EXISTING CONDITIONS/ SITE INFORMATION

Site Approval Application/Homeownership

Neponset Village LLC

Site Information

Submit Print

Existing Conditions | Surrounding Land Use | Infrastructure | Development Constraints | Attachments

Upload Attachment: 2.1 Existing Conditions Plan | Choose File | No file chosen | Upload

Uploaded Attachments

2.1 Existing Conditions Plan Existing Conditions.pdf	Delete
2.2 Aerial Photographs 10365 - Aerial - 1000 Scale.pdf	Delete
2.2 Aerial Photographs 10365 - Aerial - 2000 Scale.pdf	Delete
2.2 Aerial Photographs 10365 - Aerial - 500 Scale.pdf	Delete
2.3 Site/Context Photographs Site pictures with reference cover.pdf	Delete
2.4 Documentation Regarding Site Characteristics/Constraints Flood Zone Map.pdf	Delete
2.4 Documentation Regarding Site Characteristics/Constraints Pleasant Street Walpole Wetlands Wildlife Review.pdf	Delete
2.4 Documentation Regarding Site Characteristics/Constraints Wetlands Map.pdf	Delete
2.5 By-Right Site Plan Norwood Engineering By-Right Plan.pdf	Delete
Other: Permitting History 7398-01C Permitting History 21-06-22_1.docx	Delete
Other: Traffic Report Bayside Traffic Update Report 71521.pdf	Delete

2.1 Existing Conditions Plan (required):

Please provide a detailed Existing Conditions Plan showing the entire site, prepared, signed and stamped by a Registered Engineer or Land Surveyor. Plans should be prepared at a scale of 1"=100' or 1"=200' and should include the following information:

a. Reduced scale locus map

b. Surveyed property boundaries

c. Topography

d. Wetland boundaries (if applicable)

e. Existing utilities (subsurface and above ground)

f. Natural features including bodies of water, rock outcroppings

g. Existing easements and/or rights of way on the property

h. Existing buildings and structures, including walls, fences, wells

i. Existing vegetated areas

j. Existing Site entries and egresses

2.2 Aerial Photographs (required):

Please provide one or more aerial photograph(s) of the site (such as those available online) showing the immediate surrounding area if available. Site boundaries and existing site entrance and access points must be clearly marked.

2.3 Site/Context Photographs (required):

Please provide photographs of the site and surrounding physical and neighborhood context, including nearby buildings, significant natural features and land uses. Please identify the subject and location of all photographs.

2.4 Documentation Regarding Site Characteristics/Constraints (required):

Please provide documentation of site characteristics and constraints as directed including available narratives, summaries and relevant documentation including:

Flood Insurance Rate Map (FIRM) showing site boundaries

Wetlands delineation

Historic District Nomination(s)

2.5 By-Right Site Plan (if available):

MassHousing will commission, at your expense, an "as-is" appraisal of the site in accordance with the Guidelines, Section B (1). Therefore, if there is a conceptual development plan which would be permitted under current zoning and which you would like the appraiser to take into consideration, or if permits have been issued for alternative development proposals for the site, please provide two (2) copies of a "by-right" site plan showing the highest and best use of the site under current zoning, and copies of any existing permits. These will assist the appraiser in determining the "as is" value of the site without any consideration being given to its potential for development under Chapter 40B.

Section 2: EXISTING CONDITIONS / SITE INFORMATION

In order to issue Site Approval, MassHousing must find (as required by 760 CMR 56.04 (4)) that the site is generally appropriate for residential development.

Buildable Area Calculations (Acres)

Total Site Area:	**121,579.00**
Wetland Area *(per MA DEP)*:	0.00
Flood Hazard Area *(per FEMA)*:	0.00
Endangered Species Habitat *(per MESA)*:	0.00
Conservation / Article 97 Land:	0.00
Protected Agricultural Land *(i.e. EO 193)*:	0.00
Other Non-Buildable:	**0.00**
Total Non-Buildable Area:	0.00
Total Buildable Area:	121,579.00

Current use of the site and prior use if known:

Vacant, treed, upland lot.

Is the site located entirely within one municipality? No

If not, in what other municipality is the site located?

How much land is in each municipality?

Additional Site Addresses:

Current zoning classification and principal permitted uses:

General Residence

Previous Development Efforts

Please list any previous applications pertaining to construction on or development of the site, including (i) type of application (comprehensive permit, subdivision, special permit, etc.); (ii) application filing date; (iii) date of denial, approval or withdrawal. Also indicate the current Applicant's role, if any, in the previous applications.

Note that, pursuant to 760 CMR 56.03 (1), a decision of a Zoning Board of Appeals to deny a Comprehensive Permit, or (if the Statutory Minima defined at 760 CMR 56.03 (3) (b or c) have been satisfied) grant a Comprehensive Permit with conditions, shall be upheld if a related application has previously been received, as set forth in 760 CMR 56.03 (7).

See Attachment "Other"

To the best of your knowledge, has this site ever been rejected for project eligibility/site approval by another subsidizing agency or authority? No

If Rejected, Please Explain:

Existing Utilities and Infrastructure	Yes/No	Description
Wastewater- private wastewater treatment	No	
Wastewater - public sewer	Yes	
Storm Sewer	Yes	
Water-public water	Yes	
Water-private well	No	
Natural Gas	Yes	
Electricity	Yes	
Roadway Access to Site	Yes	
Sidewalk Access to Site	No	
ther	No	

Describe Surrounding Land Uses:

North - Norwood Town line containing heavy commercial and industrial
South - Residential single family homes on Maguire Park Road, a cul-de-sac
East - 1 Single family home and 1 multi-family rental building. Cemetery across the street

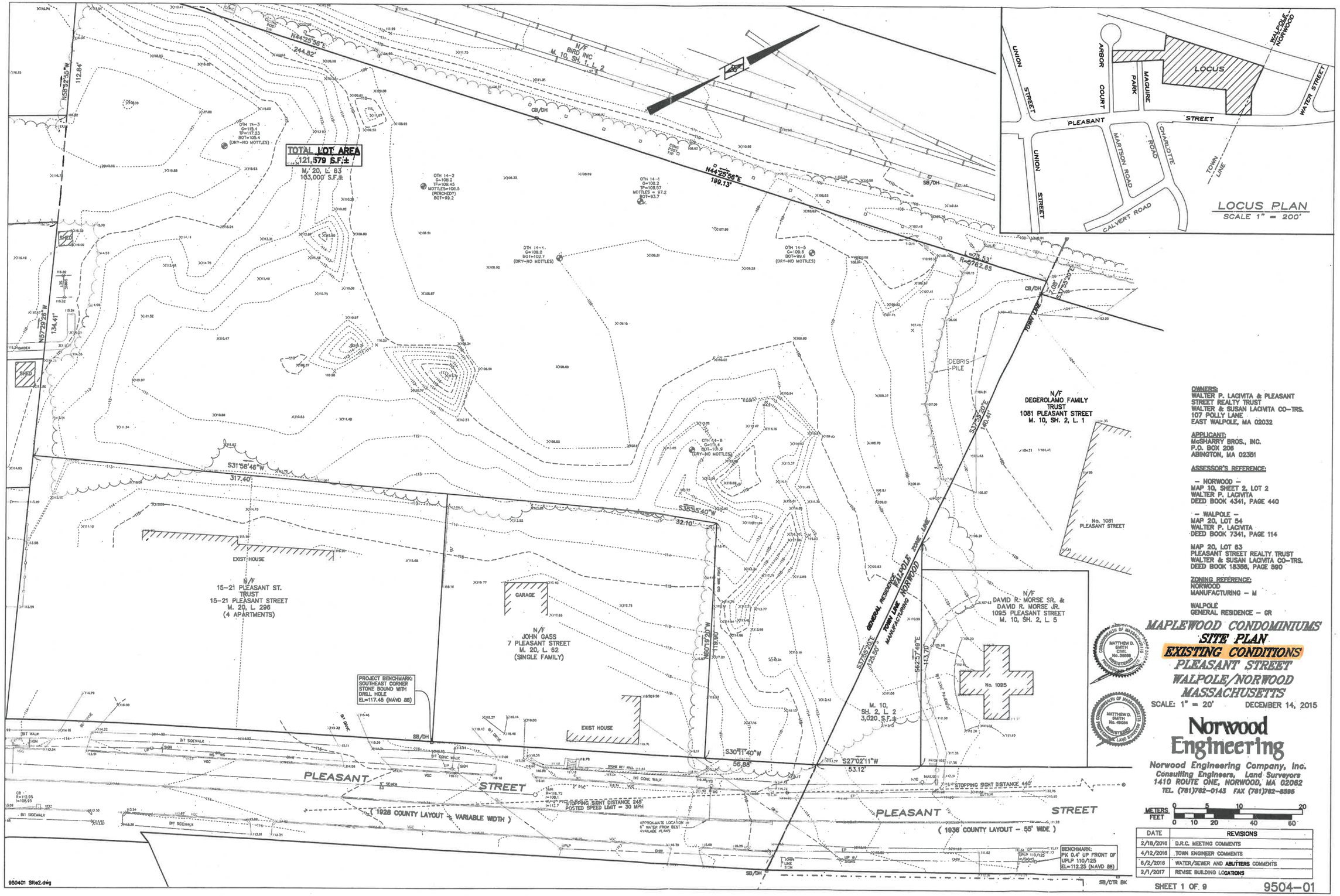
Surrounding Land Use/Amenities	Distance from Site	Available by Public Transportation?
Shopping Facilities	0.70	N/A
Schools	1.60	N/A
Government Offices	2.80	N/A
Multi-Family Housing	0.10	N/A
Public Safety Facilities	3.40	N/A
Office/Industrial Uses	0.70	N/A
Conservation Land	0.90	N/A
Recreational Facilities	0.90	N/A
Houses of Worship	0.70	N/A
Other	0.00	N/A

Public transportation near the Site, including type of transportaion and distance from site:

Walpole MBTA station - 3.2 miles

Site Characteristics and Development Constraints

Are there any easements, rights of way or other restrictions of record affecting the development of the site ?	No
Is there any evidence of hazardous, flammable or explosive material on the site?	No
Is the site, or any portion thereof, located within a designated flood hazard area?	No
Does the site include areas designated by Natural Heritage as endangered species habitat?	No
Are there documented state-designated wetlands on the site?	No
Are there documented vernal pools on the site?	No
Is the site within a local or state Historic District or listed on the National Register or Historic Places?	No
Has the site or any building(s) on the site been designated as a local, state or national landmark?	No
Are there existing buildings and structures on site?	No
Does the site include documented archeological resources?	No
Does the site include any known significant areas of ledge or steep slopes?	No



OWNERS:
WALTER P. LACIVITA & PLEASANT STREET REALTY TRUST
WALTER & SUSAN LACIVITA CO-TRS.
107 POLLY LANE
EAST WALPOLE, MA 02032

APPLICANT:
McSHARRY BROS., INC.
P.O. BOX 206
ABINGTON, MA 02351

ASSESSOR'S REFERENCE:

– NORWOOD –
MAP 10, SHEET 2, LOT 2
WALTER P. LACIVITA
DEED BOOK 4341, PAGE 440

– WALPOLE –
MAP 20, LOT 54
WALTER P. LACIVITA
DEED BOOK 7341, PAGE 114

MAP 20, LOT 63
PLEASANT STREET REALTY TRUST
WALTER & SUSAN LACIVITA CO-TRS.
DEED BOOK 18358, PAGE 590

ZONING REFERENCE:
NORWOOD
MANUFACTURING – M

WALPOLE
GENERAL RESIDENCE – GR

MAPLEWOOD CONDOMINIUMS
SITE PLAN
EXISTING CONDITIONS
PLEASANT STREET
WALPOLE/NORWOOD
MASSACHUSETTS

SCALE: 1" = 20' DECEMBER 14, 2015

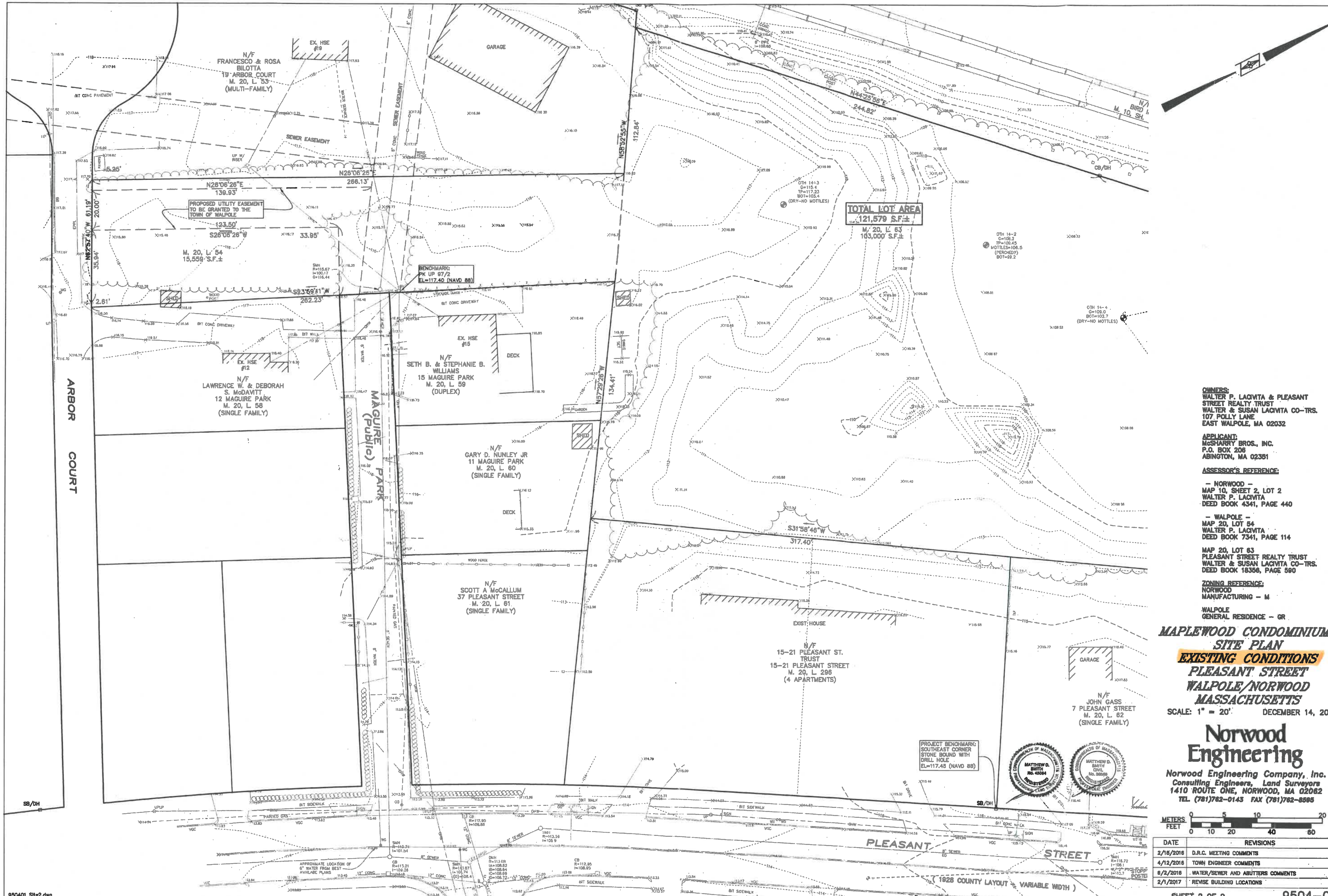
Norwood Engineering
Norwood Engineering Company, Inc.
Consulting Engineers, Land Surveyors
1410 ROUTE ONE, NORWOOD, MA 02062
TEL. (781)762-0143 FAX (781)762-8595

METERS 0 5 10 20
FEET 0 10 20 40 60

DATE	REVISIONS
2/18/2016	D.R.C. MEETING COMMENTS
4/12/2016	TOWN ENGINEER COMMENTS
6/2/2016	WATER/SEWER AND ABUTTERS COMMENTS
2/1/2017	REVISE BUILDING LOCATIONS

SHEET 1 OF 9

9504-01


N/F
FRANCESCO & ROSA
BILOTTA
19 ARBOR COURT
M. 20, L. 53
(MULTI-FAMILY)
EX. HSE
#19
GARAGE
SEWER EASEMENT
N26°06'25"E
266.13'
N28°06'26"E
139.93'
PROPOSED UTILITY EASEMENT
TO BE GRANTED TO THE
TOWN OF WALPOLE
123.50'
S26°06'26"W
33.95'
M. 20, L. 54
15,559 S.F.±
BENCHMARK:
PK UP 97/2
EL=117.40 (NAVD 88)
S23°59'41"W
262.23'
SHED
N/F
LAWRENCE W. & DEBORAH
S. McDAVITT
12 MAGUIRE PARK
M. 20, L. 58
(SINGLE FAMILY)
EX. HSE
#12
EX. HSE
#15
DECK
N/F
SETH B. & STEPHANIE B.
WILLIAMS
15 MAGUIRE PARK
M. 20, L. 59
(DUPLEX)
N/F
GARY D. NUNLEY JR
11 MAGUIRE PARK
M. 20, L. 60
(SINGLE FAMILY)
DECK
N/F
SCOTT A McCALLUM
37 PLEASANT STREET
M. 20, L. 61
(SINGLE FAMILY)
ARBOR COURT
MAGUIRE PARK
(Public)
N58°52'55"W
112.84'
N5°29'26"W
134.41'
N44°25'56"E
244.82'
N/F
BIRD
M. 10, SH.
CB/DH
TOTAL LOT AREA
121,579 S.F.±
M. 20, L. 63
103,000 S.F.±
S31°58'46"W
317.40'
EXIST HOUSE
N/F
15-21 PLEASANT ST.
TRUST
15-21 PLEASANT STREET
M. 20, L. 296
(4 APARTMENTS)
GARAGE
N/F
JOHN GASS
7 PLEASANT STREET
M. 20, L. 62
(SINGLE FAMILY)
PROJECT BENCHMARK:
SOUTHEAST CORNER
STONE BOUND WITH
DRILL HOLE
EL=117.45 (NAVD 88)
SB/DH
PLEASANT STREET
(1926 COUNTY LAYOUT - VARIABLE WIDTH)
950401 Site2.dwg

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WALTER & SUSAN LACIVITA CO-TRS.
DEED BOOK 18356, PAGE 590

ZONING REFERENCE:
NORWOOD
MANUFACTURING – M

WALPOLE
GENERAL RESIDENCE – GR

MAPLEWOOD CONDOMINIUMS
SITE PLAN
EXISTING CONDITIONS
PLEASANT STREET
WALPOLE/NORWOOD
MASSACHUSETTS

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FEET 0 10 20 40 60

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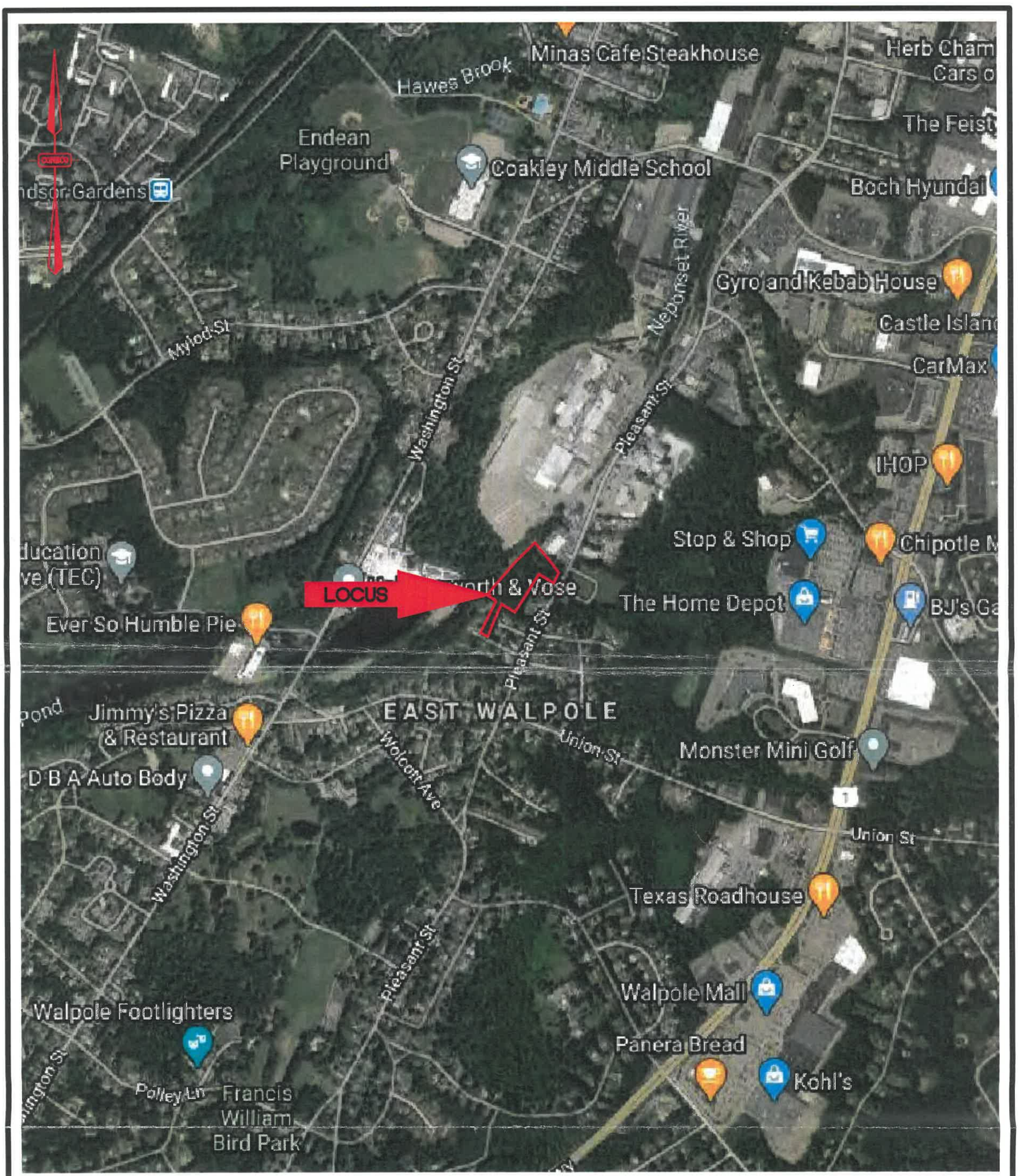
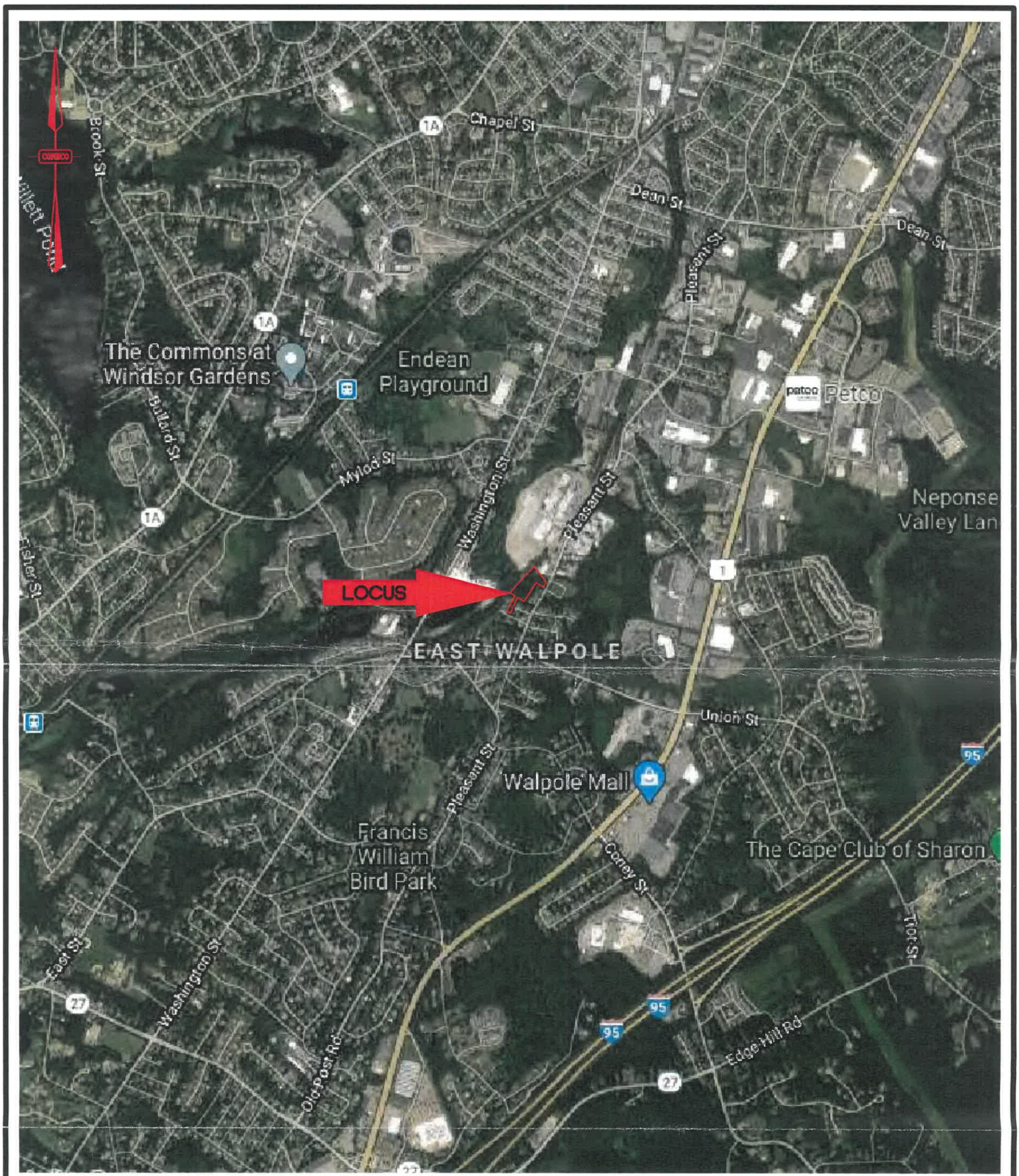
 9504–01



5 PLEASANT STREET, WALPOLE, MA 02032

CONECO
Engineers & Scientists
PHONE: 800-548-3355 WEBSITE: www.coneco.com

PREPARED FOR: PLEASANT STREET REALTY TRUST		PLAN SET: SITE PLANS	
SCALE 1"=1,000'	DATE 2/10/21	PROJECT NO. 10365	TITLE: AERIAL



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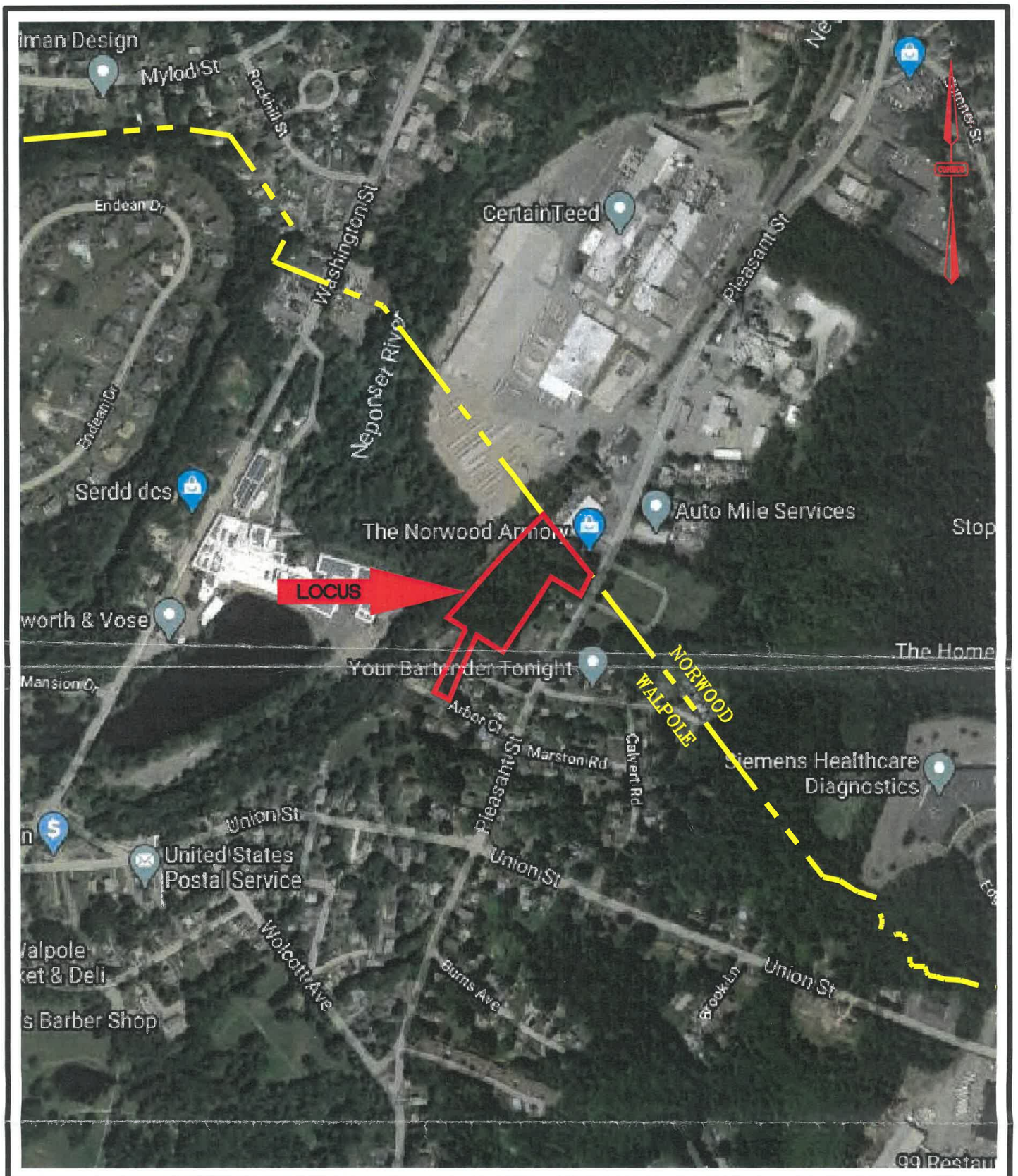
Engineers & Scientists
PHONE: 800-548-3355 WEBSITE: www.coneco.com

