISPRD to the municipal water and sewer systems is required. All water, sewer, gas, electricity, cable, and telephone lines shall be installed underground.

**8.5.C.7 Performance Standards**. All development in the ISPRD shall comply with the performance standards set forth in the Zoning Code, unless waived during developmental review.

Haverhill
Economic Development and Planning
Phone: 978-374-2330

To: City Council
From: Jacki Byerley, AICP, Planning Director
Re: 931 Boston Road – Special Permit Planned Development District
Date: October 15, 2026

On October 14, 2026 at a regularly scheduled Planning Board meeting the Board reviewed the application submitted by Pentucket North Development for a special permit of a planned residential development on a portion of land owned by Cedardale, Inc, located off of Boston Road known as 931 Boston Road (Map 754 Block 2 Lot 21) to construct six duplex units and two single family units.

The proposed project consists of six duplex units and two single family units together with associated parking, access, utilities, drainage, landscaping, grading, and other site improvements. Vehicular access to the proposed development is provided from I Street. During the review of the application, the adequacy and condition of I Street as the access roadway serving the proposed development were considered by the Planning Board and the appropriate City departments.

Based upon the review of the application and comments received during the hearing process, improvements to I Street are necessary to provide adequate and safe access to the proposed development and to address the impacts associated with the proposed project.

The applicant has proposed improvements to I Street to be reviewed by Engineering and Police prior to construction of the improvement. The applicant has also agreed to place additional hydrants within the site and will place sprinklers in all the units. They will work with the water department on the hydraulic analysis to confirm adequate water supply prior to construction and will mill/overlay I Street post construction.

Based on the information presented, the Planning Board voted to recommend that City Council approve the project, subject to conditions requiring improvements to I Street; completion of a hydraulic analysis; milling and overlaying of I Street post construction; installation of fire hydrants within the development, to be approved by the Fire Department; installation of sprinkler systems in all units and establishment of a homeowners association with a restriction prohibiting rentals of the units.

**Kaitlin Wright Esposito**

**From:** Jacki Byerley
**Sent:** Tuesday, August 18, 2026 7:47 AM
**To:** Kaitlin Wright Esposito
**Subject:** RE: Review Meeting 931 Boston Rd

**Follow Up Flag:** Follow up
**Flag Status:** Completed

Good morning Kaitlin,

The Planning Board continued this item to their September 9th meeting. I would recommend the Council open the hearing to meet the statutory requirements and immediately continue the hearing until either their October 20th or October 27th meeting. I cannot guarantee the Planning Board will complete its review of the proposal at the September meeting so I would like to allow time in case they continue to review it at their October 14th meeting.

Be well,
Jacki

**From:** Kaitlin Wright Esposito <kwright@haverhillma.gov>
**Sent:** Monday, August 17, 2026 3:56 PM
**To:** Jacki Byerley <JByerley@HaverhillMa.gov>
**Subject:** RE: Review Meeting 931 Boston Rd

Hi Jacki,

Does Planning Board intend to continue this matter on Wednesday?

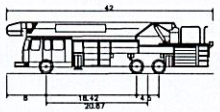
Our Council packet for this item is VERY large, so if it will be heard before Council next week, I am going to start scanning now to save time before Friday.

Thanks!

All my best,

Kaitlin

**Kaitlin M. Wright Esposito, CMC**
*City Clerk*
4 Summer Street, Room 118
Office: (978) 374-2312
Fax: (978) 373-8490
kwright@haverhillma.gov




| Haverhill Ladder | |
|---|---|
| Overall Length | 42.000ft |
| Overall Width | 8.750ft |
| Overall Body Height | 10.601ft |
| Min Body Ground Clearance | 0.906ft |
| Track Width | 8.250ft |
| Lock-to-lock time | 6.00s |
| Curb to Curb Turning Radius | 40.840ft |

PROPOSED WHEEL PATH OF HAVERHILL LADDER TRUCK OUT OF SITE (PURPLE)

PROPOSED OVERHANG OF HAVERHILL LADDER TRUCK (GREY. TYP.)

PROPOSED WHEEL PATH OF HAVERHILL LADDER TRUCK INTO SITE (RED)

PROPOSED WHEEL PATH OF HAVERHILL LADDER TRUCK THREE POINT TURN AROUND (GREEN)

S MAIN STREET-ROUTE 125
(PUBLIC- VARIABLE WIDTH)

I STREET (PRIVATE)

Y STREET (PRIVATE)

R E E T (PRIVATE)

RIP-RAP AREA

WOODEN BARRIER

RETAINING WALL

DECK STEPS

DECK OVERHANG

EXISTING DECK EDGE

DECIDUOUS TREE-CLUSTER (3)

VOLLEYBALL COURT

PROPOSED RETAINING WALL

EXISTING SHED

199.77'

402.67'

N/F
BETTY D PHELPS REVOCABLE TRUST
ASSESSOR'S MAP 731, BLOCK 756, LOT 10

N/F
DOUGLAS P & CAROL L SANFORD
ASSESSOR'S MAP 731, BLOCK 756, LOT 10A

N/F
DOUGLAS P. SANFORD
ASSESSOR'S MAP 731, BLOCK 756, LOT 11

N/F
CEDARDALE, INC
ASSESSOR'S MAP 754, BLOCK 2, LOT 21

PLAN
SCALE: 1" = 20'
0 10 20 40

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS

| NO. | REVISIONS DESCRIPTION | DATE |
|---|---|---|
| | | |

SURVEY BY: SR / TP
DRAFTED BY: WJS/DTS
CHECKED BY: WAS
APPROVED BY: SPC
SCALE: 1"=20'
DATE: FEBRUARY 13, 2026

SITE PLAN OF LAND
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PREPARED FOR
RONALD J MAILLOUX SR.

SWEPT PATH ANALYSIS

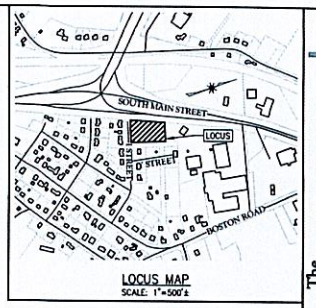
DRAWING NO. 1 OF 1

PROJ. #4316
DRAWING 4316_MAIN.dwg

# SITE DEVELOPMENT PLANS

## FOR A
## MULTI-FAMILY DEVELOPMENT
## LOCATED AT
## 931 BOSTON ROAD
## HAVERHILL, MASSACHUSETTS

(PORTION OF ASSESSOR'S MAP 754, BLOCK 2, LOT 21)

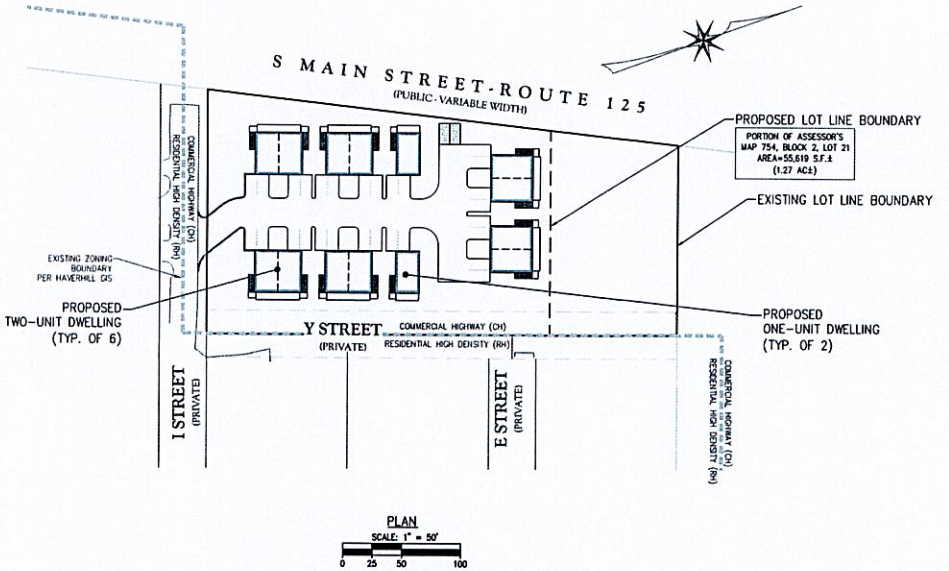


LOCUS MAP
SCALE: 1"=500'±

SCHEDULE OF PLAN SET DRAWINGS:

| | |
|---|---|
| SHEET 1 OF 11 | COVER SHEET |
| SHEET 2 OF 11 | SITE CONTEXT PLAN |
| SHEET 3 OF 11 | EXISTING CONDITIONS PLAN |
| SHEET 4 OF 11 | SITE PREPARATION & EROSION CONTROL |
| SHEET 5 OF 11 | SITE LAYOUT PLAN |
| SHEET 6 OF 11 | GRADING, DRAINAGE & UTILITY PLAN |
| SHEET 7 OF 11 | DETAILS |
| SHEET 8 OF 11 | DETAILS |
| SHEET 9 OF 11 | STORMWATER DETAILS |
| SHEET 10 OF 11 | STORMWATER DETAILS |
| SHEET 11 OF 11 | STORMWATER DETAILS |
| SHEET A0.0 | SITE PLAN |
| SHEET A1.1 | 1ST FLOOR PLAN DUPLEX BUILDING |
| SHEET A1.2 | 2ND FLOOR PLAN DUPLEX BUILDING |
| SHEET A1.3 | 3RD FLOOR PLAN DUPLEX BUILDING |
| SHEET A1.4 | ROOF PLAN DUPLEX BUILDING |
| SHEET A2.1 | ELEVATIONS DUPLEX BUILDING |
| SHEET A2.2 | ELEVATIONS DUPLEX BUILDING |
| SHEET A2.3 | STREET ELEVATIONS |
| SHEET A1.1B | 1ST & 2ND FLOOR PLAN SINGLE BUILDING |
| SHEET A1.2B | 3RD FLOOR & ROOF PLAN SINGLE BUILDING |
| SHEET A2.1B | ELEVATIONS SINGLE BUILDING |
| SHEET L-100 | LANDSCAPE PLAN |

ZONING DISTRICT: COMMERCIAL HIGHWAY (CH)
PROPOSED ZONING DISTRICT: PLANNED RESIDENTIAL DEVELOPMENT DISTRICT (PDD)
(PENDING CITY COUNCIL APPROVAL)



PLAN
SCALE: 1" = 50'
0 25 50 100


APPLICANT:
PENTUCKET NORTH DEVELOPMENT LLC
C/O RONALD J. MAILLOUX SR.
55 CHASE STREET
METHUEN, MA 01844

OWNER:
CEDARDALE, INC
931 BOSTON ROAD
HAVERHILL, MA 01835
BOOK 6023, PAGE 614

CIVIL ENGINEER/SURVEYOR:
THE MORIN-CAMERON GROUP, INC.
66 ELM STREET
DANVERS, MA 01923
PHONE: 978-777-8586

ARCHITECT:
SCOTT BROWN ARCHITECTS
48 MARKET STREET
NEWBURYPORT, MA 01950
PHONE: 978-465-3535

LANDSCAPE DESIGNER:
CORLISS LANDSCAPE & IRRIGATION
31 ESSEX ROAD
IPSWICH, MA 01938
PHONE: 978-356-4224


DIG SAFE
MA-RI-ME-NH-VT
CALL TOLL FREE
1-888-344-7233
UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

NOTE:
UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON VISIBLE ABOVE GROUND UTILITIES AND RECORD INFORMATION OF BELOW GROUND UTILITIES AND ARE APPROXIMATE ONLY. CONTRACTOR IS RESPONSIBLE FOR TAKING ALL NECESSARY PRECAUTIONS BEFORE BEGINNING ANY EXCAVATION.


The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
66 ELM STREET, DANVERS, MASSACHUSETTS 01923
T: (978) 777-8586 W: WWW.MORINCAMERON.COM


SURVEY BY: MCG
DRAFTED BY: DTS
CHECKED BY: WAS
APPROVED BY: SPC
SCALE: AS NOTED
DATE: APRIL 28, 2026

| NO. | REVISIONS DESCRIPTION | DATE |
|---|---|---|
| 1 | PEER REVIEW & CITY COMMENTS | 9/30/2026 |

SITE DEVELOPMENT PLANS
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(PORTION OF ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PREPARED FOR:
PENTUCKET NORTH DEVELOPMENT LLC

COVER SHEET
DRAWING NO. 1 OF 11

PROJ. #4316
DRAWING: 4316_MAIN.dwg

SITE DEVELOPMENT PLANS
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(PORTION OF ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PREPARED FOR:
PENTUCKET NORTH DEVELOPMENT LLC

SITE CONTEXT PLAN

DRAWING NO. 2 OF 11

PROJ. #4316
DRAWING #316_MAIN.dwg

| REVISIONS | | |
|---|---|---|
| NO. | DESCRIPTION | DATE |
| 1 | PEER REVIEW & CITY COMMENTS | 9/30/2025 |

SURVEY BY: MCG
DRAFTED BY: DTS
CHECKED BY: MAS
APPROVED BY: SPC
SCALE: AS NOTED
DATE: APRIL 24, 2025

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
66 ELM STREET, DANVERS, MASSACHUSETTS 01923
P: 978-777-6566 | W: WWW.MORINCAMERON.COM

PLAN
SCALE: 1" = 50'
0 25 50 100

500' SETBACK FROM PROJECT SITE

EXISTING BUILDINGS, ROADS AND LOT LINES FROM MASS GIS (APPROXIMATE LOCATION)

PLANNED RESIDENTIAL DEVELOPMENT (PRD)
COMMERCIAL HIGHWAY (CH)

COMMERCIAL HIGHWAY (CH)
RESIDENTIAL HIGH DENSITY (RH)

COMMERCIAL HIGHWAY (CH)
RESIDENTIAL HIGH DENSITY (RH)

S MAIN STREET-ROUTE 125
(PUBLIC- VARIABLE WIDTH)

SUBJECT PARCEL
911 BOSTON ROAD
LAND USE: RECREATION
PROPOSED USE: RESTAURANT

EXISTING ZONING BOUNDARY PER HAVERHILL GIS (TYP.)

E STREET (PRIVATE)

I STREET (PRIVATE)

M STREET

L STREET

OXFORD AVENUE

## LEGEND

CONTOURS
MAJOR
MINOR
CHAIN LINK FENCE
FIRE HYDRANT
GUY WIRE
IRRIGATION CONTROL VALVE
LIGHT POLE
OVERHEAD WIRE
PROPERTY LINE
SANITARY SEWER MANHOLE
SANITARY SEWER MAIN/SERVICE
SQUARE CATCH BASIN
STORM SEWER/DRAINAGE
TREE LINE
UTILITY POLE
WATER GATE
WATER SPICKET MANHOLE

## GENERAL NOTE:

1. THESE PLANS ARE PREPARED FOR OUR CLIENTS USE FOR THE SPECIFIC PURPOSE OF OBTAINING PERMITS AND LOCAL APPROVALS, AND ARE NOT TO BE USED OR RELIED UPON AS A CONSTRUCTION DOCUMENT OR ANY OTHER USE BY OTHER WITHOUT THE WRITTEN CONSENT OF THE MORIN-CAMERON GROUP, INC.

## PLAN NOTES:

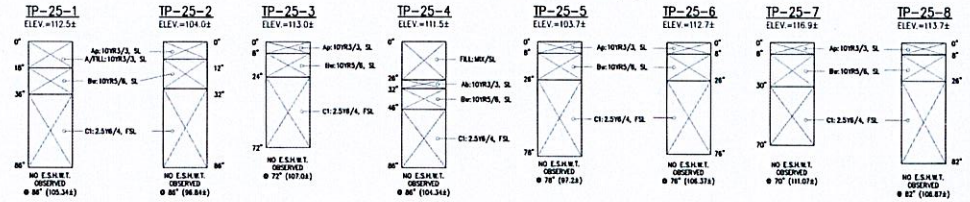
1. THE EXISTING CONDITIONS DEPICTED HEREON ARE BASED ON INFORMATION PROVIDED BY ON THE GROUND SURVEY BY THE MORIN-CAMERON GROUP, INC., ON AUGUST 19, 2025.
2. ABUTTER INFORMATION SHOWN HEREON WAS TAKEN FROM THE HAVERHILL GIS DATABASE.
3. THE PROPERTY BOUNDARY IS BASED ON A PLAN ENTITLED "PLAN OF LAND, LOCATED IN HAVERHILL, MA" PREPARED BY CHRISTIANSEN & SERGI, DATED JANUARY 6, 1998 AND RECORDED AT THE SOUTH ESSEX DISTRICT REGISTRY OF DEEDS IN BOOK 16530, PAGE 429.
4. ELEVATIONS HERON REFER TO VERTICAL DATUM NAVD88.
5. PROJECT SITE LOCATED WITHIN ZONING AREA COMMERCIAL HIGHWAY (CH).
6. PROJECT SITE IS NOT LOCATED WITHIN A WETLANDS AREA.
7. PROJECT SITE IS NOT LOCATED WITHIN A FEMA FLOOD ZONE.

## FLOOD NOTE:

THE SUBJECT PROPERTY IS LOCATED IN A ZONE X: AREA OF MINIMAL FLOOD HAZARD ABOVE 500-YEAR FLOOD LEVEL AS ILLUSTRATED ON THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 25009C0088G, WHICH HAS AN EFFECTIVE DATE OF JULY 8, 2025.

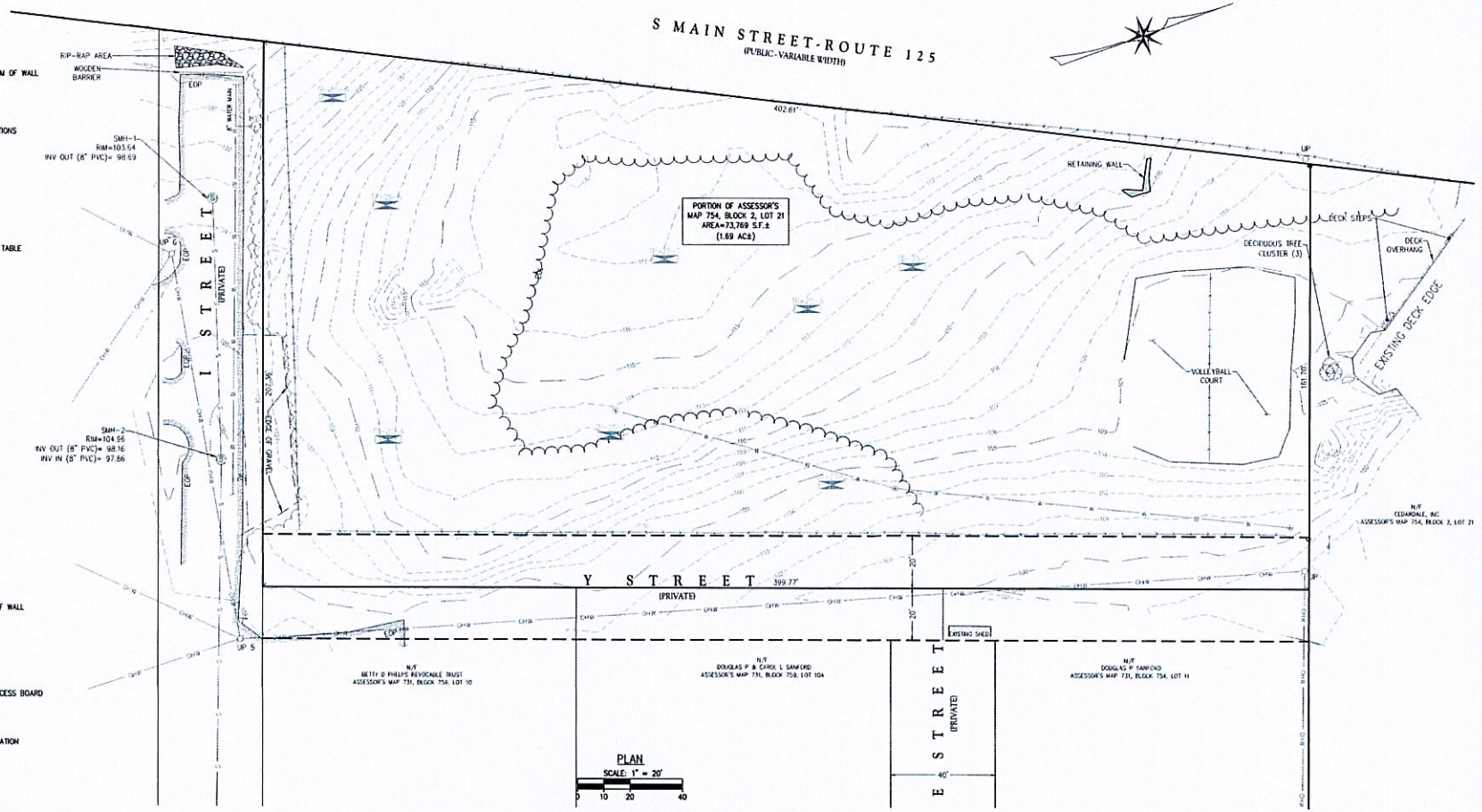
## SOIL LOGS

DATE PERFORMED: NOVEMBER 13, 2025
PERFORMED BY: WILL SCHKUTA, SE #14030




## ABBREVIATIONS:

| | |
|---|---|
| AC | ACRES |
| APPROX | APPROXIMATE |
| BIT | BITUMINOUS |
| BLDG | BUILDING |
| BVW | BORDERING VEGETATED WETLAND |
| BW | FINISH GRADE ADJACENT TO BOTTOM OF WALL |
| CCB | CAPE COD BERM |
| CB | CATCH BASIN |
| CF | CUBIC FEET |
| CI | CAST IRON |
| CLDI | CEMENT LINED DUCTILE IRON |
| CMR | CODE OF MASSACHUSETTS REGULATIONS |
| CONC | CONCRETE |
| CY | CUBIC YARD |
| DI | DUCTILE IRON |
| DIA | DIAMETER |
| DMH | DRAIN MANHOLE |
| DS | DOWNSTREAM |
| DYL | DOUBLE YELLOW LINE |
| ELEC | ELECTRIC |
| EL/ELEV | ELEVATION |
| EOG | EDGE OF GRAVEL |
| EOP | EDGE OF PAVEMENT |
| ESHWT | ESTIMATED SEASONAL HIGH WATER TABLE |
| EXIST | EXISTING |
| FG | FINAL GRADE |
| FT | FEET |
| GAR | GARAGE |
| GG | GAS GATE |
| HDPE | HIGH DENSITY POLYETHYLENEL |
| ID | INNER DIAMETER |
| IN | INCH |
| INV | INVERT |
| L | LENGTH |
| LB | POUNDS |
| MAX | MAXIMUM |
| MCC | MONOLITHIC CONCRETE CURB |
| MIN | MINIMUM |
| N/F | NOW OR FORMERLY |
| OC | ON CENTER |
| OHW | OVERHEAD WIRES |
| PE | POLYETHYLENE |
| ± | PLUS OR MINUS |
| PCC | PRECAST CONCRETE CURB |
| RCP | RIGID CONCRETE PIPE |
| REC | RECORD |
| PROP | PROPOSED |
| PSI | POUNDS PER SQUARE INCH |
| PVC | POLYVINYL CHLORIDE |
| R | RADIUS |
| RC | RELATIVE COMPACTION |
| REQ'D | REQUIRED |
| ROW | RIGHT OF WAY |
| S | SLOPE |
| SF | SQUARE FEET |
| SGO | SAND, GAS AND OIL SEPARATOR |
| SMH | SEWER MANHOLE |
| SQ | SQUARE |
| TBD | TO BE DETERMINED |
| TC | TOP OF CURB/TRANSITION CURB |
| TW | FINISH GRADE ADJACENT TO TOP OF WALL |
| TYP | TYPICAL |
| UGE | UNDERGROUND ELECTRIC |
| UNK | UNKNOWN |
| VAR | VARIANCE |
| VGC | VERTICAL GRANITE CURB |
| VIF | VERIFY IN FIELD |
| LSA | LANDSCAPE AREA |
| LF | LINEAR FEET |
| MAAB | MASSACHUSETTS ARCHITECTURE ACCESS BOARD |
| MEP | MECHANICAL ELECTRICAL PLUMBING |
| MCC | MONOLITHIC CONCRETE CURB |
| MIL | MILLIMETER |
| NF | NOT FOUND |
| NFPA | NATIONAL FIRE PROTECTION ASSOCIATION |
| US | UPSTREAM |
| WF | WETLAND FLAG |
| WG | WATER GATE |
| WQU | WATER QUALITY UNIT |
| WSO | WATER SHUTOFF |
| W/ | WITH |





The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
66 ELM STREET, DANVERS, MASSACHUSETTS 01923
P. 978-777-8006, W. WWW.MORIN-CAMERON.COM


| REVISIONS | | |
|---|---|---|
| NO. | DESCRIPTION | DATE |
| 1 | PEER REVIEW & CITY COMMENTS | 9/30/2026 |

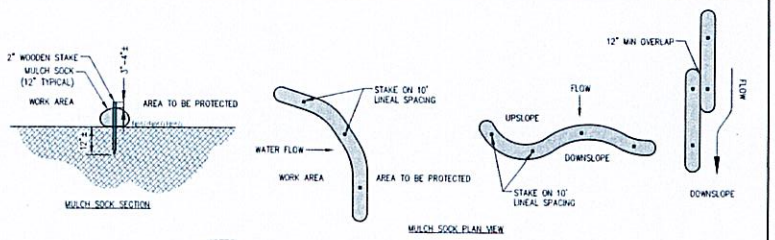
SURVEY BY: MCG
DRAFTED BY: DTS
CHECKED BY: MAS
APPROVED BY: SPC
SCALE: AS NOTED
DATE: APRIL 28, 2026

# SITE DEVELOPMENT PLANS
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(PORTION OF ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PREPARED FOR
PENTUCKET NORTH DEVELOPMENT LLC

EXISTING CONDITIONS PLAN

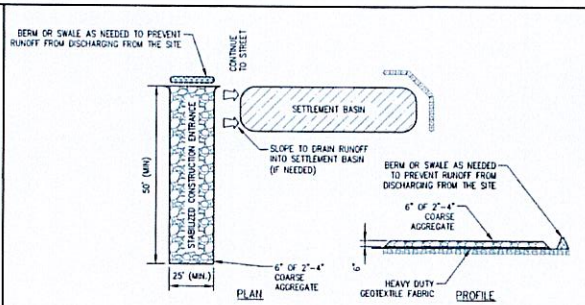
DRAWING NO. 3 OF 11

PROJ. #4316
DRAWING: 4316_MAIN.dwg



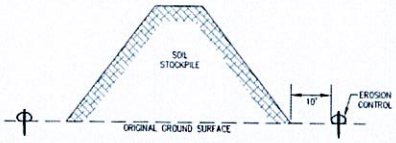

NOTES:
1. MULCH CAN BE SUBSTITUTED WITH COMPOST.
2. WRAP SHALL BE CUT & REMOVED AFTER STABILIZATION IS ESTABLISHED. MULCH TO REMAIN.

MULCH SOCK
(NOT TO SCALE)



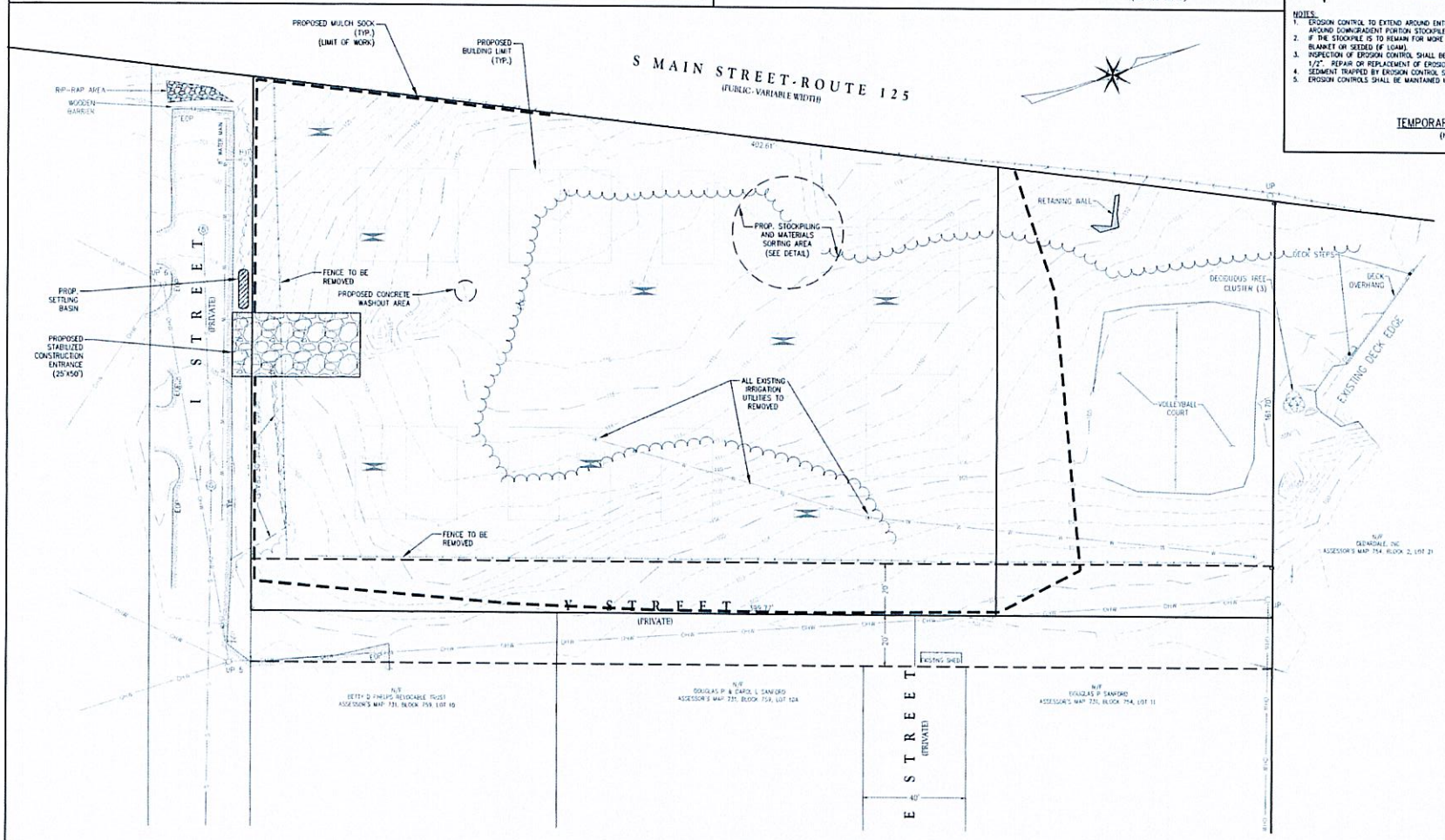

STABILIZED CONSTRUCTION ENTRANCE DETAIL
(NOT TO SCALE)

SITE CONSTRUCTION EXIT SPECIFICATIONS:
1. STONE FOR STABILIZATION CONSTRUCTION ENTRANCE SHALL BE 2"-4" STONE.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 40 FEET.
3. THE WIDTH OF THE ENTRANCE SHALL BE NO LESS THAN THE WIDTH OF THE INGRESS OR EGRESS DRIVE, OR 16 FEET, WHICHEVER IS GREATER.
4. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
5. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARDS THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH MINIMUM 1 TO 5 SLOPES THAT CAN BE CROSSED BY VEHICLES CAN BE SUBSTITUTED.
6. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO RIGHTS OF WAY. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. SEDIMENT SPILLED, WASHED OR TRACKED ONTO THE RIGHT OF WAY MUST BE REMOVED IMMEDIATELY.




NOTES:
1. EROSION CONTROL TO EXTEND AROUND ENTIRE PERIMETER OF STOCKPILE IF ON LEVEL GROUND OR TO EXTEND AROUND DOWNGRADIENT PORTION STOCKPILE IS ON SLOPE.
2. IF THE STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS IT SHALL BE STABILIZED WITH AN EROSION CONTROL BLANKET OR SEEDED (F 10M).
3. INSPECTION OF EROSION CONTROL SHALL BE AT LEAST ONCE PER WEEK AND AFTER RAIN EVENTS IN EXCESS OF 1/2". REPAIR OR REPLACEMENT OF EROSION CONTROL SHALL BE MADE PROMPTLY AS NEEDED.
4. SEDIMENT TRAPPED BY EROSION CONTROL SHALL BE REMOVED AND PROPERLY DISPOSED OF.
5. EROSION CONTROLS SHALL BE MAINTAINED UNTIL STOCKPILE IS ELIMINATED.

TEMPORARY SOIL STOCKPILE
(NOT TO SCALE)




PLAN
SCALE: 1" = 20'
0 10 20 40

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
1 MAIN STREET, SUITE 1, NORTH ANDOVER, MA 01845
T: 978-777-3050 | F: 978-688-6872 | WWW.MORINCAMERON.COM

SURVEY BY: MCG
DRAFTED BY: DTS
CHECKED BY: MAS
APPROVED BY: SPC
SCALE: AS NOTED
DATE: APRIL 28, 2025

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PEER REVIEW & CITY COMMENTS | 9/30/2026 |

SITE DEVELOPMENT PLANS
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(PORTION OF ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PREPARED FOR:
PENTUCKET NORTH DEVELOPMENT LLC

SITE PREPARATION & EROSION CONTROL

DRAWING NO. 4 OF 11

PROJ. #4316
DRAWING: 4316_MAIN.dwg

## PLANNED DEVELOPMENT (PD) SUBMITTAL TABLE

| | |
|---|---|
| TOTAL LAND AREA | 55,620 SF |
| DEVELOPABLE SITE AREA | 55,620 SF |
| COMMON OR USABLE OPEN SPACE | 28,640 SF |
| SITE COVERAGE OF BUILDINGS | 10,080 SF |
| IMPERVIOUS SURFACE AREA | 23,788 SF |
| IMPERVIOUS SURFACE RATIO | 0.428 (42.8%) |
| GROSS FLOOR AREA OF ALL NON RESIDENTIAL BUILDINGS | 0 SF |
| FLOOR AREA RATIO | 0.181 (18.1%) |
| DENSITY OF DWELLING UNITS | 3,972± SF/UNIT |
| NUMBER OF OFF-STREET PARKING SPACES | 28 SPACES |

## BUILDING HEIGHTS

| BUILDING | (A) AVERAGE FINISHED GRADE ELEVATION BASED ON BUILDING CORNERS (FT) | (B) GARAGE ENTRANCE ELEVATION (FT) | (C) MEAN ROOF HEIGHT ABOVE GARAGE ENTRANCE ELEVATION (FT) | (D) ELEVATION OF MEAN ROOF HEIGHT (FT) (B+C) | PROPOSED BUILDING HEIGHT (FT) (D-A) |
|---|---|---|---|---|---|
| 1 | 110.10 | 110.7 | 28.10 | 138.80 | 28.70 |
| 2 | 113.90 | 113.0 | 28.10 | 141.10 | 27.20 |
| 3 | 115.60 | 115.3 | 25.75 | 141.05 | 25.45 |
| 4 | 117.10 | 116.2 | 28.10 | 144.30 | 27.20 |
| 5 | 115.10 | 114.7 | 28.10 | 142.80 | 27.70 |
| 6 | 115.30 | 115.3 | 25.75 | 141.05 | 25.75 |
| 7 | 114.00 | 113.0 | 28.10 | 141.10 | 27.10 |
| 8 | 110.00 | 109.0 | 28.10 | 137.10 | 27.10 |

### BUILDING HEIGHT NOTE:

BUILDING HEIGHT IS CALCULATED AS THE VERTICAL DISTANCE FROM THE AVERAGE FINISHED GRADE (AVERAGE OF FINISHED GROUND ELEVATION AT THE MAIN CORNERS OF THE STRUCTURE) TO THE HIGHEST POINT OF THE ROOF: TOP OF THE HIGHEST ROOF BEAM (FLAT ROOF), DECK OF A MANSARD ROOF, OR MEAN LEVEL BETWEEN EAVES AND RIDGE (GABLE, HIP, SHED, GAMBREL, PYRAMID, OR SIMILAR ROOFS). MAXIMUM ALLOWABLE HEIGHTS ARE ESTABLISHED IN TABLE 2 (DIMENSIONAL REGULATIONS) BY ZONING DISTRICT. DEFINITION PER HAVERHILL ZONING ORDINANCE § 11.0 (DEFINITIONS).

### SNOW STORAGE NOTE:

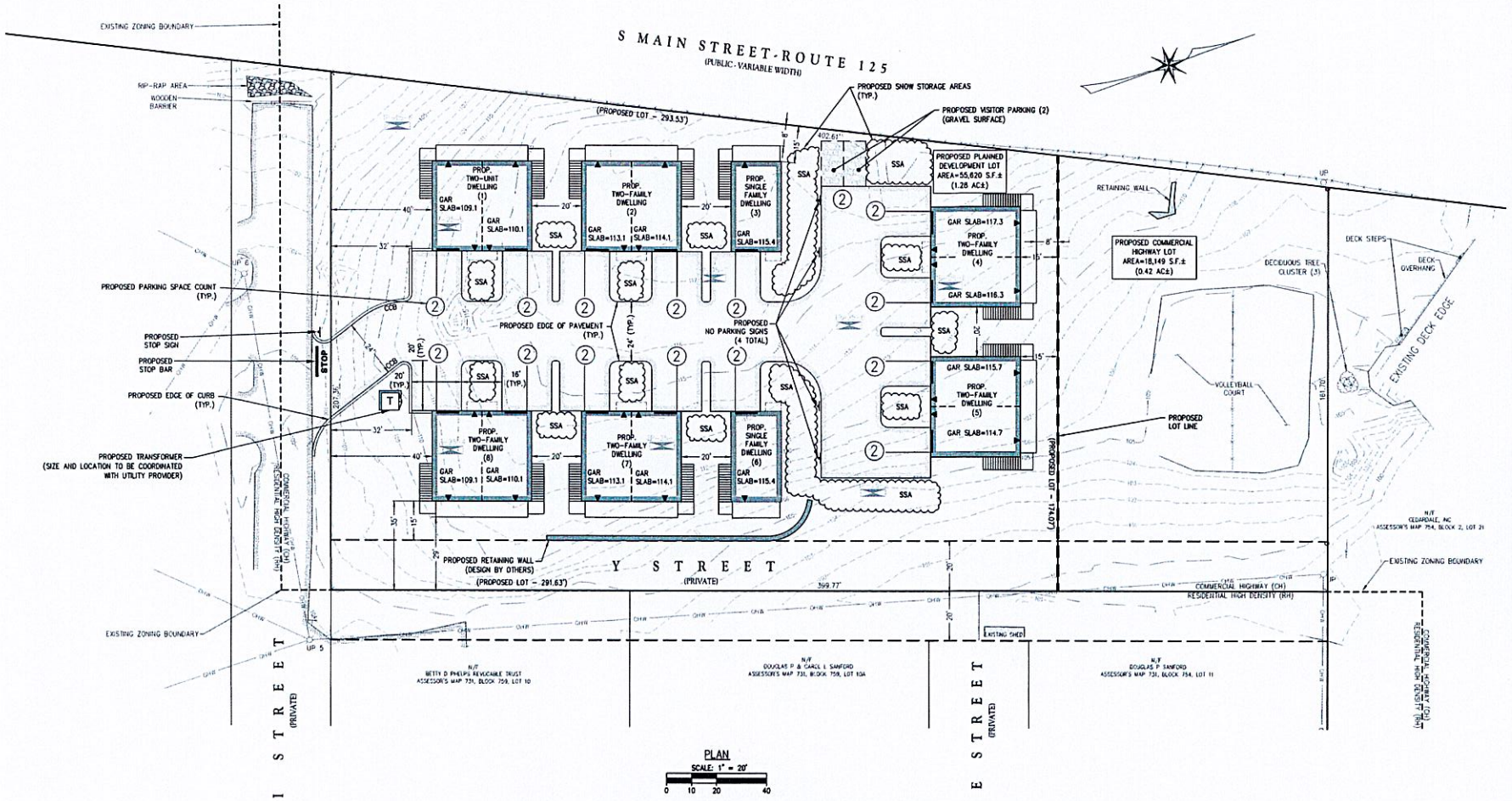
EXCESS SNOW TO BE REMOVED FROM THE SITE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

### PARKING SPACE COUNT SUMMARY

| | NUMBER OF SPACES |
|---|---|
| SURFACE (RESIDENTS) | 28 |
| SURFACE (VISITORS) | 2 |
| GARAGE | 14 |
| RATIO (14 UNITS) | 3.14 SPACES/ UNIT |

## ZONING TABLE – PLANNED DEVELOPMENT (PD)

| SETBACK | RESIDENTIAL HIGH DENSITY (RH) 1-FAM | RESIDENTIAL HIGH DENSITY (RH) 2-FAM | COMMERCIAL HIGHWAY (CH) | PROPOSED PD LOT |
|---|---|---|---|---|
| LOT AREA (MIN.) | 7,500 SF | 9,600 SF | 22,500 SF | 55,620 SF± |
| LOT AREA REQUIRED PER DWELLING UNIT (MIN.) | N/A | N/A | N/A | 3,972 SF± |
| LOT FRONTAGE (MIN.) | 75' | 80' | 175' | 207.36' |
| LOT DEPTH (MIN.) | 100' | 100' | 100' | 291' |
| FRONT SETBACK (MIN.) | 20' | 20' | 30' | 40' |
| SIDE SETBACK (MIN.) | 10' | 10' | 15' | 15' |
| REAR SETBACK (MIN.) | 30' | 30' | 15' | 15' |
| BUILDING HEIGHT (MAX.) | 35' | 35' | 40' | <40' |
| BUILDING HEIGHT – STORIES (MAX.) | 2.5 | 2.5 | 3.5 | <3.5 |
| BUILDING COVERAGE (%, MAX.) | 25% | 25% | NONE | 18.1% |
| FLOOR AREA RATIO (FAR, MAX.) | N/A | N/A | 0.50 | <0.50 |
| OPEN SPACE, (%, MIN.) | 45% | 45% | 25% | 51% |





The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
66 HUNT STREET, SUITE 110, AGAWAM, MA 01001
P: 978-777-8306, W: WWW.MORINCAMERON.COM


REVISIONS

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PEER REVIEW & CITY COMMENTS | 9/30/2026 |

SURVEY BY: MCG
DRAFTED BY: DTS
CHECKED BY: WAS
APPROVED BY: SPC
SCALE: AS NOTED
DATE: APRIL 28, 2026

SITE DEVELOPMENT PLANS
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(PORTION OF ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PREPARED FOR:
PENTUCKET NORTH DEVELOPMENT LLC

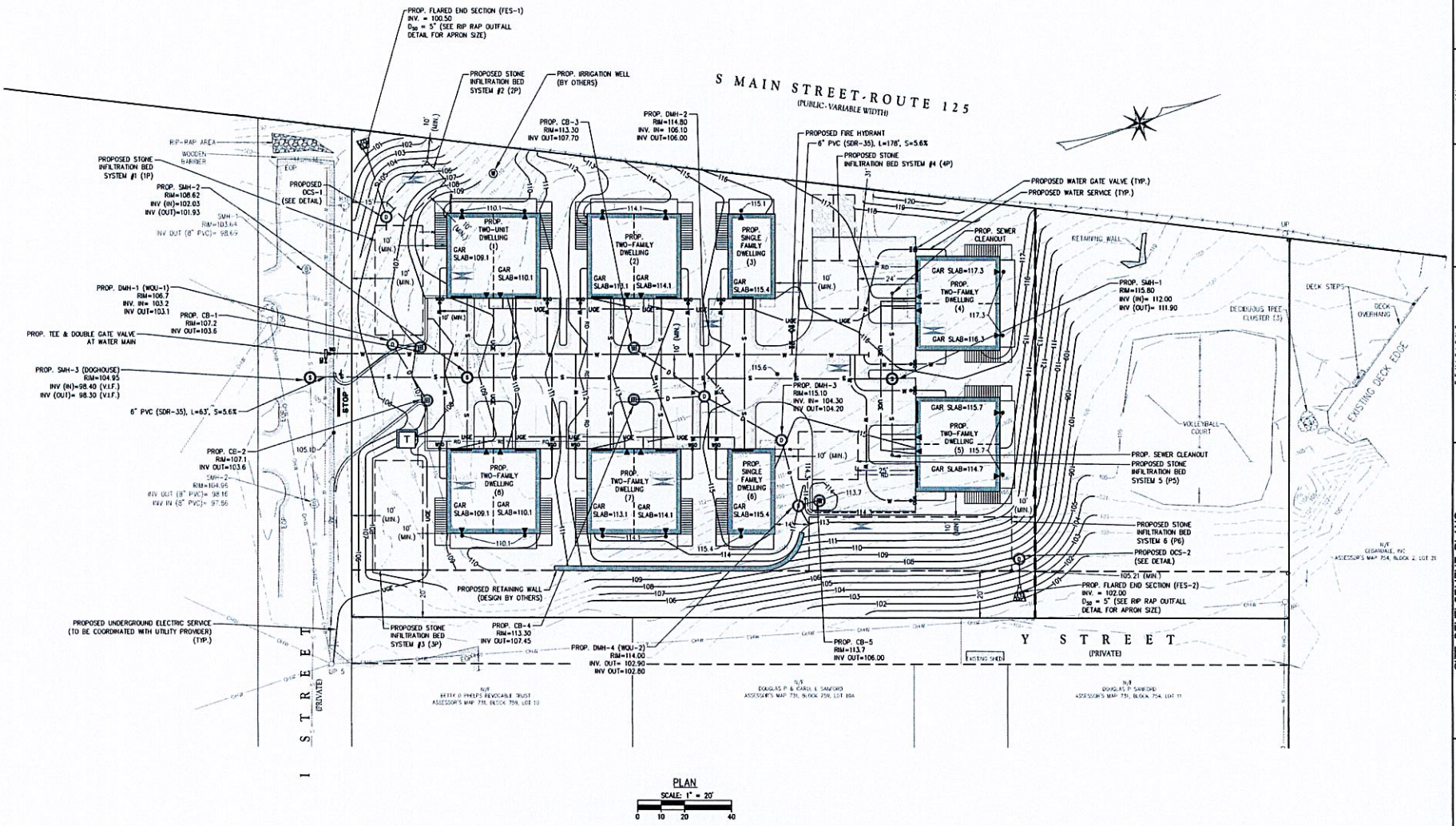
SITE LAYOUT PLAN

DRAWING NO. 5 OF 11

PROJ. #4316
DRAWING: 4316_MAIN.dwg

NOTES:

1. FINAL HYDRANT LOCATIONS TO BE COORDINATED WITH HAVERHILL FIRE DEPARTMENT.
2. FINAL ELECTRIC LOCATIONS TO BE COORDINATED WITH UTILITY PROVIDER.
2. FINAL WATER CONNECTION TO BE COORDINATED WITH HAVERHILL WATER DEPARTMENT.
3. ALL ROOF STORMWATER TO BE DIRECTED TO STORMWATER SYSTEMS. FINAL CONNECTIONS TO BE COORDINATED WITH ARCHITECTURAL PLANS.




PLAN
SCALE: 1" = 20'
0 10 20 40

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
66 HAVERHILL STREET, ANDOVER, MA 01810
P. 978-777-3050, W. WWW.MORINCAMERON.COM

SURVEY BY: MCG
DRAFTED BY: DTS
CHECKED BY: WAS
APPROVED BY: SPC
SCALE: AS NOTED
DATE: APRIL 28, 2026

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PEER REVIEW & CITY COMMENTS | 9/30/2026 |

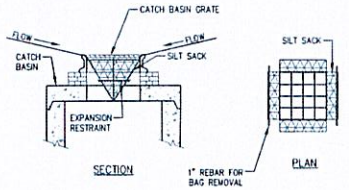
REVISIONS

SITE DEVELOPMENT PLANS
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(PORTION OF ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PREPARED FOR:
PENTUCKET NORTH DEVELOPMENT LLC

GRADING, DRAINAGE & UTILITIES

DRAWING NO.
6 OF 11

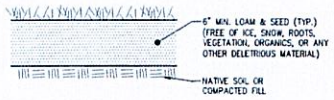
PROJ. #4316
DRAWING: 4316_MAIN.dwg



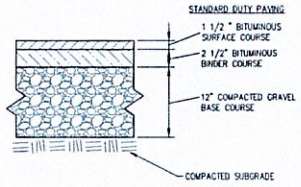

SILT SACK NOTES:

1. INSTALL SILT SACKS IN EXISTING CATCH BASINS. INSTALL SILT SACKS IN NEW CATCH BASINS AFTER INSTALLATION.
2. GRATES TO BE PLACED OVER SILT SACKS.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED WHEN DEPTH OF SEDIMENT IS WITHIN 6" OF GRATE.

SILT SACK
(NOT TO SCALE)



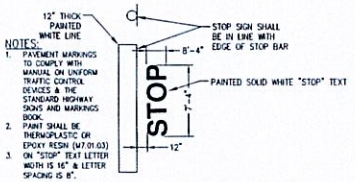

LOAM & SEED
(NOT TO SCALE)




NOTES:

1. PAVEMENT SHALL BE TYPE 1, CLASS 1, BITUMINOUS CONCRETE
2. PAVEMENT THICKNESS AFTER ROLLING.
3. SUBSOILS TO BE INSPECTED PRIOR TO INSTALLATION OF PAVEMENT SUBBASE. IF UNCOMPACTED FILL OR UNSUITABLE SOIL IS PRESENT, IT SHALL BE REMOVED TO UNDISTURBED NATIVE SOIL AND REPLACED WITH STRUCTURAL FILL COMPACTED TO 95% R.C.

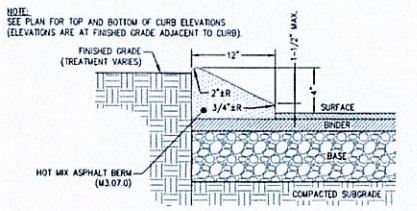
TYPICAL PAVEMENT SECTION
(NOT TO SCALE)



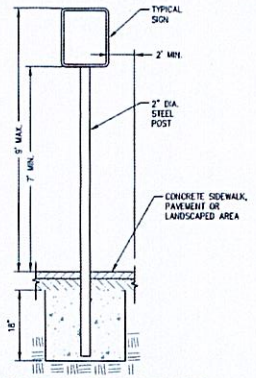

NOTES:

1. PAVEMENT MARKINGS TO COMPLY WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES & THE STANDARD HIGHWAY SIGNS AND MARKINGS BOOK.
2. PAINT SHALL BE THERMOPLASTIC OR EPOXY RESIN (M7.01.03)
3. ON "STOP" TEXT LETTER WIDTH IS 16" & LETTER SPACING IS 8".

STOP BAR
(NOT TO SCALE)



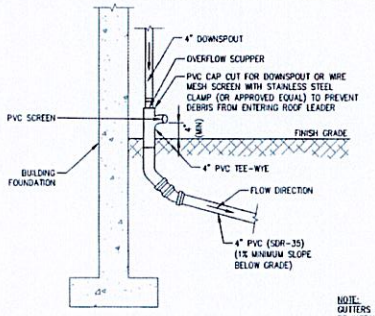

CAPE COD BERM
(NOT TO SCALE)




SIGN POST FOR SIGNS IN PARKING AREAS
(NOT TO SCALE)

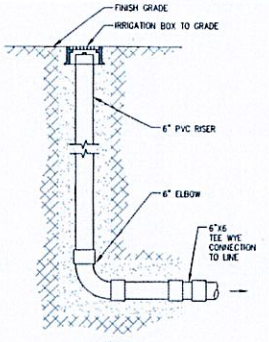
| M.U.T.C.D. LEGEND | WIDTH | HEIGHT | SYMBOL |
|---|---|---|---|
| R1-1 | 30" | 30" | STOP |

SIGN KEY
(NOT TO SCALE)

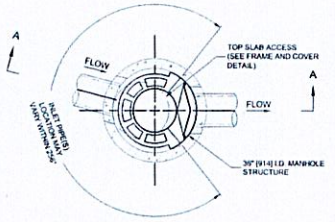



DOWN SPOUT ROOF LEADER
NOT TO SCALE

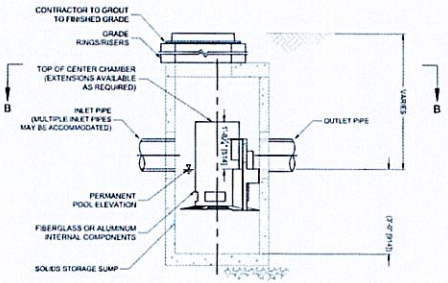
NOTE:
GUTTERS AND DOWNSPOUTS SHALL BE INSTALLED TO COLLECT ALL ROOF RUNOFF FROM THE HOUSE & CONVEY IT TO THE INFILTRATION AREAS.




SEWER CLEANOUT
(NOT TO SCALE)




PLAN VIEW B-B
NOT TO SCALE




ELEVATION A-A
NOT TO SCALE

CONTECH CS-3 (WQU-1 & WQU-2)
(NOT TO SCALE)

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
[author block]

SURVEY BY: MCC
DRAFTED BY: DTS
CHECKED BY: MAS
APPROVED BY: SPC
SCALE: AS NOTED
DATE: APRIL 28, 2026

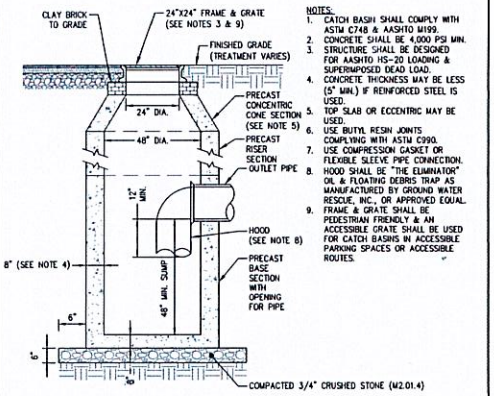
| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PEER REVIEW & CITY COMMENTS | 9/30/2026 |

SITE DEVELOPMENT PLANS
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(PORTION OF ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PREPARED FOR:
PENTUCKET NORTH DEVELOPMENT LLC

DETAILS

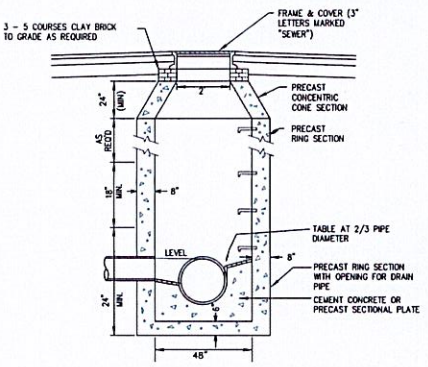
DRAWING NO. 7 OF 11

PROJ #4316
DRAWING: 4316_MAIN.dwg



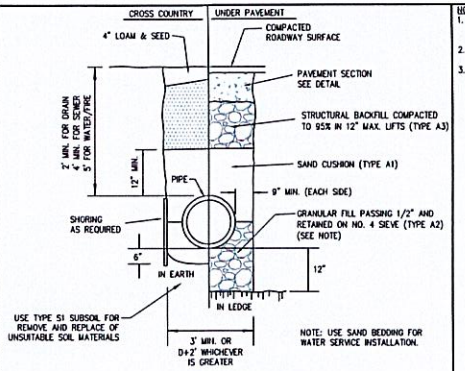

NOTES:
1. CATCH BASIN SHALL COMPLY WITH ASTM C748 & AASHTO M199.
2. CONCRETE SHALL BE 4,000 PSI MIN.
3. STRUCTURE SHALL BE DESIGNED FOR AASHTO HS-20 LOADING & SUPERIMPOSED DEAD LOAD.
4. CONCRETE THICKNESS MAY BE LESS (5" MIN.) IF REINFORCED STEEL IS USED.
5. TOP SLAB OR ECCENTRIC MAY BE USED.
6. USE BUTYL RESIN JOINTS COMPLYING WITH ASTM C990.
7. USE COMPRESSION GASKET OR FLEXIBLE SLEEVE PIPE CONNECTION.
8. HOOD SHALL BE "THE ELIMINATOR" OIL & FLOATING DEBRIS TRAP AS MANUFACTURED BY GROUND WATER RESCUE, INC., OR APPROVED EQUAL.
9. FRAME & GRATE SHALL BE PEDESTRIAN FRIENDLY & AN ACCESSIBLE GRATE SHALL BE USED FOR CATCH BASINS IN ACCESSIBLE PARKING SPACES OR ACCESSIBLE ROUTES.

CATCH BASIN
(NOT TO SCALE)




NOTE: OUTLET INVERT IS A MINIMUM 0.10' LOWER THAN INLET INVERT.

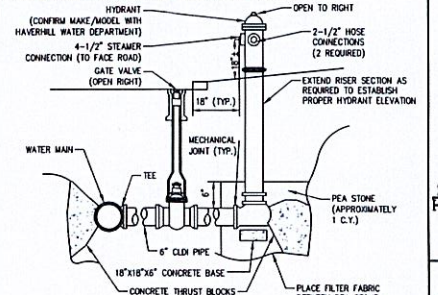
SEWER MANHOLE DETAIL
(NOT TO SCALE)



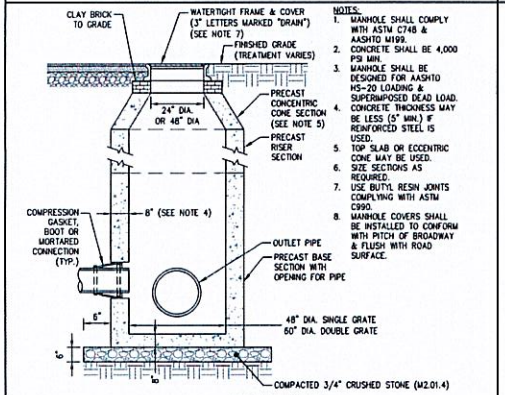

NOTE: USE SAND BEDDING FOR WATER SERVICE INSTALLATION.

UTILITY TRENCH DETAIL
(NOT TO SCALE)

NOTES:
1. CONCRETE THRUST BLOCKS TO BE USED ONLY WHERE THEY CAN BEAR ON UNDISTURBED EARTH AS SHOWN. USE CLAMPS AND TIE RODS OR OTHER ACCEPTABLE METHOD OF JOINT RESTRAINT WHERE SOIL CONDITIONS PROHIBIT THE USE OF THRUST BLOCKS.
2. HYDRANT IN SIDEWALK AREAS TO BE LOCATED TO PROVIDE MINIMUM CLEAR SIDEWALK PASSAGE WIDTH OF 3 FEET AT HYDRANT.
3. COORDINATE FINAL LOCATIONS OF HYDRANT WITH HAVERHILL FIRE DEPARTMENT.

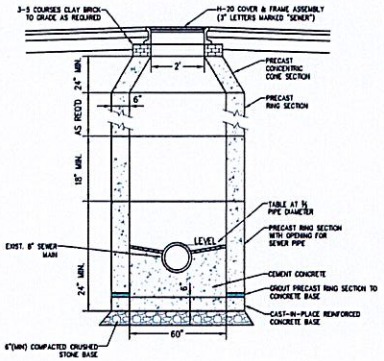



HYDRANT
(NOT TO SCALE)



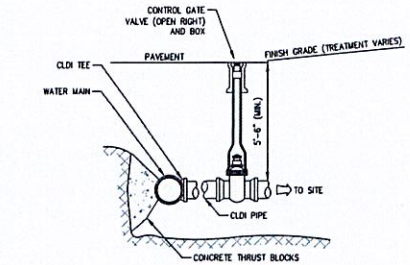

NOTES:
1. MANHOLE SHALL COMPLY WITH ASTM C748 & AASHTO M199.
2. CONCRETE SHALL BE 4,000 PSI MIN.
3. MANHOLE SHALL BE DESIGNED FOR AASHTO HS-20 LOADING & SUPERIMPOSED DEAD LOAD.
4. CONCRETE THICKNESS MAY BE LESS (5" MIN.) IF REINFORCED STEEL IS USED.
5. TOP SLAB OR ECCENTRIC CONE MAY BE USED.
6. SIZE SECTIONS AS REQUIRED.
7. USE BUTYL RESIN JOINTS COMPLYING WITH ASTM C990.
8. MANHOLE COVERS SHALL BE INSTALLED TO CONFORM WITH PITCH OF BROADWAY & FLUSH WITH ROAD SURFACE.

DRAIN MANHOLE
(NOT TO SCALE)

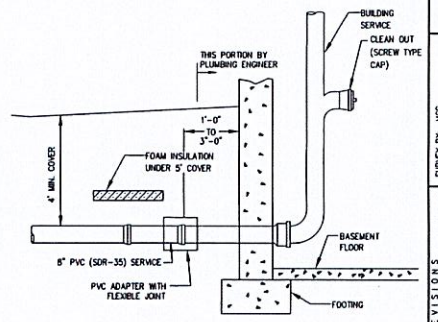



NOTES:
1. EXISTING SEWER MAIN LOCATION, SIZE AND MATERIAL SHALL BE VERIFIED IN FIELD.
2. IF LEDGE ENCOUNTERED BELOW EXISTING SEWER MAIN, REINFORCING DOWELS SHALL BE SET A MIN. OF 6" INTO EXISTING LEDGE PRIOR TO CASTING BASE OF DOG HOUSE MANHOLE.

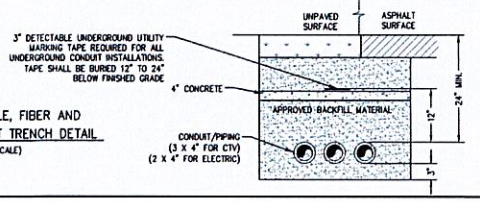
SEWER MANHOLE DETAIL (DOGHOUSE)
(NOT TO SCALE)




WATER MAIN GATE VALVE CONNECTION
(NOT TO SCALE)

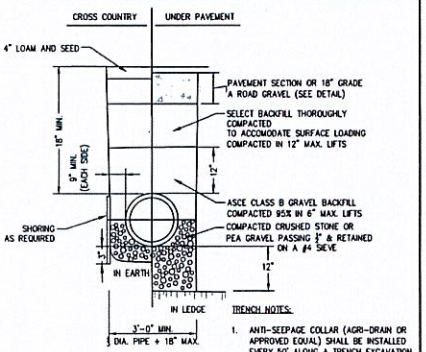



TYPICAL BUILDING SEWER SERVICE
(NOT TO SCALE)



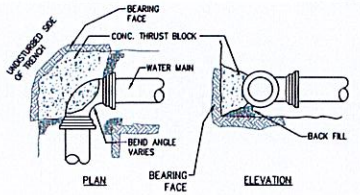

TELEPHONE, CABLE, FIBER AND ELECTRICAL CONDUIT TRENCH DETAIL
(NOT TO SCALE)

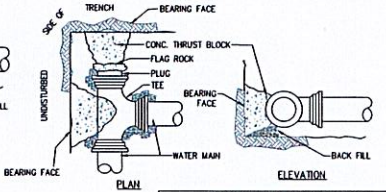
ELECTRICAL CONDUIT TRENCH DETAIL
NOTES:
1. ADJUST FOR ANY LOCAL MODIFICATIONS TO NFPA 70/NEC.
2. COORDINATE CONDUITS WITH APPLICABLE SERVICE PROVIDERS.




TRENCH NOTES:
1. ANTI-SEEPAGE COLLAR (AGRI-DRAIN OR APPROVED EQUAL) SHALL BE INSTALLED EVERY 50' ALONG A TRENCH EXCAVATION WHEN THE SLOPE EXCEEDS 4%.
2. SHEETING, IF USED, SHALL BE CUT OFF 12 INCHES (12") ABOVE TOP OF PIPE OR CONDUIT.

TYPICAL DRAIN TRENCH DETAIL
(NOT TO SCALE)




NOTES:
1. ALL WATER MAIN FITTINGS, BENDS, TEES, PLUGS ETC. SHALL BE RESTRAINED W/ THRUST BLOCKS EXCEPT WHERE NOTED.
2. ALL THRUST BLOCKS & COLLARS SHALL BE INSTALLED SO THAT THEY BEAR AGAINST UNDISTURBED EARTH.
3. MINIMUM COMPRESSIVE STRENGTH OF THRUST BLOCK CONCRETE SHALL BE 3,000 P.S.I.
4. KEEP CONCRETE CLEAR OF MECHANICAL JOINTS.

THRUST BLOCK DETAIL
(NOT TO SCALE)

MIN. BEARING FACE AREAS FOR THRUSTBLOCKS

| | 90° | 45° | 22.5° | TEES | PLUGS | CAPS | HYDRANTS |
|---|---|---|---|---|---|---|---|
| 6"-8" | 8 | 5 | 6 | 4 | 4 | 4 | 4 |
| 8"-8" | 12 | 8 | 5 | 6 | 6 | 6 | 6 |

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
66 ISA STREET, LAWRENCE, MASSACHUSETTS 01843
P. 978.557.0004 • WWW.MORIN-CAMERON.COM

REVISIONS

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PEER REVIEW & CITY COMMENTS | 9/30/2026 |

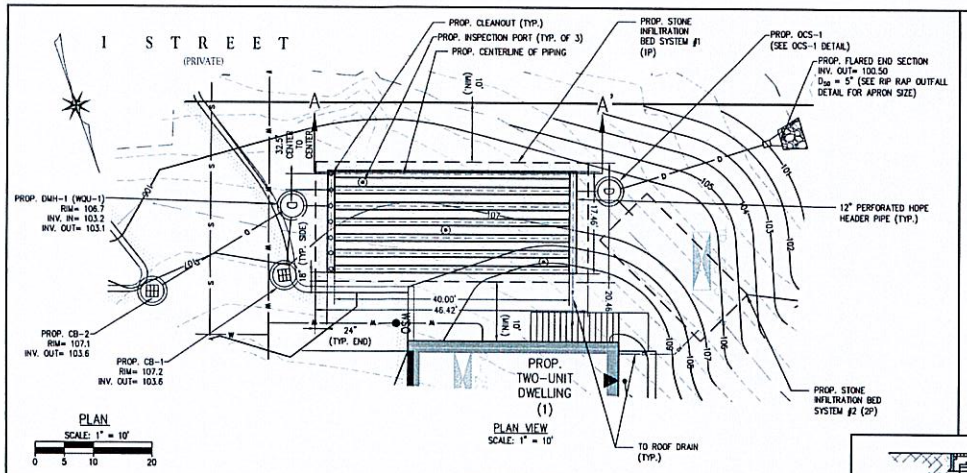
SURVEY BY: WCG
DRAFTED BY: DTS
CHECKED BY: WAS
APPROVED BY: SPC
SCALE: AS NOTED
DATE: APRIL 28, 2026

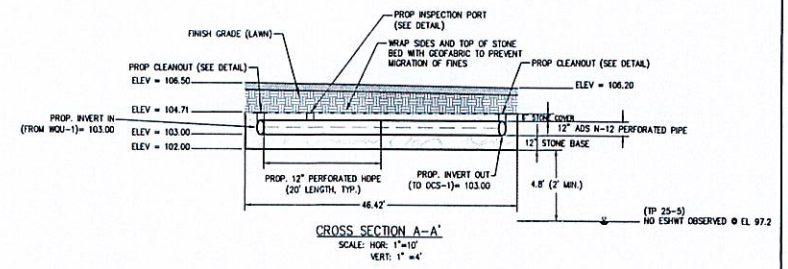
SITE DEVELOPMENT PLANS
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(PORTION OF ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PENTUCKET NORTH DEVELOPMENT LLC

DETAILS

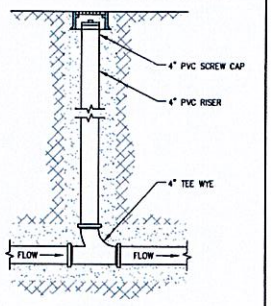
DRAWING NO. 8 OF 11

PROJ. #4316
DRAWING: 4316_MAIN.dwg

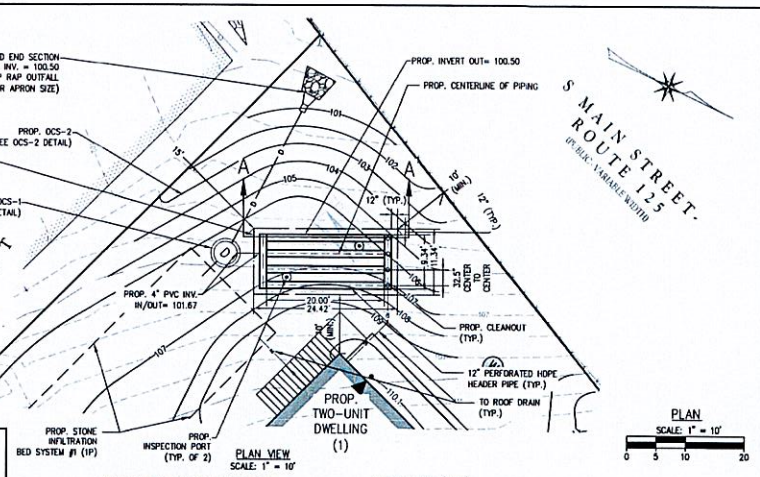


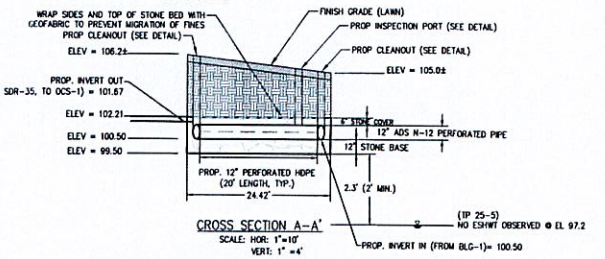




STONE INFILTRATION BED SYSTEM #1 DETAIL (1P)
(46.42 LENGTH X 20.46' WIDTH)
SCALE: AS NOTED

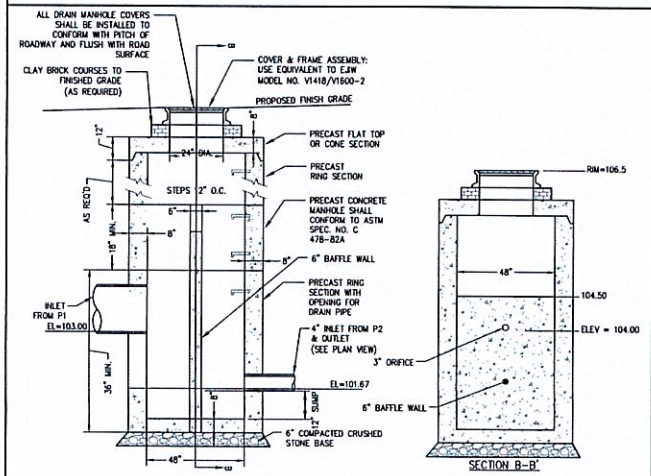



CLEANOUT
(NOT TO SCALE)

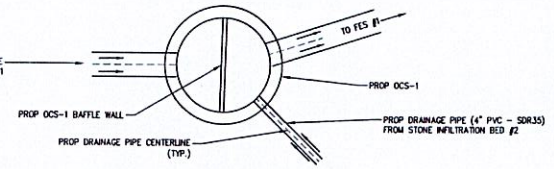


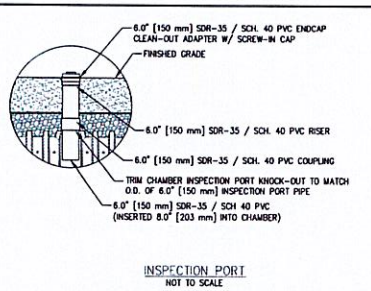

STONE INFILTRATION BED SYSTEM #2 DETAIL (SIS2)(2P)
(24.42' LENGTH X 11.34' WIDTH)
SCALE: AS NOTED




OUTLET CONTROL STRUCTURE (OCS-1)
(NOT TO SCALE)



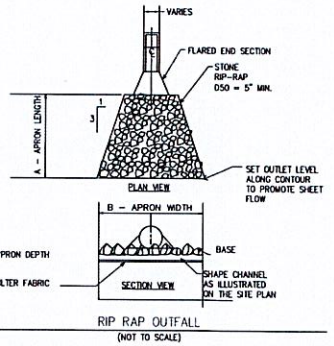

OUTLET CONTROL STRUCTURE (OCS-1, PLAN VIEW)
(NOT TO SCALE)




INSPECTION PORT
NOT TO SCALE

RIP RAP/OUTLET SIZING

| OUTLET | PIPE DIAMETER (IN) | DESIGN 100-YR DISCHARGE (CFS) | $D_{50}$ MIN. (IN) | SELECTED $D_{50}$ (IN) | DESIGN APRON LENGTH "A" (FT) | DESIGN APRON LENGTH "B" (FT) | DESIGN APRON DEPTH "D" (FT) |
|---|---|---|---|---|---|---|---|
| FES-1 | 12 | 0.3 | 1 | 5 | 4 | 5.5 | 1.5 |
| FES-2 | 12 | 0.8 | 1 | 5 | 4 | 5.5 | 1.5 |




6 RIP RAP OUTFALL
(NOT TO SCALE)

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
66 HAVERHILL STREET, SUITE 203, ANDOVER, MA 01810
P: 978-777-6566, W: WWW.MORINCAMERON.COM

REVISIONS

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PEER REVIEW & CITY COMMENTS | 9/30/2026 |

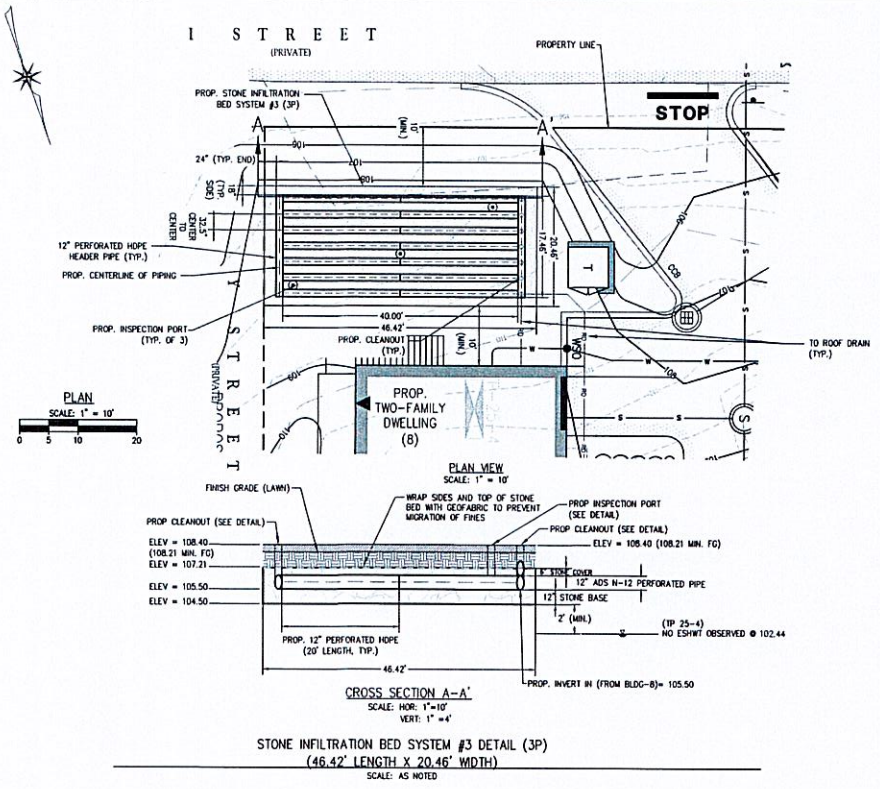
SURVEY BY: MCG
DRAFTED BY: DTS
CHECKED BY: MAS
APPROVED BY: SPC
SCALE: AS NOTED
DATE: APRIL 29, 2026

SITE DEVELOPMENT PLANS
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(PORTION OF ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PREPARED FOR:
PENTUCKET NORTH DEVELOPMENT LLC

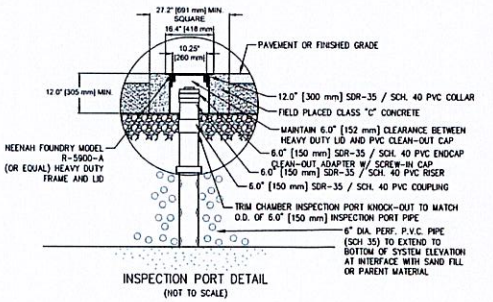
STORMWATER DETAILS

DRAWING NO. 9 OF 11

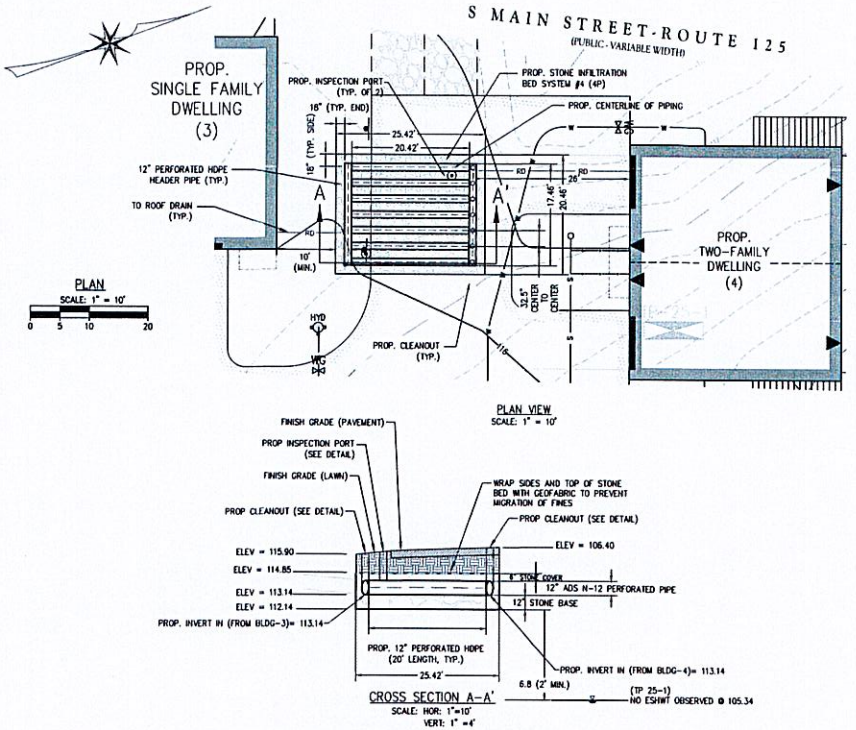
PROJ. #4316
DRAWING: 4316_MAIN.dwg




STONE INFILTRATION BED SYSTEM #3 DETAIL (3P)
(46.42' LENGTH X 20.46' WIDTH)
SCALE: AS NOTED




INSPECTION PORT DETAIL
(NOT TO SCALE)




STONE INFILTRATION BED SYSTEM #4 DETAIL (4P)
(25.42' LENGTH X 20.46' WIDTH)
SCALE: AS NOTED

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
66 ELM STREET, SALEM, MASSACHUSETTS 01970
P: 978.744.7755 ■ WWW.MORINCAMERON.COM

SURVEY BY: MCG
DRAFTED BY: DTS
CHECKED BY: WAS
APPROVED BY: SPC
SCALE: AS NOTED
DATE: APRIL 28, 2026

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PEER REVIEW & CITY COMMENTS | 9/30/2026 |

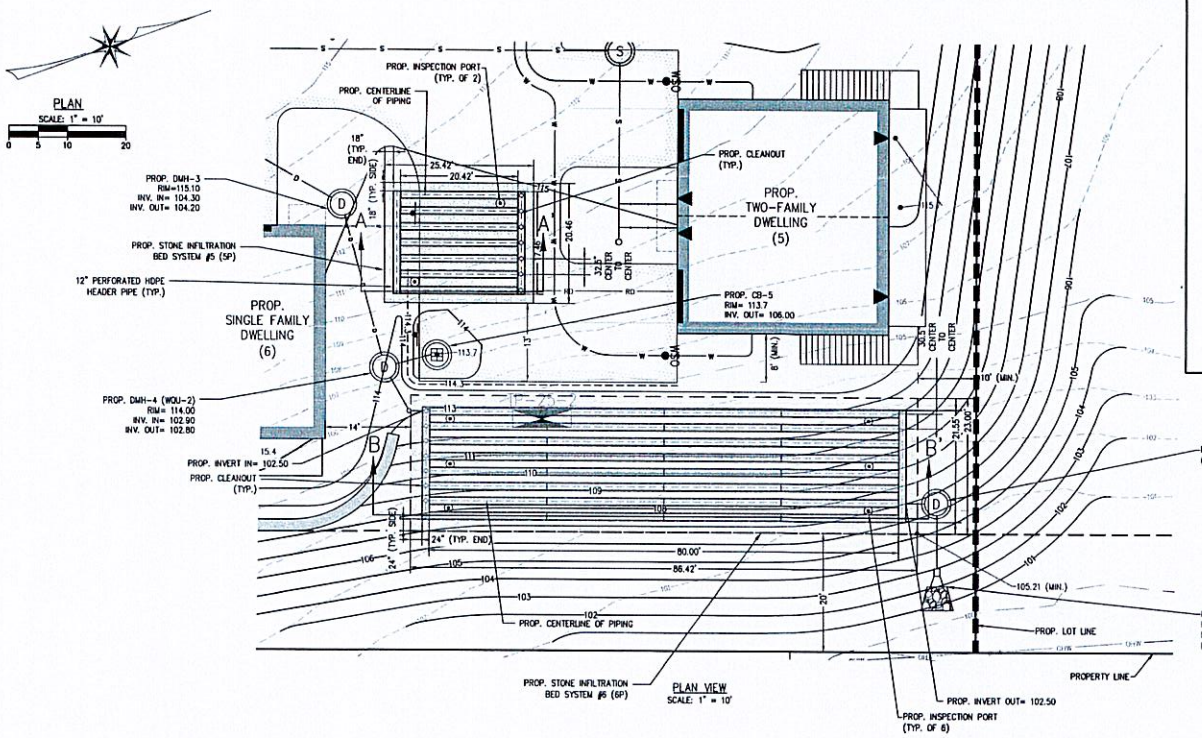
REVISIONS

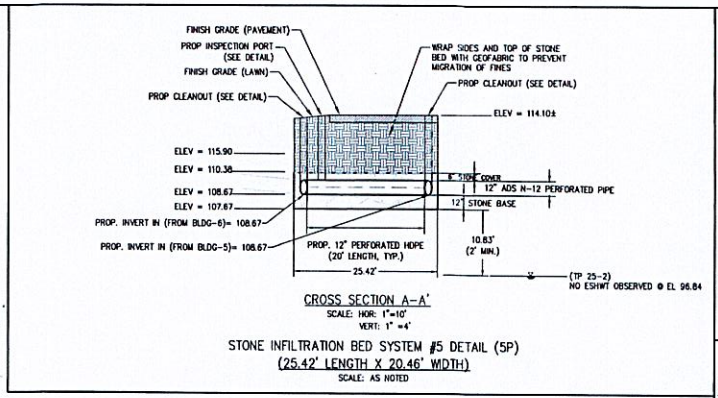
SITE DEVELOPMENT PLANS
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(PORTION OF ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PREPARED FOR:
PENTUCKET NORTH DEVELOPMENT LLC

STORMWATER DETAILS

DRAWING NO. 10 OF 11

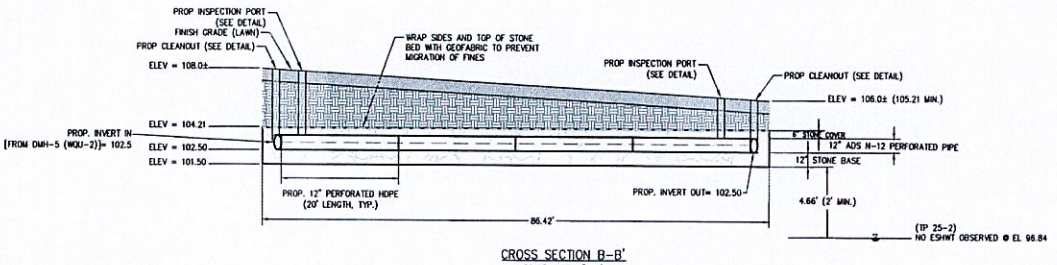
PROJ. #4316
DRAWING: 4316_MAIN.dwg



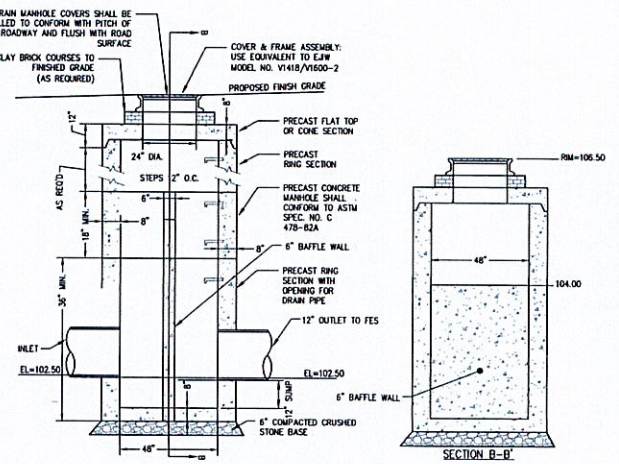

CROSS SECTION A-A'
SCALE: HOR: 1"=10'
VERT: 1" =4'

STONE INFILTRATION BED SYSTEM #5 DETAIL (5P)
(25.42' LENGTH X 20.46' WIDTH)
SCALE: AS NOTED




CROSS SECTION B-B'
SCALE: HOR: 1"=10'
VERT: 1" =4'

STONE INFILTRATION BED SYSTEM #6 DETAIL (6P)
(86.42' LENGTH X 23.00' WIDTH)
SCALE: AS NOTED




OUTLET CONTROL STRUCTURE (OCS-2)
(NOT TO SCALE)

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | LAND USE PLANNERS
1 MAIN STREET, SUITE 1, AYER, MA 01432
P: 978-772-6028, F: 978-772-3100, W: WWW.MORINCAMERON.COM

WILLIAM S. CAMERON, JR. 24321 REGISTERED PROFESSIONAL ENGINEER
4/29/2026

SURVEY BY: MCG
DRAFTED BY: DTS
CHECKED BY: WAS
APPROVED BY: SPC
SCALE: AS NOTED
DATE: APRIL 28, 2026

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PEER REVIEW & CITY COMMENTS | 9/30/2026 |

REVISIONS

SITE DEVELOPMENT PLANS
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(PORTION OF ASSESSOR'S MAP 75A, BLOCK 2, LOT 21)
PREPARED FOR:
PENTUCKET NORTH DEVELOPMENT LLC

STORMWATER DETAILS

DRAWING NO. 11 OF 11

PROJ. #4316
DRAWING: 4316_MAIN.dwg

The Morin-Cameron GROUP, INC.

October 8, 2026

Haverhill City Council
Haverhill City Hall
4 Summer Street
Haverhill MA, 01830

RE: PDD-26-1 – City Coordination

Dear City Councilors,

In May 2026 a Plan Development District (PDD) application was submitted for the property located at 931 Boston Road by Pentucket North Development LLC(PND) for a multi-family housing development. The development includes a mix of single family and two-family dwellings with associated parking, utilities and appurtenances. Since that submittal, the applicant and applicant representatives have met with City officials on multiple occasions and has presented the project to the Planning Board for a recommendation. During this process the project has also undergone a traffic study, traffic peer review and stormwater peer review.

Based on discussions with the Planning Director, Police Department, Fire Department, Engineering Department and other City officials there have been concerns regarding the current conditions and adequacy of I Street. At this time we are actively working with the City for solutions for I Street improvements including the widening of the paved roadway width to a standard 24' width for the entirety. Attached is a sketch showing a preliminary widening of the roadway to 24'. This will be reviewed and discussed with City Officials. The City has also discussed the pavement surface and concerns of the roadway condition after construction. PND has agreed to mill/overlay the entire length of I Street post construction if the project moves forward.

In addition, we have been coordinating with the Engineering Department regarding adequacy of City utilities to serve the development. A sewer capacity analysis has been submitted to the Engineering Department for review and PND understands that a hydraulic analysis of the water distribution system will be required.

Some of the noted items will take time to perform and will not be completed prior to the City Council meeting. The applicant requests that the following be part of condition of approval if the PDD is granted.

- PND will be required to satisfy the Engineering Department, Fire Department and Police Department for the widening of I Street to 24' for the entirety. Approval from the departments will be required prior to construction.
- PND will coordinate with the water department to perform a hydraulic analysis to confirm adequate water supply is available prior to construction. If reasonable improvements to the water distribution system are required, PND will be responsible for the improvements.

- PND will mill/overlay I Street post construction.