PREPARED FOR: PLEASANT STREET REALTY TRUST		PLAN SET: SITE PLANS	
SCALE 1"=2,000'	DATE 2/10/21	PROJECT NO. 10365	TITLE: AERIAL



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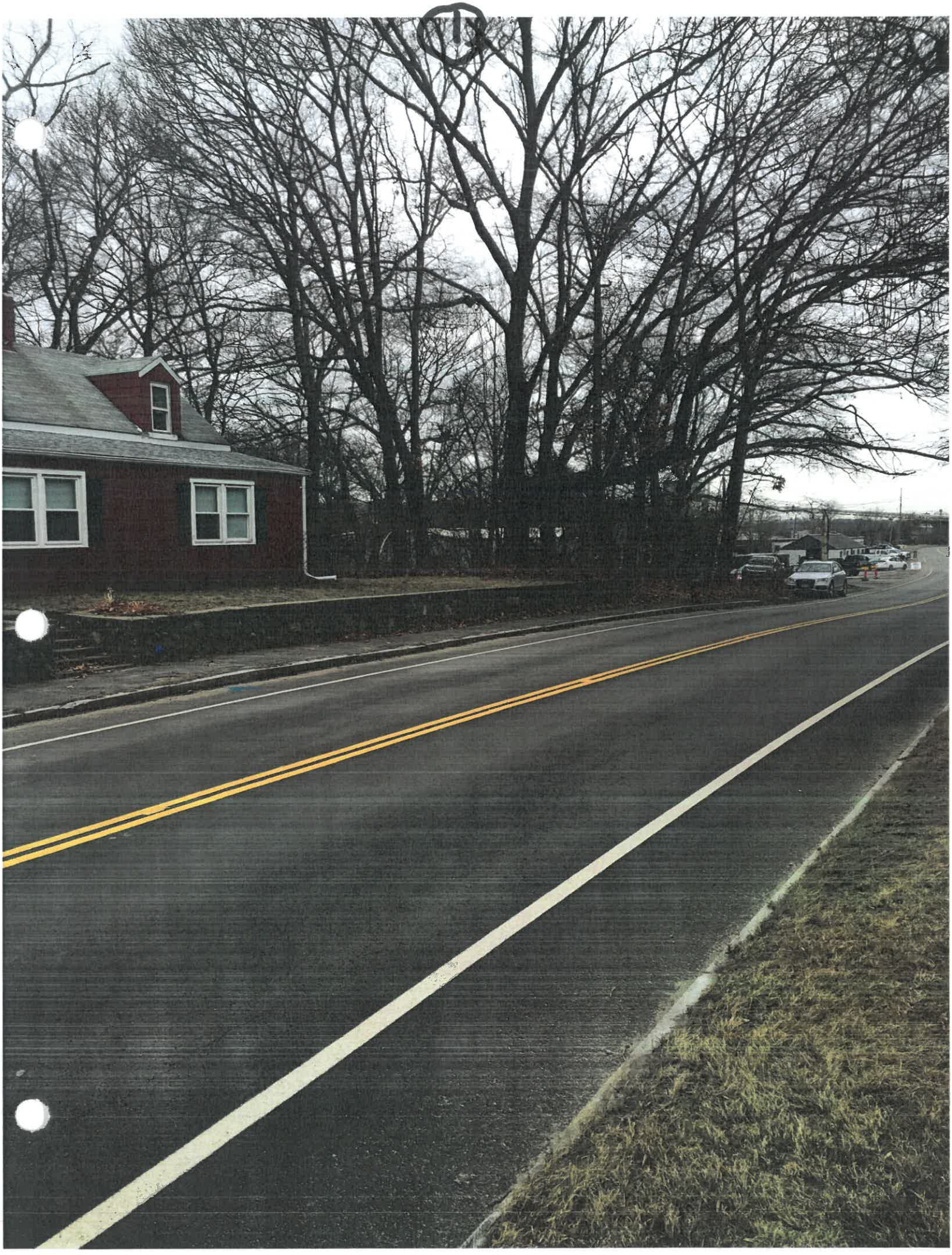
Engineers & Scientists
PHONE: 800-548-3355 WEBSITE: www.coneco.com

PREPARED FOR: PLEASANT STREET REALTY TRUST		PLAN SET: SITE PLANS	
SCALE 1"=500'	DATE 2/10/21	PROJECT NO. 10365	TITLE: AERIAL

Site Picture Reference Map

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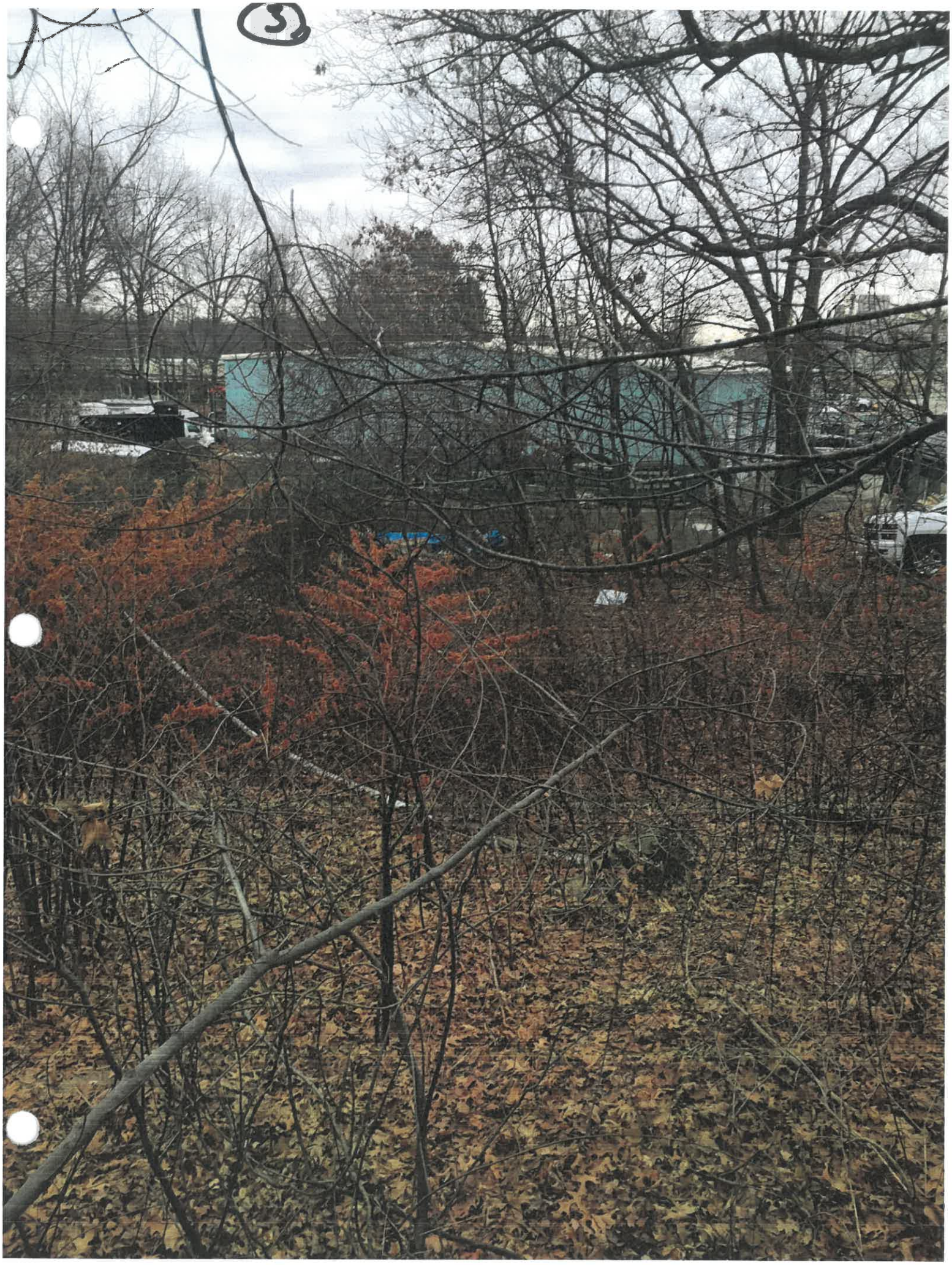
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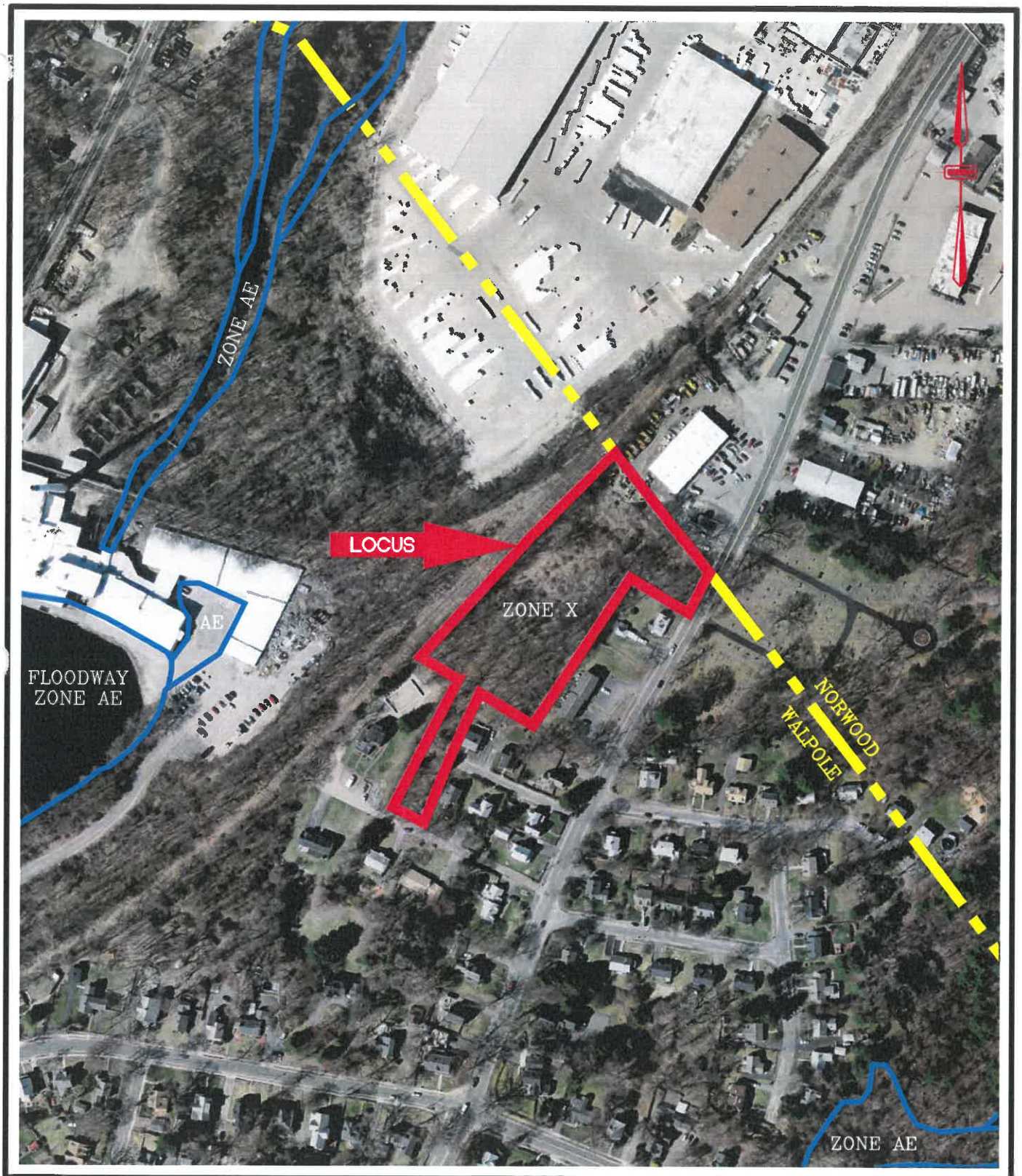


5 PLEASANT STREET, WALPOLE, MA 02032

CONECO
Engineers & Scientists
PHONE: 800-548-3366 WEBSITE: www.coneco.com

PREPARED FOR: NEPONSET VILLAGE LLC			FLOOD ZONE PLAN
SCALE 1"=250'	DATE 3/22/21	PROJECT NO. 10365	TITLE: AERIAL

CONECO
Engineers & Scientists

ENVIRONMENTAL
ECOLOGICAL
ENERGY
SURVEY
CIVIL

July 14, 2021

Rick Lincoln
Neponset Village LLC
c/o Coneco Building LLC
4 1st Street
Bridgewater, MA 02324

Re: 1 Pleasant Street, Walpole, Mass.

Dear Mr. Lincoln:

At your request Coneco Engineers & Scientists, Inc. (Coneco) has performed a GIS-level analysis of the property at 1 Pleasant Street in Walpole and conducted a site walk-over assessment as well. Based on MassGIS databases there are no vernal pools (Certified or Potential), no rare species habitat (Estimated or Priority), no water supply protection zones (Zones A and B of surface water supplies or Zones I and II of groundwater supplies), no Outstanding Resource Waters, no Areas of Critical Environmental Concern, and no floodplains (100 year) on or immediately adjacent to the site. We have enclosed a screenshot from MassGIS with all of the aforementioned layers turned on and the site (indicated by the dropped pin) is clear of all these sensitive areas.

Coneco conducted a walk-over assessment of the property on Monday, July 12. The site is a disturbed forested upland with several historic soil / debris piles. Dominant trees in the canopy are Norway maple with a variety of other mature trees including tree of heaven, box elder, black oak, red oak, southern catalpa, black birch, red maple, and American elm. The sapling/shrub layer is sparse with glossy buckthorn as the dominant species and a mix of multiflora rose, autumn olive, black cherry, American beech, and crab apple. Japanese knotweed, garlic mustard, and soapwart are generally dominant as groundcover on site, with areas of New York fern and lady fern. Poison ivy, Virginia creeper, oriental bittersweet, and roundleaf green briar are also found on site.

There is a small, isolated meadow-like area measuring approximately 10 feet x 10 feet that is dominated with grass-leaved golden road, Canada goldenrod, sensitive fern, Virginia creeper and prickly dewberry. Glossy buckthorn and black birch are on the perimeter of the meadow-like area. Coneco checked the soils in this area and got a matrix of 2.5 YR 5/3 with some redox indicators. The soils are listed by the Natural Resources Conservation Service as Canton fine sandy loams, 3 to 8 percent slope and not classified as hydric (wetland) soils.

There were a lot of casual paths throughout the site but no sign of scat. It appears that neighboring children use the area for recreational purposes. There is a fort / treehouse on the site behind the adjacent condominiums.

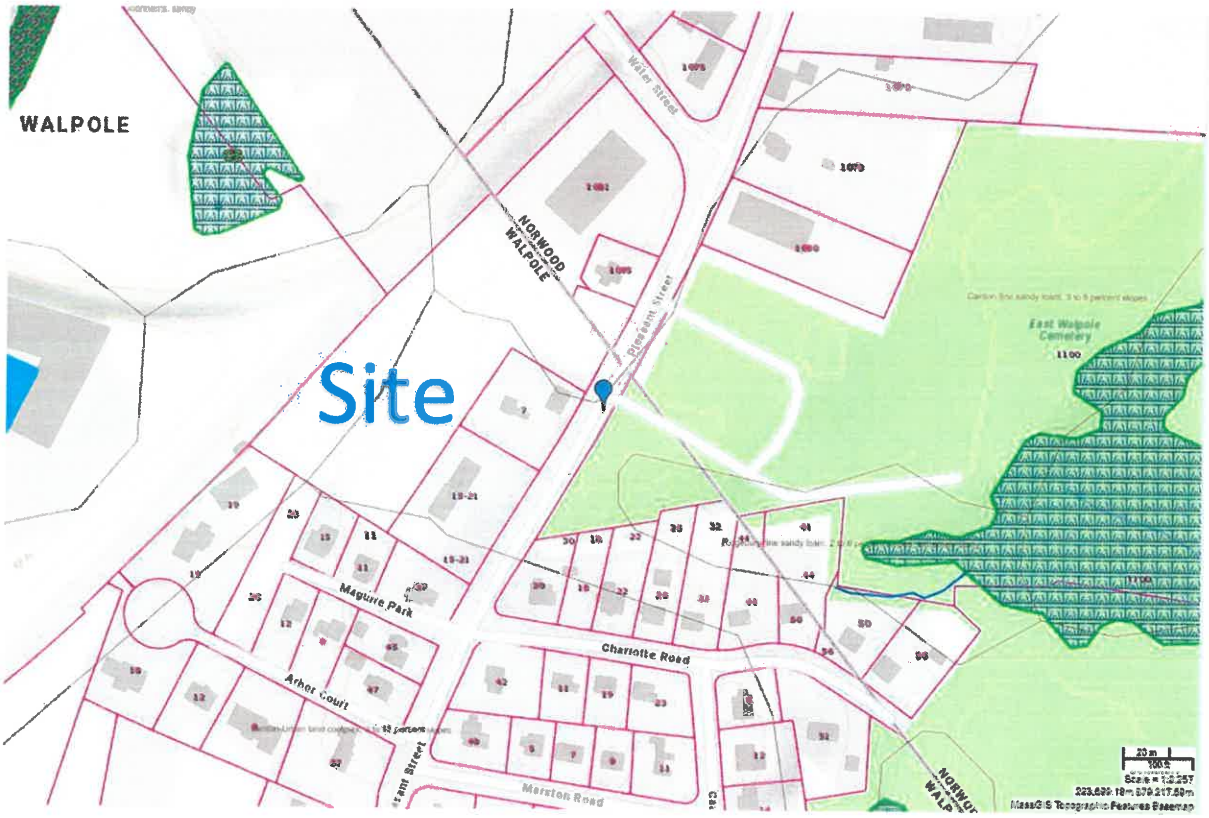
If you have any questions about our findings, please contact the undersigned.

Sincerely,
Coneco Engineers & Scientists, Inc.

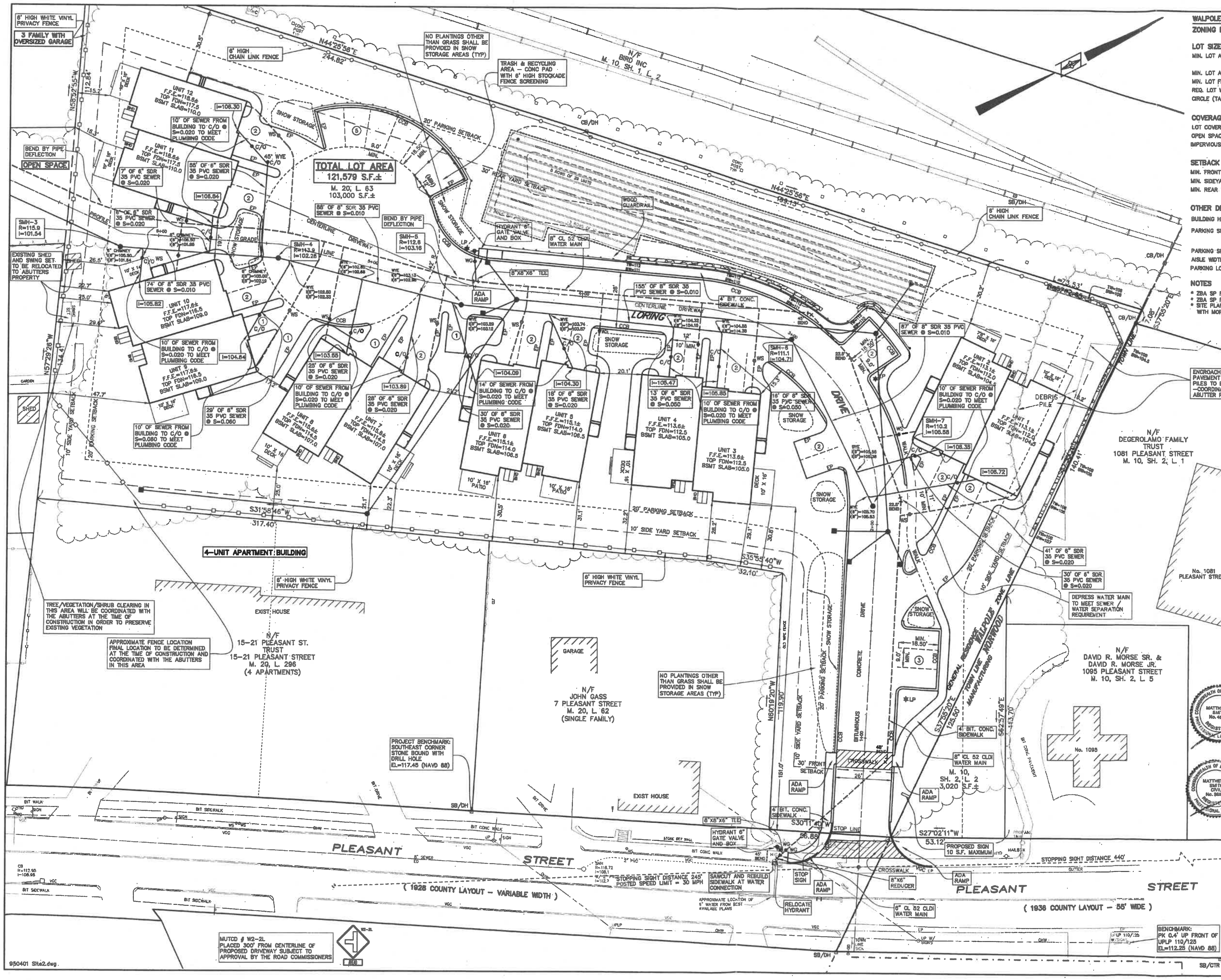
Michael J. Toohill, PWS CE CERP

CC: Lori Macdonald, PWS CWB; Coneco

WETLANDS MAP



BY-RIGHT



WALPOLE DESIGN REQUIREMENTS

ZONING DISTRICT GENERAL RESIDENCE

LOT SIZE REQUIREMENTS	REQUIRED	PROVIDED
MIN. LOT AREA	20,000 S.F. / TWO FAMILY DETACHED DWELLING	121,579 S.F. (20,263 S.F. / TWO FAMILY)
MIN. LOT AREA	60% UPLAND. REQUIRED	100% UPLAND
MIN. LOT FRONTAGE	100 FT.	110.00 FT.
REQ. LOT WIDTH AT SETBACK	80% * 100' = 80' @ SETBACK	> 80'
CIRCLE (TANGENT TO STREET)	DIAM = 80% FRONTAGE = 0.8 * 100 = 80 FT.	> 80'
COVERAGE REQUIREMENTS		
LOT COVERAGE	30% BUILDINGS	13.95% BUILDINGS
OPEN SPACE (WALKS INCL.)	40% MIN.	64.0%
IMPERVIOUS & BUILDINGS	60% MAX	37.8%
SETBACK REQUIREMENTS		
MIN. FRONT SETBACK	30 FT.	151.0 FT.
MIN. SIDEYARD	10 FT.	15.2 FT.
MIN. REAR YARD	30 FT.	30.2 FT.
OTHER DESIGN REQUIREMENTS		
BUILDING HEIGHT	35' MAXIMUM	LESS THAN 35'
PARKING SPACE COUNT	2/UNIT X 12 UNITS = 24	36 - EXTERIOR 12 - 1 CAR GARAGES 48 TOTAL SPACES PROVIDED
PARKING SPACE SIZE	9FT. X 18.5 FT. (MIN)	9FT. X 18.5 FT. (MIN)
AISLE WIDTH	26 FT.	26 FT.
PARKING LOCATION	20' FROM STREET & LOT LINES	20' MINIMUM

NOTES

* ZBA SP REQUIRED FOR MORE THAN ONE BUILDING ON A LOT (SECT 6-C.4.c)
* ZBA SP REQUIRED FOR TWO FAMILY DETACHED DWELLING (SECT. 5-B.3.b)
* SITE PLAN REVIEW PLANNING BOARD REQUIRED FOR A PROJECT WITH MORE THAN 6 PARKING SPACES (SECT. 13)

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107 POLLY LANE
EAST WALPOLE, MA 02032

APPLICANT:
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ASSESSOR'S REFERENCE:

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WALTER P. LACIVITA
DEED BOOK 4341, PAGE 440

- WALPOLE -
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DEED BOOK 7341, PAGE 114

MAP 20, LOT 63
PLEASANT STREET REALTY TRUST
WALTER & SUSAN LACIVITA CO-TRS.
DEED BOOK 18356, PAGE 590

ZONING REFERENCE:
NORWOOD
MANUFACTURING - M

WALPOLE
GENERAL RESIDENCE - GR

MAPLEWOOD CONDOMINIUMS
SITE PLAN
LAYOUT AND UTILITIES
PLEASANT STREET
WALPOLE/NORWOOD
MASSACHUSETTS

COMMONWEALTH OF MASSACHUSETTS MATTHEW D. SMITH No. 45064 REGISTERED PROFESSIONAL LAND SURVEYOR

COMMONWEALTH OF MASSACHUSETTS MATTHEW D. SMITH CIVIL No. 36568 REGISTERED PROFESSIONAL ENGINEER

SCALE: 1" = 20' DECEMBER 14, 2015

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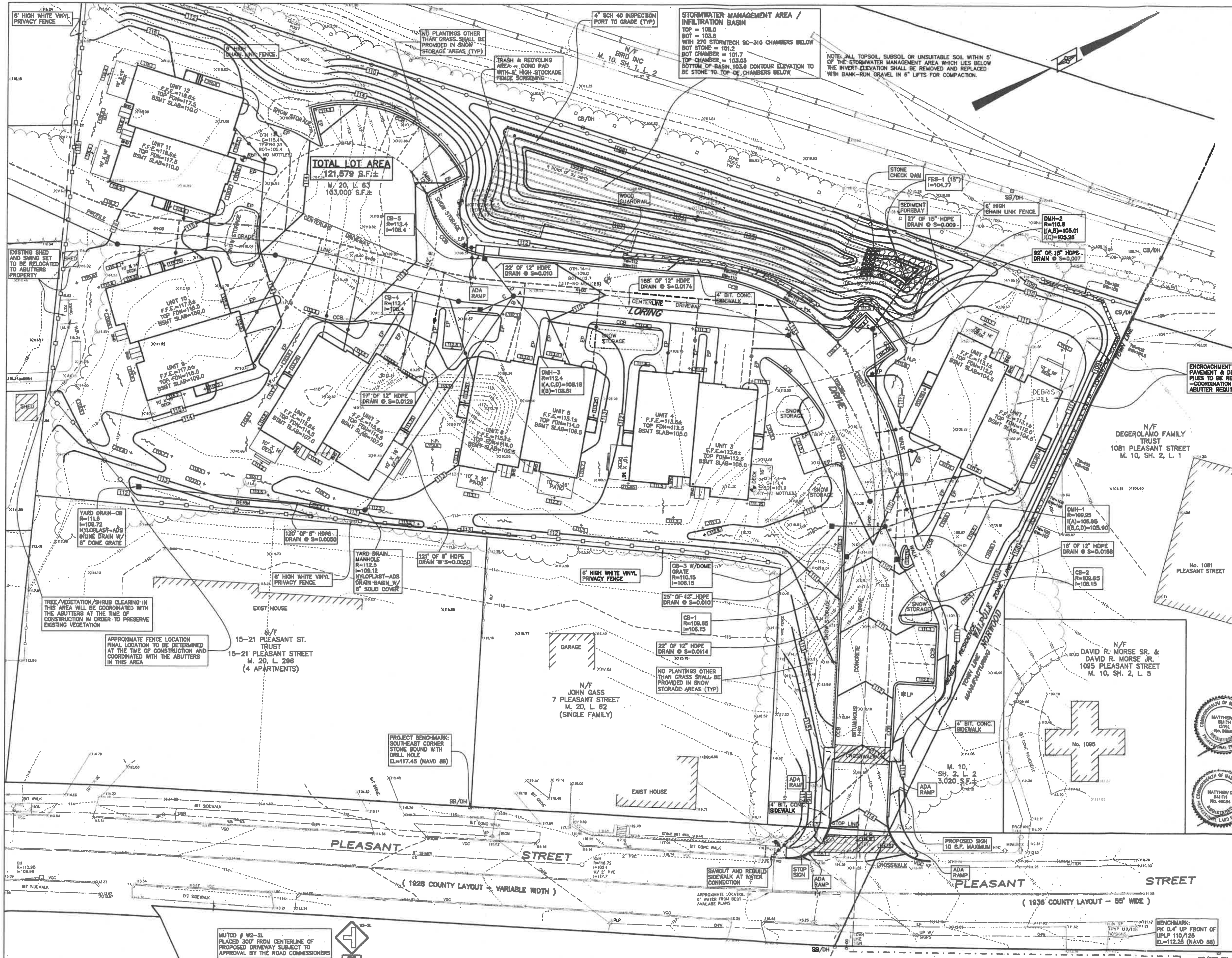
2/1/2017	REVISE BUILDING LOCATIONS

SHEET 3 OF 9 9504-01

950401 Site2.dwg



MAPLEWOOD CONDOMINIUMS
SITE PLAN
GRADING & DRAINAGE
PLEASANT STREET
WALPOLE/NORWOOD
MASSACHUSETTS

SCALE: 1" = 20'   DECEMBER 14, 2015

COMMONWEALTH OF MASSACHUSETTS — MATTHEW D. SMITH CIVIL No. 36589 — REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS — MATTHEW D. SMITH No. 46084 — REGISTERED PROFESSIONAL LAND SURVEYOR