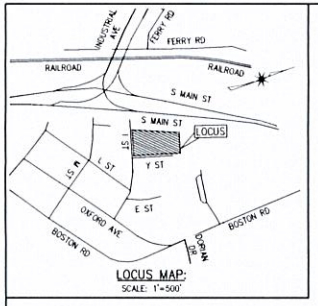
If you have any questions, please do not hesitate to contact our office at (978) 777-8586.
Sincerely,

**THE MORIN-CAMERON GROUP, INC.**

**William A. Schkuta, P.E.**
Director of Engineering

Attachments

cc: Ron Mailloux (via email)
Atty. Russell Channen (via email)



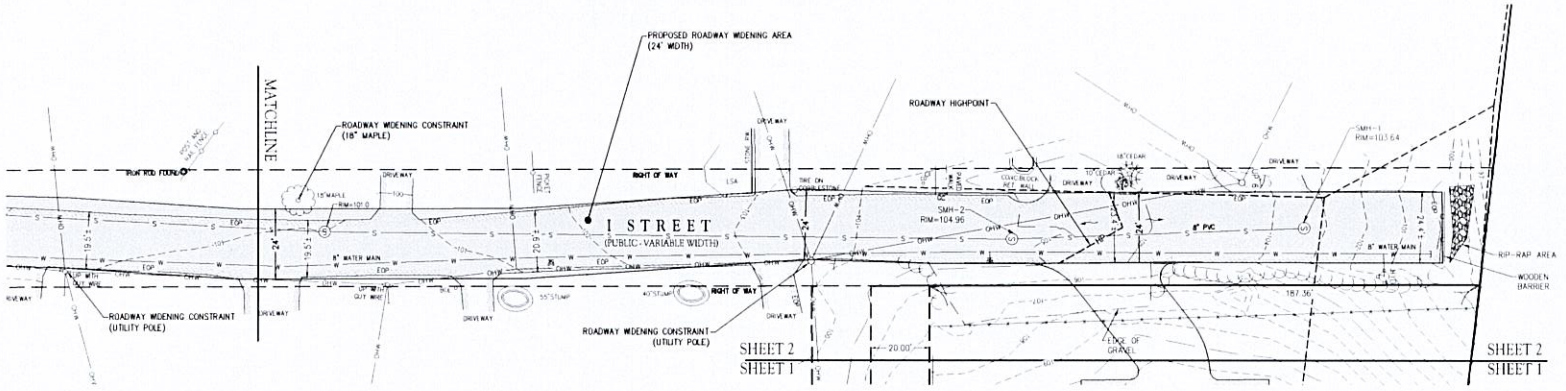

LOCUS MAP:
SCALE: 1"=500'

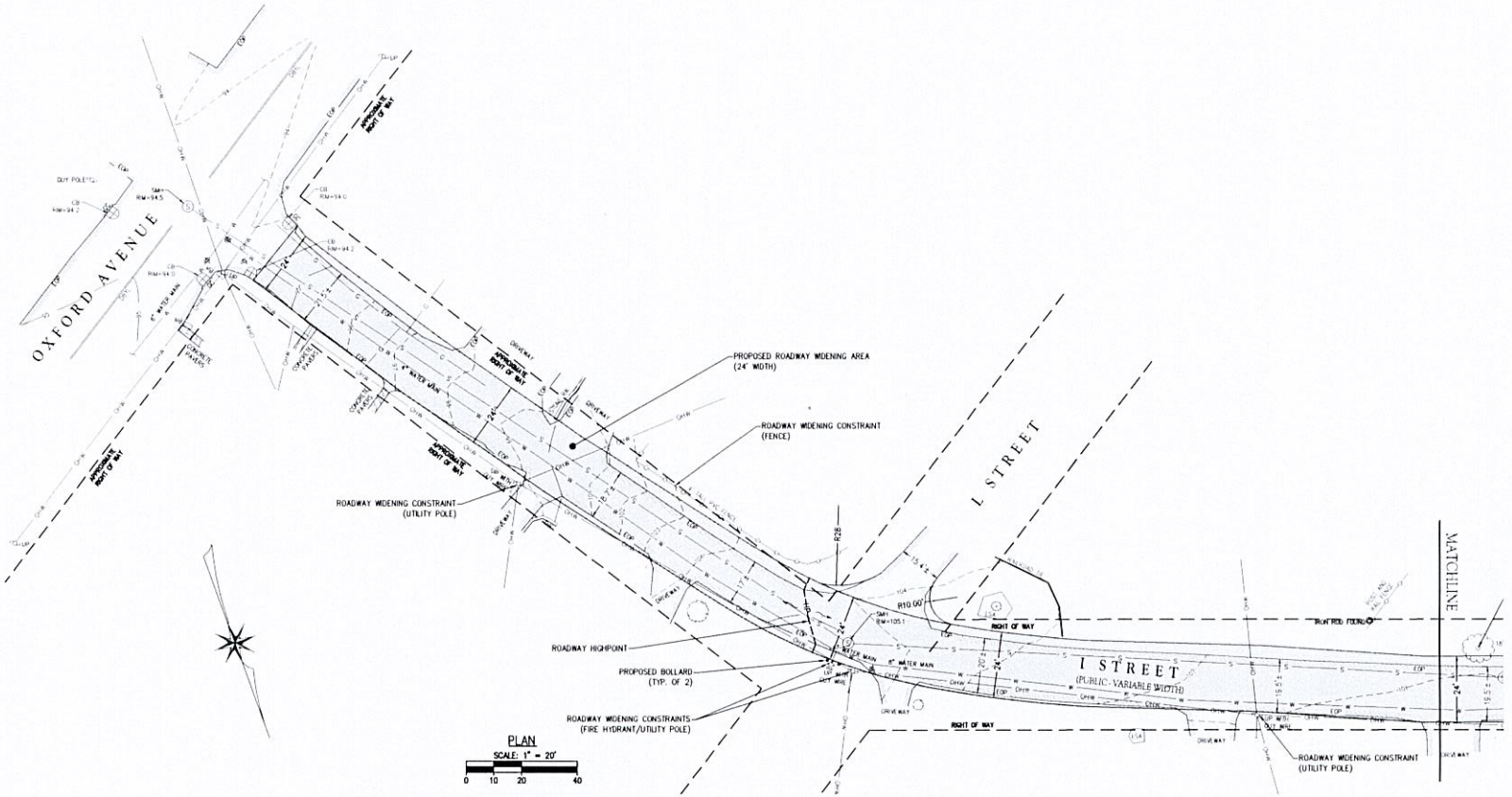
## LEGEND

- CONTOURS
  - MAJOR
  - MINOR
- CHAIN LINK FENCE
- FIRE HYDRANT
- GUY WIRE
- IRRIGATION CONTROL VALVE
- LIGHT POLE
- OVERHEAD WIRE
- PROPERTY LINE
- SANITARY SEWER MANHOLE
- SANITARY SEWER MAIN/SERVICE
- SQUARE CATCH BASIN
- STORM SEWER/DRAINAGE
- TREE LINE
- UTILITY POLE (UP)
- WATER GATE
- WATER SPICKET MANHOLE (W)

## ABBREVIATIONS

| | |
|---|---|
| CB | CATCH BASIN |
| DMH | DRAIN MANHOLE |
| ELEV. | ELEVATION |
| EOC | EDGE OF CONCRETE |
| EOL | EDGE OF LAWN |
| EOP | EDGE OF ASPHALT PAVEMENT |
| EX. | EXISTING |
| INV | INVERT |
| N/F | NOW OR FORMERLY |
| PVC | POLYVINYL CHLORIDE |
| SF | SQUARE FEET |
| SMH | SEWER MANHOLE |
| TYP | TYPICAL |
| WMH | WATER SPICKET MANHOLE |




PLAN
SCALE: 1" = 20'
0 10 20 40

The Morin-Cameron GROUP, INC.
CIVIL ENGINEERS | ENVIRONMENTAL CONSULTANTS
LAND SURVEYORS | WATER USE PLANNERS
1 Merrimac Street, Suite 201, Haverhill, MA 01830
P: 978-777-8585 W: www.morincameron.com

| REVISIONS | | |
|---|---|---|
| NO. | DESCRIPTION | DATE |
| | | |

SURVEY BY: SR / TP
DRAFTED BY: DS
CHECKED BY: MAS
APPROVED BY: MAS
SCALE: 1"=20'
DATE: OCTOBER 8, 2025

SKETCH PLAN
IN
HAVERHILL, MASSACHUSETTS
931 BOSTON ROAD
(ASSESSOR'S MAP 754, BLOCK 2, LOT 21)
PREPARED FOR
PENTUCKET NORTH DEVELOPMENT LLC

SKETCH

DRAWING NO. 1 OF 1

PROJ. #4316
DRAWING: 4316_Roadway.dwg

# MEMORANDUM

| | | | |
|---|---|---|---|
| **TO:** | Pentucket North Development LLC<br>c/o Ron Mailloux<br>55 Chase Street<br>Methuen, MA 01844 | **FROM:** | Scott W. Thornton, P.E. *and*<br>Thomas Hannon, E.I.T.<br>Vanasse & Associates, Inc.<br>35 New England Business Center Drive<br>Suite 140<br>Andover, MA 01810<br>(978) 474-8800 |
| **DATE:** | July 14, 2026 | **RE:** | 10758 |
| **SUBJECT:** | Transportation Impact Assessment<br>Proposed Residential Development – I Street<br>Haverhill, Massachusetts | | |

Vanasse & Associates, Inc. (VAI) has prepared this Transportation Impact Assessment (TIA) in order to identify traffic impacts associated with a proposed residential development to be located off of I Street in Haverhill, Massachusetts (hereafter referred to as the "Project"). The purpose of this memorandum is to review existing and future traffic conditions in the vicinity of the Project site, determine the traffic impact of the proposed Project at key intersections expected to experience increased traffic levels from the Project, and review the need for improvements to mitigate the Project's traffic impact.

## PROJECT DESCRIPTION

The Project entails construction of a 2 single family houses and 6 duplex houses. At present, the Project site contains areas of open and wooded space. The Project site is bordered by a health and fitness complex to the north, I Street to the south, a single-family house to the east, and Route 125 (South Main Street) to the west.

Vehicle access to and egress from the proposed residential development will be provided via a new full-access driveway that will intersect the north side of I Street.

## EXISTING CONDITIONS

A comprehensive field inventory of existing conditions within the study area was conducted in June 2026. The field investigation consisted of an inventory of existing roadway geometrics, traffic volumes, and operating characteristics, as well as posted speed limits, sight distance, and land use information within the study area. The study area for the Project is listed below and graphically depicted in Figure 1:

- Oxford Avenue at I Street
- Oxford Avenue at Boston Road

Figure 2 summarizes existing traffic control, lane use, travel lane widths, and pedestrian and bicycle accommodations at the study area intersections as observed in June 2026. No pedestrian or bicycle facilities were observed in the study area.

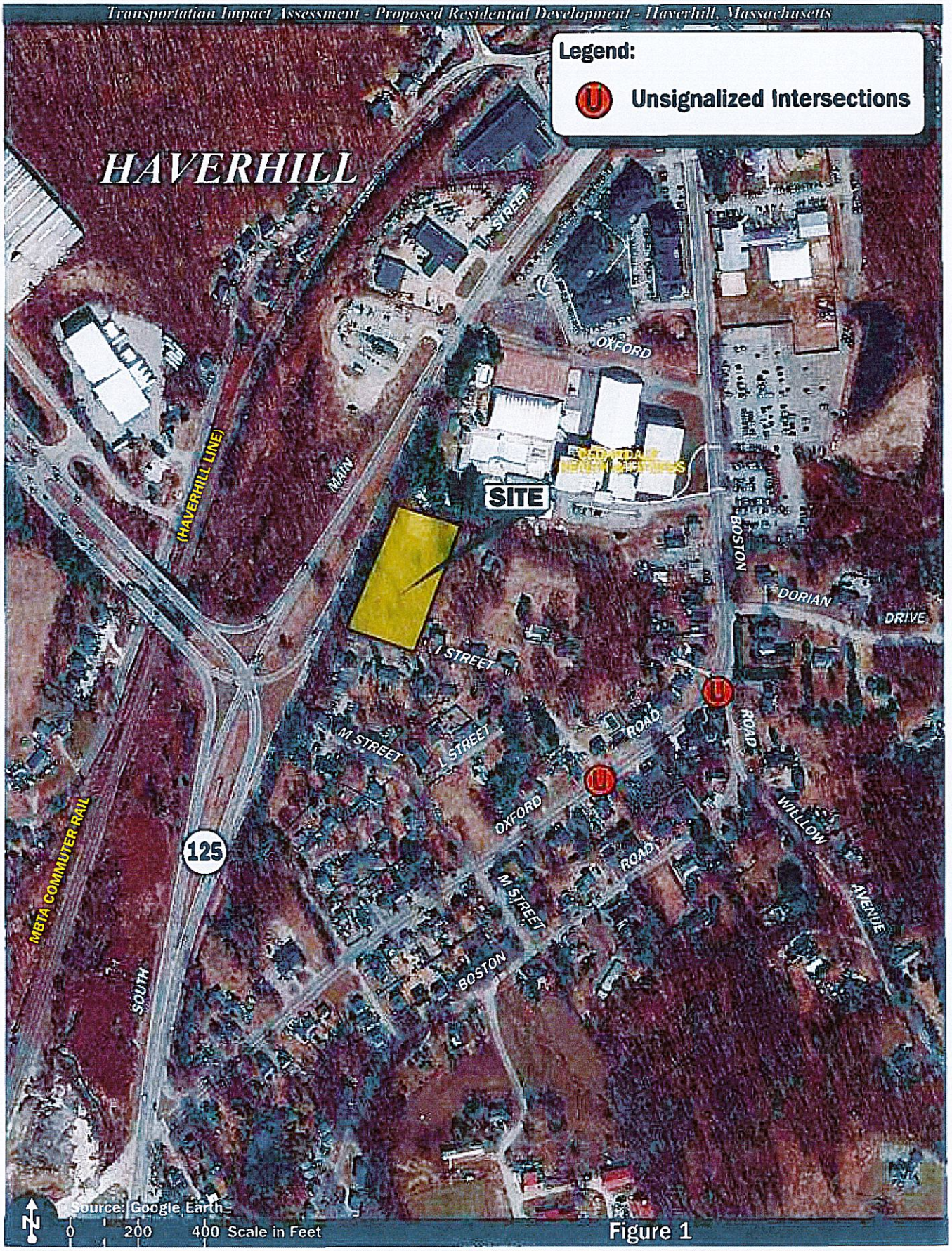


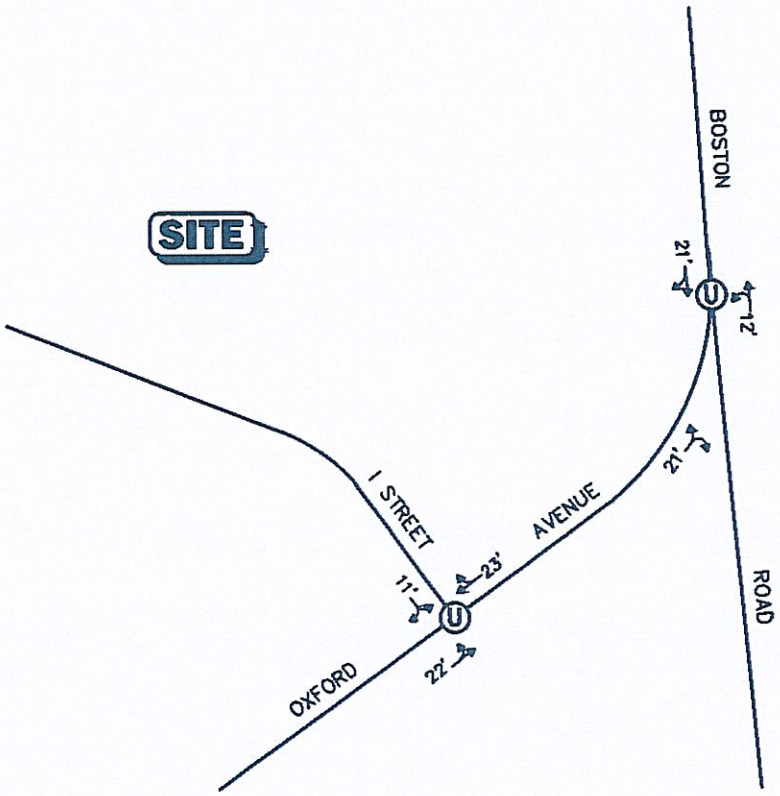

Figure 1

Study Area and
Site Location Map

Vanasse & Associates inc

U:\58\Graphics\IIA\July 2026\U758SLM.dwg, 7/13/2026 12:00:59 PM

**Legend:**
- Ⓤ Unsignalized Intersection
- xx' Lane Use and Travel Lane Width




Not To Scale

**Figure 2**

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

Vanasse & Associates inc

U:\58\Graphics\11A\July 2020\10758N11.dwg, 7/13/2020 1:06:56 PM

## Existing Traffic Volumes

In order to establish existing traffic-volume demands and flow patterns within the study area, manual turning movement counts (TMCs) were completed on June 23, 2026. The TMCs were conducted during the weekday morning (7:00 to 9:00 AM) and weekday evening (4:00 to 6:00 PM) peak periods. Bicycles and pedestrians were also counted.

### Traffic-Volume Adjustments

In order to develop 2026 Existing traffic-volume conditions, MassDOT weekday seasonal factors for Urban Group 7 (local road or street) were reviewed.[1] Based on a review of this data, it was determined that traffic volumes for the month of June are above average-month conditions. As such, the traffic volumes were not adjusted. The 2026 Existing traffic volumes are summarized in Table 1, with weekday morning and weekday evening peak-hour traffic volumes graphically depicted on Figure 3.

**Table 1**
**2026 EXISTING ROADWAY TRAFFIC-VOLUME SUMMARY**

| Location | Weekday Morning Peak Hour | | Weekday Evening Peak Hour | |
|---|---|---|---|---|
| | Volume (vph)[a] | Predominant Flow | Volume (vph) | Predominant Flow |
| I Street, north of Oxford Avenue | 7 | 57.1% NB | 18 | 55.6% NB |
| Oxford Avenue, west of I Street | 155 | 54.2% EB | 212 | 63.7% EB |

[a]Two-way peak-hour volume expressed in vehicles per hour.
NB = northbound.
EB = eastbound.

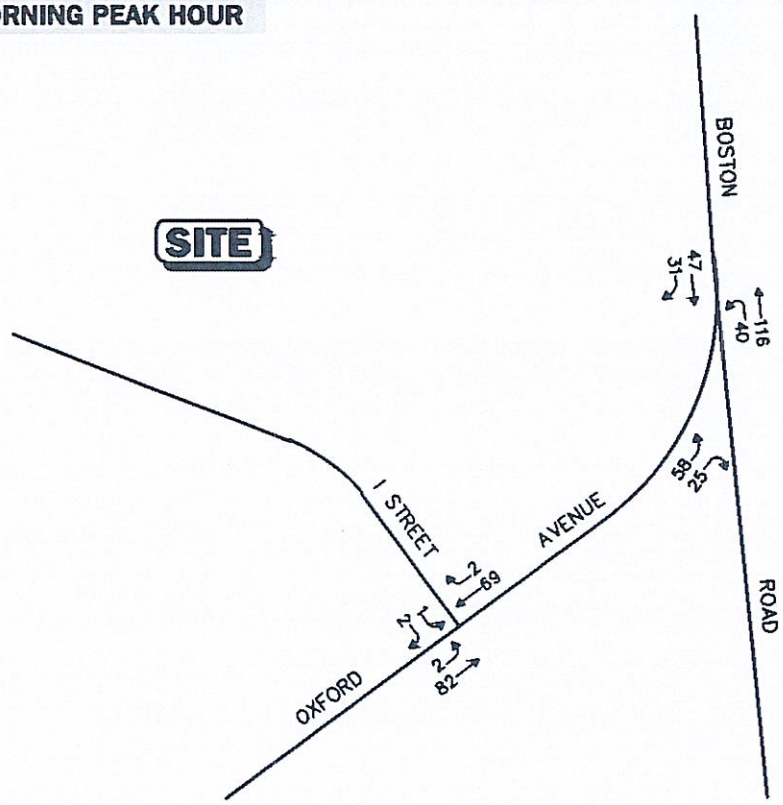
As can be seen in Table 1, I Street was observed to carry approximately 7 vehicles per hour (vph) during the weekday morning peak hour and 18 vph during the weekday evening peak hour. During the weekday morning peak hour, 57 percent of traffic is traveling northbound; and during the weekday evening peak hour, 56 percent of traffic is traveling northbound. Oxford Avenue was observed to carry approximately 155 vph during the weekday morning peak hour and 212 vph during the weekday evening peak hour. During the weekday morning peak hour, 54 percent of traffic is traveling eastbound; and during the weekday evening peak hour, 64 percent of traffic is traveling eastbound.

## Public Transportation

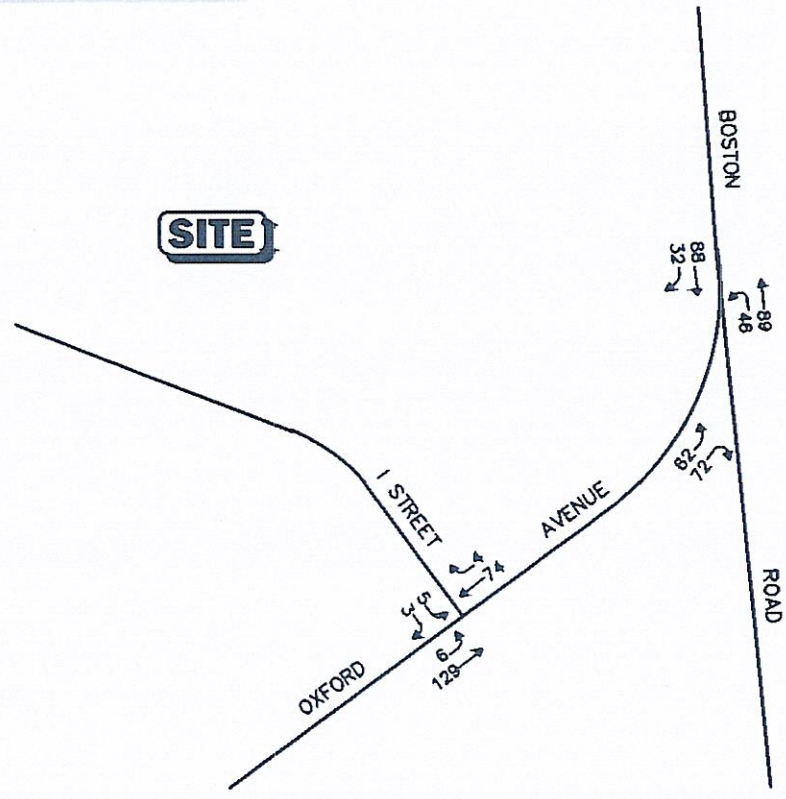
Public transportation services are provided in the study area along Oxford Avenue by Merrimack Valley Transit (MEVA), a fixed-route bus service traveled between the McGovern Transportation Center in Lawrence and the Washington Square Transit Center in Haverhill. The Oxford Avenue stop is located at 114 Oxford Avenue, approximately 0.4 miles (an 8-minute walk) west of the Project site. Schedule and fare information for the on-demand service are provided in the Appendix.

[1]MassDOT statewide Traffic Data Collection; 2025 Weekday Seasonal Factors, Groups U7.

**WEEKDAY MORNING PEAK HOUR**




**WEEKDAY EVENING PEAK HOUR**




Not To Scale

**Figure 3**

**2026 Existing Peak-Hour Traffic Volumes**

Vanasse & Associates inc

U:\Graphics\IA\July 2026\10758N1.dwg, 7/13/2026 1:07:29 PM

## Motor Vehicle Crash Data

Motor vehicle crash information for the study area intersections was provided by the MassDOT Safety Management/Traffic Operations Unit for the most recent five-year period available (2019 through 2023) in order to examine motor vehicle crash trends occurring within the study area. The data is summarized in Table 2 by intersection, type, weather condition, lighting condition, pavement condition, and severity.

## Table 2
## MOTOR VEHICLE CRASH DATA SUMMARY

| Scenario | Oxford Avenue/ I Street | Oxford Avenue/ Boston Road |
|---|---|---|
| *Year:* | | |
| 2019 | 0 | 0 |
| 2020 | 0 | 1 |
| 2021 | 0 | 0 |
| 2022 | 0 | 0 |
| 2023 | 0 | 0 |
| Total | 0 | 1 |
| Average[a] | 0.0 | 0.2 |
| Crash Rate[b] | 0.00 | 0.13 |
| Significant[c] | No | No |
| *Type:* | | |
| Angle | 0 | 1 |
| Rear-End | 0 | 0 |
| Head-On | 0 | 0 |
| Sideswipe | 0 | 0 |
| Fixed Object | 0 | 0 |
| Pedestrian/Bike | 0 | 0 |
| Single Vehicle | 0 | 0 |
| Unknown/Other | 0 | 0 |
| Total | 0 | 1 |
| *Weather Conditions:* | | |
| Clear | 0 | 0 |
| Cloudy/Rain | 0 | 1 |
| Snow/Ice | 0 | 0 |
| Fog | 0 | 0 |
| Unknown/Other | 0 | 0 |
| Total | 0 | 1 |
| *Lighting Conditions:* | | |
| Daylight | 0 | 1 |
| Dawn/Dusk | 0 | 0 |
| Dark (lit) | 0 | 0 |
| Dark (unlit) | 0 | 0 |
| Unknown/Other | 0 | 0 |
| Total | 0 | 1 |
| *Pavement Conditions :* | | |
| Dry | 0 | 1 |
| Wet | 0 | 0 |
| Snow/Ice | 0 | 0 |
| Unknown/Other | 0 | 0 |
| Total | 0 | 1 |
| *Severity:* | | |
| Property Damage Only | 0 | 1 |
| Personal Injury | 0 | 0 |
| Fatality | 0 | 0 |
| Unknown/Other | 0 | 0 |
| Total | 0 | 1 |

[a]Average number of crashes over five-year period.
[b]Crash rate per million entering vehicles (mev).
[c]Significant if crash rate > 0.57 for unsignalized intersections (MassDOT District 4 rates)
Source: MassDOT Crash Data, 2019 through 2023.

## FUTURE CONDITIONS

To determine the impact of site-generated traffic volumes on the roadway network under future conditions, existing traffic volumes in the study area were projected to the year 2033. Traffic volumes on the roadway network at that time, in the absence of the Project (i.e., the No-Build condition), would include existing traffic, new traffic due to general background traffic growth, and traffic related to specific development by others expected to be completed by 2033. Inclusion of these factors resulted in the development of 2033 No-Build traffic volumes. Anticipated site-generated traffic volumes were then superimposed upon these No-Build traffic-flow networks to develop the 2033 Build traffic-volume conditions.

### Future Traffic Growth

Traffic growth on area roadways is a function of the expected land development impacting the study area. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all existing traffic volumes under study. In addition, we research the location and type of planned development affecting the study area.

#### General Background Growth

To assess general traffic growth trends within the study area, MassDOT traffic-volume data from several permanent count stations in the surrounding area outside the study area were summarized and reviewed. Based on a review of this data, the traffic volume in the area is increasing by approximately 0.60 percent per year on average.

To provide a prudent planning condition for the Project, a slightly higher 1.0 percent annual compounded traffic growth rate was used to account for future traffic growth and presently unforeseen development within the study area.

#### Specific Development by Others

The City of Haverhill Planning Department was contacted to determine whether any projects are planned within the study area that would have an impact on future traffic volumes at the study intersections. Based on these discussions, the following projects were identified for possible inclusion in this assessment:

- ***Proposed Car Wash – 28 Ferry Road.*** This project entails the construction of a 3,908 square feet (sf) automatic car wash to be located at 28 Ferry Road in Haverhill, Massachusetts. Estimates of additional traffic expected to be generated by this development were calculated using data from the Institute of Transportation Engineers (ITE)[2] and have been incorporated into the analysis of future traffic conditions.

- ***Proposed Oxford Crossing Development – 145 Oxford Avenue.*** This project entails the construction of a six-story building with 230 residential units, 3,000 sf of retail space, and a 1,200 sf bakery, and a 200-seat restaurant to be located at 145 Oxford Avenue in Haverhill, Massachusetts. Estimates of additional traffic expected to be generated by this development were obtained from the technical memorandum[3] prepared for this project and have been incorporated into the analysis of future traffic conditions.

---

[2] *Trip Generation Manual*, 12th Edition; Institute of Transportation Engineers; Washington, DC; 2025.

[3] *Traffic Impact and Access Study*, Oxford Crossing; TEC; July 2022.

- ***Proposed Mixed-Use Development – 877 Boston Road.*** This project entails the construction of a 153-unit multifamily residential community, 2,400 sf of retail space, and a 2,700 sf bank to be located at 877 Boston Road in Haverhill, Massachusetts. The residential component of the mixed-use development has been constructed and occupied; the retail space and bank are proposed to be constructed in the future. Estimates of additional traffic expected to be generated by the retail space and bank were obtained from the technical memorandum[4] prepared for this project and have been incorporated into the analysis of future traffic conditions.

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

**Planned Roadway Improvements**

The City of Haverhill engineering department was contacted to determine if there were any future roadway improvement projects within the study area. Based on these discussions it was confirmed that a Complete Streets project was being developed along Oxford Avenue/Boston Road corridor, but no plans have been completed. No alterations to the study area from this project were assumed, due to the lack of information.

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

**No-Build Traffic Volumes**

The 2033 No-Build peak-hour traffic-volume networks were developed by applying a compounded annual background traffic growth rate of 1.0 percent to the 2026 Existing peak-hour traffic volumes over a seven-year period, and including the traffic volumes from the background development projects noted above. The resulting 2033 No-Build weekday morning and weekday evening peak-hour traffic-volume networks are shown on Figure 4.

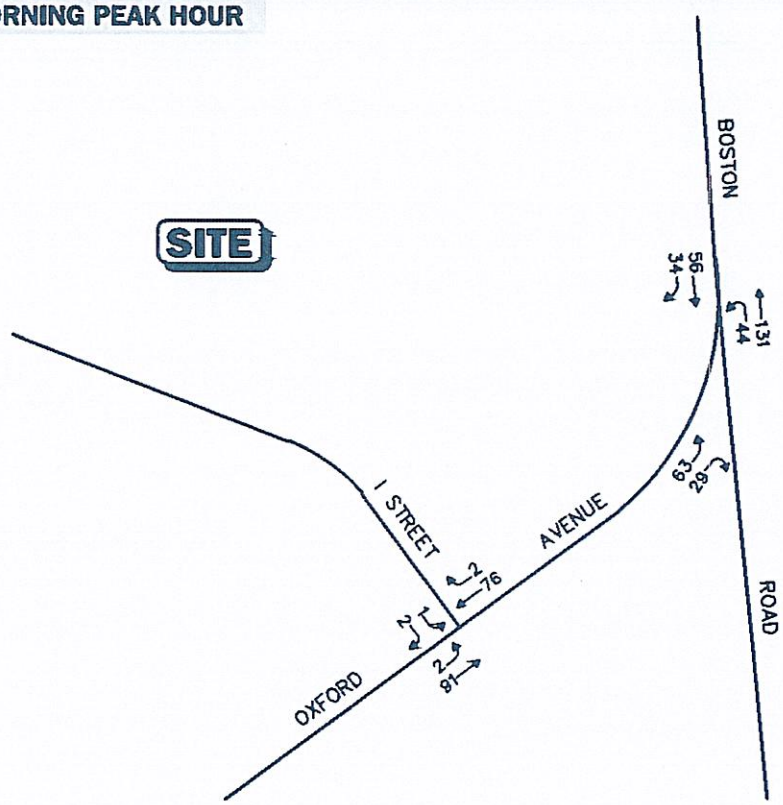
**Project-Generated Traffic**

In order to develop the traffic characteristics of the proposed Project, trip-generation statistics published by the ITE[5] for similar land uses as those proposed was used. ITE Land Use Code (LUC) 210, *Single-Family Detached Housing,* and LUC 215, *Single-Family Attached Housing*, were used to develop the anticipated traffic characteristics of the Project.

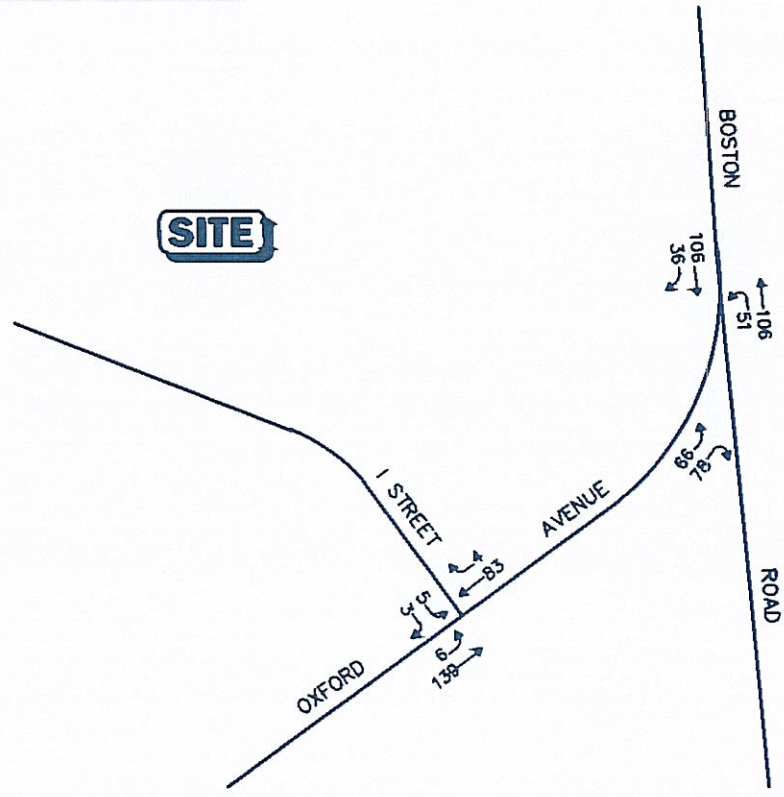
Trip-generation calculations were performed for a typical weekday, as well as the weekday morning and weekday evening peak hours, the critical time periods for Project-related traffic activity. A summary of the expected vehicle-trip generation is summarized in Table 3.

[4] *Transportation Impact Assessment*, Proposed Mixed-Use Development; VAI; June 2021.
[5] Ibid 2.

**WEEKDAY MORNING PEAK HOUR**




**WEEKDAY EVENING PEAK HOUR**




Not To Scale

**Figure 4**

**2033 No-Build**
**Peak-Hour Traffic Volumes**

Vanasse & Associates inc

0738\Graphics\[AM July 2020\10738N1.dwg, 7/13/2020 10:03:03 PM

**Table 3**
**PROJECT TRIP-GENERATION SUMMARY**

| Time Period/ Directional Distribution | Single-Family Trips[a] | Duplex Trips[b] | Total Trips |
|---|---|---|---|
| *Weekday Morning Peak Hour:* | | | |
| Entering | 0 | 2 | 2 |
| Exiting | 1 | 4 | 5 |
| Total | 1 | 6 | 7 |
| *Weekday Evening Peak Hour:* | | | |
| Entering | 1 | 3 | 4 |
| Exiting | 1 | 3 | 4 |
| Total | 2 | 6 | 8 |
| *Weekday Daily:* | | | |
| Entering | 9 | 39 | 48 |
| Exiting | 9 | 39 | 48 |
| Total | 18 | 78 | 96 |

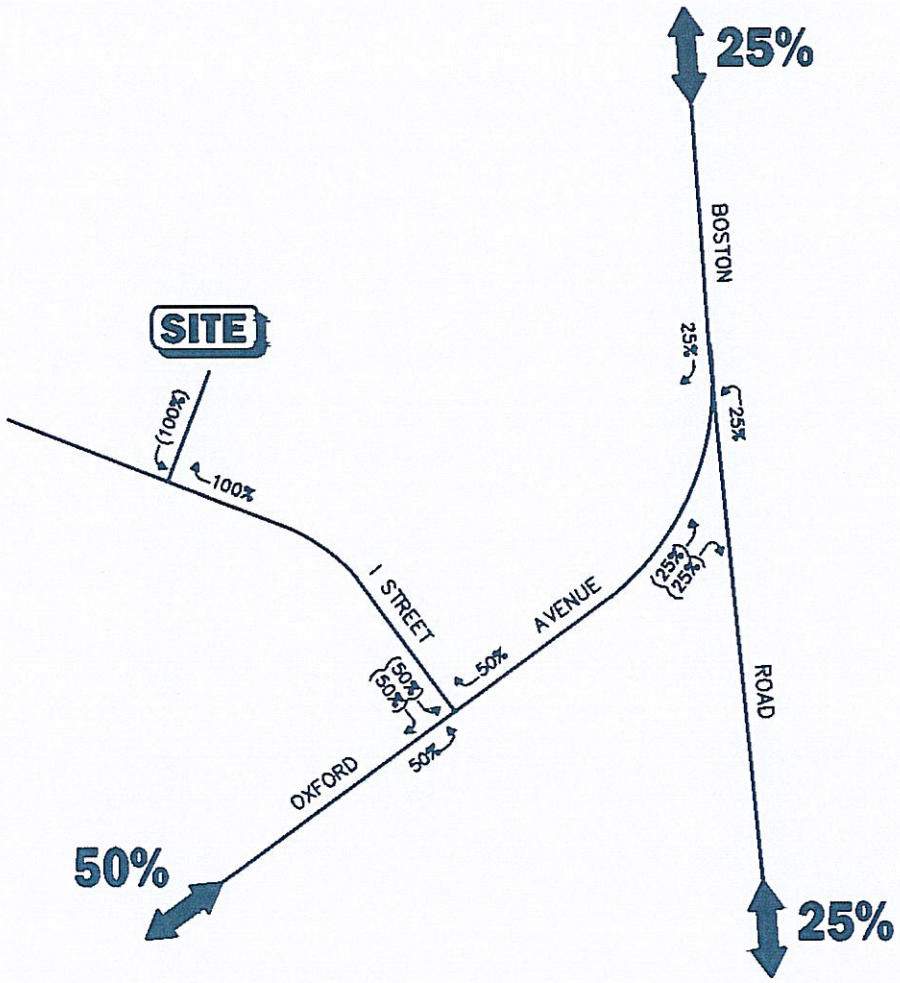
[a]Based on ITE LUC 210, *Single-Family Detached Housing*; 2 units.
[b]Based on ITE LUC 215, *Single-Family Attached Housing*; 12 units.

As shown in Table 3, the Project is expected to generate approximately 7 vehicle trips (2 entering and 5 exiting) during the weekday morning peak hour, and 8 vehicle trips (4 entering and 4 exiting) during the weekday evening peak hour. On an average weekday, the project would be expected to generate 48 entering trips and 48 exiting trips over a 24-hour period.

## Trip Distribution and Assignment

The directional distribution of the site-generated trips to and from the proposed residential development was developed based on a review of existing travel patterns within the study area.

The trip distribution for the Project is summarized in Table 4 and graphically depicted in Figure 5. The weekday morning and weekday evening peak-hour traffic volumes expected to be generated by the Project were assigned on the study area roadway network as shown on Figure 6.




**Legend:**

| | |
|---|---|
| XX | Entering Trips |
| (XX) | Exiting Trips |

Not To Scale

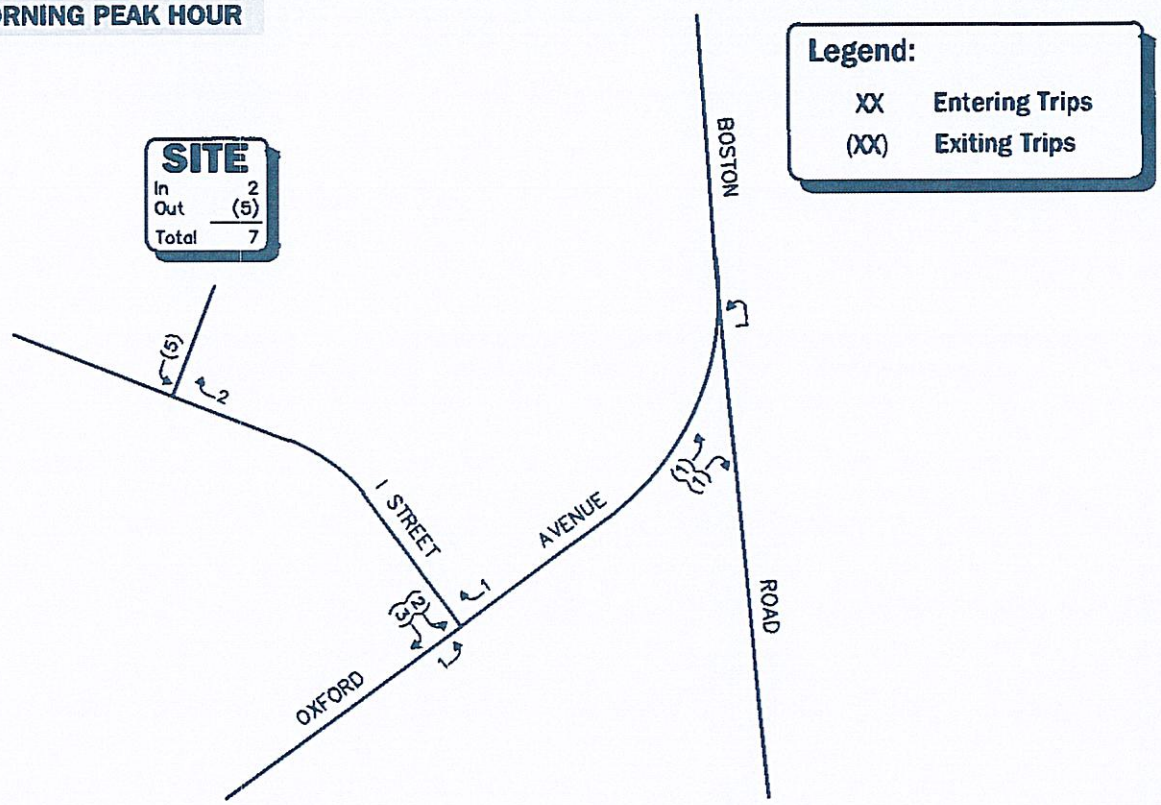
**Figure 5**

**Trip Distribution Map**

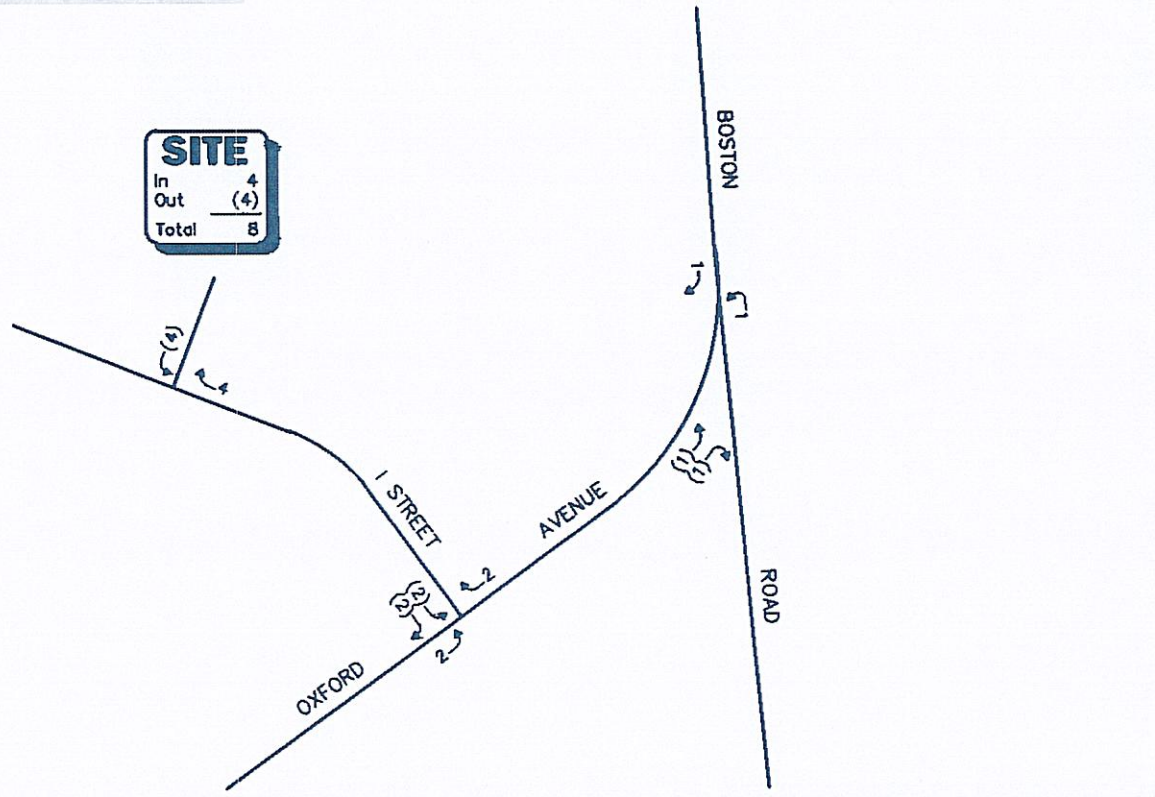
Vanasse & Associates inc

U:\Graph CS\11AJuly 2020\10758N11.dwg, 7/13/2020 11:50:19 AM

**WEEKDAY MORNING PEAK HOUR**




**WEEKDAY EVENING PEAK HOUR**




Not To Scale

**Figure 6**

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

Vanasse & Associates inc

W:\2018\graphics\VHB\10758\VHB1.dwg, 1/15/2020 1:32:21 PM

**Table 4**
**TRIP-DISTRIBUTION SUMMARY**

| Roadway | Direction (To/From) | Percent (To/From) |
|---|---|---|
| Boston Road | South | 25 |
| Boston Road | East | 25 |
| Oxford Avenue | West | 50 |
| TOTAL | | 100 |

## Future Traffic Volumes – Build Condition

The 2033 Build condition networks consist of the 2033 No-Build traffic volumes, with the anticipated Project-generated traffic added. The 2033 Build weekday morning and weekday evening peak-hour traffic-volume networks are graphically depicted on Figure 7.

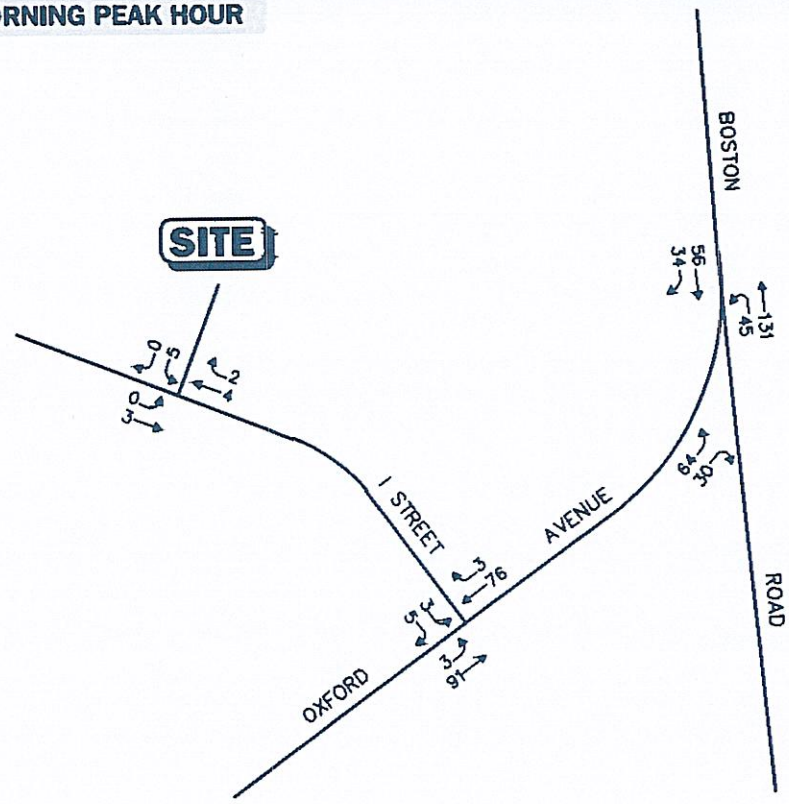
A summary of projected peak-hour traffic-volume increases external to the study area, the subject of this assessment, is shown in Table 5. These volumes are based on the expected increases from the Project.

**Table 5**
**PEAK-HOUR TRAFFIC-VOLUME INCREASES**

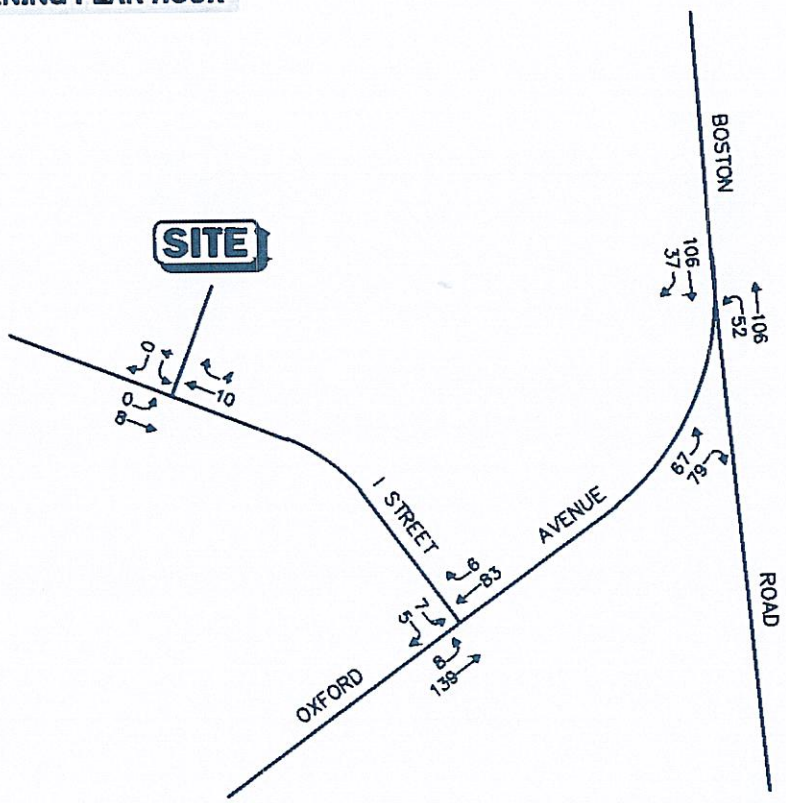
| Location/Peak Hour | 2033 No-Build | 2033 Build | Traffic-Volume Increase Over No-Build | Percent Increase Over No-Build |
|---|---|---|---|---|
| *Boston Road, south of Oxford Avenue:* | | | | |
| Weekday Morning | 260 | 262 | 2 | 0.8 |
| Weekday Evening | 341 | 343 | 2 | 0.6 |
| *Boston Road, east of Oxford Avenue:* | | | | |
| Weekday Morning | 284 | 285 | 1 | 0.4 |
| Weekday Evening | 314 | 316 | 2 | 0.6 |
| *Oxford Avenue, west of I Street:* | | | | |
| Weekday Morning | 171 | 175 | 4 | 2.3 |
| Weekday Evening | 231 | 235 | 4 | 1.7 |

As shown below in Table 5, Project-related traffic-volume increases external to the study area relative to 2033 No-Build conditions are anticipated to range from 1 to 4 vehicles or 0.4 to 2.3 percent during the peak periods.

**WEEKDAY MORNING PEAK HOUR**




**WEEKDAY EVENING PEAK HOUR**




Not To Scale

**Figure 7**

**2033 Build**
**Peak-Hour Traffic Volumes**

Vanasse & Associates inc

U:\58\Graphics\TIA\July 2026\10758N11.dwg, 7/13/2026 1:08:23 PM

## SIGHT DISTANCE EVALUATION

Sight distance measurements were performed at the Project site driveway intersection with I Street in accordance with MassDOT and American Association of State Highway and Transportation Officials (AASHTO)[6] recommendations. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance recommended to be provided by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD is the sight distance recommended to be provided by a driver entering or crossing an intersecting roadway to perceive an oncoming vehicle and safely complete a turning or crossing maneuver with oncoming traffic. In accordance with AASHTO standards, if the measured ISD is at least equal to the recommended SSD value for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. Table 6 presents the measured SSD and ISD at the study area intersection.

**Table 6**
**SIGHT DISTANCE ANALYSIS[a]**

| Intersection/Sight Distance Measurement | AASHTO[b] Minimum Recommended | AASHTO[b] Desirable | Field |
|---|---|---|---|
| ***Project Site Driveway at I Street*** | | | |
| *Stopping Sight Distance:* | | | |
| I Street approaching from the north | 200 | -- | 109[c] |
| I Street approaching from the south | 200 | -- | 500+ |
| *Intersection Sight Distance:* | | | |
| Left turn from Site driveway (looking north) | 200 | 335 | 109[c,d] |
| Left turn from Site driveway (looking south) | 200 | 335 | 500+[d] |

[a]Recommended values obtained from *A Policy on Geometric Design of Highways and Streets*, 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); 2018.
[b]Based on MGL c. 90 § 17.
[c]Limited based on the length of roadway.
[d]Distance available if trees are removed within the sight triangle.

As can be seen in Table 6, the sight distance at the intersection of the site driveway with I Street to/from the south was found to exceed the minimum recommended values for SSD and the desirable values for ISD. The limit of sight distance for the site driveway to/from the north was based on the length of existing roadway. I Street terminates 109 feet from the driveway with driveways to one duplex unit and one garage between the end of the street and the proposed site driveway. Drivers will be provided with a clear and unobstructed view from the proposed site driveway to the end of the street.

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

## TRAFFIC OPERATIONS ANALYSIS

Level-of-service analyses were conducted for 2026 Existing, 2033 No-Build, and 2033 Build conditions for the study area intersections. The results of the intersection capacity analysis within the study area are described below, with a tabular summary provided in Table 7.

The Project does not have a significant effect on traffic delays at the study area intersections. The critical movements of the Project Site Driveway at the intersection with I Street operates at LOS A during the weekday morning and weekday evening peak hours under 2033 Build. There is no average vehicle queue under all peak hours.

**Table 7**
**UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY**

| | 2026 Existing | | | | 2033 No-Build | | | | 2033 Build | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unsignalized Intersection/Peak Hour/Movement | Demand[a] | Delay[b] | LOS[c] | Queue[d] 95th | Demand | Delay | LOS | Queue 95th | Demand | Delay | LOS | Queue 95th |
| ***Oxford Avenue at I Street*** | | | | | | | | | | | | |
| *Weekday Morning:* | | | | | | | | | | | | |
| Oxford Avenue EB LT | 2 | 7.4 | A | 0 | 2 | 7.4 | A | 0 | 3 | 7.4 | A | 0 |
| I Street SB LT/RT | 3 | 9.1 | A | 0 | 3 | 8.9 | A | 0 | 8 | 9.0 | A | 0 |
| *Weekday Evening:* | | | | | | | | | | | | |
| Oxford Avenue EB LT | 6 | 7.4 | A | 0 | 6 | 7.4 | A | 0 | 8 | 7.4 | A | 0 |
| I Street SB LT/RT | 8 | 9.5 | A | 1 | 8 | 9.5 | A | 0 | 12 | 9.5 | A | 0 |
| ***Oxford Avenue at Boston Road*** | | | | | | | | | | | | |
| *Weekday Morning:* | | | | | | | | | | | | |
| Oxford Avenue EB TH/RT | 83 | 9.5 | A | 1 | 92 | 9.3 | A | 1 | 94 | 9.4 | A | 1 |
| Boston Road WB LT/TH | 78 | 0.0 | A | 0 | 90 | 0.0 | A | 0 | 90 | 0.0 | A | 0 |
| Boston Road NB LT/RT | 156 | 9.8 | A | 1 | 175 | 9.6 | A | 1 | 176 | 9.6 | A | 1 |
| *Weekday Evening:* | | | | | | | | | | | | |
| Oxford Avenue EB TH/RT | 134 | 9.8 | A | 1 | 144 | 9.9 | A | 1 | 146 | 9.9 | A | 1 |
| Boston Road WB LT/TH | 120 | 0.0 | A | 0 | 142 | 0.0 | A | 0 | 143 | 0.0 | A | 0 |
| Boston Road NB LT/RT | 135 | 9.7 | A | 1 | 157 | 9.8 | A | 1 | 158 | 9.8 | A | 1 |
| ***I Street at Project Site Driveway*** | | | | | | | | | | | | |
| *Weekday Morning:* | | | | | | | | | | | | |
| Project Site Driveway WB LT/RT | Intersection only exists under Build conditions. | | | | | | | | 5 | 8.6 | A | 0 |
| *Weekday Evening:* | | | | | | | | | | | | |
| Project Site Driveway WB LT/RT | | | | | | | | | 4 | 8.6 | A | 0 |

[a]Demand in vehicles per hour.
[b]Average control delay per vehicle (in seconds).
[c]Level of service.
[d]Queue length in vehicles.
EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

## RECOMMENDATIONS

### Project Access

Access to and egress from the proposed residential development will be provided via a new full-access driveway onto I Street. The following recommendations are offered with respect to the design and operation of the Project site driveway:

- The driveway should be placed under STOP-sign (*Manual on Uniform Traffic Control Devices* (MUTCD)[7] R1-1) control, with a painted STOP-bar included.
- All signs and other pavement markings to be installed within the Project site shall conform to the applicable standards of the current MUTCD.
- Signs and landscaping adjacent to the Project site driveway should be designed and maintained to remain below 24 inches above the driveway to avoid restricting lines of sight.
- Existing vegetation in the right-of-way on I Street should be trimmed and maintained so that it does not impede sight distance.

## CONCLUSIONS

VAI has prepared this TIA to identify traffic impacts associated with a proposed residential development to be located on I Street in Haverhill, Massachusetts. We have the following conclusions:

- No apparent safety deficiencies were noted in the motor vehicle crash history at the study area intersections.
- Traffic-volume increases related to the Project, external to the study, are anticipated to range from 1 to 4 vehicles or 0.4 to 2.3 percent, during peak periods.
- Lines of sight at the Project site driveway intersection with I Street were found to exceed the recommended values for SSD, and the desirable values for ISD if the existing vegetation in the right-of-way on I Street is trimmed and maintained.
- The Project will generally not have a significant impact on motorist delays or vehicle queuing at study area intersections compared to anticipated future conditions without the Project (No-Build conditions).
- Under 2033 Build conditions, all movements exiting the Project site driveway to I Street are expected to operate at LOS A during all peak hours, with no residual vehicle queue.

As documented in this study, Project-related traffic increases will generally not result in significant increases in overall traffic volumes or traffic delays within the study area. The site driveway is expected to operate with minimal delays during all peak hours. In general, Project-related traffic can be adequately accommodated with minimal impact on the traffic operations within the study area.

Attachments:
Technical Appendix

---

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

## APPENDIX

TRAFFIC COUNT DATA
SEASONAL ADJUSTMENT DATA
PUBLIC TRANSPORTATION DATA
MASSDOT CRASH RATE WORKSHEETS
GROWTH RATE DATA
TRIP GENERATION DATA
CAPACITY ANALYSIS METHODOLOGY
CAPACITY ANALYSIS

TRAFFIC COUNT DATA

978-664 2565

S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 1

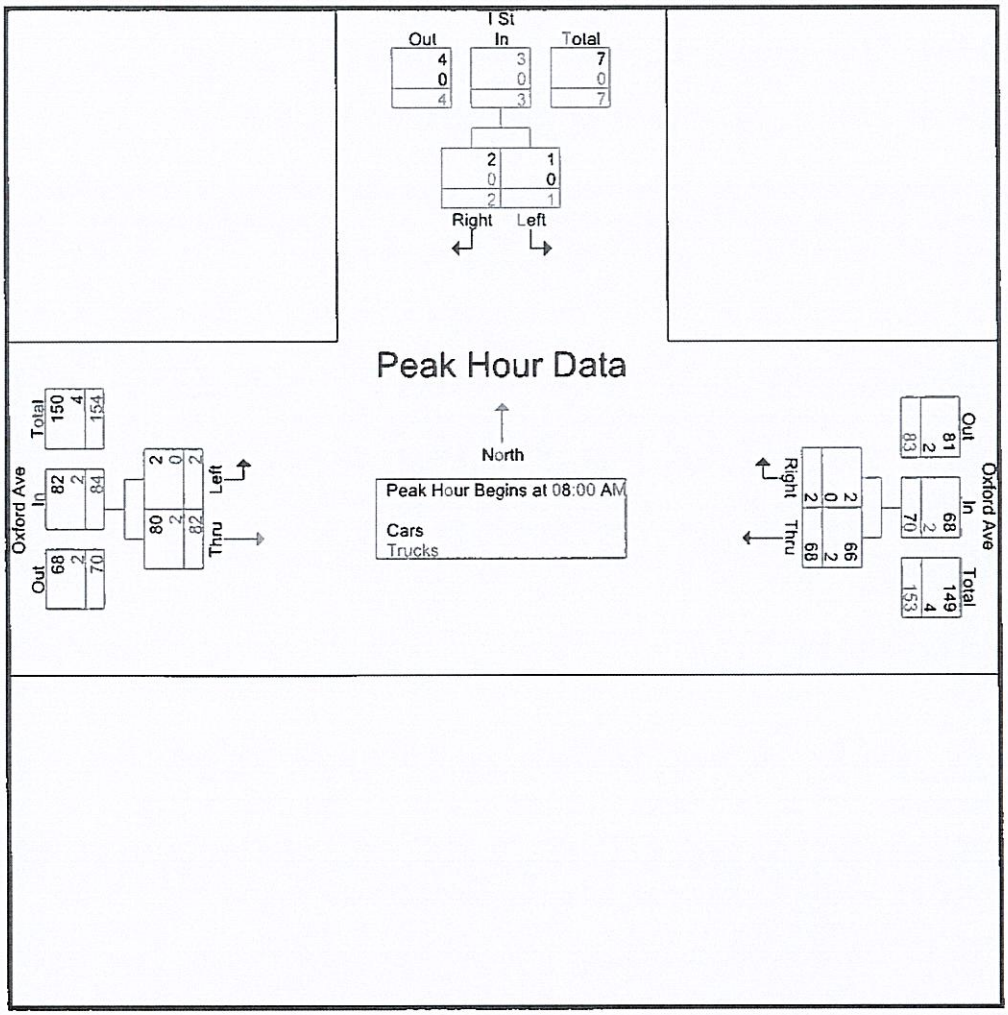
**Groups Printed- Cars - Trucks**

| | I St From North | | Oxford Ave From East | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Thru | Right | Left | Thru | Int. Tot |
| 07:00 AM | 0 | 0 | 15 | 0 | 0 | 15 | 3 |
| 07:15 AM | 0 | 0 | 16 | 0 | 1 | 18 | 3 |
| 07:30 AM | 0 | 2 | 17 | 0 | 0 | 11 | 3 |
| 07:45 AM | 1 | 1 | 18 | 1 | 0 | 17 | 3 |
| Total | 1 | 3 | 66 | 1 | 1 | 61 | 13 |
| | | | | | | | |
| 08:00 AM | 0 | 2 | 6 | 0 | 0 | 9 | 1 |
| 08:15 AM | 0 | 0 | 23 | 0 | 1 | 14 | 3 |
| 08:30 AM | 1 | 0 | 23 | 0 | 1 | 26 | 5 |
| 08:45 AM | 0 | 0 | 16 | 2 | 0 | 33 | 5 |
| Total | 1 | 2 | 68 | 2 | 2 | 82 | 15 |
| | | | | | | | |
| Grand Total | 2 | 5 | 134 | 3 | 3 | 143 | 29 |
| Apprch % | 28.6 | 71.4 | 97.8 | 2.2 | 2.1 | 97.9 | |
| Total % | 0.7 | 1.7 | 46.2 | 1 | 1 | 49.3 | |
| Cars | 2 | 5 | 129 | 3 | 3 | 139 | 28 |
| % Cars | 100 | 100 | 96.3 | 100 | 100 | 97.2 | 96 |
| Trucks | 0 | 0 | 5 | 0 | 0 | 4 | |
| % Trucks | 0 | 0 | 3.7 | 0 | 0 | 2.8 | 3. |

| | I St From North | | | Oxford Ave From East | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | App. Total | Thru | Right | App. Total | Left | Thru | App. Total | Int. Tota |
| ak Hour Analysis From 07:00 AM to 08 45 AM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 08:00 AM | | | | | | | | | | |
| 08:00 AM | 0 | 2 | 2 | 6 | 0 | 6 | 0 | 9 | 9 | 1 |
| 08:15 AM | 0 | 0 | 0 | 23 | 0 | 23 | 1 | 14 | 15 | 3 |
| 08:30 AM | 1 | 0 | 1 | 23 | 0 | 23 | 1 | 26 | 27 | 5 |
| 08:45 AM | 0 | 0 | 0 | 16 | 2 | 18 | 0 | 33 | 33 | 5 |
| Total Volume | 1 | 2 | 3 | 68 | 2 | 70 | 2 | 82 | 84 | 15 |
| % App. Total | 33.3 | 66.7 | | 97.1 | 2.9 | | 2.4 | 97.6 | | |
| PHF | .250 | .250 | .375 | .739 | .250 | .761 | .500 | .621 | .636 | .77 |
| Cars | 1 | 2 | 3 | 66 | 2 | 68 | 2 | 80 | 82 | 15 |
| % Cars | 100 | 100 | 100 | 97.1 | 100 | 97.1 | 100 | 97.6 | 97.6 | 97. |
| Trucks | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | |
| % Trucks | 0 | 0 | 0 | 2.9 | 0 | 2.9 | 0 | 2.4 | 2.4 | 2. |

S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 2

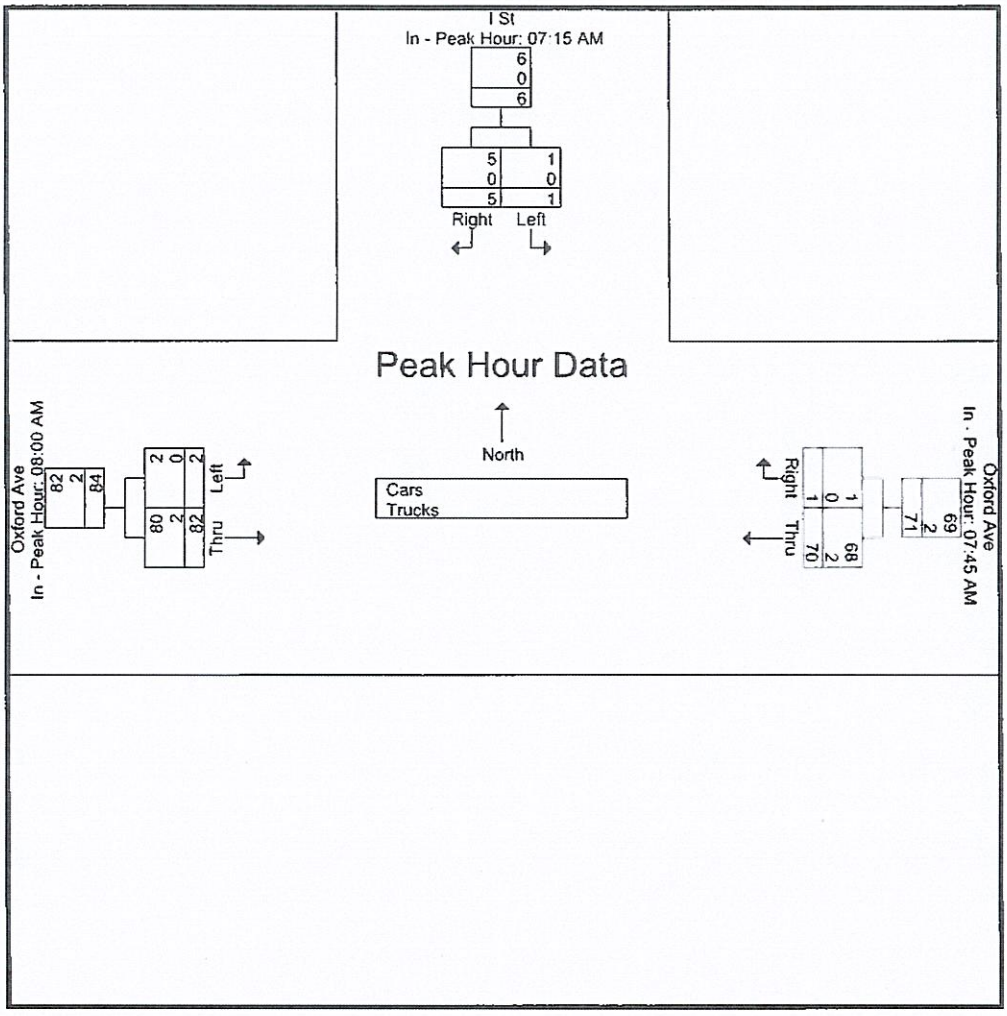



ak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
ak Hour for Each Approach Begins at:

| | 07:15 AM | | | 07:45 AM | | | 08:00 AM | | |
|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 0 | 0 | 0 | 18 | 1 | 19 | 0 | 9 | 9 |
| +15 mins. | 0 | 2 | 2 | 6 | 0 | 6 | 1 | 14 | 15 |
| +30 mins. | 1 | 1 | 2 | 23 | 0 | 23 | 1 | 26 | 27 |
| +45 mins. | 0 | 2 | 2 | 23 | 0 | 23 | 0 | 33 | 33 |
| Total Volume | 1 | 5 | 6 | 70 | 1 | 71 | 2 | 82 | 84 |
| % App. Total | 16.7 | 83.3 | | 98.6 | 1.4 | | 2.4 | 97.6 | |
| PHF | .250 | .625 | .750 | .761 | .250 | .772 | .500 | .621 | .636 |
| Cars | 1 | 5 | 6 | 68 | 1 | 69 | 2 | 80 | 82 |
| % Cars | 100 | 100 | 100 | 97.1 | 100 | 97.2 | 100 | 97.6 | 97.6 |
| Trucks | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 2 |
| % Trucks | 0 | 0 | 0 | 2.9 | 0 | 2.8 | 0 | 2.4 | 2.4 |

S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 3



S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 4

Groups Printed- Cars

| | I St From North | | Oxford Ave From East | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Thru | Right | Left | Thru | Int. Tot |
| 07:00 AM | 0 | 0 | 14 | 0 | 0 | 14 | 2 |
| 07:15 AM | 0 | 0 | 16 | 0 | 1 | 18 | 3 |
| 07:30 AM | 0 | 2 | 15 | 0 | 0 | 11 | 2 |
| 07:45 AM | 1 | 1 | 18 | 1 | 0 | 16 | 3 |
| Total | 1 | 3 | 63 | 1 | 1 | 59 | 12 |
| | | | | | | | |
| 08:00 AM | 0 | 2 | 5 | 0 | 0 | 9 | 1 |
| 08:15 AM | 0 | 0 | 23 | 0 | 1 | 13 | 3 |
| 08:30 AM | 1 | 0 | 22 | 0 | 1 | 25 | 4 |
| 08:45 AM | 0 | 0 | 16 | 2 | 0 | 33 | 5 |
| Total | 1 | 2 | 66 | 2 | 2 | 80 | 15 |
| | | | | | | | |
| Grand Total | 2 | 5 | 129 | 3 | 3 | 139 | 28 |
| Apprch % | 28.6 | 71.4 | 97.7 | 2.3 | 2.1 | 97.9 | |
| Total % | 0.7 | 1.8 | 45.9 | 1.1 | 1.1 | 49.5 | |

| | I St From North | | | Oxford Ave From East | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | App. Total | Thru | Right | App. Total | Left | Thru | App. Total | Int. Tot |
| ak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 08:00 AM | | | | | | | | | | |
| 08:00 AM | 0 | 2 | 2 | 5 | 0 | 5 | 0 | 9 | 9 | 1 |
| 08:15 AM | 0 | 0 | 0 | 23 | 0 | 23 | 1 | 13 | 14 | 3 |
| 08:30 AM | 1 | 0 | 1 | 22 | 0 | 22 | 1 | 25 | 26 | 4 |
| 08:45 AM | 0 | 0 | 0 | 16 | 2 | 18 | 0 | 33 | 33 | 5 |
| Total Volume | 1 | 2 | 3 | 66 | 2 | 68 | 2 | 80 | 82 | 15 |
| % App. Total | 33.3 | 66.7 | | 97.1 | 2.9 | | 2.4 | 97.6 | | |
| PHF | .250 | .250 | .375 | .717 | .250 | .739 | .500 | .606 | .621 | .75 |

S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 7

**Groups Printed- Trucks**

| | I St From North | | Oxford Ave From East | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Thru | Right | Left | Thru | Int. Tot |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 1 | |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:30 AM | 0 | 0 | 2 | 0 | 0 | 0 | |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | |
| Total | 0 | 0 | 3 | 0 | 0 | 2 | |
| 08:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 1 | |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 2 | 0 | 0 | 2 | |
| Grand Total | 0 | 0 | 5 | 0 | 0 | 4 | |
| Apprch % | 0 | 0 | 100 | 0 | 0 | 100 | |
| Total % | 0 | 0 | 55.6 | 0 | 0 | 44.4 | |

| | I St From North | | | Oxford Ave From East | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | App. Total | Thru | Right | App. Total | Left | Thru | App. Total | Int. Tot |
| ak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:30 AM | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| Total Volume | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 2 | 2 | |
| % App. Total | 0 | 0 | | 100 | 0 | | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .375 | .000 | .375 | .000 | .500 | .500 | .62 |

S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 10

**Groups Printed- Bikes Peds**

| | I St From North | | | Oxford Ave From East | | | Oxford Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Peds | Thru | Right | Peds | Left | Thru | Peds | Exclu. Total | Inclu. Total | Int. Tota |
| 07:00 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:30 AM | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| Grand Total | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | |
| Apprch % | 0 | 0 | | 0 | 0 | | 0 | 0 | | | | |
| Total % | | | | | | | | | | 100 | 0 | |

| | I St From North | | | Oxford Ave From East | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | App. Total | Thru | Right | App. Total | Left | Thru | App. Total | Int. Tota |
| ak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| % App. Total | 0 | 0 | | 0 | 0 | | 0 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .00 |

S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 1

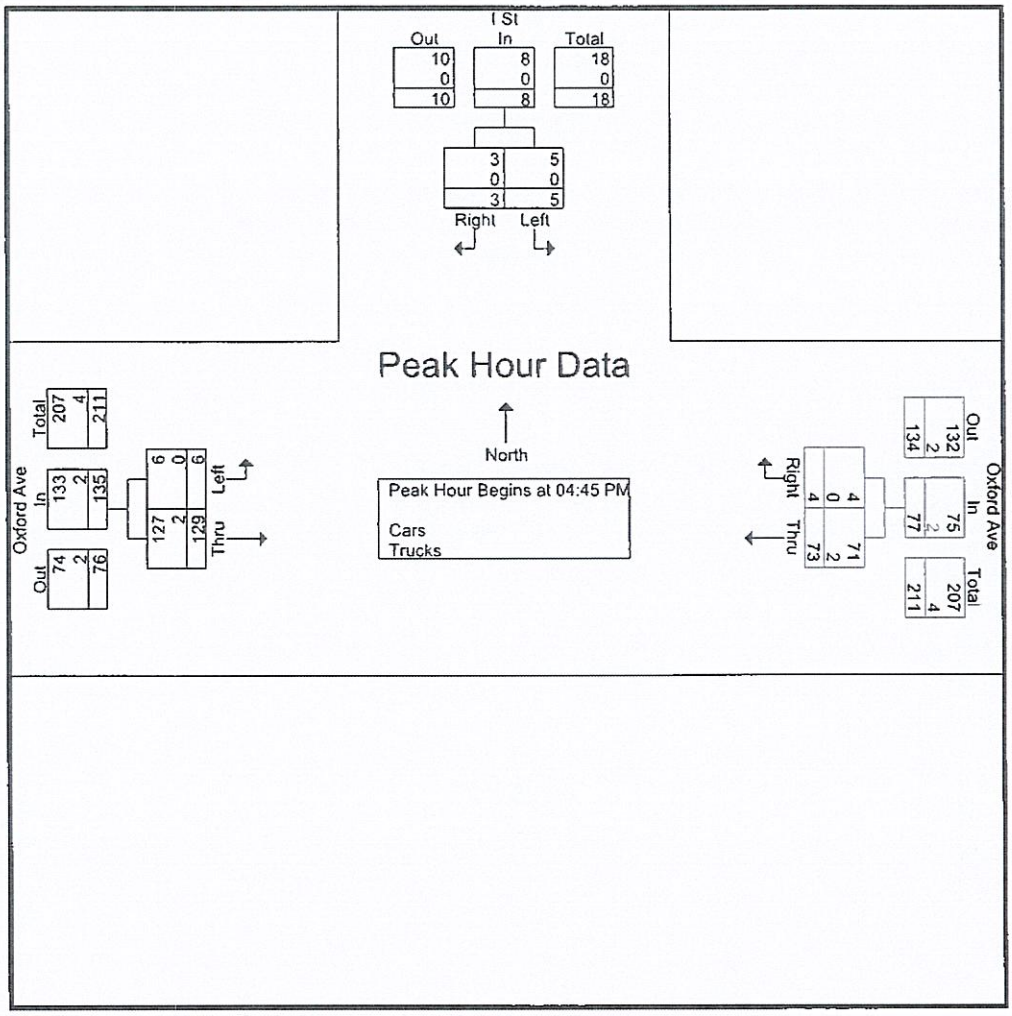
**Groups Printed- Cars - Trucks**

| | I St From North | | Oxford Ave From East | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Thru | Right | Left | Thru | Int. Tot |
| 04:00 PM | 0 | 0 | 19 | 0 | 1 | 39 | 5 |
| 04:15 PM | 0 | 0 | 20 | 0 | 2 | 29 | 5 |
| 04:30 PM | 0 | 1 | 8 | 0 | 2 | 19 | 3 |
| 04:45 PM | 2 | 2 | 18 | 0 | 0 | 41 | 6 |
| Total | 2 | 3 | 65 | 0 | 5 | 128 | 20 |
| | | | | | | | |
| 05:00 PM | 0 | 1 | 20 | 2 | 3 | 32 | 5 |
| 05:15 PM | 0 | 0 | 17 | 1 | 1 | 31 | 5 |
| 05:30 PM | 3 | 0 | 18 | 1 | 2 | 25 | 4 |
| 05:45 PM | 0 | 4 | 16 | 1 | 2 | 24 | 4 |
| Total | 3 | 5 | 71 | 5 | 8 | 112 | 20 |
| | | | | | | | |
| Grand Total | 5 | 8 | 136 | 5 | 13 | 240 | 40 |
| Apprch % | 38.5 | 61.5 | 96.5 | 3.5 | 5.1 | 94.9 | |
| Total % | 1.2 | 2 | 33.4 | 1.2 | 3.2 | 59 | |
| Cars | 5 | 8 | 132 | 5 | 13 | 236 | 39 |
| % Cars | 100 | 100 | 97.1 | 100 | 100 | 98.3 | 9 |
| Trucks | 0 | 0 | 4 | 0 | 0 | 4 | |
| % Trucks | 0 | 0 | 2.9 | 0 | 0 | 1.7 | |

| | I St From North | | | Oxford Ave From East | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | App. Total | Thru | Right | App. Total | Left | Thru | App. Total | Int. Tota |
| ak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | |
| 04:45 PM | 2 | 2 | 4 | 18 | 0 | 18 | 0 | 41 | 41 | 6 |
| 05:00 PM | 0 | 1 | 1 | 20 | 2 | 22 | 3 | 32 | 35 | 5 |
| 05:15 PM | 0 | 0 | 0 | 17 | 1 | 18 | 1 | 31 | 32 | 5 |
| 05:30 PM | 3 | 0 | 3 | 18 | 1 | 19 | 2 | 25 | 27 | 4 |
| Total Volume | 5 | 3 | 8 | 73 | 4 | 77 | 6 | 129 | 135 | 22 |
| % App. Total | 62.5 | 37.5 | | 94.8 | 5.2 | | 4.4 | 95.6 | | |
| PHF | .417 | .375 | .500 | .913 | .500 | .875 | .500 | .787 | .823 | .87 |
| Cars | 5 | 3 | 8 | 71 | 4 | 75 | 6 | 127 | 133 | 21 |
| % Cars | 100 | 100 | 100 | 97.3 | 100 | 97.4 | 100 | 98.4 | 98.5 | 98. |
| Trucks | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | |
| % Trucks | 0 | 0 | 0 | 2.7 | 0 | 2.6 | 0 | 1.6 | 1.5 | 1. |

S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 2

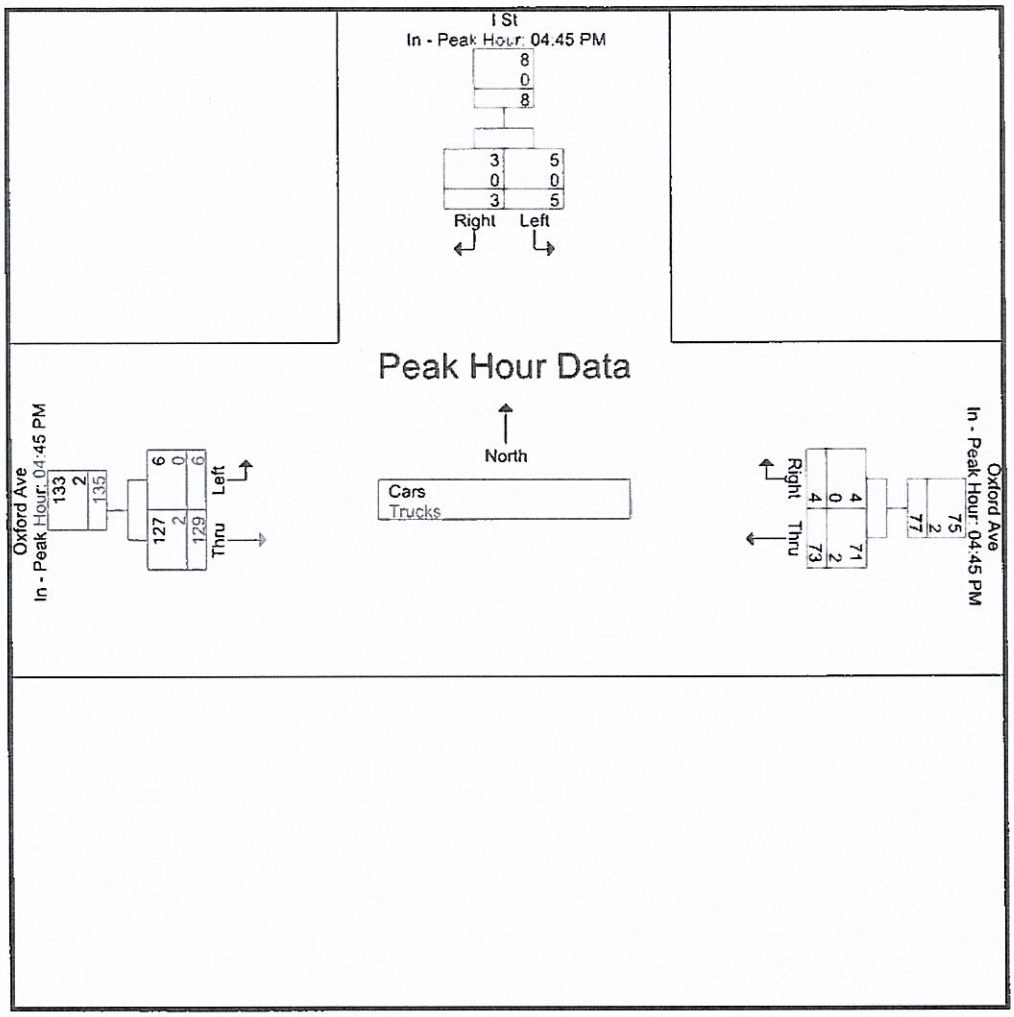



ak Hour Analysis From 04:00 PM to 05 45 PM - Peak 1 of 1
ak Hour for Each Approach Begins at:

| | 04:45 PM | | | 04:45 PM | | | 04:45 PM | | |
|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 2 | 2 | 4 | 18 | 0 | 18 | 0 | 41 | 41 |
| +15 mins. | 0 | 1 | 1 | 20 | 2 | 22 | 3 | 32 | 35 |
| +30 mins. | 0 | 0 | 0 | 17 | 1 | 18 | 1 | 31 | 32 |
| +45 mins. | 3 | 0 | 3 | 18 | 1 | 19 | 2 | 25 | 27 |
| Total Volume | 5 | 3 | 8 | 73 | 4 | 77 | 6 | 129 | 135 |
| % App. Total | 62.5 | 37.5 | | 94.8 | 5.2 | | 4.4 | 95.6 | |
| PHF | .417 | .375 | .500 | .913 | .500 | .875 | .500 | .787 | .823 |
| Cars | 5 | 3 | 8 | 71 | 4 | 75 | 6 | 127 | 133 |
| % Cars | 100 | 100 | 100 | 97.3 | 100 | 97.4 | 100 | 98.4 | 98.5 |
| Trucks | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 2 |
| % Trucks | 0 | 0 | 0 | 2.7 | 0 | 2.6 | 0 | 1.6 | 1.5 |

S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 3



S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 4

**Groups Printed- Cars**

| | I St From North | | Oxford Ave From East | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Thru | Right | Left | Thru | Int. Tot |
| 04:00 PM | 0 | 0 | 18 | 0 | 1 | 39 | 5 |
| 04:15 PM | 0 | 0 | 20 | 0 | 2 | 28 | 5 |
| 04:30 PM | 0 | 1 | 7 | 0 | 2 | 19 | 2 |
| 04:45 PM | 2 | 2 | 18 | 0 | 0 | 40 | 6 |
| Total | 2 | 3 | 63 | 0 | 5 | 126 | 19 |
| 05:00 PM | 0 | 1 | 19 | 2 | 3 | 32 | 5 |
| 05:15 PM | 0 | 0 | 17 | 1 | 1 | 30 | 4 |
| 05:30 PM | 3 | 0 | 17 | 1 | 2 | 25 | 4 |
| 05:45 PM | 0 | 4 | 16 | 1 | 2 | 23 | 4 |
| Total | 3 | 5 | 69 | 5 | 8 | 110 | 20 |
| Grand Total | 5 | 8 | 132 | 5 | 13 | 236 | 39 |
| Apprch % | 38.5 | 61.5 | 96.4 | 3.6 | 5.2 | 94.8 | |
| Total % | 1.3 | 2 | 33.1 | 1.3 | 3.3 | 59.1 | |

| | I St From North | | | Oxford Ave From East | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | App. Total | Thru | Right | App. Total | Left | Thru | App. Total | Int. Tot |
| ak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | |
| 04:45 PM | 2 | 2 | 4 | 18 | 0 | 18 | 0 | 40 | 40 | 6 |
| 05:00 PM | 0 | 1 | 1 | 19 | 2 | 21 | 3 | 32 | 35 | 5 |
| 05:15 PM | 0 | 0 | 0 | 17 | 1 | 18 | 1 | 30 | 31 | 4 |
| 05:30 PM | 3 | 0 | 3 | 17 | 1 | 18 | 2 | 25 | 27 | 4 |
| Total Volume | 5 | 3 | 8 | 71 | 4 | 75 | 6 | 127 | 133 | 21 |
| % App. Total | 62.5 | 37.5 | | 94.7 | 5.3 | | 4.5 | 95.5 | | |
| PHF | .417 | .375 | .500 | .934 | .500 | .893 | .500 | .794 | .831 | .87 |

S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 7

**Groups Printed- Trucks**

| | I St From North | | Oxford Ave From East | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Thru | Right | Left | Thru | Int. Tot |
| 04:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | |
| 04:30 PM | 0 | 0 | 1 | 0 | 0 | 0 | |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | |
| Total | 0 | 0 | 2 | 0 | 0 | 2 | |
| 05:00 PM | 0 | 0 | 1 | 0 | 0 | 0 | |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | |
| 05:30 PM | 0 | 0 | 1 | 0 | 0 | 0 | |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | |
| Total | 0 | 0 | 2 | 0 | 0 | 2 | |
| Grand Total | 0 | 0 | 4 | 0 | 0 | 4 | |
| Apprch % | 0 | 0 | 100 | 0 | 0 | 100 | |
| Total % | 0 | 0 | 50 | 0 | 0 | 50 | |

| | I St From North | | | Oxford Ave From East | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | App. Total | Thru | Right | App. Total | Left | Thru | App. Total | Int. Tot |
| ak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | |
| 04:00 PM | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 04:30 PM | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| Total Volume | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | |
| % App. Total | 0 | 0 | | 100 | 0 | | 0 | 100 | | |
| PHF | .000 | .000 | .000 | .500 | .000 | .500 | .000 | .500 | .500 | 1.0 |

S Street : I Street
N Street : Oxford Avenue
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 10

Groups Printed- Bikes Peds

| | I St From North | | | Oxford Ave From East | | | Oxford Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | Peds | Thru | Right | Peds | Left | Thru | Peds | Exclu. Total | Inclu. Total | Int. Tota |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | 1 | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 2 | |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 2 | |
| Apprch % | 0 | 0 | | 0 | 0 | | 100 | 0 | | | | |
| Total % | 0 | 0 | | 0 | 0 | | 100 | 0 | | 50 | 50 | |

| | I St From North | | | Oxford Ave From East | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Right | App. Total | Thru | Right | App. Total | Left | Thru | App. Total | Int. Tota |
| ak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | |
| % App. Total | 0 | 0 | | 0 | 0 | | 100 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .500 | .000 | .500 | .50 |

S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 1

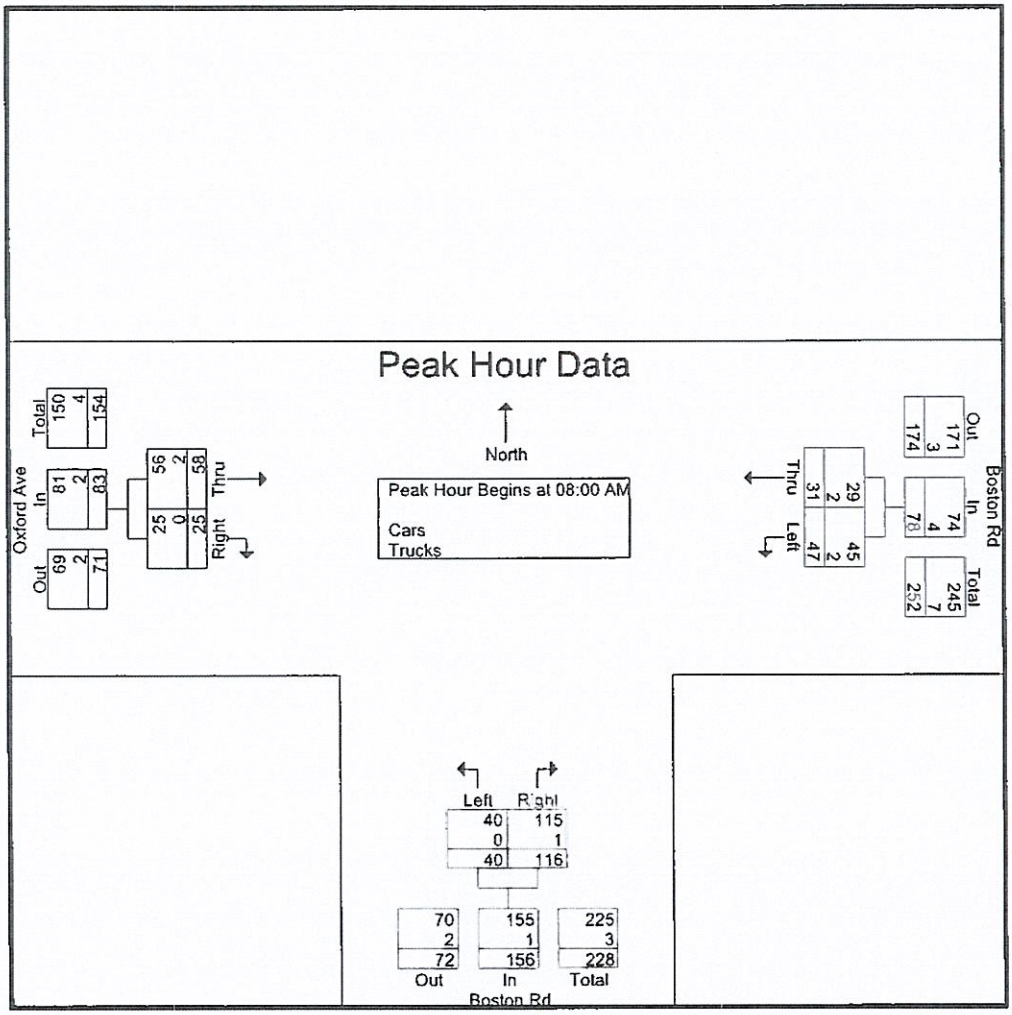
**Groups Printed- Cars - Trucks**

| | Boston Rd From East | | Boston Rd From South | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Left | Right | Thru | Right | Int. Tot |
| 07:00 AM | 13 | 5 | 10 | 15 | 7 | 6 | 5 |
| 07:15 AM | 10 | 3 | 13 | 26 | 8 | 9 | 6 |
| 07:30 AM | 7 | 8 | 7 | 22 | 8 | 5 | 5 |
| 07:45 AM | 11 | 7 | 11 | 26 | 13 | 6 | 7 |
| Total | 41 | 23 | 41 | 89 | 36 | 26 | 25 |
| | | | | | | | |
| 08:00 AM | 12 | 3 | 3 | 23 | 7 | 3 | 5 |
| 08:15 AM | 12 | 7 | 16 | 20 | 6 | 6 | 6 |
| 08:30 AM | 11 | 8 | 15 | 30 | 21 | 7 | 9 |
| 08:45 AM | 12 | 13 | 6 | 43 | 24 | 9 | 10 |
| Total | 47 | 31 | 40 | 116 | 58 | 25 | 31 |
| | | | | | | | |
| Grand Total | 88 | 54 | 81 | 205 | 94 | 51 | 57 |
| Apprch % | 62 | 38 | 28.3 | 71.7 | 64.8 | 35.2 | |
| Total % | 15.4 | 9.4 | 14.1 | 35.8 | 16.4 | 8.9 | |
| Cars | 86 | 50 | 81 | 204 | 90 | 49 | 56 |
| % Cars | 97.7 | 92.6 | 100 | 99.5 | 95.7 | 96.1 | 97. |
| Trucks | 2 | 4 | 0 | 1 | 4 | 2 | 1 |
| % Trucks | 2.3 | 7.4 | 0 | 0.5 | 4.3 | 3.9 | 2. |

| | Boston Rd From East | | | Boston Rd From South | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | Int. Tota |
| ak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 08:00 AM | | | | | | | | | | |
| 08:00 AM | 12 | 3 | 15 | 3 | 23 | 26 | 7 | 3 | 10 | 5 |
| 08:15 AM | 12 | 7 | 19 | 16 | 20 | 36 | 6 | 6 | 12 | 6 |
| 08:30 AM | 11 | 8 | 19 | 15 | 30 | 45 | 21 | 7 | 28 | 9 |
| 08:45 AM | 12 | 13 | 25 | 6 | 43 | 49 | 24 | 9 | 33 | 10 |
| Total Volume | 47 | 31 | 78 | 40 | 116 | 156 | 58 | 25 | 83 | 31 |
| % App. Total | 60.3 | 39.7 | | 25.6 | 74.4 | | 69.9 | 30.1 | | |
| PHF | .979 | .596 | .780 | .625 | .674 | .796 | .604 | .694 | .629 | .74 |
| Cars | 45 | 29 | 74 | 40 | 115 | 155 | 56 | 25 | 81 | 31 |
| % Cars | 95.7 | 93.5 | 94.9 | 100 | 99.1 | 99.4 | 96.6 | 100 | 97.6 | 97. |
| Trucks | 2 | 2 | 4 | 0 | 1 | 1 | 2 | 0 | 2 | |
| % Trucks | 4.3 | 6.5 | 5.1 | 0 | 0.9 | 0.6 | 3.4 | 0 | 2.4 | 2. |