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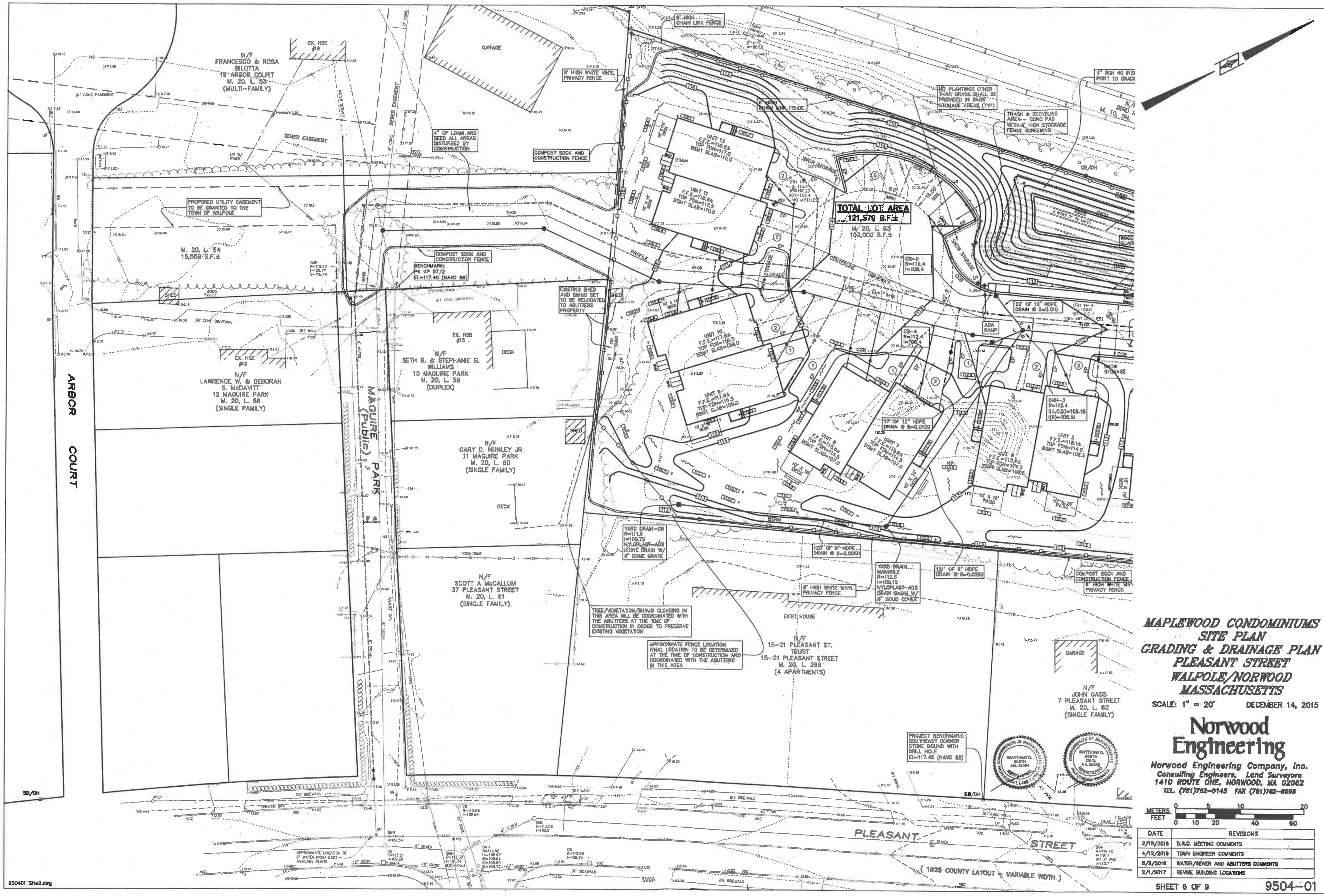
SHEET 5 OF 9   9504-01



MAPLEWOOD CONDOMINIUMS
SITE PLAN
GRADING & DRAINAGE PLAN
PLEASANT STREET
WALPOLE/NORWOOD
MASSACHUSETTS

SCALE: 1" = 20' DECEMBER 14, 2015

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SHEET 6 OF 9 9504-01

PERMITTING HISTORY

Chapter 40A Permitting Process

Land Disturbance Permit - Case #2016-2

McSharry Bros., Inc. applied for a Land Disturbance Permit with the Conservation Commission to allow the "Construction of a 12 unit condominium project consisting of 6 duplex buildings and associated site work including, the construction of a 500+!- long driveway, drainage system, infiltration basin and water and sewer."

The Application was made on March 14, 2016 and the Land Disturbance Permit was Granted on April 13, 2016.

Site Plan Approval- Case No. 16-5

McSharry Bros, Inc. requested Site Plan Approval under Section 13 of the Town of Walpole Zoning Bylaw a condominium complex consisting of six (6) two (2) unit buildings together with its attendant parking, landscaping, and signage all as shown on a plan entitled: "Maplewood Condominium, Site Plan, Pleasant Street, Walpole / Norwood, Massachusetts" scale 1" = 20', dated December 14, 2015, last revised February 1, 2017, drawn by Norwood Engineering Company, Inc., as may be amended.

The Application was made on March 14, 2016 and Site Plan Approval was Granted: May 8, 2017.

In part the decision stated:

"The Board finds that the site straddles the Walpole - Norwood Town Line. As such, the neighborhood within Walpole consists of single and multi-family residences. a cemetery, and an active rail line along its boundaries. The immediate neighborhood in Norwood is commercial in nature. The direct Norwood abutters being a gun shop/propane store, automotive repair shop and commercial building. Further down the road is an asphalt plant, a siding plant and other industrial/manufacturing uses. The Board also finds that the condominium as presented has a density of 10,131 s.f. per unit whereas the median density for direct residential abutters is 8,000 s.f. per unit and the median density for the lots of the abutters within three hundred feet (300') is 10,000 s.f. per unit. Additionally, the architectural plans presented show that the units will be built with traditional building materials, have gabled rooflines, and other architectural elements that are commonly found in single- and two-family dwellings within the Town. As such, the buildings and overall project are consistent with the design and character of the surrounding area and this criterion is satisfied."

Special Permits - Case No., 03-16

McSharry Bros, Inc requested Special Permits under Section 5.B.3. Residential b. and Section 6.C.4.A of the Zoning Bylaw to allow a condominium complex consisting of six (6) two (2) unit buildings together with its attendant parking, landscaping, and signage all as shown on a plan

entitled: "Maplewood Condominium, Site Plan, Pleasant Street, Walpole / Norwood, Massachusetts" scale 1" = 20', dated December 14, 2015, last revised February 18, 2016, drawn by Norwood Engineering Company, Inc., as may be amended.

The Application was made on March 14, 2016 the hearing was closed and the Board voted to approve the Special Permit under 5.B.3.b. (5-0) and deny the Special Permit under 6.C.4.A (3-2).

McSharry Bros, Inc. appealed the decision to the Land Court and the same was remanded to the Zoning Board of Appeals which voted and adopted a remand decision approving the Special Permit under 5.B.3.b (5-0) and denying the Special Permit under 6.C.4.A (5-0) on October 25, 2017.

The substance of the denial being that 6 buildings with 12 units is too dense for the neighborhood and not in harmony with the general character of the neighborhood. The Decision allowed the Applicant to return to the board with a new Application with a density less than originally proposed.

No further direct communication was allowed by the Board and all discussions were then conducted through counsel. As part of the Land Court pre-trial procedure, McSharry Bros., Inc, attempted to settle the matter with the Zoning Board of Appeals proposing 10 units - as was suggested by the Board during the initial hearings. The Board, through Counsel, rejected all offers of settlement. McSharry Bros., Inc filed a Notice of Dismissal with the Land Court on July 19, 2018 and accordingly started the tolling period for a Comprehensive Permit filing.

Subsequent Meetings with Town Officials

October 14, 2020

An initial Meeting was held with the Town Administrator, the Community and Economic Development Officer, and Building Commissioner to discuss the project in concept. Some initial thoughts were provided by the Town for the Applicant to consider and incorporate, if possible, into the design.

March 30, 2021

A zoom meeting was chaired by the new Community and Economic Development Officer, to the best of our knowledge the Town Administration, Building Department, Department of Public Works (to include Sewer & Water and Engineering), Police, and Fire were all represented. Several comments were made about a second/emergency access and other technical items. The commitment to upgrade the water lines in the area (initially made during Site Plan Approval) was confirmed by both the DPW and the Applicant.

BAYSIDE ENGINEERING

600 Unicorn Park Drive σ Woburn, MA 01801
Phone: 781-932-3201 σ Fax: 781-932-3413

MEMORANDUM

TO: Mark McSharry
Neponset Village, LLC

FROM: Kenneth P. Cram, P.E.
CC:
DATE: July 20, 2021
RE: Neponset Village Condominiums
5 Pleasant Street, Walpole, MA

This memorandum has been prepared to assess the traffic impact associated with the proposed residential development on Pleasant Street in Walpole, Massachusetts. This assessment has reviewed available traffic volume data, developed trip generation projections and prepared a preliminary assessment of the potential project's impacts at the intersection of Pleasant Street and the site driveway.

PROJECT DESCRIPTION

The parcel of land to be developed is located on the west side of Pleasant Street, north of Maguire Park. Currently the site consists of wooded and undeveloped land. The proposed development includes the construction of twenty-four (24) condominium units. Parking for 53 vehicles is proposed on the site. Access to the site would be provided by way of a full-movement driveway to Pleasant Street. Figure 1 shows the site in relation to the roadway network.

EXISTING CONDITIONS

Roadway Network

Pleasant Street - Pleasant Street is functionally classified as an Urban Collector that runs in a general north/south direction and is under the jurisdiction of the Town of Walpole. In the site vicinity, the roadway provides one 12 ft wide travel lane per direction with variable width shoulders. The existing roadway width is approximately 26 feet wide. Travel lanes are separated by a double yellow centerline. The posted speed limit is 30 miles per hour (mph). Illumination is provided by luminaries mounted on poles. Land use along Pleasant Street in the vicinity of the site consists primarily of residential homes, a cemetery, and small commercial uses.

Figure 1
Site Location Map

Traffic Volumes

To establish base traffic conditions within the study area, automatic traffic recorder counts (ATR) were conducted on June 29 and 30, 2021 on Pleasant in the site vicinity. The traffic count worksheets are provided in the Appendix.

The traffic-volume data gathered as part of this study was collected during the month of June 2021. Data from the MassDOT was reviewed to determine the monthly variations of the traffic volumes. The traffic data showed June volumes to be slightly higher than average month conditions. The June volumes were used to represent average month conditions.

Due to the Covid-19 pandemic, traffic volumes are currently lower than normal. To account for this, data from the original Maplewood Condominiums Report dated June 13, 2016 was reviewed. The January 2016 AADT was seasonally adjusted and grown to 2021 using a one (1.0) percent compounded growth rate. This data was then compared to the recorded 2021 AADT performed for this project. This assessment shows that the current 2021 traffic volumes are approximately 7.7% lower. Therefore, the 2021 volumes were increased by a factor of 1.077 to represent pre-COVID conditions.

The 2021 daily and peak-hour traffic volumes for average-month conditions are shown in Table 1.

TABLE 1
EXISTING WEEKDAY TRAFFIC VOLUME SUMMARY[a]

Location	Weekday Traffic Volume[b]	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		Traffic Volume[c]	K Factor[d]	Directional Distribution[e]	Traffic Volume	K Factor	Directional Distribution
Pleasant Street at Walpole-Norwood Town Line	8,620	664	7.7	69.9% NB	607	7.0	59.8% SB

[a]Two-way traffic volume
[b]Daily traffic expressed in vehicles per day.
[c]Expressed in vehicles per hour.
[d]Percent of daily traffic volumes which occurs during the peak hour.
[e]Percent of peak-hour volume in the predominant direction of travel.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound.

Pleasant Street was recorded to carry approximately 8,620 vehicles per day (vpd) in the vicinity of the site. During the weekday morning peak hour, approximately 664 vehicles per hour (vph) were recorded, and during the weekday evening peak hour, approximately 607 vph were recorded.

Vehicle Speeds

Existing speed data for Pleasant Street was also collected using the ATR. The speed data is summarized in Table 2.

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TABLE 2
OBSERVED VEHICLE SPEEDS

Location	Posted Speed Limit (mph)	Direction	Average Observed Speed[a] (mph)	85th Percentile Speed (mph)
Pleasant Street at Walpole-Norwood Town Line	30	NB	35	39
		SB	34	39

[a]Based on speed data compiled on June 29 and 30, 2021.

As shown in Table 2, the average speed of vehicles travelling northbound and southbound on Pleasant Street in the site vicinity was found to be 35 to 34 mph, respectively. The 85th percentile speed was found to be 39 mph for both northbound and southbound vehicles. The 85th percentile speed is the speed at which sight distances are evaluated.

Crash Experience

Motor vehicle crash data for the study area intersections and roadways were obtained from the MassDOT for 2015 through 2020. The motor vehicle crash data was reviewed to determine crash trends in the study area. No crashes were reported in the study area during the six-year interval.

Public Transportation

Public transportation services are provided within the study area by the Massachusetts Bay Transportation Authority (MBTA). The MBTA provides bus service to Walpole by Bus Routes 34/34E. Bus Routes 34/34E provide service from Walpole Center to Forest Hills Station. Service is provided on Bus Routes 34/34E Monday through Friday from 4:35 AM to 1:32 AM, Saturday from 5:00 AM to 1:56 AM and Sunday from 5:35 AM to 1:43 AM.

The MBTA also provides service to Walpole on the Franklin Commuter Line. Service is provided Monday through Friday from 5:10 AM to 12:16 AM and Saturday and Sunday from 5:25 AM to 12:01 AM. The MBTA data is included in the Appendix.

Planned Roadway Improvements

Officials for the Towns of Walpole and Norwood were contacted regarding roadway improvements planned for the study area. No improvements are currently planned.

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FUTURE CONDITIONS

Future No-Build Conditions

Traffic growth on area roadways is a function of the expected land development in the immediate area as well as the surrounding region. Historical traffic volume data compiled by MassDOT was reviewed to determine an appropriate growth rate. Based on a review of the available data, it was determined that there has been approximately 1.2% growth from 2012 to 2018. To provide a conservative analysis, a background growth rate of one and a half (1.5) percent per year was applied to the existing traffic volumes.

Discussions with the Towns of Walpole and Norwood indicate that there is one other project in the study area. The project consists of thirty-two (32) townhouse units proposed on Burns Avenue (located south of the site off Pleasant Street). Trips for this project were estimated using the ITE Trip Generation Manual and were included in the background projections.

The 2028 No-Build weekday morning and weekday evening peak-hour traffic volumes were developed by applying a compounded one and a half (1.5) percent annual growth rate to the 2021 Existing peak-hour traffic volumes and adding traffic from the identified background project. The growth rate calculations and background traffic volumes are included in the Appendix.

Site Traffic Generation

Trip-generation data published by the ITE *Trip Generation* manual[1] was reviewed. Trip generation data for Land Use Code (LUC) 220 – Multifamily Housing (Low-Rise) was reviewed. This data is summarized in Table 3 and the calculations are included in the Appendix.

The proposed project is estimated to generate a total of 140 vehicle trips on an average weekday. During the weekday morning peak hour, the project is expected to generate a total of 12 vehicle trips (3 vehicles entering and 9 vehicles exiting). During the weekday evening peak hour, the project is expected to generate a total of 17 vehicle trips (11 vehicles entering and 6 vehicles exiting).

[1] *Trip Generation*, Tenth Edition; Institute of Transportation Engineers; Washington, DC; 2012.

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TABLE 3
TRIP-GENERATION

	Residential Trips[a]
Average Weekday Daily Traffic	140
Weekday Morning Peak Hour:	
Entering	3
Exiting	9
Total	12
Weekday Evening Peak Hour:	
Entering	11
Exiting	6
Total	17

[a]Based on ITE LUC 220 – Multifamily Housing (Low-Rise); 24 units.

Trip Distribution

The directional distribution of the vehicular traffic approaching and departing the site is a function of population densities, the location of employment, existing travel patterns, similar uses, and the efficiency of the existing roadway system. A gravity model based on available journey-to-work data for the Town of Walpole was developed to determine the expected trip distribution. This pattern is summarized in Table 4 and the gravity model is included in the Appendix.

TABLE 4
TRIP-DISTRIBUTION SUMMARY

Route	Direction To/From	Percent of Trips To/From
Pleasant Street	North	41
Pleasant Street	South	59
TOTAL		100

Future Build Conditions

The site-generated traffic was distributed within the study area according to the percentages summarized in Table 4. The site generated volumes were superimposed onto the projected No-Build traffic volumes to represent the 2028 Build traffic-volume conditions. These volumes were used as the basis for all analyses as well as to identify potential mitigation measures to ameliorate the project's impacts.

Capacity Analysis Results

To assess intersection operations, capacity analyses were conducted for the Build traffic-volume conditions. Capacity analyses provide an indication of how well the study area intersections serve existing and projected traffic volumes. The level-of-service definitions are contained in the Appendix.

Level-of-service analyses were conducted for average month conditions for the 2028 Build conditions for the intersections within the study area. The results of the unsignalized capacity analyses are summarized in Table 5. Detailed analysis sheets are presented in the Appendix.

TABLE 5
UNSIGNALIZED LEVEL-OF-SERVICE ANALYSIS SUMMARY

Critical Movement/ Peak Hour	2028 Build			
	Demand[a]	v/c[b]	Delay[c]	LOS[d]
Pleasant Street and Proposed Site Driveway				
All movements from Site Driveway:				
Weekday Morning	9	0.02	12.8	B
Weekday Evening	6	0.01	12.9	B

[a]Demand of critical movements in vehicles per hour.
[b]Volume-to-capacity ratio.
[c]Delay in seconds per vehicle.
[d]Level of service.

Pleasant Street and Site Driveway

Under future 2028 Build conditions, with the project, the critical movements (all movements from the site driveway) are projected to operate at LOS B during the weekday morning and weekday evening peak hours. In addition, the volume-to capacity (v/c) ratios for the critical movements will be well below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes.

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SIGHT DISTANCE ANALYSIS

Sight distance measurements were performed at the intersection of the proposed site driveway along Pleasant Street in accordance with MassDOT standards. Stopping sight distance (SSD) measurements were performed. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. Intersection sight distance (ISD) or corner sight distance (CSD) is the sight distance required by a driver entering or crossing an intersecting roadway, to perceive an on-coming vehicle and safely complete a turning or crossing maneuver with on-coming traffic. Table 6 presents the measured SSD at the site driveway intersection with Pleasant Street. The sight distance calculations are included in the Appendix.

TABLE 6
SIGHT DISTANCE SUMMARY

	Required Minimum (Feet)[a]	Measured (Feet)
Pleasant Street and Proposed Site Driveway		
Stopping Sight Distance:		
Prospect Street approaching from the north	289	350
Prospect Street approaching from the south	289	500+
Intersection Sight Distance:		
Site Driveway looking to the north	373[b]/430[c]	300
Site Driveway looking to the south	373[b]/430[c]	500+

[a]Recommended minimum values obtained from *A Policy on Geometric Design of Highways and Streets*; American Association of State Highway and Transportation Officials (AASHTO); 2010, and based on a 85th percentile speed of 39 mph as recorded with the ATR on June 29 and 30, 2021.
[b]Rexommended minimum value for vehicles turning right exiting a roadway under STOP-sign control.
[c]Recommended minimum value for vehicles turning left exiting a roadway under STOP-sign control.

As can be seen in Table 6, the SSD measurements performed at the site driveway intersection with Prospect Street indicate that the intersection exceeds the recommended minimum requirements based on the 85th percentile speeds. In accordance with the AASHTO manual, ***"If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road."*** Accordingly, the ISD should be at least equal to the SSD, which would allow a driver approaching the minor road to safely stop. The southbound approach is currently partially obstructed with trees and brush that will be removed during the site construction. It is recommended that any proposed landscaping in the vicinity of the site driveway be less than three (3) feet in height and maintained for sight lines. Along the

Pleasant Street frontage, it is recommended that no plantings occur within ten (10) feet of the travelled way to maintain sight lines.

CONCLUSION AND RECOMMENDATIONS

Bayside has examined the potential traffic impacts associated with the proposed development on Pleasant Street on the study area roadways. The following is a summary of the results and conclusions of this effort:

- The proposed project consists of 24 condominium units. Access to the site would be provided by way of a full-movement driveway to Pleasant Street.
- No crashes were reported in the vicinity of the proposed driveway over the six-year period.
- Utilizing industry standards for site-generated trip estimates, the proposed project is estimated to generate a total of 140 vehicle trips on an average weekday. During the weekday morning peak hour, the project is expected to generate a total of 12 vehicle trips (3 vehicles entering and 9 vehicles exiting). During the weekday evening peak hour, the project is expected to generate a total of 17 vehicle trips (11 vehicles entering and 6 vehicles exiting).
- The site driveway is projected to operate at LOS B during the weekday morning and weekday evening peak hours with volume-to-capacity (v/c) ratios well below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes.
- Along the property frontage, it is recommended that all landscaping be set back from the edge of Pleasant Street and designed not to exceed three (3) feet to not inhibit sight distances.
- It is also recommended that a DRIVEWAY AHEAD sign be posted on Pleasant Street southbound approaching the driveway.
- The impact of the site-generated traffic does not warrant site specific traffic mitigation within the study area. There are no feasible or reasonable means of reducing delays at the site driveway.

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APPENDIX

TRAFFIC VOLUME COUNT DATA
SEASONAL ADJUSTMENT
MBTA SCHEDULES
GROWTH RATE WORKSHEET
BACKGROUND PROJECT WORKSHEETS
TRIP GENERATION DATA
TRIP DISTRIBUTION WORKSHEETS
TRAFFIC VOLUME NETWORKS
CAPACITY ANALYSIS METHODOLGY
CAPACITY ANALYSIS WORKSHEETS
SIGHT DISTANCE WORKSHEETS

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TRAFFIC VOLUME COUNT DATA

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Pleasant Street
at Walpole-Norwood Town Line
City, State: Walpole, MA
Client: Bayside Engineering/ K. Cram
Site Code: 2213020

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 218044 ATR-A

Count Date:
Tuesday, June, 29, 2021

Volume

NB						SB						Combined					
Start Time:	15 min	60 min		15 min	60 min	Start Time:	15 min	60 min		15 min	60 min	Start Time:	15 min	60 min		15 min	60 min
12:00 AM	1		12:00 PM	80		12:00 AM	5		12:00 PM	66		12:00 AM	6		12:00 PM	146	
12:15 AM	1		12:15 PM	68		12:15 AM	2		12:15 PM	47		12:15 AM	3		12:15 PM	115	
12:30 AM	2		12:30 PM	58		12:30 AM	4		12:30 PM	69		12:30 AM	6		12:30 PM	127	
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1:45 AM	0	1	1:45 PM	64	267	1:45 AM	1	5	1:45 PM	45	212	1:45 AM	1	6	1:45 PM	109	479
2:00 AM	0		2:00 PM	67		2:00 AM	0		2:00 PM	48		2:00 AM	0		2:00 PM	115	
2:15 AM	0		2:15 PM	43		2:15 AM	0		2:15 PM	48		2:15 AM	0		2:15 PM	91	
2:30 AM	1		2:30 PM	59		2:30 AM	0		2:30 PM	69		2:30 AM	1		2:30 PM	128	
2:45 AM	1	2	2:45 PM	69	238	2:45 AM	1	1	2:45 PM	64	229	2:45 AM	2	3	2:45 PM	133	467
3:00 AM	1		3:00 PM	58		3:00 AM	3		3:00 PM	79		3:00 AM	4		3:00 PM	137	
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3:45 AM	5	11	3:45 PM	80	258	3:45 AM	0	5	3:45 PM	87	308	3:45 AM	5	16	3:45 PM	167	566
4:00 AM	3		4:00 PM	59		4:00 AM	1		4:00 PM	104		4:00 AM	4		4:00 PM	163	
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4:45 AM	9	17	4:45 PM	62	232	4:45 AM	2	5	4:45 PM	85	351	4:45 AM	11	22	4:45 PM	147	583
5:00 AM	12		5:00 PM	48		5:00 AM	3		5:00 PM	101		5:00 AM	15		5:00 PM	149	
5:15 AM	24		5:15 PM	63		5:15 AM	5		5:15 PM	102		5:15 AM	29		5:15 PM	165	
5:30 AM	29		5:30 PM	61		5:30 AM	15		5:30 PM	66		5:30 AM	44		5:30 PM	127	
5:45 AM	45	110	5:45 PM	54	226	5:45 AM	11	34	5:45 PM	59	328	5:45 AM	56	144	5:45 PM	113	554
6:00 AM	37		6:00 PM	55		6:00 AM	16		6:00 PM	53		6:00 AM	53		6:00 PM	108	
6:15 AM	53		6:15 PM	56		6:15 AM	13		6:15 PM	45		6:15 AM	66		6:15 PM	101	
6:30 AM	71		6:30 PM	45		6:30 AM	26		6:30 PM	34		6:30 AM	97		6:30 PM	79	
6:45 AM	79	240	6:45 PM	37	193	6:45 AM	39	94	6:45 PM	55	187	6:45 AM	118	334	6:45 PM	92	380
7:00 AM	64		7:00 PM	34		7:00 AM	26		7:00 PM	32		7:00 AM	90		7:00 PM	66	
7:15 AM	81		7:15 PM	27		7:15 AM	19		7:15 PM	28		7:15 AM	100		7:15 PM	55	
7:30 AM	91		7:30 PM	23		7:30 AM	26		7:30 PM	29		7:30 AM	117		7:30 PM	52	
7:45 AM	96	332	7:45 PM	26	110	7:45 AM	35	106	7:45 PM	24	113	7:45 AM	131	438	7:45 PM	50	223
8:00 AM	105		8:00 PM	20		8:00 AM	23		8:00 PM	22		8:00 AM	128		8:00 PM	42	
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8:30 AM	83		8:30 PM	19		8:30 AM	28		8:30 PM	20		8:30 AM	111		8:30 PM	39	
8:45 AM	95	368	8:45 PM	22	78	8:45 AM	30	104	8:45 PM	23	89	8:45 AM	125	472	8:45 PM	45	167
9:00 AM	79		9:00 PM	19		9:00 AM	35		9:00 PM	14		9:00 AM	114		9:00 PM	33	
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9:45 AM	62	282	9:45 PM	13	57	9:45 AM	39	130	9:45 PM	7	40	9:45 AM	101	412	9:45 PM	20	97
10:00 AM	62		10:00 PM	7		10:00 AM	40		10:00 PM	10		10:00 AM	102		10:00 PM	17	
10:15 AM	64		10:15 PM	4		10:15 AM	40		10:15 PM	12		10:15 AM	104		10:15 PM	16	
10:30 AM	68		10:30 PM	3		10:30 AM	32		10:30 PM	9		10:30 AM	100		10:30 PM	12	
10:45 AM	57	251	10:45 PM	5	19	10:45 AM	44	156	10:45 PM	7	38	10:45 AM	101	407	10:45 PM	12	57
11:00 AM	73		11:00 PM	3		11:00 AM	30		11:00 PM	5		11:00 AM	103		11:00 PM	8	
11:15 AM	45		11:15 PM	2		11:15 AM	50		11:15 PM	5		11:15 AM	95		11:15 PM	7	
11:30 AM	68		11:30 PM	3		11:30 AM	50		11:30 PM	5		11:30 AM	118		11:30 PM	8	
11:45 AM	76	262	11:45 PM	1	9	11:45 AM	67	197	11:45 PM	5	20	11:45 AM	143	459	11:45 PM	6	29
Total	1880			1969		Total	849			2143		Total	2729			4112	
Percent	48.84%			51.16%		Percent	28.38%			71.62%		Percent	39.89%			60.11%	
Day Total			3849			Day Total			2992			Day Total			6841		
Peak Hour	7:30 AM			12:00 PM		Peak Hour	11:45 AM			4:30 PM		Peak Hour	11:45 AM			3:30 PM	
Volume	377			282		Volume	249			363		Volume	531			610	
P.H.F.	0.898			0.881		P.H.F.	0.902			0.890		P.H.F.	0.909			0.913	

Pleasant Street
at Walpole-Norwood Town Line
City, State: Walpole, MA
Client: Bayside Engineering/ K. Cram
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PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
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Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 218044 ATR-A