S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 2

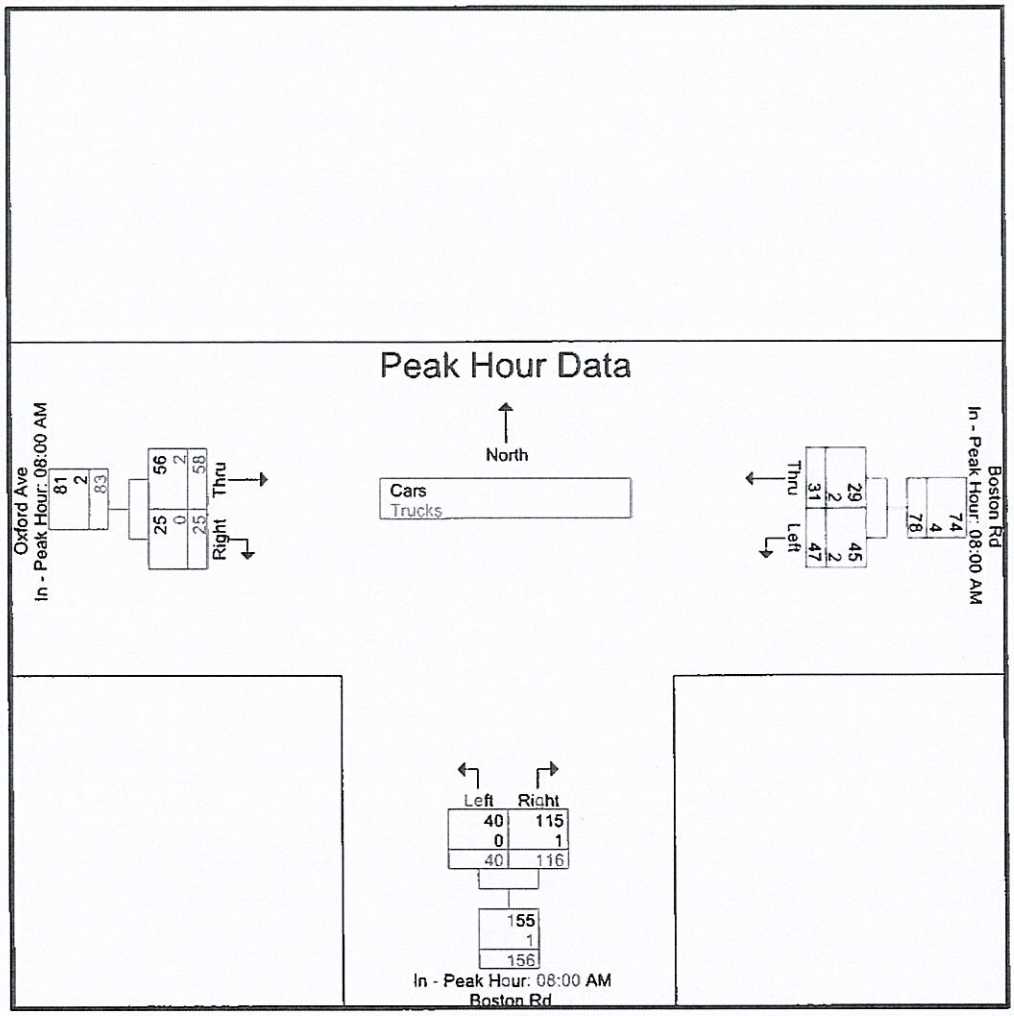



ak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
ak Hour for Each Approach Begins at:

| | 08:00 AM | | | 08:00 AM | | | 08:00 AM | | |
|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 12 | 3 | 15 | 3 | 23 | 26 | 7 | 3 | 10 |
| +15 mins. | 12 | 7 | 19 | 16 | 20 | 36 | 6 | 6 | 12 |
| +30 mins. | 11 | 8 | 19 | 15 | 30 | 45 | 21 | 7 | 28 |
| +45 mins. | 12 | 13 | 25 | 6 | 43 | 49 | 24 | 9 | 33 |
| Total Volume | 47 | 31 | 78 | 40 | 116 | 156 | 58 | 25 | 83 |
| % App. Total | 60.3 | 39.7 | | 25.6 | 74.4 | | 69.9 | 30.1 | |
| PHF | .979 | .596 | .780 | .625 | .674 | .796 | .604 | .694 | .629 |
| Cars | 45 | 29 | 74 | 40 | 115 | 155 | 56 | 25 | 81 |
| % Cars | 95.7 | 93.5 | 94.9 | 100 | 99.1 | 99.4 | 96.6 | 100 | 97.6 |
| Trucks | 2 | 2 | 4 | 0 | 1 | 1 | 2 | 0 | 2 |
| % Trucks | 4.3 | 6.5 | 5.1 | 0 | 0.9 | 0.6 | 3.4 | 0 | 2.4 |

S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 3



S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 4

**Groups Printed- Cars**

| | Boston Rd From East | | Boston Rd From South | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Left | Right | Thru | Right | Int. Tot |
| 07:00 AM | 13 | 4 | 10 | 15 | 6 | 6 | 5 |
| 07:15 AM | 10 | 3 | 13 | 26 | 8 | 7 | 6 |
| 07:30 AM | 7 | 7 | 7 | 22 | 8 | 5 | 5 |
| 07:45 AM | 11 | 7 | 11 | 26 | 12 | 6 | 7 |
| Total | 41 | 21 | 41 | 89 | 34 | 24 | 25 |
| 08:00 AM | 12 | 2 | 3 | 23 | 7 | 3 | 5 |
| 08:15 AM | 12 | 7 | 16 | 20 | 5 | 6 | 6 |
| 08:30 AM | 10 | 7 | 15 | 29 | 20 | 7 | 8 |
| 08:45 AM | 11 | 13 | 6 | 43 | 24 | 9 | 10 |
| Total | 45 | 29 | 40 | 115 | 56 | 25 | 31 |
| Grand Total | 86 | 50 | 81 | 204 | 90 | 49 | 56 |
| Apprch % | 63.2 | 36.8 | 28.4 | 71.6 | 64.7 | 35.3 | |
| Total % | 15.4 | 8.9 | 14.5 | 36.4 | 16.1 | 8.8 | |

| | Boston Rd From East | | | Boston Rd From South | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | Int. Tota |
| ak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 08:00 AM | | | | | | | | | | |
| 08:00 AM | 12 | 2 | 14 | 3 | 23 | 26 | 7 | 3 | 10 | 5 |
| 08:15 AM | 12 | 7 | 19 | 16 | 20 | 36 | 5 | 6 | 11 | 6 |
| 08:30 AM | 10 | 7 | 17 | 15 | 29 | 44 | 20 | 7 | 27 | 8 |
| 08:45 AM | 11 | 13 | 24 | 6 | 43 | 49 | 24 | 9 | 33 | 10 |
| Total Volume | 45 | 29 | 74 | 40 | 115 | 155 | 56 | 25 | 81 | 31 |
| % App. Total | 60.8 | 39.2 | | 25.8 | 74.2 | | 69.1 | 30.9 | | |
| PHF | .938 | .558 | .771 | .625 | .669 | .791 | .583 | .694 | .614 | .73 |

S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 10

Groups Printed- Bikes Peds

| | Boston Rd From East | | | Boston Rd From South | | | Oxford Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Peds | Left | Right | Peds | Thru | Right | Peds | Exclu. Total | Inclu. Total | Int. Tota |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Apprch % | 0 | 0 | | 0 | 0 | | 0 | 0 | | | | |
| Total % | | | | | | | | | | 0 | 0 | |

| | Boston Rd From East | | | Boston Rd From South | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | Int. Tota |
| ak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| % App. Total | 0 | 0 | | 0 | 0 | | 0 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .00 |

S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 7

**Groups Printed- Trucks**

| | Boston Rd From East | | Boston Rd From South | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Left | Right | Thru | Right | Int. Tot |
| 07:00 AM | 0 | 1 | 0 | 0 | 1 | 0 | |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | |
| 07:30 AM | 0 | 1 | 0 | 0 | 0 | 0 | |
| 07:45 AM | 0 | 0 | 0 | 0 | 1 | 0 | |
| Total | 0 | 2 | 0 | 0 | 2 | 2 | |
| 08:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | |
| 08:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | |
| 08:30 AM | 1 | 1 | 0 | 1 | 1 | 0 | |
| 08:45 AM | 1 | 0 | 0 | 0 | 0 | 0 | |
| Total | 2 | 2 | 0 | 1 | 2 | 0 | |
| Grand Total | 2 | 4 | 0 | 1 | 4 | 2 | 1 |
| Apprch % | 33.3 | 66.7 | 0 | 100 | 66.7 | 33.3 | |
| Total % | 15.4 | 30.8 | 0 | 7.7 | 30.8 | 15.4 | |

| | Boston Rd From East | | | Boston Rd From South | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | Int. Tota |
| ak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | |
| 08:00 AM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | |
| 08:30 AM | 1 | 1 | 2 | 0 | 1 | 1 | 1 | 0 | 1 | |
| Total Volume | 1 | 2 | 3 | 0 | 1 | 1 | 3 | 0 | 3 | |
| % App. Total | 33.3 | 66.7 | | 0 | 100 | | 100 | 0 | | |
| PHF | .250 | .500 | .375 | .000 | .250 | .250 | .750 | .000 | .750 | .43 |

S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 1

**Groups Printed- Cars - Trucks**

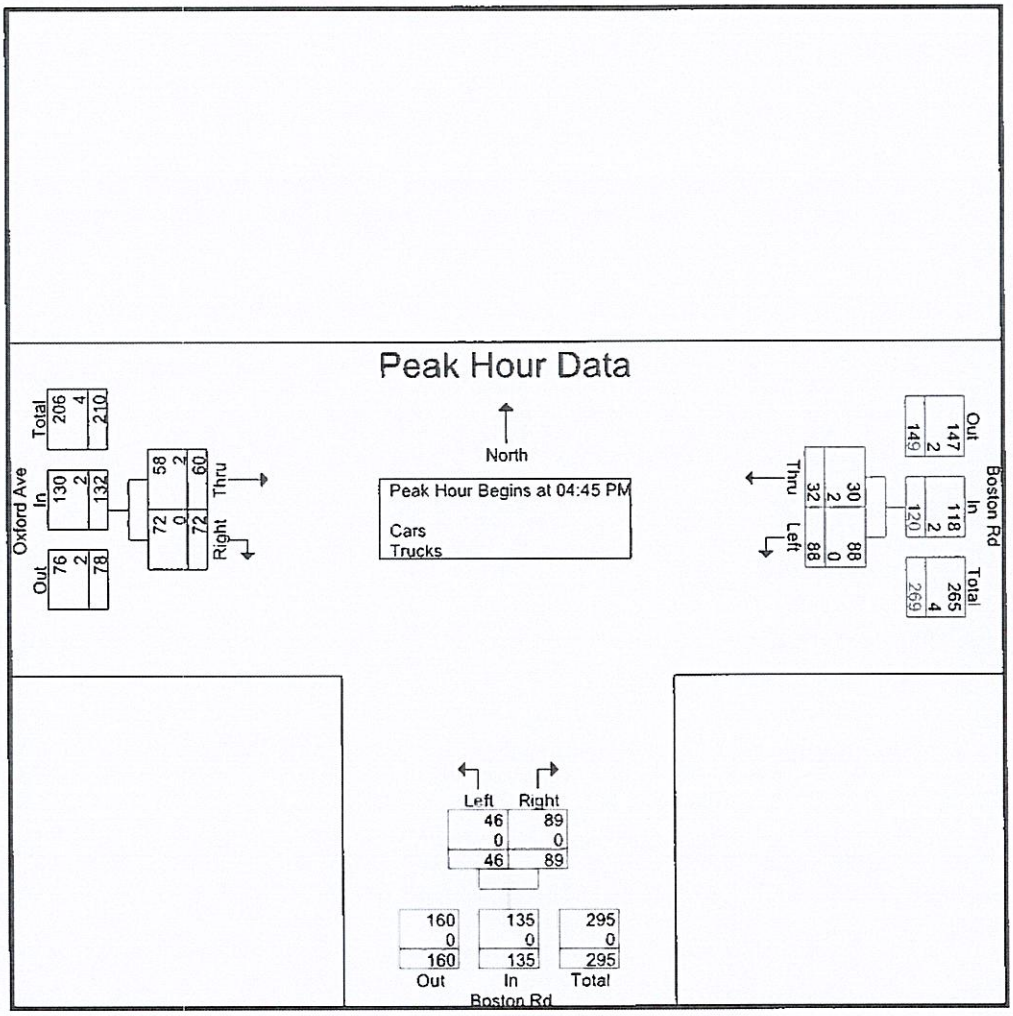
| | Boston Rd From East | | Boston Rd From South | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Left | Right | Thru | Right | Int. Tot |
| 04:00 PM | 16 | 8 | 8 | 21 | 16 | 20 | 8 |
| 04:15 PM | 14 | 7 | 11 | 27 | 17 | 13 | 8 |
| 04:30 PM | 16 | 5 | 4 | 31 | 8 | 12 | 7 |
| 04:45 PM | 24 | 7 | 12 | 28 | 17 | 25 | 11 |
| Total | 70 | 27 | 35 | 107 | 58 | 70 | 36 |
| 05:00 PM | 16 | 9 | 12 | 17 | 14 | 18 | 8 |
| 05:15 PM | 26 | 6 | 13 | 21 | 16 | 15 | 9 |
| 05:30 PM | 22 | 10 | 9 | 23 | 13 | 14 | 9 |
| 05:45 PM | 20 | 7 | 10 | 21 | 11 | 10 | 7 |
| Total | 84 | 32 | 44 | 82 | 54 | 57 | 35 |
| Grand Total | 154 | 59 | 79 | 189 | 112 | 127 | 72 |
| Apprch % | 72.3 | 27.7 | 29.5 | 70.5 | 46.9 | 53.1 | |
| Total % | 21.4 | 8.2 | 11 | 26.2 | 15.6 | 17.6 | |
| Cars | 154 | 55 | 79 | 189 | 109 | 127 | 71 |
| % Cars | 100 | 93.2 | 100 | 100 | 97.3 | 100 | 9 |
| Trucks | 0 | 4 | 0 | 0 | 3 | 0 | |
| % Trucks | 0 | 6.8 | 0 | 0 | 2.7 | 0 | |

| | Boston Rd From East | | | Boston Rd From South | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | Int. Tota |
| ak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | |
| 04:45 PM | 24 | 7 | 31 | 12 | 28 | 40 | 17 | 25 | 42 | 11 |
| 05:00 PM | 16 | 9 | 25 | 12 | 17 | 29 | 14 | 18 | 32 | 8 |
| 05:15 PM | 26 | 6 | 32 | 13 | 21 | 34 | 16 | 15 | 31 | 9 |
| 05:30 PM | 22 | 10 | 32 | 9 | 23 | 32 | 13 | 14 | 27 | 9 |
| Total Volume | 88 | 32 | 120 | 46 | 89 | 135 | 60 | 72 | 132 | 38 |
| % App. Total | 73.3 | 26.7 | | 34.1 | 65.9 | | 45.5 | 54.5 | | |
| PHF | .846 | .800 | .938 | .885 | .795 | .844 | .882 | .720 | .786 | .85 |
| Cars | 88 | 30 | 118 | 46 | 89 | 135 | 58 | 72 | 130 | 38 |
| % Cars | 100 | 93.8 | 98.3 | 100 | 100 | 100 | 96.7 | 100 | 98.5 | 99. |
| Trucks | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | |
| % Trucks | 0 | 6.3 | 1.7 | 0 | 0 | 0 | 3.3 | 0 | 1.5 | 1. |

978-664-2565

S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 2

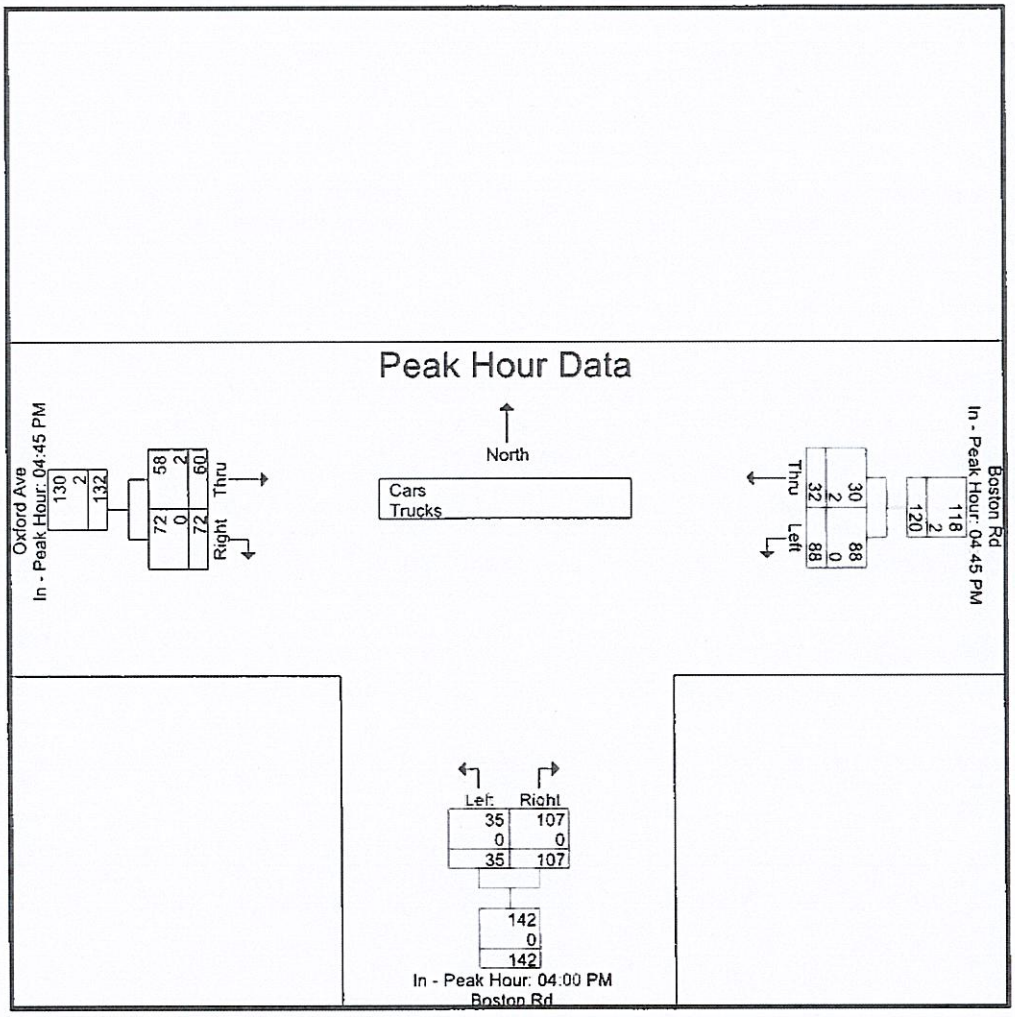



ak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
ak Hour for Each Approach Begins at:

| | 04:45 PM | | | 04:00 PM | | | 04:45 PM | | |
|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 24 | 7 | 31 | 8 | 21 | 29 | 17 | 25 | 42 |
| +15 mins. | 16 | 9 | 25 | 11 | 27 | 38 | 14 | 18 | 32 |
| +30 mins. | 26 | 6 | 32 | 4 | 31 | 35 | 16 | 15 | 31 |
| +45 mins. | 22 | 10 | 32 | 12 | 28 | 40 | 13 | 14 | 27 |
| Total Volume | 88 | 32 | 120 | 35 | 107 | 142 | 60 | 72 | 132 |
| % App. Total | 73.3 | 26.7 | | 24.6 | 75.4 | | 45.5 | 54.5 | |
| PHF | .846 | .800 | .938 | .729 | .863 | .888 | .882 | .720 | .786 |
| Cars | 88 | 30 | 118 | 35 | 107 | 142 | 58 | 72 | 130 |
| % Cars | 100 | 93.8 | 98.3 | 100 | 100 | 100 | 96.7 | 100 | 98.5 |
| Trucks | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 2 |
| % Trucks | 0 | 6.2 | 1.7 | 0 | 0 | 0 | 3.3 | 0 | 1.5 |

S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 3



S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 4

Groups Printed- Cars

| | Boston Rd From East | | Boston Rd From South | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Left | Right | Thru | Right | Int. Tot |
| 04:00 PM | 16 | 7 | 8 | 21 | 16 | 20 | 8 |
| 04:15 PM | 14 | 7 | 11 | 27 | 16 | 13 | 8 |
| 04:30 PM | 16 | 4 | 4 | 31 | 8 | 12 | 7 |
| 04:45 PM | 24 | 7 | 12 | 28 | 16 | 25 | 11 |
| Total | 70 | 25 | 35 | 107 | 56 | 70 | 36 |
| 05:00 PM | 16 | 8 | 12 | 17 | 14 | 18 | 8 |
| 05:15 PM | 26 | 6 | 13 | 21 | 15 | 15 | 9 |
| 05:30 PM | 22 | 9 | 9 | 23 | 13 | 14 | 9 |
| 05:45 PM | 20 | 7 | 10 | 21 | 11 | 10 | 7 |
| Total | 84 | 30 | 44 | 82 | 53 | 57 | 35 |
| Grand Total | 154 | 55 | 79 | 189 | 109 | 127 | 71 |
| Apprch % | 73.7 | 26.3 | 29.5 | 70.5 | 46.2 | 53.8 | |
| Total % | 21.6 | 7.7 | 11.1 | 26.5 | 15.3 | 17.8 | |

| | Boston Rd From East | | | Boston Rd From South | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | Int. Tota |
| ak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | |
| 04:45 PM | 24 | 7 | 31 | 12 | 28 | 40 | 16 | 25 | 41 | 11 |
| 05:00 PM | 16 | 8 | 24 | 12 | 17 | 29 | 14 | 18 | 32 | 8: |
| 05:15 PM | 26 | 6 | 32 | 13 | 21 | 34 | 15 | 15 | 30 | 9( |
| 05:30 PM | 22 | 9 | 31 | 9 | 23 | 32 | 13 | 14 | 27 | 9( |
| Total Volume | 88 | 30 | 118 | 46 | 89 | 135 | 58 | 72 | 130 | 38 |
| % App. Total | 74.6 | 25.4 | | 34.1 | 65.9 | | 44.6 | 55.4 | | |
| PHF | .846 | .833 | .922 | .885 | .795 | .844 | .906 | .720 | .793 | .85 |

S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 7

**Groups Printed- Trucks**

| | Boston Rd From East | | Boston Rd From South | | Oxford Ave From West | | |
|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Left | Right | Thru | Right | Int. Tot |
| 04:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | |
| 04:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | |
| 04:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | |
| 04:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | |
| Total | 0 | 2 | 0 | 0 | 2 | 0 | |
| 05:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | |
| 05:30 PM | 0 | 1 | 0 | 0 | 0 | 0 | |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | 0 | 2 | 0 | 0 | 1 | 0 | |
| Grand Total | 0 | 4 | 0 | 0 | 3 | 0 | |
| Apprch % | 0 | 100 | 0 | 0 | 100 | 0 | |
| Total % | 0 | 57.1 | 0 | 0 | 42.9 | 0 | |

| | Boston Rd From East | | | Boston Rd From South | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | Int. Tot |
| ak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | |
| 04:00 PM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | |
| 04:30 PM | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | |
| Total Volume | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | |
| % App. Total | 0 | 100 | | 0 | 0 | | 100 | 0 | | |
| PHF | .000 | .500 | .500 | .000 | .000 | .000 | .500 | .000 | .500 | 1.0 |

S Street : Boston Road
N Street : Boston Rd / Oxford Ave
y/State : Haverhill, MA
eather : Rain / Cloudy

File Name : 10758(
Site Code : 10758(
Start Date : 6/23/2(
Page No : 10

Groups Printed- Bikes Peds

| | Boston Rd From East | | | Boston Rd From South | | | Oxford Ave From West | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Peds | Left | Right | Peds | Thru | Right | Peds | Exclu. Total | Inclu. Total | Int. Tota |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | |
| 05:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | |
| Grand Total | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | |
| Apprch % | 0 | 0 | | 0 | 100 | | 0 | 0 | | | | |
| Total % | 0 | 0 | | 0 | 100 | | 0 | 0 | | 0 | 100 | |

| | Boston Rd From East | | | Boston Rd From South | | | Oxford Ave From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | App. Total | Left | Right | App. Total | Thru | Right | App. Total | Int. Tota |
| ak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | |
| ak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 05:15 PM | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | |
| 05:30 PM | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | |
| Total Volume | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | |
| % App. Total | 0 | 0 | | 0 | 100 | | 0 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .375 | .375 | .000 | .000 | .000 | .37 |

SEASONAL ADJUSTMENT DATA

Massachusetts Highway Department
Statewide Traffic Data Collection
2025 Weekday Seasonal Factors

| Factor Group | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Axle Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R1 | 1.32 | 1.28 | 1.19 | 1.04 | 0.98 | 0.94 | 0.89 | 0.86 | 0.98 | 1.00 | 1.05 | 1.13 | 0.77 |
| R3 | 1.06 | 1.04 | 1.04 | 0.99 | 0.96 | 0.87 | 0.86 | 0.86 | 0.91 | 0.92 | 1.00 | 1.06 | 0.98 |
| R4-R7 | 1.14 | 1.16 | 1.12 | 1.03 | 0.96 | 0.90 | 0.86 | 0.86 | 0.92 | 0.94 | 1.04 | 1.11 | 0.99 |
| U1-Boston | 1.08 | 1.05 | 0.98 | 0.94 | 0.93 | 0.91 | 0.93 | 0.91 | 0.94 | 0.95 | 0.98 | 1.03 | 0.95 |
| U1-Essex | 1.13 | 1.11 | 1.05 | 1.00 | 0.96 | 0.89 | 0.87 | 0.86 | 0.94 | 0.96 | 1.01 | 1.06 | 0.96 |
| U1-Southeast | 1.12 | 1.09 | 1.02 | 0.96 | 0.93 | 0.87 | 0.86 | 0.85 | 0.91 | 0.95 | 0.99 | 1.03 | 0.97 |
| U1-West | 1.05 | 1.03 | 0.99 | 0.97 | 0.96 | 0.93 | 0.93 | 0.91 | 0.92 | 0.92 | 0.97 | 1.02 | 0.80 |
| U1-Worcester | 1.07 | 1.05 | 0.98 | 0.94 | 0.93 | 0.89 | 0.92 | 0.90 | 0.92 | 0.93 | 0.96 | 1.02 | 0.92 |
| U3 | 1.03 | 1.02 | 0.96 | 0.93 | 0.92 | 0.90 | 0.93 | 0.92 | 0.93 | 0.94 | 0.97 | 0.99 | 0.95 |
| U4-U7 | 1.03 | 1.02 | 0.95 | 0.92 | 0.90 | 0.90 | 0.92 | 0.91 | 0.92 | 0.94 | 0.96 | 0.99 | 0.99 |
| UR2 | 1.06 | 1.03 | 0.97 | 0.93 | 0.93 | 0.89 | 0.91 | 0.90 | 0.92 | 0.93 | 0.96 | 1.01 | 0.97 |
| Rec - East | 1.15 | 1.16 | 1.08 | 0.98 | 0.89 | 0.80 | 0.77 | 0.80 | 0.91 | 1.00 | 1.05 | 1.13 | 0.98 |
| Rec - West | 1.31 | 1.35 | 1.16 | 1.07 | 0.93 | 0.81 | 0.61 | 0.72 | 0.96 | 0.97 | 1.17 | 1.29 | 0.99 |

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

**UR2 Group** - Combination of Urban Freeways and Expressways and Rural Freeways and Expressways.

**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.

PUBLIC TRANSPORTATION DATA

# 14

**EFFECTIVE APRIL 6, 2026**
**A PARTIR DE 6 DE ABRIL, 2026**
**FREE Public Transportation from Haverhill to Lawrence**
**Transporte público GRATUITO de Haverhill a Lawrence**

## ROUTE 14 - LAWRENCE BOUND
## WARD HILL/AMAZON/MCGOVERN STATION

### WEEKDAYS

| 1 | 2 | 3 | 4 | 5 | 6 | |
|---|---|---|---|---|---|---|
| Bus starts at Washington Square | Bus leaves from Ward Hill Industrial Park | Bus leaves from BJ's | Bus leaves from Osgood Landing (Amazon) | Bus leaves from North Andover Senior Center | Bus ends at McGovern | Bus continues on as Route |
| 5:30 | 5:45 | 5:48 | 5:55 | 6:00 | 6:05 | 4 |
| 6:00 | 6:15 | 6:18 | 6:25 | 6:30 | 6:35 | - |
| 6:30 | 6:45 | 6:48 | 6:55 | 7:00 | 7:05 | 4 |
| 7:00 | 7:15 | 7:18 | 7:25 | 7:30 | 7:35 | 4 |
| 7:30 | 7:45 | 7:48 | 7:55 | 8:00 | 8:05 | 4 |
| 8:00 | 8:15 | 8:18 | 8:25 | 8:30 | 8:35 | 4 |
| 8:30 | 8:45 | 8:48 | 8:55 | 9:00 | 9:05 | 4 |
| 9:00 | 9:15 | 9:18 | 9:25 | 9:30 | 9:35 | 4 |
| 9:30 | 9:45 | 9:48 | 9:55 | 10:00 | 10:05 | 4 |
| 10:00 | 10:15 | 10:18 | 10:25 | 10:30 | 10:35 | 4 |
| 10:30 | 10:45 | 10:48 | 10:55 | 11:00 | 11:05 | 4 |
| 11:00 | 11:15 | 11:18 | 11:25 | 11:30 | 11:35 | 4 |
| 11:30 | 11:45 | 11:48 | 11:55 | 12:00 | 12:05 | 4 |
| 12:00 | 12:15 | 12:18 | 12:25 | 12:30 | 12:35 | 4 |
| 12:30 | 12:45 | 12:48 | 12:55 | 1:00 | 1:05 | 4 |
| 1:00 | 1:15 | 1:18 | 1:25 | 1:30 | 1:35 | 4 |
| 1:30 | 1:45 | 1:48 | 1:55 | 2:00 | 2:05 | 4 |
| 2:00 | 2:15 | 2:18 | 2:25 | 2:30 | 2:35 | 4 |
| 2:30 | 2:45 | 2:48 | 2:55 | 3:00 | 3:05 | 4 |
| 3:00 | 3:15 | 3:18 | 3:25 | 3:30 | 3:35 | 4 |
| 3:30 | 3:45 | 3:48 | 3:55 | 4:00 | 4:05 | 4 |
| 4:00 | 4:15 | 4:18 | 4:25 | 4:30 | 4:35 | 4 |
| 4:30 | 4:45 | 4:48 | 4:55 | 5:00 | 5:05 | 4 |
| 5:00 | 5:15 | 5:18 | 5:25 | 5:30 | 5:35 | 4 |
| 5:30 | 5:45 | 5:48 | 5:55 | 6:00 | 6:05 | 4 |
| 6:00 | 6:15 | 6:18 | 6:25 | 6:30 | 6:35 | 4 |
| 6:30 | 6:45 | 6:48 | 6:55 | 7:00 | 7:05 | - |
| 7:00 | 7:15 | 7:18 | 7:25 | 7:30 | 7:35 | - |

### SATURDAYS

| | | | | | | |
|---|---|---|---|---|---|---|
| 7:00 | 7:15 | 7:18 | 7:25 | 7:30 | 7:35 | 4 |
| 8:00 | 8:15 | 8:18 | 8:25 | 8:30 | 8:35 | 4 |
| 9:00 | 9:15 | 9:18 | 9:25 | 9:30 | 9:35 | 4 |
| 10:00 | 10:15 | 10:18 | 10:25 | 10:30 | 10:35 | 4 |
| 11:00 | 11:15 | 11:18 | 11:25 | 11:30 | 11:35 | 4 |
| 12:00 | 12:15 | 12:18 | 12:25 | 12:30 | 12:35 | 4 |
| 1:00 | 1:15 | 1:18 | 1:25 | 1:30 | 1:35 | 4 |
| 2:00 | 2:15 | 2:18 | 2:25 | 2:30 | 2:35 | 4 |
| 3:00 | 3:15 | 3:18 | 3:25 | 3:30 | 3:35 | 4 |
| 4:00 | 4:15 | 4:18 | 4:25 | 4:30 | 4:35 | 4 |
| 5:00 | 5:15 | 5:18 | 5:25 | 5:30 | 5:35 | 4 |
| 6:00 | 6:15 | 6:18 | 6:25 | 6:30 | 6:35 | - |

# 14

**EFFECTIVE APRIL 6, 2026**
**A PARTIR DE 6 DE ABRIL, 2026**
**FREE Public Transportation from Haverhill to Lawrence**
**Transporte público GRATUITO de Haverhill a Lawrence**

## ROUTE 14 - HAVERHILL BOUND
## AMAZON/WARD HILL/WASHINGTON SQUARE

### WEEKDAYS

| 6 | 7 | 8 | 9 | 10 | 11 | |
|---|---|---|---|---|---|---|
| Bus starts at McGovern | Bus leaves from North Andover Senior Center | Bus leaves from Osgood Landing/ Amazon | Bus leaves from Ward Hill Industrial Park | Bus leaves from BJ's | Bus ends at Washington Square | Bus continues on as Route |
| 6:00 | 6:05 | 6:10 | 6:20 | 6:23 | 6:45 | 14 |
| 6:30 | 6:35 | 6:40 | 6:50 | 6:53 | 7:15 | 14 |
| 7:00 | 7:05 | 7:10 | 7:20 | 7:23 | 7:45 | 14 |
| 7:30 | 7:35 | 7:40 | 7:50 | 7:53 | 8:15 | 14 |
| 8:00 | 8:05 | 8:10 | 8:20 | 8:23 | 8:45 | 14 |
| 8:30 | 8:35 | 8:40 | 8:50 | 8:53 | 9:15 | 14 |
| 9:00 | 9:05 | 9:10 | 9:20 | 9:23 | 9:45 | 14 |
| 9:30 | 9:35 | 9:40 | 9:50 | 9:53 | 10:15 | 14 |
| 10:00 | 10:05 | 10:10 | 10:20 | 10:23 | 10:45 | 14 |
| 10:30 | 10:35 | 10:40 | 10:50 | 10:53 | 11:15 | 14 |
| 11:00 | 11:05 | 11:10 | 11:20 | 11:23 | 11:45 | 14 |
| 11:30 | 11:35 | 11:40 | 11:50 | 11:53 | 12:15 | 14 |
| 12:00 | 12:05 | 12:10 | 12:20 | 12:23 | 12:45 | 14 |
| 12:30 | 12:35 | 12:40 | 12:50 | 12:53 | 1:15 | 14 |
| 1:00 | 1:05 | 1:10 | 1:20 | 1:23 | 1:45 | 14 |
| 1:30 | 1:35 | 1:40 | 1:50 | 1:53 | 2:15 | 14 |
| 2:00 | 2:05 | 2:10 | 2:20 | 2:23 | 2:45 | 14 |
| 2:30 | 2:35 | 2:40 | 2:50 | 2:53 | 3:15 | 14 |
| 3:00 | 3:05 | 3:10 | 3:20 | 3:23 | 3:45 | 14 |
| 3:30 | 3:35 | 3:40 | 3:50 | 3:53 | 4:15 | 14 |
| 4:00 | 4:05 | 4:10 | 4:20 | 4:23 | 4:45 | 14 |
| 4:30 | 4:35 | 4:40 | 4:50 | 4:53 | 5:15 | 14 |
| 5:00 | 5:05 | 5:10 | 5:20 | 5:23 | 5:45 | 14 |
| 5:30 | 5:35 | 5:40 | 5:50 | 5:53 | 6:15 | 14 |
| 6:00 | 6:05 | 6:10 | 6:20 | 6:23 | 6:45 | 14 |
| 6:30 | 6:35 | 6:40 | 6:50 | 6:53 | 7:15 | - |
| 7:00 | 7:05 | 7:10 | 7:20 | 7:23 | 7:45 | - |

### SATURDAYS

| | | | | | | |
|---|---|---|---|---|---|---|
| 7:00 | 7:05 | 7:10 | 7:20 | 7:23 | 7:45 | 14 |
| 8:00 | 8:05 | 8:10 | 8:20 | 8:23 | 8:45 | 14 |
| 9:00 | 9:05 | 9:10 | 9:20 | 9:23 | 9:45 | 14 |
| 10:00 | 10:05 | 10:10 | 10:20 | 10:23 | 10:45 | 14 |
| 11:00 | 11:05 | 11:10 | 11:20 | 11:23 | 11:45 | 14 |
| 12:00 | 12:05 | 12:10 | 12:20 | 12:23 | 12:45 | 14 |
| 1:00 | 1:05 | 1:10 | 1:20 | 1:23 | 1:45 | 14 |
| 2:00 | 2:05 | 2:10 | 2:20 | 2:23 | 2:45 | 14 |
| 3:00 | 3:05 | 3:10 | 3:20 | 3:23 | 3:45 | 14 |
| 4:00 | 4:05 | 4:10 | 4:20 | 4:23 | 4:45 | 14 |
| 5:00 | 5:05 | 5:10 | 5:20 | 5:23 | 5:45 | 14 |
| 6:00 | 7:05 | 6:10 | 6:20 | 6:23 | 6:45 | - |

MASSDOT CRASH RATE WORKSHEETS

City of Haverhil 2019-2023

| Crash Number | Crash Date | Crash Severity | Light Conditions | Manner of Collision | Road Surface Condition | Vehicle Configuration (All Vehicles) | Weather Conditions |
|---|---|---|---|---|---|---|---|
| Oxford Avenue at I Street | | | | | | | |
| Oxford Avenue at Boston Road | | | | | | | |
| 4907244 | 12/08/2020 | Property damage only (none injured) | Dayl ght | Angle | Dry | V2·(Passenger car) / V1:(Tractor/doubles) | Cloudy |

Moving Massachusetts Forward. massDOT Highway

# INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Haverhill COUNT DATE : Jun-26

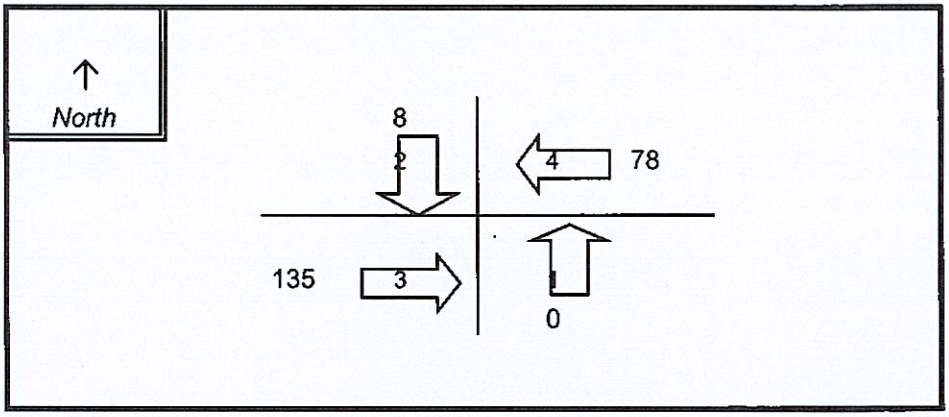
DISTRICT : 4 UNSIGNALIZED : X SIGNALIZED :

## ~ INTERSECTION DATA ~

MAJOR STREET : Oxford Avenue

MINOR STREET(S) : I Street

**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 (PM) : | 135 | 78 | | 8 | | 221 |

" K " FACTOR : 0.090

INTERSECTION ADT ( V ) = TOTAL DAILY APPROACH VOLUME : 2,456

TOTAL # OF CRASHES : 0

# OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR ( A ) : 0.00

**CRASH RATE CALCULATION :** 0.00

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

Comments : Accident Rate for District 4 unsignalized intersections = 0.57

Moving Massachusetts Forward. massDOT Highway

# INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Haverhill COUNT DATE : Jun-26

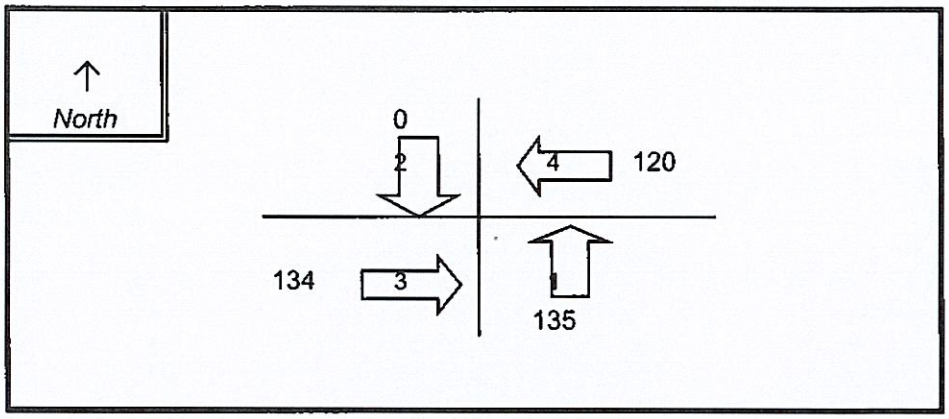
DISTRICT : 4 UNSIGNALIZED : X SIGNALIZED :

## ~ INTERSECTION DATA ~

MAJOR STREET : Oxford Avenue

MINOR STREET(S) : Boston Road

**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 (PM) : | 134 | 120 | 135 | | | 389 |

" K " FACTOR : 0.090

INTERSECTION ADT ( V ) = TOTAL DAILY APPROACH VOLUME : 4,322

TOTAL # OF CRASHES : 1

# OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR ( A ) : 0.20

**CRASH RATE CALCULATION :** 0.13

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

Comments : Accident Rate for District 4 unsignalized intersections = 0.57

## GROWTH RATE DATA

# Massachusetts Highway Department
## Annual Growth Rate

| | | | |
|---|---|---|---|
| **Location ID:** | **3372571** | **Seasonal Factor Group:** | **U4-7** |
| **County:** | **Essex** | **Daily Factor Group:** | |
| **Functional Class** | **7 - Local Road or Street** | **Axle Factor Group:** | **U4-7** |
| **Location:** | **Bradford Street** | **Growth Factor Group:** | **U4-7** |
| | **East of Osgood Street** | | |

| Year | AADT |
|---|---|
| 2024 | 1,361 |
| 2019 | 1,434 |
| | |
| A =2024/2019 | 0.9491 |
| B = A^(1/5) | 0.9896 |
| **Average Annual Growth Rate** | **-1.04** |

# Massachusetts Highway Department
## Annual Growth Rate

| | | | |
|---|---|---|---|
| **Location ID:** | **3372723** | **Seasonal Factor Group:** | **U4-7** |
| **County:** | **Essex** | **Daily Factor Group:** | |
| **Functional Class** | **7 - Local Road or Street** | **Axle Factor Group:** | **U4-7** |
| **Location:** | **Oxford Avenue** | **Growth Factor Group:** | **U4-7** |
| | **East of Knipe Road** | | |

| Year | AADT |
|---|---|
| 2024 | 1,743 |
| 2019 | 1,838 |
| | |
| A =2024/2019 | 0.9483 |
| B = A^(1/5) | 0.9894 |
| **Average Annual Growth Rate** | **-1.06** |

# Massachusetts Highway Department
## Annual Growth Rate

| | | | |
|---|---|---|---|
| **Location ID:** | **5000** | **Seasonal Factor Group:** | **U3** |
| **County:** | **Essex** | **Daily Factor Group:** | |
| **Functional Class** | **3 - Other Principal Arterial** | **Axle Factor Group:** | **U3** |
| **Location:** | **Route 125** | **Growth Factor Group:** | **U3** |
| | **South of Route 125 Connector** | | |

| Year | AADT |
|---|---|
| 2024 | 24,617 |
| 2019 | 19,776 |
| A =2024/2019 | 1.2448 |
| B = A^(1/5) | 1.0448 |
| **Average Annual Growth Rate** | **4.48** |

# Massachusetts Highway Department
## Annual Growth Rate

| | | | |
|---|---|---|---|
| **Location ID:** | **5001** | **Seasonal Factor Group:** | **U3** |
| **County:** | **Essex** | **Daily Factor Group:** | |
| **Functional Class** | **3 - Other Principal Arterial** | **Axle Factor Group:** | **U3** |
| **Location:** | **South Main Street** | **Growth Factor Group:** | **U3** |
| | **North of Route 125 Connector** | | |

| Year | AADT |
|---|---|
| 2024 | 20,054 |
| 2019 | 18,251 |
| | |
| A =2024/2019 | 1.0988 |
| B = A^(1/5) | 1.0190 |
| **Average Annual Growth Rate** | **1.90** |

# Massachusetts Highway Department
## Annual Growth Rate

| | | | |
|---|---|---|---|
| **Location ID:** | **5034** | **Seasonal Factor Group:** | **U4-7** |
| **County:** | **Essex** | **Daily Factor Group:** | |
| **Functional Class** | **5 - Major Collector** | **Axle Factor Group:** | **U4-7** |
| **Location:** | **Ferry Road** | **Growth Factor Group:** | **U4-7** |
| | **West of Route 125** | | |

| Year | AADT |
|---|---|
| 2024 | 1,352 |
| 2019 | 1,459 |
| | |
| A =2024/2019 | 0.9267 |
| B = A^(1/5) | 0.9849 |
| **Average Annual Growth Rate** | **-1.51** |

# Massachusetts Highway Department
## Annual Growth Rate

| | | | |
|---|---|---|---|
| **Location ID:** | **5035** | **Seasonal Factor Group:** | **U4-7** |
| **County:** | **Essex** | **Daily Factor Group:** | |
| **Functional Class** | **5 - Major Collector** | **Axle Factor Group:** | **U4-7** |
| **Location:** | **Boston Road** | **Growth Factor Group:** | **U4-7** |
| | **East of Route 125** | | |

| Year | AADT |
|---|---|
| 2024 | 979 |
| 2019 | 1,030 |
| | |
| A =2024/2019 | 0.9505 |
| B = A^(1/5) | 0.9899 |
| **Average Annual Growth Rate** | **-1.01** |

# Massachusetts Highway Department
## Annual Growth Rate

| | | | |
|---|---|---|---|
| **Location ID:** | **5058** | **Seasonal Factor Group:** | **U4-7** |
| **County:** | **Essex** | **Daily Factor Group:** | |
| **Functional Class** | **5 - Major Collector** | **Axle Factor Group:** | **U4-7** |
| **Location:** | **Boston Road** | **Growth Factor Group:** | **U4-7** |
| | **East of Route 125** | | |

| Year | AADT |
|---|---|
| 2024 | 15,039 |
| 2019 | 13,311 |
| | |
| A =2024/2019 | 1.1298 |
| B = A^(1/5) | 1.0247 |
| **Average Annual Growth Rate** | **2.47** |

| Group | Station | Average Annual Growth |
|---|---|---|
| U7 | 3372571 | -1.04 |
| U7 | 3372723 | -1.06 |
| U3 | 5000 | 4.48 |
| U3 | 5001 | 1.90 |
| U5 | 5034 | -1.51 |
| U5 | 5035 | -1.01 |
| U3 | 5058 | 2.47 |
| | **Average** | **0.60** |

# TRIP GENERATION DATA

**Institute of Transportation Engineers (ITE)**
***Trip Generation, 12*th Edition**
**Land Use Code (LUC) 210 - Single-Family Detached Housing**

Average Vehicle Trips Ends vs: Dwelling Units
Independent Variable (X): 2

**AVERAGE WEEKDAY DAILY**

T = 9.09 * (X)
T = 9.09 * 2
T = 18.18
T = 18 vehicle trips
with 50% ( 9 vpd) entering and 50% ( 9 vpd) exiting.

**WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC**

T = 0.70 * (X)
T = 0.70 * 2
T = 1.40
T = 1 vehicle trips
with 27% ( 0 vph) entering and 73% ( 1 vph) exiting.

**WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC**

T = 0.93 * (X)
T = 0.93 * 2
T = 1.86
T = 2 vehicle trips
with 62% ( 1 vph) entering and 38% ( 1 vph) exiting.