Count Date:
Wednesday, June 30, 2021

Volume

NB						SB						Combined					
Start Time:	15 min	60 min		15 min	60 min	Start Time:	15 min	60 min		15 min	60 min	Start Time:	15 min	60 min		15 min	60 min
12:00 AM	2		12:00 PM	73		12:00 AM	1		12:00 PM	105		12:00 AM	3		12:00 PM	178	
12:15 AM	1		12:15 PM	100		12:15 AM	1		12:15 PM	94		12:15 AM	2		12:15 PM	194	
12:30 AM	2		12:30 PM	94		12:30 AM	1		12:30 PM	70		12:30 AM	3		12:30 PM	164	
12:45 AM	0	5	12:45 PM	102	369	12:45 AM	1	4	12:45 PM	77	346	12:45 AM	1	9	12:45 PM	179	715
1:00 AM	1		1:00 PM	87		1:00 AM	0		1:00 PM	71		1:00 AM	1		1:00 PM	158	
1:15 AM	1		1:15 PM	71		1:15 AM	1		1:15 PM	71		1:15 AM	2		1:15 PM	142	
1:30 AM	1		1:30 PM	74		1:30 AM	0		1:30 PM	80		1:30 AM	1		1:30 PM	154	
1:45 AM	1	4	1:45 PM	68	300	1:45 AM	1	2	1:45 PM	99	321	1:45 AM	2	6	1:45 PM	167	621
2:00 AM	1		2:00 PM	63		2:00 AM	2		2:00 PM	97		2:00 AM	3		2:00 PM	160	
2:15 AM	2		2:15 PM	79		2:15 AM	0		2:15 PM	111		2:15 AM	2		2:15 PM	190	
2:30 AM	1		2:30 PM	67		2:30 AM	1		2:30 PM	104		2:30 AM	2		2:30 PM	171	
2:45 AM	0	4	2:45 PM	86	295	2:45 AM	1	4	2:45 PM	112	424	2:45 AM	1	8	2:45 PM	198	719
3:00 AM	2		3:00 PM	60		3:00 AM	4		3:00 PM	73		3:00 AM	6		3:00 PM	133	
3:15 AM	1		3:15 PM	61		3:15 AM	0		3:15 PM	80		3:15 AM	1		3:15 PM	141	
3:30 AM	2		3:30 PM	52		3:30 AM	1		3:30 PM	79		3:30 AM	3		3:30 PM	131	
3:45 AM	5	10	3:45 PM	70	243	3:45 AM	0	5	3:45 PM	64	296	3:45 AM	5	15	3:45 PM	134	539
4:00 AM	4		4:00 PM	43		4:00 AM	1		4:00 PM	106		4:00 AM	5		4:00 PM	149	
4:15 AM	4		4:15 PM	52		4:15 AM	1		4:15 PM	73		4:15 AM	5		4:15 PM	125	
4:30 AM	4		4:30 PM	44		4:30 AM	1		4:30 PM	91		4:30 AM	5		4:30 PM	135	
4:45 AM	3	15	4:45 PM	68	207	4:45 AM	2	5	4:45 PM	67	337	4:45 AM	5	20	4:45 PM	135	544
5:00 AM	13		5:00 PM	49		5:00 AM	2		5:00 PM	101		5:00 AM	15		5:00 PM	150	
5:15 AM	23		5:15 PM	66		5:15 AM	3		5:15 PM	78		5:15 AM	26		5:15 PM	144	
5:30 AM	29		5:30 PM	49		5:30 AM	7		5:30 PM	65		5:30 AM	36		5:30 PM	114	
5:45 AM	58	123	5:45 PM	51	215	5:45 AM	10	22	5:45 PM	70	314	5:45 AM	68	145	5:45 PM	121	529
6:00 AM	34		6:00 PM	54		6:00 AM	16		6:00 PM	51		6:00 AM	50		6:00 PM	105	
6:15 AM	49		6:15 PM	52		6:15 AM	16		6:15 PM	53		6:15 AM	65		6:15 PM	105	
6:30 AM	61		6:30 PM	39		6:30 AM	19		6:30 PM	47		6:30 AM	80		6:30 PM	86	
6:45 AM	71	215	6:45 PM	45	190	6:45 AM	44	95	6:45 PM	50	201	6:45 AM	115	310	6:45 PM	95	391
7:00 AM	76		7:00 PM	23		7:00 AM	31		7:00 PM	41		7:00 AM	107		7:00 PM	64	
7:15 AM	98		7:15 PM	22		7:15 AM	31		7:15 PM	28		7:15 AM	129		7:15 PM	50	
7:30 AM	96		7:30 PM	27		7:30 AM	32		7:30 PM	21		7:30 AM	128		7:30 PM	48	
7:45 AM	121	391	7:45 PM	26	98	7:45 AM	49	143	7:45 PM	15	105	7:45 AM	170	534	7:45 PM	41	203
8:00 AM	119		8:00 PM	26		8:00 AM	43		8:00 PM	18		8:00 AM	162		8:00 PM	44	
8:15 AM	106		8:15 PM	19		8:15 AM	34		8:15 PM	19		8:15 AM	140		8:15 PM	38	
8:30 AM	85		8:30 PM	13		8:30 AM	60		8:30 PM	20		8:30 AM	145		8:30 PM	33	
8:45 AM	92	402	8:45 PM	11	69	8:45 AM	49	186	8:45 PM	10	67	8:45 AM	141	588	8:45 PM	21	136
9:00 AM	104		9:00 PM	7		9:00 AM	61		9:00 PM	15		9:00 AM	165		9:00 PM	22	
9:15 AM	79		9:15 PM	10		9:15 AM	53		9:15 PM	12		9:15 AM	132		9:15 PM	22	
9:30 AM	83		9:30 PM	12		9:30 AM	57		9:30 PM	10		9:30 AM	140		9:30 PM	22	
9:45 AM	66	332	9:45 PM	5	34	9:45 AM	64	235	9:45 PM	8	45	9:45 AM	130	567	9:45 PM	13	79
10:00 AM	84		10:00 PM	5		10:00 AM	63		10:00 PM	7		10:00 AM	147		10:00 PM	12	
10:15 AM	89		10:15 PM	5		10:15 AM	68		10:15 PM	8		10:15 AM	157		10:15 PM	13	
10:30 AM	82		10:30 PM	4		10:30 AM	85		10:30 PM	9		10:30 AM	167		10:30 PM	13	
10:45 AM	86	341	10:45 PM	4	18	10:45 AM	50	266	10:45 PM	11	35	10:45 AM	136	607	10:45 PM	15	53
11:00 AM	87		11:00 PM	3		11:00 AM	75		11:00 PM	5		11:00 AM	162		11:00 PM	8	
11:15 AM	74		11:15 PM	3		11:15 AM	74		11:15 PM	4		11:15 AM	148		11:15 PM	7	
11:30 AM	70		11:30 PM	3		11:30 AM	89		11:30 PM	4		11:30 AM	159		11:30 PM	7	
11:45 AM	68	299	11:45 PM	4	13	11:45 AM	99	337	11:45 PM	3	16	11:45 AM	167	636	11:45 PM	7	29
Total	2141			2051		Total	1304			2507		Total	3445			4558	
Percent	51.07%			48.93%		Percent	34.22%			65.78%		Percent	43.05%			56.95%	
Day Total			4192			Day Total			3811			Day Total			8003		
Peak Hour	7:30 AM			12:15 PM		Peak Hour	11:30 AM			2:00 PM		Peak Hour	11:45 AM			2:00 PM	
Volume	442			383		Volume	387			424		Volume	703			719	
P.H.F.	0.913			0.939		P.H.F.	0.921			0.946		P.H.F.	0.906			0.908	

Pleasant Street
at Walpole-Norwood Town Line
City, State: Walpole, MA
Client: Bayside Engineering/ K. Cram
Site Code: 2213020

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 218044 ATR-A

Count Date
Tuesday, June, 29, 2021

Classification (60-minute)

NB

Start Time:	Cycles	Cars and Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Total
12:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	4
1:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1
2:00 AM	0	0	0	0	0	1	0	0	1	0	0	0	0	2
3:00 AM	0	5	1	1	1	2	0	0	1	0	0	0	0	11
4:00 AM	0	12	2	0	1	1	0	0	1	0	0	0	0	17
5:00 AM	2	62	35	2	4	2	0	0	3	0	0	0	0	110
6:00 AM	2	152	62	0	13	5	0	0	6	0	0	0	0	240
7:00 AM	3	233	70	1	13	2	0	3	7	0	0	0	0	332
8:00 AM	0	260	69	2	16	2	1	3	15	0	0	0	0	368
9:00 AM	0	203	49	1	14	2	0	2	10	1	0	0	0	282
10:00 AM	0	189	39	2	9	3	0	3	6	0	0	0	0	251
11:00 AM	2	189	55	1	9	2	0	0	4	0	0	0	0	262
12:00 PM	0	215	45	2	4	1	1	4	10	0	0	0	0	282
1:00 PM	2	196	47	0	8	3	0	1	10	0	0	0	0	267
2:00 PM	0	171	44	4	10	0	0	0	9	0	0	0	0	238
3:00 PM	0	186	46	0	14	1	0	3	8	0	0	0	0	258
4:00 PM	0	170	45	3	11	0	0	1	2	0	0	0	0	232
5:00 PM	4	176	36	1	6	0	0	0	3	0	0	0	0	226
6:00 PM	0	161	30	0	2	0	0	0	0	0	0	0	0	193
7:00 PM	0	91	17	0	1	0	0	0	1	0	0	0	0	110
8:00 PM	0	68	8	0	2	0	0	0	0	0	0	0	0	78
9:00 PM	0	50	5	0	1	0	0	0	1	0	0	0	0	57
10:00 PM	0	14	5	0	0	0	0	0	0	0	0	0	0	19
11:00 PM	0	7	1	0	0	0	0	0	1	0	0	0	0	9
Total	15	2815	711	20	139	27	2	20	99	1	0	0	0	3849
Percent	0.39%	73.14%	18.47%	0.52%	3.61%	0.70%	0.05%	0.52%	2.57%	0.03%	0.00%	0.00%	0.00%	
AM Peak	7:00 AM	8:00 AM	7:00 AM	5:00 AM	8:00 AM	6:00 AM	8:00 AM	7:00 AM	8:00 AM	9:00 AM				8:00 AM
Volume	3	260	70	2	16	5	1	3	15	1	0	0	0	368
PM Peak	5:00 PM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM					12:00 PM
Volume	4	215	47	4	14	3	1	4	10	0	0	0	0	282

Cycles:	15	0.4%
Cars and Light Trucks:	3526	91.6%
Heavy Vehicles:	308	8.0%

Pleasant Street
at Walpole-Norwood Town Line
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Client: Bayside Engineering/ K. Cram
Site Code: 2213020

PRECISION DATA INDUSTRIES, LLC
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Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 218044 ATR-A
Count Dat
Tuesday, June, 29, 2021

Classification (60-minute)

SB

Start Time:	Cycles	Cars and Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Total
12:00 AM	0	11	0	0	0	0	0	0	1	0	0	0	0	12
1:00 AM	0	4	1	0	0	0	0	0	0	0	0	0	0	5
2:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1
3:00 AM	0	2	0	1	1	1	0	0	0	0	0	0	0	5
4:00 AM	0	3	0	0	0	0	0	0	2	0	0	0	0	5
5:00 AM	0	18	5	0	6	1	0	0	4	0	0	0	0	34
6:00 AM	4	45	17	2	13	2	1	5	5	0	0	0	0	94
7:00 AM	0	58	27	0	9	2	0	5	5	0	0	0	0	106
8:00 AM	0	62	21	2	12	1	0	2	4	0	0	0	0	104
9:00 AM	0	72	31	3	14	1	0	2	7	0	0	0	0	130
10:00 AM	1	101	24	3	13	2	0	2	10	0	0	0	0	156
11:00 AM	0	136	28	4	12	1	1	2	13	0	0	0	0	197
12:00 PM	0	154	42	3	18	0	0	1	10	0	0	0	0	228
1:00 PM	1	143	37	1	17	3	0	0	10	0	0	0	0	212
2:00 PM	0	143	56	1	15	1	0	2	10	0	0	1	0	229
3:00 PM	2	205	67	1	23	2	0	1	7	0	0	0	0	308
4:00 PM	4	254	57	3	23	2	0	4	4	0	0	0	0	351
5:00 PM	0	254	56	2	15	0	0	0	1	0	0	0	0	328
6:00 PM	1	152	25	0	6	0	0	1	2	0	0	0	0	187
7:00 PM	0	87	23	0	3	0	0	0	0	0	0	0	0	113
8:00 PM	1	66	16	0	6	0	0	0	0	0	0	0	0	89
9:00 PM	0	26	10	0	2	0	0	0	2	0	0	0	0	40
10:00 PM	0	33	4	0	0	0	0	0	1	0	0	0	0	38
11:00 PM	0	17	1	0	2	0	0	0	0	0	0	0	0	20
PM Total	14	2047	548	26	210	19	2	27	98	0	0	1	0	2992
Percent	0.47%	68.42%	18.32%	0.87%	7.02%	0.64%	0.07%	0.90%	3.28%	0.00%	0.00%	0.03%	0.00%	
AM Peak	6:00 AM	11:00 AM	9:00 AM	11:00 AM	9:00 AM	6:00 AM	6:00 AM	6:00 AM	11:00 AM					11:00 AM
Volume	4	136	31	4	14	2	1	5	13	0	0	0	0	197
PM Peak	4:00 PM	4:00 PM	3:00 PM	12:00 PM	3:00 PM	1:00 PM		4:00 PM	12:00 PM			2:00 PM		4:00 PM
Volume	4	254	67	3	23	3	0	4	10	0	0	1	0	351

Cycles:	14	0.5%
Cars and Light Trucks:	2595	86.7%
Heavy Vehicles:	383	12.8%

Pleasant Street
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Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 218044 ATR-A

Count Date
Tuesday, June, 29, 2021

Classification (60-minute)

Combined

Start Time:	Cycles	Cars and Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Total
12:00 AM	0	15	0	0	0	0	0	0	1	0	0	0	0	16
1:00 AM	0	5	1	0	0	0	0	0	0	0	0	0	0	6
2:00 AM	0	1	0	0	0	1	0	0	1	0	0	0	0	3
3:00 AM	0	7	1	2	2	3	0	0	1	0	0	0	0	16
4:00 AM	0	15	2	0	1	1	0	0	3	0	0	0	0	22
5:00 AM	2	80	40	2	10	3	0	0	7	0	0	0	0	144
6:00 AM	6	197	79	2	26	7	1	5	11	0	0	0	0	334
7:00 AM	3	291	97	1	22	4	0	8	12	0	0	0	0	438
8:00 AM	0	322	90	4	28	3	1	5	19	0	0	0	0	472
9:00 AM	0	275	80	4	28	3	0	4	17	1	0	0	0	412
10:00 AM	1	290	63	5	22	5	0	5	16	0	0	0	0	407
11:00 AM	2	325	83	5	21	3	1	2	17	0	0	0	0	459
12:00 PM	0	369	87	5	22	1	1	5	20	0	0	0	0	510
1:00 PM	3	339	84	1	25	6	0	1	20	0	0	0	0	479
2:00 PM	0	314	100	5	25	1	0	2	19	0	0	1	0	467
3:00 PM	2	391	113	1	37	3	0	4	15	0	0	0	0	566
4:00 PM	4	424	102	6	34	2	0	5	6	0	0	0	0	583
5:00 PM	4	430	92	3	21	0	0	0	4	0	0	0	0	554
6:00 PM	1	313	55	0	8	0	0	1	2	0	0	0	0	380
7:00 PM	0	178	40	0	4	0	0	0	1	0	0	0	0	223
8:00 PM	1	134	24	0	8	0	0	0	0	0	0	0	0	167
9:00 PM	0	76	15	0	3	0	0	0	3	0	0	0	0	97
10:00 PM	0	47	9	0	0	0	0	0	1	0	0	0	0	57
11:00 PM	0	24	2	0	2	0	0	0	1	0	0	0	0	29
PM Total	29	4862	1259	46	349	46	4	47	197	1	0	1	0	6841
Percent	0.42%	71.07%	18.40%	0.67%	5.10%	0.67%	0.06%	0.69%	2.88%	0.01%	0.00%	0.01%	0.00%	
AM Peak	6:00 AM	11:00 AM	7:00 AM	10:00 AM	8:00 AM	6:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM				8:00 AM
Volume	6	325	97	5	28	7	1	8	19	1	0	0	0	472
PM Peak	4:00 PM	5:00 PM	3:00 PM	4:00 PM	3:00 PM	1:00 PM	12:00 PM	12:00 PM	12:00 PM			2:00 PM		4:00 PM
Volume	4	430	113	6	37	6	1	5	20	0	0	1	0	583

Cycles:	29	0.4%
Cars and Light Trucks:	6121	89.5%
Heavy Vehicles:	691	10.1%

Pleasant Street
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Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 218044 ATR-A

Count Da
Wednesday, June 30, 2021

Classification (60-minute)

NB

Start Time:	Cycles	Cars and Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Total
12:00 AM	0	3	2	0	0	0	0	0	0	0	0	0	0	5
1:00 AM	0	1	1	0	0	0	0	0	2	0	0	0	0	4
2:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	4
3:00 AM	0	5	3	0	0	1	0	0	1	0	0	0	0	10
4:00 AM	0	9	4	0	0	0	0	0	2	0	0	0	0	15
5:00 AM	2	66	41	1	5	6	0	0	2	0	0	0	0	123
6:00 AM	2	140	53	1	13	0	0	0	6	0	0	0	0	215
7:00 AM	5	263	91	1	15	4	1	3	8	0	0	0	0	391
8:00 AM	2	314	57	2	13	4	0	1	9	0	0	0	0	402
9:00 AM	1	249	56	2	12	3	1	1	7	0	0	0	0	332
10:00 AM	0	242	66	2	16	4	1	0	10	0	0	0	0	341
11:00 AM	2	223	57	0	7	1	0	1	8	0	0	0	0	299
12:00 PM	0	272	74	2	11	4	0	2	4	0	0	0	0	369
1:00 PM	0	216	59	8	6	1	0	1	9	0	0	0	0	300
2:00 PM	0	214	46	3	14	5	2	2	9	0	0	0	0	295
3:00 PM	0	179	53	1	7	0	1	1	1	0	0	0	0	243
4:00 PM	0	140	52	2	7	0	0	3	3	0	0	0	0	207
5:00 PM	0	170	39	0	5	0	0	1	0	0	0	0	0	215
6:00 PM	1	150	34	0	3	0	0	1	1	0	0	0	0	190
7:00 PM	0	81	14	0	2	0	0	0	1	0	0	0	0	98
8:00 PM	0	57	12	0	0	0	0	0	0	0	0	0	0	69
9:00 PM	0	23	8	0	0	1	0	0	2	0	0	0	0	34
10:00 PM	0	15	2	0	1	0	0	0	0	0	0	0	0	18
11:00 PM	0	11	0	0	1	0	0	0	1	0	0	0	0	13
Total	15	3047	824	25	138	34	6	17	86	0	0	0	0	4192
Percent	0.36%	72.69%	19.66%	0.60%	3.29%	0.81%	0.14%	0.41%	2.05%	0.00%	0.00%	0.00%	0.00%	
AM Peak	7:00 AM	8:00 AM	7:00 AM	8:00 AM	10:00 AM	5:00 AM	7:00 AM	7:00 AM	10:00 AM					8:00 AM
Volume	5	314	91	2	16	6	1	3	10	0	0	0	0	402
PM Peak	6:00 PM	12:00 PM	12:00 PM	1:00 PM	2:00 PM	2:00 PM	2:00 PM	4:00 PM	1:00 PM					12:00 PM
Volume	1	272	74	8	14	5	2	3	9	0	0	0	0	369

Cycles:	15	0.4%
Cars and Light Trucks:	3871	92.3%
Heavy Vehicles:	306	7.3%

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Classification (60-minute)

SB

Start Time:	Cycles	Cars and Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Total
12:00 AM	0	3	1	0	0	0	0	0	0	0	0	0	0	4
1:00 AM	0	1	0	0	0	0	0	0	1	0	0	0	0	2
2:00 AM	0	2	0	0	1	0	0	0	1	0	0	0	0	4
3:00 AM	0	1	1	0	1	0	0	0	2	0	0	0	0	5
4:00 AM	0	3	0	0	1	0	0	0	1	0	0	0	0	5
5:00 AM	0	11	6	0	3	0	0	0	2	0	0	0	0	22
6:00 AM	2	47	20	3	12	0	2	4	5	0	0	0	0	95
7:00 AM	0	80	35	3	10	6	2	2	5	0	0	0	0	143
8:00 AM	0	116	39	1	18	0	1	1	10	0	0	0	0	186
9:00 AM	2	147	54	4	16	3	2	3	4	0	0	0	0	235
10:00 AM	0	182	52	2	16	7	0	1	6	0	0	0	0	266
11:00 AM	1	245	60	2	20	1	1	0	7	0	0	0	0	337
12:00 PM	4	241	64	1	24	2	1	3	5	1	0	0	0	346
1:00 PM	1	217	57	5	24	6	0	2	8	0	0	0	1	321
2:00 PM	1	282	103	4	18	2	0	3	11	0	0	0	0	424
3:00 PM	2	215	55	1	17	2	0	1	3	0	0	0	0	296
4:00 PM	1	248	66	0	18	1	0	2	1	0	0	0	0	337
5:00 PM	1	234	47	2	25	1	0	2	2	0	0	0	0	314
6:00 PM	0	157	31	0	12	0	0	0	1	0	0	0	0	201
7:00 PM	0	74	28	1	2	0	0	0	0	0	0	0	0	105
8:00 PM	0	50	15	1	1	0	0	0	0	0	0	0	0	67
9:00 PM	0	34	6	0	4	0	0	0	1	0	0	0	0	45
10:00 PM	0	24	7	0	3	0	0	0	1	0	0	0	0	35
11:00 PM	0	12	1	0	2	0	0	0	1	0	0	0	0	16
PM Total	15	2626	748	30	248	31	9	24	78	1	0	0	1	3811
Percent	0.39%	68.91%	19.63%	0.79%	6.51%	0.81%	0.24%	0.63%	2.05%	0.03%	0.00%	0.00%	0.03%	
AM Peak	6:00 AM	11:00 AM	11:00 AM	9:00 AM	11:00 AM	10:00 AM	6:00 AM	6:00 AM	8:00 AM					11:00 AM
Volume	2	245	60	4	20	7	2	4	10	0	0	0	0	337
PM Peak	12:00 PM	2:00 PM	2:00 PM	1:00 PM	5:00 PM	1:00 PM	12:00 PM	12:00 PM	2:00 PM	12:00 PM			1:00 PM	2:00 PM
Volume	4	282	103	5	25	6	1	3	11	1	0	0	1	424

Cycles:	15	0.4%
Cars and Light Trucks:	3374	88.5%
Heavy Vehicles:	422	11.1%

Pleasant Street
at Walpole-Norwood Town Line
City, State: Walpole, MA
Client: Bayside Engineering/ K. Cram
Site Code: 2213020

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 218044 ATR-A
Count Da
Wednesday, June 30, 2021

Classification (60-minute)

Combined

Start Time:	Cycles	Cars and Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axle Double	5 Axle Double	>6 Axle Double	<6 Axle Multi	6 Axle Multi	>6 Axle Multi	Total
12:00 AM	0	6	3	0	0	0	0	0	0	0	0	0	0	9
1:00 AM	0	2	1	0	0	0	0	0	3	0	0	0	0	6
2:00 AM	0	6	0	0	1	0	0	0	1	0	0	0	0	8
3:00 AM	0	6	4	0	1	1	0	0	3	0	0	0	0	15
4:00 AM	0	12	4	0	1	0	0	0	3	0	0	0	0	20
5:00 AM	2	77	47	1	8	6	0	0	4	0	0	0	0	145
6:00 AM	4	187	73	4	25	0	2	4	11	0	0	0	0	310
7:00 AM	5	343	126	4	25	10	3	5	13	0	0	0	0	534
8:00 AM	2	430	96	3	31	4	1	2	19	0	0	0	0	588
9:00 AM	3	396	110	6	28	6	3	4	11	0	0	0	0	567
10:00 AM	0	424	118	4	32	11	1	1	16	0	0	0	0	607
11:00 AM	3	468	117	2	27	2	1	1	15	0	0	0	0	636
12:00 PM	4	513	138	3	35	6	1	5	9	1	0	0	0	715
1:00 PM	1	433	116	13	30	7	0	3	17	0	0	0	1	621
2:00 PM	1	496	149	7	32	7	2	5	20	0	0	0	0	719
3:00 PM	2	394	108	2	24	2	1	2	4	0	0	0	0	539
4:00 PM	1	388	118	2	25	1	0	5	4	0	0	0	0	544
5:00 PM	1	404	86	2	30	1	0	3	2	0	0	0	0	529
6:00 PM	1	307	65	0	15	0	0	1	2	0	0	0	0	391
7:00 PM	0	155	42	1	4	0	0	0	1	0	0	0	0	203
8:00 PM	0	107	27	1	1	0	0	0	0	0	0	0	0	136
9:00 PM	0	57	14	0	4	1	0	0	3	0	0	0	0	79
10:00 PM	0	39	9	0	4	0	0	0	1	0	0	0	0	53
11:00 PM	0	23	1	0	3	0	0	0	2	0	0	0	0	29
PM Total	30	5673	1572	55	386	65	15	41	164	1	0	0	1	8003
Percent	0.37%	70.89%	19.64%	0.69%	4.82%	0.81%	0.19%	0.51%	2.05%	0.01%	0.00%	0.00%	0.01%	
AM Peak	7:00 AM	11:00 AM	7:00 AM	9:00 AM	10:00 AM	10:00 AM	7:00 AM	7:00 AM	8:00 AM					11:00 AM
Volume	5	468	126	6	32	11	3	5	19	0	0	0	0	636
PM Peak	12:00 PM	12:00 PM	2:00 PM	1:00 PM	12:00 PM	1:00 PM	2:00 PM	12:00 PM	2:00 PM	12:00 PM			1:00 PM	2:00 PM
Volume	4	513	149	13	35	7	2	5	20	1	0	0	1	719

Cycles:	30	0.4%
Cars and Light Trucks:	7245	90.5%
Heavy Vehicles:	728	9.1%

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Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 218044 ATR-A

Count Date
Tuesday, June, 29, 2021

Speed (60-minute)

NB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	1	1	2	0	0	0	0	0	0	0	4	35.6	32.3
1:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	31.0	31.0
2:00 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	2	22.9	22.5
3:00 AM	0	0	1	5	3	1	1	0	0	0	0	0	0	11	36.0	30.3
4:00 AM	0	0	0	3	6	5	2	1	0	0	0	0	0	17	39.6	35.1
5:00 AM	0	0	6	10	34	35	14	9	2	0	0	0	0	110	41.7	35.5
6:00 AM	0	0	3	19	69	113	33	3	0	0	0	0	0	240	39.2	35.4
7:00 AM	0	1	5	26	105	152	41	2	0	0	0	0	0	332	39.0	35.0
8:00 AM	4	3	13	46	115	145	40	2	0	0	0	0	0	368	39.0	33.8
9:00 AM	1	3	15	32	113	91	27	0	0	0	0	0	0	282	38.0	33.2
10:00 AM	1	0	10	15	100	94	28	2	1	0	0	0	0	251	39.0	34.4
11:00 AM	4	1	3	24	101	97	29	3	0	0	0	0	0	262	39.0	34.1
12:00 PM	1	0	4	20	101	116	36	4	0	0	0	0	0	282	39.0	34.9
1:00 PM	0	0	6	24	77	123	36	1	0	0	0	0	0	267	39.0	34.7
2:00 PM	0	0	3	24	79	100	27	3	2	0	0	0	0	238	39.0	34.9
3:00 PM	0	1	5	21	87	106	34	3	1	0	0	0	0	258	39.0	34.9
4:00 PM	3	2	3	23	67	102	26	5	1	0	0	0	0	232	39.0	34.6
5:00 PM	0	1	2	9	85	92	31	5	1	0	0	0	0	226	40.0	35.5
6:00 PM	0	0	1	13	79	77	20	3	0	0	0	0	0	193	39.0	34.9
7:00 PM	0	0	1	9	38	47	14	1	0	0	0	0	0	110	39.0	35.1
8:00 PM	0	0	2	5	29	33	8	1	0	0	0	0	0	78	38.0	34.5
9:00 PM	0	0	1	8	30	17	1	0	0	0	0	0	0	57	36.6	32.8
10:00 PM	0	0	1	3	8	5	2	0	0	0	0	0	0	19	38.3	33.1
11:00 PM	0	0	1	2	4	2	0	0	0	0	0	0	0	9	34.8	31.0
Total	14	12	88	342	1332	1555	450	48	8	0	0	0	0	3849	39.0	34.6
Percent	0.36%	0.31%	2.29%	8.89%	34.61%	40.40%	11.69%	1.25%	0.21%	0.00%	0.00%	0.00%	0.00%			
AM Peak	8:00 AM	8:00 AM	9:00 AM	8:00 AM	8:00 AM	7:00 AM	7:00 AM	5:00 AM	5:00 AM					8:00 AM		
Volume	4	3	15	46	115	152	41	9	2	0	0	0	0	368		
PM Peak	4:00 PM	4:00 PM	1:00 PM	1:00 PM	12:00 PM	1:00 PM	12:00 PM	4:00 PM	2:00 PM					12:00 PM		
Volume	3	2	6	24	101	123	36	5	2	0	0	0	0	282		

15th Percentile:	30.0 MPH	Average Speed:	34.6 MPH	Posted Speed Limit:	30 MPH
50th Percentile:	35.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 30 MPH:	3234
85th Percentile:	39.0 MPH	Number in Pace:	2903	Percent of Vehicles > 30 MPH:	84.0%
95th Percentile:	42.0 MPH	Percent in Pace:	75.4%		

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Count Date
Tuesday, June, 29, 2021

Speed (60-minute)

SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	1	0	2	1	4	4	0	0	0	0	0	0	12	40.4	35.1
1:00 AM	0	0	0	0	1	3	1	0	0	0	0	0	0	5	39.6	36.6
2:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	32.0	32.0
3:00 AM	0	0	1	2	1	1	0	0	0	0	0	0	0	5	32.6	28.6
4:00 AM	0	0	2	0	0	2	1	0	0	0	0	0	0	5	37.6	30.6
5:00 AM	0	0	1	6	13	11	2	1	0	0	0	0	0	34	37.1	33.7
6:00 AM	1	1	1	17	29	28	16	1	0	0	0	0	0	94	40.0	33.7
7:00 AM	2	4	5	15	41	31	7	1	0	0	0	0	0	106	38.0	32.3
8:00 AM	3	1	1	2	32	46	18	1	0	0	0	0	0	104	40.0	35.0
9:00 AM	0	7	6	14	38	51	12	2	0	0	0	0	0	130	39.0	33.3
10:00 AM	4	9	10	15	57	47	9	4	1	0	0	0	0	156	38.0	32.2
11:00 AM	1	11	6	11	67	77	19	5	0	0	0	0	0	197	39.0	34.0
12:00 PM	1	6	7	15	72	97	27	2	1	0	0	0	0	228	39.0	34.3
1:00 PM	0	7	5	18	74	78	27	3	0	0	0	0	0	212	39.0	34.1
2:00 PM	0	1	10	22	83	87	23	2	1	0	0	0	0	229	38.8	34.0
3:00 PM	0	1	3	22	133	121	26	2	0	0	0	0	0	308	39.0	34.5
4:00 PM	1	5	8	40	116	143	36	2	0	0	0	0	0	351	38.0	34.0
5:00 PM	0	4	9	8	105	153	45	3	1	0	0	0	0	328	39.0	35.3
6:00 PM	0	0	3	14	52	76	35	6	1	0	0	0	0	187	41.0	35.8
7:00 PM	0	0	3	10	34	47	17	2	0	0	0	0	0	113	40.0	35.0
8:00 PM	0	0	0	7	28	36	14	3	1	0	0	0	0	89	40.8	35.8
9:00 PM	0	0	1	7	13	13	5	1	0	0	0	0	0	40	39.2	34.0
10:00 PM	0	0	1	1	15	15	6	0	0	0	0	0	0	38	39.5	35.5
11:00 PM	0	0	0	2	9	5	4	0	0	0	0	0	0	20	40.0	35.1
Total	13	58	83	250	1015	1172	354	41	6	0	0	0	0	2992	39.0	34.3
Percent	0.43%	1.94%	2.77%	8.36%	33.92%	39.17%	11.83%	1.37%	0.20%	0.00%	0.00%	0.00%	0.00%			
AM Peak	10:00 AM	11:00 AM	10:00 AM	6:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	10:00 AM					11:00 AM		
Volume	4	11	10	17	67	77	19	5	1	0	0	0	0	197		
PM Peak	12:00 PM	1:00 PM	2:00 PM	4:00 PM	3:00 PM	5:00 PM	5:00 PM	6:00 PM	12:00 PM					4:00 PM		
Volume	1	7	10	40	133	153	45	6	1	0	0	0	0	351		

15th Percentile:	30.0 MPH	Average Speed:	34.3 MPH	Posted Speed Limit:	30 MPH
50th Percentile:	35.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 30 MPH:	2463
85th Percentile:	39.0 MPH	Number in Pace:	2206	Percent of Vehicles > 30 MPH:	82.3%
95th Percentile:	42.0 MPH	Percent in Pace:	73.7%		

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Count Date
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Speed (60-minute)

Combined NB and SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	1	0	3	2	6	4	0	0	0	0	0	0	16	40.0	34.4
1:00 AM	0	0	0	0	2	3	1	0	0	0	0	0	0	6	39.0	35.7
2:00 AM	0	0	2	0	1	0	0	0	0	0	0	0	0	3	29.3	25.7
3:00 AM	0	0	2	7	4	2	1	0	0	0	0	0	0	16	34.8	29.8
4:00 AM	0	0	2	3	6	7	3	1	0	0	0	0	0	22	39.9	34.0
5:00 AM	0	0	7	16	47	46	16	10	2	0	0	0	0	144	40.6	35.0
6:00 AM	1	1	4	36	98	141	49	4	0	0	0	0	0	334	40.0	34.9
7:00 AM	2	5	10	41	146	183	48	3	0	0	0	0	0	438	39.0	34.4
8:00 AM	7	4	14	48	147	191	58	3	0	0	0	0	0	472	39.0	34.1
9:00 AM	1	10	21	46	151	142	39	2	0	0	0	0	0	412	38.0	33.2
10:00 AM	5	9	20	30	157	141	37	6	2	0	0	0	0	407	39.0	33.6
11:00 AM	5	12	9	35	168	174	48	8	0	0	0	0	0	459	39.0	34.0
12:00 PM	2	6	11	35	173	213	63	6	1	0	0	0	0	510	39.0	34.6
1:00 PM	0	7	11	42	151	201	63	4	0	0	0	0	0	479	39.0	34.4
2:00 PM	0	1	13	46	162	187	50	5	3	0	0	0	0	467	39.0	34.5
3:00 PM	0	2	8	43	220	227	60	5	1	0	0	0	0	566	39.0	34.7
4:00 PM	4	7	11	63	183	245	62	7	1	0	0	0	0	583	39.0	34.3
5:00 PM	0	5	11	17	190	245	76	8	2	0	0	0	0	554	40.0	35.4
6:00 PM	0	0	4	27	131	153	55	9	1	0	0	0	0	380	40.0	35.4
7:00 PM	0	0	4	19	72	94	31	3	0	0	0	0	0	223	39.7	35.1
8:00 PM	0	0	2	12	57	69	22	4	1	0	0	0	0	167	40.0	35.2
9:00 PM	0	0	2	15	43	30	6	1	0	0	0	0	0	97	38.0	33.3
10:00 PM	0	0	2	4	23	20	8	0	0	0	0	0	0	57	39.0	34.7
11:00 PM	0	0	1	4	13	7	4	0	0	0	0	0	0	29	38.6	33.8
Total	27	70	171	592	2347	2727	804	89	14	0	0	0	0	6841	39.0	34.4
Percent	0.39%	1.02%	2.50%	8.65%	34.31%	39.86%	11.75%	1.30%	0.20%	0.00%	0.00%	0.00%	0.00%			
AM Peak	8:00 AM	11:00 AM	9:00 AM	8:00 AM	11:00 AM	8:00 AM	8:00 AM	5:00 AM	5:00 AM					8:00 AM		
Volume	7	12	21	48	168	191	58	10	2	0	0	0	0	472		
PM Peak	4:00 PM	1:00 PM	2:00 PM	4:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	2:00 PM					4:00 PM		
Volume	4	7	13	63	220	245	76	9	3	0	0	0	0	583		

15th Percentile:	30.0 MPH	Average Speed:	34.4 MPH	Posted Speed Limit:	30 MPH
50th Percentile:	35.0 MPH	10 MPH Pace:	31 to 40 MPH	Number of Vehicles > 30 MPH:	5697
85th Percentile:	39.0 MPH	Number in Pace:	5109	Percent of Vehicles > 30 MPH:	83.3%
95th Percentile:	42.0 MPH	Percent in Pace:	74.7%		

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Speed (60-minute)

NB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	2	1	1	1	0	0	0	0	0	0	5	37.0	32.2
1:00 AM	0	1	1	0	2	0	0	0	0	0	0	0	0	4	33.6	27.3
2:00 AM	0	0	0	1	0	3	0	0	0	0	0	0	0	4	35.6	32.8
3:00 AM	0	1	0	2	2	4	1	0	0	0	0	0	0	10	39.0	32.6
4:00 AM	0	0	0	2	7	5	0	1	0	0	0	0	0	15	36.8	34.1
5:00 AM	1	1	4	15	44	42	11	3	2	0	0	0	0	123	39.0	34.1
6:00 AM	0	0	3	13	72	89	33	4	1	0	0	0	0	215	40.0	35.5
7:00 AM	2	1	11	27	125	175	44	6	0	0	0	0	0	391	39.0	34.9
8:00 AM	4	1	6	38	160	152	38	3	0	0	0	0	0	402	38.0	34.1
9:00 AM	1	3	11	46	131	118	20	1	0	1	0	0	0	332	38.0	33.4
10:00 AM	2	0	10	31	139	128	28	2	1	0	0	0	0	341	38.0	34.0
11:00 AM	5	3	6	28	96	136	24	1	0	0	0	0	0	299	39.0	33.9
12:00 PM	0	0	10	32	134	155	37	1	0	0	0	0	0	369	38.0	34.3
1:00 PM	3	0	4	34	116	102	36	3	1	0	1	0	0	300	39.0	34.4
2:00 PM	5	2	4	28	116	96	37	6	1	0	0	0	0	295	39.0	34.3
3:00 PM	0	0	5	14	69	109	41	5	0	0	0	0	0	243	40.0	35.7
4:00 PM	2	0	4	13	68	90	25	4	1	0	0	0	0	207	39.0	35.1
5:00 PM	0	0	0	7	58	113	28	6	3	0	0	0	0	215	40.0	36.5
6:00 PM	0	0	4	9	74	75	23	5	0	0	0	0	0	190	39.0	35.2
7:00 PM	0	0	1	14	31	42	9	1	0	0	0	0	0	98	39.0	34.5
8:00 PM	1	1	2	13	29	19	2	2	0	0	0	0	0	69	37.0	32.4
9:00 PM	0	0	3	3	19	7	2	0	0	0	0	0	0	34	37.0	32.0
10:00 PM	0	0	1	5	6	5	1	0	0	0	0	0	0	18	35.9	32.1
11:00 PM	0	0	2	3	4	1	3	0	0	0	0	0	0	13	40.2	32.5
Total	26	14	92	380	1503	1667	444	54	10	1	1	0	0	4192	39.0	34.5
Percent	0.62%	0.33%	2.19%	9.06%	35.85%	39.77%	10.59%	1.29%	0.24%	0.02%	0.02%	0.00%	0.00%			
AM Peak	11:00 AM	9:00 AM	7:00 AM	9:00 AM	8:00 AM	7:00 AM	7:00 AM	7:00 AM	5:00 AM	9:00 AM				8:00 AM		
Volume	5	3	11	46	160	175	44	6	2	1	0	0	0	402		
PM Peak	2:00 PM	2:00 PM	12:00 PM	1:00 PM	12:00 PM	12:00 PM	3:00 PM	2:00 PM	5:00 PM		1:00 PM			12:00 PM		
Volume	5	2	10	34	134	155	41	6	3	0	1	0	0	369		

15th Percentile:	30.0 MPH	Average Speed:	34.5 MPH	Posted Speed Limit:	30 MPH
50th Percentile:	35.0 MPH	10 MPH Pace:	30 to 39 MPH	Number of Vehicles > 30 MPH:	3506
85th Percentile:	39.0 MPH	Number in Pace:	3170	Percent of Vehicles > 30 MPH:	83.6%
95th Percentile:	42.0 MPH	Percent in Pace:	75.6%		

Pleasant Street
at Walpole-Norwood Town Line
y, State: Walpole, MA
Client: Bayside Engineering/ K. Cram
Site Code: 2213020

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 218044 ATR-A

Count Date
Wednesday, June 30, 2021

Speed (60-minute)

SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	1	0	3	0	0	0	0	0	0	0	4	36.1	33.8
1:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	2	24.1	22.0
2:00 AM	0	0	0	1	2	0	1	0	0	0	0	0	0	4	38.5	33.8
3:00 AM	0	0	1	1	1	2	0	0	0	0	0	0	0	5	37.2	30.8
4:00 AM	0	0	1	0	2	0	2	0	0	0	0	0	0	5	40.4	32.6
5:00 AM	0	0	1	3	10	5	2	0	1	0	0	0	0	22	38.7	34.5
6:00 AM	3	0	2	12	35	32	9	2	0	0	0	0	0	95	39.0	33.6
7:00 AM	0	0	5	25	40	57	10	6	0	0	0	0	0	143	39.0	34.2
8:00 AM	0	3	16	28	66	62	9	2	0	0	0	0	0	186	38.0	32.6
9:00 AM	6	4	10	34	93	72	16	0	0	0	0	0	0	235	37.9	32.2
10:00 AM	0	4	5	35	119	75	24	4	0	0	0	0	0	266	38.0	33.3
11:00 AM	1	1	8	49	122	127	25	4	0	0	0	0	0	337	38.0	33.7
12:00 PM	2	3	1	26	147	144	22	1	0	0	0	0	0	346	37.0	33.9
1:00 PM	1	8	17	44	118	108	24	0	1	0	0	0	0	321	38.0	32.8
2:00 PM	3	4	14	48	180	150	23	2	0	0	0	0	0	424	37.0	33.3
3:00 PM	1	1	2	19	103	131	39	0	0	0	0	0	0	296	39.0	35.1
4:00 PM	0	1	1	28	126	134	42	5	0	0	0	0	0	337	39.0	34.9
5:00 PM	2	7	3	21	104	132	37	8	0	0	0	0	0	314	39.0	34.7
6:00 PM	0	0	1	12	73	80	32	2	1	0	0	0	0	201	40.0	35.4
7:00 PM	0	1	1	7	41	39	14	2	0	0	0	0	0	105	39.4	34.9
8:00 PM	0	0	5	15	23	18	6	0	0	0	0	0	0	67	38.0	32.4
9:00 PM	0	1	0	5	15	18	6	0	0	0	0	0	0	45	39.0	34.5
10:00 PM	0	1	4	5	13	9	3	0	0	0	0	0	0	35	38.0	32.2
11:00 PM	0	0	0	5	5	4	2	0	0	0	0	0	0	16	38.0	33.1
Total	19	40	98	425	1438	1402	348	38	3	0	0	0	0	3811	38.0	33.8
Percent	0.50%	1.05%	2.57%	11.15%	37.73%	36.79%	9.13%	1.00%	0.08%	0.00%	0.00%	0.00%	0.00%			
AM Peak	9:00 AM	9:00 AM	8:00 AM	11:00 AM	11:00 AM	11:00 AM	11:00 AM	7:00 AM	5:00 AM					11:00 AM		
Volume	6	4	16	49	122	127	25	6	1	0	0	0	0	337		
PM Peak	2:00 PM	1:00 PM	1:00 PM	2:00 PM	2:00 PM	2:00 PM	4:00 PM	5:00 PM	1:00 PM					2:00 PM		
Volume	3	8	17	48	180	150	42	8	1	0	0	0	0	424		

15th Percentile:	29.0 MPH	Average Speed:	33.8 MPH	Posted Speed Limit:	30 MPH
50th Percentile:	34.0 MPH	10 MPH Pace:	30 to 39 MPH	Number of Vehicles > 30 MPH:	3069
85th Percentile:	38.0 MPH	Number in Pace:	2840	Percent of Vehicles > 30 MPH:	80.5%
95th Percentile:	41.0 MPH	Percent in Pace:	74.5%		

Pleasant Street
at Walpole-Norwood Town Line
City, State: Walpole, MA
Client: Bayside Engineering/ K. Cram
Site Code: 2213020

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 218044 ATR-A

Count Date
Wednesday, June 30, 2021

Speed (60-minute)

Combined NB and SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	3	1	4	1	0	0	0	0	0	0	9	36.6	32.9
1:00 AM	0	2	1	1	2	0	0	0	0	0	0	0	0	6	33.3	25.5
2:00 AM	0	0	0	2	2	3	1	0	0	0	0	0	0	8	36.0	33.3
3:00 AM	0	1	1	3	3	6	1	0	0	0	0	0	0	15	39.0	32.0
4:00 AM	0	0	1	2	9	5	2	1	0	0	0	0	0	20	39.2	33.8
5:00 AM	1	1	5	18	54	47	13	3	3	0	0	0	0	145	39.0	34.1
6:00 AM	3	0	5	25	107	121	42	6	1	0	0	0	0	310	40.0	34.9
7:00 AM	2	1	16	52	165	232	54	12	0	0	0	0	0	534	39.0	34.7
8:00 AM	4	4	22	66	226	214	47	5	0	0	0	0	0	588	38.0	33.6
9:00 AM	7	7	21	80	224	190	36	1	0	1	0	0	0	567	38.0	32.9
10:00 AM	2	4	15	66	258	203	52	6	1	0	0	0	0	607	38.0	33.7
11:00 AM	6	4	14	77	218	263	49	5	0	0	0	0	0	636	38.0	33.8
12:00 PM	2	3	11	58	281	299	59	2	0	0	0	0	0	715	38.0	34.1
1:00 PM	4	8	21	78	234	210	60	3	2	0	1	0	0	621	38.0	33.5
2:00 PM	8	6	18	76	296	246	60	8	1	0	0	0	0	719	38.0	33.7
3:00 PM	1	1	7	33	172	240	80	5	0	0	0	0	0	539	40.0	35.4
4:00 PM	2	1	5	41	194	224	67	9	1	0	0	0	0	544	39.0	35.0
5:00 PM	2	7	3	28	162	245	65	14	3	0	0	0	0	529	40.0	35.4
6:00 PM	0	0	5	21	147	155	55	7	1	0	0	0	0	391	40.0	35.3
7:00 PM	0	1	2	21	72	81	23	3	0	0	0	0	0	203	39.0	34.7
8:00 PM	1	1	7	28	52	37	8	2	0	0	0	0	0	136	37.0	32.4
9:00 PM	0	1	3	8	34	25	8	0	0	0	0	0	0	79	38.0	33.4
10:00 PM	0	1	5	10	19	14	4	0	0	0	0	0	0	53	38.0	32.1
11:00 PM	0	0	2	8	9	5	5	0	0	0	0	0	0	29	39.6	32.8
Total	45	54	190	805	2941	3069	792	92	13	1	1	0	0	8003	39.0	34.2
Percent	0.56%	0.67%	2.37%	10.06%	36.75%	38.35%	9.90%	1.15%	0.16%	0.01%	0.01%	0.00%	0.00%			
AM Peak	9:00 AM	9:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	7:00 AM	7:00 AM	5:00 AM	9:00 AM				11:00 AM		
Volume	7	7	22	80	258	263	54	12	3	1	0	0	0	636		
PM Peak	2:00 PM	1:00 PM	1:00 PM	1:00 PM	2:00 PM	12:00 PM	3:00 PM	5:00 PM	5:00 PM		1:00 PM			2:00 PM		
Volume	8	8	21	78	296	299	80	14	3	0	1	0	0	719		

15th Percentile:	30.0 MPH	Average Speed:	34.2 MPH	Posted Speed Limit:	30 MPH
50th Percentile:	34.0 MPH	10 MPH Pace:	30 to 39 MPH	Number of Vehicles > 30 MPH:	6575
85th Percentile:	39.0 MPH	Number in Pace:	6010	Percent of Vehicles > 30 MPH:	82.2%
95th Percentile:	42.0 MPH	Percent in Pace:	75.1%		

BAYSIDE ENGINEERING

SEASONAL ADJUSTMENT

BAYSIDE ENGINEERING

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Massachusetts Highway Department

10: Monthly Hourly Volume for January 2019

Location ID:	10	**Seasonal Factor Group:**	U1-Boston
County:	Norfolk	**Daily Factor Group:**	
Funcationl Class	1	**Axle Factor Group:**	U1-Boston
Location:	INTERSTATE 495 AT INTERSTATE 95	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17	451	336	341	438	993	2924	6119	8015	6969	4935	4007	4210	4291	4651	5873	7349	8001	7809	4844	3119	2335	1840	1292	878	92020
18	550	378	335	465	902	2694	5446	7236	6023	4241	3872	4273	4513	5127	6424	7747	7937	7501	5092	3215	2383	1947	1686	1216	91203
19	780	474	342	303	460	872	1624	2252	2866	3698	4341	4989	5205	5286	5427	5519	4828	3946	2983	2028	1550	1226	961	876	62836
20																									
21																									
22	437	329	310	431	999	2714	5590	7573	6944	4602	3920	3906	4071	4183	5371	6511	7351	7507	4811	2768	2212	1626	1080	754	86000
23																									
24																									
25																									
26																									
27																									
28																									
29																									
30																									

Massachusetts Highway Department

10: Monthly Hourly Volume for February 2019

Location ID:	**10**	**Seasonal Factor Group:**	**U1-Boston**
County:	**Norfolk**	**Daily Factor Group:**	
Funcationl Class	**1**	**Axle Factor Group:**	**U1-Boston**
Location:	**INTERSTATE 495 AT INTERSTATE 95**	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12	438	341	307	433	979	2972	5693	8012	6469	4204	3583	3965	5078	4738	4698	4372	4224	2751	1551	894	733	667	610	531	68243
13	360	296	287	360	813	2469	5348	7370	6418	4385	3630	3584	3828	4138	5419	6723	7502	7352	4623	2851	2177	1724	1204	878	83739
14	466	355	376	456	957	2952	6105	8128	7094	4883	4034	4090	4320	4683	5943	7250	7888	8024	5233	2964	2137	1824	1311	925	92398
15	557	369	354	460	934	2667	5709	7616	6452	4737	4290	4577	5050	5563	6916	8342	8399	7675	5122	3419	2336	2034	1717	1191	96486
16	757	505	351	341	417	814	1596	2294	3041	3949	4771	5281	5618	5443	5598	5575	5380	4925	4044	2883	2302	2044	1783	1277	70989
17	761	519	339	231	241	378	824	1246	1827	2947	3995	4956	5227	5246	5304	5317	5002	4513	3723	2786	2114	1624	1151	845	61116
18	456	365	311	398	514	1246	2440	3165	3289	2794	2923	3433	3690	3837	4330	4770	4982	4750	3237	2155	1656	1346	944	672	57703
19	437	320	292	436	956	2711	5532	7814	6659	5058	4470	4534	4626	4806	5850	6855	7344	7585	5089	2884	2116	1749	1187	769	90079
20	459	360	285	381	903	2843	5568	7398	6581	4787	4227	4451	4604	4716	5739	7188	7928	7734	4787	2755	2032	1493	1050	723	88992
21	480	308	368	419	829	2433	5250	6865	6334	4740	4102	4299	4577	4678	5713	7037	7512	7739	5081	3278	2321	1845	1302	888	88398
22	549	385	337	454	934	2616	4689	5934	5764	4853	4734	4982	5486	5727	6643	7310	7529	7233	5348	3473	2487	2172	1641	1171	92451
23	795	530	436	332	449	877	1637	2422	3160	3847	4602	5151	5470	5570	5715	5650	5553	5070	4047	3095	2497	2111	1820	1381	72217
24	849	517	351	225	267	344	729	1165	1683	2598	3532	4358	4939	4965	4684	4665	4394	3870	3123	2419	1757	1202	893	632	54161
25	348	280	252	426	911	2907	5797	8039	6728	4537	3806	3872	3804	4142	5108	6454	7099	7223	4383	2591	1869	1397	977	711	83661
26	429	358	326	422	966	2931	6484	8436	7236	5221	4017	4094	4055	4530	5589	7075	7688	7803	4927	2991	2167	1640	1205	893	91483
27	494	358	297	381	989	2941	6344	8436	7252	4900	4040	4192	4352	4538	5867	7245	8040	7723	4861	2811	1983	1425	1033	844	91346
28	605	409	436	457	879	2355	4700	6151	6158	4858	3955	3764	3824	4052	5180	6575	6998	7298	4704	3068	2406	1888	1307	897	82924

Massachusetts Highway Department

10: Monthly Hourly Volume for March 2019

Location ID:	**10**	**Seasonal Factor Group:**	**U1-Boston**
County:	**Norfolk**	**Daily Factor Group:**	
Funcationl Class	**1**	**Axle Factor Group:**	**U1-Boston**
Location:	**INTERSTATE 495 AT INTERSTATE 95**	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1	531	379	373	439	981	2859	5744	7650	6483	4810	4409	4803	5002	5468	6872	7886	8462	7897	5892	3957	2878	2323	1963	1355	99416
2	843	526	444	393	454	757	1171	1313	1459	1369	1516	2069	2465	2831	3028	3336	3247	3144	2749	2026	1647	1465	1273	1224	40749
3	647	457	276	238	218	470	957	1628	2158	2945	3999	4901	5292	5292	5272	5199	5151	4629	3550	2571	1715	1261	781	512	60119
4	324	278	258	291	488	903	1512	1902	2340	2805	2900	2586	2706	2790	3180	3813	4274	4480	2789	1991	1511	1187	933	714	46955
5	401	343	337	443	1021	3092	6440	8434	7126	5154	3994	3861	4029	4437	5472	7030	7981	8136	5448	3119	2157	1709	1217	826	92207
6	440	408	311	398	962	2968	6201	8246	7171	4910	3912	3917	4263	4441	5639	7164	8064	7994	5028	3077	2279	1803	1174	808	91578
7	464	359	324	466	955	2965	6385	8257	7225	4893	4192	4155	4305	4494	5812	7168	7919	7875	5395	3479	2506	2009	1432	895	93929
8	515	413	329	441	965	2881	5917	7578	6729	4798	4379	4764	5174	5698	7049	8552	8988	8680	5898	3929	2585	2264	1775	1235	101536
9	798	520	378	321	493	992	2003	2932	3669	4214	5020	5477	5833	5825	6036	6228	6439	5707	4493	3397	2604	2366	2082	1459	79286
10	878	495	393	329	423	784	1253	1434	1836	2739	3553	4056	4373	4242	4487	4220	3750	3311	2489	2096	1460	987	643	420	50651
11	268	282	408	929	2900	5787	7641	6856	4621	3871	3948	4067	4331	5383	6887	7492	7465	4688	2896	2046	1675	1145	767	510	86863
12																									
13																									
14	466	361	348	448	984	2877	6309	8087	7117	4883	4263	4297	4459	4746	6027	7408	7941	7651	5182	3191	2527	1871	1359	945	93747
15	567	425	352	438	945	2694	5615	7337	6273	4837	4268	4611	5026	5583	6862	8042	7826	7239	5501	3666	2597	2211	1820	1188	95923
16	797	540	366	309	451	938	1672	2700	3366	4179	4962	5585	5690	5719	5961	6171	5708	5325	4410	3518	2829	2428	2047	1446	77117
17	893	520	377	212	244	359	898	1566	2276	3173	4098	5097	5582	5587	5578	5582	5399	4814	3992	3127	2497	1633	1073	725	65302
18	380	269	291	442	934	2959	6038	8093	6938	4827	4033	3998	4159	4376	5438	6871	7517	7561	4620	2846	2079	1503	1180	773	88125
19	521	357	340	422	996	3025	6269	8363	7117	4944	4072	4244	4289	4508	5790	7085	7710	7661	4714	3099	2217	1770	1209	781	91503
20	470	342	306	408	938	3027	6464	8415	7411	5086	4179	4164	4348	4692	5821	7497	7796	8129	4974	3307	2461	1907	1309	838	94289
21	515	411	365	468	969	3054	5799	8690	7131	5036	4199	4267	4470	4727	5835	7720	7920	7916	5046	3285	2521	1978	1396	857	94575
22	557	350	336	439	899	2680	5565	7387	6418	4882	4195	4612	4972	5406	6703	7883	7998	7526	5409	3456	2578	2056	1754	1245	95306
23	735	528	358	284	422	892	1676	2871	3549	3949	4886	5621	6057	6012	6234	5866	5751	5352	4571	3460	2838	2573	2200	1480	78165
24	937	505	315	229	269	422	900	1612	2268	3330	4463	5544	5530	5715	5704	5811	5779	5119	3993	3133	2311	1569	1036	708	67202
25	368	306	262	440	955	2999	6174	8007	7066	4703	4020	4112	4220	4259	5513	6769	7280	7647	4639	2828	2002	1581	1164	743	88057
26	473	327	342	440	972	3105	6584	8460	7074	4993	4077	4098	4353	4488	5749	7285	7774	7740	5050	3089	2334	1764	1229	759	92559
27	507	336	338	413	916	3164	6637	8600	6940	5219	4231	4184	4343	4588	5816	7586	8142	7614	5341	3304	2481	1918	1256	811	94685
28	513	362	352	473	994	3117	6485	8338	7286	5245	4294	4264	4453	4717	6102	7497	8131	8230	5350	3458	2673	2013	1415	907	96669
29	513	364	345	458	965	2923	5942	7713	6627	4940	4595	4690	5155	5766	6968	8514	8360	7836	5730	3800	2593	2138	1989	1430	100354
30	782	499	323	315	465	936	1856	2709	3675	4437	5268	5594	6149	6176	5981	6189	6246	5639	4708	3506	2857	2417	2094	1400	80221
31	881	537	365	253	221	393	847	1810	2419	3140	4132	5004	5206	5310	5363	5249	4960	4295	3581	2703	2151	1536	961	659	61976