Institute of Transportation Engineers (ITE)
*Trip Generation, 12*th Edition
**Land Use Code (LUC) 215 - Single-Family Attached Housing**

Average Vehicle Trips Ends vs: Dwelling Units
Independent Variable (X): 12

**AVERAGE WEEKDAY DAILY**

T = 6.57 * X
T = 6.57 * 12
T = 78.84
T = 78 vehicle trips
with 50% ( 39 vpd) entering and 50% ( 39 vpd) exiting.

**WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC**

T = 0.47 * X
T = 0.47 * 12
T = 5.64
T = 6
with 25% ( 2 vph) entering and 75% ( 4 vph) exiting.

**WEEKDAY Evening PEAK HOUR OF ADJACENT STREET TRAFFIC**

T = 0.51 * X
T = 0.51 * 12
T = 6.12
T = 6
with 57% ( 3 vph) entering and 43% ( 3 vph) exiting.

# CAPACITY ANALYSIS METHODOLOGY

## METHODOLOGY

### Levels of Service

A primary result of capacity analyses is the assignment of level of service to traffic facilities under various traffic-flow conditions.[1] The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

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

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

### Synchro: Unsignalized Intersections

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

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

The levels of service of unsignalized intersections are determined by application of a procedure described in the *Highway Capacity Manual 7th Edition.* Level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the effects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level of service at unsignalized intersections are also given in the *Highway Capacity Manual 7th Edition.* Table A summarizes the relationship between level of service and average control delay.

---

[1]The capacity analysis methodology is based on the concepts and procedures presented in the *Highway Capacity Manual 7th Edition;* Transportation Research Board; Washington, DC; 2022.

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

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

[a]Source: *Highway Capacity Manual 7th Edition*; Transportation Research Board; Washington, DC; 2022; page 20-6.

## SIDRA: Unsignalized Intersections

The unsignalized capacity analysis for the approaches at the Oxford Avenue at Boston Road is based on the procedures described in the Traffic Signalized and Unsignalized Intersection Design and Research Aid (SIDRA) Intersection.[2] The main features of the SIDRA Intersection method for unsignalized capacity estimation are the dependence of gap acceptance parameters on roadway geometry, entry lane flows, and the designation of traffic control on approach lanes.

The SIDRA analytical model calculates several components of delay. One of these, the average total delay component, produces level-of-service results based on the concepts described in the HCM. The delay ranges that define levels of service for roundabouts are shown in Table B.

**Table B**
**LEVEL-OF-SERVICE CRITERIA FOR SIDRA: UNSIGNALIZED INTERSECTIONS[a]**

| Level-Of-Service | Control Delay Per Vehicle (Seconds) |
|---|---|
| A | ≤10.0 |
| B | 10.1 to 20.0 |
| C | 20.1 to 35.0 |
| D | 35.1 to 50.0 |
| E | 50.1 to 70.0 |
| F | >70.0 |

[a]Source: *SIDRA Intersection 10.0 User Guide;* Akcelik & Associates Pty Ltd; Greythorn, Victoria 3104, Australia; April 2025.

[2]Traffic Signalized and Unsignalized Intersection Design and Research Aid, SIDRA Intersection 10.0 User Guide; Akcelik & Associates Pty Ltd; Greythorn, Victoria 3104, Australia; April 2025.

## CAPACITY ANALYSIS

2026 Existing Weekday Morning Peak Hour
2026 Existing Weekday Evening Peak Hour
2033 No-Build Weekday Morning Peak Hour
2033 No-Build Weekday Evening Peak Hour
2033 Build Weekday Morning Peak Hour
2033 Build Weekday Evening Peak Hour

2026 Existing Weekday Morning Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.4 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 2 | 82 | 68 | 2 | 1 | 2 |
| Future Vol, veh/h | 2 | 82 | 68 | 2 | 1 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 64 | 64 | 76 | 76 | 38 | 38 |
| Heavy Vehicles, % | 0 | 2 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 128 | 89 | 3 | 3 | 5 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 92 | 0 | - | 0 | 225 | 91 |
| Stage 1 | - | - | - | - | 91 | - |
| Stage 2 | - | - | - | - | 134 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 1515 | - | - | - | 767 | 972 |
| Stage 1 | - | - | - | - | 938 | - |
| Stage 2 | - | - | - | - | 897 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1515 | - | - | - | 766 | 972 |
| Mov Cap-2 Maneuver | - | - | - | - | 766 | - |
| Stage 1 | - | - | - | - | 936 | - |
| Stage 2 | - | - | - | - | 897 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.18 | 0 | 9.07 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 43 | - | - | - | 892 |
| HCM Lane V/C Ratio | 0.002 | - | - | - | 0.009 |
| HCM Ctrl Dly (s/v) | 7.4 | 0 | - | - | 9.1 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0 |

# LANE SUMMARY

**Site: [1] 1 - 2026 Existing Weekday Morning Peak Hour** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Oxford Avenue at Boston Road
Site Category: Existing Design
Stop (Two-Way)
**Site Scenario: 1 | Local Volumes**

## Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 195 | 0.7 | 195 | 0.7 | 929 | 0.210 | 100 | 9.8 | LOS A | 1.1 | 26.9 | Full | 1600 | 0.0 | 0.0 |
| Approach | 195 | 0.7 | 195 | 0.7 | | 0.210 | | 9.8 | LOS A | 1.1 | 26.9 | | | | |
| East: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 100 | 5.2 | 100 | 5.2 | 1824 | 0.055 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 1600 | 0.0 | 0.0 |
| Approach | 100 | 5.2 | 100 | 5.2 | | 0.055 | | 0.0 | NA | 0.0 | 0.0 | | | | |
| West: Oxford Avenue | | | | | | | | | | | | | | | |
| Lane 1 | 132 | 2.1 | 132 | 2.1 | 913 | 0.144 | 100 | 9.5 | LOS A | 0.6 | 14.9 | Full | 1600 | 0.0 | 0.0 |
| Approach | 132 | 2.1 | 132 | 2.1 | | 0.144 | | 9.5 | LOS A | 0.6 | 14.9 | | | | |
| All Vehicles | 427 | 2.2 | 427 | 2.2 | | 0.210 | | 7.4 | NA | 1.1 | 26.9 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c >1 irrespective of lane delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Approach Lane Flows (veh/h)

South: Boston Road

| Mov. From S To Exit: | L2 W | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 50 | 145 | 195 | 0.7 | 929 | 0.210 | 100 | NA | NA |
| Approach | 50 | 145 | 195 | 0.7 | | 0.210 | | | |

East: Boston Road

| Mov. From E To Exit: | L2 S | T1 W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 60 | 40 | 100 | 5.2 | 1824 | 0.055 | 100 | NA | NA |
| Approach | 60 | 40 | 100 | 5.2 | | 0.055 | | | |

West: Oxford Avenue

| Mov. From W To Exit: | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 92 | 40 | 132 | 2.1 | 913 | 0.144 | 100 | NA | NA |

| | | | | | |
|---|---|---|---|---|---|
| Approach | 92 | 40 | 132 | 2.1 | 0.144 |

| | Total | %HV | Deg. Satn (v/c) |
|---|---|---|---|
| All Vehicles | 427 | 2.2 | 0.210 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | Merge Queue [ Veh | Queue Dist ] ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

There are no Exit Short Lanes for Merge Analysis at this Site.

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| South: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| East: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Oxford Avenue | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

SIDRA INTERSECTION 10.0 | Copyright © 2000-2026 Akcelik and Associates Pty Ltd | sidrasolutions.com
Organisation: VANASSE & ASSOCIATES, INC. | Licence: PLUS / 1PC | Processed: Tuesday, June 30, 2026 3:57:45 PM
Project: S:\Jobs\10758 Haverhill\Analysis\SIDRA.sipx

2026 Existing Weekday Evening Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑ | | ↑ | |
| Traffic Vol, veh/h | 6 | 129 | 73 | 4 | 5 | 3 |
| Future Vol, veh/h | 6 | 129 | 73 | 4 | 5 | 3 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 82 | 82 | 88 | 88 | 50 | 50 |
| Heavy Vehicles, % | 0 | 2 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 7 | 157 | 83 | 5 | 10 | 6 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 88 | 0 | - | 0 | 257 | 85 |
| Stage 1 | - | - | - | - | 85 | - |
| Stage 2 | - | - | - | - | 172 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 1521 | - | - | - | 736 | 979 |
| Stage 1 | - | - | - | - | 943 | - |
| Stage 2 | - | - | - | - | 863 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1521 | - | - | - | 732 | 979 |
| Mov Cap-2 Maneuver | - | - | - | - | 732 | - |
| Stage 1 | - | - | - | - | 938 | - |
| Stage 2 | - | - | - | - | 863 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.33 | 0 | 9.54 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 80 | - | - | - | 809 |
| HCM Lane V/C Ratio | 0.005 | - | - | - | 0.02 |
| HCM Ctrl Dly (s/v) | 7.4 | 0 | - | - | 9.5 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.1 |

# LANE SUMMARY

**Site: [1 (2)] 2 - 2026 Existing Weekday Evening Peak Hour** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Oxford Avenue at Boston Road
Site Category: Existing Design
Stop (Two-Way)
**Site Scenario: 1 | Local Volumes**

## Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 161 | 0.0 | 161 | 0.0 | 910 | 0.177 | 100 | 9.7 | LOS A | 0.9 | 21.9 | Full | 1600 | 0.0 | 0.0 |
| Approach | 161 | 0.0 | 161 | 0.0 | | 0.177 | | 9.7 | LOS A | 0.9 | 21.9 | | | | |
| East: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 128 | 1.6 | 128 | 1.6 | 1877 | 0.068 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 1600 | 0.0 | 0.0 |
| Approach | 128 | 1.6 | 128 | 1.6 | | 0.068 | | 0.0 | NA | 0.0 | 0.0 | | | | |
| West: Oxford Avenue | | | | | | | | | | | | | | | |
| Lane 1 | 170 | 1.4 | 170 | 1.4 | 908 | 0.187 | 100 | 9.8 | LOS A | 0.8 | 20.9 | Full | 1600 | 0.0 | 0.0 |
| Approach | 170 | 1.4 | 170 | 1.4 | | 0.187 | | 9.8 | LOS A | 0.8 | 20.9 | | | | |
| All Vehicles | 458 | 1.0 | 458 | 1.0 | | 0.187 | | 7.1 | NA | 0.9 | 21.9 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c >1 irrespective of lane delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Approach Lane Flows (veh/h)

South: Boston Road

| Mov. From S To Exit: | L2 W | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 55 | 106 | 161 | 0.0 | 910 | 0.177 | 100 | NA | NA |
| Approach | 55 | 106 | 161 | 0.0 | | 0.177 | | | |

East: Boston Road

| Mov. From E To Exit: | L2 S | T1 W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 94 | 34 | 128 | 1.6 | 1877 | 0.068 | 100 | NA | NA |
| Approach | 94 | 34 | 128 | 1.6 | | 0.068 | | | |

West: Oxford Avenue

| Mov. From W To Exit: | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 78 | 91 | 170 | 1.4 | 908 | 0.187 | 100 | NA | NA |

| | | | | | |
|---|---|---|---|---|---|
| Approach | 78 | 91 | 170 | 1.4 | 0.187 |

| | Total | %HV | Deg. Satn (v/c) |
|---|---|---|---|
| All Vehicles | 458 | 1.0 | 0.187 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | Merge Queue [ Veh | Queue Dist ] ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

There are no Exit Short Lanes for Merge Analysis at this Site.

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| South: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| East: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Oxford Avenue | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

SIDRA INTERSECTION 10.0 | Copyright © 2000-2026 Akcelik and Associates Pty Ltd | sidrasolutions.com

2033 No-Build Weekday Morning Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.2 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑ | | ↑ | |
| Traffic Vol, veh/h | 2 | 91 | 76 | 2 | 1 | 2 |
| Future Vol, veh/h | 2 | 91 | 76 | 2 | 1 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 2 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 2 | 99 | 83 | 2 | 1 | 2 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 85 | 0 | - | 0 | 187 | 84 |
| Stage 1 | - | - | - | - | 84 | - |
| Stage 2 | - | - | - | - | 103 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 1525 | - | - | - | 807 | 981 |
| Stage 1 | - | - | - | - | 945 | - |
| Stage 2 | - | - | - | - | 926 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1525 | - | - | - | 806 | 981 |
| Mov Cap-2 Maneuver | - | - | - | - | 806 | - |
| Stage 1 | - | - | - | - | 943 | - |
| Stage 2 | - | - | - | - | 926 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.16 | 0 | 8.95 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 39 | - | - | - | 915 |
| HCM Lane V/C Ratio | 0.001 | - | - | - | 0.004 |
| HCM Ctrl Dly (s/v) | 7.4 | 0 | - | - | 8.9 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0 |

# LANE SUMMARY

**Site: [1 (3)] 3 - 2033 No-Build Weekday Morning Peak Hour** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

)xford Avenue at Boston Road
;ite Category: Future Conditions 1
;top (Two-Way)
**;ite Scenario: 1 | Local Volumes**

## Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 190 | 0.7 | 190 | 0.7 | 961 | 0.198 | 100 | 9.6 | LOS A | 1.0 | 25.3 | Full | 1600 | 0.0 | 0.0 |
| Approach | 190 | 0.7 | 190 | 0.7 | | 0.198 | | 9.6 | LOS A | 1.0 | 25.3 | | | | |
| East: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 98 | 5.1 | 98 | 5.1 | 1823 | 0.054 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 1600 | 0.0 | 0.0 |
| Approach | 98 | 5.1 | 98 | 5.1 | | 0.054 | | 0.0 | NA | 0.0 | 0.0 | | | | |
| West: Oxford Avenue | | | | | | | | | | | | | | | |
| Lane 1 | 100 | 2.1 | 100 | 2.1 | 915 | 0.109 | 100 | 9.3 | LOS A | 0.4 | 10.9 | Full | 1600 | 0.0 | 0.0 |
| Approach | 100 | 2.1 | 100 | 2.1 | | 0.109 | | 9.3 | LOS A | 0.4 | 10.9 | | | | |
| All Vehicles | 388 | 2.2 | 388 | 2.2 | | 0.198 | | 7.1 | NA | 1.0 | 25.3 | | | | |

;ite Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
.ane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
.OS F will result if v/c >1 irrespective of lane delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).
)elay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Approach Lane Flows (veh/h)

South: Boston Road

| Mov. From S To Exit: | L2 W | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 48 | 142 | 190 | 0.7 | 961 | 0.198 | 100 | NA | NA |
| Approach | 48 | 142 | 190 | 0.7 | | 0.198 | | | |

East: Boston Road

| Mov. From E To Exit: | L2 S | T1 W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 61 | 37 | 98 | 5.1 | 1823 | 0.054 | 100 | NA | NA |
| Approach | 61 | 37 | 98 | 5.1 | | 0.054 | | | |

West: Oxford Avenue

| Mov. From W To Exit: | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 68 | 32 | 100 | 2.1 | 915 | 0.109 | 100 | NA | NA |

| | | | | | |
|---|---|---|---|---|---|
| Approach | 68 | 32 | 100 | 2.1 | 0.109 |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| All Vehicles | 388 | 2.2 | 0.198 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | Merge Queue [ Veh | Queue Dist ] ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

There are no Exit Short Lanes for Merge Analysis at this Site.

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| South: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| East: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Oxford Avenue | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

**SIDRA INTERSECTION 10.0 | Copyright © 2000-2026 Akcelik and Associates Pty Ltd | sidrasolutions.com**

2033 No-Build Weekday Evening Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.5 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 6 | 139 | 83 | 4 | 5 | 3 |
| Future Vol, veh/h | 6 | 139 | 83 | 4 | 5 | 3 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 2 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 7 | 151 | 90 | 4 | 5 | 3 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 95 | 0 | - | 0 | 257 | 92 |
| Stage 1 | - | - | - | - | 92 | - |
| Stage 2 | - | - | - | - | 164 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 1512 | - | - | - | 737 | 970 |
| Stage 1 | - | - | - | - | 936 | - |
| Stage 2 | - | - | - | - | 870 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1512 | - | - | - | 733 | 970 |
| Mov Cap-2 Maneuver | - | - | - | - | 733 | - |
| Stage 1 | - | - | - | - | 932 | - |
| Stage 2 | - | - | - | - | 870 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.31 | 0 | 9.51 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 74 | - | - | - | 807 |
| HCM Lane V/C Ratio | 0.004 | - | - | - | 0.011 |
| HCM Ctrl Dly (s/v) | 7.4 | 0 | - | - | 9.5 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0 |

# LANE SUMMARY

**Site: [1 (4)] 4 - 2033 No-Build Weekday Evening Peak Hour** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Oxford Avenue at Boston Road
Site Category: Future Conditions 1
Stop (Two-Way)
**Site Scenario: 1 | Local Volumes**

## Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 171 | 0.0 | 171 | 0.0 | 910 | 0.188 | 100 | 9.8 | LOS A | 0.9 | 23.5 | Full | 1600 | 0.0 | 0.0 |
| Approach | 171 | 0.0 | 171 | 0.0 | | 0.188 | | 9.8 | LOS A | 0.9 | 23.5 | | | | |
| East: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 154 | 1.5 | 154 | 1.5 | 1877 | 0.082 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 1600 | 0.0 | 0.0 |
| Approach | 154 | 1.5 | 154 | 1.5 | | 0.082 | | 0.0 | NA | 0.0 | 0.0 | | | | |
| West: Oxford Avenue | | | | | | | | | | | | | | | |
| Lane 1 | 157 | 1.4 | 157 | 1.4 | 884 | 0.177 | 100 | 9.9 | LOS A | 0.8 | 19.5 | Full | 1600 | 0.0 | 0.0 |
| Approach | 157 | 1.4 | 157 | 1.4 | | 0.177 | | 9.9 | LOS A | 0.8 | 19.5 | | | | |
| All Vehicles | 482 | 0.9 | 482 | 0.9 | | 0.188 | | 6.7 | NA | 0.9 | 23.5 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c >1 irrespective of lane delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Approach Lane Flows (veh/h)

South: Boston Road

| Mov. From S To Exit: | L2 W | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 55 | 115 | 171 | 0.0 | 910 | 0.188 | 100 | NA | NA |
| Approach | 55 | 115 | 171 | 0.0 | | 0.188 | | | |

East: Boston Road

| Mov. From E To Exit: | L2 S | T1 W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 115 | 39 | 154 | 1.5 | 1877 | 0.082 | 100 | NA | NA |
| Approach | 115 | 39 | 154 | 1.5 | | 0.082 | | | |

West: Oxford Avenue

| Mov. From W To Exit: | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 72 | 85 | 157 | 1.4 | 884 | 0.177 | 100 | NA | NA |

| | | | | | |
|---|---|---|---|---|---|
| Approach | 72 | 65 | 157 | 1.4 | 0.177 |

| | Total | %HV | Deg. Satn (v/c) |
|---|---|---|---|
| All Vehicles | 482 | 0.9 | 0.188 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | Merge Queue [ Veh | Merge Queue Dist ] ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

There are no Exit Short Lanes for Merge Analysis at this Site.

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| South: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| East: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Oxford Avenue | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

SIDRA INTERSECTION 10.0 | Copyright © 2000-2026 Akcelik and Associates Pty Ltd | sidrasolutions.com
Organisation: VANASSE & ASSOCIATES, INC. | Licence: PLUS / 1PC | Processed: Thursday, July 9, 2026 11:37:27 AM
Project: S:\Jobs\10758 Haverhill\Analysis\SIDRA.sipx

2033 Build Weekday Morning Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.5 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 3 | 91 | 76 | 3 | 3 | 5 |
| Future Vol, veh/h | 3 | 91 | 76 | 3 | 3 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 2 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 99 | 83 | 3 | 3 | 5 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 86 | 0 | - | 0 | 190 | 84 |
| Stage 1 | - | - | - | - | 84 | - |
| Stage 2 | - | - | - | - | 105 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 1523 | - | - | - | 804 | 980 |
| Stage 1 | - | - | - | - | 944 | - |
| Stage 2 | - | - | - | - | 924 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1523 | - | - | - | 802 | 980 |
| Mov Cap-2 Maneuver | - | - | - | - | 802 | - |
| Stage 1 | - | - | - | - | 942 | - |
| Stage 2 | - | - | - | - | 924 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.24 | 0 | 9.02 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 57 | - | - | - | 905 |
| HCM Lane V/C Ratio | 0.002 | - | - | - | 0.01 |
| HCM Ctrl Dly (s/v) | 7.4 | 0 | - | - | 9 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.1 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 5 | 0 | 4 | 2 | 0 | 3 |
| Future Vol, veh/h | 5 | 0 | 4 | 2 | 0 | 3 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 0 | 2 | 2 | 0 |
| Mvmt Flow | 5 | 0 | 4 | 2 | 0 | 3 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 9 | 5 | 0 | 0 | 7 | 0 |
| Stage 1 | 5 | - | - | - | - | - |
| Stage 2 | 3 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 1012 | 1078 | - | - | 1614 | - |
| Stage 1 | 1018 | - | - | - | - | - |
| Stage 2 | 1020 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 1012 | 1078 | - | - | 1614 | - |
| Mov Cap-2 Maneuver | 1012 | - | - | - | - | - |
| Stage 1 | 1018 | - | - | - | - | - |
| Stage 2 | 1020 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 8.58 | 0 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 1012 | 1614 | - |
| HCM Lane V/C Ratio | - | - | 0.005 | - | - |
| HCM Ctrl Dly (s/v) | - | - | 8.6 | 0 | - |
| HCM Lane LOS | - | - | A | A | - |
| HCM 95th %tile Q(veh) | - | - | 0 | 0 | - |

# LANE SUMMARY

**Site: [1 (5)] 5 - 2033 Build Weekday Morning Peak Hour** (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.9.250

)xford Avenue at Boston Road
;ite Category: Proposed Design 1
;top (Two-Way)
**;ite Scenario: 1 | Local Volumes**

## Lane Use and Performance

| | Demand Flows [ Total veh/h | HV ] % | Arrival Flows [ Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [ Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 191 | 0.7 | 191 | 0.7 | 959 | 0.199 | 100 | 9.6 | LOS A | 1.0 | 25.5 | Full | 1600 | 0.0 | 0.0 |
| Approach | 191 | 0.7 | 191 | 0.7 | | 0.199 | | 9.6 | LOS A | 1.0 | 25.5 | | | | |
| East: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 98 | 5.1 | 98 | 5.1 | 1823 | 0.054 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 1600 | 0.0 | 0.0 |
| Approach | 98 | 5.1 | 98 | 5.1 | | 0.054 | | 0.0 | NA | 0.0 | 0.0 | | | | |
| West: Oxford Avenue | | | | | | | | | | | | | | | |
| Lane 1 | 102 | 2.0 | 102 | 2.0 | 916 | 0.112 | 100 | 9.4 | LOS A | 0.4 | 11.2 | Full | 1600 | 0.0 | 0.0 |
| Approach | 102 | 2.0 | 102 | 2.0 | | 0.112 | | 9.4 | LOS A | 0.4 | 11.2 | | | | |
| All Vehicles | 391 | 2.2 | 391 | 2.2 | | 0.199 | | 7.1 | NA | 1.0 | 25.5 | | | | |

;ite Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
.ane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
.OS F will result if v/c >1 irrespective of lane delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
'wo-Way Sign Control Capacity Model: SIDRA Standard (HCM).
)elay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Approach Lane Flows (veh/h)

South: Boston Road

| Mov. From S To Exit: | L2 W | R2 E | Total | %HV | Cap veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 49 | 142 | 191 | 0.7 | 959 | 0.199 | 100 | NA | NA |
| Approach | 49 | 142 | 191 | 0.7 | | 0.199 | | | |

East: Boston Road

| Mov. From E To Exit: | L2 S | T1 W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 61 | 37 | 98 | 5.1 | 1823 | 0.054 | 100 | NA | NA |
| Approach | 61 | 37 | 98 | 5.1 | | 0.054 | | | |

West: Oxford Avenue

| Mov. From W To Exit: | T1 E | R2 S | Total | %HV | Cap veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 70 | 33 | 102 | 2.0 | 916 | 0.112 | 100 | NA | NA |

| | | | | | |
|---|---|---|---|---|---|
| Approach | 70 | 33 | 102 | 2.0 | 0.112 |

| | Total | %HV | Deg.Satn (v/c) |
|---|---|---|---|
| All Vehicles | 391 | 2.2 | 0.199 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Merge Analysis

| | Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | Merge Queue [ Veh | Queue Dist ] ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

There are no Exit Short Lanes for Merge Analysis at this Site.

## Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| South: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| East: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Oxford Avenue | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

**IDRA INTERSECTION 10.0 | Copyright © 2000-2026 Akcelik and Associates Pty Ltd | sidrasolutions.com**

2033 Build Weekday Evening Peak Hour

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↰ | ↱ | | ⋎ | |
| Traffic Vol, veh/h | 8 | 139 | 83 | 6 | 7 | 5 |
| Future Vol, veh/h | 8 | 139 | 83 | 6 | 7 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 2 | 3 | 0 | 0 | 0 |
| Mvmt Flow | 9 | 151 | 90 | 7 | 8 | 5 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 97 | 0 | - | 0 | 262 | 93 |
| Stage 1 | - | - | - | - | 93 | - |
| Stage 2 | - | - | - | - | 168 | - |
| Critical Hdwy | 4.1 | - | - | - | 6.4 | 6.2 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.4 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.4 | - |
| Follow-up Hdwy | 2.2 | - | - | - | 3.5 | 3.3 |
| Pot Cap-1 Maneuver | 1509 | - | - | - | 731 | 969 |
| Stage 1 | - | - | - | - | 935 | - |
| Stage 2 | - | - | - | - | 866 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1509 | - | - | - | 727 | 969 |
| Mov Cap-2 Maneuver | - | - | - | - | 727 | - |
| Stage 1 | - | - | - | - | 929 | - |
| Stage 2 | - | - | - | - | 866 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 0.4 | 0 | 9.51 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 98 | - | - | - | 811 |
| HCM Lane V/C Ratio | 0.006 | - | - | - | 0.016 |
| HCM Ctrl Dly (s/v) | 7.4 | 0 | - | - | 9.5 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 4 | 0 | 10 | 4 | 0 | 8 |
| Future Vol, veh/h | 4 | 0 | 10 | 4 | 0 | 8 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 0 | 2 | 2 | 0 |
| Mvmt Flow | 4 | 0 | 11 | 4 | 0 | 9 |

| Major/Minor | Minor1 | | Major1 | | Major2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 22 | 13 | 0 | 0 | 15 | 0 |
| Stage 1 | 13 | - | - | - | - | - |
| Stage 2 | 9 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 995 | 1067 | - | - | 1603 | - |
| Stage 1 | 1010 | - | - | - | - | - |
| Stage 2 | 1014 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 995 | 1067 | - | - | 1603 | - |
| Mov Cap-2 Maneuver | 995 | - | - | - | - | - |
| Stage 1 | 1010 | - | - | - | - | - |
| Stage 2 | 1014 | - | - | - | - | - |

| Approach | WB | NB | SB |
|---|---|---|---|
| HCM Ctrl Dly, s/v | 8.63 | 0 | 0 |
| HCM LOS | A | | |

| Minor Lane/Maj Mvmt | NBT | NBR | WBLn1 | SBL | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | - | - | 995 | 1603 | - |
| HCM Lane V/C Ratio | - | - | 0.004 | - | - |
| HCM Ctrl Dly (s/v) | - | - | 8.6 | 0 | - |
| HCM Lane LOS | - | - | A | A | - |
| HCM 95th %tile Q(veh) | - | - | 0 | 0 | - |

# LANE SUMMARY

**Site: [1 (6)] 6 - 2033 Build Weekday Evening Peak Hour**
(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.9.250

Oxford Avenue at Boston Road
Site Category: Proposed Design 1
Stop (Two-Way)
**Site Scenario: 1 | Local Volumes**

## Lane Use and Performance

| | Demand Flows [Total veh/h | HV ] % | Arrival Flows [Total veh/h | HV ] % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% Back Of Queue [Veh | Dist ] ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 172 | 0.0 | 172 | 0.0 | 906 | 0.189 | 100 | 9.8 | LOS A | 1.0 | 23.8 | Full | 1600 | 0.0 | 0.0 |
| Approach | 172 | 0.0 | 172 | 0.0 | | 0.189 | | 9.8 | LOS A | 1.0 | 23.8 | | | | |
| East: Boston Road | | | | | | | | | | | | | | | |
| Lane 1 | 155 | 1.6 | 155 | 1.6 | 1877 | 0.083 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 1600 | 0.0 | 0.0 |
| Approach | 155 | 1.6 | 155 | 1.6 | | 0.083 | | 0.0 | NA | 0.0 | 0.0 | | | | |
| West: Oxford Avenue | | | | | | | | | | | | | | | |
| Lane 1 | 159 | 1.4 | 159 | 1.4 | 883 | 0.180 | 100 | 9.9 | LOS A | 0.8 | 19.8 | Full | 1600 | 0.0 | 0.0 |
| Approach | 159 | 1.4 | 159 | 1.4 | | 0.180 | | 9.9 | LOS A | 0.8 | 19.8 | | | | |
| All Vehicles | 486 | 0.9 | 486 | 0.9 | | 0.189 | | 6.7 | NA | 1.0 | 23.8 | | | | |

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c >1 irrespective of lane delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard (HCM).
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## Approach Lane Flows (veh/h)

South: Boston Road

| Mov. From S To Exit: | L2 W | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 57 | 115 | 172 | 0.0 | 906 | 0.189 | 100 | NA | NA |
| Approach | 57 | 115 | 172 | 0.0 | | 0.189 | | | |

East: Boston Road

| Mov. From E To Exit: | L2 S | T1 W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 115 | 40 | 155 | 1.6 | 1877 | 0.083 | 100 | NA | NA |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Approach | 115 | 40 | 155 | 1.6 | | 0.083 | | | |

West: Oxford Avenue

| Mov. From W To Exit: | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|---|---|---|---|---|---|---|---|---|---|
| Lane 1 | 73 | 86 | 159 | 1.4 | 883 | 0.180 | 100 | NA | NA |
| Approach | 73 | 86 | 159 | 1.4 | | 0.180 | | | |

| | Total | %HV | Deg. Satn (v/c) |
|---|---|---|---|
| All Vehicles | 486 | 0.9 | 0.189 |

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis

| Exit Lane Number | Short Lane Length ft | Percent Opng in Lane % | Opposing Flow Rate veh/h | Critical Gap pcu/h | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | Merge [ Veh | Queue Dist ] ft |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

There are no Exit Short Lanes for Merge Analysis at this Site.

Variable Demand Analysis

| | Initial Queued Demand veh | Residual Queued Demand veh | Time for Residual Demand to Clear sec | Duration of Oversatn sec |
|---|---|---|---|---|
| South: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| East: Boston Road | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |
| West: Oxford Avenue | | | | |
| Lane 1 | 0.0 | 0.0 | 0.0 | 0.0 |

10.2

**Doc # 21-L**

Petition by request of the City Council to amend Chapter 255, Zoning, by adding a new section 7.9, Temporary Moratorium on Battery Energy Storage Systems

**IN CITY COUNCIL: November 17, 2026**

**Hearing for December 1, 2026**

**9 YEAS, 0 NAYS, 2 ABSENT**

**Attest:** Kaitlin M. Wright Esposito

Kaitlin M. Wright Esposito, CMC

City Clerk

12.1

**AN ORDINANCE RELATING TO AMENDING CHAPTER 255, ZONING, BY ADDING A NEW SECTION 7.9, TEMPORARY MORATORIUM ON BATTER ENERGY STORAGE SYSTEMS**

BE IT ORDAINED by the City Council of the City of Haverhill that Chapter 255, Zoning, of the Code of the City of Haverhill, as amended, being and is hereby further amended as follows by inserting the following new section 7.9 Temporary Moratorium on Battery Energy Storage Systems:

NOV 5 AM9:17
HAVCITYCLERK

§7.9 TEMPORARY MORATORIUM ON BATTERY ENERGY STORAGE SYSTEMS

§ 7.9.1 Purpose.

This Ordinance adopted pursuant to Zoning Act, G.L. c. 40A, as amended, Section 2A of 1975 Mass. Acts 808, and by Article 89 of the Amendments to the Constitution of the Commonwealth of Massachusetts for the purpose of protecting the public health and welfare of the residents of Haverhill and provide time to adopt an appropriate and effective zoning ordinance to regulate the installation and use of free-standing battery energy storage systems ("BESS"). Specifically, this moratorium will enable the City to research appropriate areas of the City which include sufficient land mass, access to utilities, conserving the City's available open space and forested lands, impacts to the Merrimack River, which is a drinking water source for communities in the Merrimack River watershed, all in order to adopt an appropriate and effective zoning ordinance permitting BESS facilities.

§ 7.9.2 Moratorium.

For the reasons set forth above and notwithstanding any other provision of the Zoning Ordinance to the contrary, the City hereby adopts a temporary moratorium on the permits for and use of land for BESS. The moratorium shall be in effect for twenty-four (24) months following the effective date of this amendment. During the moratorium period, the City shall undertake a planning process to address the potential impacts of BESS and related uses and shall consider adopting new Zoning Ordinances to better address the impact and construction of same in the City.

Mead, Talerman & Costa, LLC
Attorneys at Law

30 Green Street
Newburyport, MA 01950
Phone 978.463.7700

www.mtclawyers.com

To: Melinda Barrett, Mayor
Tim Jordan, Pres.
From: Lisa Mead & Neva Payson, City Solicitor
Date: November 3, 2026
Re: Temporary Moratorium on Battery Energy Storage Systems

Reference is made to the above captioned matter. In that connection, please find attached hereto a draft Temporary Moratorium on free-standing Battery Energy Storage Systems.

The purpose of the moratorium is protecting the public health and welfare of the residents of Haverhill and provide time to adopt an appropriate and effective zoning ordinance to regulate the installation and use of free-standing battery energy storage systems ("BESS"). Specifically, this moratorium will enable the City to research appropriate areas of the City which include sufficient land mass, access to utilities, conserving the City's available open space and forested lands, and impacts to the Merrimac River, which is a drinking water source for communities in the Merrimac River watershed, all in order to adopt an appropriate and effective zoning ordinance permitting BESS facilities.

Under G.L. c. 40A, sec. 3, "no zoning ordinance or by-law shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare." This section of the statute was "enacted to help promote solar energy generation throughout the Commonwealth." *Tracer Lane II Realty, LLC* v. *City of Waltham*, 489 Mass. 775, 779 (2022).

In *Duxbury Energy Storage, LLC* v. *Town of Duxbury Zoning Board of Appeals*, the Land Court determined that battery energy storage facilities are protected by G.L. c. 40A, sec. 3 as "the building of structures that facilitate the collection of solar energy." 2025 WL 1743026 at 1 (Mass. Land Ct. 2025). Therefore, municipalities are constrained when regulating BESS to ordinances that are "necessary to protect the public health, safety, or welfare." See G.L. c. 40A, sec. 3. See also *Duxbury Energy Storage*, *supra* (grid-scale battery storage are key to promoting solar energy).

However, municipalities may "impose reasonable time limitations on development, at least where those restrictions are temporary and adopted to provide controlled development while the municipality engages in comprehensive planning studies." *Sturges* v. *Town of Chilmark*, 380 Mass. 246, 252-253 (1980). Here, the City is proposing a temporary moratorium on permitting BESS to offer the City more time to develop a comprehensive

*Millis Office*
730 Main Street, Suite 1F
Millis, MA 02054

*New Bedford Office*
227 Union Street, Suite 606
New Bedford, MA 02740

zoning ordinance that assists the Commonwealth's goal of promoting solar energy generation and protects the public health and welfare of the residents of the City. See *Tracer Lane Realty LLC*, 489 Mass. at 779. See also *W.R. Grace & Co.-Conn.* v. *Cambridge City Council*, 56 Mass. App. Ct. 559 (2002) ("The desirability of thoughtful consideration before a municipality reconciles the variety of competing interests that affect any zoning change constitutes the rational reason that justifies a temporary halt to private activities."). Therefore, the temporary moratorium is a valid exercise of the City's police power. See *W.R. Grace*, *supra* at 566 (zoning authority is within a municipality's police power, and a "zoning by-law will be sustained unless it is shown that there is no substantial relation between it and the furtherance of [public health, public safety, and public welfare]").

Notwithstanding the foregoing however, given the changes to the consolidated permitting laws, any proposed BESS development over 100 MGW would be permitted, not by the local permitting authorities, rather by the Energy Facilities Siting Board ("EFSB"). The EFSB would have the ability to override the moratorium.

Outlook

**Thank you for placing your order with us.**

**From** North of Boston <noreply@wave2adportal.com>
**Date** Mon 11/9/2026 1:01 PM
**To** CityClerk <cityclerk@haverhillma.gov>
**Cc** cmacdonald@northofboston.com <cmacdonald@northofboston.com>; Kaitlin Wright Esposito <kwright@haverhillma.gov>; Natalia Hernandez <NHernandez@HaverhillMa.gov>

Warning! External Email. Exercise caution when opening attachments or clicking on any links.

## THANK YOU for your notice submission!

This is your confirmation that your order has been submitted. Below are the details of your transaction. Please save this confirmation for your records.

### Job Details

| | |
|---|---|
| Order Number: | **W0149248** |
| Business Type: | All Other Public Notices |
| Notice Size: | Public Notices |
| Notice Estimate: | $226.95 |
| Referral Code: | **Battery Storage Moratorium 1st Print** |

### Account Details

Haverhill Clerk
4 SUMMER ST STE 118
HAVERHILL, MA 01830
978-374-2312
cityclerk@cityofhaverhill.com
HAVERHILL CITY CLERK

### Schedule for notice number W01492480

**Thu Nov 12, 2026**

**The Eagle-Tribune** *All Zones*

**Public Notices**

**November 6, 2026**
**PUBLIC HEARING**
**City Council Chambers, City Hall, Room 202, 4 Summer st**

Notice is hereby given that a hearing will be held for all parties interested, in a hybrid meeting (in person/virtual), on Tuesday December 1, 2026 at 7:00 PM on petition from the City of Haverhill to amend Chapter 255 Zoning of the City's Ordinances to enact a Temporary Moratorium on Battery Energy Storage Systems.

***(Residents who are interested in commenting on this item can either (1) Attend in person (Council Chambers, Room 202) or (2) Attend remotely using the link provided on the public meeting calendar on the City's website.)***

Description of area, maps and plans are on file in the City Clerk's Office.

Kaitlin M. Wright Esposito, CMC
City Clerk
ET - Publication Dates

*The North of Boston Media Group is not responsible for any false, inaccurate or omitted notices.*

*The North of Boston Media Group reserves the right to alter, edit and omit any notice to meet our editorial guidelines. Any additional charges or credits as a result of this process will be the responsibility of the individual or company submitting the notice.*

*This is an automated message, please do not reply to this e-mail. If you have any questions or concerns you may contact us toll-free at 800-681-6248.*

Outlook

**Thank you for placing your order with us.**

**From** North of Boston <noreply@wave2adportal.com>
**Date** Mon 11/9/2026 1:00 PM
**To** CityClerk <cityclerk@haverhillma.gov>
**Cc** cmacdonald@northofboston.com <cmacdonald@northofboston.com>; Kaitlin Wright Esposito <kwright@haverhillma.gov>; Natalia Hernandez <NHernandez@HaverhillMa.gov>

Warning! External Email. Exercise caution when opening attachments or clicking on any links.

## THANK YOU for your notice submission!

This is your confirmation that your order has been submitted. Below are the details of your transaction. Please save this confirmation for your records.

### Job Details

| | |
|---|---|
| Order Number: | **W0149247** |
| Business Type: | All Other Public Notices |
| Notice Size: | Public Notices |
| Notice Estimate: | $83.89 |
| Referral Code: | **Battery Storage Moratorium 2nd Print** |

### Account Details

Haverhill Clerk
4 SUMMER ST STE 118
HAVERHILL, MA 01830
978-374-2312
cityclerk@cityofhaverhill.com
HAVERHILL CITY CLERK

### Schedule for notice number W01492470

**Thu Nov 19, 2026**

**Haverhill Gazette Public** *All Zones*

**Notices**

**November 6, 2026**
**PUBLIC HEARING**
**City Council Chambers, City Hall, Room 202, 4 Summer st**

Notice is hereby given that a hearing will be held for all parties interested, in a hybrid meeting (in person/virtual), on Tuesday December 1, 2026 at 7:00 PM on petition from the City of Haverhill to amend Chapter 255 Zoning of the City's Ordinances to enact a Temporary Moratorium on Battery Energy Storage Systems.

***(Residents who are interested in commenting on this item can either (1) Attend in person (Council Chambers, Room 202) or (2) Attend remotely using the link provided on the public meeting calendar on the City's website.)***

Description of area, maps and plans are on file in the City Clerk's Office.

Kaitlin M. Wright Esposito, CMC
City Clerk
HG - Publication Dates

*The North of Boston Media Group is not responsible for any false, inaccurate or omitted notices.*

*The North of Boston Media Group reserves the right to alter, edit and omit any notice to meet our editorial guidelines. Any additional charges or credits as a result of this process will be the responsibility of the individual or company submitting the notice.*

*This is an automated message, please do not reply to this e-mail. If you have any questions or concerns you may contact us toll-free at 800-681-6248.*

**AN ORDINANCE RELATING TO AMENDING CHAPTER 255, ZONING, BY ADDING A NEW SECTION 7.9, TEMPORARY MORATORIUM ON BATTER ENERGY STORAGE SYSTEMS**

BE IT ORDAINED by the City Council of the City of Haverhill that Chapter 255, Zoning, of the Code of the City of Haverhill, as amended, being and is hereby further amended as follows by inserting the following new section 7.9 Temporary Moratorium on Battery Energy Storage Systems:

§7.9 TEMPORARY MORATORIUM ON BATTERY ENERGY STORAGE SYSTEMS

§ 7.9.1 Purpose.

This Ordinance adopted pursuant to Zoning Act, G.L. c. 40A, as amended, Section 2A of 1975 Mass. Acts 808, and by Article 89 of the Amendments to the Constitution of the Commonwealth of Massachusetts for the purpose of protecting the public health and welfare of the residents of Haverhill and provide time to adopt an appropriate and effective zoning ordinance to regulate the installation and use of free-standing battery energy storage systems ("BESS"). Specifically, this moratorium will enable the City to research appropriate areas of the City which include sufficient land mass, access to utilities, conserving the City's available open space and forested lands, impacts to the Merrimack River, which is a drinking water source for communities in the Merrimack River watershed, all in order to adopt an appropriate and effective zoning ordinance permitting BESS facilities.

§ 7.9.2 Moratorium.

For the reasons set forth above and notwithstanding any other provision of the Zoning Ordinance to the contrary, the City hereby adopts a temporary moratorium on the permits for and use of land for BESS. The moratorium shall be in effect for twenty-four (24) months following the effective date of this amendment. During the moratorium period, the City shall undertake a planning process to address the potential impacts of BESS and related uses and shall consider adopting new Zoning Ordinances to better address the impact and construction of same in the City.

Mead, Talerman & Costa, LLC
Attorneys at Law

30 Green Street
Newburyport, MA 01950
Phone 978.463.7700

www.mtclawyers.com

To: Melinda Barrett, Mayor
Tim Jordan, Pres.
From: Lisa Mead & Neva Payson, City Solicitor
Date: November 3, 2026
Re: Temporary Moratorium on Battery Energy Storage Systems

Reference is made to the above captioned matter. In that connection, please find attached hereto a draft Temporary Moratorium on free-standing Battery Energy Storage Systems.

The purpose of the moratorium is protecting the public health and welfare of the residents of Haverhill and provide time to adopt an appropriate and effective zoning ordinance to regulate the installation and use of free-standing battery energy storage systems ("BESS"). Specifically, this moratorium will enable the City to research appropriate areas of the City which include sufficient land mass, access to utilities, conserving the City's available open space and forested lands, and impacts to the Merrimac River, which is a drinking water source for communities in the Merrimac River watershed, all in order to adopt an appropriate and effective zoning ordinance permitting BESS facilities.

Under G.L. c. 40A, sec. 3, "no zoning ordinance or by-law shall prohibit or unreasonably regulate the installation of solar energy systems or the building of structures that facilitate the collection of solar energy, except where necessary to protect the public health, safety or welfare." This section of the statute was "enacted to help promote solar energy generation throughout the Commonwealth." *Tracer Lane II Realty, LLC* v. *City of Waltham*, 489 Mass. 775, 779 (2022).

In *Duxbury Energy Storage, LLC* v. *Town of Duxbury Zoning Board of Appeals*, the Land Court determined that battery energy storage facilities are protected by G.L. c. 40A, sec. 3 as "the building of structures that facilitate the collection of solar energy." 2025 WL 1743026 at 1 (Mass. Land Ct. 2025). Therefore, municipalities are constrained when regulating BESS to ordinances that are "necessary to protect the public health, safety, or welfare." See G.L. c. 40A, sec. 3. See also *Duxbury Energy Storage*, *supra* (grid-scale battery storage are key to promoting solar energy).

However, municipalities may "impose reasonable time limitations on development, at least where those restrictions are temporary and adopted to provide controlled development while the municipality engages in comprehensive planning studies." *Sturges* v. *Town of Chilmark*, 380 Mass. 246, 252-253 (1980). Here, the City is proposing a temporary moratorium on permitting BESS to offer the City more time to develop a comprehensive

*Millis Office*
730 Main Street, Suite 1F
Millis, MA 02054

*New Bedford Office*
227 Union Street, Suite 606
New Bedford, MA 02740

zoning ordinance that assists the Commonwealth's goal of promoting solar energy generation and protects the public health and welfare of the residents of the City. See *Tracer Lane Realty LLC*, 489 Mass. at 779. See also *W.R. Grace & Co.-Conn.* v. *Cambridge City Council*, 56 Mass. App. Ct. 559 (2002) ("The desirability of thoughtful consideration before a municipality reconciles the variety of competing interests that affect any zoning change constitutes the rational reason that justifies a temporary halt to private activities."). Therefore, the temporary moratorium is a valid exercise of the City's police power. See *W.R. Grace*, *supra* at 566 (zoning authority is within a municipality's police power, and a "zoning by-law will be sustained unless it is shown that there is no substantial relation between it and the furtherance of [public health, public safety, and public welfare]").

Notwithstanding the foregoing however, given the changes to the consolidated permitting laws, any proposed BESS development over 100 MGW would be permitted, not by the local permitting authorities, rather by the Energy Facilities Siting Board ("EFSB"). The EFSB would have the ability to override the moratorium.