Massachusetts Highway Department

10: Monthly Hourly Volume for April 2019

Location ID:	10	**Seasonal Factor Group:**	U1-Boston
County:	Norfolk	**Daily Factor Group:**	
Funcationl Class	1	**Axle Factor Group:**	U1-Boston
Location:	INTERSTATE 495 AT INTERSTATE 95	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1	370	266	267	463	959	3309	6790	8346	6946	4901	4177	4077	4121	4391	5433	7081	7679	8037	4708	3004	2020	1725	1123	783	90976
2	443	328	327	449	1055	3281	6692	8705	7132	5028	4160	4151	4292	4465	5803	7455	8078	8061	4862	3222	2246	1723	1187	741	93886
3	475	331	322	410	958	3036	6343	8143	7211	5047	4213	4064	4281	4598	5818	7471	7914	8018	5180	3155	2426	1907	1249	793	93363
4	460	356	303	497	1069	3291	6620	8616	7200	4996	4439	4498	4501	4711	6134	7717	8132	8335	5455	3501	2648	1991	1359	893	97722
5	517	360	370	442	977	3044	5975	8048	6491	4862	4586	4787	5105	5579	7035	8664	8644	8806	5820	3607	2640	2173	1801	1235	101568
6	743	505	333	308	472	1041	2058	3015	4010	4503	5201	5798	6030	5880	5933	5920	6115	5747	4700	3510	2967	2632	2029	1455	80905
7	889	550	383	242	280	467	1060	1985	2685	3569	4476	5371	5801	5501	5332	5664	6248	5198	4216	3127	2292	1539	1083	740	68698
8	388	263	280	484	954	3100	6187	7913	6949	5041	4152	4034	4200	4325	5435	6835	7492	7606	4588	2721	2056	1510	1024	744	88281
9	467	338	314	474	1022	3220	6764	8641	7098	5131	4079	4065	4393	4470	5778	7495	7882	8154	4934	2994	2322	1711	1139	745	93630
10	401	349	310	423	961	3278	6714	8554	7123	5201	4290	4398	4389	4698	6060	7873	8185	8289	5389	3232	2354	2012	1389	813	96685
11	465	360	348	454	1028	3345	6960	8540	7271	5278	4449	4363	4468	5040	6446	8138	8337	8340	5522	3565	2649	2152	1466	912	99896
12	541	389	343	484	1039	3027	6295	7832	6514	5078	4667	4859	5256	5809	6968	8846	8383	8456	5748	3857	2802	2301	1853	1328	102675
13	758	503	381	322	474	967	1959	2740	3581	4319	4972	5738	5990	6212	6288	6134	5860	5315	4633	3517	2815	2435	2235	1581	79729
14	888	554	350	241	278	461	994	1765	2493	3719	4486	5438	5604	5594	5399	5539	5599	4937	4015	3095	2141	1482	1136	784	66992
15	461	313	334	410	903	2461	4435	5705	5284	4291	4543	4810	4943	4998	5868	6264	7064	6841	4319	2847	2197	1550	1207	813	82861
16	407	295	327	465	1039	3259	6450	7944	6847	5436	4968	4926	4832	5221	6073	7367	8012	7169	5824	3359	2455	1946	1298	865	96784
17	449	354	310	433	1005	3157	6310	7740	6674	5390	5042	4979	4997	5204	6504	7946	8415	8374	5593	3582	2766	2134	1446	923	99727
18	476	394	313	498	1005	3141	6193	7283	6822	5408	4968	5013	5222	5642	6675	8115	8435	8324	5562	3602	2649	2197	1620	1001	100558
19	571	383	349	491	919	2851	5453	6318	5968	5117	5203	5661	6141	6609	7489	8347	8688	7838	5602	3772	2817	2288	1953	1278	102106
20	842	544	364	313	425	847	1545	2447	3125	3853	4846	5602	6017	5937	5838	6057	5577	4987	4085	3056	2554	2304	1962	1326	74453
21	765	490	324	207	172	320	660	1023	1641	3001	4570	6370	7205	6254	4986	4786	5588	6259	7027	6080	3930	2105	1346	813	75922
22	414	294	259	449	937	3296	6736	8399	7145	5094	4697	4535	4721	5088	6025	7110	7278	7177	4984	2972	2033	1640	1041	739	93063
23	417	348	348	456	1046	3244	6763	8153	7197	5490	4398	4288	4467	4702	6058	7797	8225	7893	5352	3226	2243	1849	1308	819	96087
24	474	343	292	434	1002	3375	6830	8487	7167	5234	4549	4450	4561	4721	5881	7160	7514	7116	5022	3567	2677	2229	1486	885	95456
25	484	376	337	493	1095	3378	6761	8597	7491	5553	4591	4507	4777	4871	6586	8180	8664	8850	5962	3696	2689	2180	1556	1065	102739
26																									
27																									
28																									
29																									
30																									

Massachusetts Highway Department

10: Monthly Hourly Volume for May 2019

Location ID:	10	**Seasonal Factor Group:**	U1-Boston
County:	Norfolk	**Daily Factor Group:**	
Funcationl Class	1	**Axle Factor Group:**	U1-Boston
Location:	INTERSTATE 495 AT INTERSTATE 95	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17																									
18																									
19																									
20																									
21	463	334	364	481	1128	3641	7153	8602	7411	5661	4882	4603	4772	5000	6277	7808	7840	8017	5630	3546	2649	2118	1433	927	100740
22	511	387	372	448	1090	3488	6851	8393	7456	5600	4698	4735	4905	4970	6655	8001	8609	8372	5701	3826	2866	2195	1513	965	102607
23	494	383	357	540	1157	3507	6961	8563	7408	5579	5000	5138	5112	5670	7367	8667	8980	8275	6656	4084	3168	2461	1727	1163	108417
24	613	441	395	518	1077	3290	6364	7447	6580	5651	5656	6217	6684	7425	8404	9073	8832	7568	5689	4584	3647	2895	2113	1599	112762
25	854	557	392	347	580	1124	2550	3732	4417	5078	5642	5993	5994	5894	6100	6386	6468	6274	5292	3813	3052	2988	3095	3295	89917
26	1326	617	385	237	254	544	1125	1993	2930	4314	5506	6458	6362	6038	5589	5242	4935	4863	4666	4143	3594	2977	2095	1303	77496
27	699	448	364	293	440	681	1386	1968	2938	4128	4845	5310	5589	5510	5247	5258	5056	4900	4554	4095	3334	2207	1392	963	71605
28	481	290	321	445	1109	3759	7412	8931	7383	5674	4957	5039	5236	5344	6816	7730	7521	7395	5309	3038	2301	1782	1250	792	100315
29	462	347	342	420	1072	3565	6929	8665	7464	5413	4759	4689	4845	5130	6391	7966	8245	8589	5586	3687	2545	1887	1436	997	101431
30	539	357	323	447	1076	3602	7072	8496	7316	5329	4589	4804	4999	5518	6723	8531	9044	8793	6971	4864	3179	2493	2573	2399	110037
31	843	451	424	525	1132	3478	6596	8178	7090	5747	5409	5750	5911	6530	7966	9159	9156	8496	6163	4474	3415	2834	2263	1636	113626

Massachusetts Highway Department

10: Monthly Hourly Volume for June 2019

Location ID:	**10**	**Seasonal Factor Group:**	**U1-Boston**
County:	**Norfolk**	**Daily Factor Group:**	
Funcationl Class	**1**	**Axle Factor Group:**	**U1-Boston**
Location:	**INTERSTATE 495 AT INTERSTATE 95**	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1	934	609	438	377	679	1264	2447	3473	4273	4951	5576	6005	6410	6416	6324	6374	5990	5705	5081	3937	2934	2711	2257	1867	87032
2	992	566	367	270	319	618	1185	2049	2826	3872	5115	6462	6575	6516	6417	6407	6248	5614	4908	4004	3105	2115	1301	809	78660
3	420	312	285	537	1135	3655	6983	8618	7307	5398	4716	4569	4780	5125	6116	7835	8394	8223	5502	3466	2537	1857	1204	919	99893
4	468	381	369	516	1159	3716	7125	8882	7625	5724	4664	4717	4810	5004	6555	7861	8594	8243	5633	3493	2846	2170	1305	837	102697
5	515	374	396	472	1078	3647	7133	8605	7515	5397	4972	4866	4895	5321	6567	8107	8785	8772	5756	3626	2827	2171	1386	930	104113
6																									
7	652	439	432	526	1110	3432	6723	8189	6814	5701	5541	5772	6219	6750	8226	9463	8737	7644	7541	4495	3447	2908	2276	1630	114667
8	965	627	413	401	687	1367	2479	3737	4340	5184	5756	6051	6088	6442	6119	6305	6044	5685	4968	3977	3411	3018	2316	1668	88048
9	979	593	384	295	370	709	1212	2109	3225	4487	5401	5904	6597	6437	6577	6279	6159	5969	5248	4653	3462	2179	1374	1049	81651
10	456	313	314	469	1106	3647	7041	8780	7492	5721	4973	4837	4927	5019	6466	7921	8454	8232	5321	3547	2560	1865	1175	794	101430
11	497	331	348	452	1049	3363	6308	8246	7349	5772	4769	4707	4910	5169	6582	8077	8627	8287	5417	3365	2884	2310	1381	975	101175
12	513	363	353	513	1132	3767	6982	8836	7619	5721	4918	5017	4960	5282	6898	8383	8839	8241	6185	4163	2805	1878	1341	1068	105777
13	588	367	366	502	1093	3443	6576	8477	7314	5584	5018	5079	5012	5625	6919	7576	8171	8110	5916	3889	2885	2235	1531	1008	103284
14	614	409	388	530	1110	3401	6608	7964	6851	5584	5672	6225	6603	7067	8683	9419	9607	9042	7423	5291	3553	2845	2956	2699	120544
15	1058	607	472	438	635	1327	2623	3776	4709	5511	6161	6637	7048	7015	7259	7006	6799	6443	5360	4369	3692	3341	3469	2421	98176
16	1055	690	441	307	312	490	1160	1863	2748	4010	5226	6486	6791	6822	6904	7799	7152	6136	5577	4344	4329	3821	2583	855	87901
17	411	320	378	482	1171	3595	6931	8659	6961	5810	5230	5404	5370	5313	6566	7821	8421	8148	5431	3827	2843	2203	1414	895	103604
18	524	408	404	549	1153	3525	7001	8535	7540	5458	4860	5059	5183	5495	6883	8051	8636	8273	5614	3559	2688	2042	1405	929	103774
19	535	375	410	535	1178	3630	6834	8671	7330	5690	5078	5332	5292	5563	7114	8607	8939	8971	6864	4700	3034	2441	2602	2584	112309
20	756	450	443	582	1216	3446	6663	8199	7477	5694	5418	5721	5844	5993	7191	8660	9445	9010	6656	4298	3254	2411	1656	1108	111591
21	696	425	441	525	1126	3227	5891	7509	6515	5506	5822	6691	7473	7871	8762	9243	9970	9329	8157	5519	3655	2859	3156	4336	124704
22	3672	1372	569	435	645	1364	2611	3672	4699	5461	6128	6522	6570	6671	6723	7020	6543	6070	4992	4124	3472	3061	2642	2196	97234
23																									
24																									
25																									
26																									
27																									
28	671	452	388	536	1148	3451	6569	7816	7306	6524	6510	6714	7268	7513	8712	8890	8823	8316	6449	4971	3942	3162	2362	1616	120109
29	1107	640	439	434	628	1308	2792	3827	4530	5067	5939	6438	6893	6747	6642	6488	6294	5458	4685	3748	3341	2975	2617	1749	90786
30	1051	667	412	328	342	556	1291	1933	2885	3979	5217	5975	6277	6070	6121	5974	5733	5046	4508	3710	3101	2336	1608	1040	76160

Massachusetts Highway Department

10: Monthly Hourly Volume for July 2019

Location ID: 10 **Seasonal Factor Group:** U1-Boston

County: Norfolk **Daily Factor Group:**

Funcationl Class 1 **Axle Factor Group:** U1-Boston

Location: INTERSTATE 495 AT INTERSTATE 95 **Growth Factor Group:**

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1	495	362	332	459	1184	3615	6828	8128	7247	5866	5649	5583	5516	5829	6770	8042	8227	8444	5720	3822	3073	2289	1604	1065	106149
2	590	429	438	572	1191	3473	6649	8014	7252	5916	5429	5490	5617	5851	7289	8593	8825	8458	6222	4634	3372	2766	1829	1175	110074
3	685	456	428	567	1162	3431	6056	7280	6783	6048	5788	6189	6741	7376	8200	8316	7959	7616	5827	4862	4259	3344	3268	2115	114756
4	1101	607	417	410	540	948	2120	3312	3818	3996	4210	4869	4966	4507	4080	3685	3648	3471	3480	3399	2905	2646	2477	1958	67570
5	897	450	389	475	758	1822	3475	4513	4986	5295	6153	6354	6148	6282	7259	7048	6514	5965	4891	4158	3618	3199	2634	1827	95110
6	983	608	493	408	524	1000	2070	3163	4527	5148	5782	6438	6594	6503	6260	5798	5541	5326	4949	4018	3756	3219	2374	1402	86884
7																									
8																									
9	534	412	416	552	1167	3619	7045	8498	7651	6087	5333	5166	5310	5444	6747	8415	8777	8103	6435	4155	3480	3415	1857	965	109583
10	559	413	392	499	1105	3636	6812	8411	7677	6191	5443	5392	5385	5591	7032	8077	9496	9020	7388	4392	3390	2794	2593	2870	114558
11	885	465	430	611	1153	3651	6627	8370	7499	6147	5574	5573	5788	6102	7460	8738	8889	8911	6503	4640	3553	2544	1891	1150	113154
12	683	457	376	541	1051	3047	5941	7373	6815	5859	5938	6458	6973	7730	8879	9165	8619	8763	6418	5821	4071	3250	3142	3557	120927
13	2666	822	540	428	644	1303	2791	4515	5618	6273	6547	7143	7026	7044	6931	6658	6419	6282	5109	4409	4890	3498	2858	1878	102292
14	1011	574	424	318	345	685	1404	2322	3494	4631	5694	6300	6214	6338	6214	6207	6248	6664	5927	4761	4122	3445	3133	2661	89136
15	765	414	398	491	1108	3672	7014	8719	7837	6420	6001	5655	5507	5614	6591	8199	8671	8425	6158	4003	3185	2350	1575	983	109755
16	580	379	383	545	1169	3631	6933	8760	7670	5996	5425	5251	5365	5621	6556	8561	8560	9357	7176	4520	3361	2539	2382	2885	113605
17	1871	489	508	509	1192	3561	6918	8220	7433	6275	5389	5471	5675	5653	6973	8593	9055	8393	6921	4393	2857	2352	2065	2661	113427
18	784	437	354	518	1178	3460	6373	7864	7150	5782	5443	5607	5914	6352	7723	9117	9269	9378	7353	4826	3366	2765	2279	2100	115392
19	758	525	407	558	1129	3389	6163	7611	7190	6077	6322	6306	7137	7448	8772	9259	9274	8594	6385	5083	4187	3306	2446	1717	120043
20	952	640	509	384	645	1317	2767	4791	5831	5721	6199	6386	6374	6171	6185	5631	5685	5169	4543	3962	3452	3113	2159	1947	90533
21	1021	592	516	336	329	655	1309	2208	3137	4372	5267	6064	5826	5869	5474	5512	5544	5239	4563	4120	3706	3101	2232	1119	78111
22	508	399	363	486	1203	3737	7085	8585	7591	6087	5550	5611	5660	5953	6871	8213	8778	8239	5389	3524	2462	1806	1251	863	106214
23	497	378	385	458	1082	3333	5898	7941	7351	5480	5050	4834	5162	5521	6893	8038	8631	8390	5722	3734	2914	2162	1548	1013	102415
24	582	404	359	497	1159	3596	6929	8572	7551	6211	5555	5615	5750	5662	6973	8524	9050	8719	6466	4314	3482	2677	1800	1141	111588
25	638	476	395	560	1255	3716	6929	8568	7900	6469	5880	7114	6927	6741	7675	8159	8320	9754	7212	4992	3940	2206	1520	1065	118411
26																									
27																									
28																									
29																									
30																									
31																									

Massachusetts Highway Department

10: Monthly Hourly Volume for August 2019

Location ID:	**10**	**Seasonal Factor Group:**	**U1-Boston**
County:	**Norfolk**	**Daily Factor Group:**	
Funcationl Class	**1**	**Axle Factor Group:**	**U1-Boston**
Location:	**INTERSTATE 495 AT INTERSTATE 95**	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1																									
2																									
3																									
4																									
5																									
6																									
7																									
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9																									
10																									
11																									
12																									
13																									
14																									
15																									
16	763	549	493	567	1146	3249	6047	7244	6875	6132	6196	7099	7154	7338	8877	8958	9322	8391	7617	5148	3994	3230	3115	3416	122920
17	1584	745	453	459	638	1287	2434	3977	5208	5928	6369	7011	7494	7521	7416	7416	6978	7022	6355	4423	3667	3330	3894	4380	105989
18	1851	727	519	328	383	794	1309	2122	3152	4651	5695	6552	6617	6650	5897	6295	6338	5657	5302	4747	3897	3057	1583	956	85079
19	459	341	324	462	1178	3544	6633	8438	7692	6345	5997	6170	5896	6124	7031	8289	8360	8051	5293	3876	2795	2164	1422	919	107803
20	524	397	378	487	1259	3548	6667	8460	7293	6352	5592	5637	5497	5721	7037	8624	9362	8886	6988	4375	3166	2479	2615	2964	114308
21	984	454	368	478	1156	3610	6812	8251	7568	5885	5695	5705	5699	5896	7273	8402	8588	8491	5835	3799	3089	2084	1503	996	108621
22	581	391	380	529	1276	3555	6042	8047	7560	6107	5715	5855	6007	6282	7833	9008	9079	9306	8111	5298	3711	3049	3451	4026	121199
23	1424	553	471	580	1158	3302	5780	7216	6790	5974	6192	6612	6923	7705	8691	8833	9258	8338	6146	4553	3615	2735	2113	1532	116494
24	980	569	457	393	652	1322	2495	3870	4899	5780	6622	7126	7176	7261	7184	6812	6489	6249	5518	4361	3783	3242	2790	1725	97755
25	1034	576	421	273	309	594	1272	2035	3005	4365	5956	6461	6640	6950	7011	6941	6987	6816	5598	4343	3397	2580	2340	2361	88265
26	586	392	343	501	1136	3535	6632	8301	7190	5731	5643	5545	5762	5870	6792	8724	9933	9220	6723	5032	3835	3989	2386	1126	114927
27																									
28																									
29																									
30																									
31																									

Massachusetts Highway Department

10: Monthly Hourly Volume for September 2018

Location ID: 10 **Seasonal Factor Group:** U1-Boston
County: Norfolk **Daily Factor Group:**
Funcationl Class 1 **Axle Factor Group:** U1-Boston
Location: INTERSTATE 495 AT INTERSTATE 95 **Growth Factor Group:**

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1	968	587	475	417	579	1074	2425	3931	5126	6368	6909	7177	6868	6542	6550	6297	6440	6129	6135	5091	3638	2899	2604	1586	96815
2	953	608	397	281	314	599	1334	2288	3676	5467	6707	6605	6618	6408	6129	5786	6544	6598	5704	4444	3819	3334	2366	1379	88358
3	805	452	380	351	424	684	1319	2198	3462	5007	6222	6595	6375	5969	6022	6090	6242	6412	5692	4414	3701	2755	1498	891	83960
4	441	314	295	454	1088	3343	6978	8479	7574	5979	5305	5285	5318	5443	6568	7955	8432	8226	5554	3531	2537	1889	1235	887	103110
5	559	362	322	497	1029	3367	6949	8640	7349	5543	4794	4808	4751	5027	6261	7733	8159	8178	5528	3718	2741	1957	1357	895	100524
6	572	397	365	484	1101	3313	6831	8960	7426	5553	4904	4857	5044	5289	6940	8456	8378	8351	6502	3958	2960	2102	2705	2906	108354
7	1866	480	320	478	1040	3320	6012	8071	6908	5470	5317	5651	5723	6257	7705	9182	9321	8738	6619	4585	3089	2641	2138	1573	112504
8	940	543	424	378	589	1315	2416	3410	4320	5094	5989	6348	6560	6602	6618	6623	6633	6486	5910	4381	3274	2849	3205	3119	94026
9	1050	609	405	292	302	548	1185	2220	3515	4789	6076	6310	6534	5716	5271	5673	6175	6500	5245	3677	2783	1749	1118	747	78489
10	452	320	263	478	1055	3313	6764	8463	7034	5127	4675	4896	4778	4998	6123	7428	7795	7600	5184	3165	2198	1647	1092	735	95583
11	458	333	342	460	1014	3277	6685	8289	7476	5671	4540	4374	4567	4986	6202	7611	7564	7610	5071	3445	2386	1747	1221	847	96176
12	567	369	345	452	1041	3338	6726	8506	7317	5479	4698	4664	4662	5059	6223	7469	8001	7818	5368	3335	2563	1814	1312	846	97972
13	569	368	341	477	1055	2963	6551	8390	7397	5760	5064	4917	4994	5415	6769	8192	8482	8598	5804	3888	3276	2172	1395	934	103771
14	615	407	378	473	1040	3198	6465	8072	6937	5543	5328	5696	5905	6577	7915	9450	9323	8768	7074	5219	3405	2691	2258	2291	115028
15	1804	814	451	388	521	1231	2233	3294	4153	5232	6229	6837	6862	6628	6712	7090	6730	6237	5155	4090	3244	2679	2472	2387	93473
16	1977	890	450	306	313	525	1072	2042	2964	4278	5630	6175	6948	6665	6480	6346	6028	5363	4803	4180	3682	2034	1264	818	81233
17	396	281	281	443	1046	3377	6799	8654	7509	5281	4763	4776	4327	4640	5644	8101	8385	8284	5406	3512	2536	1757	1183	774	98155
18	488	374	331	477	972	3155	6397	8321	6945	5059	4137	4259	4385	4298	5734	6899	7564	7549	4881	2806	2191	1688	1146	773	90829
19	479	306	301	447	1031	3128	6429	8076	7814	5476	5013	4778	4675	5198	6357	7913	8619	8353	5467	3547	2683	2009	1345	887	100331
20	546	388	375	510	1079	3451	6920	8758	7367	5706	4893	4920	4946	5307	6621	8250	8675	8596	5978	3922	2914	2290	1482	1169	105063
21	698	407	418	501	1026	3254	6718	8177	7191	5438	5195	5578	5873	6556	7893	9614	9657	9151	6872	4558	3140	2592	2366	2378	115251
22	937	561	412	362	550	1185	2258	3274	4275	5346	6304	6770	6921	6636	6599	6847	7073	7083	6249	4322	3100	3237	4162	3831	98294
23	1230	633	464	323	331	565	1149	1977	2714	4300	5653	6446	6716	6538	6291	6674	6537	6051	5021	4017	2812	1659	1127	822	80050
24																									
25																									
26																									
27																									
28	584	434	383	467	1083	3111	6045	7680	6568	5187	4839	5216	5587	6309	7767	8680	9268	8607	6148	4334	2932	2553	1968	1405	107155
29	929	578	397	364	541	1176	2201	3268	4167	5050	6061	6639	7087	6974	6828	7554	7314	6926	5901	4355	3215	2912	3527	3239	97203
30	2099	656	402	255	317	546	1140	2153	3390	4802	5908	6587	6543	5859	5369	5806	6569	6491	5489	3730	2624	1721	1207	759	80422

Massachusetts Highway Department

10: Monthly Hourly Volume for October 2019

Location ID:	**10**	**Seasonal Factor Group:**	**U1-Boston**
County:	**Norfolk**	**Daily Factor Group:**	
Funcationl Class	**1**	**Axle Factor Group:**	**U1-Boston**
Location:	**INTERSTATE 495 AT INTERSTATE 95**	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1																									
2																									
3																									
4																									
5																									
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17																									
18																									
19																									
20																									
21																									
22																									
23	512	361	331	447	1110	3515	6554	8310	8187	6000	4859	4665	4760	4863	6564	7750	8198	8329	5702	3571	2579	1971	1400	873	101411
24	557	385	365	515	1231	3684	6769	8931	7940	5205	4742	4698	4920	5448	6922	8542	8934	8694	6298	4064	2763	2163	1464	918	106152
25	565	430	378	527	1178	3327	6521	7965	6985	5452	4925	5445	5781	6420	7879	9116	9149	8076	6228	4436	2910	2586	1999	1482	109760
26	902	521	430	360	562	1189	2159	2962	4056	4863	5806	6226	6358	6663	6645	6823	6835	6394	5154	3877	2949	2561	2441	1708	88444
27	1076	691	551	301	277	467	968	1631	2403	3601	4790	5748	6086	5870	5470	5077	4574	3575	3233	3112	3094	2082	1048	730	66455
28	354	246	275	463	1157	3626	6723	8451	7391	5224	4673	4565	4530	4922	6090	7434	8042	7935	5032	3044	2146	1696	1134	788	95941
29	540	334	367	492	1215	3746	6693	8443	7498	5581	4324	4587	4586	4950	6199	7985	8523	8244	5772	3475	2362	1926	1280	850	99972
30	544	315	378	489	1200	3689	6864	8703	7567	5677	4837	4755	4756	4904	6612	8007	8209	8043	5580	3600	2538	1985	1313	884	101449
[illegible]	525	380	356	516	1173	3497	6350	8098	7027	5174	4347	4493	[illegible]	5024	6558	8136	8055	7283	3881	2473	2227	1684	1207	833	[illegible]335

Massachusetts Highway Department

10: Monthly Hourly Volume for November 2019

Location ID:	**10**	**Seasonal Factor Group:**	**U1-Boston**
County:	**Norfolk**	**Daily Factor Group:**	
Funcationl Class	**1**	**Axle Factor Group:**	**U1-Boston**
Location:	**INTERSTATE 495 AT INTERSTATE 95**	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1	480	433	404	485	1138	3230	6144	7779	6826	5068	5038	5323	5514	6068	7361	7948	8582	8516	6131	3922	2852	2609	1977	1473	105301
2	874	617	425	346	576	1289	2286	3147	4016	4664	5524	5817	6573	6259	6333	6614	6631	6388	4914	3572	2723	2446	2204	1506	85744
3	968	1013	235	196	286	596	1284	2206	2893	3953	5048	5795	6071	6009	6074	6221	6093	5094	3994	2951	2024	1374	989	731	72098
4	364	269	265	499	1194	3762	7200	8909	7434	5183	4450	4315	4585	4767	6153	7687	8396	7799	4882	2833	2060	1621	1057	820	96504
5	462	343	348	516	1227	3875	7111	8857	7296	5155	4627	4420	4732	5042	6583	7313	7978	7470	5294	3011	2278	1784	1193	838	97753
6	496	348	358	473	1210	3757	6894	8967	7649	5562	4655	4592	4751	4980	6566	7878	8414	8402	5275	3270	2412	1938	1340	862	101049
7	517	387	369	538	1210	3880	7139	8925	7478	5460	4685	4640	4913	5317	6853	8307	8778	7808	5577	3489	2616	1996	1308	949	103139
8	547	397	395	507	1167	3550	6512	7951	6752	5210	4885	5211	5762	6234	7750	8009	9050	7579	6192	3625	2757	2353	1909	1499	105803
9	889	587	504	461	657	1367	2431	3256	4220	4977	5738	6144	6548	6394	6368	6574	6387	5512	4413	3150	2566	2275	1894	1638	84950
10	961	661	549	305	314	645	1266	2201	2954	3816	5034	5884	6223	5970	5888	6019	5828	5034	3818	2725	2135	1590	1190	800	71810
11	412	309	312	413	864	2665	4951	6351	5458	4814	5025	5431	5549	5683	6452	7297	7702	7121	4573	2954	2123	1569	1178	751	89957
12	491	373	332	514	1226	3746	6986	8842	7337	5283	4523	4264	4620	4923	6375	7510	7061	7090	4568	2733	2119	1639	1125	822	94502
13	525	437	405	545	1408	3966	6971	9004	7747	5437	4452	4409	4516	4821	6238	7692	8016	8413	5011	3296	2838	2143	1510	1038	100838
14	570	401	415	556	1335	3932	7141	9061	7780	5544	4605	4554	4719	5180	6785	8135	8544	8287	5373	3321	2670	2083	1514	979	103484
15	572	386	417	514	1188	3535	6548	8054	7001	5324	5128	4940	5554	6073	7456	8254	8876	7900	5709	3707	2562	2361	1875	1321	105255
16	876	489	379	317	535	1200	2224	3387	3680	4360	5321	5614	6000	5779	6152	6467	6241	6017	4522	2996	2540	2534	2346	1847	81823
17	1107	683	506	315	330	625	1169	1916	2695	3441	4405	5237	5741	5629	5230	5618	4952	3877	3228	2400	2589	1592	985	757	65027
18	401	288	278	504	1071	3474	6574	8521	7437	5146	4389	4237	4380	4717	6032	7220	7257	7552	4857	2924	2047	1511	1054	763	92634
19	458	344	359	501	1127	3584	6608	9011	7647	5558	4591	4492	4695	4998	6365	7938	8281	8055	5242	3111	2677	2126	1452	926	100146
20	546	394	388	456	1184	3629	6609	8710	7334	5512	4665	4600	4745	5070	6658	8086	8068	7841	5436	3325	2455	1923	1361	917	99912
21	503	359	383	502	1143	3638	6838	8936	7350	5521	5077	4787	4919	5300	6585	8241	8600	7921	5851	3434	2781	2149	1444	1000	103262
22	603	381	409	525	1136	3528	6423	8116	6841	5180	5000	5148	5521	6227	7624	8322	8439	7948	5630	3671	2599	2148	1787	1410	104616
23	889	547	404	342	559	1162	2238	3034	3933	4728	5209	5679	5899	6044	6346	6485	6264	5615	4316	3306	2747	2415	2094	1519	81774
24	965	621	393	242	243	496	835	1346	2059	3197	4167	5093	5483	5314	4943	4544	3888	3145	2947	2682	2869	2041	1044	719	59276
25	413	296	311	497	1109	3677	6899	8834	7371	5361	4488	4711	4824	5080	6443	7875	8259	7821	5336	3176	2401	1855	1224	844	99105
26	576	348	369	523	1118	3811	6870	8492	7412	5642	5151	5120	5469	6041	7328	8678	8909	8630	5773	4081	2930	2212	1522	998	108003
27	603	421	414	526	1110	3464	5951	6924	5919	5170	5238	5898	6835	7492	8169	7780	6879	5754	3705	2884	2500	1794	1459	1110	97999
28	779	503	360	256	231	344	753	1108	1809	3102	4956	7518	8499	6403	3978	3177	4209	5661	6042	5492	4499	2817	1902	1432	75830
29	788	579	674	728	1069	1790	2890	3518	3833	4684	5716	6142	5553	6399	6249	6346	6044	5263	4083	3192	2846	2168	1731	1274	83559
30	790	501	391	291	459	925	1898	2756	3347	4314	5459	6081	6232	6074	6142	6419	5932	5565	4439	3504	2990	2525	2306	1826	81166

Massachusetts Highway Department

10: Monthly Hourly Volume for December 2019

Location ID: 10
County: Norfolk
Funcationl Class 1
Location: INTERSTATE 495 AT INTERSTATE 95