10.3

# Document # 41-B

Vice President Michitson submits the summary of minutes and recommendations of the Planning and Development Committee held on August 24, 2026 for acceptance and approval

## IN CITY COUNCIL: September 15, 2026

## Accepted & Placed on file

## Schedule hearing for October 27 for a new ordinance for Hilldale Ave location

## 11 YEAS, 0 NAYS, 0 ABSENT

Attest: Kaitlin M. Wright Esposito

Kaitlin M. Wright Esposito, CMC,

City Clerk

IN CITY COUNCIL: OCTOBER 27, 2026
CON'T TO DECEMBER 1, 2026
10 YEAS, 0 NAYS, 1 ABSENT

ATTEST: Kaitlin M. Wright Esposito
KAITLIN M. WRIGHT ESPOSITO, CMC
CITY CLERK

**CITY COUNCIL**
**Timthoy J. Jordan,** *President*
**John A. Michitson,** *Vice President*
**Thomas J. Sullivan**
**Colin F. LePage**
**Melissa J. Lewandowski**
**Catherine P. Rogers**
**Shaun P. Toohey**
**Michael S. McGonagle**
**Daniel R. Diodati**
**Devan Ferreira**
**Ralph T. Basiliere**

CITY HALL, ROOM 204
4 SUMMER STREET
TELEPHONE: 978-374-2328
FACSIMILE: 978-374-2329
WWW.CITYOFHAVERHILL.GOV
CITYCOUNCIL@HAVERHILLMA.GOV

**CITY OF HAVERHILL**
HAVERHILL, MASSACHUSETTS 01830-5843

September 9, 2026

TO: President and Members of the City Council

Vice President Michitson submits the summary of minutes and recommendations of the Planning and Development Committee held on August 24, 2026 for acceptance and approval.

John A. Michitson

Vice President John Michitson

SEP 10 PM 1:48
HAV CITY CLERK

(Meeting: 9.15.26)

**CITY COUNCIL**
**Timthoy J. Jordan,** *President*
**John A. Michitson,** *Vice President*
**Thomas J. Sullivan**
**Colin F. LePage**
**Melissa J. Lewandowski**
**Catherine P. Rogers**
**Shaun P. Toohey**
**Michael S. McGonagle**
**Daniel R. Diodati**
**Devan Ferreira**
**Ralph T. Basiliere**

CITY HALL, ROOM 204
4 SUMMER STREET
TELEPHONE: 978-374-2328
FACSIMILE: 978-374-2329
WWW.CITYOFHAVERHILL.GOV
CITYCOUNCIL@HAVERHILLMA.GOV

# CITY OF HAVERHILL

HAVERHILL, MASSACHUSETTS 01830-5843

## MINUTES/SUMMARY OF THE PLANNING AND DEVELOPMENT COMMITTEE MEETING

August 24, 2026

A Planning and Development Committee Meeting was held on Monday, August 24, 2026 at 6:00 PM in the City Council Chambers, Room 202

Committee Members Present: Committee Chair, John Michitson, Councilor Melissa Lewandowski, Councilor Devan Ferreira and Councilor Daniel Diodati

Committee Members Absent: Councilor Catherine Rogers

Councilors Present: Councilor LePage

City Officials: Mayor Melinda Barrett, Robert Moore, Conservation Department, Jacki Byerley, Planning Director, City Solicitor Lisa Mead, Fire Chief Chris Cesati

The following items were discussed:

- Doc. 21-B Motion by Councilor Sullivan to send for further discussion Chapter 255-Zoning Ordinance and Zoning Map – Battery Energy Storage Systems Overlay District (BESS) (review the objective site comparison before selecting a battery energy system overlay to understand how each candidate area performs from the perspective of public safety, environmental protections, infrastructure capacity, emergency response, water resources, surrounding land usage and municipal operations)

Planning Director Jacki Byerley presented maps and departmental reviews of potential Battery Energy Storage System (BESS) zoning areas, including Computer Drive, Hilldale Avenue, Neck Road, Groveland Road, Amesbury Road, and Cross Road. She explained that departments applied the evaluation criteria differently based on their operational needs, so the scores were not directly comparable. Conservation favored Hilldale Avenue, while Engineering and Water/Wastewater favored Computer Drive, followed by Hilldale Avenue and Neck Road. Planning identified Amesbury Road as the strongest option among the business districts, and the Fire Department supported Amesbury Road for zoning purposes. Councilor Ferreira and City Solicitor Lisa Mead discussed whether clean energy projects could instead be addressed through special permit requirements, with City Solicitor Mead explaining that a zoning framework would provide the Council greater control over where projects are located. Councilor Lewandowski discussed the favorable characteristics of Hilldale Avenue, while Fire Chief Cesati noted concerns regarding site size, water flow, and access requirements. Chief Cesati stated that larger parcels would help avoid stacking and that all sites would require adequate fire access and water availability. Resident Christine Kwitchoff (14 Colby's Lane) clarified the minimum lot sizes for the three BESS tiers, and Conservation Agent Robert Moore discussed the potential to include the NETTS property with the Hilldale Avenue site. Rob Moore

**CITY COUNCIL**
**Timthoy J. Jordan,** *President*
**John A. Michitson,** *Vice President*
**Thomas J. Sullivan**
**Colin F. LePage**
**Melissa J. Lewandowski**
**Catherine P. Rogers**
**Shaun P. Toohey**
**Michael S. McGonagle**
**Daniel R. Diodati**
**Devan Ferreira**
**Ralph T. Basiliere**

CITY HALL, ROOM 204
4 SUMMER STREET
TELEPHONE: 978-374-2328
FACSIMILE: 978-374-2329
WWW.CITYOFHAVERHILL.GOV
CITYCOUNCIL@HAVERHILLMA.GOV



also raised environmental and water-supply concerns regarding Amesbury Road, including Blanding's turtle habitat, wetlands, and its proximity to Kenoza Lake and the Millvale Reservoir. Councilor Diodati expressed concerns about locating the district at the airport and the Groveland Road site due to new fields, while Councilor Lewandowski discussed the possibility of including the tractor-trailer facility with Hilldale Avenue to meet the 20-acre requirement.

Corey O'Neill (Haverhill resident) questioned whether October 1 is a deadline for the City to establish a BESS overlay district. City Solicitor Lisa Mead clarified that the City is not required to create an overlay, but without zoning in place, BESS facilities could potentially be proposed anywhere in the City. Corey O'Neill stated that he believed additional time was needed to review the proposed locations, departmental assessments. He expressed concern about rushing the decision and raised questions regarding potential agreements between companies and City officials. Corey O'Neill stated that he is not opposed to BESS technology but wants the City to find a balance that protects residents and the community.

Christine Kwitchoff, 14 Colby's Lane, thanked the City departments for conducting the additional site reviews. She stated that it was a significant oversight at the May 19 meeting to present only one potential site and expressed appreciation for the opportunity for further public review.

Anita Toscano, Corliss Hill Road, asked about the potential impacts of BESS facilities on the City's natural resources. She raised concerns regarding the amount of water that may be needed to address a battery fire and the potential environmental impacts and cleanup requirements in the event of a battery leak.

City Solicitor Lisa Mead explained that BESS facilities do not require water for normal operations, but water is needed for emergency fire response, and the zoning ordinance requires an impervious catchment area beneath the facility. Fire Chief Cesati stated that battery fires require significant amounts of water to cool the batteries and prevent the fire from spreading, noting that a runaway battery must ultimately discharge its energy. Councilor Ferreira expressed support for the Hilldale Avenue site and suggested reducing the minimum acreage from 20 to 15 acres. She also asked about potential host agreements or PILOT payments. City Solicitor Mead explained that such agreements could be pursued but could not be made a special permit requirement. Councilor Lewandowski asked about additional Fire Department training and equipment, and Chief Cesati stated that some equipment would need upgrading, training would be required and funded by the developer, and the department would meet applicable NFPA standards. Councilor Diodati discussed including the tractor-trailer facility with the Hilldale Avenue site to maintain the 20-acre requirement. City Solicitor Mead confirmed that the City Council's role is to ensure the use is permitted somewhere, not to determine whether a specific amount of available acreage exists. Chair Michitson stated that the committee could move forward with one site, recommend multiple sites, or seek additional information before making a decision.

*Motion by Councilor Lewandowski to propose Hilldale Avenue as the recommended site for the district. Second by Councilor Diodati.*

**CITY COUNCIL**
**Timthoy J. Jordan,** *President*
**John A. Michitson,** *Vice President*
**Thomas J. Sullivan**
**Colin F. LePage**
**Melissa J. Lewandowski**
**Catherine P. Rogers**
**Shaun P. Toohey**
**Michael S. McGonagle**
**Daniel R. Diodati**
**Devan Ferreira**
**Ralph T. Basiliere**

CITY HALL, ROOM 204
4 SUMMER STREET
TELEPHONE: 978-374-2328
FACSIMILE: 978-374-2329
WWW.CITYOFHAVERHILL.GOV
CITYCOUNCIL@HAVERHILLMA.GOV

**CITY OF HAVERHILL**
HAVERHILL, MASSACHUSETTS 01830-5843

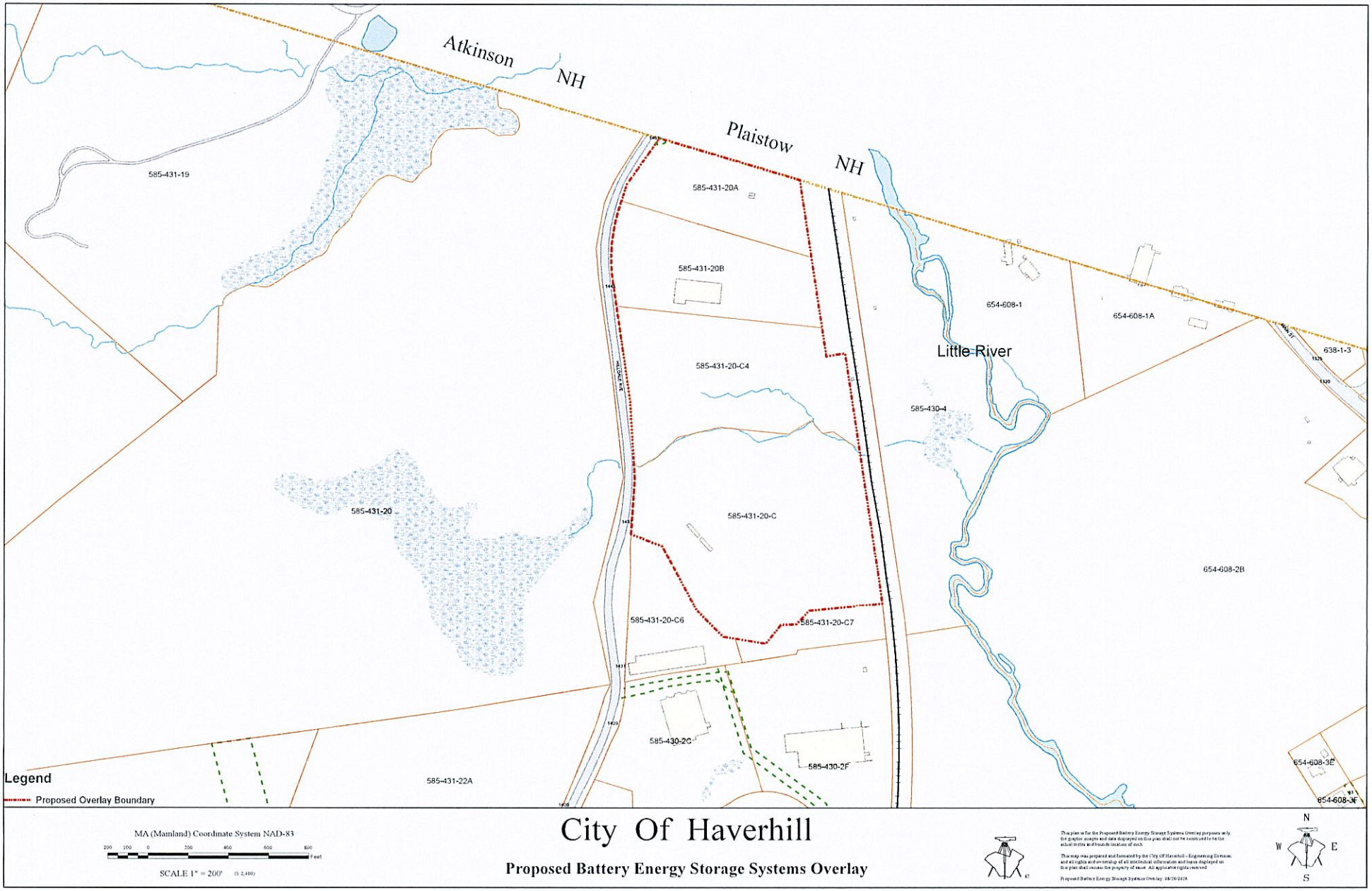
Jacki Byerley stated would you want a change made to the regulations requiring it to be 15 acres or do you want us to work on adding it so the total acreage of the area is 20 or more. Councilor Diodati stated I would like to see 20 acres. Jacki stated I will work with our GIS department. Chair Michitson stated that is part of the motion. Councilor Lewandowski stated sure.

*Motion by Councilor Lewandowski to propose Hilldale Avenue as the recommended site for the district. The total acreage of the area will be 20 acres. Second by Councilor Diodati.*
*PASSED* *4 YEAS, 0 NAYS*

City Solicitor Mead stated when you do bring it up, we will have to readvertise so the sooner you bring it up the better. It's a 21-day advertisement period.

*Motion by Councilor Diodati to adjourn. Second by Councilor Lewandowski.*
*PASSED* *4 YEAS, 0 NAYS*

Respectfully submitted,
John A. Michitson
John A. Michitson
Chairperson




MA (Mainland) Coordinate System NAD-83

200 100 0 200 400 600 800 Feet

SCALE 1" = 200' (1:2,400)

# City Of Haverhill

## Proposed Battery Energy Storage Systems Overlay

This plan is for the Proposed Battery Energy Storage Systems Overlay purposes only. the graphic images and data displayed on this plan shall not be construed to be the actual metes and bounds locations of such.

This map was prepared and formated by the City Of Haverhill - Engineering Division and all rights and ownership of all sites/individual information and logos displayed on this plan shall remain the property of owner. All applicable rights reserved.

Proposed Battery Energy Storage Systems Overlay 08/26/2024.

N W E S

**MUNICIPAL ORDINANCE CHAPTER 255 Zoning**

## AN ORDINANCE RELATING TO AMENDING CHAPTER 255, ZONING BY ADDING A NEW SECTION 7.9 BATTERY ENTERGY STORAGE SYSTEMS

**BE IT ORDAINED by the City Council of the City of Haverhill that Chapter 255, Zoning, of the Code of the City of Haverhill, as amended, being and is hereby further amended as follows by inserting the following new section 7.9 entitled "Battery Energy Storage Systems";**

§7.9 BATTERY ENERGY STORAGE SYSTEMS

§7.9.1. Purpose.

The purpose of this Section is to advance and protect the public health, safety, welfare, and quality of life by creating regulations for the installation and use of free-standing battery energy storage systems ("BESS"), with the following objectives:

A. To provide a regulatory scheme for the location, construction and operation of free-standing BESS consistent with best practices and safety protocols;
B. To ensure compatible land uses in the vicinity of the areas affected by BESS and to mitigate any potential impacts on abutting and nearby properties; and
C. To mitigate the impacts of BESS on environmental resources such as agricultural lands, forests, wildlife, wetlands and other natural resources.

This Section shall be construed to be consistent with state law, including but not limited to the provisions of General Laws chapter 40A, section 3, and state regulations, including but not limited to the provisions of the State Building Code, State Fire Code, and State Electrical Code. In the event of any conflict between the provisions of this section and the provisions of state law or regulations, the state law and regulations shall prevail.

§7.9.2. Establishment of the BESS Overlay District
The BESS Overlay District is an overlay district superimposed over the underlying district set forth in this Zoning Ordinance. Within the BESS, the requirements of the underlying district continue to apply, except when the following uses are proposed then the following provisions of this section 7.9 shall apply:

Tier 1 BESS

Tier 2 BESS and

Tier 3 BESS

§7.9.3 Applicability.

A. The requirements of this ordinance shall apply to BESS permitted, installed, decommissioned or modified after the effective date of this ordinance, excluding general maintenance and repair. BESS subject to this ordinance are only those that exceed the following capacities:

- Lead-acid with a capacity of greater than 70 kW
- Nickel with a capacity of greater than 70 kW
- Lithium-ion with a capacity of greater than 30 kW
- Sodium nickel chloride with a capacity of greater than 20 kW
- Flow with a capacity of greater than 20 kW
- Other battery technologies with a capacity of greater than 20 kW

B. Only BESS that meet the criteria herein shall be permitted under this ordinance. BESS permitted under and subject to this ordinance shall be classified either as a Tier 1, Tier 2 or Tier 3 BESS as set forth herein. All sizes noted in this section shall include the total capacity of the proposed facility and not refer solely as a limitation on total export. For avoidance of doubt, a proposed system which has an export capacity of 50 MW but has a total storage or redundance capacity of 100 MW shall be treated as a 100 MW system.

1. Tier 1 BESS have an aggregate energy capacity less than or equal to 500 kWh, derive 51% or more of their power from Solar Energy Systems as defined herein, and, if in a room or enclosed area, consist of only a single energy storage system technology.

2. Tier 2 BESS consist of those which meet one or more of the following criteria;

    a. have an aggregate energy capacity greater than 500kWh and less than 10 MWh, but no greater than 10 MWh;

    b. are comprised of more than one storage battery facility in a room or enclosed area;

    c. derive less than 51% of their power from Solar Energy Systems as defined herein.

3. Tier 3 BESS consist of those which meet one or more of the following criteria;

    a. have an aggregate energy capacity greater than 10 MWh, but no greater than 350MWh;

    b. are comprised of more than one storage battery facility in a room or enclosed area;

c. derive less than 51% of their power from Solar Energy Systems as defined herein.

§ 7.9.4. General Requirements

A. All permits required by state codes, including but not limited to building permit, an electrical permit, and a fire department permit shall be required for installation of all BESS.

B. All BESS, all Dedicated Use Buildings, and all other buildings or structures that (a) contain or are otherwise associated with a battery energy storage system; and (b) subject to the requirements of the State Building Code, shall be designed, erected, and installed in accordance with all applicable provisions of the State Building Code 780 CMR, State Fire Code 527 CMR 1.00, and State Electrical Code 527 CMR 12.00. All BESS shall comply with NFPA 855, Standard for the Installation of Stationary Energy Storage Systems or subsequent standard.

C. Energy storage system capacities, including array capacity and separation, are limited to the thresholds contained in NFPA 855 or subsequent standard.

§ 7.9.5. Permitting Requirements for Tier 1 BESS

Tier 1 BESS are allowed by right in all zoning districts, including the BESS Overlay District, subject to applicable provisions of the State Building Code, Electrical Code, Fire Code, and other applicable codes, and are subject to site plan review in accordance with section 10.8 hereof and such provisions of this ordinance as are applicable.

Tier 1 BESS and appurtenances shall be prohibited in the Zone A and Zone 1 public water supply protection areas.

§ 7.9.6. Permitting Requirements for, Tier 2 and Tier 3 BESS shall be permitted by Special Permit in the BESS Overlay District in accordance with the requirements below.

§ 7.9.6.1 Special Permit Required. Tier 2 and Tier 3 BESS subject to this ordinance require the issuance of a Special Permit in the BESS Overlay District and are subject to Major Site Plan Review pursuant to Section 10.8. Tier 2 and Tier 3 BESS shall comply with the applicable requirements set forth in this ordinance including the General Special Permit Criteria set forth in section 10.4.2, as well as this Section 7.9 , and the Haverhill General Ordinances. The City Council shall be the Special Permit Granting Authority ("SPGA"). The Applicant shall be required to submit all materials required in accordance with the SPGA Rules and Regulations, in addition to any other materials necessary or as may be required in order to support that the Application meets the Design Requirements set forth in section 7.9.6.2 herein.

§ 7.9.6.1.1 Development Review Required As Part of Hearing Process: For the purpose of a Special Permit filed hereunder, the Applicant shall be required to submit a complete application for a Special Permit in accordance with the Requirements hereunder. Following the opening of the Public Hearing by the SPGA, the Application shall be referred to the Development Review Committee as set forth in

§10.1.4 hereof. The Development Review Committee shall meet with the Applicant who shall be required to provide any additional information as the Committee may reasonably request and the Development Review Committee shall provide the SPGA with its recommendations within ninety (90) days of the date upon which the application was thereto referred.

§ 7.9.6.1.2 Prohibitions: Notwithstanding the foregoing, Tier 2 and Tier 3 BESS and appurtenances shall be prohibited in the Zone A and Zone I public water supply protection areas.

§ 7.9.6.2 Design Requirements. The following requirements apply to all BESS subject to this ordinance, except where it is specifically noted to apply only to Tier 2 or Tier 3BESS:

A. Site Plan Drawings. The Applicant shall provide a full set of Site Drawings stamped by a Massachusetts Registered Professional Engineer inclusive of items set forth in section 7.9.7.K.1 hereof.

B. Utility Lines and Electrical Circuitry. All on-site utility lines shall be placed underground to the extent feasible and as permitted by the serving utility, with the exception of the main service connection at the utility company right-of-way and any new interconnection equipment, including without limitation any poles.

C. Signage. Signage shall comply with the requirements of Section 6.2 of this Zoning Ordinance and the following additional requirements; in the event of a conflict between the provisions of Section 6.2 and this section, the requirements of this section shall control.

    1. The signage shall be in compliance with ANSI Z535 and shall include the type of technology associated with the BESS, any special hazards associated, the type of suppression system installed in the area of BESS, and 24-hour emergency contact information, including reach-back phone number.

    2. As required by the state electrical code, disconnect and other emergency shutoff information shall be clearly displayed on a light reflective surface. A clearly visible warning sign concerning voltage shall be placed at the base of all pad-mounted transformers and substations.

    3. Signage compliant with ANSI Z535 shall be provided on doors to rooms, entrances to BESS facilities, and on BESS outdoor containers.

D. Lighting. Lighting of the BESS shall be limited to that minimally required for safety, security and operational purposes, shall be shielded from abutting properties, shall be directed downward, shall incorporate full cut-off fixtures to reduce light pollution and shall otherwise be consistent with local, state and federal law. A photometric plan shall be required.

E. Vegetation and tree cutting. Areas within ten feet on each side of Tier 2 and Tier 3 BESS shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted provided that they do not form a means of readily transmitting fire. Removal of trees should be minimized to the extent possible. No tree or vegetation clearing shall be permitted within the Setbacks as noted below except for the

purposes of the area of ingress and egress to the site. Vegetation control in the Water Supply Protection Overlay District (WSPOD) shall be by mowing or other mechanical means. The use of synthetic pesticides, herbicides, and fertilizers shall be prohibited for BESS facilities within the WSPOD.

F. Setbacks. Tier 2 and Tier 3 BESS shall be set back a minimum of 150 feet from all side, rear, and front lot lines; except that Tier 2 and Tier 3 BESS shall be set back a minimum of 300 feet from side, rear, and front lot lines that abut or are across a street from residential zoning districts or existing single, two-family, or multi-family structures. The minimum setback areas shall include a Buffer Area at least fifty feet wide along all property lines. Access drives and parking are allowed in the setback areas, except emergency access as noted below, but shall not intrude into the required setback areas except where necessary to provide access or egress to the property. In addition, a minimum of 50 feet must be maintained between BESS components and all buildings, stored combustible materials, hazardous materials, high-piled storage, personnel means of egress, and other exposure hazards not associated with electrical grid infrastructure. The Special Permit Granting Authority may waive these setback requirements so long as the approved setbacks protect the health and safety of nearby abutters.

G. Emergency Access: There shall be a 60-foot-wide paved emergency access road around the complete perimeter of the facility but inside the required setback area which may not exceed a 7% grade at any time. Ongoing maintenance of the access road including snow removal after 3 inches of snow shall be included as part of the Operations and Maintenance Plan required herein.

H. Lot Size. The minimum lot size for Tier 1 BESS shall not be less than 1 acre. The minimum lot size for a Tier 2 BESS shall be not less than 10 acres and the minimum lot size for a Tier 3 BESS shall be no less than 20.

I. Dimensional. All BESS shall comply with the dimensional limitations for principal structures of the underlying zoning district as provided in Appendix B, Table 2, of this Zoning Ordinance, unless otherwise provided in this ordinance. No BESS shall exceed 15 feet in height and there shall be no vertical stacking of BESS units.

J. Fencing Requirements. Tier 2 and Tier 3 BESS, including all mechanical equipment, shall be enclosed by a minimum eight-foot high fence with a self-locking gate to prevent unauthorized access unless housed in a dedicated-use building. All gates shall accomodate a knox box or other accessible means to allow access to public safety personnel. Security barriers, fences, landscaping, and other enclosures must not inhibit required air flow to or exhaust from the BESS and components. Electrical equipment greater than 1,000V require a separate and additional means to restrict access. NFPA 855 requires specialty safety systems to be provided based on the BESS chemistry and installed location.

K. Screening and Visibility. Tier 2 and Tier 3 BESS shall have views minimized from adjacent properties to the extent reasonably practicable using architectural features, earth berms, landscaping, or other screening methods that will harmonize with the character of the property and surrounding area. Such features may not inhibit required air flow to or exhaust from the BESS and components and must comply with the setbacks established in paragraph G above.

L. Failure Protection. All Tier 2 and Tier 3 BESS shall include an impenetrable layer beneath the

surface and no closer than four (4) feet to the closest water table which will cause any discharge to flow into a basin located on site which will then capture and/or treat any runoff as a result of a failed battery or fire or other destruction. The Application shall include details of the proposed catchment system along with a detailed stormwater report and stamped detailed engineering plans from a Massachusetts Registered Professional Engineer depicting the stormwater system. All BESS facilities located within the WSPOD shall have full containment to capture all releases, either intentionally from maintenance or accidental in nature. Release and runoff shall not be allowed.

M. Batteries. Failed battery cells and modules shall not be stored on the site and shall be removed no later than 30 days after deemed failed by the BESS operator or cell/module manufacturer. The operator shall notify the Haverhill Fire Chief in advance if the type of battery or batteries used onsite is to be changed. All failed battery cells and modules shall not be stored outdoors and must be protected from further damage and potential release of contaminants to the environment.

N. Storage. No equipment or hazardous materials, in liquid, dry, or gas form, shall be stored onsite of the BESS other than those items in quantities necessary for the proper operation of the facility. Any storage for materials deemed necessary shall be properly labeled, covered and contained to protect from release to the environment.

O. Acoustical Impacts. No system shall cause an increase in acoustical levels over ambient at the Property line. An acoustical study prepared by a Massachusetts Registered Acoustical Engineer shall be provided.

P. Water Source. A municipal water source shall be provided including a FDC within 100 feet before the entrance to the Hazard Area on the Property. The Applicant shall present evidence including a hydraulic analysis in accordance to the City standard to support that there is adequate volume and pressure for fire suppression on the Property and not have a detrimental impact on the surrounding neighborhood. The applicant shall be required to make any related offsite improvement to achieve the required standard to alleviate any impact on the adjacent users.

Q. Stormwater Management. The applicant shall submit a stormwater management plan consistent with the Massachusetts Stormwater Management Policy.

R. Decommissioning Plan. The applicant shall submit with its application a decommissioning plan for all BESS to be implemented upon abandonment and/or in conjunction with removal of the facility. The owner or operator of the BESS shall notify the Building Commissioner in writing at least twenty days prior to when a BESS will be decommissioned. Decommissioning of an abandoned or discontinued BESS shall be completed within six months after the facility ceases operation. The decommissioning plan shall include:

    1. A narrative description of the activities to be accomplished, including who will perform that activity and at what point in time, for complete physical removal of all BESS components, structures, equipment, security barriers, and transmission lines from the site;

    2. Disposal of all solid and hazardous waste in accordance with local, state, and

federal waste disposal regulations;

3. The anticipated life of the BESS;

4. The estimated decommissioning costs and how said estimate was determined, including an allowance for annual cost of living increases or increases due to inflation;

5. The method of ensuring that funds will be available for decommissioning and restoration;

6. The method by which the decommissioning cost will be kept current;

7. The manner in which the site will be restored, including a description of how any changes to the surrounding areas and other systems adjacent to the BESS, such as, but not limited to, structural elements, building penetrations, means of egress, and required fire detection suppression systems, will be protected during decommissioning and confirmed as being acceptable after the system is removed; and

8. A listing of any contingencies for removing an intact operational energy storage system from service, and for removing an energy storage system from service that has been damaged by a fire or other event.

S. Decommissioning Fund. The owner and/or operator of the energy storage system, shall continuously maintain a fund or other surety acceptable to the City, in a form approved by the City Council and City Solicitor, for the removal of the BESS, in an amount to be determined by the City, and which includes the City as loss payee, for the period of the life of the facility. All costs of the financial security shall be borne by the Applicant.

T. Proof of Liability Insurance. The applicant or property owner shall provide evidence of commercial liability insurance in an amount and type generally acceptable in the industry and approved by the Planning Board prior to the issuance of a building permit, and shall continue such insurance in effect until such facility has been decommissioned, removed, and the site restored in accordance with this ordinance.

§ 7.9.6.3 Special Permit Criteria. In addition to the general Special Permit criteria set forth in section 10.4.2 of this Ordinance, an application for Tier 2 or Tier 3 BESS shall meet the following criteria:

A. The project protects the ground water and surrounding properties from catastrophic failure of one or more of the batteries or cells by implementing appropriate catchment and filtration systems for water run off or run off from the system.

B. The project appropriately attenuates sound intrusion beyond the property lines onto adjacent properties so that there is no change in ambient sound after construction and during operations of the system.

C. The project includes only dark sky compliant down lighting which does not intrude beyond the property lines onto adjacent properties.

D. The project is secure and addresses possible trespass or other intrusion by individuals not affiliated with the project.

E. The project meets the public safety needs of the City.

F. The project minimizes visual impacts from utility infrastructure for interconnection.

F. The project is minimally visible from adjacent properties.

§ 7.9.7. Site Plan application.

For all BESS the Site Plan application shall include the following information, in addition to that required by Section 10.8 of this Zoning Ordinance and the applicable Planning Board requirements governing Site Plan Applications:

A. Utility Infrastructure information requirements:

1. A one- or three-line electrical diagram detailing the BESS layout, associated components, and electrical interconnection methods, with all State Electrical Code compliant disconnects and over current devices.

2. The Applicant shall provide certified verification that there is a fully executed Interconnection Services Agreement ("ISA") with the local utility distribution company. Said certification shall include the cover and signature pages of the ISA.

3. If the ISA has not been issued, the Applicant shall be required to provide a full copy of the Application for Interconnection filed with the local utility distribution company.

B. Preliminary equipment specification sheets that document the proposed BESS components, inverters and associated electrical equipment that are to be installed. A final equipment specification sheet shall be submitted prior to the issuance of building permit.

C. Name, address, and contact information of proposed or potential system installer and the owner and/or operator of the BESS. Such information of the final system installer shall be submitted prior to the issuance of building permit.

D. Large-scale fire test data, evaluation information, and calculations, and modeling data. For any of the following, UL 9540A fire test data must be made available to the Planning Board for review:

- BESS systems with a capacity of greater than 50 kW
- BESS systems with spacing between arrays of less than 3 feet

E. Commissioning Plan. The system installer or commissioning agent shall prepare a commissioning plan prior to the start of commissioning. Such plan shall be compliant with NFPA 855 and document and verify that the system and its associated controls and safety

systems are in proper working condition per requirements set forth in applicable state codes. Where commissioning is required by the Building Code, BESS commissioning shall be conducted by a Massachusetts Licensed Professional Engineer after the installation is complete but prior to final inspection and approval. A corrective action plan shall be developed for any open or continuing issues that are allowed to be continued after commissioning. A report describing the results of the system commissioning and including the results of the initial acceptance testing required by applicable state codes shall be provided to Zoning Enforcement Officer prior to final inspection and approval and maintained at an approved on-site location.

F. Fire Safety Compliance Plan. Such plan shall document and verify that the system and its associated controls and safety systems are in compliance with state codes, including documentation that BESS components comply with the safety standards set forth in subsection 7.9.9. Such plan shall also include a detailed training plan for public safety personnel.

G. Operation and Maintenance Manual. Such plan shall describe continuing BESS maintenance and property upkeep, as well as design, construction, installation, testing and commissioning information and shall meet all requirements set forth state codes and NFPA 855. Maintenance provisions will be driven by manufacturer requirements for the specific listed system. It shall address maintenance of the access and perimeter roadways, perimeter fencing, and shall include a snow removal plan and 24 hours access requirements by public safety officials. There shall be an annual; acoustical review to assure ongoing compliance with the requirement of no change from ambient at the property line and fire department inspection.

H. Depending on the location of the BESS in relation to and its interaction with the electrical grid, interconnection will be completed per 527 CMR 12.00. System interconnections into utility grids shall be in accordance with NFPA 855 and the local distribution company standards for interconnection of distributed energy resources. An accessible disconnect is required per 527 CMR 12.00.

I. Prior to the issuance of the building permit, As Built engineering documents must be signed and sealed by a Massachusetts Licensed Professional Engineer and provided to the Building Commissioner and Planning Department .

J. Emergency Operations Plan. An Emergency Operations Plan compliant with NFPA 855 is required. A copy of the approved Emergency Operations Plan shall be given to the system operator, the local fire department, local fire code official and police department. For so long as the BESS is operational, the operator shall provide the Fire Department, Police Department, Building Commissioner, and Mayor's office with contact information for personnel that can be reached 24 hours per day every day, and this contact information shall be updated by the operator whenever there is a change in the information. The operator shall also be required to have an official representative be present onsite not later than two hours after notification by the Fire Chief, Police Chief, or their designee. A permanent copy shall also be placed in an approved location to be accessible to facility personnel, fire code officials, and emergency responders. The emergency operations plan shall include the following information:

1. Procedures for safe shutdown, de-energizing, or isolation of equipment and systems under emergency conditions to reduce the risk of fire, electric shock, and personal injuries, and for safe start-up following cessation of emergency conditions.

2. Procedures for inspection and testing of associated alarms, interlocks, and controls, including time intervals for inspection and testing.

3. Procedures to be followed in response to notifications from the Battery Energy Storage Management System, when provided, that could signify potentially dangerous conditions, including shutting down equipment, summoning service and repair personnel, and providing agreed upon notification to fire department personnel for potentially hazardous conditions in the event of a system failure.

4. Emergency procedures to be followed in case of fire, explosion, release of liquids or vapors, damage to critical moving parts, or other potentially dangerous conditions. Procedures can include sounding the alarm, notifying the fire department, evacuating personnel, de-energizing equipment, and controlling and extinguishing the fire.

5. Response considerations similar to a safety data sheet (SDS) that will address response safety concerns and extinguishment when an SDS is not required.

6. Procedures for safe disposal of BESS equipment damaged in a fire or other emergency event, including maintaining contact information for personnel qualified to safely remove damaged BESS equipment from the facility.

7. Other procedures as determined necessary by the City to provide for the safety of occupants, neighboring properties, and emergency responders.

8. Procedures and schedules for conducting drills of these procedures and for training local first responders on the contents of the plan and appropriate response procedures.

K. Each Application shall be accompanied by the following information:

1. A certified plot plan at a minimum scale of one inch equals 40 feet and a maximum scale of one inch equals 20 feet. The site plan shall contain:
   a. Date of site plan with all revisions noted and dated. Title of development, North arrow, scale, map and lot number, name and address of record owner, name and address of person preparing the site plan.
   b. The names of all owners of record of adjacent properties, and the map and lot number of the properties and all buildings.
   c. Zoning district boundaries and flood zone boundaries shall be shown as they affect the property including limits of the WSPOD and public water supply Zone A and Zone I on the overall site plan.
   d. Boundaries of the property and lines of existing street, lots, easements and

areas dedicated to public use, including rights of way.

e. A locus map showing the location of the property with reference to surrounding area.
f. A table indicating all calculations necessary to determine conformance to Bylaw regulations including current required and proposed regulations.
g. Square footage of property to the nearest 10 square feet.

2. All plans must include the location of existing and proposed buildings, walls, fences, culverts, parking areas, loading areas, walkways and driveways.

   a. Location and dimensions of utilities, gas, telephone, electrical, communications, water drainage, sewer and other waste disposal.

   b. Location, type and dimensions of landscaping and screening.

   c. Location of existing rock outcroppings, high points, vistas, ponds, depressions, wetlands, major trees (twelve-inch caliper and over) and any other significant existing features.

   d. Two-foot contours where slopes are less than 15% and five-foot contours when 15% or more. Existing contours shall be indicated by dashed line. Proposed contours shall be indicated by solid line.

   e. Dimensioned schematic drawings of all proposed buildings. Scale shall not exceed ¼ inch equals one foot nor less than 1/8 inch equals one foot.

   f. A narrative describing the proposal and addressing the foregoing requirements.

   g. Location of street numbers indicated on the schematic drawings and/or site plan.

   h. Surface and water pollution. A report on the impact of Stormwater runoff on adjacent and downstream surface water bodies, subsurface groundwater and the water table.

   i. Soils. The potential dangers of erosion and sedimentation caused by the operation and maintenance of the proposed development.

   j. General environmental impact. A report on the relationship of the proposed development of the major botanical, zoological, geological and hydrological resources of the site, and compatibility of the proposed development with adjacent or surrounding land uses and neighborhoods.

   k. Traffic impact. A report on existing street capacities, estimated average

daily traffic generation, composition, peak hour levels and directional flows resulting from the proposed development, proposed methods to mitigate the estimated traffic impact and methodology and sources used to derive existing data and estimations.

l. Renderings showing the proposed project in relationship to its surroundings.

§ 7.9.8. Ownership Changes.

If the owner of the BESS changes or the owner of the property changes, the Special Permit shall remain in effect, provided that the successor owner or operator assumes in writing all of the obligations of the Special Permit, Site Plan approval, and decommissioning plan. A new owner or operator of the BESS shall notify the Building Commissioner of such change in ownership or operator within 14 days of the ownership change. A new owner or operator must provide such notification to the Building Commissioner in writing.

§ 7.9.9. Safety

System Certification. BESS and equipment shall be listed by a Nationally Recognized Testing Laboratory to UL 9540 (Standard for BESS and Equipment) or approved equivalent, with subcomponents meeting each of the following standards as applicable:

A. UL 1973 (Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail Applications),
B. UL 1642 (Standard for Lithium Batteries),
C. UL 1741 or UL 62109 (Inverters and Power Converters),
D. Certified under the applicable electrical, building, and fire prevention codes as required.
E. Alternatively, field evaluation by an approved testing laboratory for compliance with UL 9540 (or approved equivalent) and applicable codes, regulations and safety standards may be used to meet system certification requirements.

Site Access. BESS shall be maintained in good working order and in accordance with industry standards. Site access shall be maintained, including snow removal at a level acceptable to the local fire department.

BESS, components, and associated ancillary equipment shall have required working space clearances, and electrical circuitry shall be within weatherproof enclosures marked with the environmental rating suitable for the type of exposure in compliance with NFPA 70.

§ 7.9.11. Abandonment

The BESS shall be considered abandoned when it ceases to operate consistently for more than one year. If the owner and/or operator fails to comply with decommissioning upon any abandonment, the City may, after compliance with any applicable state and federal constitutional requirements, enter the property and utilize the available bond and/or security for the removal of any BESS and restoration of the site in accordance with the decommissioning plan.

**And further add the following new definition to § 11.1 of Chapter 255**

§ 11.1

AGGREGATE ENERGY CAPACITY: Total amount of energy stored that can be stored in all batteries that are a part of the BESS measured in kilowatt-hours (kWh) or megawatt-hours (MWh).

BATTERY or BATTERIES: A single cell or group of cells connected electrically in series, in parallel, or combination of both, which can charge, discharge and store energy electrochemically. For the purpose of this Ordinance, batteries utilized in consumer products are excluded from these requirements.

BATTERY ENERGY STORAGE SYSTEM ("BESS") – A system containing one of more battery modules for storing electrical energy, any equipment needed to support the safe and proper function or usage of the battery modules, and one or moe physical container(s) providing secondary containment to any of the above. It may be a primary use or an Accessory Use to a solar generating facility, power generation facility, electrical substation, or other similar uses. For the purposes of this bylaw, BESS are comprised of three (3) types as further described in § 7.9.3.B. of this bylaw; Tier 1 BESS, Tier 2 BESS and Tier 3 BESS.

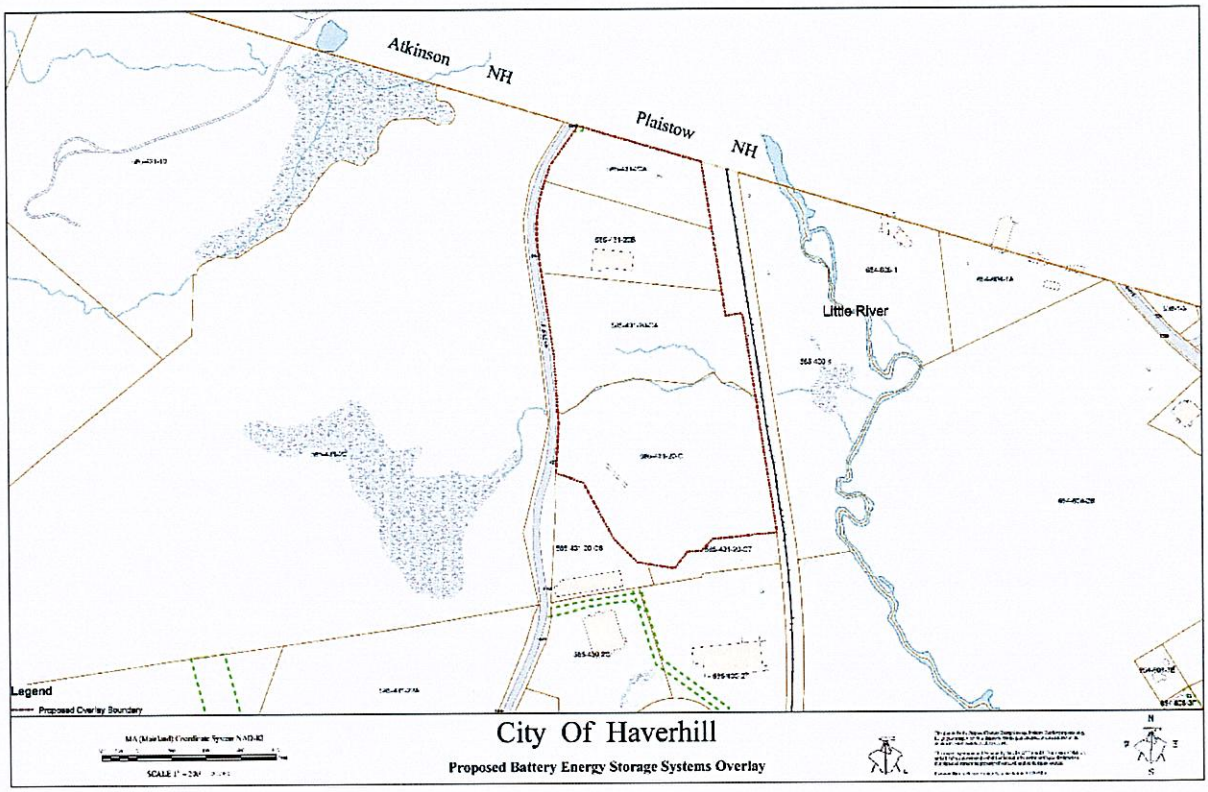
**And further to amend section 3.1.3, Table of Use and Parking regulations by allowing Tier 1, Tier 2 and Tier 3 BESS in the districts as follows:**

BESS Overlay District - OD

| | RS | RR | RL | RM | RH | RU | CN | CH | CG | CC | CM | OP | BG | BP | BESS OD | PC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **I. MISCELLANEOUS COMMERCIAL USES (cont'd)** | | | | | | | | | | | | | | | | |
| 22. Kennel or veterinary hospital in which all animals, fowl or other forms of life are completely enclosed in pens or other structures | BA | BA | N | N | N | N | N | BA | N | N | N | N | N | N | | D |
| 23. Commercial communications and/or television tower, provided that it shall be at least 500 feet from any R District | BA | N | N | N | N | N | N | BA | BA | BA | N | BA | BA | BA | | None |
| **24. Battery Energy Storage Systems: Tier 1** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **N** | **Y** | **Y** | **Y** | **None** |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25. Battery Energy Storage Systems: Tier 2 | N | N | N | N | N | N | N | N | N | N | N | N | N | N | CC | None |
| 26. Battery Energy Storage Systems: Tier 3 | N | N | N | N | N | N | N | N | N | N | N | N | N | N | CC | None |

**And further to amend the City of Haverhill Zoning Map to include the BESS Overlay District as set forth below:**



Outlook

**Thank you for placing your order with us.**

**From** North of Boston <noreply@wave2adportal.com>
**Date** Thu 9/17/2026 8:25 AM
**To** CityClerk <cityclerk@haverhillma.gov>
**Cc** cmacdonald@northofboston.com <cmacdonald@northofboston.com>; Kaitlin Wright Esposito <kwright@haverhillma.gov>; Natalia Hernandez <NHernandez@HaverhillMa.gov>

Warning! External Email. Exercise caution when opening attachments or clicking on any links.

## THANK YOU for your notice submission!

This is your confirmation that your order has been submitted. Below are the details of your transaction. Please save this confirmation for your records.

### Job Details

Order Number: W0147713
Business Type: All Other Public Notices
Notice Size: Public Notices
Notice Estimate: $57.69
Referral Code: Battery Energy Storage Ord.

### Account Details

Haverhill Clerk
4 SUMMER ST STE 118
HAVERHILL, MA 01830
978-374-2312
cityclerk@cityofhaverhill.com
HAVERHILL CITY CLERK

### Schedule for notice number W01477130

**Thu Sep 24, 2026**
**Haverhill Gazette Public** *All Zones*
**Notices**

**CITY OF HAVERHILL**
**In Municipal Council**
**ORDERED:**
**Municipal Ordinance**
**Chapter 255 Zoning**

An Ordinance Relating to Amending Chapter 255, Zoning by adding a new section 7.9 Battery Energy Storage Systems

Since this Ordinance exceeds in length eight octavo pages of ordinary book print, in lieu of advertising, it is published by the City Council in a municipal bulletin, placed on file in the City Clerk's Office, and posted on the municipal bulletin in City Hall.