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

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL
1	1146	711	475	340	371	591	1219	1975	2965	4239	5186	6051	6108	5711	5274	4890	3888	2460	1891	1298	849	888	724	548	59798
2	363	285	318	486	962	2685	4608	6389	5642	3883	3322	3390	3415	3887	4894	5684	5967	5643	3292	1864	1342	1011	779	675	70786
3	387	355	363	453	806	1875	2834	3817	3504	3033	2737	2570	2872	3262	4135	4991	5204	5396	3373	2156	1740	1460	1026	826	59175
4	593	426	458	630	1400	3771	6717	8812	7696	5673	4648	4586	4581	4954	6280	7848	8065	8101	5354	3329	2562	1928	1324	853	100589
5	522	383	389	488	1147	3508	6432	8540	7477	5661	4815	5011	4845	5167	6624	7695	8327	8007	5564	3418	2848	2390	1678	1104	102040
6	655	448	498	605	1349	3627	6497	8186	6778	5189	4777	5159	5512	6071	7714	8780	8533	7610	5753	3824	2537	2399	2076	1472	106049
7	882	527	423	351	590	1476	2651	3190	3917	4285	5066	5724	5835	6045	6358	6256	6227	5826	4795	3310	3065	2959	2805	1976	84539
8	1128	732	422	300	292	622	1122	1701	2637	3809	4711	5804	5999	5743	5724	5593	4961	3938	3240	2707	3194	2535	1413	792	69119
9	448	348	307	446	1096	3376	6052	8049	7067	5258	4627	4401	4494	4707	5964	7096	7054	7053	4874	2802	2154	1612	1131	772	91188
10	474	362	323	466	1114	3574	6570	8559	7398	5436	4679	4721	4910	5292	6558	7939	7847	8036	5178	3324	2374	1904	1256	869	99163
11	510	380	336	504	1062	2992	5103	6139	6611	4650	3875	3903	4099	4321	5733	7034	7248	7637	4754	2980	2533	2062	1588	1014	87068
12	703	497	433	661	1393	3865	6706	8531	7633	5437	4903	4838	5014	5346	6753	7477	8670	8177	5314	3615	3136	2631	1940	1272	104945
13	737	560	461	552	1303	3531	6398	8165	7111	5471	5343	5426	5711	6332	7870	8831	8583	7749	5749	3625	2851	2381	1939	1445	108124
14	886	573	371	337	467	889	1601	2289	3096	3956	4752	5654	5966	6023	6081	6305	5946	5510	4381	3252	2599	2388	2218	1543	77083
15	970	566	368	277	237	444	916	1413	2161	3394	4336	5704	6124	5310	4785	4718	5177	4783	3682	2866	2190	1524	937	675	63557
16	396	223	294	462	1081	3621	6442	8581	7265	5472	4722	4833	4971	5458	6578	8065	8385	8047	5067	3219	2411	1953	1308	849	99703
17	555	407	450	547	1182	3058	5199	6478	5352	3745	3119	3511	3459	4147	5381	6126	6240	5844	3599	2336	1783	1428	1104	723	75773
18	494	344	339	525	1093	3283	6349	8362	7652	5978	5172	5226	5438	5721	6973	8482	8340	8125	5693	3795	2982	2167	1817	1106	105456
19	683	425	538	539	1306	3683	6843	8688	7558	5767	5726	5175	5386	5639	7056	8005	8619	8116	6128	4229	3357	2623	1897	1310	109296
20	801	543	481	649	1326	3591	6302	7939	7058	5691	5507	5609	5994	6352	7716	8441	8500	7720	5472	3992	3282	2833	2424	1829	110052
21	1102	667	569	394	582	1053	1805	2630	3582	4714	5444	6064	6325	6365	6351	6100	5451	4316	3690	3193	3620	3423	2518	1610	81568
22	1018	667	464	362	320	579	1211	1676	2621	3427	4501	5468	5949	5720	5679	5370	5041	4552	3933	3029	2453	1853	1241	813	67947
23	465	330	288	397	1035	3021	5249	6407	6176	5285	5400	5621	5904	6024	6951	7145	8261	7019	4925	3399	2609	2187	1570	1097	96765
24	658	412	369	432	843	2195	3796	4303	4133	4219	4842	5707	6564	6836	6864	6715	6046	5203	3554	2779	3140	3554	3073	1917	88154
25	773	380	257	162	185	245	621	901	1380	2172	3314	4866	6316	5877	4731	3988	4150	4554	4753	4427	3552	2589	1539	900	62632
26	453	286	201	324	860	2092	3701	4510	4269	4206	4918	5670	5860	5939	6392	6737	6635	5793	3906	2778	2353	1904	1398	945	82130
27	597	443	350	433	926	2408	4101	4903	4648	4696	5391	6128	6212	6281	7073	7792	7405	6375	4476	3109	2544	2159	1677	1244	91371
28	816	549	399	288	459	862	1490	2047	2768	3784	4994	5853	6045	6177	6054	5977	5737	5147	4075	3162	2567	2346	1896	1301	74793
29	874	522	349	241	305	465	874	1347	2256	3495	4755	5433	5654	4730	4355	4237	5194	5187	4153	2466	1966	1399	994	669	61920
30	391	318	281	403	919	2558	4218	5317	4859	4077	3949	4084	4311	4759	5526	6163	6084	5609	3507	2171	1722	1453	1075	765	74519
31	474	387	334	391	899	2316	4085	4926	4533	4011	4343	4782	[illegible]	6029	6579	6854	6017	4739	3396	2417	1817	1472	1160	902	[illegible]71

Massachusetts Highway Department

10: Monthly Volume for 2019

Location ID:	**10**	**Seasonal Factor Group:**	**U1-Boston**
County:	**Norfolk**	**Daily Factor Group:**	
Funcationl Class	**1**	**Axle Factor Group:**	**U1-Boston**
Location:	**INTERSTATE 495 AT INTERSTATE 95**	**Growth Factor Group:**	

Month	Volume	Seasonal Factor
January	83015	0.89
February	80376	0.86
March	82726	0.89
April	90990	0.98
May	98996	1.06
June	100638	1.08
July	104769	1.12
August	107578	1.15
September	97005	1.04
October	95935	1.03
November	91744	0.98
December	85283	0.91
	93255	

Multiplier to Average Month

0.927

BAYSIDE ENGINEERING

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BAYSIDE ENGINEERING

MBTA SCHEDULES

BAYSIDE ENGINEERING

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Fare	Local Bus	Bus + Bus	Subway	Bus + Subway
CharlieCard	$1.70	$1.70	$2.40	$2.40
CharlieTicket	$1.70	$1.70	$2.40	$4.10*
Cash-on-Board	$1.70	$3.40	$2.40	$4.10
Student/Youth**	$0.85	$0.85	$1.10	$1.10
Senior/TAP***	$0.85	$0.85	$1.10	$1.10

FREE FARES: Children 11 and under ride free when accompanied by a paying customer; blind Access CharlieCard holders ride free and if using a guide, the guide rides free.

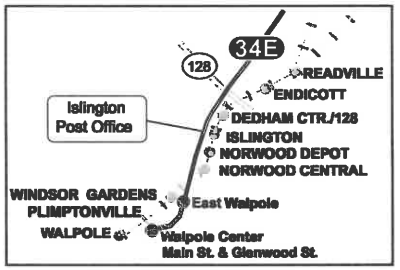
* Transfers Subway to Silver Line SL4 or SL5 pay $2.40

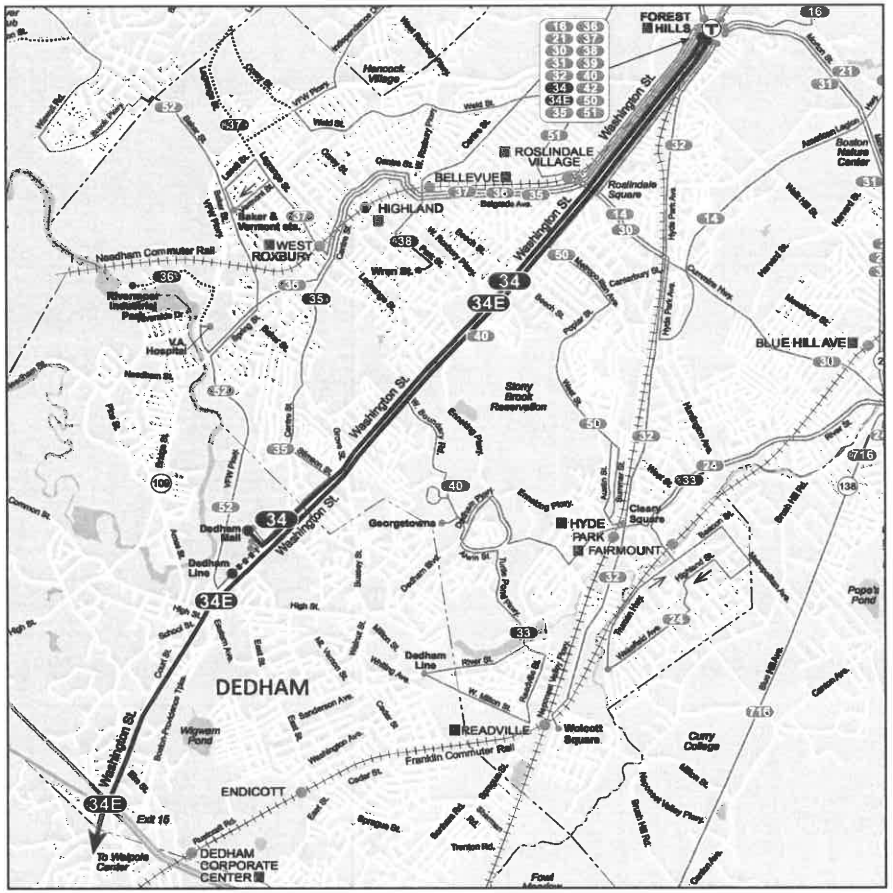
** Requires Student CharlieCard or Youth CharlieCard. Student CharlieCards available to students through participating middle and high schools. Youth CharlieCards available through community partners across Greater Boston.

*** Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

Summer 2021 Holidays
7/4 Sun; 7/5 Sun(Bus) Sat(Rail)

All buses are accessible to persons with disabilities





Information in this timetable is subject to change without notice. Traffic conditions and weather can affect running time.

Effective Jun 20, 2021

Schedule Change

34•34E

34 Dedham Mall or Line - Forest Hills Station

34E Walpole Center - Forest Hills Station

mbta.com
617-222-3200
617-222-5146 (TTY)

Lost & Found
617-222-2399

34/34E Weekday

Inbound				Outbound			
Leave Walpole Center	Lv/Arrive Dedham Line	Leave Dedham Mall	Arrive Forest Hills Station	Leave Forest Hills Upper Busway	Arrive Dedham Mall	Arrive Dedham Line	Arrive Walpole Center
.....	4:55A	.....	5:09A	4:35A	.....	4:45A	.....
.....	5:12	.....	5:26	4:50	.....	4:59	5:25A
.....	5:29	.....	5:44	4:53	.....	5:03	.....
.....	5:45	.....	6:00	5:10	.....	5:19	5:45
.....	5:56	.....	6:12	5:11	.....	5:21	.....
5:40A	6:03	.....	6:21	5:25	.....	5:34	6:00
.....	6:07	.....	6:23	5:29	.....	5:39	.....
.....	6:18	.....	6:34	5:40	.....	5:49	6:17
5:59	6:18	.....	6:36	5:47	.....	5:57	.....
6:10	6:33	.....	6:51	f 5:55	.....	6:09	6:39
.....	.....	6:36A	6:55	5:59	.....	6:11	.....
.....	.....	6:46	7:06	6:10	.....	6:20	6:52
6:30	6:53	.....	7:11	6:12	6:30A	.....	.....
.....	.....	7:00	7:19	6:22	6:40	.....	.....
6:50	7:13	.....	7:32	f 6:30	.....	6:46	7:16
.....	.....	7:15	7:34	6:35	6:53	.....	.....
.....	.....	7:30	7:51	6:50	.....	7:00	7:33
7:10	7:36	.....	7:55	6:51	7:09	.....	.....
.....	.....	7:45	8:06	7:06	7:26	.....	.....
7:30	7:57	.....	8:16	f 7:10	.....	7:26	7:57
.....	.....	8:00	8:21	7:19	7:39	.....	.....
7:50	8:17	.....	8:36	7:30	.....	7:42	8:17
.....	.....	8:15	8:36	7:33	7:53	.....	.....
.....	.....	8:30	8:51	7:47	8:07	.....	.....
8:10	8:37	.....	8:56	7:50	.....	8:02	8:37
.....	.....	8:45	9:06	8:02	8:22	.....	.....
8:30	8:57	.....	9:16	8:10	.....	8:22	8:57
.....	.....	9:00	9:21	8:17	8:37	.....	.....
8:50	9:17	.....	9:36	8:30	.....	8:42	9:17
.....	.....	9:16	9:37	8:33	8:53	.....	.....
9:10	9:37	.....	9:56	8:48	9:08	.....	.....
.....	.....	9:44	10:05	9:00	.....	9:12	9:47
f 9:30	9:54	.....	10:18	9:15	9:35	.....	.....
.....	.....	10:14	10:35	9:30	.....	9:42	10:17
10:00	10:28	.....	10:52	9:45	10:05	.....	.....
.....	.....	10:44	11:07	10:00	.....	10:12	10:49
f 10:30	10:54	.....	11:18	10:15	10:36	.....	.....
.....	.....	11:14	11:37	10:30	.....	10:43	11:21
11:00	11:29	.....	11:53	10:45	11:08	.....	.....
.....	.....	11:44	12:09P	11:00	.....	11:15	11:54
f 11:30	11:54	.....	12:18	11:15	11:40	.....	.....
.....	.....	12:14P	12:40	f 11:30	.....	11:50	12:22P
12:00P	12:29P	.....	12:53	11:45	12:10P	.....	.....
.....	.....	12:44	1:10	12:00P	.....	12:16P	12:54
12:36	12:59	.....	1:23	12:15	12:40	.....	.....
.....	.....	1:14	1:40	f 12:30	.....	12:50	1:22
1:00	1:29	.....	1:53	12:45	1:10	.....	.....
.....	.....	1:44	2:10	1:00	.....	1:15	1:54
1:30	1:59	.....	2:24	1:15	1:40	.....	.....
.....	.....	2:18	2:44	f 1:30	.....	1:50	2:22
2:00	2:30	.....	2:55	1:45	2:10	.....	.....
.....	.....	2:42	3:08	1:55	.....	2:10	2:49
2:30	3:00	.....	3:25	2:10	2:35	.....	.....
.....	.....	3:10	3:36	f 2:25	.....	2:48	3:20
3:00	3:30	.....	3:55	2:35	3:00	.....	.....
.....	.....	3:42	4:09	2:50	.....	3:05	3:44
3:30	4:00	.....	4:25	3:05	3:30	.....	.....
.....	.....	4:06	4:35	b 3:15	.....	3:42	4:16
3:55	4:24	.....	4:49	3:29	3:56	.....	.....
.....	.....	4:28	4:55	b 3:40	.....	4:07	4:41
.....	.....	4:43	5:10	3:49	4:16	.....	.....
4:25	4:53	.....	5:18	4:00	4:27	.....	.....
.....	.....	4:54	5:21	b 4:05	.....	4:37	5:11
.....	.....	5:05	5:32	4:11	4:38	.....	.....
.....	.....	5:13	5:40	4:22	4:49	.....	.....
4:55	5:23	.....	5:48	b 4:25	.....	4:57	5:32
.....	.....	5:24	5:50	4:33	5:00	.....	.....
.....	.....	5:34	5:59	4:44	5:11	.....	.....
f 5:20	5:42	.....	6:05	b 4:45	.....	5:16	5:51
.....	.....	5:45	6:09	4:55	5:22	.....	.....
.....	.....	5:56	6:17	b 5:05	.....	5:35	6:10
5:40	6:03	.....	6:24	5:06	5:33	.....	.....
.....	.....	6:06	6:27	5:17	5:44	.....	.....
.....	.....	6:16	6:37	5:25	.....	5:42	6:19
f 6:09	6:22	.....	6:43	5:28	5:55	.....	.....
.....	.....	6:26	6:47	5:39	6:04	.....	.....
.....	.....	6:40	7:01	5:45	.....	5:59	6:36
6:20	6:43	.....	7:04	5:50	6:15	.....	.....
.....	.....	6:55	7:16	6:05	.....	6:19	6:56
6:35	6:58	.....	7:19	6:05	6:30	.....	.....
.....	.....	7:10	7:28	6:20	6:44	.....	.....
f 6:55	7:17	.....	7:37	6:25	.....	6:38	7:12
.....	.....	7:23	7:41	6:35	6:57	.....	.....
7:10	7:33	.....	7:54	6:50	7:12	.....	.....
.....	.....	7:36	7:54	● 7:00	.....	7:18	● 7:42
.....	.....	7:49	8:07	7:10	7:32	.....	.....
7:30	7:53	.....	8:14	7:20	7:42	.....	.....
.....	.....	8:03	8:21	7:35	7:57	.....	.....
● 7:54	8:13	.....	8:31	● 7:45	.....	8:02	● 8:26
.....	.....	8:26	8:44	8:00	8:22	.....	.....
.....	.....	8:41	8:59	8:15	8:35	.....	.....
.....	.....	8:53	9:11	8:25	8:44	.....	.....
● 8:35	8:54	.....	9:12	● 8:35	.....	8:51	● 9:15
.....	.....	9:13	9:31	8:50	9:09	.....	.....
.....	.....	9:30	9:48	9:05	9:24	.....	.....
● 9:20	9:39	.....	9:57	9:15	9:34	.....	.....
.....	.....	9:45	10:03	● 9:25	.....	9:41	● 10:05
.....	.....	10:05	10:23	9:40	9:59	.....	.....
.....	.....	10:20	10:38	9:55	10:14	.....	.....
● 10:10	10:29	.....	10:47	10:10	10:29	.....	.....
.....	.....	10:35	10:53	● 10:20	.....	10:36	● 10:56
.....	.....	10:55	11:13	10:30	10:49	.....	.....
● 11:00	11:19	.....	11:37	11:00	11:19	.....	.....
.....	.....	11:25	11:43	● 11:15	.....	11:31	● 11:51
.....	12:11A	.....	12:24A	11:50	.....	12:06A	.....
● 12:00M	12:19	.....	12:37	● 12:15A	.....	12:28	● 12:48A
.....	1:02	.....	1:15	12:41	.....	12:53	.....
● 12:55	1:14	.....	1:32	w 1:19	.....	1:31	.....

34/34E Saturday

Inbound				Outbound			
Leave Walpole Center	Lv/Arrive Dedham Line	Leave Dedham Mall	Arrive Forest Hills Station	Leave Forest Hills Upper Busway	Arrive Dedham Mall	Arrive Dedham Line	Arrive Walpole Center
.....	5:33A	.....	5:50A	5:00A	.....	5:10A	5:37A
.....	5:54	.....	6:11	5:15	.....	5:25	.....
.....	.....	6:13A	6:33	5:35	.....	5:45	.....
6:00A	6:25	.....	6:42	5:45	.....	5:55	6:25
.....	.....	6:36	6:56	5:53	6:09A	.....	.....
6:34	6:59	.....	7:16	6:14	6:32	.....	.....
.....	.....	6:59	7:19	6:24	.....	6:37	7:09
.....	.....	7:22	7:42	6:37	6:55	.....	.....
7:18	7:43	.....	8:00	6:52	.....	7:05	7:37
.....	.....	7:45	8:05	7:00	7:18	.....	.....
.....	.....	8:08	8:28	7:23	7:41	.....	.....
7:50	8:15	.....	8:33	7:28	.....	7:41	8:13
.....	.....	8:33	8:56	7:46	8:03	.....	.....
8:22	8:51	.....	9:11	8:09	8:29	.....	.....
.....	.....	8:58	9:21	8:10	.....	8:23	8:55
.....	.....	9:25	9:48	8:33	8:53	.....	.....
9:04	9:34	.....	9:54	8:46	.....	9:02	9:35
.....	.....	9:53	10:16	9:00	9:20	.....	.....
9:44	10:14	.....	10:34	9:23	.....	9:40	10:09
.....	.....	10:20	10:43	9:27	9:49	.....	.....
10:20	10:50	.....	11:10	9:53	10:15	.....	.....
.....	.....	10:51	11:17	10:03	.....	10:21	10:51
.....	.....	11:19	11:46	10:21	10:47	.....	.....
11:00	11:34	.....	11:57	10:30	.....	10:52	11:22
.....	.....	11:51	12:16P	10:48	11:15	.....	.....
11:36	12:09P	.....	12:31	11:00	.....	11:22	11:52
.....	.....	12:23P	12:50P	11:19	11:46	.....	.....
12:05P	12:38P	.....	1:01	11:30	.....	11:52	12:22P
.....	.....	12:55	1:22	11:52	12:19P	.....	.....
12:35	1:08	.....	1:31	12:08P	.....	12:27P	12:57P
.....	.....	1:27	1:54	12:24	12:51P	.....	.....
1:10	1:43	.....	2:08	12:40	.....	1:02	1:33
.....	.....	2:01	2:28	12:56	1:23	.....	.....
1:44	2:17	.....	2:40	1:15	.....	1:37	2:08
.....	.....	2:34	3:01	1:29	1:56	.....	.....
2:20	2:53	.....	3:16	1:45	.....	2:07	2:38
.....	.....	3:07	3:34	2:02	2:29	.....	.....
2:58	3:34	.....	3:45	2:18	.....	2:40	3:11
.....	.....	3:40	4:07	2:35	3:02	.....	.....
3:20	3:52	.....	4:15	2:50	.....	3:12	3:43
.....	.....	4:13	4:38	3:08	3:35	.....	.....
3:55	4:22	.....	4:44	3:25	.....	3:47	4:17
.....	.....	4:44	5:09	3:41	4:07	.....	.....
4:30	4:57	.....	5:15	3:55	.....	4:17	4:44
.....	.....	5:15	5:38	4:13	4:37	.....	.....
5:09	5:28	.....	5:46	4:25	.....	4:46	5:13
.....	.....	5:45	6:06	4:44	5:06	.....	.....
5:30	5:56	.....	6:16	5:00	.....	5:21	5:49
.....	.....	6:15	6:38	5:15	5:39	.....	.....
6:00	6:25	.....	6:48	5:40	.....	6:01	6:28
.....	.....	6:45	7:06	5:45	6:09	.....	.....
6:40	7:08	.....	7:24	6:15	6:39	.....	.....
.....	.....	7:15	7:37	6:25	.....	6:46	7:13
7:20	7:45	.....	8:03	6:45	7:09	.....	.....
.....	.....	7:45	8:07	7:13	7:37	.....	.....
.....	.....	8:13	8:35	● 7:15	.....	7:36	● 7:55
● 8:05	8:25	.....	8:43	7:45	8:09	.....	.....
.....	.....	9:05	9:27	● 8:10	.....	8:29	● 8:45
● 8:55	9:15	.....	9:33	8:40	9:03	.....	.....
.....	.....	10:00	10:22	● 9:00	.....	9:19	● 9:35
● 9:45	10:05	.....	10:23	9:33	9:56	.....	.....
.....	.....	10:50	11:09	● 9:55	.....	10:11	● 10:27
● 10:35	10:55	.....	11:09	10:25	10:45	.....	.....
.....	11:35	.....	11:48	● 10:45	.....	11:01	● 11:17
● 11:25	11:45	.....	11:58	11:15	.....	11:31	.....
.....	12:13A	.....	12:26A	● 11:30	.....	11:44	● 12:00M
● 12:10A	12:30	.....	12:43	11:55	.....	12:09A	.....
.....	12:53	.....	1:06	● 12:20A	.....	12:34	● 12:50A
● 1:00	1:20	.....	1:31	12:35	.....	12:49	.....
.....	1:33	.....	1:43	● 12:50	.....	1:04	● 1:20
● 1:26	1:46	.....	1:56	w 1:15	.....	1:29	.....

34/34E Sunday

Inbound				Outbound			
Leave East Walpole	Lv/Arrive Dedham Line	Leave Dedham Mall	Arrive Forest Hills Station	Leave Forest Hills Upper Busway	Arrive Dedham Mall	Arrive Dedham Line	Arrive East Walpole
.....	6:20A	.....	6:38A	5:35A	.....	5:45A	6:09A
6:15A	6:36	.....	6:54	6:15	.....	6:25	6:49
.....	.....	7:05A	7:24	6:45	7:01A	.....	.....
7:00	7:21	.....	7:38	7:05	.....	7:15	7:39
.....	.....	7:55	8:14	7:30	7:49	.....	.....
7:50	8:11	.....	8:29	7:30	.....	7:41	8:07
8:15	8:36	.....	8:55	7:55	.....	8:06	8:32
.....	.....	8:45	9:03	8:20	8:39	.....	.....
8:40	9:02	.....	9:21	8:40	.....	8:52	9:18
.....	.....	9:35	9:58	9:10	9:29	.....	.....
9:25	9:50	.....	10:10	9:30	.....	9:44	10:10
.....	.....	10:15	10:38	9:50	10:09	.....	.....
10:20	10:45	.....	11:05	10:20	.....	10:35	11:03
.....	.....	10:55	11:18	10:30	10:50	.....	.....
11:10	11:35	.....	11:55	10:50	.....	11:06	11:33
.....	.....	11:35	11:58	11:10	11:32	.....	.....
11:40	12:05P	.....	12:23	11:25	.....	11:41	12:09P
.....	.....	12:15	12:38	11:50	12:12P	.....	.....
12:15P	12:36	.....	12:55	12:05	.....	12:21P	12:49
.....	.....	12:55	1:18	12:29	12:52	.....	.....
12:56	1:18	.....	1:38	12:45	.....	1:01	1:29
.....	.....	1:35	1:58	1:00	1:31	.....	.....
1:36	1:58	.....	2:18	1:25	.....	1:41	2:09
.....	.....	2:15	2:30	1:48	2:11	.....	.....
2:15	2:36	.....	2:58	2:05	.....	2:21	2:49
.....	.....	2:55	3:19	2:28	2:51	.....	.....
2:56	3:18	.....	3:38	2:45	.....	3:01	3:29
.....	.....	3:35	3:59	3:08	3:31	.....	.....
3:36	3:58	.....	4:18	3:25	.....	3:41	4:09
.....	.....	4:15	4:39	3:48	4:11	.....	.....
4:15	4:38	.....	4:58	4:05	.....	4:21	4:49
.....	.....	4:55	5:19	4:28	4:51	.....	.....
4:55	5:18	.....	5:38	4:45	.....	5:01	5:29
.....	.....	5:35	5:59	5:09	5:32	.....	.....
5:35	5:58	.....	6:18	5:25	.....	5:41	6:09
6:15	6:38	.....	6:57	5:47	6:10	.....	.....
.....	.....	6:55	7:17	6:06	.....	6:21	6:49
6:56	7:18	.....	7:38	6:30	6:52	.....	.....
.....	.....	7:35	7:57	6:45	.....	7:01	7:29
7:36	7:59	.....	8:18	7:10	7:32	.....	.....
.....	.....	8:15	8:37	7:25	.....	7:41	8:09
8:16	8:38	.....	8:58	7:45	8:06	.....	.....
.....	.....	8:55	9:15	8:10	.....	8:26	8:51
8:55	9:18	.....	9:38	8:30	8:50	.....	.....
.....	9:40	.....	9:58	8:55	.....	9:09	9:32
9:36	9:59	.....	10:19	9:20	.....	9:36	.....
.....	10:25	.....	10:41	9:40	.....	9:54	10:17
10:21	10:44	.....	11:01	10:05	.....	10:21	.....
.....	11:10	.....	11:26	10:25	.....	10:37	11:00
11:06	11:28	.....	11:48	10:50	.....	11:06	.....
.....	11:55	.....	12:09A	11:10	.....	11:21	11:44
11:50	12:10A	.....	12:24	11:35	.....	11:50	.....
.....	12:40	.....	12:54	11:55	.....	12:05A	12:26A
12:35A	12:53	.....	1:05	12:20A	.....	12:32	.....
1:10	1:24	.....	1:36	12:35	.....	12:45	1:06
.....	1:31	.....	1:43	w 1:15	.....	1:27	.....

Shaded trips operate as Route 34E

b - Boarding ONLY from Forest Hills to LaGrange St.
e - To/from East Walpole
f - Via Walpole St. (Route 1A) leaves upon arrival at Forest Hills Sta.

w - Waits for last train to arrive at Forest Hills Station.