PLACED ON FILE for at least 10 days Attest:

Kaitlin M. Wright Esposito, CMC, City Clerk
HG - Publication Dates

*The North of Boston Media Group is not responsible for any false, inaccurate or omitted notices.*

*The North of Boston Media Group reserves the right to alter, edit and omit any notice to meet our editorial guidelines. Any additional charges or credits as a result of this process will be the responsibility of the individual or company submitting the notice.*

*This is an automated message, please do not reply to this e-mail. If you have any questions or concerns you may contact us toll-free at 800-681-6248.*

# Haverhill

Economic Development and Planning
Phone: 978-374-2330

OCT 15 PM12:57
HAVCITYCLERK

To: City Council

From: Jacki Byerley, AICP, Planning Director

Re: Battery Energy Storage Systems Overlay District (BESS) Hilldale Ave

Date: October 15, 2026

At the regularly scheduled Planning Board meeting of October 14, 2026 the Planning Board voted to send a favorable recommendation of the attached Battery Energy Storage Systems Section 7.9 and overlay district on Hilldale Avenue.

The Planning Board previously recommended adopting the BESS regulations along with an overlay district on Amesbury Road. That recommendation was forwarded to the City Council, which then referred the matter to the Planning & Development Committee for further review.

On August 24, 2026, the Planning & Development Committee reviewed six potential locations (Computer Drive, Hilldale Avenue, Neck Road, Groveland Road, Amesbury Road, and Cross Road) along with input from various departments regarding operational needs. Based on this evaluation, the Committee determined that the overlay district should be located on Hilldale Avenue. Because the proposed overlay district location has changed, a new public hearing was required. A revised map reflecting this change has been prepared and submitted with the ordinance.

The proposed ordinance establishes a local regulatory framework governing the siting, permitting, construction, operation, maintenance, and decommissioning of BESS facilities within the City.

The ordinance appropriately differentiates between small-scale accessory systems and larger utility-scale facilities by establishing Tier 1, Tier 2, and Tier 3 classifications based on system capacity and operational characteristics. Smaller Tier 1 systems are permitted by right subject to site plan review and applicable code requirements, while larger Tier 2 and Tier 3 systems require a Special Permit and are restricted to the BESS Overlay District.

The ordinance also incorporates substantial public safety protections consistent with current industry standards and state guidance. All facilities are required to comply with applicable state building, fire, and electrical codes, including NFPA 855 standards governing stationary energy storage systems. The ordinance further requires emergency

operations plans, fire safety compliance plans, emergency access roads, containment systems, and ongoing coordination with local emergency responders.

The ordinance limits larger-scale facilities to the BESS Overlay District and provides the City Council, acting as the Special Permit Granting Authority, with the ability to evaluate each proposal on a case-by-case basis through the Special Permit and Development Review process.

The Planning Board voted to send a favorable recommendation to the City Council for approval of the proposed Battery Energy Storage System Ordinance with the overlay district of Hilldale Ave as drafted.

**MUNICIPAL ORDINANCE CHAPTER 255 Zoning**

## AN ORDINANCE RELATING TO AMENDING CHAPTER 255, ZONING BY ADDING A NEW SECTION 7.9 BATTERY ENTERGY STORAGE SYSTEMS

**BE IT ORDAINED by the City Council of the City of Haverhill that Chapter 255, Zoning, of the Code of the City of Haverhill, as amended, being and is hereby further amended as follows by inserting the following new section 7.9 entitled "Battery Energy Storage Systems";**

§7.9 BATTERY ENERGY STORAGE SYSTEMS

§7.9.1. Purpose.

The purpose of this Section is to advance and protect the public health, safety, welfare, and quality of life by creating regulations for the installation and use of free-standing battery energy storage systems ("BESS"), with the following objectives:

A. To provide a regulatory scheme for the location, construction and operation of free-standing BESS consistent with best practices and safety protocols;
B. To ensure compatible land uses in the vicinity of the areas affected by BESS and to mitigate any potential impacts on abutting and nearby properties; and
C. To mitigate the impacts of BESS on environmental resources such as agricultural lands, forests, wildlife, wetlands and other natural resources.

This Section shall be construed to be consistent with state law, including but not limited to the provisions of General Laws chapter 40A, section 3, and state regulations, including but not limited to the provisions of the State Building Code, State Fire Code, and State Electrical Code. In the event of any conflict between the provisions of this section and the provisions of state law or regulations, the state law and regulations shall prevail.

§7.9.2. Establishment of the BESS Overlay District

The BESS Overlay District is an overlay district superimposed over the underlying district set forth in this Zoning Ordinance. Within the BESS, the requirements of the underlying district continue to apply, except when the following uses are proposed then the following provisions of this section 7.9 shall apply:

Tier 1 BESS

Tier 2 BESS and

Tier 3 BESS

§7.9.3 Applicability.

A. The requirements of this ordinance shall apply to BESS permitted, installed, decommissioned or modified after the effective date of this ordinance, excluding general maintenance and repair. BESS subject to this ordinance are only those that exceed the following capacities:

- Lead-acid with a capacity of greater than 70 kW
- Nickel with a capacity of greater than 70 kW
- Lithium-ion with a capacity of greater than 30 kW
- Sodium nickel chloride with a capacity of greater than 20 kW
- Flow with a capacity of greater than 20 kW
- Other battery technologies with a capacity of greater than 20 kW

B. Only BESS that meet the criteria herein shall be permitted under this ordinance. BESS permitted under and subject to this ordinance shall be classified either as a Tier 1, Tier 2 or Tier 3 BESS as set forth herein. All sizes noted in this section shall include the total capacity of the proposed facility and not refer solely as a limitation on total export. For avoidance of doubt, a proposed system which has an export capacity of 50 MW but has a total storage or redundance capacity of 100 MW shall be treated as a 100 MW system.

1. Tier 1 BESS have an aggregate energy capacity less than or equal to 500 kWh, derive 51% or more of their power from Solar Energy Systems as defined herein, and, if in a room or enclosed area, consist of only a single energy storage system technology.

2. Tier 2 BESS consist of those which meet one or more of the following criteria;

    a. have an aggregate energy capacity greater than 500kWh and less than 10 MWh, but no greater than 10 MWh;

    b. are comprised of more than one storage battery facility in a room or enclosed area;

    c. derive less than 51% of their power from Solar Energy Systems as defined herein.

3. Tier 3 BESS consist of those which meet one or more of the following criteria;

    a. have an aggregate energy capacity greater than 10 MWh, but no greater than 100MWh;

    b. are comprised of more than one storage battery facility in a room or enclosed area;

c. derive less than 51% of their power from Solar Energy Systems as defined herein.

§ 7.9.4. General Requirements

A. All permits required by state codes, including but not limited to building permit, an electrical permit, and a fire department permit shall be required for installation of all BESS.

B. All BESS, all Dedicated Use Buildings, and all other buildings or structures that (a) contain or are otherwise associated with a battery energy storage system; and (b) subject to the requirements of the State Building Code, shall be designed, erected, and installed in accordance with all applicable provisions of the State Building Code 780 CMR, State Fire Code 527 CMR 1.00, and State Electrical Code 527 CMR 12.00. All BESS shall comply with NFPA 855, Standard for the Installation of Stationary Energy Storage Systems or subsequent standard.

C. Energy storage system capacities, including array capacity and separation, are limited to the thresholds contained in NFPA 855 or subsequent standard.

§ 7.9.5. Permitting Requirements for Tier 1 BESS

Tier 1 BESS are allowed by right in all zoning districts, including the BESS Overlay District, subject to applicable provisions of the State Building Code, Electrical Code, Fire Code, and other applicable codes, and are subject to site plan review in accordance with section 10.8 hereof and such provisions of this ordinance as are applicable.

Tier 1 BESS and appurtenances shall be prohibited in the Zone A and Zone 1 public water supply protection areas.

§ 7.9.6. Permitting Requirements for, Tier 2 and Tier 3 BESS shall be permitted by Special Permit in the BESS Overlay District in accordance with the requirements below.

§ 7.9.6.1 Special Permit Required. Tier 2 and Tier 3 BESS subject to this ordinance require the issuance of a Special Permit in the BESS Overlay District and are subject to Major Site Plan Review pursuant to Section 10.8. Tier 2 and Tier 3 BESS shall comply with the applicable requirements set forth in this ordinance including the General Special Permit Criteria set forth in section 10.4.2, as well as this Section 7.9 , and the Haverhill General Ordinances. The City Council shall be the Special Permit Granting Authority ("SPGA"). The Applicant shall be required to submit all materials required in accordance with the SPGA Rules and Regulations, in addition to any other materials necessary or as may be required in order to support that the Application meets the Design Requirements set forth in section 7.9.6.2 herein.

§ 7.9.6.1.1 Development Review Required As Part of Hearing Process: For the purpose of a Special Permit filed hereunder, the Applicant shall be required to submit a complete application for a Special Permit in accordance with the Requirements hereunder. Following the opening of the Public Hearing by the SPGA, the Application shall be referred to the Development Review Committee as set forth in

§10.1.4 hereof. The Development Review Committee shall meet with the Applicant who shall be required to provide any additional information as the Committee may reasonably request and the Development Review Committee shall provide the SPGA with its recommendations within ninety (90) days of the date upon which the application was thereto referred.

§ 7.9.6.1.2 Prohibitions: Notwithstanding the foregoing, Tier 2 and Tier 3 BESS and appurtenances shall be prohibited in the Zone A and Zone I public water supply protection areas.

§ 7.9.6.2 Design Requirements. The following requirements apply to all BESS subject to this ordinance, except where it is specifically noted to apply only to Tier 2 or Tier 3BESS:

A. Site Plan Drawings. The Applicant shall provide a full set of Site Drawings stamped by a Massachusetts Registered Professional Engineer inclusive of items set forth in section 7.9.7.K.1 hereof.

B. Utility Lines and Electrical Circuitry. All on-site utility lines shall be placed underground to the extent feasible and as permitted by the serving utility, with the exception of the main service connection at the utility company right-of-way and any new interconnection equipment, including without limitation any poles.

C. Signage. Signage shall comply with the requirements of Section 6.2 of this Zoning Ordinance and the following additional requirements; in the event of a conflict between the provisions of Section 6.2 and this section, the requirements of this section shall control.

    1. The signage shall be in compliance with ANSI Z535 and shall include the type of technology associated with the BESS, any special hazards associated, the type of suppression system installed in the area of BESS, and 24-hour emergency contact information, including reach-back phone number.

    2. As required by the state electrical code, disconnect and other emergency shutoff information shall be clearly displayed on a light reflective surface. A clearly visible warning sign concerning voltage shall be placed at the base of all pad-mounted transformers and substations.

    3. Signage compliant with ANSI Z535 shall be provided on doors to rooms, entrances to BESS facilities, and on BESS outdoor containers.

D. Lighting. Lighting of the BESS shall be limited to that minimally required for safety, security and operational purposes, shall be shielded from abutting properties, shall be directed downward, shall incorporate full cut-off fixtures to reduce light pollution and shall otherwise be consistent with local, state and federal law. A photometric plan shall be required.

E. Vegetation and tree cutting. Areas within ten feet on each side of Tier 2 and Tier 3 BESS shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted provided that they do not form a means of readily transmitting fire. Removal of trees should be minimized to the extent possible. No tree or vegetation clearing shall be permitted within the Setbacks as noted below except for the

purposes of the area of ingress and egress to the site. Vegetation control in the Water Supply Protection Overlay District (WSPOD) shall be by mowing or other mechanical means. The use of synthetic pesticides, herbicides, and fertilizers shall be prohibited for BESS facilities within the WSPOD.

F. Setbacks. Tier 2 and Tier 3 BESS shall be set back a minimum of 150 feet from all side, rear, and front lot lines; except that Tier 2 and Tier 3 BESS shall be set back a minimum of 300 feet from side, rear, and front lot lines that abut or are across a street from residential zoning districts or existing single, two-family, or multi-family structures. The minimum setback areas shall include a Buffer Area at least fifty feet wide along all property lines. Access drives and parking are allowed in the setback areas, except emergency access as noted below, but shall not intrude into the required setback areas except where necessary to provide access or egress to the property. In addition, a minimum of 50 feet must be maintained between BESS components and all buildings, stored combustible materials, hazardous materials, high-piled storage, personnel means of egress, and other exposure hazards not associated with electrical grid infrastructure. The Special Permit Granting Authority may waive these setback requirements so long as the approved setbacks protect the health and safety of nearby abutters.

G. Emergency Access: There shall be a 60-foot-wide paved emergency access road around the complete perimeter of the facility but inside the required setback area which may not exceed a 7% grade at any time. Ongoing maintenance of the access road including snow removal after 3 inches of snow shall be included as part of the Operations and Maintenance Plan required herein.

H. Lot Size. The minimum lot size for Tier 1 BESS shall not be less than 1 acre. The minimum lot size for a Tier 2 BESS shall be not less than 10 acres and the minimum lot size for a Tier 3 BESS shall be no less than 20.

I. Dimensional. All BESS shall comply with the dimensional limitations for principal structures of the underlying zoning district as provided in Appendix B, Table 2, of this Zoning Ordinance, unless otherwise provided in this ordinance. No BESS shall exceed 15 feet in height and there shall be no vertical stacking of BESS units.

J. Fencing Requirements. Tier 2 and Tier 3 BESS, including all mechanical equipment, shall be enclosed by a minimum eight-foot high fence with a self-locking gate to prevent unauthorized access unless housed in a dedicated-use building. All gates shall accomodate a knox box or other accessible means to allow access to public safety personnel. Security barriers, fences, landscaping, and other enclosures must not inhibit required air flow to or exhaust from the BESS and components. Electrical equipment greater than 1,000V require a separate and additional means to restrict access. NFPA 855 requires specialty safety systems to be provided based on the BESS chemistry and installed location.

K. Screening and Visibility. Tier 2 and Tier 3 BESS shall have views minimized from adjacent properties to the extent reasonably practicable using architectural features, earth berms, landscaping, or other screening methods that will harmonize with the character of the property and surrounding area. Such features may not inhibit required air flow to or exhaust from the BESS and components and must comply with the setbacks established in paragraph G above.

L. Failure Protection. All Tier 2 and Tier 3 BESS shall include an impenetrable layer beneath the

surface and no closer than four (4) feet to the closest water table which will cause any discharge to flow into a basin located on site which will then capture and/or treat any runoff as a result of a failed battery or fire or other destruction. The Application shall include details of the proposed catchment system along with a detailed stormwater report and stamped detailed engineering plans from a Massachusetts Registered Professional Engineer depicting the stormwater system. All BESS facilities located within the WSPOD shall have full containment to capture all releases, either intentionally from maintenance or accidental in nature. Release and runoff shall not be allowed.

M. Batteries. Failed battery cells and modules shall not be stored on the site and shall be removed no later than 30 days after deemed failed by the BESS operator or cell/module manufacturer. The operator shall notify the Haverhill Fire Chief in advance if the type of battery or batteries used onsite is to be changed. All failed battery cells and modules shall not be stored outdoors and must be protected from further damage and potential release of contaminants to the environment.

N. Storage. No equipment or hazardous materials, in liquid, dry, or gas form, shall be stored onsite of the BESS other than those items in quantities necessary for the proper operation of the facility. Any storage for materials deemed necessary shall be properly labeled, covered and contained to protect from release to the environment.

O. Acoustical Impacts. No system shall cause an increase in acoustical levels over ambient at the Property line. An acoustical study prepared by a Massachusetts Registered Acoustical Engineer shall be provided.

P. Water Source. A municipal water source shall be provided including a FDC within 100 feet before the entrance to the Hazard Area on the Property. The Applicant shall present evidence including a hydraulic analysis in accordance to the City standard to support that there is adequate volume and pressure for fire suppression on the Property and not have a detrimental impact on the surrounding neighborhood. The applicant shall be required to make any related offsite improvement to achieve the required standard to alleviate any impact on the adjacent users.

Q. Stormwater Management. The applicant shall submit a stormwater management plan consistent with the Massachusetts Stormwater Management Policy.

R. Decommissioning Plan. The applicant shall submit with its application a decommissioning plan for all BESS to be implemented upon abandonment and/or in conjunction with removal of the facility. The owner or operator of the BESS shall notify the Building Commissioner in writing at least twenty days prior to when a BESS will be decommissioned. Decommissioning of an abandoned or discontinued BESS shall be completed within six months after the facility ceases operation. The decommissioning plan shall include:

    1. A narrative description of the activities to be accomplished, including who will perform that activity and at what point in time, for complete physical removal of all BESS components, structures, equipment, security barriers, and transmission lines from the site;

    2. Disposal of all solid and hazardous waste in accordance with local, state, and

federal waste disposal regulations;

3. The anticipated life of the BESS;

4. The estimated decommissioning costs and how said estimate was determined, including an allowance for annual cost of living increases or increases due to inflation;

5. The method of ensuring that funds will be available for decommissioning and restoration;

6. The method by which the decommissioning cost will be kept current;

7. The manner in which the site will be restored, including a description of how any changes to the surrounding areas and other systems adjacent to the BESS, such as, but not limited to, structural elements, building penetrations, means of egress, and required fire detection suppression systems, will be protected during decommissioning and confirmed as being acceptable after the system is removed; and

8. A listing of any contingencies for removing an intact operational energy storage system from service, and for removing an energy storage system from service that has been damaged by a fire or other event.

S. Decommissioning Fund. The owner and/or operator of the energy storage system, shall continuously maintain a fund or other surety acceptable to the City, in a form approved by the City Council and City Solicitor, for the removal of the BESS, in an amount to be determined by the City, and which includes the City as loss payee, for the period of the life of the facility. All costs of the financial security shall be borne by the Applicant.

T. Proof of Liability Insurance. The applicant or property owner shall provide evidence of commercial liability insurance in an amount and type generally acceptable in the industry and approved by the Planning Board prior to the issuance of a building permit, and shall continue such insurance in effect until such facility has been decommissioned, removed, and the site restored in accordance with this ordinance.

§ 7.9.6.3 Special Permit Criteria. In addition to the general Special Permit criteria set forth in section 10.4.2 of this Ordinance, an application for Tier 2 or Tier 3 BESS shall meet the following criteria:

A. The project protects the ground water and surrounding properties from catastrophic failure of one or more of the batteries or cells by implementing appropriate catchment and filtration systems for water run off or run off from the system.

B. The project appropriately attenuates sound intrusion beyond the property lines onto adjacent properties so that there is no change in ambient sound after construction and during operations of the system.

C. The project includes only dark sky compliant down lighting which does not intrude beyond the property lines onto adjacent properties.

D. The project is secure and addresses possible trespass or other intrusion by individuals not affiliated with the project.

E. The project meets the public safety needs of the City.

F. The project minimizes visual impacts from utility infrastructure for interconnection.

F. The project is minimally visible from adjacent properties.

§ 7.9.7. Site Plan application.

For all BESS the Site Plan application shall include the following information, in addition to that required by Section 10.8 of this Zoning Ordinance and the applicable Planning Board requirements governing Site Plan Applications:

A. Utility Infrastructure information requirements:

1. A one- or three-line electrical diagram detailing the BESS layout, associated components, and electrical interconnection methods, with all State Electrical Code compliant disconnects and over current devices.

2. The Applicant shall provide certified verification that there is a fully executed Interconnection Services Agreement ("ISA") with the local utility distribution company. Said certification shall include the cover and signature pages of the ISA.

3. If the ISA has not been issued, the Applicant shall be required to provide a full copy of the Application for Interconnection filed with the local utility distribution company.

B. Preliminary equipment specification sheets that document the proposed BESS components, inverters and associated electrical equipment that are to be installed. A final equipment specification sheet shall be submitted prior to the issuance of building permit.

C. Name, address, and contact information of proposed or potential system installer and the owner and/or operator of the BESS. Such information of the final system installer shall be submitted prior to the issuance of building permit.

D. Large-scale fire test data, evaluation information, and calculations, and modeling data. For any of the following, UL 9540A fire test data must be made available to the Planning Board for review:

- BESS systems with a capacity of greater than 50 kW
- BESS systems with spacing between arrays of less than 3 feet

E. Commissioning Plan. The system installer or commissioning agent shall prepare a commissioning plan prior to the start of commissioning. Such plan shall be compliant with NFPA 855 and document and verify that the system and its associated controls and safety

systems are in proper working condition per requirements set forth in applicable state codes. Where commissioning is required by the Building Code, BESS commissioning shall be conducted by a Massachusetts Licensed Professional Engineer after the installation is complete but prior to final inspection and approval. A corrective action plan shall be developed for any open or continuing issues that are allowed to be continued after commissioning. A report describing the results of the system commissioning and including the results of the initial acceptance testing required by applicable state codes shall be provided to Zoning Enforcement Officer prior to final inspection and approval and maintained at an approved on-site location.

F. Fire Safety Compliance Plan. Such plan shall document and verify that the system and its associated controls and safety systems are in compliance with state codes, including documentation that BESS components comply with the safety standards set forth in subsection 7.9.9. Such plan shall also include a detailed training plan for public safety personnel.

G. Operation and Maintenance Manual. Such plan shall describe continuing BESS maintenance and property upkeep, as well as design, construction, installation, testing and commissioning information and shall meet all requirements set forth state codes and NFPA 855. Maintenance provisions will be driven by manufacturer requirements for the specific listed system. It shall address maintenance of the access and perimeter roadways, perimeter fencing, and shall include a snow removal plan and 24 hours access requirements by public safety officials. There shall be an annual; acoustical review to assure ongoing compliance with the requirement of no change from ambient at the property line and fire department inspection.

H. Depending on the location of the BESS in relation to and its interaction with the electrical grid, interconnection will be completed per 527 CMR 12.00. System interconnections into utility grids shall be in accordance with NFPA 855 and the local distribution company standards for interconnection of distributed energy resources. An accessible disconnect is required per 527 CMR 12.00.

I. Prior to the issuance of the building permit, As Built engineering documents must be signed and sealed by a Massachusetts Licensed Professional Engineer and provided to the Building Commissioner and Planning Department .

J. Emergency Operations Plan. An Emergency Operations Plan compliant with NFPA 855 is required. A copy of the approved Emergency Operations Plan shall be given to the system operator, the local fire department, local fire code official and police department. For so long as the BESS is operational, the operator shall provide the Fire Department, Police Department, Building Commissioner, and Mayor's office with contact information for personnel that can be reached 24 hours per day every day, and this contact information shall be updated by the operator whenever there is a change in the information. The operator shall also be required to have an official representative be present onsite not later than two hours after notification by the Fire Chief, Police Chief, or their designee. A permanent copy shall also be placed in an approved location to be accessible to facility personnel, fire code officials, and emergency responders. The emergency operations plan shall include the following information:

1. Procedures for safe shutdown, de-energizing, or isolation of equipment and systems under emergency conditions to reduce the risk of fire, electric shock, and personal injuries, and for safe start-up following cessation of emergency conditions.

2. Procedures for inspection and testing of associated alarms, interlocks, and controls, including time intervals for inspection and testing.

3. Procedures to be followed in response to notifications from the Battery Energy Storage Management System, when provided, that could signify potentially dangerous conditions, including shutting down equipment, summoning service and repair personnel, and providing agreed upon notification to fire department personnel for potentially hazardous conditions in the event of a system failure.

4. Emergency procedures to be followed in case of fire, explosion, release of liquids or vapors, damage to critical moving parts, or other potentially dangerous conditions. Procedures can include sounding the alarm, notifying the fire department, evacuating personnel, de-energizing equipment, and controlling and extinguishing the fire.

5. Response considerations similar to a safety data sheet (SDS) that will address response safety concerns and extinguishment when an SDS is not required.

6. Procedures for safe disposal of BESS equipment damaged in a fire or other emergency event, including maintaining contact information for personnel qualified to safely remove damaged BESS equipment from the facility.

7. Other procedures as determined necessary by the City to provide for the safety of occupants, neighboring properties, and emergency responders.

8. Procedures and schedules for conducting drills of these procedures and for training local first responders on the contents of the plan and appropriate response procedures.

K. Each Application shall be accompanied by the following information:

1. A certified plot plan at a minimum scale of one inch equals 40 feet and a maximum scale of one inch equals 20 feet. The site plan shall contain:
   a. Date of site plan with all revisions noted and dated. Title of development, North arrow, scale, map and lot number, name and address of record owner, name and address of person preparing the site plan.
   b. The names of all owners of record of adjacent properties, and the map and lot number of the properties and all buildings.
   c. Zoning district boundaries and flood zone boundaries shall be shown as they affect the property including limits of the WSPOD and public water supply Zone A and Zone I on the overall site plan.
   d. Boundaries of the property and lines of existing street, lots, easements and

areas dedicated to public use, including rights of way.

e. A locus map showing the location of the property with reference to surrounding area.
f. A table indicating all calculations necessary to determine conformance to Bylaw regulations including current required and proposed regulations.
g. Square footage of property to the nearest 10 square feet.

2. All plans must include the location of existing and proposed buildings, walls, fences, culverts, parking areas, loading areas, walkways and driveways.

   a. Location and dimensions of utilities, gas, telephone, electrical, communications, water drainage, sewer and other waste disposal.

   b. Location, type and dimensions of landscaping and screening.

   c. Location of existing rock outcroppings, high points, vistas, ponds, depressions, wetlands, major trees (twelve-inch caliper and over) and any other significant existing features.

   d. Two-foot contours where slopes are less than 15% and five-foot contours when 15% or more. Existing contours shall be indicated by dashed line. Proposed contours shall be indicated by solid line.

   e. Dimensioned schematic drawings of all proposed buildings. Scale shall not exceed ¼ inch equals one foot nor less than 1/8 inch equals one foot.

   f. A narrative describing the proposal and addressing the foregoing requirements.

   g. Location of street numbers indicated on the schematic drawings and/or site plan.

   h. Surface and water pollution. A report on the impact of Stormwater runoff on adjacent and downstream surface water bodies, subsurface groundwater and the water table.

   i. Soils. The potential dangers of erosion and sedimentation caused by the operation and maintenance of the proposed development.

   j. General environmental impact. A report on the relationship of the proposed development of the major botanical, zoological, geological and hydrological resources of the site, and compatibility of the proposed development with adjacent or surrounding land uses and neighborhoods.

   k. Traffic impact. A report on existing street capacities, estimated average

daily traffic generation, composition, peak hour levels and directional flows resulting from the proposed development, proposed methods to mitigate the estimated traffic impact and methodology and sources used to derive existing data and estimations.

l. Renderings showing the proposed project in relationship to its surroundings.

§ 7.9.8. Ownership Changes.

If the owner of the BESS changes or the owner of the property changes, the Special Permit shall remain in effect, provided that the successor owner or operator assumes in writing all of the obligations of the Special Permit, Site Plan approval, and decommissioning plan. A new owner or operator of the BESS shall notify the Building Commissioner of such change in ownership or operator within 14 days of the ownership change. A new owner or operator must provide such notification to the Building Commissioner in writing.

§ 7.9.9. Safety

System Certification. BESS and equipment shall be listed by a Nationally Recognized Testing Laboratory to UL 9540 (Standard for BESS and Equipment) or approved equivalent, with subcomponents meeting each of the following standards as applicable:

A. UL 1973 (Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail Applications),
B. UL 1642 (Standard for Lithium Batteries),
C. UL 1741 or UL 62109 (Inverters and Power Converters),
D. Certified under the applicable electrical, building, and fire prevention codes as required.
E. Alternatively, field evaluation by an approved testing laboratory for compliance with UL 9540 (or approved equivalent) and applicable codes, regulations and safety standards may be used to meet system certification requirements.

Site Access. BESS shall be maintained in good working order and in accordance with industry standards. Site access shall be maintained, including snow removal at a level acceptable to the local fire department.

BESS, components, and associated ancillary equipment shall have required working space clearances, and electrical circuitry shall be within weatherproof enclosures marked with the environmental rating suitable for the type of exposure in compliance with NFPA 70.

§ 7.9.11. Abandonment

The BESS shall be considered abandoned when it ceases to operate consistently for more than one year. If the owner and/or operator fails to comply with decommissioning upon any abandonment, the City may, after compliance with any applicable state and federal constitutional requirements, enter the property and utilize the available bond and/or security for the removal of any BESS and restoration of the site in accordance with the decommissioning plan.

**And further add the following new definition to § 11.1 of Chapter 255**

§ 11.1

AGGREGATE ENERGY CAPACITY: Total amount of energy stored that can be stored in all batteries that are a part of the BESS measured in kilowatt-hours (kWh) or megawatt-hours (MWh).

BATTERY or BATTERIES: A single cell or group of cells connected electrically in series, in parallel, or combination of both, which can charge, discharge and store energy electrochemically. For the purpose of this Ordinance, batteries utilized in consumer products are excluded from these requirements.

BATTERY ENERGY STORAGE SYSTEM ("BESS") – A system containing one of more battery modules for storing electrical energy, any equipment needed to support the safe and proper function or usage of the battery modules, and one or moe physical container(s) providing secondary containment to any of the above. It may be a primary use or an Accessory Use to a solar generating facility, power generation facility, electrical substation, or other similar uses. For the purposes of this bylaw, BESS are comprised of three (3) types as further described in § 7.9.3.B. of this bylaw; Tier 1 BESS, Tier 2 BESS and Tier 3 BESS.

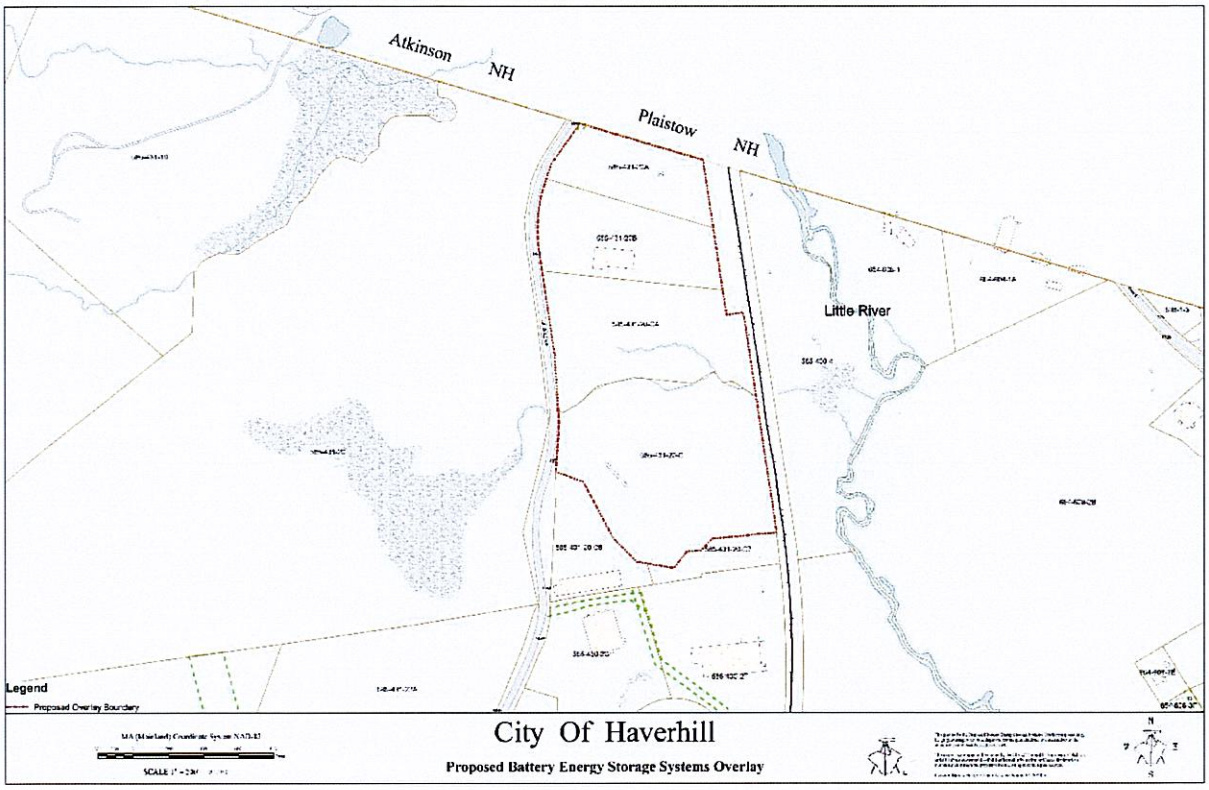
**And further to amend section 3.1.3, Table of Use and Parking regulations by allowing Tier 1, Tier 2 and Tier 3 BESS in the districts as follows:**

BESS Overlay District - OD

| | RS | RR | RL | RM | RH | RU | CN | CH | CG | CC | CM | OP | BG | BP | BESS OD | PC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **I. MISCELLANEOUS COMMERCIAL USES (cont'd)** | | | | | | | | | | | | | | | | |
| 22. Kennel or veterinary hospital in which all animals, fowl or other forms of life are completely enclosed in pens or other structures | BA | BA | N | N | N | N | N | BA | N | N | N | N | N | N | | D |
| 23. Commercial communications and/or television tower, provided that it shall be at least 500 feet from any R District | BA | N | N | N | N | N | N | BA | BA | BA | N | BA | BA | BA | | None |
| **24. Battery Energy Storage Systems: Tier 1** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **N** | **Y** | **Y** | **Y** | **None** |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25. Battery Energy Storage Systems: Tier 2 | N | N | N | N | N | N | N | N | N | N | N | N | N | N | CC | None |
| 26. Battery Energy Storage Systems: Tier 3 | N | N | N | N | N | N | N | N | N | N | N | N | N | N | CC | None |

**And further to amend the City of Haverhill Zoning Map to include the BESS Overlay District as set forth below:**



12.1 announce 12/1/26 hearing 1/5/27

nationalgrid

NOV 10 PM3:06
HAVCITYCLERK

October 2, 2026

To the City of Haverhill, Massachusetts

To Whom It May Concern:

Enclosed please find a petition for NATIONAL GRID and VERIZON, covering joint NATIONAL GRID-VERIZON pole location(s)

If you have any questions regarding this permit, please contact:

Anas Asha (781) 870-7986 or anas.asha@nationalgrid.com

Please notify National Grid's Jennifer Iannalfo of the hearing date / time to Jennifer.Iannalfo@nationalgrid.com

If this petition meets with your approval, please return an executed copy to each of the above-named Companies.

National Grid: Jennifer Iannalfo, 1101 Turnpike Street; North Andover, MA 01845.

Very truly yours,

Dave Johnson

Dave Johnson
Supervisor, Distribution Design

Enclosures

Questions contact – Anas Asha 781-870-7986 or anas.asha@nationalgrid.com

**PETITION FOR JOINT OR IDENTICAL POLE LOCATIONS**

North Andover, Massachusetts

To The City Council
Of Haverhill, Massachusetts

Massachusetts Electric Company d/b/a NATIONAL GRID and Verizon New England, Inc requests permission to locate poles, wires, and fixtures, including the necessary sustaining and protecting fixtures, along and across the following public way:

Sixth Avenue - National Grid to install 1 JO pole on Sixth Avenue beginning at a point approximately 120 feet Southwest of the centerline of the intersection of Main Street and Sixth Avenue and continuing approximately 0 feet in a Southwest direction. National Grid will install one new joint owned pole, P# 0-5 between pole# 1 and pole# 29, Haverhill, MA.

Location approximately as shown on plan attached.

Wherefore it prays that after due notice and hearing as provided by law, it be granted a location for and permission to erect and maintain poles and wires, together with such sustaining and protecting fixtures as it may find necessary, said poles to be erected substantially in accordance with the plan filed herewith marked – Sixth Avenue - Haverhill, Massachusetts.

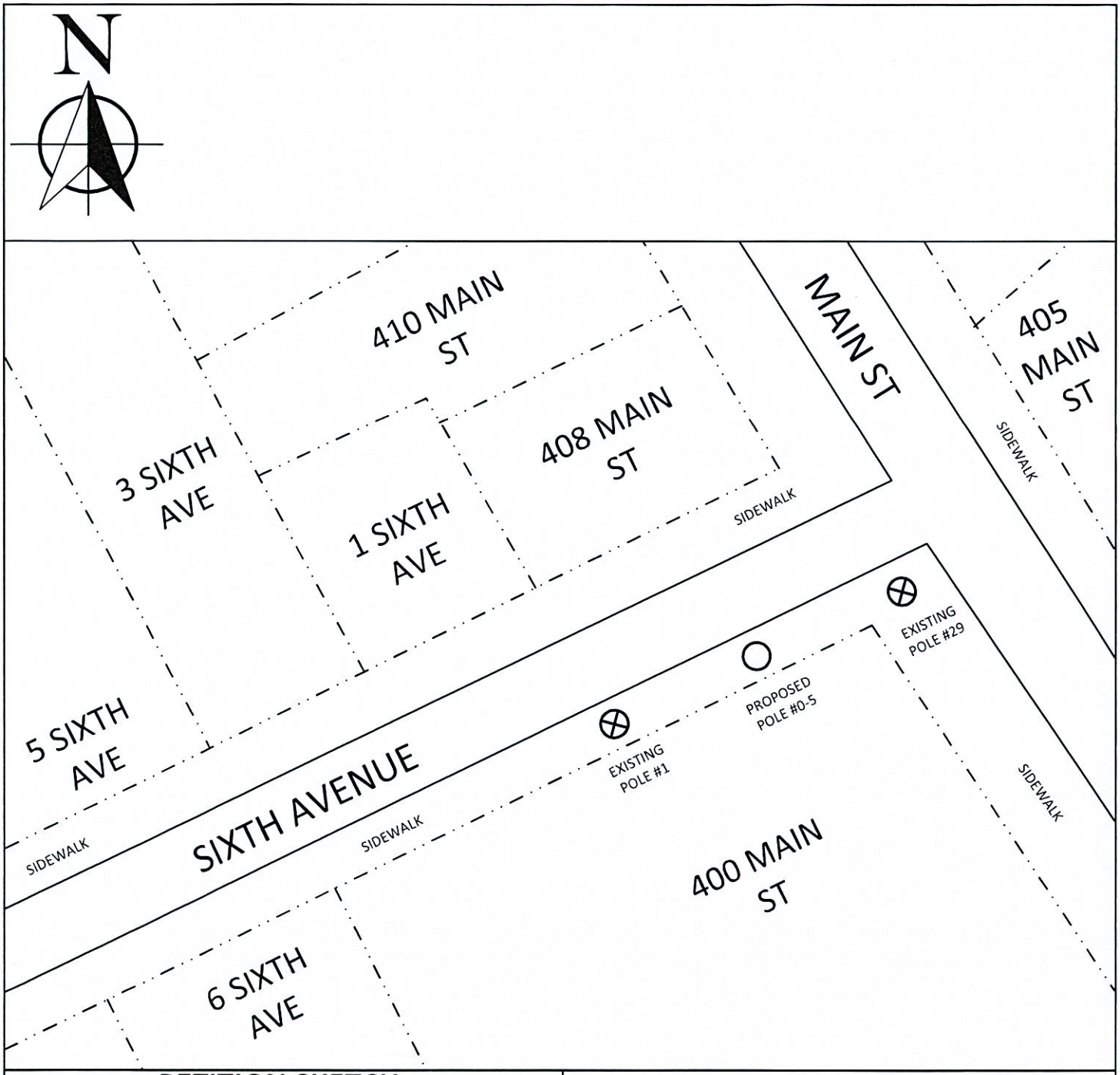
**No.# 31358473**

Also, for permission to lay and maintain underground laterals, cables, and wires in the above or intersecting public ways for the purpose of making connections with such poles and buildings as each of said petitioners may desire for distributing purposes.

Your petitioner agrees to reserve space for one cross-arm at a suitable point on each of said poles for the fire, police, telephone, and telegraph signal wires belonging to the municipality and used by it exclusively for municipal purposes.

Massachusetts Electric Company d/b/a
NATIONAL GRID Dave Johnson
BY _____
Engineering Department

VERIZON NEW ENGLAND, INC.
BY _____
Manager / Right of Way




## PETITION SKETCH

**Legend**

⊗ EXISTING POLE

○ PROPOSED POLE

· — · — PROPERTY LINES

**Job Description:**

INSTALL JOINT OWNED POLE #0-5 BETWEEN POLES #1 & #29

DISTANCES ARE APPROXIMATE

**NationalGrid**

Date: 09/14/2026

WORK REQUEST: 31358473

To: THE CITY OF HAVERHILL

Location:
1 SIXTH AVENUE, HAVERHILL, MA, 01830

Drawn By: ANAS ASHA

October 2, 2026

Questions contact – Anas Asha 781-870-7986 or anas.asha@nationalgrid.com

**ORDER FOR JOINT OR IDENTICAL POLE LOCATIONS**

To the City Council of Haverhill, Massachusetts

Notice having been given and public hearing held, as provided by law,
IT IS HEREBY ORDERED: that Massachusetts Electric Company d/b/a NATIONAL GRID and VERIZON NEW ENGLAND INC. (formerly known as NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY) be and they are hereby granted joint or identical locations for and permission to erect and maintain poles and wires to be placed thereon, together with such sustaining and protecting fixtures as said Companies may deem necessary, in the public way or ways hereinafter referred to, as requested in petition of said Companies dated the 14th day of September, 2026.

All construction under this order shall be in accordance with the following conditions:

Poles shall be of sound timber, and reasonable straight, and shall be set substantially at the points indicated upon the plan marked – Sixth Avenue - Haverhill, Massachusetts.

**No.# 31358473**

Filed with this order:

There may be attached to said poles by Massachusetts Electric Company d/b/a NATIONAL GRID and Verizon New England Inc. such wires, cables, and fixtures as needed in their business and all of said wires and cables shall be placed at a height of not less than twenty (20) feet from the ground.

The following are the public ways or part of ways along which the poles above referred to may be erected, and the number of poles which may be erected thereon under this order:

Sixth Avenue - National Grid to install 1 JO pole on Sixth Avenue beginning at a point approximately 120 feet Southwest of the centerline of the intersection of Main Street and Sixth Avenue and continuing approximately 0 feet in a Southwest direction. National Grid will install one new joint owned pole, P# 0-5 between pole# 1 and pole# 29, Haverhill, MA.

Also, for permission to lay and maintain underground laterals, cables, and wires in the above or intersecting public ways for the purpose of making connections with such poles and buildings as each of said petitioners may desire for distributing purposes.
I hereby certify that the foregoing order was adopted at a meeting of the
Of the City/Town of ,Massachusetts held on the day of 20 .

City/Town Clerk.

Massachusetts 20 .

Received and entered in the records of location orders of the City/Town of

Book Page

Attest:

City/Town Clerk

I hereby certify that on 20 , at o'clock, M

At a public hearing was held on the petition of Massachusetts Electric Company d/b/a NATIONAL GRID and VERIZON NEW ENGLAND, INC. for permission to erect the poles, wires, and fixtures described in the order herewith recorded, and that we mailed at least seven days before said hearing a written notice of the time and place of said hearing to each of the owners of real estate (as determined by the last preceding assessment for taxation) along the ways or parts of ways upon which the Company is permitted to erect Poles, wires, and fixtures under said order. And that thereupon said order was duly adopted.

City/Town Clerk.

.....

.....

.....

.....

Board or Council of Town or City, Massachusetts

CERTIFICATE

I hereby certify that the foregoing is a true copy of the location order and certificate of hearing with notice adopted by the of the City of Massachusetts, on the day of 20 and recorded with the records of location orders of the said City, Book , and Page . This certified copy is made under the provisions of Chapter 166 of General Laws and any additions thereto or amendments thereof.

Attest:

City/Town Clerk

611-493-1
PILGRIM HOLINESS CHURCH
404 MAIN ST
HAVERHILL, MA 01830

611-495-6
PORT UNITY,LLC
100 CUMMINGS CENTER,SUITE 105M
BEVERLY, MA 01915

611-495-9
GONZALEZ MARINA
5 SIXTH AV
HAVERHILL, MA 01830

621-537-1-3
THOMPSON THOMAS W
405 407 MAIN ST, Unit 3
HAVERHILL, MA 01830

621-537-1-6
KIRK ELIZABETH A
405 MAIN ST UNIT 6
HAVERHILL, MA 01830

611-493-10-103
RODRIGUES DORVALINA D
103 AUBURN ST
HAVERHILL, MA 01830

611-495-7
BETHUNE FELICIA
1 SIXTH AV
HAVERHILL, MA 01830

621-537-1-1
SZCZYPINSKI GLORIA
405 MAIN ST
HAVERHILL, MA 01830

621-537-1-4
BATISTA DANIEL
405 MAIN ST, UNIT 4
HAVERHILL, MA 01830

621-538-12
THE SALVATION ARMY OF MASS INC
25 SHAWMUT RD
CANTON, MA 02021

611-493-11
HAVERHILL MULTI FAMILY, LLC
376 MAIN ST
HAVERHILL, MA 01830

611-495-8
BUSICK DARWIN A
3 SIXTH AVE
HAVERHILL, MA 01830

621-537-1-2
FRAMINGHAM REALTY TRUST
405 MAIN ST
HAVERHILL, MA 01830

621-537-1-5
KELLEHER RYAN PATRICK
405 MAIN ST, Unit 5
HAVERHILL, MA 01830

City of Haverhill
4 Summer St
Rm 118
Haverhill, MA 01830

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | ParcelID | StreetNum | StreetName | LocCity | CondoUnit | Owner1 |
| 2 | 611-493-1 | 400 | MAIN ST | HAVERHILL | | PILGRIM HOLINESS CHURCH |
| 3 | 611-493-10-103 | 103 | AUBURN ST | HAVERHILL | | RODRIGUES DORVALINA D |
| 4 | 611-493-11 | 6 | SIXTH AVE | HAVERHILL | | HAVERHILL MULTI FAMILY, LLC |
| 5 | 611-495-6 | 408 | MAIN ST | HAVERHILL | | PORT UNITY,LLC |
| 6 | 611-495-7 | 1 | SIXTH AVE | HAVERHILL | | BETHUNE FELICIA |
| 7 | 611-495-8 | 3 | SIXTH AVE | HAVERHILL | | BUSICK DARWIN A |
| 8 | 611-495-9 | 5 | SIXTH AVE | HAVERHILL | | GONZALEZ MARINA |
| 9 | 621-537-1-1 | 405 | MAIN ST | HAVERHILL | 1 | SZCZYPINSKI GLORIA |
| 10 | 621-537-1-2 | 405 | MAIN ST | HAVERHILL | 2 | FRAMINGHAM REALTY TRUST |
| 11 | 621-537-1-3 | 405 | MAIN ST | HAVERHILL | 3 | THOMPSON THOMAS W |
| 12 | 621-537-1-4 | 405 | MAIN ST | HAVERHILL | 4 | BATISTA DANIEL |
| 13 | 621-537-1-5 | 405 | MAIN ST | HAVERHILL | 5 | KELLEHER RYAN PATRICK |
| 14 | 621-537-1-6 | 405 | MAIN ST | HAVERHILL | 6 | KIRK ELIZABETH A |
| 15 | 621-538-12 | 395 | MAIN ST | HAVERHILL | | THE SALVATION ARMY OF MASS INC |