FRANKLIN LINE 2021 Summer Schedule
Effective June 28, 2021

Weekend service is back on *all lines!*
Learn about $10 weekend tickets at MBTA.com/weekendrail

Monday to Friday — Inbound to Boston

ZONE	STATION	TRAIN #	700	702	742	704	744	706	708	710	712	714	716	718	720	722	724	748	726	728	730
			AM									PM									
6	Forge Park/495	♿	5:10	6:10	-	7:10	-	8:10	9:10	-	11:10	-	1:10	-	3:10	-	5:04	-	8:02	9:32	11:02
6	Franklin/Dean College		5:17	6:17	-	7:17	-	8:17	9:17	-	11:17	-	1:17	-	3:17	-	5:11	-	8:09	9:39	11:09
5	Norfolk	♿	5:24	6:24	-	7:24	-	8:24	9:24	-	11:24	-	1:24	-	3:24	-	5:18	-	8:16	9:46	11:16
4	Walpole		5:31	6:31	6:56	7:31	7:56	8:31	9:31	10:31	11:31	12:31	1:31	2:31	3:31	4:31	5:31	6:55	8:23	9:53	11:23
4	Windsor Gardens		5:35	6:35	7:00	7:35	8:00	8:35	9:35	10:35	11:35	12:35	1:35	2:35	3:35	4:35	5:35	6:59	8:27	9:57	11:27
3	Norwood Central	♿	5:39	6:39	7:04	7:39	8:04	8:39	9:39	10:39	11:39	12:39	1:39	2:39	3:39	4:39	5:39	7:03	8:31	10:01	11:31
3	Norwood Depot	♿	5:41	6:41	7:06	7:41	8:06	8:41	9:41	10:41	11:41	12:41	1:41	2:41	3:41	4:41	5:41	7:05	8:33	10:03	11:33
3	Islington		5:44	6:44	7:09	7:44	8:09	8:44	9:44	10:44	11:44	12:44	1:44	2:44	3:44	4:44	5:44	7:08	8:36	10:06	11:36
2	Dedham Corp. Center	♿	5:46	6:46	7:11	7:46	8:11	8:46	9:46	10:46	11:46	12:46	1:46	2:46	3:46	4:46	5:46	7:10	8:38	10:08	11:38
2	Endicott		5:49	6:49	7:14	7:49	8:14	8:49	9:49	10:49	11:49	12:49	1:49	2:49	3:49	4:49	5:49	7:13	8:41	10:11	11:41
2	Readville	♿	5:53	6:53	7:18	7:53	8:18	8:53	9:53	10:53	11:53	12:53	1:53	2:53	3:53	4:53	5:53	7:17	8:45	10:15	11:45
1	Hyde Park	♿	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1A	Ruggles	♿	L 6:03	L 7:03	L 7:29	L 8:03	L 8:29	L 9:03	L 10:03	L 11:03	L 12:03	L 1:03	L 2:03	L 3:03	L 4:03	L 5:03	L 6:04	L 7:27	L 8:55	L 10:25	L 11:55
1A	Back Bay	♿	L 6:07	L 7:07	L 7:33	L 8:07	L 8:33	L 9:07	L 10:07	L 11:07	L 12:07	L 1:07	L 2:07	L 3:07	L 4:07	L 5:07	L 6:08	L 7:31	L 8:59	L 10:29	L 11:59
1A	South Station	♿	6:13	7:13	7:38	8:13	8:38	9:13	10:12	11:12	12:12	1:12	2:12	3:12	4:13	5:13	6:14	7:36	9:04	10:34	12:04

Monday to Friday — Outbound from Boston

ZONE	STATION	TRAIN #	741	743	703	705	707	709	711	713	715	717	719	745	721	747	723	725	727	729	731
			AM							PM											
1A	South Station	♿	5:45	6:45	7:45	8:45	9:45	10:45	11:45	12:45	1:45	2:45	3:45	4:10	4:45	5:20	5:45	6:45	8:15	9:45	11:00
1A	Back Bay	♿	5:50	6:50	7:50	8:50	9:50	10:50	11:50	12:50	1:50	2:50	3:50	4:15	4:50	5:25	5:50	6:50	8:20	9:50	VIA
1A	Ruggles	♿	5:53	6:53	7:53	8:53	9:53	10:53	11:53	12:53	1:53	2:53	3:53	4:18	4:53	5:29	5:53	6:53	8:23	9:53	FAIR-
1	Hyde Park	♿	-	-	-	-	-	-	-	-	-	3:01	4:01	4:26	5:01	5:37	6:01	7:01	-	-	MOUNT
2	Readville	♿	6:02	7:02	8:02	9:02	10:02	11:02	12:02	1:02	2:02	3:04	4:04	4:29	5:04	5:40	6:04	7:04	8:32	10:02	LINE
2	Endicott		6:05	7:05	8:05	9:05	10:05	11:05	12:05	1:05	2:05	3:07	4:07	4:32	5:07	5:43	6:07	7:07	8:35	10:05	11:35
2	Dedham Corp. Center	♿	6:07	7:07	8:07	9:07	10:07	11:07	12:07	1:07	2:07	3:09	4:09	4:34	5:09	5:45	6:09	7:09	8:37	10:07	11:37
3	Islington		6:10	7:10	8:10	9:10	10:10	11:10	12:10	1:10	2:10	3:12	4:12	4:37	5:12	5:48	6:12	7:12	8:40	10:10	11:40
3	Norwood Depot	♿	6:13	7:13	8:13	9:13	10:13	11:13	12:13	1:13	2:13	3:15	4:15	4:40	5:15	5:51	6:15	7:15	8:43	10:13	11:43
3	Norwood Central	♿	6:16	7:16	8:16	9:16	10:16	11:16	12:16	1:16	2:16	3:18	4:18	4:44	5:18	5:54	6:18	7:18	8:46	10:16	11:46
4	Windsor Gardens		6:19	7:19	8:19	9:19	10:19	11:19	12:19	1:19	2:19	3:21	4:21	-	5:21	5:57	6:21	7:21	8:49	10:19	11:49
4	Walpole		6:24	7:24	8:24	9:24	10:24	11:24	12:24	1:24	2:24	3:26	4:26	-	5:26	6:04	6:26	7:26	8:54	10:24	11:54
5	Norfolk	♿	-	-	8:38	-	10:30	-	12:30	-	2:30	-	4:32	-	5:32	-	6:32	7:32	9:00	10:30	12:00
6	Franklin/Dean College		-	-	8:45	-	10:37	-	12:37	-	2:37	-	4:39	-	5:39	-	6:39	7:39	9:07	10:37	12:07
6	Forge Park/495	♿	-	-	8:54	-	10:46	-	12:46	-	2:46	-	4:49	-	5:49	-	6:50	7:49	9:16	10:46	12:16

Keep in Mind:

This schedule will be effective from June 28, 2021 and will replace the schedule of April 5, 2021.

Holiday Service
On Monday, July 5th, Independence Day will be observed, and the Commuter Rail will operate on a Saturday schedule. For more information on holiday service, visit MBTA.com/holidays.

Masks are federally required on board and in station. Visit MBTA.com/covid19 for the latest updates

VIA FAIRMOUNT LINE: Operates via the Fairmount Line between Readville and South Station. See the Fairmount Line schedule for all stops.

For additional service to Readville Station, refer to the Fairmount Line schedule for particular trains.

For additional service to Ruggles Station, refer to the Providence and Needham Line schedules for particular trains.

For additional service to Hyde Park Station, refer to the Providence Line schedule for particular trains.

Saturday & Sunday — Inbound to Boston

ZONE	STATION	SATURDAY TRAIN # / SUNDAY TRAIN #	1700 / 2700	1702 / 2702	1704 / 2704	1706 / 2706	1708 / 2708	1710 / 2710	1712 / 2712	1714 / 2714	1716 / 2716
			AM					PM			
6	Forge Park/495	♿	5:25	8:10	10:10	12:10	2:10	4:10	6:10	8:10	10:10
6	Franklin/Dean Coll.		5:32	8:17	10:17	12:17	2:17	4:17	6:17	8:17	10:17
5	Norfolk	♿	5:39	8:24	10:24	12:24	2:24	4:24	6:24	8:24	10:24
4	Walpole		5:46	8:31	10:31	12:31	2:31	4:31	6:31	8:31	10:31
4	Windsor Gardens		5:50	8:35	10:35	12:35	2:35	4:35	6:35	8:35	10:35
3	Norwood Central	♿	5:54	8:39	10:39	12:39	2:39	4:39	6:39	8:39	10:39
3	Norwood Depot	♿	5:56	8:41	10:41	12:41	2:41	4:41	6:41	8:41	10:41
3	Islington		5:59	8:44	10:44	12:44	2:44	4:44	6:44	8:44	10:44
2	Dedham Corp. Ctr.	♿	6:01	8:46	10:46	12:46	2:46	4:46	6:46	8:46	10:46
2	Endicott		6:04	8:49	10:49	12:49	2:49	4:49	6:49	8:49	10:49
2	Readville	♿	6:08	8:53	10:53	12:53	2:53	4:53	6:53	8:53	10:53
1A	Ruggles	♿	L 6:18	L 9:03	L 11:03	L 1:03	L 3:03	L 5:03	L 7:03	L 9:03	L 11:03
1A	Back Bay	♿	L 6:22	L 9:07	L 11:07	L 1:07	L 3:07	L 5:07	L 7:07	L 9:07	L 11:07
1A	South Station	♿	6:27	9:12	11:12	1:12	3:12	5:12	7:12	9:12	11:12

Saturday & Sunday — Outbound from Boston

ZONE	STATION	SATURDAY TRAIN # / SUNDAY TRAIN #	1701 / 2701	1703 / 2703	1705 / 2705	1707 / 2707	1709 / 2709	1711 / 2711	1713 / 2713	1715 / 2715	1717 / 2717
			AM			PM					
1A	South Station	♿	6:45	8:45	10:45	12:45	2:45	4:45	6:45	8:45	11:00
1A	Back Bay	♿	6:50	8:50	10:50	12:50	2:50	4:50	6:50	8:50	11:05
1A	Ruggles	♿	6:53	8:53	10:53	12:53	2:53	4:53	6:53	8:53	11:08
2	Readville	♿	7:02	9:02	11:02	1:02	3:02	5:02	7:02	9:02	11:17
2	Endicott		7:05	9:05	11:05	1:05	3:05	5:05	7:05	9:05	11:20
2	Dedham Corp. Ctr.	♿	7:07	9:07	11:07	1:07	3:07	5:07	7:07	9:07	11:22
3	Islington		7:10	9:10	11:10	1:10	3:10	5:10	7:10	9:10	11:25
3	Norwood Depot	♿	7:13	9:13	11:13	1:13	3:13	5:13	7:13	9:13	11:28
3	Norwood Central	♿	7:16	9:16	11:16	1:16	3:16	5:16	7:16	9:16	11:31
4	Windsor Gardens		7:19	9:19	11:19	1:19	3:19	5:19	7:19	9:19	11:34
4	Walpole		7:24	9:24	11:24	1:24	3:24	5:24	7:24	9:24	11:39
5	Norfolk	♿	7:30	9:30	11:30	1:30	3:30	5:30	7:30	9:30	11:45
6	Franklin/Dean Coll.		7:37	9:37	11:37	1:37	3:37	5:37	7:37	9:37	11:52
6	Forge Park/495	♿	7:46	9:46	11:46	1:46	3:46	5:46	7:46	9:46	12:01

Times in blue with "L" indicate an early departure: The train may leave ahead of schedule at these stops.

Bikes: Bicycles are allowed on all trains unless the designated areas are too crowded

High level platform and bridge plate available. Visit **mbta.com/accessibility** for more information.

BAYSIDE ENGINEERING

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GROWTH RATE WORKSHEET

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Walpole, MA Growth Rate

Location ID	Location	Year	AADT	Projection	Rate	
6221	Route 1A (Main Street) at Walpole/Norfolk town line	2012	9553	2012-2018	1.0122	1.22% per year
		2015	10000	2015-2018	1.0091	0.91% per year
		2017	10545	2017-2018	Negative growth	
		2018	10274			
				Say	**1.00% per year**	

2012-2018 Growth = 1.075474

Annual Growth rate = 1.012201

Use: 1.5 percent per year

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BACKGROUND PROJECT WORKSHEETS

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Proposed Townhouses, Walpole, MA

Burns Avenue - Background Project

Land Use Code (LUC) 220 - Multifamily Housing (Low-Rise)_

Source: Institute of Transportation Engineers (ITE) - 10th Edition

Average Vehicle Trips Ends vs: Dwelling units
Independent Variable (X): 32

AVERAGE WEEKDAY DAILY

T = 7.56 * (X) - 40.86 — 29 Studies, Avg size = 168 units
T = 7.56 * (32) - 40.86 — R2 = 0.89 AR = 7.32
T = 201.06
T = 202 vehicle trips 6.31
with 50% (101 vpd) entering and 50% (101 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

Ln T = 0.95 Ln (X) - 0.51 — 42 Studies, Avg size = 199 units
Ln T = 0.95 Ln (32) - 0.51 — R^2 = 0.90 AR = 0.46
Ln T = 2.78
T = 16.16
T = 16 vehicle trips
with 23% (4 vph) entering and 77% (12 vph) exiting.
0.13 0.38

WEEKDAY MORNING PEAK HOUR OF GENERATOR

Ln T = 0.94 Ln (X) - 0.29 — 36 Studies, Avg size = 161 units
Ln T = 0.94 Ln (32) - 0.29 — R^2 = 0.91 AR = 0.56
Ln T = 2.97
T = 19.45
T = 19 vehicle trips
with 28% (5 vph) entering and 72% (14 vph) exiting.
0.16 0.44

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

Ln T = 0.89 Ln (X) - 0.02 — 50 Studies, Avg size = 187 units
Ln T = 0.89 Ln (32) - 0.02 — R^2 = 0.86 AR = 0.56
Ln T = 3.06
T = 21.42
T = 21 vehicle trips
with 63% (13 vph) entering and 37% (8 vph) exiting.
0.41 0.25

WEEKDAY EVENING PEAK HOUR OF GENERATOR

T = 0.66 * (X) + 1.41 — 35 Studies, Avg size = 146 units
T = 0.66 * (32) + 1.41 — R^2 = 0.94 AR = 0.67
T = 22.53
T = 23 vehicle trips
with 59% (14 vph) entering and 41% (9 vph) exiting.
0.44 0.28

Proposed Townhouses, Walpole, MA

Burns Avenue - Background Project

Land Use Code (LUC) 220 - Multifamily Housing (Low-Rise)_

Source: Institute of Transportation Engineers (ITE) - 10th Edition

Average Vehicle Trips Ends vs: Dwelling units
Independent Variable (X): 32

SATURDAY DAILY

T = 14.01 * (X) - 521.69 — 5 Studies, Avg size = 89 units
T = 14.01 * (32) - 521.69 — R^2 = 0.93 AR = 8.14
T = -73.37
T = 260 vehicle trips 8.13
with 50% (130 vpd) entering and 50% (130 vpd) exiting.
4.06 4.06

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

T = 1.08 * (X) - 33.24 — 5 Studies, Avg size = 89 units
T = 1.08 * (32) - 33.24 — R^2 = 0.92 AR = 0.70
T = 1.32
T = FALSE vehicle trips
with 50% (0 vph) entering and 50% (0 vph) exiting.
0.00 0.00

BAYSIDE ENGINEERING

TRIP GENERATION DATA

BAYSIDE ENGINEERING

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Proposed Condominiums, Walpole, MA

Land Use Code (LUC) 220 - Multifamily Housing (Low-Rise)_
Source: Institute of Transportation Engineers (ITE) - 10th Edition

Average Vehicle Trips Ends vs: Dwelling units
Independent Variable (X): 24

AVERAGE WEEKDAY DAILY

T = 7.56 * (X) - 40.86 — 29 Studies, Avg size = 168 units
T = 7.56 * (24) - 40.86 — R2 = 0.89 AR = 7.32
T = 140.58
T = 140 vehicle trips 5.83
with 50% (70 vpd) entering and 50% (70 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

Ln T = 0.95 Ln (X) - 0.51 — 42 Studies, Avg size = 199 units
Ln T = 0.95 Ln (24) - 0.51 — R^2 = 0.90 AR = 0.46
Ln T = 2.51
T = 12.29
T = 12 vehicle trips
with 23% (3 vph) entering and 77% (9 vph) exiting.
0.13 0.38

WEEKDAY MORNING PEAK HOUR OF GENERATOR

Ln T = 0.94 Ln (X) - 0.29 — 36 Studies, Avg size = 161 units
Ln T = 0.94 Ln (24) - 0.29 — R^2 = 0.91 AR = 0.56
Ln T = 2.70
T = 14.84
T = 15 vehicle trips
with 28% (4 vph) entering and 72% (11 vph) exiting.
0.17 0.46

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

Ln T = 0.89 Ln (X) - 0.02 — 50 Studies, Avg size = 187 units
Ln T = 0.89 Ln (24) - 0.02 — R^2 = 0.86 AR = 0.56
Ln T = 2.81
T = 16.58
T = 17 vehicle trips
with 63% (11 vph) entering and 37% (6 vph) exiting.
0.46 0.25

WEEKDAY EVENING PEAK HOUR OF GENERATOR

T = 0.66 * (X) + 1.41 — 35 Studies, Avg size = 146 units
T = 0.66 * (24) + 1.41 — R^2 = 0.94 AR = 0.67
T = 17.25
T = 17 vehicle trips
with 59% (10 vph) entering and 41% (7 vph) exiting.
0.42 0.29

Proposed Condominiums, Walpole, MA

Land Use Code (LUC) 220 - Multifamily Housing (Low-Rise)_
Source: Institute of Transportation Engineers (ITE) - 10th Edition

Average Vehicle Trips Ends vs: Dwelling units
Independent Variable (X): 24

SATURDAY DAILY

T = 14.01 * (X) - 521.69 — 5 Studies, Avg size = 89 units
T = 14.01 * (24) - 521.69 — R^2 = 0.93 AR = 8.14
T = -185.45
T = 196 vehicle trips 8.17
with 50% (98 vpd) entering and 50% (98 vpd) exiting.
4.08 4.08

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

T = 1.08 * (X) - 33.24 — 5 Studies, Avg size = 89 units
T = 1.08 * (24) - 33.24 — R^2 = 0.92 AR = 0.70
T = -7.32
T = 17 vehicle trips
with 50% (8 vph) entering and 50% (9 vph) exiting.
0.33 0.37

BAYSIDE ENGINEERING

TRAFFIC VOLUME NETWORKS

BAYSIDE ENGINEERING

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Walpole

covid adjustment

2016 ATR

7609 × 1.078 × 1.01^5 = 8621

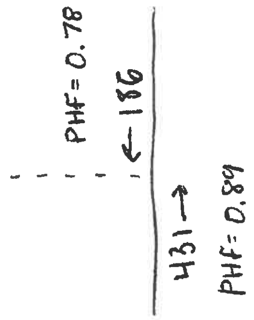
2021 ATR

8003

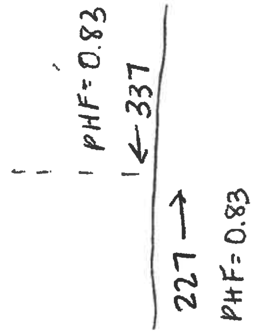
$\frac{8621}{8003} = 1.077$

RAW

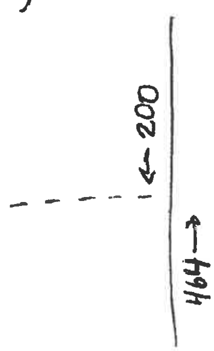
AM 7:45-8:45

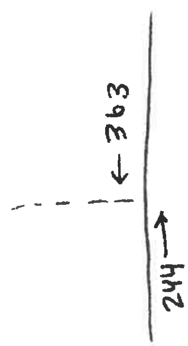


PM 4:30-5:30



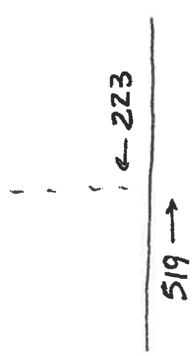
2021 Existing

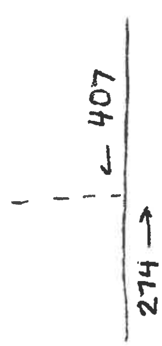




2028 No-Build

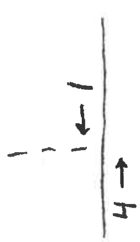
1.5% compounded growth rate

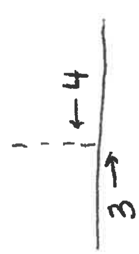




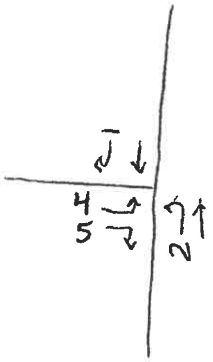
Background Project

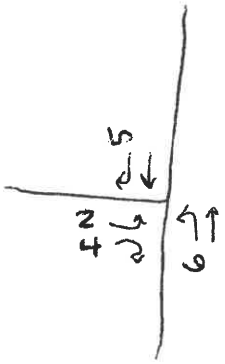
1. in study area



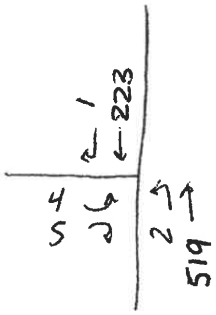


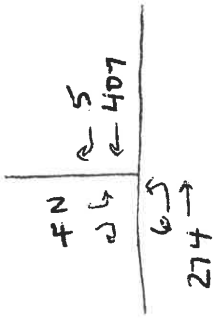
Site Generated





2028 Build





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TRIP DISTRIBUTION WORKSHEETS

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Walpole Gravity Model

Table 3. Residence MCD/County to Workplace MCD/County Flows for Massachusetts Sorted by Residence Geography: 2006-2010

For more information on sampling and estimation methods, confidentiality protection, and sampling and nonsampling errors, see <www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearACSAccuracyofData2010.pdf>.

Number	Residence: State	Residence: MCD	Workplace: State/U.S. Island Area/Foreign Country	Workplace: MCD	Pleasant Street (To/From North)	Pleasant Street (To/From South)			Pleasant Street (To/From North)	Pleasant Street (To/From South)		
2,213	Massachusetts	Walpole town	Massachusetts	Walpole town		100	100		0	2213	2213	yes
2,069	Massachusetts	Walpole town	Massachusetts	Boston city	10	90	100		206.9	1862.1	2069	yes
1,198	Massachusetts	Walpole town	Massachusetts	Norwood town	100		100		1198	0	1198	yes
331	Massachusetts	Walpole town	Massachusetts	Dedham town	100		100		331	0	331	yes
331	Massachusetts	Walpole town	Massachusetts	Quincy city	30	70	100		99.3	231.7	331	yes
325	Massachusetts	Walpole town	Massachusetts	Newton city	100		100		325	0	325	yes
321	Massachusetts	Walpole town	Massachusetts	Westwood town	100		100		321	0	321	yes
276	Massachusetts	Walpole town	Massachusetts	Sharon town		100	100		0	276	276	yes
251	Massachusetts	Walpole town	Massachusetts	Needham town	100		100		251	0	251	yes
246	Massachusetts	Walpole town	Massachusetts	Canton town	70	30	100		172.2	73.8	246	yes
242	Massachusetts	Walpole town	Massachusetts	Foxborough town		100	100		0	242	242	yes
149	Massachusetts	Walpole town	Massachusetts	Mansfield town		100	100		0	149	149	yes
136	Massachusetts	Walpole town	Massachusetts	Brookline town	100		100		136	0	136	yes
131	Massachusetts	Walpole town	Massachusetts	Framingham town		100	100		0	131	131	yes
125	Massachusetts	Walpole town	Massachusetts	Braintree Town city	100		100		125	0	125	yes
125	Massachusetts	Walpole town	Massachusetts	Weymouth Town city	100		100		125	0	125	yes
102	Massachusetts	Walpole town	Massachusetts	Medfield town		100	100		0	102	102	yes
91	Massachusetts	Walpole town	Massachusetts	Waltham city	100		100		91	0	91	yes
87	Massachusetts	Walpole town	Massachusetts	Cambridge city	100		100		87	0	87	yes
84	Massachusetts	Walpole town	Massachusetts	Stoughton town	50	50	100		42	42	84	yes
78	Massachusetts	Walpole town	Massachusetts	Natick town	20	80	100		15.6	62.4	78	yes
73	Massachusetts	Walpole town	Massachusetts	Burlington town	100		100		73	0	73	yes
73	Massachusetts	Walpole town	Massachusetts	Wellesley town	50	50	100		36.5	36.5	73	yes
71	Massachusetts	Walpole town	Massachusetts	Franklin Town city		100	100		0	71	71	yes
64	Massachusetts	Walpole town	Massachusetts	Brockton city		100	100		0	64	64	yes
57	Massachusetts	Walpole town	Massachusetts	Westborough town	30	70	100		17.1	39.9	57	yes
55	Massachusetts	Walpole town	Massachusetts	Acton town	100		100		55	0	55	yes
55	Massachusetts	Walpole town	Massachusetts	Lexington town	100		100		55	0	55	yes
54	Massachusetts	Walpole town	Massachusetts	Bellingham town		100	100		0	54	54	yes
52	Massachusetts	Walpole town	Rhode Island	Warwick city		100	100		0	52	52	yes
50	Massachusetts	Walpole town	Massachusetts	Holyoke city	100		100		50	0	50	yes
48	Massachusetts	Walpole town	Massachusetts	Medway town		100	100		0	48	48	yes
48	Massachusetts	Walpole town	Massachusetts	Randolph town	100		100		48	0	48	yes
48	Massachusetts	Walpole town	Rhode Island	Providence city		100	100		0	48	48	yes
47	Massachusetts	Walpole town	Massachusetts	Wrentham town		100	100		0	47	47	yes
44	Massachusetts	Walpole town	Massachusetts	Marlborough city	100		100		44	0	44	yes
40	Massachusetts	Walpole town	Massachusetts	Taunton city		100	100		0	40	40	yes
39	Massachusetts	Walpole town	Massachusetts	Watertown Town city	100		100		39	0	39	yes
38	Massachusetts	Walpole town	Massachusetts	Tewksbury town	100		100		38	0	38	yes
38	Massachusetts	Walpole town	Massachusetts	Woburn city	100		100		38	0	38	yes
									4020	5885	9905	
									40.6	59.4		
								Say	41	59		100

Source: U.S. Census Bureau, 2006-2010 American Community Survey

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CAPACITY ANALYSIS METHODOLGY

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CAPACITY ANALYSIS METHODOLOGY

Levels of Service

Level of service (LOS) is a quantitative measure used to describe the operation of an intersection or roadway segment. The level of service definition is described by the quality of traffic flow and is primarily defined in terms of traffic delays. The primary result of capacity analyses[2] is the assignment of a level of service to traffic intersections or roadway segments under various traffic-flow conditions. Six levels of service are defined for traffic intersections and roadway segments. Levels of service range from LOS A to LOS F. LOS A represents very good operating conditions and LOS F represents very poor operating conditions.

Unsignalized Intersections

The level of service for an unsignalized intersection is determined by the methodology and procedures described in the 2010 *Highway Capacity Manual*.[3] The level of service for unsignalized intersections is measured in terms of average delay for the critical movements (typically side street turning movements or mainline turning movements). The delay for the critical movements is a function of the available capacity for the movement and the degree of saturation of the lane group containing the critical movement. The delay calculation includes the effects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. The definitions for level of service at unsignalized intersections are also provided in the 2010 *Highway Capacity Manual*. Table A summarizes the relationship between level of service and average control delay for the critical movements at unsignalized intersections.

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

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

[a] *Highway Capacity Manual*; Transportation Research Board; Elm, DC; 2010; page 19-2
[b] Volume to capacity ratio.

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

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

Signalized Intersections

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

TABLE B
LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS[a]

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

[a] *Highway Capacity Manual*; Transportation Research Board; Macy, DC; 2010; page 18-6.
[b] Volume to capacity ratio.

BAYSIDE ENGINEERING

CAPACITY ANALYSIS WORKSHEETS

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	5	2	519	223	1
Future Volume (vph)	4	5	2	519	223	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.925					
Flt Protected	0.978					
Satd. Flow (prot)	1685	0	0	1863	1863	0
Flt Permitted	0.978					
Satd. Flow (perm)	1685	0	0	1863	1863	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	567			703	535	
Travel Time (s)	12.9			16.0	12.2	
Peak Hour Factor	0.92	0.92	0.89	0.89	0.78	0.78
Adj. Flow (vph)	4	5	2	583	286	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	0	585	287	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	5	2	519	223	1
Future Vol, veh/h	4	5	2	519	223	1
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	89	89	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	5	2	583	286	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	874	287	287	0	-	0
Stage 1	287	-	-	-	-	-
Stage 2	587	-	-	-	-	-
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	320	752	1275	-	-	-
Stage 1	762	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	319	752	1275	-	-	-
Mov Cap-2 Maneuver	319	-	-	-	-	-
Stage 1	760	-	-	-	-	-
Stage 2	556	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1275	-	469	-	-
HCM Lane V/C Ratio	0.002	-	0.021	-	-
HCM Control Delay (s)	7.8	0	12.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	4	6	274	407	5
Future Volume (vph)	2	4	6	274	407	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.910				0.998	
Flt Protected	0.984			0.999		
Satd. Flow (prot)	1668	0	0	1861	1859	0
Flt Permitted	0.984			0.999		
Satd. Flow (perm)	1668	0	0	1861	1859	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	567			703	535	
Travel Time (s)	12.9			16.0	12.2	
Peak Hour Factor	0.92	0.92	0.83	0.83	0.83	0.83
Adj. Flow (vph)	2	4	7	330	490	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	0	337	496	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	4	6	274	407	5
Future Vol, veh/h	2	4	6	274	407	5
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	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	4	7	330	490	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	837	493	496	0	-	0
Stage 1	493	-	-	-	-	-
Stage 2	344	-	-	-	-	-
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	337	576	1068	-	-	-
Stage 1	614	-	-	-	-	-
Stage 2	718	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	334	576	1068	-	-	-
Mov Cap-2 Maneuver	334	-	-	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	718	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.9	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1068	-	464	-	-
HCM Lane V/C Ratio	0.007	-	0.014	-	-
HCM Control Delay (s)	8.4	0	12.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

BAYSIDE ENGINEERING

SIGHT DISTANCE WORKSHEETS

BAYSIDE ENGINEERING

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Sight Distance Calculations

Prospect Street and Proposed Site Driveway, Walpole, MA

Inputs

Posted Speed Limit = 30 mph NB & SB

Direction 1 =	Prospect Street Northbound	85% Speed =	39	mph	Grade =	0	t=	2.5	s	a=	11.2 ft/s^2
Direction 2 =	Prospect Street Southbound	85% Speed =	39	mph	Grade =	0	t=	2.5	s	a=	11.2 ft/s^2
						Left:	t_g =	7.5	s		
						Right:	t_g =	6.5	s		

SSD = Reaction Distance + Braking Distance

Reaction Distance = 1.47 x V x t

Braking Distance = $V^2/(30 \times ((a/32.2) + G))$

ISD = 1.47 x V x t_g

Where t = reaction time (sec)

t_g = time gap for minor road vehicle to enter the major road

V= travel speed (mph)

G= roadway grade

a= deceleration rate (ft/s^2)

Calculations

	Reaction Distance (ft)	Brake Distance (ft)	SSD (ft)
Prospect Street Northbound	143.3	145.8	289
Prospect Street Southbound	143.3	145.8	289

For	39 mph:		
Left Turn ISD =	430	ft	
Right Turn ISD =	373	ft	

For	39 mph:		
Left Turn ISD =	430	ft	
Right Turn ISD =	373	ft	

Source: AASHTO Geometric Design of Highways and Streets; FHWA; Washington, D.C.; 2011